

COMMONWEALTH BUREAU OF CENSUS AND STATISTICS,
MELBOURNE.

OFFICIAL
YEAR BOOK

OF THE
COMMONWEALTH OF AUSTRALIA,
CONTAINING AUTHORITATIVE STATISTICS FOR THE PERIOD
1901-1916

AND CORRECTED STATISTICS FOR THE PERIOD 1788 TO 1900.

No. 10.—1917.

Prepared under Instructions from
The Minister of State for Home and Territories,

BY

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COMMONWEALTH STATISTICIAN.



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McCARRON, BIRD & CO., PRINTERS, COLLINS STREET, MELBOURNE.

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PREFACE.

By the Constitution of the Commonwealth of Australia, the Commonwealth is empowered "to make laws for the peace, order, and good government of the Commonwealth, with respect to," *inter alia*, "Census and Statistics." In the exercise of the power so conferred, a "Census and Statistics Act" was passed in 1905, and in the year following, the "Commonwealth Bureau of Census and Statistics" was created. The first Official Year Book was published early in 1908. The publication here presented is the tenth authoritative Year Book issued under the Federal Constitution.

This Year Book furnishes corrected statistics for the whole period of Australian settlement, viz., from 1788 to 1916. Wherever space has permitted, detailed statistics have been furnished for each year since Federation, viz., from 1901 to 1916. In the few instances where this has proved impracticable, reference will be necessary to Year Books Nos. 1 to 9. The inclusion, as stated, of the total available information in the more important branches of statistics enables this publication to be used wherever it is desired to make a comparative survey of the evolution of this portion of the British Empire. Not only are the results given for the Commonwealth as a whole, but also for each State therein.

The general arrangement of the publication, which has received wide approval, corresponds with that of previous issues, and is shewn in the synopsis on pp. xiii. to xxix. immediately following.

In addition, however, to what may be called purely statistical matter, each issue contains special articles dealing at length with some particular subject or subjects of more or less permanent interest. These cannot of course be repeated year after year, but usually a brief condensation is given in subsequent issues. Though many articles in Year Books Nos. 1 to 9 have been reduced to synopses or deleted, sufficient indication is given to enable the subject to be traced in previous issues.

The present issue contains two specially-contributed articles, one of which deals with "Australian Eucalyptus Timbers," and the other with "The Chemical Products of Australian Eucalypts." At the present juncture, when accurate knowledge of the potentialities of the resources of the Commonwealth is of more than ordinary importance, both of these articles should prove of interest and value.

Reference may also be made here to the special compendium of State legislation regarding Friendly Societies appearing on pages 800 *et seq.* of this issue.

The subject matter throughout is dealt with, as far as possible, from the following points of view, viz.:—

(i.) The development of the individual States. (ii.) The progress of Australia as a whole from the earliest times. (iii.) The statistical comparison of Australia with other leading countries of the world.

The full text of the Commonwealth Constitution Act and Amendments appears on pages 17 to 37.

A feature of this publication is the use made of maps and diagrams. As a rule, facts can be properly appreciated only by the use of graphs, and the progress of events, the characteristics of growth and decline, can in general be grasped much more readily graphically than numerically. The diagram or "graph" is a direct picture in which the relative magnitudes are preserved and by which instantaneous comparisons of a wide range of facts are made possible at a glance. The statistical data, however, are also given *in extenso* numerically. Special mention may be made of the map of Australia inset on the back cover, and which has been reduced from the large scale map published under the authority of the Minister for Home and Territories from data supplied by the several States. Since the issue in Year Book No. 9, important alterations and additions have been made.*

The development of Australia has been in many instances very remarkable, and this could be shewn only by tables and graphs dating back to its beginning in 1788. In most cases accurate data are not available for years much before 1860. In such cases, therefore, it seems sufficient at present to give continuous results from that year onwards.

The great mass of material embodied in each Year Book is always carefully examined, but it would be idle to hope that all error has been avoided. The Commonwealth Statistician desires to express appreciation of the opportunity afforded him of perfecting the matter of the Year Book, by those who have been kind enough to point out defects or make suggestions.

The corresponding years indicated in various sections of this book do not always necessarily refer to the same period, the year ending in some cases on 31st December, 30th June, or 31st March, etc. The precise period for which returns are given is indicated where necessary.

Recent information or returns which have come to hand since the various Sections were sent to press, may be found in the Appendix, p. 1156. It may be noted that the information given therein in regard to the Customs Tariff considerably modifies that appearing on p. 578 *et seq.*

The last two Year Books (Nos. 9 and 10) are somewhat later in appearance than preceding issues. This is due to a combination of circumstances: (a) the change in the trade year from the calendar to the financial year; (b) the adoption

* The work of revision was undertaken in the office of the Commonwealth Chief Surveyor, J. T. H. Goodwin, Esq.

by New South Wales of the financial year in place of the calendar year in the manufacturing returns; (c) lateness in receipt of various returns occasioned by special circumstances arising out of the war or otherwise unavoidable.

It is hoped eventually to secure "Production" returns from all the States for the financial year, and the enhanced value of the figures for comparative purposes would more than counterbalance the slightly later issue of the Year Book.

In conclusion, the Commonwealth Statistician desires to express his cordial thanks to the State Statisticians, to the responsible officers of the various Commonwealth and State Departments, and to others, who have kindly, and often at considerable trouble, supplied all desired information.

G. H. KNIBBS,

Commonwealth Statistician.

COMMONWEALTH BUREAU OF CENSUS AND STATISTICS,

Melbourne, 9th November, 1917.

CORRIGENDA.

The words "Aged 15 to 45 years" are to be added to the caption of table on page 163.

In the second table on page 824, substitute £6 1s. 11d. for £5 17s. 0d. in the case of the year 1914, Victoria.

INDEX TO SPECIAL ARTICLES, ETC., APPEARING IN PREVIOUS ISSUES.

These articles have appeared in former issues of the Commonwealth Year Book, but, owing to exigencies of space, they are not included in this publication.

NOTE.—The Roman figures indicate the number of the Year Book to which reference is made.

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STATISTICAL SUMMARY.

STATISTICAL SUMMARY FOR THE COMMONWEALTH, 1871-1916.

(Figures for 1916, where available, will also be found in the Appendix, and in some instances, have been incorporated in the succeeding sections.)

Heading.	Years.						
	1871.	1881.	1891.	1901.	1911.	1914.	1916.
Population	Males 928,918	1,247,059	1,736,617	2,004,836	2,377,920	2,551,431	2,401,064
	Females 771,970	1,059,677	1,504,368	1,820,677	2,190,787	2,389,521	2,474,261
	Total 1,700,888	2,306,736	3,240,985	3,824,913	4,568,707	4,940,952	4,875,325
Births ...	No. 63,625	80,004	110,187	102,945	122,193	137,983	131,426
	Rate 38.00	35.26	34.47	27.16	27.21	28.05	26.78
Deaths ...	No. 22,175	33,327	47,430	46,330	47,869	51,720	54,197
	Rate 13.24	14.69	14.84	12.22	10.66	10.51	11.04
Marriages	No. 11,623	17,244	23,862	27,753	39,482	43,311	40,289
	Rate 6.94	7.60	7.47	7.32	8.79	8.80	8.21
Agriculture							
Wheat ...	Area, acs. 1,279,778	3,002,064	3,335,528	5,115,965	7,427,834	9,651,081	11,234,581
	Yld., bshl 11,917,741	21,443,862	25,675,265	38,561,619	71,636,347	24,892,402	150,651,597
	Av. " 9.31	7.14	7.70	7.54	9.64	2.58	13.41
	Area, acs. 225,492	194,816	246,123	461,430	616,857	774,734	
Oats ...	Yld., bshl 4,251,630	4,795,897	5,726,256	9,789,854	9,561,771	4,341,104	
	Av. " 18.85	24.62	23.27	21.22	15.50	5.60	
	Area, acs. 48,164	75,864	68,068	74,511	116,466	153,656	
Barley ...	Yld., bshl 726,158	1,353,380	1,178,560	1,519,819	2,056,836	1,328,910	
	Av. " 15.08	17.84	17.31	20.40	17.68	8.65	
	Area, acs. 142,078	165,777	284,428	294,849	340,065	339,781	
Maize ...	Yld., bshl 4,576,635	5,726,266	9,261,922	7,034,786	8,939,585	8,455,511	
	Av. " 32.21	34.54	32.56	23.86	26.29	24.89	
	Area, acs. 303,274	768,388	942,166	1,688,402	2,518,288	2,628,613	
Hay ...	Yld., tons 375,871	767,194	1,067,255	2,024,608	2,867,973	1,733,944	
	Av. " 1.24	1.00	1.13	1.20	1.14	0.66	
	Area, acs. 67,911	76,265	112,884	109,685	130,463	151,845	
Potatoes ¹	Yld., tons 212,896	243,216	380,477	322,524	301,469	372,889	
	Av. " 3.13	3.19	3.37	2.94	2.81	2.46	
	Area, acs. 11,576	19,708	45,444	86,950	101,010	172,616	
Sugar ⁴	Yld., tons 176,632	349,627	737,573	1,367,802	1,682,250	2,104,239	
Cane ...	Av. " 15.25	17.74	16.23	15.73	16.65	18.45	
Vineyards	Area, acs. 16,253	14,570	48,882	63,677	60,602	60,985	
	Wine, gal 2,104,000	1,488,000	3,535,000	5,816,087	4,975,147	2,875,326	
Total value all agricultural production £	8,941,000	15,519,000	16,480,000	23,835,000	38,774,000	36,052,000	
Pastoral, dairying, etc.							
Live Stock	(Sheep, No. 40,072,955)	65,092,719	106,421,068	72,040,211	93,003,521	78,600,334	74,186,122
	(Cattle " 4,277,228)	8,010,991	11,112,112	8,491,428	11,828,954	11,051,573	10,054,446
	(Horses " 701,530)	1,088,029	1,584,737	1,620,422	2,279,027	2,521,272	
	(Pigs " 586,017)	703,188	845,888	931,309	1,110,721	862,447	928,158
Wool prod., lb. greasy	179,000,000	332,759,000	631,587,000	543,131,661	726,408,625	642,734,725	
Butter product n, lbs.	"	"	47,433,564	101,671,066	211,573,745	193,970,412	
Cheese "	"	"	19,146,929	11,575,692	15,886,712	21,240,411	
Bacon and ham "	"	"	"	34,020,629	53,264,652	52,574,902	
Total estimated value of pastoral and dairying production ... £	20,736,000	29,538,000	39,256,000	36,890,000	69,832,000	81,827,000	
Mineral production—							
Gold ...	£ 7,239,106	5,194,390	5,281,861	14,005,732	10,551,624	8,729,947	7,074,673
Silver and lead ...	£ 29,488	31,139	3,717,825	2,367,687	3,021,284	3,818,076	3,530,078
Copper ...	£ 824,111	673,786	362,745	2,238,590	2,564,278	2,349,881	4,625,363
Tin ...	£ 18,597	1,145,603	560,750	432,576	1,209,973	758,431	900,806
Zinc ...	£ ...	...	2,622	4,057	1,415,169	1,021,090	
Coal ...	£ 325,747	636,746	1,908,028	2,609,770	3,929,673	4,619,689	4,118,201
Total value all mineral production ... £	8,484,728	7,813,523	12,093,837	22,043,104	23,480,211	22,264,589	23,567,302
Forestry production—							
Quantity of local timber sawn or hewn sup. ft.	"	"	"	452,131,252	591,645,786	673,366,710	
Manufactories—							
No. of factories ...	...	...	...	...	14,455	15,427	
Hands employed ...	...	...	...	...	311,760	331,579	
Wages paid ... £	...	...	...	...	27,528,371	34,090,428	
Total value of output ...	...	...	...	...	133,022,090	166,405,923	
Value added in process of manufac. £	...	...	...	...	54,017,714	66,627,039	

¹ Partly estimated 1871 and 1881. ² Owing to variation in classification and lack of information effective comparison is impossible. ³ Information not available. ⁴ Area of productive cane. ⁵ Season ended 30th June, year following.

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STATISTICAL SUMMARY FOR THE COMMONWEALTH—(continued).

Heading.	Years.						
	1871.	1881.	1891.	1901.	1911.	1914.	1916.
Shipping—							
Oversea vessels { No. ent. & cleared } ton.	2,748 1,312,643	3,284 2,549,364	3,778 4,726,307	4,028 6,541,991	4,174 9,984,801	3,926 10,380,386	2,966 7,694,442
Commerce—							
Imports oversea £	17,017,000	29,067,000	37,711,000	43,434,000	66,967,488	73,945,664	76,179,639
.. per head £	10/3/3	12/16/2	11/16/0	11/3/11	14/18/3	15/0/8	15/12/6
Exports oversea £	21,725,000	27,528,000	36,043,000	49,696,000	79,482,258	67,360,588	97,894,140
.. per head £	12/19/6	12/2/8	11/5/6	13/2/2	17/14/1	13/13/10	20/1/7
Total oversea trade £	38,742,000	56,595,000	73,754,000	92,130,000	146,449,746	141,306,252	174,073,779
.. per head £	23/2/9	24/18/10	23/1/6	24/6/1	32/13/4	28/14/6	35/14/1
Customs and excise duties £	...	4,809,326	7,440,869	8,656,530	13,515,005	15,072,689	16,118,920
.. .. per head, £	...	2/2/5	2/6/7	2/5/8	3/0/3	3/1/4	3/6/0
Principal Oversea Exports— ¹							
Wool { lbs. (greasy)	176,635,820	328,369,169	619,259,753	518,018,134	720,364,903	470,933,213	452,596,450
Wheat { bushels	9,459,629	13,173,026	19,940,029	15,237,454	26,071,193	18,375,303	28,953,338
Flour { tons	799,924	5,364,653	9,794,791	20,260,058	55,147,840	52,878,122	55,278,872
Butter { lbs.	193,732	1,189,762	1,938,864	2,774,643	9,641,608	9,986,514	13,374,511
Skins and hides... £	12,958	49,549	33,363	96,814	175,891	174,217	290,633
Tallow £	170,415	519,635	328,423	589,604	1,391,529	1,495,567	3,463,323
Meats £	1,812,688	1,298,758	4,239,494	34,607,397	101,722,136	56,162,547	75,361,869
Timber (undressed) £	45,813	39,383	206,868	1,451,168	4,637,362	2,655,374	5,338,848
Gold £	100,123	316,878	873,695	1,250,938	3,227,236	4,146,003	2,273,648
Silver and lead ... £	914,278	644,149	571,069	677,745	1,935,836	1,897,466	1,252,266
Copper £	566,780	362,965	460,894	2,611,244	4,303,159	9,088,617	8,861,157
Coal... .. £	42,586	118,117	38,448	731,301	1,023,960	...	289,738
Govt. Railways—							
Lght. of line open, mls	970	3,832	9,541	12,577	16,079	18,327	20,738
Capital cost ... £	19,269,786	42,741,350	99,764,090	123,587,000	152,194,603	179,968,432	205,167,000
Gross revenue ... £	1,102,650	3,910,122	8,654,085	11,038,000	17,847,843	21,982,480	22,229,174
Working expenses £	608,332	2,141,735	5,630,182	7,149,000	11,054,383	15,060,789	16,249,387
Per cent. of work'g expenses on earnings%	55.17	54.77	65.06	64.76	61.94	68.51	73.10
Postal—							
Letters and postcards dealt with ... No.	24,382,000	67,640,000	157,297,000	220,853,000	453,885,410	524,482,965	...
.. .. per head ...	14.54	29.61	49.07	58.26	101.08	106.62	...
Newspapers dealt with ... No.	3,336,000	38,063,000	85,280,000	102,727,000	139,603,510	136,669,530	...
.. .. per head ...	7.95	16.66	26.61	27.10	31.09	27.78	...
Cheque-paying Banks—							
Note circulation £	2,456,487	3,978,711	4,417,269	3,406,175	2,876,428	2,287,308	244,840
Coin & bullion held £	6,168,869	9,108,243	16,712,923	19,737,572	30,024,225	35,137,225	22,854,827
Advances £	26,039,573	57,732,824	129,741,583	89,167,499	116,769,133	121,292,671	...
Deposits £	21,856,959	53,849,455	98,345,338	90,965,530	147,103,081	163,586,484	209,292,659
Savings Banks—							
Number of depositors	100,713	250,070	614,741	964,553	1,600,112	2,199,108	2,418,297
Total deposits ... £	3,193,285	7,854,480	15,536,592	30,892,645	59,393,682	86,670,737	96,284,078
Aver. per depositor £	31/14/2	31/8/2	25/5/6	32/0/4	37/2/4	39/8/3	39/16/5
.. .. head of population ... £	1/18/9	3/10/5	4/18/7	8/3/0	13/8/5	17/11/3	19/12/10
State Schools—							
Number of schools	2,502	4,494	6,231	7,012	8,060	8,732	...
Teachers No.	4,641	9,028	12,564	14,500	16,971	20,728	...
Enrolment	236,710	432,320	561,153	638,478	638,850	713,232	...
Aver. attendance ..	137,767	255,143	350,773	450,246	463,799	544,230	...

¹ Australian produce, except gold, which includes re-exports. ² Decrease due to issue of Australian notes. ³ Information not available.

CHRONOLOGICAL TABLE.

CHRONOLOGICAL TABLE OF CHIEF EVENTS SINCE THE ESTABLISHMENT OF SETTLEMENT IN AUSTRALIA.

NOTE.—The Government was centralised in Sydney, New South Wales, up to 1825, when Tasmania (Van Diemen's Land) was made a separate colony. In the Table, the names now borne by the States serve to indicate the localities.

- Year.
- 1788 N.S.W.—Arrival of "First Fleet" at Botany Bay. Land in vicinity being found unsuitable for settlement, the expedition moved to Sydney Cove (now Port Jackson). Formal possession of Port Jackson taken by Captain Phillip on 26th January. Formal proclamation of colony on 7th February. Population, 1024. Branch settlement established at Norfolk Island. French navigator La Pérouse visits Botany Bay. First cultivation of wheat and barley. First grape vines planted.
- 1789 N.S.W.—First wheat harvest at Parramatta, near Sydney. Discovery of Hawkesbury River. Outbreak of small-pox amongst aborigines.
- 1790 N.S.W.—"Second Fleet" reached Port Jackson. Landing of the New South Wales Corps. Severe suffering through lack of provisions. First Circumnavigation of Australia by Lieut. Ball.
- 1791 N.S.W.—1st Exploration Map of Australia published. Arrival of "Third Fleet." Territorial seal brought by King.
- 1792 N.S.W.—Visit of *Philadelphia*, first foreign trading vessel. Population, 4203.
- 1793 N.S.W.—First free immigrants arrived in the *Bellona*. First Australian church opened at Sydney. Tas.—D'Entrecasteaux discovered the Derwent River.
- 1794 N.S.W.—Establishment of settlement at Hawkesbury River.
- 1795 N.S.W.—Erection of the first printing press at Sydney. Descendants of strayed cattle discovered at Cowpastures, Nepean River.
- 1796 N.S.W.—First Australian Theatre opened at Sydney. Coal discovered by fishermen at Newcastle.
- 1797 N.S.W.—Introduction of merino sheep from Cape of Good Hope.
- 1798 Tas.—Tasmania proved an island by voyage of Bass and Flinders.
- 1800 N.S.W.—First export of coal. First Custom House in Australia established at Sydney. Flinders' Charts published. First issue of copper coin. Population, 5995.
- 1801 N.S.W.—First colonial manufacture of blankets and linen.
- 1802 Vic.—Discovery of Port Phillip by Lieut. Murray. S.A.—Discovery of Spencer's and St. Vincent Gulfs by Flinders. Q'land.—Discovery of Port Curtis and Port Bowen by Flinders.
- 1803 N.S.W.—First Australian wool taken to England by Capt. Macarthur. Issue of "The Sydney Gazette," first Australian newspaper. Vic.—Attempted colonisation of Port Phillip by Collins. Discovery of Yarra by Grimes. Tas.—First settlement formed at Risdon by Lieut. Bowen.
- 1804 N.S.W.—Insurrection of convicts at Castle Hill. Vic.—Abandonment of settlement at Port Phillip. Tas.—Foundation of settlement at Hobart by Collins, and at Yorktown by Colonel Paterson.
- 1805 N.S.W.—First extensive sheep farm established at Camden by Capt. Macarthur. Portion of settlers from Norfolk Island transferred to Tasmania.
- 1806 N.S.W.—Shortage of provisions. Floods. Tas.—Settlement at Launceston.
- 1807 N.S.W.—Final shipment of convicts from Norfolk Island. First shipment of merchantable wool (245 lbs.) to England.
- 1808 N.S.W.—Deposition of Governor Bligh.
- 1810 N.S.W.—First post-office established at Sydney. First Race Meeting in Australia at Hyde Park, Sydney. Population, 11,590. Tas.—First Tasmanian newspaper printed.
- 1813 N.S.W.—Passage across Blue Mountains discovered by Wentworth, Lawson, and Blaxland. Macquarie River discovered by Evans.
- 1814 N.S.W.—Australia, previously known as "New Holland," received present name on recommendation of Flinders. Creation of Civil Courts. Appointment of Mr. Kendall as Resident Magistrate in New Zealand.

- 1815 N.S.W.—Town of Bathurst founded by Governor Macquarie. First steam engine in Australia erected at Sydney. Lachlan River discovered by Evans. Tas.—Arrival of first immigrant ship with free settlers. First export of wheat to Sydney. Port Davey and Macquarie Harbour discovered by Captain Kelly.
- 1816 N.S.W.—Botanic Garden formed at Sydney.
- 1817 N.S.W.—Oxley's first exploration inland. Discovery of Lakes George and Bathurst and the Goulburn Plains by Meehan and Hume. First bank in Australia opened at Sydney. Tas.—Great prosperity in wool and whaling industries.
- 1818 N.S.W.—Cessation of free immigration. Oxley discovers Liverpool Plains, and the Peel, Hastings, and Manning Rivers. Port Essington discovered by Captain King.
- 1819 N.S.W.—Opening of first Australian Savings Bank at Sydney.
- 1820 N.S.W.—Foundation of Campbelltown. Clyde River discovered by Lieut. Johnson. Tas.—First importation of pure merino sheep.
- 1821 N.S.W.—Foundation of Philosophical (now Royal) Society. Population, 35,610. Tas.—Establishment of penal settlement at Macquarie Harbour. First Circuit Court held at Hobart.
- 1822 N.S.W.—Formation of Agricultural Society of N.S.W.
- 1823 N.S.W.—First Australian Constitution. Discovery of gold at Fish River by Assistant-Surveyor McBrien. Arrival in Sydney of Dr. John Dunmore Lang. Qld.—Oxley discovers Brisbane River.
- 1824 N.S.W.—Becomes a Crown Colony. Executive Council formed. Establishment of Supreme Court at Sydney, and introduction of trial by jury. First Australian Enactment (Currency Bill) passed by the Parliament at Sydney. Proclamation of freedom of the press. First land regulations. First manufacture of sugar. Hume and Hovell's overland expedition to the south. Vic.—Hume and Hovell, journeying overland from Sydney, arrive at Corio Bay. Qld.—Penal settlement founded at Moreton Bay (Brisbane). Fort Dundas Settlement formed at Melville Island, N. Terr.
- 1825 Tas.—Proclamation of Independence of Van Diemen's Land (Tasmania) and appointment of a nominated Legislative Council for the new colony.
- 1826 N.S.W.—Illawarra founded by Captain Bishop. Vic.—Settlement at Corinella, Western Port, formed by Captain Wright. W.A.—Military Settlement founded at King George's Sound, Albany, by Major Lockyer.
- 1827 N.S.W.—Colony becomes self-supporting. Feverish speculation in land and stock. Qld.—Darling Downs and the Condamine River discovered by Allan Cunningham. Fort Wellington established at Raffles Bay, N. Terr. Tas.—Copper ore discovered at Macquarie Harbour.
- 1828 N.S.W.—Second Constitution. First Census. Sturt's expedition down Darling River. Cotton first grown in Sydney Botanical Gardens. Gas first used at Sydney. Richmond and Clarence Rivers discovered by Captain Rous. Vic.—Abandonment of settlement at Western Port. Qld.—Cunningham discovers a route from Brisbane to the Darling Downs, and explores Brisbane River to its source. Tas.—First land sales.
- 1829 N.S.W.—Sturt's expedition down Murrumbidgee River. New South Wales Act proclaimed. All English law, so far as circumstances of the Colony allowed, came into force. W.A.—Foundation of settlement at Swan River, under command of Lieut.-Governor Stirling. Perth also founded.
- 1830 N.S.W.—Insurrection of convicts at Bathurst. Sturt, voyaging down Murrumbidgee and Murray Rivers, arrives at Lake Alexandrina. Qld.—Murder of Captain Logan by convicts at Brisbane. Tas.—Trouble with natives. Black line organised to force aborigines into Tasman's Peninsula, but failed. Between 1830 and 1835, however, George Robinson, by friendly suasion, succeeded in gathering the small remnant of aborigines (203) into settlement at Flinders Island.
- 1831 N.S.W.—Crown lands first disposed of by public competition. Mitchell's explorations north of Liverpool Plains. Arrival at Sydney of first steamer, *Sophia Jane*, from England. S.S. *Surprise*, first steamship in Australia, launched at Sydney. First coal shipped from Australian Agricultural Company's workings at Newcastle, N.S.W. First assisted immigration to N.S.W. S.A.—Adelaide District discovered by Captain Barker. Murder of Barker by aborigines at Lake Alexandrina. Wakefield's first colonisation committee. W.A.—Appointment of Executive and Legislative Council. First newspaper—"Fremantle Observer." Lord Ripon's land regulations in N.S.W., W.A., and Tas.
- 1832 N.S.W.—Savings Bank of N.S.W. established.

- 1833 N.S.W.—First School of Arts established at Sydney.
- 1834 N.S.W.—First settlement at Twofold Bay. Vic.—Settlement formed at Portland Bay by Henty Bros. Qld.—Leichhardt reached Gulf of Carpentaria. S.A.—Formation of the South Australian Association. Imperial Act Colonisation of S.A. W.A.—Severe reprisals against natives at Pinjarrah.
- 1835 N.S.W.—Establishment of depôt at Fort Bourke on the Darling River, by Mitchell. Vic.—John Batman's arrival at Port Phillip; makes treaty with the natives for 600,000 acres of land; claim afterwards disallowed by Imperial Government. John Pascoe Fawkner founds Melbourne on site previously selected by Batman.
- 1836 N.S.W.—Fall of snow in Sydney. Mitchell's overland journey from Sydney to Cape Northumberland, Vic., and discovery of "Australia Felix." "Squatting" formally recognised. Vic.—Proclamation of Port Phillip district as open for settlement. Captain Lonsdale first Resident Magistrate. S.A.—Founding of settlement at Adelaide under Governor Hindmarsh.
- 1837 N.S.W.—Appointment in London of Select Committee on Transportation. Heavy snowfall near Sydney. Vic.—Melbourne planned and named by Governor Bourke. First Victorian post-office established in Melbourne. First sale of Crown lands in Melbourne. First overlanders from Sydney arrived at Port Phillip. S.A.—Adelaide planned by Captain Light. First newspaper published at Adelaide. First sale of Crown lands in Adelaide.
- 1838 N.S.W.—Discontinuance of assignment of convicts. Drought and failure of crops. Frenzied speculation. Vic.—First Victorian paper published at Melbourne. Qld.—Settlement of German missionaries at Brisbane. S.A.—"Overlanding" of cattle from Sydney to Adelaide along the Murray route by Hawden and Bonney. Settlement at Port Essington, Northern Territory, formed by Captain Bremer. W.A.—Glenelg River discovered by Captain Grey.
- 1839 N.S.W.—Finding of gold at Vale of Clwydd by Count Strzelecki. Vic.—Appointment of Mr. C. J. LaTrobe as Superintendent Port Phillip district. S.A.—Lake Torrens discovered by Eyre. Port Darwin, Northern Territory, discovered by Captain Stokes. W.A.—Murchison River discovered by Captain Grey.
- 1840 N.S.W.—Abolition of transportation to New South Wales. Land regulations—proceeds of sales to be applied to payment for public works and expenditure on immigration. Foundation of viticultural industry. Monetary crisis. Vic.—Determination of northern boundary. Colonists desire separation from New South Wales. Qld.—Breaking up of penal settlements and throwing open of Moreton Bay district to free settlers. S.A.—Incorporation of Adelaide. Eyre begins his overland journey from Adelaide to King George's Sound. Tas.—Visit of the *Erebus* and *Terror* to Hobart. Dr. Hooker investigates the island flora.
- 1841 N.S.W.—Gold found near Hartley by Rev. W. B. Clarke. Separation of New Zealand. W.A.—Completion of Eyre's overland journey from Adelaide to King George's Sound. Tas.—Renewal of transportation.
- 1842 N.S.W.—Incorporation of Sydney. Vic.—Incorporation of Melbourne. S.A.—Discovery of copper at Kapunda.
- 1843 N.S.W.—First Representative Constitution. First manufacture of tweed. Financial crisis. Qld.—Moreton Bay granted legislative representation. Tas.—Agitation against further introduction of convicts.
- 1844 S.A.—Sturt's last expedition inland. Qld.—Leichhardt's expedition from Condamine River to Port Essington, Northern Territory. Arrived following year.
- 1845 N.S.W.—Mitchell's explorations on the Barcoo. Qld.—Explorations by Mitchell and Kennedy. S.A.—Discovery of the Burra copper deposits. Sturt discovered Cooper's Creek. W.A.—First steam vessel (*H.M.S. Driver*) visited Fremantle.
- 1846 N.S.W.—Mr. Gladstone proposed to revive transportation. Initiation of meat preserving. Qld.—Foundation of settlement at Port Curtis. S.A.—Proclamation of North Australia. W.A.—Organisation of first mining company. Foundation of New Norcia Mission.
- 1847 N.S.W.—Crown Land Leases Act. Opening of iron smelting works near Berrima. Overland mail established between Sydney and Adelaide. Vic.—Melbourne created a City by Royal Letters Patent. Qld.—Explorations by Leichhardt, Burnett and Kennedy. W.A.—Issue of regulations for leasing Crown lands. First export of guano.

- 1848 N.S.W.—Attempts to revive transportation. Influx of Chinese. Vic.—Earl Grey returned as Melbourne member of the Legislative Council. Qld.—Leichhardt's last journey. Kennedy spared by the blacks at York Peninsula. Chinese brought in as shepherds. W.A.—Copper and lead discovered in the Champion Bay district by the Messrs. Gregory.
- 1849 N.S.W.—Indignation of colonists at arrival of convict ship *Hashemy*. Exodus of population to goldfields of California. Vic.—Outburst of indignation at arrival of *Randolph* with convicts. Qld.—Assignment of convicts per *Hashemy* to squatters on Darling Downs. W.A.—Commencement of transportation to Western Australia.
- 1850 N.S.W.—Final abolition of transportation. First sod of first Australian railway turned at Sydney. Vic.—Gold discovered at Clunes by Hon. W. Campbell. Representative government granted. S.A.—Representative government granted. W.A.—Pearl oysters found by Lieut. Helpman at Saturday Island Shoal. Tas.—Representative government granted. Discovery of coal at the Don and Mersey.
- 1851 N.S.W.—Payable gold discovered by Hargraves at Lewis Ponds and Summerhill Creeks. Telegraph first used. Vic.—Separation of Port Phillip—erected into independent colony under the name of Victoria. Discovery of gold in various localities. "Black Thursday," Feb. 6th, a day of intense heat, when several persons died and a vast amount of damage to property was occasioned by fires. Qld.—Agitation for separation from New South Wales. S.A.—Financial depression. Tas.—Serious exodus of population to goldfields on mainland. W.A.—Proclamation of Legislative Council Act.
- 1852 N.S.W.—Destruction of Gundagai by flood—77 lives lost. Arrival of the *Chusan*, first P. and O. mail steamer from England. S.A.—First steamer ascends the Murray River to the junction with the Darling. Tas.—Meeting of first elective Council protests against transportation. Payable gold discovered at The Nook, near Fingal, and at Nine Mile Springs.
- 1853 Tas.—Abolition of transportation.
- 1854 N.S.W.—Russian war-scare and volunteer movement. Vic.—Opening of first Australian railway—Flinders Street to Port Melbourne. Riots on Ballarat goldfields. Storming of the Eureka Stockade, Dec. 3rd.
- 1855 N.S.W.—Opening of railway—Sydney to Parramatta. Introduction of responsible Government. Vic.—Proclamation of Constitution. Qld.—Gregory's expedition in search of Leichhardt. Tas.—Responsible government.
- 1856 N.S.W.—First elective Parliament. Pitcairn Islanders placed on Norfolk Island, which was placed under jurisdiction of Governor of New South Wales. Vic.—First Parliament under responsible government. S.A.—Responsible government. Tas.—First Parliament under responsible government. W.A.—A. C. Gregory's expedition in search of Leichhardt.
- 1857 N.S.W.—Heavy floods. Wreck of the *Dunbar* (119 lives lost), and *Catherine Adamson* (21 lives lost), at Sydney Heads. Select Committee on Federation. Vic.—Manhood suffrage. S.A.—First Parliament under responsible government. Exploration by Babbage and Warburton. Passage of Torrens' Real Property Act.
- 1858 N.S.W.—Establishment of manhood suffrage and vote by ballot. Telegraphic communication between Sydney, Melbourne and Adelaide. S.A.—Stuart's explorations. Qld.—The Canoona gold rush.
- 1859 Qld.—Proclamation of Queensland as separate colony. Tas.—First submarine cable, via Circular Head and King Island, to Cape Otway.
- 1860 N.S.W.—Disastrous floods on the Shoalhaven and at Araluen. Vic.—Burke and Wills left Melbourne on their journey across Continent. Qld.—First Parliament under responsible government. S.A.—Copper discoveries at Wallaroo and Moonta.
- 1861 N.S.W.—Anti-Chinese riots at Lambing Flat and Burrangong goldfields. Opening of first tramway in Sydney—cars drawn by horses. Robertson's Land Acts. Messrs. Parkes and Dalley proceed to London as emigration lecturers. Regulation of Chinese immigration. Vic.—Conference of Statisticians, Melbourne. Burke and Wills perish at Cooper's Creek, near Innamincka, S.A. W.A.—Exploration of F. Gregory in the North-west.
- 1862 N.S.W.—Raid by bushrangers on the Lachlan gold escort (£14,000 taken). Abolition of State aid to religion. Real Property Act. Vic.—C. Gavan Duffy's Land Act. Qld.—McKinlay's explorations. Heavy floods on Fitzroy River. S.A.—Stuart crosses the Continent from south to north. W.A.—Severe floods—damage to property, £30,000. First export of pearl-shell.

- 1863 N.S.W.—Bathurst and Canowindra “held up” by bushranger Gilbert. Vic.—Inter-colonial conference at Melbourne. S.A.—Taking over of the Northern Territory. W.A.—Initiation of settlement in the North-west district. Establishment of Post Office (now Government) Savings Bank.
- 1864 N.S.W.—Frequent outrages by bushrangers. Qld.—First railway begun. First sugar made from Queensland cane. Opening of first railway. W.A.—Messrs. Pantou, Harding and Goldwyer murdered by natives. Tas.—First successful shipment of English salmon ova.
- 1865 N.S.W.—Destruction by fire of St. Mary’s Cathedral, Sydney.
- 1866 N.S.W.—Passage of Public Schools Act of (Sir) Henry Parkes. Vic.—Political deadlock. Qld.—Financial crisis. S.A.—Introduction of camels for exploration, etc.
- 1867 Vic.—Imposition of protective tariff. Qld.—Discovery of gold at Gympie.
- 1868 N.S.W.—Attempted assassination of the Duke of Edinburgh at Clontarf, near Sydney. Qld.—Passage of Act to regulate island labour traffic. W.A.—Arrival of the *Hougoumont*, last convict ship. Tas.—First sod of first railway (Launceston and Western) turned by Duke of Edinburgh.
- 1869 N.S.W.—Establishment of Eskbank Iron Company. Vic.—Reduction of property qualification for members and electors of Legislative Council. W.A.—Opening of first telegraph line, from Perth to Fremantle. Tas.—Opening of second cable.
- 1870 N.S.W.—Opening of Intercolonial Exhibition at Sydney in celebration of centenary of Cook’s landing in Australia. Withdrawal of Imperial troops. Vic.—Intercolonial Congress at Melbourne. S.A.—Commencement of transcontinental telegraph. W.A.—Meeting of first Legislative Council under Responsible Government.
- 1871 N.S.W.—Permanent military force raised. Vic.—Increase of protective duties. Qld.—Foundation of Queensland National Bank. W.A.—Passage of Elementary Education Act. Forrest’s explorations. Tas.—Discovery of tin at Mount Biscoff. Launceston-Western railway opened for traffic.
- 1872 N.S.W.—International Exhibition at Sydney. Death of W. C. Wentworth. Qld.—Discovery of tin at Stanthorpe, copper at Mt. Perry, coal at Wide Bay, gold at the Palmer. S.A.—Cable from Java to Port Darwin. Completion of transcontinental telegraph line. W.A.—Cyclonic storms—destruction of town of Roebourne. Tas.—Completion of direct telegraphic communication with England.
- 1873 N.S.W.—Intercolonial Conference at Sydney. First volunteer encampment. Inauguration of mail service with San Francisco. W.A.—Warburton crosses from transcontinental telegraph line to head of De Grey River.
- 1874 N.S.W.—Triennial Parliaments Act passed. Intercolonial Conference. Qld.—Dalrymple’s discoveries on north-eastern seaboard. S.A.—Adelaide University founded. W.A.—Explorations by E. Giles. John and Alexander Forrest arrived at Overland Telegraph from Murchison. Fiji Islands ceded to Great Britain.
- 1875 Qld.—Transfer of Port Albany Settlement to Thursday Island. S.A.—Wreck of the *Gothenburg*—Judge Wearing and other well-known Adelaide citizens drowned. Education Act passed. Explorations by Giles, Gosse, and Warburton. Tas.—Conference of Statisticians, Hobart.
- 1876 N.S.W.—Completion of cable—Sydney (La Perouse) to Wellington (Wakapuaka). Vic.—Members of Legislative Assembly increased to 86. W.A.—Violent gale at Exmouth Gulf, number of pearling vessels wrecked, 69 lives lost. Giles crosses colony from east to west. Tas.—Death of Truganini, last representative of Tasmanian aborigines.
- 1877 Vic.—Deadlock on question of payment to members. W.A.—Opening of telegraphic communication with South Australia. Tas.—Discovery of rich gold-bearing quartz reef at Beaconsfield.
- 1878 N.S.W.—Seamen’s strike. Vic.—Visit to England of Victorian delegation re alteration of Victorian Constitution. “Black Wednesday”—wholesale dismissal of civil servants. Qld.—Restriction of Chinese immigration.
- 1879 N.S.W.—First artesian bore at Killara. International Exhibition at Garden Palace, Sydney. First steam tramway. First issue of silver coin from Mint. W.A.—Celebration of 50th anniversary of foundation of colony. A. Forrest’s explorations in the Kimberley district, and discovery of the Fitzroy pastoral country.
- 1880 N.S.W.—Public Instruction Act passed. Sydney streets partially wood-paved. Vic.—Opening of first Victorian International Exhibition at Melbourne. Federal Conference, at Melbourne and Sydney.

- 1881 N.S.W.—Further restrictions on Chinese immigration. Women admitted as students at University. Vic.—Reduction of property qualification for members and electors of Legislative Council, number of members increased to 42. W.A.—Cyclone near Roebourne wrecks number of pearling vessels. On the Ashburton, 1000 sheep destroyed by cyclone.
First simultaneous Australian Census, population 2,250,194. Visit to Australia of T.R.H. Prince Albert Victor and Prince George of Wales.
- 1882 N.S.W.—Garden Palace destroyed by fire. W.A.—Nugget of gold found between Roebourne and Cossack.
- 1883 N.S.W.—Discovery of silver at Broken Hill. Completion of railway between New South Wales and Victoria. Qld.—Annexation of New Guinea—repudiated by Imperial authorities.
Federal Conference held at Sydney. Federal Council created.
- 1884 N.S.W.—Land legislation restricting sales by auction. Vic.—Appointment of First Public Service Board. W.A.—Stockdale's explorations.
Federation Bill passed in Victoria. Similar measure rejected in New South Wales. British protectorate declared over New Guinea.
- 1885 N.S.W.—Military contingent sent to the Soudan. Opening of the Broken Hill Proprietary Silver Mines. Qld.—Agitation for division of the colony. W.A.—Gold found by prospectors on the Margaret and Ord Rivers in the Kimberley district. Tas.—Silver-lead discovered at Mount Zeehan.
- 1886 N.S.W.—Industrial depression. Wreck of the *Ly-ee-Moon*, *Coringamite*, and *Helen Nicol*. S.A.—Celebration of jubilee of foundation of colony. W.A.—Proclamation of Kimberley goldfields. Tas.—Discovery of gold and copper at Mount Lyell.
First session of Federal Council met at Hobart on the 26th January.
- 1887 N.S.W.—Disaster at Bulli coal mine (81 lives lost). Peat's Ferry (Hawkesbury River) railway accident. S.A.—International Exhibition at Adelaide. W.A.—Cyclone destroyed nearly the whole pearling fleet off the Ninety-Mile Beach—200 lives lost. Gold discovered at Yilgarn and Southern Cross.
Australasian Conference in London. Australasian Naval Defence Force Act passed.
- 1888 N.S.W.—Destructive bush fires. Centennial celebrations. Restrictive legislation against Chinese. Imposition of poll-tax of £100. Strike of coal-miners at Newcastle. Vic.—Second Victorian International Exhibition held at Melbourne. Members of Legislative Council increased to 48, and of Assembly to 95. Qld.—Railway communication opened between Sydney and Brisbane. W.A.—Favenc's explorations.
Centenary of first settlement in Australia. Conference of Australian Ministers at Sydney to consider question of Chinese immigration. First meeting of the Australasian Association for the Advancement of Science held in Sydney. Imperial Defence Act passed.
- 1889 N.S.W.—Destructive floods, Hunter River. Qld.—Direct railway communication established between Brisbane and Adelaide. W.A.—Framing of new Constitution.
- 1890 N.S.W.—Strike at Broken Hill. Maritime and shearers' strikes. Payment of members of Parliament. Destructive bush fires. Qld.—Wreck of the *Quetta*—146 lives lost. Floods and hurricanes. Industrial depression. W.A.—Granting of responsible government. Tas.—Opening of University.
Meeting at Melbourne of Australasian Federation Conference. Pre-censal Conference of Statisticians at Hobart.
- 1891 N.S.W.—Election to Legislative Assembly of 35 Labour members. Arrival of Australian Auxiliary Squadron. Collapse of several building societies. Cessation of assisted immigration. Death of Sir John Robertson. W.A.—Discovery of gold on the Murchison.
Federal Convention in Sydney, draft bill framed and adopted. Second simultaneous Australian census. Population, 3,174,392.
- 1892 N.S.W.—Broken Hill miners' strike. Run on Government Savings Bank. Opening of Women's College, Sydney University. Vic.—Suspension of Railway Commissioners. W.A.—Discovery of gold by Messrs. Bayley and Ford at Coolgardie.
- 1893 N.S.W.—Departure by the *Royal Tar* of colonists for "New Australia." Electoral Act—"One man one vote." Direct communication, Sydney to Vancouver, established. Financial crisis, chiefly affecting the eastern States.
- 1894 N.S.W.—Shearers' strike. S.A.—Adult Suffrage Bill assented to. Industrial depression.

- 1895 N.S.W.—Crown Lands Act of 1895. Death of Governor Sir R. Duff. Free-trade tariff. Land and income taxes.
Conference of Premiers at Hobart *re* Federation.
- 1896 N.S.W.—Death of Sir Henry Parkes. Re-organisation of Public Service. People's Federal Convention at Bathurst. S.A.—Departure of Calvert expedition.
- 1897 S.A.—Floods and storms at Adelaide. Death of Sir Thomas Elder. Earthquake and hurricane in Northern Territory. Town of Palmerston destroyed.
- 1897-8 Sessions of Federal Convention at Adelaide, Sydney and Melbourne.
- 1898 N.S.W.—First surplus of wheat for export.
Draft Federal Constitution Bill submitted to electors in Victoria, New South Wales, South Australia, and Tasmania. Requisite statutory number of votes not obtained in New South Wales.
- 1899 N.S.W.—First contingent of Australian troops to assist the British army in South Africa.
Conference of Premiers in Melbourne to consider amendments in Federal Constitution Bill. Referendum—Bill accepted by New South Wales, Victoria, Queensland, South Australia, and Tasmania.
- 1900 N.S.W.—Old-age Pensions instituted. W.A.—Agitation for separation by gold-fields. Strike of railway engine drivers and firemen.
Contingents of naval troops from N.S.W., Vic. and S.A. to assist in China.
Commonwealth Constitution Act receives Royal Assent, 9th July. Mr. (afterwards Sir) Edmund Barton forms first Federal Ministry.
- 1901 Proclamation of the Commonwealth at Sydney, and swearing-in of Ministry. Opening of first Federal Parliament at Melbourne by the Duke of Cornwall and York, who visited each State of the Commonwealth. Simultaneous Australasian Census—population of the Commonwealth, 3,773,801.
- 1902 N.S.W.—Disastrous explosion at Mount Kembla Colliery—95 lives lost. Women's franchise. Jubilee of Sydney University. S.A.—Reduction of number of members of both Houses of Parliament. W.A.—Opening of pumping station at Northam in connection with Goldfields water supply.
First Federal Tariff.
- 1903 Vic.—Railway Strike (Enginemen). W.A.—Opening of Coolgardie and Kalgoorlie water supply.
Inauguration of the Federal High Court. Conference of Statisticians in Melbourne.
- 1904 N.S.W.—Reduction of members of Legislative Assembly from 125 to 90.
- 1905 N.S.W.—Re-introduction of assisted immigration.
- 1906 Wireless telegraphy installed between Queenscliff, Vic., and Devonport, Tas. Consummation of Commonwealth interstate Free-trade by cessation of special Western Australian tariff. Conference of Statisticians of Australian States and New Zealand, under the presidency of the Commonwealth Statistician. Papua taken over by Commonwealth.
- 1907 N.S.W.—Strike of coal-miners in Newcastle district. Vic.—Opening of first Australian Exhibition of Women's Work in Melbourne. Bakers' strike, Melbourne. Opening of telephone, Sydney to Melbourne.
Imperial Conference in London—Australia represented by the Hon. A. Deakin, Prime Minister. Introduction of new tariff in Federal Parliament. Preference to United Kingdom. Allowance to Federal members of Parliament increased from £400 to £600.
- 1908 N.S.W.—Tramway employees' strike, Sydney. Fire at Newcastle—damage to property £150,000. Vic.—Railway accident at Braybrook Junction (Sunshine)—44 killed, 412 injured; compensation paid, £126,000.
Yass-Canberra chosen as site of Federal Capital. Interstate Premiers' Conference at Melbourne. Visit of American Fleet to Australia.
- 1909 N.S.W.—Miners' strikes at Broken Hill and Newcastle. Arrest of strike leaders at Newcastle. Qld.—Opening of Queensland University. S.A.—Foundering of *Clan Ranald* in St. Vincent's Gulf—40 drowned. W.A.—Cyclone at Broome.
Imperial Defence Conference in London—Commonwealth sends three representatives. Death at Parliament House of Sir Frederick Holder, Speaker of the House of Representatives. Commonwealth orders two destroyers and one first-class cruiser for fleet unit. Visit of Lord Kitchener to report and advise on Commonwealth military defence. Loss of the *Waratah* with 300 passengers and crew.

- 1910 Vic.—Railway accident at Richmond—9 killed, over 400 injured; compensation paid £129,000. S.A.—Strike of transport workers at Adelaide. W.A.—Cyclone at Broome—several pearling vessels wrecked, 3 whites and many coloured fishermen drowned. Strike of tramway employees at Perth. Wreck of the *Pericles* off Cape Leeuwin.
- Rt. Hon. Sir G. H. Reid takes up duty as High Commissioner for the Commonwealth of Australia in London. Referendum on financial relations between the Commonwealth and the States. Proclamation taking over Yass-Canberra (in New South Wales) as site for Federal Capital. Penny postage. Visit of Scottish Agricultural Commission. Dutch squadron visits Australia. Arrival of the *Yarra* and *Parramatta*, first vessels of Australian navy. Australian Notes Act empowers Federal Treasurer to issue notes of various denominations. Admiral Sir R. Henderson visits Australia to advise on naval defence. First issue of Commonwealth notes.
- 1911 First Federal Census—population of the Commonwealth, 4,455,005. Transfer of Northern Territory to Commonwealth by South Australia. Federal referenda relating to Monopolies and Industrial Legislation—proposals rejected. Introduction of compulsory military training. Launch of C'wealth destroyer *Warrego* at Sydney. Establishment of penny postage to all parts of British Empire.
- 1912 Opening of Commonwealth Bank. First payments of Maternity Bonus. Turning of first sod at Port Augusta of Trans-Australian Railway (Port Augusta and Kalgoorlie). Resignation of leadership of Liberal party by Mr. Alfred Deakin, and appointment of Mr. Joseph Cook in his stead. Appointment of Administrators to Northern Territory and Federal Territory. Opening of Western Australian University. Gift of £1,000,000 to charities by Mrs. Walter Hall, Sydney, N.S.W. Numerous industrial disturbances: Brisbane tramway employees' and general strike; strike of miners at the Wonthaggi State coal mines.
- 1913 Arrival of battle cruiser *Australia*, and cruisers *Melbourne* and *Sydney*. Foundation stone of Commonwealth Building in London laid by the King. Federal Capital named Canberra and foundation stone laid. Appointment of Interstate Commission. Visit of Empire Trade Commission. Visit of Members of Empire Parliamentary Association.
- 1914 Visit of General Sir Ian Hamilton to report on military defence scheme. Double dissolution of Federal Parliament. Visit of British Association for the Advancement of Science. Serious drought affecting almost the whole of the C'wealth. S.A.—Increase of numbers of members of both Houses of Parliament.
- European War. Australian Navy transferred to Imperial Navy. Captured vessels added to Australian fleet. Submarine AE1 lost at sea whilst in service in the vicinity of New Britain. German Pacific possessions seized by Australian expeditionary force (military and naval). Australian troops offered to, and accepted by, Imperial Government. By 31st December, 31,000 volunteers of all ranks had left Australia for service overseas. Portion of Australian army was also mobilised and kept under arms till the destruction of the German Pacific fleet. German Cruiser *Emden* destroyed at North Cocos Island by H.M.A.S. *Sydney*.
- 1915 Opening of Broken Hill Proprietary's Ironworks at Newcastle, N.S.W. Mr. W. M. Hughes, Prime Minister in place of Mr. A. Fisher. Mr. Fisher appointed High Commissioner for the Commonwealth in London in place of Sir G. H. Reid, whose term of appointment had expired. Taking of Referendum, for purpose of giving increased powers to the Commonwealth, was abandoned after a conference with the State Premiers. New Department created to control the Navy, with Mr. J. A. Jensen as Minister of the Navy. Formation of Australian Wheat Board to control the marketing of the 1915-16 wheat harvest.
- Australian troops landed at Dardanelles on April 25th. Maj.-Gen. Bridges died from wounds. Loss of Submarine AE2 in operations at the Dardanelles. Census taken of Wealth and Income, and of Males in Australia between ages of 17 and 60. Subscriptions to Commonwealth War Loan, £13,000,000. Australian troops withdrawn from Gallipoli on December 19th. At end of year about 250,000 troops had been despatched from Australia or were in training.
- 1916 Visit to England of Prime Minister, Hon. W. M. Hughes, P.C. Record wheat harvest (180,000,000 bushels). Special recruiting campaign instituted. Australian troops transferred to France. Up to June, 262,000 troops had left Australia or were in training. Acquisition of a line of steamships by the Commonwealth. Military Service Referendum. (Compulsory powers in regard to military service, for the term of the war, outside the Commonwealth.) Strike of coal miners at Newcastle.
- 1917 National Ministry formed. Commonwealth elections. General strike. Trans-continental railway completed. Up to October, 313,000 troops had left the Commonwealth or were in training. Military Service Referendum.

OFFICIAL YEAR BOOK
OF THE
COMMONWEALTH OF AUSTRALIA, 1916,
AND EARLIER YEARS.

SECTION I.

STATISTICAL ORGANISATION AND SOURCES OF INFORMATION.

§ 1. Introduction.

1. *Development of Australian Statistics.*—In the first issue of the Commonwealth Official Year Book (No. 1, 1901-1907), an account was given of the origin and development of Australian Statistics; *vide* pp. 1 to 16 therein. Owing to considerations of space, however, this matter was considerably curtailed in succeeding Year Books, and appears in No. 4 on pp. 1 to 4. In the following issues, a still further curtailment has been made in order to make room for new matter.

Briefly, it may be stated that to the "Blue Books" compiled in Australia for the Imperial authorities, there succeeded, under Responsible Government, the statistics which each of the departments prepared for itself. State statistical departments were organised later, principally as collecting agencies of official and general information.

Owing to absence of co-ordination in collection and compilation, due to the organisation, independently, of the various States bureaux, there were difficulties in so combining State statistics as to get a satisfactory statistic for Australia as a whole, and various conferences of State Statisticians did not completely rectify the divergencies that had arisen.

(i.) *Creation of the Commonwealth Bureau of Census and Statistics.* Constitutionally, matters relating to "Census and Statistics" belong to the Commonwealth, and in 1906, under the authority of the Census and Statistics Act of 1905, providing for the taking of the Census and the collecting of general statistics, the Commonwealth Bureau of Census and Statistics was created. A conference of statistical representatives of Australian States and New Zealand, under the presidency of the Commonwealth Statistician, met in November and December, 1906. For a more or less complete presentation of the affairs of the Commonwealth and of its constituent parts, various desiderata were recognised, and a series of resolutions adopted by the conference. Identity of categories, simultaneity and identity in methods of collection, and uniformity in compilation, were the main features desired. A resumé of the resolutions of this conference is given in Year Book No. 1, pp. 12-16.

(ii.) *Organisation of the Commonwealth Bureau of Census and Statistics.* In the organisation of the Bureau, while all classes of work may at any time be relegated to any officer, certain fields of activity are attended to mainly by the officers mentioned

hereunder, who, subject to the general direction of the Statistician, supervise the work of the different branches:—

JOHN STONHAM, M.A. (Sydney). Chief Compiler; and general administration.
CHARLES HENRY WICKENS, A.I.A. Supervisor of Census.

HENRY SPONDLY (Zurich University). Vital Statistics and cognate matters.

EDWARD TANNOCH MCPHEE. Trade and Customs Statistics and Commerce.

GERALD LIGHTFOOT, M.A. (Cambridge), Barrister at Law. Industrial and Social Statistics.

FREDERICK DALGLISH ROSSITER, M.A. (Melbourne). Defence; general control of Library, etc.

FREDERICK WILLIAM BARFORD, M.A. (Oxford), A.I.A. Financial Statistics.

2. **Sources of Information.**—Statistical information is furnished (i.) by the State Statistical Bureaux, as a result of direct demand, or through the police and special collectors; (ii.) by Commonwealth and State Departments (see lists of publications in § 2 *infra*); (iii.) in respect of returns of Trade, Customs and Excise, by the Trade and Customs Department; (iv.) by scientific and technical experts, specially requisitioned to write on particular subjects; (v.) by State Statisticians, as officers duly constituted under the Commonwealth Census and Statistics Act; (vi.) and by information supplied compulsorily, on the Commonwealth Statistician's demand.

3. **Maintenance of Secrecy.**—Under no circumstance can information supplied to a statistical office be used against the individual supplying it. All statistical enquiries are strictly impersonal, and the affairs of individuals or individual businesses are never disclosed. No other Government Department can make use of the Statistical Departments in order to acquire detailed information otherwise unavailable.

4. **Accuracy Essential.**—The importance of accurate statistical information is emphasised. The making of untrue statements is heavily penalised.

§ 2. Statistical Publications of Australia.

1. **Introductory.**—The official statistical publications of Australia may be divided bibliographically into two main divisions, viz.:—(1) Commonwealth publications dealing both individually and collectively with the several States of the Commonwealth, and (2) State publications dealing with individual States only. Besides these there are a large number of publications issued regularly, which, though not wholly statistical, necessarily contain a considerable amount of statistical information. These are included in the lists given hereunder, which are revised to 31st December, 1916.

2. **Commonwealth Publications.**—Commonwealth publications may be grouped under two heads, viz.:—(i.) Publications issued by the Commonwealth Statistician, and (ii.) Departmental Reports and Papers.

(i.) *Publications issued by the Commonwealth Statistician.* The following is a list of statistical publications issued from the Commonwealth Bureau of Census and Statistics since its inauguration and up to 31st December, 1916. The annual Demography, Finance, Production, and Transport and Communication Bulletins cover statistics from 1901. The Year Book contains figures from earlier years.

Australian Life Table, 1901-1910.

Census Bulletins.—No. 1.—Population of States and Territories; No. 2—Persons of Non-European Race; No. 3—Ages; No. 4—Population of Counties, Local Government Areas, etc.; No. 5—Population of Electoral Divisions, Provinces, and Districts; No. 6—Birthplaces; No. 7—Length of Residence in Australia; No. 8—Religions; No. 9—Education; No. 10—Blindness and Deafmutism; No. 11—Schooling; No. 12—Conjugal Condition; No. 13—Localities; No. 14—Mortality Investigation; No. 15—Families; No. 16—Occupations; No. 17—Occupied Dwellings.

Census Results. [Vol. I. Report; *in press*]. Vol. II. (parts 1-8). Vol. III. (parts 9-14). Part 1—Ages; part 2—Birthplaces; part 3—Residence; part 4—Education; part 5—Schooling; part 6—Religions; part 7—Infirmities; part 8—Aliens; part 9—Conjugal; part 10—Families; part 11—Life Tables; part 12—Occupations; part 13—Dwellings; part 14—Summary.

Finance—Bulletins, annually, 1907 to 1915.

Inquiry into the Cost of Living in Australia, 1910-11.

Labour and Industrial Statistics—Explanatory Memorandum on the Proposed Scheme. Report No. 1—Prices, Price-Indexes and Cost of Living in Australia. No. 2—Trade Unionism, Unemployment, Wages, Prices, and Cost of Living in Australia, 1891 to 1912. No. 3—Manufacturing Industries in the Commonwealth, 1912. No. 4—Expenditure on Living in the Commonwealth, November, 1913. No. 5—Prices, Cost of Living, Wages, Trade Unions, Unemployment, and General Industrial Conditions, 1913-14. No. 6—Prices, Purchasing Power of Money, Wages, Trade Unions, Unemployment, and General Industrial Conditions, 1915.

Labour Bulletins—Quarterly, March 1913 to September 1916.

Monthly Summary of Australian Statistics—Bulletins, since January, 1912 (replacing the publication "Trade, Shipping, and Oversea Migration.")

Official Year Book of the Commonwealth—Annually, 1907 to 1915.

Pocket Compendium of Commonwealth Statistics, 1913, 1914 and 1916. ¶

Population and Vital Statistics Bulletins—Determination of the Population of Australia, 1901 to 1906. Commonwealth Demography, annually, 1906 to 1910. Vital Statistics, annually, 1907 to 1910. Commonwealth Demography (comprising matter previously included in two last-named Bulletins), annually, 1911 to 1915. Vital Statistics, quarterly, 1907 to June 1911.* The Nomenclature of Diseases and of Causes of Death, 1907. New Edition, 1910.

Production—Bulletins, annually, 1906 to 1914.

Professional Papers.—No. 1—The Classification of Diseases and Causes of Death, from the standpoint of the Statistician; Nos. 2 and 3—On the Influence of Infantile Mortality on Birthrate (2 papers); No. 4—On the Statistical Opportunities of the Medical Profession; No. 5—Tuberculosis Duration Frequency Curves, and the number of existing cases ultimately fatal; No. 6—The Problems of Statistics; No. 7—The Evolution and Significance of the Census; No. 8—Census Taking†; No. 9—Studies in Statistical Representation—On the nature of the curve $y = Ax^m e^{nx^p}$; No. 10—Studies in Statistical Representation—Statistical Application of the Fourier series; No. 11—Suicide in Australia; No. 12—An Extension of the Principle Underlying Woolhouse's Method of Graduation‡; No. 13—The First Commonwealth Census; No. 14—Mathematical Analysis of Climatological Physiology; No. 15—The International Nosological Classification, etc.; No. 16—Secular Progress of Pulmonary Tuberculosis and Cancer, etc.; No. 17—The Improvement in Infantile Mortality, etc.; No. 18—Secular and Annual Fluctuations of Deaths from Several Diseases, etc.; No. 19—Investigations Concerning a Law of Infant Mortality‡; No. 20—Labour and Industrial Statistics‡; No. 21—A Study in Proportional Representation§; No. 22—Studies in Statistical Representation, III.—Curves, their Logarithmic Homologues and Antilogarithmic Generatrices||.

* The publication of quarterly Vital Statistics has been discontinued.

† By C. H. Wickens, A.I.A. ‡ By Gerald Lightfoot, M.A. § By F. W. Barford, M.A., A.I.A.

¶ By G. H. Knibbs, C.M.G., F.S.S., F.R.A.S., and F. W. Barford, M.A., A.I.A.

|| Published under the title of Commonwealth Statistical Digest, 1916.

Railway Statistics—Report on the Desirability of Improved Statistics of Government Railways in Australia, February, 1909.

Shipping—Shipping and Oversea Migration, annually, 1906 to 1914-15.

Social Insurance—Report to the Hon. the Minister of Trade and Customs.

Social Statistics.—Bulletins, annually, 1907 to 1914.

Statistical Digest, 1916.*

Superannuation for the Commonwealth Public Service—Report to the Hon. the Minister of Home Affairs.

The Australian Commonwealth: Its Resources and Production—Annually, 1908 to 1915.

Trade and Customs—Trade, and Customs and Excise Revenue, annually, 1906 to 1914-15.

Trade, Shipping, and Oversea Migration—Monthly, January 1907 to December 1911 (now discontinued; issued as part of Monthly Summary of Australian Statistics).

Transport and Communication—Bulletins, annually, 1906 to 1915.

(ii.) *Commonwealth Parliamentary and Departmental Reports and Papers*. The following are the principal official reports and papers containing statistical matter which have been issued since the inauguration of the Commonwealth:—

Arbitration Court: Returns of Awards, Conferences, Agreements, etc.

Australia: Various pamphlets issued for advertising purposes by the Department for External Affairs.

Australian Imperial Force: Tables shewing Establishments.

Australian Institute of Tropical Medicine: Reports to date.

Australian Notes: Correspondence relating to the Gold Reserve in respect of the issue of.

Bounties: Return relating to payments under Bounties Acts.

Budget, annual, 1901-02 to 1915-1916.

Commonwealth Bank: Balance Sheets and Reports of Auditor-General.

Commonwealth Factories: Reports on Clothing, Cordite, Small Arms, and Harness and Leather Factories.

Commonwealth Meteorologist: Bulletins of Climate and Meteorology of Australia; Rainfall Maps of Australia; Professional Papers and Charts (various); Monthly Meteorological Reports, commencing January, 1910.

Commonwealth Military Journal, issued quarterly, since April 1911.

Contract Immigrants Act and Immigration Restriction Act: Returns annually 1902 to date.

Defence: Inspector-General of Military Forces: Reports, 1905 to 1907. Extracts from Report, annual, 1910 to date.

Defence: Memorandum on Australian Military Defence and its progress since Federation.

Defence: Memorandum on the Defence of Australia, by Field-Marshal Lord Kitchener.

Defence: Military Board—Reports, 1905 and 1906.

Defence: Naval Defence of Australia—Memorandum by Admiral Sir Reginald Henderson.

Defence: Records of Australian Contingents to the War in South Africa, 1899-1902.

Defence: Report on an Inspection of the Military Forces of the Commonwealth by Sir Ian Hamilton.

* Formerly published as the Pocket Compendium of Australian Statistics.

- Defence: Reports on Camps, Dockyards, Canteens at Camps, Courts of Enquiry, Small Arms Factory, Royal Military College, Rifle Clubs, Musketry, Universal Training, Cadets, Physical Training, Army Medical Corps, Organisation and Distribution, Troopships, Naval Bases, etc.
- Defence: Tables of War and Peace Organization and Establishments.
- Defence: Extracts from Report to Admiralty on H.M. Australian Fleet.
- Defence: Synopsis of Report on the Business Branches of the Department by Mr. Robert McC. Anderson.
- Director of Naval Forces: Report for 1906.
- Electoral—Report of Royal Commission on the Commonwealth Electoral Law and Administration.
- Electoral Act: Commissioners' Special Reports.
- Electoral Rolls: Statement by Commonwealth Statistician *re* Inflation.
- Electoral Statistics of Commonwealth Elections and Referenda.
- Estimates: 1901-2 to 1915-16. Also Supplementary Estimates.
- Federal Capital City Designs; also Papers.
- Fisheries: Reports of the Director on Fishing Experiments carried out by the F.I.S. "Endeavour."
- Fisheries: Reports on Pearling Industry.
- Fisheries: Zoological and Biological Results of Fishing Experiments.
- Fisheries: Life and Work of H. C. Dannevig.
- Fruit Industry: Report of Royal Commission.
- High Commissioner of the Commonwealth: Reports, annual, 1910 to 1914. Reports on Australian Butter Market in England. Visit to Canada and United States.
- Historical Records of Australia. Series I., vols. I.-V.
- Home Affairs: Schedule of the Department. Nos. 1 to 23.
- Home Affairs: Report on the Business Branches of the Department by Mr. R. McC. Anderson.
- Interstate Commission: Reports.
- Invalid and Old-Age Pensions: Statements and Reports.
- Land Tax Assessment Act: Annual Reports of Commissioner, from 1910-11.
- Lands and Surveys: Report of Conference of Commonwealth Director and States Surveyors-General.
- Lighthouses: Reports of Inspections, etc.
- Manufactures Encouragement Act: Returns of Bounties Paid; annual.
- Meat Export Trade: Report of Royal Commission.
- Military and Naval Forces Lists. Cadet Forces Lists. Staff and Graduation Lists of Officers of Australian Imperial Force.
- Military and Naval Orders; Orders for Australian Imperial Force.
- Naturalisation Act 1903: Returns.
- Navies: Relative Strength in the Pacific.
- New Guinea (late German): Statistics of.
- Northern Territory: Bulletins Nos. 1 to 8.
- Northern Territory: Report of the Government Resident for 1910 (previous reports to Government of South Australia).
- Northern Territory: Report of the Acting Administrator for 1911. Administrator's Report, 1912, 1913, and 1914-15.
- Northern Territory: Reports, various.
- Papua: Reports, annual, Handbooks, from 1904-5.
- Papua: Reports, various.

- Parliamentary Papers (miscellaneous); Reports of Committees, Commissions, Conferences, etc.
- Patents Statistics, 1904 to date.
- Postal Services Royal Commission.
- Postmaster-General's Department: Statement of Business transacted and details of Receipts and Expenditure, 1907, 1908 and 1909.
- Postmaster-General's Department: Annual Reports from 1910.
- Postmaster-General's Department: Report on the Business Management of the Department, by Mr. Robert McC. Anderson.
- Privy Council Judgments: Reports of.
- Public Service Commissioner: Report, 1901-4, and Annual Reports, 1905 to 1915, and Public Service Lists, 1903 to 1915-16.
- Quarantine: Reports.
- Railways: Reports, various, *re* Gauges of Australian Railways, Unification of Gauges, Strategic Railways, etc. Staff Lists.
- Railways: Reports of Engineer-in-Chief.
- Representation Act 1905: Returns.
- Royal Commission on Tasmanian Customs Leakage.
- Science and Industry. Memo. on the Organization of Scientific Research Institutions in U.S.A., by Mr. G. Lightfoot, M.A.
- Secret Remedies: Based on British Medical Association's Analyses.
- Social Insurance: Report by the Hon. Sir John Cockburn on the Hague Conference of 1910.
- Sugar: Statistics, 1901-2 to 1910-11 *re* White and Black Labour, Production, Duties, Excise, Bounties, etc.
- Sugar Industry: Report of Royal Commission.
- Tariff Guide: 1903 to 1913. Also Customs and Tariff Schedules.
- Tariff Investigation: Reports.
- Trade and Customs Returns, 1903 to 1905; compiled by the New South Wales Government Statistician for the Minister for Customs.
- Trade Marks Statistics, 1904 to date.
- Treasurer's Statements and Reports of Auditor-General, annual, 1901-2 to 1914-15.
- Treasury Notes: Amounts issued to the respective Banks of the Commonwealth.
- Treasury Statements of Receipts and Expenditure, issued quarterly in the *Commonwealth Gazette*.
- Tropical Diseases: Reports by Dr. Breinl.

3. **State Publications.**—The chief statistical publications of each State issued since Federation may be most conveniently grouped under the following heads, viz.:—(a) Publications issued by the Government Statist, (b) parliamentary and departmental reports and papers, and (c) reports and statements of local and public bodies. These are set out hereunder for each State:—

(i.) **New South Wales.**—(a) *Publications by Government Statistician*:—

- The Wealth and Progress of New South Wales, 1900-1.
- The Seven Colonies of Australasia, 1901-2.
- A Statistical Account of Australia and New Zealand, 1902-3, 1903-4.
- The Official Year Book of New South Wales, 1904-5 to 1915.
- Six States of Australia and New Zealand (annual statistics), 1901 to 1905.
- Monthly Statistical Bulletin, since 1905.
- Statistical Registers, 1901 to 1914-15 and 1915-16 (parts).
- Census of New South Wales, 1901.
- Vital Statistics (annual), 1901 to 1915; and monthly issues to December, 1916.
- Agricultural and Live-stock Statistics, 1901 to 1915-16.

- Statistical View of the Progress of New South Wales during 50 years, 1856 to 1906.
 Friendly Societies' Experience, New South Wales, 1900-1908.
 Comparative Legislation relating to the Industrial Classes.
 Population of New South Wales and movements of population between New South Wales and other Countries, quarterly, December 1911 to September 1916.
 Annual and other Reports on Agricultural, Dairying, and Pastoral Industries, on Manufactories and Works, and on Value of Production.
 Statesman's Year Book, 1913.

(b) *Departmental Papers* :—

Annual Reports of—

Aborigines	Inspector-General of Insane
Australian Museum	Labour Commissioners
Board of Public Health	Leprosy (Board of Health)
Chief Commissioner of Railways	Miners' Accident Relief Fund
Chief Medical Officer	Minister of Public Instruction
Comptroller-General of Prisons	National Art Gallery
Department of Agriculture	National Park Trust
Department of Crown Lands	Pharmacy Board
Department of Mines	Public Disaster Relief Fund
Department of Police	Public Library
Department of Public Works	Public Service Board
Director of Botanical Gardens and Domain	Registrar of Friendly Societies, Building Societies, and Trade Unions
Director of Labour	Registrar-General
Factories and Shops Act; Minimum Wage Act; Early Closing Acts; Shearers' Accommodation Act, etc.	Savings Bank
Fisheries Board	State Brickworks
Forestry Department	State Children's Relief Board
Government Bureau of Microbiology	State Debt Commissioners
Government Railways, Superannuation Account	State Trawling Industry
Government Savings Bank	Superintendent of Carpenterian Reformatory
Immigration and Tourist Bureau	Technological Museums
Industrial Schools	University of Sydney
	Western Land Board.

Public Service Lists.

The Estimates of Revenue and Expenditure.

Parliamentary Papers (miscellaneous); Reports of Committees, Commissions, Conferences, etc.

Trade Reports, various.

Observatory Reports and Bulletins.

Public Accounts and Report of the Auditor-General.

Treasurer's Financial Statement, and Papers to accompany.

The New South Wales Industrial Gazette (monthly).

State Contracts for the Public Service.

Agricultural Gazette (monthly).

Records of the Geological Survey.

Statement of Assets and Liabilities of Public Companies (quarterly).

Statement of Assets and Liabilities of Banks (quarterly).

Quarterly Return of Gold Yields.

Trade Reports.

(c) Reports and Statements of Local Bodies:—

Annual Statements of Municipalities	Metropolitan Board of Water Supply and Sewerage
Fire Commissioners (formerly Fire Brigades Board)	Official Handbook of the Port of Sydney
Hospitals	Sydney Harbour Trust Commissioners
Hunter District Water Supply and Sewerage Board	Town Clerk of the City of Sydney.

(ii.) Victoria.—(a) Publications by the Government Statist:—

Statistical Registers, 1901 to 1914 and 1915 (parts).
 The Victorian Year Books, 1902 to 1915-16.
 Quarterly Statistical Abstracts, since 1904.
 Quarterly Returns of Vital Statistics, since 1901.
 Vital Statistics.
 Monthly Returns of Oversea Imports and Exports, since 1901.
 Statistics of Manufactories, Works, etc., 1901 to 1915.
 Australasian Statistics, 1901-2, with Summaries for Previous Years.
 The First Fifty Years of Responsible Government in Victoria, 1856 to 1906.
 Census of Victoria, 1901.
 Annual Reports on Agricultural, Viticultural, Dairying, and Pastoral Industries, and on Value of Production.
 Annual Report on Friendly Societies.
 Annual Report on Trade Unions.

(b) Departmental Papers:—

Annual Reports of—

Board for the Protection of Aborigines	Inspector of Inebriates' Institutions
Board of Public Health	Inspector of Neglected Children and Reformatory Schools
Board of Visitors, Observatory	Inspector-General of Penal Establishments, Gaols, and Reformatory Prisons
Chief Engineer for Railway Construction	Inspector-General of Savings Banks
Chief Inspector of Explosives	Lands Purchase and Management Board
Chief Inspector of Factories, Workrooms and Shops	Licenses Reduction Board
Coal Miners' Accidents Relief Fund	Marine Board of Victoria
Committee of Public Accounts	Minister of Public Instruction
Conservator of Forests	Parliamentary Standing Committee on Railways
Council of Judges	Public Service Commissioner
Council of Public Education	Registrar of Friendly Societies
Country Roads Board	Railways Commissioners
Department of Agriculture	Secretary for Mines
Department of Crown Lands and Survey	State Rivers and Water Supply Commission
Government Astronomer	Trustees of the Public Library, Museums, and National Gallery
General Manager of State Coal Mines	Vice-Chancellor of Melbourne University.
Indeterminate Sentences Board	
Inspector of Charitable Institutions	
Inspector-General of the Insane	
Public Service List.	
Accounts of the Trustees of Agricultural Colleges and the Council of Agricultural Education.	
The Budget.	
Returns under the Banks and Currency Act 1890, the Companies Act 1890, and the Electric Light and Power Act 1896.	
Parliamentary Papers (miscellaneous); Reports of Committees, Commissions, Conferences, etc.	

Statement of Expenditure under the Constitution Statute.
 The Estimates of Revenue and Expenditure.
 Treasurer's Statement and Report of the Auditor-General.
 Determinations of Wages Boards.
 The Law relating to Factories and Shops in Victoria.
 Agricultural Journal (monthly),
 Register of Teachers and Register of Schools.
 Quarterly Returns of Yield of Goldfields.
 Memoirs and Bulletins of the Geological Survey.
 Vaccination Progress Report.
 Bank Liabilities and Assets.

(c) *Reports of Local Bodies:—*

Annual Reports of the Melbourne Harbour Trust Commission	Hospitals and Benevolent Asylums
Annual Reports of the Fire Brigades Board	Report and Statement of Tramways Trust
Annual Statements of Municipal and Shire Councils	Statement of Accounts of the Melbourne and Metropolitan Board of Works, and Report.
Geelong Municipal Waterworks Trust	

(iii.) **Queensland.**—(a) *Publications by Government Statistician:—*

The Queensland Official Year Book, 1901.
 The Census of 1901.
 A.B.C. of Queensland Statistics, 1905 to 1916.
 Vital Statistics (annual), 1901 to 1915; and monthly issues to November, 1916.
 Statistical Registers, 1901 to 1915.
 Annual Reports on Agricultural, Dairying, and Pastoral Statistics.

(b) *Departmental Papers:—*

Annual Reports of the—

Agent-General	Government Central Sugar Mills
Bureau of Sugar Experiment Stations	Govt. Life Insurance and Annuity Business
Chief Protector of Aborigines	Government Resident at Thursday Island
Chief Inspector of Machinery & Scaffolding	Government Savings Bank
Commissioner of Public Health	Hydraulic Engineer on Water Supply
Commissioner of Income Tax	Immigration Agent
Commissioner of Police	Inspector of Hospitals for the Insane
Commissioner for Railways	Inspector of Orphanages
Comptroller-General of Prisons	Institute of Tropical Medicine
Curator of Intestate Estates	Manager of the Government Savings Bank
Department of Agriculture and Stock	Marine Department
Department of Public Lands	Medical Inspector of Schools
Department of Public Works	Officer in Charge, Government Relief
Director of Forests	Official Trustee in Insolvency
Director of Labour and Chief Inspector of Factories and Shops	Public Service Board
Engineer for Harbours and Rivers	Public Service Superannuation Board
Government Analyst	Registrar of Friendly Societies, Building Societies, and Trade Unions
Secretary for Public Instruction	Trustees of the Public Library
State Children's Department	Under-Secretary for Mines
Trustees of the Agricultural Bank	University of Queensland
Trustees of the National Art Gallery	Workers' Dwellings Board.

Blue Book.

Public Service Lists.

The Estimates of Revenue and Expenditure.

Parliamentary Papers (miscellaneous); Reports of Committees, Commissions, Conferences, etc.

Public Accounts and Report of the Auditor-General.
 Treasurer's Financial Statement and Tables relating thereto.
 Determinations of Wages Boards.
 Agricultural Journal (monthly).
 Mining Journal (Annual).
 The Queensland Sugar Industry, various Reports.
 Reports of the Geological Survey.
 Monthly Reports on Mining, Crown Lands, etc.

(c) *Reports and Statements of Local Bodies* :—

Brisbane Board of Waterworks.
 Bundaberg Harbour Board.
 Engineer for Harbours and Rivers.
 Hospitals, Sanatoria, Asylums, etc.
 Annual Statements of Municipalities.
 Metropolitan Water and Sewerage Board.

(iv.) **South Australia.**—(a) *Publications by the Under-Secretary and Government Statist* :—

Statistical Registers, 1901 to 1914, and 1915 (parts).
 Monthly Returns of Births and Deaths, 1901 to December, 1912.
 Official Year Book of South Australia, 1912 and 1913.
 The Census of 1901.
 Blue Book.
 Statistical Summary of South Australia from its foundation, 1836 to 1910.
 Annual Reports on Manufactories and Works, Live Stock, Wheat Harvest,
 Agricultural and Viticultural Statistics.

(b) *Departmental Papers* :—

Annual Reports of the—

Actuary on Friendly Societies 1900-1904, and 1905-1909.	Government Resident of Northern Territory to 1909 (subsequent reports to Commonwealth Government)
Agent-General	Governors of the Public Library, Museum, and Art Gallery
Audit-Commissioner	Hospital for the Insane
Chief Inspector of Factories	Marine Board
Chief Inspector of Fisheries	Minister for Agriculture
Chief Inspector of Oyster Fisheries	Minister for Education
Chief Inspector of Stock	Public Service Superannuation Board
Commissioner of Police	Registrar-General of Births, Deaths, and Marriages
Commissioner of Railways	Registrar of Trade Unions
Commissioners of the National Park	State Children's Council
Department of Public Works	Surveyor-General
Department of Woods and Forests	Trustees of the Savings Bank.
Destitute Board	
Gaols and Prisons	
Government Astronomer	
Government Geologist	

Parliamentary Papers (miscellaneous); Reports of Committees, Commissions, Conferences, etc.

The Estimates of Revenue and Expenditure.
 Financial Statement of the Treasurer and appendices relating thereto.
 Determinations of Wages Boards.
 Mining Operations: Half-Yearly Reviews, 1904 to 1916.
 Records and Reports of Geological Survey.
 Journal of the Department of Agriculture (monthly).
 Reports of Railway Commissioners.
 Bulletins of Department of Agriculture.

(c) *Reports and Statements of Local Bodies* :—

Hospitals.
 Schools of Mines and Industries.
 Fire Brigades Boards.
 Municipal Tramways Trust.
 City of Adelaide Year Book.
 Municipalities.
 East Torrens County Board of Health.

(v.) *Western Australia*.—(a) *Publications by Government Statistician* :—

The Census of 1901.
 Statistical Registers, 1901 to 1914 and 1915 (parts).
 Monthly Statistical Abstracts, 1901 to November, 1916.
 Year Books of Western Australia, 1900-03, 1902-4, 1905 (part).
 Quarterly and Annual Reports on Population and Vital Statistics.
 Monthly Return of Vital Statistics.
 Crop and Live Stock Returns.
 Blue Book.
 Statistical View of 85 years' progress in Western Australia, 1829 to 1914.
 Comparative Statistics, 1890 to 1912.
 Annual Reports on Agricultural, etc., Statistics.
 Report on Interstate Trade Returns for the Two Years 1911 and 1912.

(b) *Departmental Papers* :—

Annual Reports of the—

Aborigines Department
 Agent-General
 Agricultural Bank
 Art Galleries
 Chief Inspector of Explosives
 Chief Inspector of Fisheries
 Chief Inspector of Machinery
 Commissioner of Police
 Commissioner of Railways
 Commissioner of Taxation
 Comptroller-General of Prisons
 Department of Agriculture
 Department of Lands and Surveys
 Department of Mines
 Department of Public Works
 Department of Woods and Forests
 Education Department
 Geological Survey
 Government Analyst
 Government Astronomer
 Government Labour Bureau

Government Savings Bank
 Harbour and Light Department
 Inspector-General of Insane
 Lands Titles Department
 Museum and Art Gallery
 Public Library
 Principal Medical Officer on Medical,
 Health, Factories, Early Closing, Vac-
 cination and Quarantine
 Public Service Commissioner
 Registrar of Friendly Societies
 Registrar of Friendly Societies in connec-
 tion with Industrial Conciliation and
 Arbitration, and Trade Unions
 Stock Department
 Superintendent of Charities and Inspector
 of Industrial and Reformatory Schools
 Surveyor-General
 Water Supply, Sewerage and Drainage
 Department

Parliamentary Papers (miscellaneous) ; Reports of Committees, Commissions,
 Conferences, etc.
 The Estimates of Revenue and Expenditure.
 Public Accounts and Report of the Auditor-General.
 Agricultural Journal (monthly).
 Gold and Mineral Exports (monthly).
 Reports of proceedings before Boards of Conciliation and Court of Arbitration.
 Bulletins of the Department of State Medicine and Public Health.
 Reports and Bulletins of the Geological Survey.
 Government Savings Bank, Comparative Return (Monthly).

Western Australia, 1912.

Report on Principal Electoral Systems of Western Australia.

(c) *Reports and Statements of Local Bodies* :—

Cemetery Boards	Metropolitan Waterworks Board
Fire Brigades	Municipalities, Road Boards, and Boards of Health
Fremantle Harbour Trust Commissioners	Public Hospitals
Fremantle Municipal Tramways and Electric Lighting Board	Waterworks Boards (country).
Harbour Boards	

(vi.) *Tasmania. (a) Publications by Government Statistician* :—

The Census of 1901.

Statistical Registers, 1901 to 1914-15.

Reports on Vital Statistics and Migration (annual), 1901 to 1913; and monthly issues to November, 1916.

Reports on Agricultural and Live Stock Statistics, 1901 to 1915-16.

Statistical Summaries, 1901 to 1912-13.

Gold Yield for 1908 and previous 10 years.

Annual Reports on Agriculture, Live Stock, Production, etc., Statistics.

Geographical Illustration of the Extent of Australia's Production, &c.

Statesman's Pocket Book of Tasmania, 1916.

(b) *Departmental Papers* :—

Annual Reports of the—

Agent-General	General Manager of Government Railways
Agricultural Bank of Tasmania	Hobart and Launceston Gaols
Charitable Grants Department	Inspector of Machinery
Chief Inspector of Factories	Lands and Survey Department
Chief Inspector of Stock	Museum and Botanical Gardens
Commissioner of Taxes	Police Department
Department of Agriculture	Public Library
Department of Education	Public Service Board
Department of Mines	Recorder of Titles
Department of Neglected Children	Registrar of Friendly Societies and Trade Unions
Department of Public Health	Savings Bank
Engineer-in-Chief of Public Works	University of Tasmania
Explosives Department	
Public Service List.	
The Budget.	
The Estimates of Revenue and Expenditure.	
Parliamentary Papers (miscellaneous); Reports of Committees, Commissions, Conferences, etc.	
Public Debts Sinking Fund.	
Report of the Auditor-General.	
Financial Statement of the Treasurer.	
Wages Boards Determinations.	
Geological Survey Bulletins.	
Progress of the Mineral Industry (quarterly).	
Agricultural Gazette (monthly).	

(c) *Reports and Statements of Local Bodies* :—

Country Libraries	Industrial Schools
Fire Brigade Board	Life Assurance Societies
Harbour Trusts	Marine Boards
Hobart Drainage Board	Municipalities.
Hospitals	

§ 3. Bibliography of Recent Works on Australia.

1. *General.*—It is hoped that the accompanying list of works dealing with Australia and Australian affairs generally, while not exhaustive, may prove of some service. The list refers to works published since the year 1901.

- ACKERMANN, J. *Australia*. London, 1913.
 CLARK, A. T. *Australian Constitutional Law*. Melbourne, 1905.
 CLARK, VICTOR S. *The Labour Movement in Australasia*. London, 1906.
 COLLIER, JAMES. *Sir George Grey*. Christchurch, 1909.
 COLLINGRIDGE, GEORGE. *First Discovery of Australia and New Guinea*. Sydney, 1906.
 CRAMP, K. R. *State and Federal Constitutions of Australia*. Sydney, 1913.
 CRED, Dr. J. M. *My Recollections of Australia and Elsewhere, 1842-1914*. London, 1916.
 D'AUNET, B. *L'Aurore Australe*. Melbourne, 1905; Paris, 1907.
 FAVENC, E. *Explorers of Australia*. Melbourne, 1908.
 FEDERAL HANDBOOK ON AUSTRALIA. Melbourne, 1914.
 FITCHETT, Rev. W. H. *The New World of the South: I. Australia in the Making; II. The Romance of Australian History*. London, 1913.
 FOX, FRANK. *Peeps at Many Lands*. Australia. London, 1911.
 FRASER, J. FOSTER. *Australia: The Making of a Nation*. London, 1910.
 GILLES, WM. *Stories in English History for Young Australians*. Melbourne, 1905.
 GLYNN, HON. P. McM. *The Federal Constitution—The Proposed Amendments*. Adelaide, 1915.
 GREGORY, J. W. *The Dead Heart of Australia*. London, 1906. * *Australia and New Zealand* (in Stanford's *Compendium of Geography and Travel*). London, 1907.
 GREGORY, J. W. *Australasia*. *Stanford's Geography*. London. Australia. Cambridge, 1916.
 GREY, J. G. *Australasia, Old and New*. London, 1901.
 HARRIS, WALTER K. *Out back in Australia*. Second Edition, London, 1913; Berlin, 1914.
 HENDERSON, G. C. *Sir George Grey*. London, 1907.
 HOWITT, A. W. *The Native Tribes of South East Australia*. London, 1904.
 JENES, E. *History of the Australian Colonies*. 3rd Edition, London, 1912.
 JOHNS, FRED. *Australasia's Prominent People*. London, 1914.
 JOHNS, FRED. *A Journalist's Jottings*. Adelaide, 1917.
 JOSE, A. W. *History of Australasia*. Sydney, 1909 and 1911.
 KEENAN, J. J. *Commonwealth of Australia Inaugural Celebrations*. Sydney, 1907.
 KNOWLES, G. S. *The Acts of the Parliament of the Commonwealth of Australia from 1901 to 1911, and in force on January 1, 1912*. London, 1914.
 LEE, IDA (Mrs. C. B. Marriott.) *The Coming of the British to Australia, 1788-1829*. London, 1906.
 LONG, C. R. *Stories of Australian Exploration*. Melbourne. Editions 1903, 1906, and 1913.
 MAIDEN, J. H. *Sir Joseph Banks, the Father of Australia*. Sydney, 1909.
 MANES, ALFRED. *Der Soziale Erdteil: Studienfahrt eines National-Ökonomen durch Australasien*. Berlin, E. S. Mittler and Sohn.
 MANUAL OF EMERGENCY LEGISLATION. Commonwealth of Australia. Melbourne, 1916.
 MASSON, E. R. *An Untamed Territory—The Northern Territory of Australia*. London, 1915.
 METIN, A. *Le Socialisme sans doctrines: la question ouvrière et la question agraire en Australie et Nouvelle Zélande*. Paris, 1901.
 MILLS, R. C. *The Colonization of Australia (1829-42)*. London, 1915.
 MOORE, W. H. *The Constitution of the Commonwealth of Australia*. London, 1902. Second Edition. Melbourne, 1910.
 MORGAN, B. H. *The Trade and Industry of Australia*. London, 1909.
 MURDOCH, WALTER. *The Australian Citizen*. Melbourne, 1912. *The Making of Australia*. Melbourne, 1917.
 NELSON, W. *Foster Fraser's Fallacies*. Sydney, 1910.
 PHILLIPS, MARION. *A Colonial Autocracy*. London, 1909.
 PRATT, E. A. *The State Railway Muddle in Australia*. London, 1912.
 PULSFORD, E. *Commerce and the Empire*. London, 1903.
 QUICK, HON. SIR J., AND GARRAN, R. R. *The Annotated Constitution of the Australian Commonwealth*. Sydney, 1901.
 QUICK, HON. SIR J., AND GROOM, HON. L. E. *The Judicial Power of the Commonwealth*. Melbourne, 1904.
 RANKIN, M. T. *Arbitration and Conciliation in Australia*. London, 1916.
 REEVES, W. P. *State Experiments in Australia and New Zealand*. 2 vols. London, 1902.
 ROGERS, J. D. *Australia* (in Lucas's *Historical Geography of the British Colonies*). Oxford, 1907.
 ROWLAND, P. F. *The New Nation*. London, 1903.
 RUSDEN, G. W. *History of Australia*. 3 vols. Melbourne, 1908.
 SAPPER, KARL. *Australien und Ozeanien*. Leipzig, 1909.
 SARGENT, A. J. *Australasia: Eight Lectures (Great Britain—Colonial Office)*. London, 1913.

- SCHACHNER, R. Australien in Politik, Wirtschaft, Kultur. Bd. I. Jena, 1909; do. Bd. II. Jena, 1911.
- SCOTT, ERNEST. Terre Napoléon: A History of French Explorations and Projects in Australia. London, 1910. La Pérouse. Sydney, 1912. Life of Matthew Flinders, R.N. Sydney, 1914. A Short History of Australia. Oxford, 1916.
- SCOTT, R. F. The Voyage of the Discovery. 2 vols. London, 1905.
- SCOTTISH AGRICULTURAL COMMISSION'S REPORT. Australia: Its Land, Conditions, and Prospects. Edinburgh, 1911.
- SEARCY, A. In Australian Tropics. London, 1907. By Flood and Field. Melbourne, 1911.
- SPENCE, W. G. Australia's Awakening. Sydney, 1909.
- SPENCER, W. B., AND GILLEN, F. J. The Northern Tribes of Central Australia. London, 1904. Across Australia. 2 vols. London, 1912. The Native Tribes of the Northern Territory of Australia. London, 1914.
- ST. LEDGER, A. Australian Socialism. London, 1909.
- TAYLOR, T. G. Australia. Physiographic and Economic. Oxford, 1911.
- TILBEY, A. W. Australasia. London, 1912.
- TURNER, H. G. First Decade of the Australian Commonwealth. London, 1911.
- VOSSION, L. L'Australie Nouvelle et son avenir. Paris, 1902.
- WALTEAM, E. Life and Labour in Australia. London, 1909.
- WATSON, DR. F. Historical Records of Australia, vol. 1. Sydney, 1913. Beginnings of Government in Australia, vol. 1. Sydney, 1913.
- WILKINSON, H. L. The History of the Trust Movement in Australia. Melbourne, 1914.
- WISE, HON. B. R. Commonwealth of Australia. London, 1909. 2nd Edition, London, 1913. The Making of the Australian Commonwealth. London, 1913.
- YEAR BOOK OF AUSTRALIA. Annual. Sydney.

2. *Works on Special Subjects.*—In addition to the works set out in the above bibliography dealing generally with the historical, industrial and personal aspects of the Australian people, there are a number of recent works upon special subjects, of which the following are amongst the more important:—

- BAKER, RICHARD T., AND SMITH, H. G. A Research on the Eucalypts. Sydney, 1902. A Research on the Pines of Australia. Sydney, 1910.
- BAKER, RICHARD T. Cabinet Timbers of Australia. Sydney, 1913. Australian Flora in Applied Art. Sydney, 1915.
- BURNELL, F. S. Australia versus Germany. The taking of German New Guinea. London, 1915.
- CLARK, DONALD. Australian Mining and Metallurgy. Melbourne, 1904. Gold Refining (with plates). London, 1909.
- COLLIER, JAMES. The Pastoral Age in Australasia. London, 1911.
- COLLINS, J. T., AND MEADEN, C. H. Local Government Law and Taxation. Melbourne, 1906.
- GILLIES, WM. First Studies in Insect Life in Australasia. Melbourne, 1904.
- GUILFOYLE, W. R. Australian Plants. Melbourne, 1910.
- HALL, ROBERT, AND GILLIES, W. Nature Studies in Australia. Melbourne, 1903. Revised Edition. Melbourne, 1910.
- HALL, ROBERT. Useful Birds of Southern Australia. Melbourne, 1907.
- HAWKESWORTH, A. Australasian Sheep and Wool. 3rd Edition. Sydney, 1911.
- HUNT, H. A., TAYLOR, T. G., AND QUAYLE, E. T. Text Book on the Climate and Weather of Australia. Melbourne, 1914.
- INGLIS, GORDON. Sport and Pastime in Australia. London, 1912.
- LEACH, J. A. An Australian Bird Book. Melbourne, 1911.
- LE SOUEF, W. H. D. Wild Life in Australia. Melbourne, 1907.
- LUCAS, A. H. S., AND LE SOUEF, W. H. D. Animals of Australia. Melbourne, 1909. The Birds of Australia. Melbourne, 1911.
- MAIDEN, J. H. Critical Revision of the Genus Eucalyptus. Sydney, 1917.
- MCALPINE, D. The Rusts of Australia: their Structure, Nature and Classification. Melbourne, 1910.
- PATERSON, J. W. Nature in Farming. Melbourne, 1916.
- POWER, F. DANVERS. Coalfields and Collieries of Australia. Melbourne, 1912.
- ROUGLEY, T. C. Fishes of Australia and their Technology. Sydney, 1916.
- SCHULER, P. F. E. Australia in Arms. London, 1916.
- SMITH, H. B. The Sheep and Wool Industry of Australasia. London, 1914.
- STEAD, D. G. Fishes of Australia. Sydney, 1906.
- STRONG, A. T. Australia and the War. Melbourne, 1915.
- SUTHERLAND, A. The Australasian Live Stock Manual. 2nd Edition. Melbourne and Sydney, 1903.
- "WANDANDIAN." Travels in Australasia. Birmingham, 1912.
- WATERHOUSE, G. A., AND LYELL, G. Butterflies of Australia. Sydney, 1912.
- WHITE, CHARLES. History of Australian Bushranging. 2 vols. Sydney, 1906.

SECTION II.

DISCOVERY, COLONISATION, AND FEDERATION OF
AUSTRALIA.

§ 1. Early Knowledge of Australia.

A brief, though fairly comprehensive, account of the discovery and early knowledge of Australia was given in Year Book No. 1 (pp. 44 to 51). This account appeared in a condensed form in Year Books Nos. 2, 3, and 4. Bibliographical references to the subject were also given in Year Book No. 1 (p. 49). Exigencies of space prevent the inclusion of any further reference to this subject in the present issue.

§ 2. The Taking Possession of Australia.

Reference was made to the more important facts relating to the taking possession and annexation of Australia in each of the first four issues of this book: see preferably Year Book No. 4 (pp. 15 and 16). In so far as the annexation of the eastern parts is concerned, a full historical account of the period may be found in the "Historical Records of New South Wales," Vol. I., parts 1 and 2. For an account of the annexation of Western Australia, reference may be made to the West Australian Year Book 1905, Part 1.

§ 3. The Creation of the Several Colonies.

1. **Introduction.**—A historical summary of the facts relating to the creation of the several colonies, the separation of Victoria and Queensland, and the changes in the boundaries of certain of the colonies has appeared in previous issues of this book: see Year Book No. 4 (pp. 16 to 23). The main facts in this connection may be traced by reference to the maps in preceding issues [see Year Book, No. 4, pp. 17 and 18].

2. **No further Creation of Colonies after 1859.**—Since the separation of Queensland in 1859 no other creation of colonies has taken place in Australia, though the boundaries of New South Wales, Queensland, and South Australia were altered later, and the control of the Northern Territory was transferred from South Australia to the Commonwealth in 1911. In 1914, the boundary between Victoria and South Australia, which had been in dispute, was determined by the High Court. The dates of foundation of the Australasian colonies, and their areas at the close of 1859, were as shewn in the following table:—

**DATES OF FOUNDATION OF AUSTRALASIAN COLONIES AND AREAS AS AT
END OF 1859.**

Colony.	Date of Annexation.	Date of Creation.	Date of First Permanent Settlement.	Area. Square Miles.
New South Wales	1770	1786	1788	1,020,412
Tasmania	1788	1825	1803	26,215
South Australia	1788	1834	1836	309,850
Victoria	1770	1851	1834	87,884
Queensland	1770	1859	1824	554,300
Western Australia	1829	1829	1829	975,920
New Zealand	1840	1841	1814	104,471 ¹

1. By proclamation dated 10th June, 1901, the area of the Dominion was increased by 280 square miles, making it now 104,751 square miles, by the inclusion of the Cook Group and other islands.

3. **Australasia, 1863 to 1900.**—The immense area generally known as Australasia had, by 1863, been divided into seven distinct colonies, the areas of which are shewn below. The areas of the Northern Territory and the Federal Capital Territory, which are now under the exclusive jurisdiction of the Commonwealth, are given separately.

On the 1st January, 1901, the colonies mentioned above, with the exception of New Zealand, were federated under the name of the "Commonwealth of Australia," the designation of "Colonies" being at the same time changed into that of "States." The total area of the Commonwealth is, therefore, 2,974,581 square miles; the dates of creation and the areas of the separate colonies and territories, as determined on the final adjustment of their boundaries, are shewn in the following table:—

**DATES OF CREATION AND AREAS OF THE SEVERAL COLONIES AND
TERRITORIES.**

Colony.	Year of Formation into Separate Colony.	Present Area in Square Miles.	Colony.	Year of Formation into Separate Colony.	Present Area in Square Miles.
New South Wales ...	1786	309,460 ¹	New Zealand ...	1841	104,751
Tasmania	1825	26,215	Victoria	1851	87,884
Western Australia ...	1829	975,920	Queensland	1859	670,500
South Australia ...	1834	380,070	Northern Territory	1863	523,620
(proper)			Fed. Capital Ter'ty	1911	912 ²
Commonwealth ... ..	...	...	2,974,581 square miles.		
Australasia ... ..	...	...	3,079,332 square miles.		

1. Exclusive of Federal Capital Territory.

2. Prior to 1911 included with New South Wales.

4. **British New Guinea or Papua.**—Under the administration of the Commonwealth, but not included in it, is British New Guinea or *Papua*, finally annexed by the British Government in 1884. This territory was for a number of years administered by the Queensland Government, but was transferred to the Commonwealth by proclamation on the 1st September, 1906, under the authority of the Papua Act (Commonwealth) of 16th November, 1905. The area of Papua is about 90,540 square miles. More extended reference to this dependency of the Commonwealth will be found in Section xxix.

5. **Transfer of the Northern Territory to the Commonwealth.**—On the 7th December, 1907, the Commonwealth and the State of South Australia entered into an agreement for the surrender to and acceptance by the Commonwealth of the Northern Territory, subject to approval by the Parliaments of the Commonwealth and the State. This approval was given by the South Australian Parliament under the Northern Territory

Surrender Act 1907 (assented to on the 14th May, 1908), and by the Commonwealth Parliament under the Northern Territory Acceptance Act 1910 (assented to on the 16th November, 1910). The Territory accordingly was transferred by proclamation to the Commonwealth on the 1st January, 1911. Further information may be found in the section of this book (xxxii.) on "The Northern Territory."

6. **Norfolk Island.**—Although administered for many years by the Government of New South Wales, this island was, until 1st July, 1914, a separate Crown colony. On that date it was taken over by the Federal Parliament as a territory of the Commonwealth. Further reference to the island will be found in the latter part of Section xxxiv.

§ 4. Transfer of the Federal Capital Territory to the Commonwealth.

On the 18th October, 1909, the Commonwealth and the State of New South Wales entered into an agreement for the surrender to and acceptance by the Commonwealth of an area of 912 square miles as the seat of Government of the Commonwealth. In December, 1909, Acts were passed by the Commonwealth and New South Wales Parliaments, approving the agreement, and on the 5th December, 1910, a proclamation was issued vesting the Territory in the Commonwealth on and from the 1st January, 1911.

§ 5. The Exploration of Australia.

A fairly complete, though brief, account of the Exploration of Australia was given in Year Book No. 2 (pp. 20 to 39). A brief summary of the more important facts relating to the subject was given in Year Books Nos. 3 and 4. Maps shewing the progress of Australian exploration may also be found in previous issues [see No. 8, p. 35].

§ 6. The Constitutions of the States.

A brief and condensed statement of the constitutional history of the several States, shewing how their present Constitutions have been built up, may be found in Section II. of the second, third, and fourth issues of the Year Book. See No. 4, pp. 27 to 32.

§ 7. The Federal Movement in Australia.

A summary was given in Year Book No. 1 (pp. 17 to 21) of the "Federal Movement in Australia" from its inception to its consummation; a synopsis thereof was given in Year Books Nos. 2, 3, and 4. See No. 4, pp. 32 to 37.

§ 8. Creation of the Commonwealth.

1. **The Act.**—The Commonwealth of Australia Constitution Act, 63 and 64 Vic., Chapter 12, namely, an Act to constitute the Commonwealth of Australia, was shewn *in extenso* in Year Book No. 1. In the Year Books Nos. 2, 3 and 4, a summary of the Act was given. As two amending Acts, namely, the Constitution Alteration (Senate Elections) Act 1906, and the Constitution Alteration (State Debts) Act 1909, have been passed, it was thought desirable to insert the Act, as amended, in full in Year Book No. 5 and subsequent issues.

THE COMMONWEALTH OF AUSTRALIA CONSTITUTION ACT.

63 & 64 VICT., CHAPTER 12.

An Act to constitute the Commonwealth of Australia. [9th July, 1900.]

WHEREAS the people of New South Wales, Victoria, South Australia, Queensland, and Tasmania, humbly relying on the blessing of Almighty God, have agreed to unite in one indissoluble Federal Commonwealth under the Crown of the United Kingdom of Great Britain and Ireland, and under the Constitution hereby established :

And whereas it is expedient to provide for the admission into the Commonwealth of other Australasian Colonies and possessions of the Queen :

Be it therefore enacted by the Queen's Most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, as follows :—

1. This Act may be cited as the Commonwealth of Australia Constitution Act.
2. The provisions of this Act referring to the Queen shall extend to Her Majesty's heirs and successors in the sovereignty of the United Kingdom.
3. It shall be lawful for the Queen, with the advice of the Privy Council, to declare by proclamation that, on and after a day therein appointed, not being later than one year after the passing of this Act, the people of New South Wales, Victoria, South Australia, Queensland, and Tasmania; and also, if Her Majesty is satisfied that the people of Western Australia have agreed thereto, of Western Australia, shall be united in a Federal Commonwealth under the name of the Commonwealth of Australia. But the Queen may, at any time after the proclamation, appoint a Governor-General for the Commonwealth.

4. The Commonwealth shall be established, and the Constitution of the Commonwealth shall take effect, on and after the day so appointed. But the Parliaments of the several colonies may at any time after the passing of this Act make any such laws, to come into operation on the day so appointed, as they might have made if the Constitution had taken effect at the passing of this Act.

5. This Act, and all laws made by the Parliament of the Commonwealth under the Constitution, shall be binding on the courts, judges, and people of every State and of every part of the Commonwealth, notwithstanding anything in the laws of any State; and the laws of the Commonwealth shall be in force on all British Ships, the Queen's ships of war excepted, whose first port of clearance and whose port of destination are in the Commonwealth.

6. "The Commonwealth" shall mean the Commonwealth of Australia as established under this Act.

"The States" shall mean such of the colonies of New South Wales, New Zealand, Queensland, Tasmania, Victoria, Western Australia and South Australia, including the northern territory of South Australia, as for the time being are parts of the Commonwealth, and such colonies or territories as may be admitted into or established by the Commonwealth as States: and each of such parts of the Commonwealth shall be called "a State."

"Original States" shall mean such States as are part of the Commonwealth at its establishment.

7. The Federal Council of Australasia Act 1885 is hereby repealed, but so as not to affect any laws passed by the Federal Council of Australasia and in force at the establishment of the Commonwealth.

Any such law may be repealed as to any State by the Parliament of the Commonwealth, or as to any colony not being a State by the Parliament thereof.

8. After the passing of this Act the Colonial Boundaries Act 1895 shall not apply to any colony which becomes a State of the Commonwealth: but the Commonwealth shall be taken to be a self-governing colony for the purposes of that Act.

9. The Constitution of the Commonwealth shall be as follows:—

THE CONSTITUTION.

This Constitution is divided as follows :—

Chapter I.—The Parliament :—

Part I.—General.

Part II.—The Senate.

Part III.—The House of Representatives.

Part IV.—Both Houses of Parliament.

Part V.—Powers of the Parliament.

Chapter II.—The Executive Government.

Chapter III.—The Judicature.

Chapter IV.—Finance and Trade.

Chapter V.—The States.

Chapter VI.—New States.

Chapter VII.—Miscellaneous.

Chapter VIII.—Alteration of the Constitution.

The Schedule.

CHAPTER I.—THE PARLIAMENT.

PART I.—GENERAL.

1. The legislative power of the Commonwealth shall be vested in a Federal Parliament, which shall consist of the Queen, a Senate, and a House of Representatives, and which is hereinafter called "The Parliament," or "The Parliament of the Commonwealth."

2. A Governor-General appointed by the Queen shall be Her Majesty's representative in the Commonwealth, and shall have and may exercise in the Commonwealth during the Queen's pleasure, but subject to this Constitution, such powers and functions of the Queen as Her Majesty may be pleased to assign to him.

3. There shall be payable to the Queen out of the Consolidated Revenue fund of the Commonwealth, for the salary of the Governor-General, an annual sum which, until the Parliament otherwise provided, shall be ten thousand pounds.

The salary of a Governor-General, shall not be altered during his continuance in office.

4. The provisions of this Constitution relating to the Governor-General extend and apply to the Governor-General, for the time being, or such persons as the Queen may appoint to administer the Government of the Commonwealth: but no such person shall be entitled to receive any salary from the Commonwealth in respect of any other office during his administration of the Government of the Commonwealth.

5. The Governor-General may appoint such times for holding the sessions of the Parliament as he thinks fit, and may also from time to time, by Proclamation or otherwise, prorogue the Parliament, and may in like manner dissolve the House of Representatives.

After any General election the Parliament shall be summoned to meet not later than thirty days after the day appointed for the return of the writs.

The Parliament shall be summoned to meet not later than six months after the establishment of the Commonwealth.

6. There shall be a session of the Parliament once at least in every year, so that twelve months shall not intervene between the last sitting of the Parliament in one session and its first sitting in the next session.

PART II.—THE SENATE.

7. The Senate shall be composed of senators for each State, directly chosen by the people of the State, voting, until the Parliament otherwise provides, as one electorate.

But until the Parliament of the Commonwealth otherwise provides, the Parliament of the State of Queensland, if that State be an original State, may make laws dividing the State into divisions and determining the number of senators to be chosen for each division, and in the absence of such provision the State shall be one electorate.

Until the Parliament otherwise provides there shall be six senators for each Original State. The Parliament may make laws increasing or diminishing the number of senators for each State, but so that equal representation of the several Original States shall be maintained and that no Original State shall have less than six senators.

The senators shall be chosen for a term of six years, and the names of the senators chosen for each State shall be certified by the Governor to the Governor-General.

8. The qualification of electors of senators shall be in each State that which is prescribed by the Constitution, or by the Parliament, as the qualification for electors of members of the House of Representatives; but in the choosing of senators each elector shall vote only once.

9. The Parliament of the Commonwealth may make laws prescribing the method of choosing senators, but so that the method shall be uniform for all the States. Subject to any such law, the Parliament of each State may make laws prescribing the method of choosing the senators for that State.

The Parliament of a State may make laws for determining the times and places of elections of senators for that State.

10. Until the Parliament otherwise provides, but subject to this Constitution, the laws in force in each State for the time being, relating to elections for the more numerous House of the Parliament of the State shall, as nearly as practicable, apply to elections of senators for the State.

11. The Senate may proceed to the despatch of business, notwithstanding the failure of any State to provide for its representation in the Senate.

12. The Governor of any State may cause writs to be issued for elections of senators for the State. In case of the dissolution of the Senate the writs shall be issued within ten days from the proclamation of such dissolution.

13. As soon as may be after the Senate first meets, and after each first meeting of the Senate following a dissolution thereof, the Senate shall divide the senators chosen for each State into two classes, as nearly equal in number as practicable; and the places of the senators of the first class shall become vacant at the expiration of [the third year] *three years*,¹ and the places of those of the second class at the expiration of [the sixth year] *six years*¹ from the beginning of their term of service; and afterwards the places of senators shall become vacant at the expiration of six years from the beginning of their term of service.³

The election to fill vacant places shall be made [in the year at the expiration of which] *within one year before*¹ the places are to become vacant.

For the purpose of this section the term of service of a senator shall be taken to begin on the first day of [January] *July*¹ following the day of his election, except in the cases of the first election and of the election next after any dissolution of the Senate, when it shall be taken to begin on the first day of [January] *July*¹ preceding the day of his election.^{2,4}

14. Whenever the number of senators for a State is increased or diminished, the Parliament of the Commonwealth may make such provision for the vacating of the places of senators for the State as it deems necessary to maintain regularity in the rotation.

1. As amended by section 2 of the Constitution Alteration (Senate Elections) 1906. The words in square brackets have been repealed; amendments are shewn in italics.

2. Under sections 3 and 4, the Constitution Alteration (Senate Elections) 1906, it was also provided that—

(a) The terms of service of the senators whose places would, but for this Act, become vacant at the expiration of the year One thousand nine hundred and nine are extended until the thirtieth day of June One thousand nine hundred and ten.

(b) The terms of service of the senators whose places would, but for this Act, become vacant at the expiration of the year One thousand nine hundred and twelve are extended until the thirtieth day of June One thousand nine hundred and thirteen.

(c) This Act shall not be taken to alter the time of beginning of the term of service of any senator elected in the year One thousand nine hundred and six.

3. A bill was passed by the Commonwealth Parliament on the 2nd September, 1915, for the submission to the electors of a proposed law to alter section 13 by inserting *after three years* the words *and two months*, and after *six years* where mentioned the words *and four months*.

4. It was also proposed by the bill alluded to above to alter the foregoing paragraph so as to read thus:—For the purposes of this section the term of service of the senators elected in the year One thousand nine hundred and fourteen shall be taken to have begun on the first day of October, One thousand nine hundred and fourteen, and the term of service of a senator elected to fill a vacancy thereafter occurring in rotation shall be taken to begin on the day on which the place he is to fill becomes vacant, and the term of service of senators elected at an election next after a dissolution of the Senate shall be taken to begin on the day of the first meeting of the House of Representatives after dissolution. A writ was issued for a referendum (to be taken on the 11th December, 1915, at the same time as referendums for the alteration of the legislative powers of the Commonwealth), but the writs were withdrawn under authority of Act 51 of 1915. See also note to section 51.

15. If the place of a senator becomes vacant before the expiration of his term of service, the Houses of Parliament of the State for which he was chosen shall, sitting and voting together, choose a person to hold the place until the expiration of the term, or until the election of a successor as hereinafter provided, whichever first happens. But if the Houses of Parliament of the State are not in session at the time when the vacancy is notified, the Governor of the State, with the advice of the Executive Council thereof, may appoint a person to hold the place until the expiration of fourteen days after the beginning of the next session of the Parliament of the State, or until the election of a successor, whichever first happens.

At the next general election of members of the House of Representatives, or at the next election of senators for the State, whichever first happens, a successor shall, if the term has not then expired, be chosen to hold the place from the date of his election until the expiration of the term.

The name of any senator so chosen or appointed shall be certified by the Governor of the State to the Governor-General.

16. The qualifications of a senator shall be the same as those of a member of the House of Representatives.

17. The Senate shall, before proceeding to the despatch of any other business, choose a senator to be the President of the senate; and as often as the office of President becomes vacant the Senate shall again choose a senator to be the President.

The President shall cease to hold his office if he ceases to be a senator. He may be removed from office by a vote of the Senate, or he may resign his office or his seat by writing addressed to the Governor-General.

18. Before or during any absence of the President, the Senate may choose a senator to perform his duties in his absence.

19. A Senator may, by writing addressed to the President, or to the Governor-General if there is no President, or if the President is absent from the Commonwealth, resign his place, which thereupon shall become vacant.

20. The place of a senator shall become vacant if for two consecutive months of any session of the Parliament he, without the permission of the Senate, fails to attend the Senate.

21. Whenever a vacancy happens in the Senate, the President, or if there is no President or if the President is absent from the Commonwealth, the Governor-General shall notify the same to the Governor of the State in the representation of which the vacancy has happened.

22. Until the Parliament otherwise provides, the presence of at least one-third of the whole number of the senators shall be necessary to constitute a meeting of the Senate for the exercise of its powers.

23. Questions arising in the Senate shall be determined by a majority of votes, and each senator shall have one vote. The President shall in all cases be entitled to a vote; and when the votes are equal the question shall pass in the negative.

PART III.—THE HOUSE OF REPRESENTATIVES.

24. The House of Representatives shall be composed of members directly chosen by the people of the Commonwealth, and the number of such members shall be, as nearly as practicable, twice the number of the senators.

The number of members chosen in the several States shall be in proportion to the respective numbers of their people, and shall, until the Parliament otherwise provides, be determined, whenever necessary, in the following manner :—

- (i.) A quota shall be ascertained by dividing the number of the people of the Commonwealth, as shewn by the latest statistics of the Commonwealth, by twice the number of the senators :
- (ii.) The number of members to be chosen in each State shall be determined by dividing the number of the people of the State, as shewn by the latest statistics of the Commonwealth, by the quota ; and if on such division there is a remainder greater than one-half of the quota, one more member shall be chosen in the State.

But notwithstanding anything in this section, five members at least shall be chosen in each Original State.

25. For the purposes of the last section, if by the law of any State all persons of any race are disqualified from voting at elections for the more numerous House of the Parliament of the State, then, in reckoning the number of the people of the State or of the Commonwealth, persons of that race resident in that State shall not be counted.

26. Notwithstanding anything in section twenty-four, the number of members to be chosen in each State at the first election shall be as follows :—

New South Wales	...	23	South Australia...	...	6
Victoria	...	20	Tasmania	...	5
Queensland	...	8			

Provided that if Western Australia is an Original State, the number shall be as follows :—

New South Wales	..	26	South Australia	..	7
Victoria	..	23	Western Australia	..	5
Queensland	..	9	Tasmania	..	5

27. Subject to this Constitution the Parliament may make laws for increasing or diminishing the number of the members of the House of Representatives.

28. Every House of Representatives shall continue for three years from the first meeting of the House, and no longer, but may be sooner dissolved by the Governor-General.

29. Until the Parliament of the Commonwealth otherwise provides, the Parliament of any State may make laws for determining the divisions in each State for which members of the House of Representatives may be chosen, and the number of members to be chosen for each division. A division shall not be formed out of parts of different States.

In the absence of other provisions, each State shall be one electorate.

30. Until the Parliament otherwise provides, the qualification of electors of members of the House of Representatives shall be in each State that which is prescribed by the law of the State as the qualification of electors of the more numerous House of Parliament of the State ; but in the choosing of members each elector shall vote only once.¹

31. Until the Parliament otherwise provides, but subject to this Constitution, the laws in force in each State for the time being relating to elections for the more numerous House of the Parliament of the State shall, as nearly as practicable, apply to elections in the State of members of the House of Representatives.

1. The franchise qualification was determined by the Commonwealth Franchise Act 1902.

32. The Governor-General in Council may cause writs to be issued for general elections of members of the House of Representatives.

After the first general election, the writs shall be issued within ten days from the expiry of a House of Representatives or from the proclamation of a dissolution thereof.

33. Whenever a vacancy happens in the House of Representatives, the speaker shall issue his writ for the election of a new member, or if there is no speaker, or if he is absent from the Commonwealth, the Governor-General in Council may issue the writ.

34. Until the Parliament otherwise provides, the qualifications of a member of the House of Representatives shall be as follows :—

- (i.) He must be of the full age of twenty-one years, and must be an elector entitled to vote at the election of members of the House of Representatives, or a person qualified to become such elector, and must have been for three years at the least a resident within the limits of the Commonwealth as existing at the time when he is chosen :
- (ii.) He must be a subject of the Queen, either natural-born or for at least five years naturalised under a law of the United Kingdom, or of a colony which has become or becomes a State, or of the Commonwealth, or of a State.

35. The House of Representatives shall, before proceeding to the despatch of any other business, choose a member to be the Speaker of the House, and as often as the office of Speaker becomes vacant the House shall again choose a member to be the Speaker.

The Speaker shall cease to hold his office if he ceases to be a member. He may be removed from office by a vote of the House, or he may resign his office or his seat by writing addressed to the Governor-General.

36. Before or during any absence of the Speaker, the House of Representatives may choose a member to perform his duties in his absence.

37. A member may by writing addressed to the Speaker, or to the Governor-General if there is no Speaker or if the Speaker is absent from the Commonwealth, resign his place, which thereupon shall become vacant.

38. The place of a member shall become vacant if for two consecutive months of any session of the Parliament he, without the permission of the House, fails to attend the House.

39. Until the Parliament otherwise provides, the presence of at least one-third of the whole number of the members of the House of Representatives shall be necessary to constitute a meeting of the House for the exercise of its powers.

40. Questions arising in the House of Representatives shall be determined by a majority of votes other than that of the Speaker. The Speaker shall not vote unless the numbers are equal, and then he shall have a casting vote.

PART IV.—BOTH HOUSES OF THE PARLIAMENT.

41. No adult person who has or acquires a right to vote at elections for the more numerous House of the Parliament of a State shall, while the right continues, be prevented by any law of the Commonwealth from voting at elections for either House of the Parliament of the Commonwealth.

42. Every Senator and every member of the House of Representatives shall before taking his seat make and subscribe before the Governor-General, or some person authorised by him, an oath or affirmation of allegiance in the form set forth in the schedule to this Constitution.

43. A member of either House of the Parliament shall be incapable of being chosen or of sitting as a member of the other House.

44. Any person who—

- (i.) Is under any acknowledgment of allegiance, obedience, or adherence to a foreign power, or is a subject or a citizen or entitled to the rights or privileges of a subject or a citizen of a foreign power: or
- (ii.) Is attainted of treason, or has been convicted and is under sentence, or subject to be sentenced, for any offence punishable under the law of the Commonwealth or of the State by imprisonment for one year or longer: or
- (iii.) Is an undischarged bankrupt or insolvent: or
- (iv.) Holds any office of profit under the Crown, or any pension payable during the pleasure of the Crown out of any of the revenues of the Commonwealth: or
- (v.) Has any direct or indirect pecuniary interest in any agreement with the Public Service of the Commonwealth otherwise than as a member and in common with the other members of an incorporated company consisting of more than twenty-five persons:

shall be incapable of being chosen or of sitting as a senator or a member of the House of Representatives.

But sub-section iv. does not apply to the office of any of the Queen's Ministers of State for the Commonwealth, or of any of the Queen's Ministers for a State, or to the receipt of pay, half-pay, or a pension by any person as an officer or member of the Queen's navy or army, or to the receipt of pay as an officer or member of the naval or military forces of the Commonwealth by any person whose services are not wholly employed by the Commonwealth.

45. If a senator or member of the House of Representatives—

- (i.) Becomes subject to any of the disabilities mentioned in the last preceding section: or
- (ii.) Takes the benefit, whether by assignment, composition, or otherwise, of any law relating to bankrupt or insolvent debtors: or
- (iii.) Directly or indirectly takes or agrees to take any fee or honorarium for services rendered to the Commonwealth, or for services rendered in the Parliament to any person or State:

his place shall thereupon become vacant.

46. Until the Parliament otherwise provides, any person declared by this Constitution to be incapable of sitting as a senator or as a member of the House of Representatives shall, for every day on which he so sits, be liable to pay the sum of one hundred pounds to any person who sues for it in any court of competent jurisdiction.

47. Until the Parliament otherwise provides, any question respecting the qualification of a senator or of a member of the House of Representatives, or respecting a vacancy in either House of the Parliament, and any question of a disputed election to either House, shall be determined by the House in which the question arises.

48. Until the Parliament otherwise provides, each senator and each member of the House of Representatives shall receive an allowance of four hundred pounds a year to be reckoned from the day on which he takes his seat¹.

49. The powers, privileges, and immunities of the Senate and of the House of Representatives, and of the members and the committee of each House, shall be such as are declared by the Parliament, and until declared shall be those of the Commons House of Parliament of the United Kingdom, and of its members and committees, at the establishment of the Commonwealth.

1. By the Parliamentary Allowances Act 1907, assented to on the 28th August, the amount of the allowance was increased to £600 a year.

50. Each House of the Parliament may make rules and orders with respect to—

- (i.) The mode in which its powers, privileges, and immunities may be exercised and upheld;
- (ii.) The order and conduct of its business and proceedings either separately or jointly with the other House.

PART V.—POWERS OF THE PARLIAMENT.¹

51. The Parliament shall, subject to this Constitution, have power to make laws for the peace, order, and good government of the Commonwealth with respect to—

- (i.) Trade and commerce with other countries, and among the States :^{1, 2}
- (ii.) Taxation ; but so as not to discriminate between States or parts of States :
- (iii.) Bounties on the production or export of goods, but so that such bounties shall be uniform throughout the Commonwealth :

1. Two proposed laws for the alteration of the Constitution were submitted to the people for acceptance or rejection on the 26th April, 1911. They were (A) The Constitution Alteration (Legislative Powers) 1910, and (B) the Constitution Alteration (Monopolies) 1910.

(A) *Constitution Alteration (Legislative Powers) 1910.* The object of this proposed law was to extend the powers of the Commonwealth Government (under section 51 of the Constitution) in four directions, viz.—(a) Trade and Commerce, (b) Corporations, (c) Industrial matters, and (d) Trusts and monopolies.

(a) *Trade and Commerce.* In Section 51, para. (i.) of the Constitution, it was proposed to omit the words "with other countries, and among the States," so as to give the Commonwealth Parliament power to legislate with respect to trade and commerce, without limitation.

(b) *Corporations.* It was proposed to omit the words (para. xx.) "Foreign corporations, and trading or financial corporations formed within the limits of the Commonwealth," and to insert in lieu thereof the words—"Corporations including (a) the creation, dissolution, regulation, and control of corporations; (b) corporations formed under the law of a State (except any corporation formed solely for religious, charitable, scientific or artistic purposes, and not for the acquisition of gain by the corporation or its members), including their dissolution, regulation, and control; and (c) foreign corporations, including their regulation and control."

(c) *Industrial Matters.* In para. xxxv. it was proposed to omit the words "Conciliation and arbitration for the prevention and settlement of industrial disputes extending beyond the limits of any one State," and to insert in lieu thereof the words "Labour and employment, including (a) the wages and conditions of labour and employment in any trade, industry, or calling; and (b) the prevention and settlement of industrial disputes, including disputes in relation to employment on or about railways, the property of any State."

(d) *Trusts and Monopolies.* It was proposed to amend Section 51 of the Constitution by adding at the end thereof the following paragraph:—" (xl.) Combinations and monopolies in relation to the production, manufacture, or supply of goods or services."

(B) *Constitution Alteration (Monopolies) 1910.* The object of this proposed law was to alter the Constitution by inserting, after Section 51 thereof, the following section:—"51A. When each House of Parliament, in the same session, has by resolution declared that the industry or business of producing, manufacturing, or supplying goods, or of supplying any specified services, is the subject of any monopoly, the Parliament shall have power to make laws for carrying on the industry or business by or under the control of the Commonwealth, and acquiring for that purpose on just terms any property used in connection with the industry or business."

Neither of the proposed laws was approved by the people.

On the 31st May, 1913, the date of the Parliamentary elections, the same proposed alterations were again submitted to the people as five distinct laws, with an additional one whereby the conditions of employment and the settlement of disputes relating thereto in the several State railway services might be brought within the jurisdiction of the Commonwealth. All six proposed laws were negatived by the people.—See section XXV. § 2.

2. On the 15th July, 1915, the Commonwealth Parliament passed a bill for the submission to the electors of proposed laws to amend the Constitution in regard to the legislative powers of the Commonwealth Parliament. The proposed amendments differed somewhat from those submitted to the electors in the years 1911 and 1913. Thus in regard to (A) (b) *Corporations* (see 1 above) it was proposed to specifically exclude municipal and governmental corporations. (A) (c) was modified to read thus after "to insert in lieu (in their stead) the words"—Including (a) Labour, (b) Employment and unemployment, (c) The terms and conditions of labour and employment in any trade, industry, occupation, or calling, (d) The rights and obligations of employers and employees, (e) Strikes and lockouts, (f) The maintenance of industrial peace, (g) The settlement of industrial disputes. With regard to railway disputes it was proposed to insert after paragraph (xxxv.) and section 51 the following paragraph:—" (xxxv. A.) Conciliation and arbitration for the prevention and settlement of industrial disputes in relation to employment in the railway service of a State. (A) (d) was modified to read (xl.) Trusts, combinations, monopolies, and arrangements in relation to (a) the production, manufacture, or supply of goods, or the supply of services, or (b) the ownership of the means of production, manufacture, or supply of goods, or supply of services. (B) (see 1 above) was modified as follows:—"After "has by resolution" the words "passed by an absolute majority of its members" were added, and an additional subsection was inserted to the effect that the section was not to apply to any industry or business conducted or carried on by the Government of a State, or any public authority constituted under a State. Writs were issued for referendums to be held on the 11th December, 1915, but they were withdrawn under Act 51 of 1915.

- (iv.) Borrowing money on the public credit of the Commonwealth :
- (v.) Postal, telegraphic, telephonic, and other like services :
- (vi.) The naval and military defence of the Commonwealth and of the several States, and the control of the forces to execute and maintain the laws of the Commonwealth :
- (vii.) Lighthouses, lightships, beacons and buoys :
- (viii.) Astronomical and meteorological observations :
- (ix.) Quarantine :
- (x.) Fisheries in Australian waters beyond territorial limits :
- (xi.) Census and statistics :
- (xii.) Currency, coinage, and legal tender :
- (xiii.) Banking, other than State banking ; also State banking extending beyond the limits of the State concerned, the incorporation of banks, and the issue of paper money :
- (xiv.) Insurance, other than State insurance ; also State insurance extending beyond the limits of the State concerned :
- (xv.) Weights and measures :
- (xvi.) Bills of exchange and promissory notes :
- (xvii.) Bankruptcy and insolvency :
- (xviii.) Copyrights, patents of inventions and designs, and trade marks :
- (xix.) Naturalisation and aliens :
- (xx.) Foreign corporations, and trading or financial corporations formed within the limits of the Commonwealth :¹
- (xxi.) Marriage :
- (xxii.) Divorce and matrimonial causes ; and in relation thereto, parental rights, and the custody and guardianship of infants :
- (xxiii.) Invalid and old-age pensions :
- (xxiv.) The service and execution throughout the Commonwealth of the civil and criminal process and the judgments of the Courts of the States :
- (xxv.) The recognition throughout the Commonwealth of the laws, the public Acts and records, and the judicial proceedings of the States :
- (xxvi.) The people of any race, other than the aboriginal race in any State, for whom it is deemed necessary to make special laws :
- (xxvii.) Immigration and emigration :
- (xxviii.) The influx of criminals :
- (xxix.) External affairs :
- (xxx.) The relations of the Commonwealth with the islands of the Pacific :
- (xxxi.) The acquisition of property on just terms from any State or person for any purpose in respect of which the Parliament has power to make laws :
- (xxxii.) The control of railways with respect to transport for the naval and military purposes of the Commonwealth :
- (xxxiii.) The acquisition, with the consent of a State, of any railways of the State on terms arranged between the Commonwealth and the State :
- (xxxiv.) Railway construction and extension in any State with the consent of that State :
- (xxxv.) Conciliation and arbitration for the prevention and settlement of industrial disputes extending beyond the limits of any one State :¹
- (xxxvi.) Matters in respect of which this Constitution makes provision until the Parliament otherwise provides :
- (xxxvii.) Matters referred to the Parliament of the Commonwealth by the Parliament or Parliaments of any State or States, but so that the law shall extend only to States by whose Parliaments the matter is referred, or which afterwards adopt the law :

1. See footnotes 1 and 2 on previous page.

xxxviii.) The exercise within the Commonwealth, at the request or with the concurrence of the Parliaments of all the States directly concerned, of any power which can at the establishment of this Constitution be exercised only by the Parliament of the United Kingdom or by the Federal Council of Australasia :

(xxxix.) Matters incidental to the execution of any power vested by this Constitution in the Parliament or in either House thereof, or in the Government of the Commonwealth, or in the Federal Judicature, or in any department or officer of the Commonwealth.

52. The Parliament shall, subject to this Constitution, have exclusive power to make laws for the peace, order and good government of the Commonwealth, with respect to—

- (i.) The seat of Government of the Commonwealth, and all places acquired by the Commonwealth for public purposes :
- (ii.) Matters relating to any department of the public service the control of which is by this Constitution transferred to the Executive Government of the Commonwealth :
- (iii.) Other matters declared by this Constitution to be within the exclusive power of the Parliament.

53. Proposed laws appropriating revenue or moneys, or imposing taxation, shall not originate in the Senate. But a proposed law shall not be taken to appropriate revenue or moneys, or to impose taxation, by reason only of its containing provisions for the imposition or appropriation of fines or other pecuniary penalties, or for the demand or payment or appropriation of fees for licenses, or fees for services under the proposed law.

The Senate may not amend proposed laws imposing taxation, or proposed laws appropriating revenue or moneys for the ordinary annual services of the Government.

The Senate may not amend any proposed laws so as to increase any proposed charge or burden on the people.

The Senate may at any stage return to the House of Representatives any proposed law which the Senate may not amend, requesting, by message, the omission or amendment of any items or provisions therein. And the House of Representatives may, if it thinks fit, make any of such omissions or amendments, with or without modifications.

Except as provided in this section, the Senate shall have equal power with the House of Representatives in respect of all proposed laws.

54. The proposed law which appropriates revenue or moneys for the ordinary annual services of the Government shall deal only with such appropriations.

55. Laws imposing taxation shall deal only with the imposition of taxation, and any provisions therein dealing with any other matter shall be of no effect.

Laws imposing taxation, except laws imposing duties of customs or of excise, shall deal with one subject of taxation only ; but laws imposing duties of customs shall deal with duties of customs only, and laws imposing duties of excise shall deal with duties of excise only.

56. A vote, resolution, or proposed law for the appropriation of revenue or moneys shall not be passed unless the purpose of the appropriation has in the same session been recommended by message of the Governor-General to the house in which the proposal originated.

57. If the House of Representatives passes any proposed law, and the Senate rejects or fails to pass it, or passes it with amendments to which the House of Representatives will not agree, and if after an interval of three months the House of Representatives, in the same or the next session, again passes the proposed law with or without any amendments which have been made, suggested, or agreed to by the Senate, and the Senate rejects or fails to pass it, or passes it with amendments to which the House of Representatives will not agree, the Governor-General may dissolve the Senate and the House of Representatives simultaneously. But such dissolution shall not take place within six months before the date of the expiry of the House of Representatives by effluxion of time.

If after such dissolution the House of Representatives again passes the proposed law, with or without any amendments which have been made, suggested, or agreed to by

the Senate, and the Senate rejects or fails to pass it, or passes it with amendments to which the House of Representatives will not agree, the Governor-General may convene a joint sitting of the members of the Senate and the House of Representatives.

The members present at the joint sitting may deliberate and shall vote together upon the proposed law as last proposed by the House of Representatives, and upon amendments, if any, which have been made therein by one House and not agreed to by the other, and any such amendments which are affirmed by an absolute majority of the total number of the members of the Senate and House of Representatives shall be taken to have been carried, and if the proposed law, with the amendments, if any, so carried is affirmed by an absolute majority of the total number of members of the Senate and House of Representatives, it shall be taken to have been duly passed by both Houses of the Parliament, and shall be presented to the Governor-General for the Queen's assent.

58. When a proposed law passed by both Houses of the Parliament is presented to the Governor-General for the Queen's assent, he shall declare, according to his discretion, but subject to this Constitution, that he assents in the Queen's name, or that he withholds assent, or that he reserves the law for the Queen's pleasure.

The Governor-General may return to the House in which it originated any proposed law so presented to him, and may transmit therewith any amendments which he may recommend, and the Houses may deal with the recommendation.

59. The Queen may disallow any law within one year from the Governor-General's assent, and such disallowance on being made known by the Governor-General by speech or message to each of the Houses of the Parliament, or by Proclamation, shall annul the law from the day when the disallowance is so made known.

60. A proposed law reserved for the Queen's pleasure shall not have any force unless and until within two years from the day on which it was presented to the Governor-General for the Queen's assent the Governor-General makes known, by speech or message to each of the Houses of Parliament, or by Proclamation, that it has received the Queen's assent.

CHAPTER II.—THE EXECUTIVE GOVERNMENT.

61. The executive power of the Commonwealth is vested in the Queen and is exercisable by the Governor-General as the Queen's representative, and extends to the execution and maintenance of this Constitution, and of the laws of the Commonwealth.

62. There shall be a Federal Executive Council to advise the Governor-General in the government of the Commonwealth, and the members of the Council shall be chosen and summoned by the Governor-General and sworn as Executive Councillors, and shall hold office during his pleasure.

63. The provisions of this Constitution referring to the Governor-General in Council shall be construed as referring to the Governor-General acting with the advice of the Federal Executive Council.

64. The Governor-General may appoint officers to administer such departments of State of the Commonwealth as the Governor-General in Council may establish.

Such officers shall hold office during the pleasure of the Governor-General. They shall be members of the Federal Executive Council, and shall be the Queen's Ministers of State for the Commonwealth.

After the first general election no Minister of State shall hold office for a longer period than three months unless he is or becomes a senator or a member of the House of Representatives.

65. Until the Parliament otherwise provides, the Ministers of State shall not exceed seven in number, and shall hold such offices as the Parliament prescribes, or, in the absence of provision, as the Governor-General directs.

66. There shall be payable to the Queen, out of the Consolidated Revenue Fund of the Commonwealth, for the salaries of the Ministers of State, an annual sum which, until the Parliament otherwise provides, shall not exceed twelve thousand pounds a year.

67. Until the Parliament otherwise provides, the appointment and removal of all other officers of the Executive Government of the Commonwealth shall be vested in the Governor-General in Council, unless the appointment is delegated by the Governor-General in Council or by a law of the Commonwealth to some other authority.

68. The command in chief of the naval and military forces of the Commonwealth is vested in the Governor-General as the Queen's representative.

69. On a date or dates to be proclaimed by the Governor-General after the establishment of the Commonwealth the following departments of the public service in each State shall be transferred to the Commonwealth:—¹

Posts, telegraphs, and telephones:	Lighthouses, lightships, beacons, and buoys:
Naval and military defence:	Quarantine.

But the departments of customs and of excise in each State shall become transferred to the Commonwealth on its establishment.

70. In respect of matters which, under this Constitution, pass to the Executive Government of the Commonwealth, all powers and functions which at the establishment of the Commonwealth are vested in the Governor of a Colony, or in the Governor of a Colony with the advice of his Executive Council, or in any authority of a Colony, shall vest in the Governor-General, or in the Governor-General in Council, or in the authority exercising similar powers under the Commonwealth, as the case requires.

CHAPTER III.—THE JUDICATURE.

71. The Judicial power of the Commonwealth shall be vested in a Federal Supreme Court, to be called the High Court of Australia, and in such other federal courts as the Parliament creates, and in such other courts as it invests with federal jurisdiction. The High Court shall consist of a Chief Justice and so many other Justices, not less than two, as the Parliament prescribes.

72. The Justices of the High Court and of the other courts created by the Parliament—

- (i.) Shall be appointed by the Governor-General in Council:
- (ii.) Shall not be removed except by the Governor-General in Council, on an address from both Houses of the Parliament in the same session, praying for such removal on the ground of proved misbehaviour or incapacity:
- (iii.) Shall receive such remuneration as the Parliament may fix: but the remuneration shall not be diminished during their continuance in office.

73. The High Court shall have jurisdiction, with such exceptions and subject to such regulations as the Parliament prescribes, to hear and determine appeals from all judgments, decrees, orders, and sentences—

- (i.) Of any justice or justices exercising the original jurisdiction of the High Court:
 - (ii.) Of any other federal court or court exercising federal jurisdiction; or of the Supreme Court of any State, or of any other court of any State from which at the establishment of the Commonwealth an appeal lies to the Queen in Council:
 - (iii.) Of the Inter-State Commission, but as to questions of law only:
- and the judgment of the High Court in all such cases shall be final and conclusive.

But no exception or regulation prescribed by the Parliament shall prevent the High Court from hearing and determining any appeal from the Supreme Court of a State in any matter in which at the establishment of the Commonwealth an appeal lies from such Supreme Court to the Queen in Council.

Until the Parliament otherwise provides, the conditions of and restrictions on appeals to the Queen in Council from the supreme Courts of the several States are applicable to appeals from them to the High Court.

¹ As to departments and dates of transfer see Section XIX.—COMMONWEALTH FINANCE, § 1, hereinafter.

74. No appeal shall be permitted to the Queen in Council from a decision of the High Court upon any question, howsoever arising, as to the limits *inter se* of the Constitutional powers of the Commonwealth and those of any State or States, or as to the limits *inter se* of the Constitutional powers of any two or more States, unless the High Court shall certify that the question is one which ought to be determined by Her Majesty in Council.

The High Court may so certify if satisfied that for any special reason the certificate should be granted, and thereupon an appeal shall lie to Her Majesty in Council on the question without further leave.

Except as provided in this section, this Constitution shall not impair any right which the Queen may be pleased to exercise by virtue of Her Royal prerogative to grant special leave of appeal from the High Court to Her Majesty in Council. The Parliament may make laws limiting the matters in which such leave may be asked, but proposed laws containing any such limitation shall be reserved by the Governor-General for Her Majesty's pleasure.

75. In all matters—

- (i.) Arising under any treaty ;
- (ii.) Affecting consuls or other representatives of other countries ;
- (iii.) In which the Commonwealth, or a person suing or being sued on behalf of the Commonwealth, is a party ;
- (iv.) Between States, or between residents of different States, or between a State and a resident of another State ;
- (v.) In which a writ of Mandamus or prohibition or an injunction is sought against an officer of the Commonwealth ;

the High Court shall have original jurisdiction.

76. The Parliament may make laws conferring original jurisdiction on the High Court in any matter—

- (i.) Arising under this Constitution, or involving its interpretation ;
- (ii.) Arising under any laws made by the Parliament ;
- (iii.) Of Admiralty and maritime jurisdiction ;
- (iv.) Relating to the same subject-matter claimed under the laws of different States.

77. With respect to any of the matters mentioned in the last two sections the Parliament may make laws—

- (i.) Defining the jurisdiction of any federal court other than the High Court ;
- (ii.) Defining the extent to which the jurisdiction of any federal court shall be exclusive of that which belongs to or is invested in the courts of the States ;
- (iii.) Investing any court of a State with federal jurisdiction.

78. The Parliament may make laws conferring rights to proceed against the Commonwealth or a State in respect of matters within the limits of the judicial power.

79. The federal jurisdiction of any court may be exercised by such number of judges as the Parliament prescribes.

80. The trial on indictment of any offence against any law of the Commonwealth shall be by jury, and every such trial shall be held in the State where the offence was committed, and if the offence was not committed within any State the trial shall be held at such place or places as the Parliament prescribes.

CHAPTER IV.—FINANCE AND TRADE.

81. All revenues or moneys raised or received by the Executive Government of the Commonwealth shall form one Consolidated Revenue Fund, to be appropriated for the purposes of the Commonwealth in the manner and subject to the charges and liabilities imposed by this Constitution.

82. The costs, charges and expenses incident to the collection, management, and receipt of the Consolidated Revenue Fund shall form the first charge thereon; and the revenue of the Commonwealth shall in the first instance be applied to the payment of the expenditure of the Commonwealth.

83. No money shall be drawn from the Treasury of the Commonwealth except under appropriation made by law.

But until the expiration of one month after the first meeting of the Parliament the Governor-General in Council may draw from the Treasury and expend such moneys as may be necessary for the maintenance of any department transferred to the Commonwealth and for the holding of the first elections for the Parliament.

84. When any department of the public service of a State becomes transferred to the Commonwealth, all officers of the department shall become subject to the control of the Executive Government of the Commonwealth.

Any such officer who is not retained in the service of the Commonwealth shall, unless he is appointed to some other office of equal emolument in the public service of the State, be entitled to receive from the State any pension, gratuity, or other compensation, payable under the law of the State on the abolition of his office.

Any such officer who is retained in the service of the Commonwealth shall preserve all his existing and accruing rights, and shall be entitled to retire from office at the time, and on the pension or retiring allowance, which would be permitted by the law of the State if his service with the Commonwealth were a continuation of his service with the State. Such pension or retiring allowance shall be paid to him by the Commonwealth; but the State shall pay to the Commonwealth a part thereof, to be calculated on the proportion which his term of service with the State bears to his whole term of service, and for the purpose of the calculation his salary shall be taken to be that paid to him by the State at the time of transfer.

Any officer who is, at the establishment of the Commonwealth, in the public service of a State, and who is, by consent of the Governor of the State with the advice of the Executive Council thereof, transferred to the public service of the Commonwealth, shall have the same rights as if he had been an officer of a department transferred to the Commonwealth and were retained in the service of the Commonwealth.

85. When any department of the public service of a State is transferred to the Commonwealth—

- (i.) All property of the State of any kind, used exclusively in connexion with the department, shall become vested in the Commonwealth; but, in the case of the departments controlling customs and excise and bounties, for such time only as the Governor-General in Council may declare to be necessary;
- (ii.) The Commonwealth may acquire any property of the State, of any kind used, but not exclusively used in connexion with the department; the value thereof shall, if no agreement can be made, be ascertained in, as nearly as may be, the manner in which the value of land, or of an interest in land, taken by the State for public purposes is ascertained under the law of the State in force at the establishment of the Commonwealth;
- (iii.) The Commonwealth shall compensate the State for the value of any property passing to the Commonwealth under this section: if no agreement can be made as to the mode of compensation, it shall be determined under laws to be made by the Parliament;
- (iv.) The Commonwealth shall, at the date of the transfer, assume the current obligations of the State in respect of the department transferred.

86. On the establishment of the Commonwealth, the collection and control of duties of customs and of excise, and the control of the payment of bounties, shall pass to the Executive Government of the Commonwealth.

87. During a period of ten years after the establishment of the Commonwealth and thereafter until the Parliament otherwise provides, of the net revenue of the Commonwealth from duties of customs and of excise not more than one-fourth shall be applied annually by the Commonwealth towards its expenditure.

The balance shall, in accordance with this Constitution, be paid to the several States, or applied to the payment of interest on debts of the several States taken over by the Commonwealth.¹

88. Uniform duties of customs shall be imposed within two years after the establishment of the Commonwealth.²

89. Until the imposition of uniform duties of customs—

- (i.) The Commonwealth shall credit to each State the revenues collected therein by the Commonwealth.
- (ii.) The Commonwealth shall debit to each State—
 - (a) The expenditure therein of the Commonwealth incurred solely for the maintenance or continuance as at the time of transfer, of any department transferred from the State to the Commonwealth;
 - (b) The proportion of the State, according to the number of its people, in other expenditure of the Commonwealth.
- (iii.) The Commonwealth shall pay to each State month by month the balance (if any) in favour of the State.

90. On the imposition of uniform duties of customs the power of the Parliament to impose duties of customs and of excise, and to grant bounties on the production or export of goods, shall become exclusive.

On the imposition of uniform duties of customs all laws of the several States imposing duties of customs or of excise, or offering bounties on the production or export of goods, shall cease to have effect, but any grant of or agreement for any such bounty lawfully made by or under the authority of the Government of any State shall be taken to be good if made before the thirtieth day of June, one thousand eight hundred and ninety-eight, and not otherwise.

91. Nothing in this Constitution prohibits a State from granting any aid to or bounty on mining for gold, silver, or other metals, nor from granting, with the consent of both Houses of the Parliament of the Commonwealth expressed by resolution, any aid to or bounty on the production or export of goods.

92. On the imposition of uniform duties of customs, trade, commerce, and intercourse among the States, whether by means of internal carriage or ocean navigation, shall be absolutely free.

But notwithstanding anything in this Constitution, goods imported before the imposition of uniform duties of customs into any State, or into any Colony which, whilst the goods remain therein, becomes a State, shall, on thence passing into another State, within two years after the imposition of such duties, be liable to any duty chargeable on the importation of such goods into the Commonwealth, less any duty paid in respect of the goods on their importation.

93. During the first five years after the imposition of uniform duties of customs and thereafter until the Parliament otherwise provides—

- (i.) The duties of customs chargeable on goods imported into a State and afterwards passing into another State for consumption, and the duties of excise paid on goods produced or manufactured in a State and afterwards passing into another State for consumption, shall be taken to have been collected not in the former but in the latter State :

1. This has been known as the Braddon clause. The Surplus Revenue Act 1910 provides for the termination of this clause as from the 31st December, 1910, and for the payment to the States of twenty-five shillings per head of population until the 30th June, 1920, or thereafter, until Parliament otherwise provides, subject to certain adjustments for the year ended 30th June, 1911. For further information see Section XIX hereinafter.

2. Uniform customs duties were imposed by the Customs Tariff 1902, as from 8th October, 1901.

- (ii.) Subject to the last sub-section, the Commonwealth shall credit revenue, debit expenditure, and pay balances to the several States as prescribed by the period preceding the imposition of uniform duties of customs.¹

94. After five years from the imposition of uniform duties of customs, the Parliament may provide, on such basis as it deems fair, for the monthly payment to the several States of all surplus revenue of the Commonwealth.

95. Notwithstanding anything in this Constitution, the Parliament of the State of Western Australia, if that State be an original State, may, during the first five years after the imposition of uniform duties of customs, impose duties of customs on goods passing into that State and not originally imported from beyond the limits of the Commonwealth; and such duties shall be collected by the Commonwealth.

But any duty so imposed on any goods shall not exceed during the first of such years the duty chargeable on the goods under the law of Western Australia in force at the imposition of uniform duties, and shall not exceed during the second, third, fourth, and fifth of such years respectively, four-fifths, three-fifths, two-fifths, and one-fifth of such latter duty, and all duties imposed under this section shall cease at the expiration of the fifth year after the imposition of uniform duties.

If at any time during the five years the duty on any goods under this section is higher than the duty imposed by the Commonwealth on the importation of the like goods, then such higher duty shall be collected on the goods when imported into Western Australia from beyond the limits of the Commonwealth.

96. During a period of ten years after the establishment of the Commonwealth and thereafter until the Parliament otherwise provides, the Parliament may grant financial assistance to any state on such terms and conditions as the Parliament thinks fit.

97. Until the Parliament otherwise provides, the laws in force in any Colony which has become or becomes a State with respect to the receipt of revenue and the expenditure of money on account of the Government of the Colony, and the review and audit of such receipt and expenditure, shall apply to the receipt of revenue and the expenditure of money on account of the Commonwealth in the State in the same manner as if the Commonwealth, or the Government or an officer of the Commonwealth, were mentioned, whenever the Colony, or the Government or an officer of the Colony, is mentioned.

98. The power of the Parliament to make laws with respect to trade and commerce extends to navigation and shipping, and to railways the property of any State.

99. The Commonwealth shall not, by any law or regulation of trade, commerce, or revenue, give preference to one State or any part thereof over another State or any part thereof.

100. The Commonwealth shall not, by any law or regulation of trade or commerce, abridge the right of a State or of the residents therein to the reasonable use of the waters of rivers for conservation or irrigation.

101. There shall be an Inter-State Commission, with such powers of adjudication and administration as the Parliament deems necessary for the execution and maintenance, within the Commonwealth, of the provisions of this Constitution relating to trade and commerce, and of all laws made thereunder.²

102. The Parliament may by any law with respect to trade or commerce forbid, as to railways, any preference or discrimination by any State, or by any authority constituted under a State, if such preference or discrimination is undue and unreasonable, or unjust to any State, due regard being had to the financial responsibilities incurred by any State in connexion with the construction and maintenance of its railways. But no preference or discrimination shall, within the meaning of this section, be taken to be undue and unreasonable, or unjust to any State, unless so adjudged by the Inter-State Commission.

1. The Surplus Revenue Act 1908, which was amended by the Surplus Revenue Act 1910, states that the provisions of Section 93 of the Constitution shall expire on the date of the commencement of the Surplus Revenue Act 1908, that is, on 13th June, 1908, and also makes provisions in lieu of the expired provisions. The Surplus Revenue Act 1910 repeals the greater part of the provisions of the Act of 1908. See footnote to Section 87 of this Act.

2. The Commission was brought into existence in 1913, under Act No. 33 of 1912.

103. The members of the Inter-State Commission—

- (i.) Shall be appointed by the Governor-General in Council :
- (ii.) Shall hold office for seven years, but may be removed within that time by the Governor-General in Council, on an address from both Houses of Parliament in the same session praying for such removal on the ground of proved misbehaviour or incapacity :
- (iii.) Shall receive such remuneration as the Parliament may fix ; but such remuneration shall not be diminished during their continuance in office.

104. Nothing in this Constitution shall render unlawful any rate for carriage of goods upon a railway, the property of a State, if the rate is deemed by the Inter-State Commission to be necessary for the development of the territory of the State, and if the rate applies equally to goods within the State and to goods passing into the State from other States.

105. The Parliament may take over from the States their public debts [as existing at the establishment of the Commonwealth],¹ or a proportion thereof according to the respective numbers of their people as shewn by the latest statistics of the Commonwealth, and may convert, renew, or consolidate such debts, or any part thereof ; and the States shall indemnify the Commonwealth in respect of the debts taken over, and thereafter the interest payable in respect of the debts shall be deducted and retained from the portions of the surplus revenue of the Commonwealth payable to the several States, or if such surplus is insufficient, or if there is no surplus, then the deficiency or the whole amount shall be paid by the several States.

CHAPTER V.—THE STATES.

106. The Constitution of each State of the Commonwealth shall, subject to this Constitution, continue as at the establishment of the Commonwealth, or as at the admission or establishment of the State, as the case may be, until altered in accordance with the Constitution of the State.

107. Every power of the Parliament of a Colony which has become or becomes a State, shall, unless it is by this Constitution exclusively vested in the Parliament of the Commonwealth or withdrawn from the Parliament of the State, continue as at the establishment of the Commonwealth, or as at the admission or establishment of the State, as the case may be.

108. Every law in force in a Colony which has become or becomes a State, and relating to any matter within the powers of the Parliament of the Commonwealth, shall, subject to this Constitution, continue in force in the State ; and, until provision is made in that behalf by the Parliament of the Commonwealth, the Parliament of the State shall have such powers of alteration and of repeal in respect of any such law as the Parliament of the Colony had until the Colony became a State.

109. When a law of a State is inconsistent with a law of the Commonwealth, the latter shall prevail, and the former shall, to the extent of the inconsistency, be invalid.

110. The provisions of this Constitution relating to the Governor of a State extend and apply to the Governor for the time being of the State, or other chief executive officer or administrator of the Government of the State.

111. The Parliament of a State may surrender any part of the State to the Commonwealth ; and upon such surrender, and the acceptance thereof by the Commonwealth, such part of the State shall become subject to the exclusive jurisdiction of the Commonwealth.

112. After uniform duties of customs have been imposed, a State may levy on imports or exports, or on goods passing into or out of the State, such charges as may be necessary for executing the inspection laws of the State ; but the net produce of all charges so levied shall be for the use of the Commonwealth ; and any such inspection laws may be annulled by the Parliament of the Commonwealth.

1. Under Section 2 of the Constitution Alteration (State Debts) 1909, the words in square brackets are omitted.

113. All fermented, distilled, or other intoxicating liquids passing into any State or remaining therein for use, consumption, sale, or storage, shall be subject to the laws of the State as if such liquids had been produced in the State.

114. A State shall not, without the consent of the Parliament of the Commonwealth, raise or maintain any naval or military force, or impose any tax on property of any kind belonging to the Commonwealth, nor shall the Commonwealth impose any tax on property of any kind belonging to a State.

115. A State shall not coin money, nor make anything but gold and silver coin a legal tender in payment of debts.

116. The Commonwealth shall not make any law for establishing any religion, or for imposing any religious observance, or for prohibiting the free exercise of any religion, and no religious test shall be required as a qualification for any office or public trust under the Commonwealth.

117. A subject of the Queen, resident in any State, shall not be subject in any other State to any disability or discrimination which would not be equally applicable to him if he were a subject of the Queen resident in such other State.

118. Full faith and credit shall be given, throughout the Commonwealth, to the laws, the public Acts and records, and the judicial proceedings of every State.

119. The Commonwealth shall protect every State against invasion, and, on the application of the Executive Government of the State, against domestic violence.

120. Every State shall make provision for the detention in its prisons of persons accused or convicted of offences against the laws of the Commonwealth, and for the punishment of persons convicted of such offences, and the Parliament of the Commonwealth may make laws to give effect to this provision.

CHAPTER VI.—NEW STATES.

121. The Parliament may admit to the Commonwealth or establish new States, and may upon such admission or establishment make or impose such terms and conditions, including the extent of representation in either House of the Parliament, as it thinks fit.

122. The Parliament may make laws for the government of any territory surrendered by any State to and accepted by the Commonwealth, or of any territory placed by the Queen under the authority of and accepted by the Commonwealth, or otherwise acquired by the Commonwealth, and may allow the representation of such territory in either House of the Parliament to the extent and on the terms which it thinks fit.

123. The Parliament of the Commonwealth may, with the consent of the Parliament of a State, and the approval of the majority of the electors of the State voting upon the question, increase, diminish, or otherwise alter the limits of the State, upon such terms and conditions as may be agreed on, and may, with the like consent, make provision respecting the effect and operation of any increase or diminution or alteration of territory in relation to any State affected.

124. A new State may be formed by separation of territory from a State, but only with consent of the Parliament thereof, and a new State may be formed by the union of two or more States or parts of States, but only with the consent of the Parliaments of the States affected.

CHAPTER VII.—MISCELLANEOUS.

125. The seat of Government of the Commonwealth shall be determined by the Parliament, and shall be within territory which shall have been granted to or acquired by the Commonwealth, and shall be vested in and belong to the Commonwealth, and shall be in the State of New South Wales, and be distant not less than one hundred miles from Sydney.

Such territory shall contain an area of not less than one hundred square miles, and such portion thereof as shall consist of Crown lands shall be granted to the Commonwealth without any payment therefor.

The Parliament shall sit at Melbourne until it meet at the seat of Government.

126. The Queen may authorise the Governor-General to appoint any person, or any persons jointly or severally, to be his deputy or deputies within any part of the Commonwealth, and in that capacity to exercise during the pleasure of the Governor-General such powers and functions of the Governor-General as he thinks fit to assign to such deputy or deputies, subject to any limitations expressed or directions given by the Queen: but the appointment of such deputy or deputies shall not affect the exercise by the Governor-General himself of any power or function.

127. In reckoning the numbers of the people of the Commonwealth, or of a State or other part of the Commonwealth, aboriginal natives shall not be counted.

CHAPTER VIII.—ALTERATION OF THE CONSTITUTION.¹

128. This constitution shall not be altered except in the following manner:—

The proposed law for the alteration thereof must be passed by an absolute majority of each House of the Parliament, and not less than two nor more than six months after its passage through both Houses the proposed law shall be submitted in each State to the electors qualified to vote for the election of members of the House of Representatives.²

But if either House passes any such proposed law by an absolute majority, and the other House rejects or fails to pass it or passes it with any amendment to which the first-mentioned House will not agree, and if after an interval of three months the first-mentioned House in the same or the next session again passes the proposed law by an absolute majority with or without any amendment which has been made or agreed to by the other House, and such other House rejects or fails to pass it or passes it with any amendment to which the first-mentioned House will not agree, the Governor-General may submit the proposed law as last proposed by the first-mentioned House, and either with or without any amendments subsequently agreed to by both Houses, to the electors in each State qualified to vote for the election of the House of Representatives.

When a proposed law is submitted to the electors the vote shall be taken in such manner as the Parliament prescribes. But until the qualification of electors of members of the House of Representatives becomes uniform throughout the Commonwealth, only one-half the electors voting for and against the proposed law shall be counted in any State in which adult suffrage prevails.

And if in a majority of the States a majority of the electors voting approve the proposed law, and if a majority of all the electors voting also approve the proposed law, it shall be presented to the Governor-General for the Queen's assent.

No alteration diminishing the proportionate representation of any State in either House of the Parliament, or the minimum number of representatives of a State in the House of Representatives, or increasing, diminishing, or otherwise altering the limits of the State, or in any manner affecting the provisions of the Constitution in relation thereto, shall become law unless the majority of the electors voting in that State approve the proposed law.

SCHEDULE.

OATH.

I, *A.B.*, do swear that I will be faithful and bear true allegiance to Her Majesty Queen Victoria, Her heirs and successors according to law. SO HELP ME GOD!

AFFIRMATION.

I, *A.B.*, do solemnly and sincerely affirm and declare that I will be faithful and bear true allegiance to Her Majesty Queen Victoria, Her heirs and successors according to law.

(NOTE.—*The name of the King or Queen of the United Kingdom of Great Britain and Ireland for the time being is to be substituted from time to time.*)

1. The Constitution has been altered by the following Acts:—The Constitution Alteration (Senate Elections) 1906 (No. 1 of 1907); and the Constitution Alteration (State Debts) 1909 (No. 3 of 1910).

2. The Referendum (Constitution Alteration) Act, 1906-1910, provides the necessary machinery for the submission to the electors of any proposed law for the alteration of the Constitution.

2. **The Royal Proclamation.**—The preceding Act received the Royal assent on the 9th July, 1900. This made it lawful (see Sec. 3) to declare that the people of Australia should be united in a Federal Commonwealth. This proclamation, made on the 17th September, 1900, constituted the Commonwealth as from the 1st January, 1901: it reads as follows:—

BY THE QUEEN.

A PROCLAMATION.

(Signed) VICTORIA R.

WHEREAS by an Act of Parliament passed in the Sixty-third and Sixty-fourth Years of Our Reign, intituled "An Act to constitute the Commonwealth of Australia," it is enacted that it shall be lawful for the Queen, with the advice of the Privy Council, to declare by Proclamation, that, on and after a day therein appointed, not being later than One Year after the passing of this Act, the people of *New South Wales, Victoria, South Australia, Queensland, and Tasmania*, and also, if Her Majesty is satisfied that the people of *Western Australia* have agreed thereto, of *Western Australia*, shall be united in a Federal Commonwealth under the name of the Commonwealth of Australia.

And whereas We are satisfied that the people of *Western Australia* have agreed thereto accordingly.

We therefore, by and with the advice of Our Privy Council, have thought fit to issue this Our Royal Proclamation, and We do hereby declare that on and after the First day of *January* One thousand nine hundred and one, the people of *New South Wales, Victoria, South Australia, Queensland, Tasmania, and Western Australia* shall be united in a Federal Commonwealth under the name of the Commonwealth of *Australia*.

Given at Our Court at *Balmoral* this Seventeenth day of *September*, in the Year of Our Lord One thousand nine hundred, and in the Sixty-fourth Year of Our Reign.

GOD SAVE THE QUEEN.

§ 9. Commonwealth Legislation.

1. **The Commonwealth Parliaments.**—The first Parliament of the Commonwealth was convened by proclamation dated 29th April, 1901, by His Excellency the late Marquis of Linlithgow, then Earl of Hopetoun, Governor-General. It was opened on the 9th May by H.R.H. the Duke of Cornwall and York, who had been sent to Australia for that purpose by His Majesty the King; the Rt. Hon. Sir Edmund Barton, P.C., G.C.M.G., K.C., being Prime Minister.

The following table gives the number and duration of Parliaments since Federation:—

COMMONWEALTH PARLIAMENTS, 1901 to 1917.

	Date of Opening.	Date of Dissolution.
First Parliament	29th April, 1901	23rd November, 1903.
Second ,,	2nd March, 1904	12th October, 1906.
Third ,,	20th February, 1907	19th February, 1910.
Fourth ,,	1st July, 1910	23rd April, 1913.
Fifth ,,	9th July, 1913	27th June, 1914.*
Sixth ,,	8th October, 1914	26th March, 1917.
Seventh ,,	14th June, 1917	—

* On this occasion, the Governor-General, acting on the advice of the Ministry, and under section 57 of the Constitution, granted a dissolution of both the Senate and the House of Representatives, this being the first occasion since Federation on which a dissolution of both Houses had occurred.

The Debates of these Parliaments will be found in Volumes I. to LXXXII. of the Parliamentary Debates, as follows —

Parliament	Session	Vois.	I. to XII., pp.	1 to 16,744
First Parliament,	1st Session			
"	2nd "	"	XIII. " XVII.,	" 1 " 6,440
Second Parliament,	1st "	"	XVIII. " XXIV.,	" 1 " 8,618
"	2nd "	"	XXV. " XXX.,	" 1 " 7,461
"	3rd "	"	XXXI. " XXXV.,	" 1 " 6,491
Third Parliament,	1st "	"	XXXVI. "	" 1 " 141
"	2nd "	"	XXXVI. " XLVI.,	" 1 " 12,203
"	3rd "	"	XLVII. " XLVIII.,	" 1 " 3,180
"	4th "	"	XLIX. " LIV.,	" 1 " 7,296
Fourth Parliament,	1st "	"	LV. " LIX.,	" 1 " 6,893
"	2nd "	"	LX. " LXIII.,	" 1 " 4,983
"	3rd "	"	LXIV. " LXIX.,	" 1 " 7,568
Fifth Parliament,	1st "	"	LXX. " LXXII.,	" 1 " 4,798
"	2nd "	"	LXXIII. " LXXXIV.,	" 1 " 2,658
Sixth Parliament	1st "	"	LXXXV. " LXXXII "	" 1 " 11,707

2. **The Several Administrations.**—The following tabular statements shew the names of the several Governors-General, and the constitution of the Ministries which have directed the administration of the affairs of the Commonwealth since its creation:—

(a) GOVERNORS-GENERAL.

Rt. Hon. EARL OF HOPETOUN (afterwards MARQUIS OF LINLITHGOW), P.C., K.T., G.C.M.G., G.C.V.O. Sworn 1st January, 1901; recalled 9th May, 1902, left Melbourne 2nd July, 1902.
Rt. Hon. HALLAM BARON TENNYSON, G.C.M.G. (Act. Governor-General). Sworn 17th July, 1902.
Rt. Hon. HALLAM BARON TENNYSON, G.C.M.G. (Governor-General). Sworn 9th January, 1903; recalled 21st January, 1904.
Rt. Hon. HENRY STAFFORD NORTHCOOTE, P.C., G.C.M.G., G.C.I.E., C.B. Sworn 21st January, 1904; recalled 8th September, 1908.
Rt. Hon. WILLIAM HUMBLE EARL OF DUDLEY, P.C., G.C.M.G., G.C.V.O., etc. Sworn 9th September, 1908; recalled 31st July, 1911.
Rt. Hon. THOMAS BARON DENMAN, P.C., G.C.M.G., K.C.V.O. Sworn 31st July, 1911; recalled 16th May, 1914.
Rt. Hon. SIR RONALD CRAUFURD MUNRO FERGUSON, P.C., G.C.M.G. Sworn 18th May, 1914.

(b) BARTON ADMINISTRATION, 1st January, 1901, to 23rd September, 1903.

DEPARTMENTS.	MINISTERS.
External Affairs	Rt. Hon. SIR EDMUND BARTON, P.C., G.C.M.G., K.C.
Attorney-General... ..	Hon. ALFRED DEAKIN.
Home Affairs	{ Hon. SIR WILLIAM JOHN LYNE, K.C.M.G. (to 7/8/03). Rt. Hon. SIR JOHN FORREST, P.C., G.C.M.G. (from 7/8/03).
Treasury	Rt. Hon. SIR GEORGE TURNER, P.C., K.C.M.G.
Trade and Customs	{ Rt. Hon. CHARLES CAMERON KINGSTON, P.C., K.C. (resigned 24/7/03) Hon. SIR WILLIAM JOHN LYNE, K.C.M.G. (from 7/8/03). The Hon. SIR JAMES ROBERT DICKSON, K.C.M.G. (died 10/1/01).
Defence	{ Rt. Hon. SIR JOHN FORREST, P.C., G.C.M.G. (17/1/01 to 7/8/03) Hon. JAMES GEORGE DRAKE (from 7/8/03).
Postmaster-General	{ Rt. Hon. SIR JOHN FORREST, P.C., G.C.M.G. (to 17/1/01). Hon. JAMES GEORGE DRAKE (5/2/01 to 7/8/03). Hon. SIR PHILIP OAKLEY FYSH, K.C.M.G. (from 7/8/03).
Vice-President Executive Council	Hon. RICHARD EDWARD O'CONNOR, K.C.
Without Portfolio	{ Hon. N. E. LEWIS (to 23/4/01).* Hon. SIR PHILIP OAKLEY FYSH, K.C.M.G. (26/4/01 to 7/8/03).

* K.C.M.G., 1902.

(c) First DEAKIN ADMINISTRATION, 23rd September, 1903, to 26th April, 1904.

DEPARTMENTS.	MINISTERS.
External Affairs	Hon. ALFRED DEAKIN.
Trade and Customs	Hon. SIR WILLIAM JOHN LYNE, K.C.M.G.
Treasury	Rt. Hon. SIR GEORGE TURNER, P.C., K.C.M.G.
Home Affairs	Rt. Hon. SIR JOHN FORREST, P.C., G.C.M.G.
Attorney-General... ..	Hon. JAMES GEORGE DRAKE.
Postmaster-General	Hon. SIR PHILIP OAKLEY FYSH, K.C.M.G.
Defence	Hon. AUSTIN CHAPMAN.
Vice-President Executive Council	Hon. THOMAS PLAYFORD.

(d) WATSON ADMINISTRATION, 26th April to 17th August, 1904.

DEPARTMENTS.	MINISTERS.
Treasurer	Hon. JOHN CHRISTIAN WATSON.
External Affairs	Hon. WILLIAM MORRIS HUGHES.
Attorney-General	Hon. HENRY BOURNES HIGGINS, K.C.
Home Affairs	Hon. EGERTON LEE BATCHELOR.
Trade and Customs	Hon. ANDREW FISHER.*
Defence	Hon. ANDERSON DAWSON.
Postmaster-General	Hon. HUGH MAHON.
Vice-President Executive C'ncil	Hon. GREGOR MCGREGOR.

(e) REID-MCLEAN ADMINISTRATION, 17th August, 1904, to 4th July, 1905.

DEPARTMENTS.	MINISTERS.
External Affairs	Rt Hon GEORGE HOUSTON REID, P.C. K.C.
Trade and Customs	Hon. ALLAN MCLEAN.
Attorney-General	Hon. SIR JOSIAH HENRY SYMON, K.C.M.G., K.C.
Treasury	Rt. Hon. SIR GEORGE TURNER, P.C., K.C.M.G.
Home Affairs	Hon. DUGALD THOMSON.
Defence	Hon. JAMES WHITESIDE MCCAY.
Postmaster-General	Hon. SYDNEY SMITH.
Vice-President Executive C'ncil	Hon. JAMES GEORGE DRAKE.

(f) SECOND DEAKIN ADMINISTRATION, 4th July, 1905, to 12th November, 1908.

DEPARTMENTS	MINISTERS.
External Affairs	Hon. ALFRED DEAKIN.
Attorney-General	{ Hon. ISAAC ALFRED ISAACS, K.C. (to 12/10/06). Hon. LITTLETON ERNEST GROOM (to 12/10/06).
Trade and Customs	{ Hon. SIR WILLIAM JOHN LYNE, K.C.M.G. (to 30/7/07). Hon. AUSTIN CHAPMAN (from 30/7/07).
Treasurer	{ Rt. Hon. SIR JOHN FORREST, P.C., G.C.M.G. (to 30/7/07) Hon. SIR WILLIAM JOHN LYNE (from 30/7/07). Hon. AUSTIN CHAPMAN (to 30/7/07).
Postmaster-General	{ Hon. SAMUEL MAUGER (from 30/7/07). Hon. THOMAS PLAYFORD (to 24/1/07).
Defence	{ Hon. THOMAS THOMSON EWING (from 24/1/07).† Hon. LITTLETON ERNEST GROOM (to 12/10/06).
Home Affairs	{ Hon. THOMAS THOMSON EWING (from 12/10/06 to 24/1/07).† Hon. JOHN HENRY KEATING (from 24/1/07). Hon. THOMAS THOMSON EWING (to 12/10/06).†
Vice-President Executive C'ncil	{ Hon. JOHN HENRY KEATING (from 12/10/06 to 20/2/07). Hon. ROBERT WALLACE BEST (from 20/2/07).† Hon. J. H. KEATING (from 5/7/05 to 12/10/06).
Honorary Ministers	{ Hon. S. MAUGER (from 12/10/06 to 30/7/07). Hon. J. HUME COOK (from 28/1/08).

(g) FIRST FISHER ADMINISTRATION, 12th November, 1908, to 2nd June, 1909.

DEPARTMENTS.	MINISTERS.
Treasurer	Hon. ANDREW FISHER.*
Attorney-General	Hon. WILLIAM MORRIS HUGHES.
External Affairs	Hon. EGERTON LEE BATCHELOR.
Home Affairs	Hon. HUGH MAHON.
Postmaster-General	Hon. JOSIAH THOMAS.
Defence	Hon. GEORGE FOSTER PEARCE.
Trade and Customs	Hon. FRANK GWYNNE TUDOR.
Vice-President Executive C'ncil	Hon. GREGOR MCGREGOR.
Honorary Minister	Hon. JAMES HUTCHISON

(h) THIRD DEAKIN ADMINISTRATION, 2nd June, 1909, to 29th April, 1910.

DEPARTMENTS.	MINISTERS.
Prime Minister (without P'tfolio)	Hon. ALFRED DEAKIN.
Defence	Hon. JOSEPH COOK.*
Treasurer	Rt. Hon. SIR JOHN FORREST, P.C., G.C.M.G.
Trade and Customs	Hon. SIR ROBERT WALLACE BEST, K.C.M.G.
External Affairs	Hon. LITTLETON ERNEST GROOM.
Attorney-General	Hon. PATRICK McMAHON GLYNN.
Postmaster-General	Hon. SIR JOHN QUICK.
Home Affairs	Hon. GEORGE WARBURTON FULLER.
Vice-President Executive C'ncil	Hon. EDWARD DAVIS MILLEN.
Honorary Minister	Colonel The Hon. JUSTIN FOX GREENLAW FOXTON, C.M.G.

* P.C., 1911. † K.C.M.G., 1903.

(i) SECOND FISHER ADMINISTRATION, 29th April, 1910, to 20th June, 1913.

DEPARTMENTS.	MINISTERS.
Treasurer	Rt. Hon. ANDREW FISHER, P.C.
Attorney-General	Hon. WILLIAM MORRIS HUGHES.
External Affairs	{ Hon. EGBERTON LEE BATCHELOR (died Oct., 1911). Hon. JOSIAH THOMAS (from 14/10/11).
Postmaster-General	{ Hon. JOSIAH THOMAS (to 14/10/11). Hon. CHARLES EDWARD FRAZER (from 14/10/11).
Defence	Hon. GEORGE FOSTER PEARCE.
Trade and Customs	Hon. FRANK GWYNNE TUDOR.
Home Affairs	Hon. KING O'MALLEY.
Vice-President Executive C'ncil	Hon. GREGOR MCGREGOR.
Honorary Ministers	{ Hon. EDWARD FINDLEY. Hon. CHARLES EDWARD FRAZER (to 14/10/11). Hon. ERNEST ALFRED ROBERTS (from 23/10/11).

(j) COOK ADMINISTRATION, 20th June, 1913, to 17th September, 1914.

DEPARTMENTS.	MINISTERS.
Home Affairs	Hon. JOSEPH COOK.*
Treasurer	Rt. Hon. SIR JOHN FORREST, P.C., G.C.M.G.
Attorney-General	Hon. WILLIAM HILL IRVINE, K.C.†
Defence	Hon. EDWARD DAVIS MILLEN.
External Affairs	Hon. PATRICK MCMAHON GLENN, K.C.
Trade and Customs	Hon. LITTLETON ERNEST GROOM.
Postmaster-General	Hon. AGAR WYNNE
Vice-President Executive C'ncil	Hon. JAMES HIERS M'COLL.
Honorary Ministers	{ Hon. JOHN SINGLETON CLEMONS. Hon. WILLIAM HENRY KELLY.

(k) THIRD FISHER ADMINISTRATION, 17th September, 1914, to 27th October, 1915.

DEPARTMENTS.	MINISTERS.
Treasurer	Rt. Hon. ANDREW FISHER, P.C.
Attorney-General	Hon. WILLIAM MORRIS HUGHES.
Defence	Hon. GEORGE FOSTER PEARCE.
Trade and Customs	Hon. FRANK GWYNNE TUDOR.
External Affairs	{ Hon. JOHN ANDREW ARTHUR (died December, 1914). Hon. HUGH MAHON (from 14/12/14).
Home Affairs	Hon. WILLIAM OLIVER ARCHIBALD.
Postmaster-General	Hon. WILLIAM GUTHRIE SPENCE.
Minister for the Navy	Hon. JENS AUGUST JENSEN (from 12/7/15).
Vice-President Executive C'ncil	Hon. ALBERT GARDINER.
Assistant Ministers	{ Hon. HUGH MAHON (to 14/12/14). Hon. JENS AUGUST JENSEN (to 12/7/15). Hon. EDWARD JOHN RUSSELL.

(l) First HUGHES ADMINISTRATION from 27th October, 1915, to 14th Nov., 1916.

DEPARTMENTS.	MINISTERS.
Prime Minister and Attorney-General	Hon. WILLIAM MORRIS HUGHES, P.C.‡
Defence	Hon. GEORGE FOSTER PEARCE.
Trade and Customs	{ Hon. FRANK GWYNNE TUDOR (to 14/9/16). Rt. Hon. WILLIAM MORRIS HUGHES (29/9/16).
Treasurer	Hon. WILLIAM GUY HIGGS.¶
Minister for the Navy	Hon. JENS AUGUST JENSEN.
Home Affairs	Hon. KING O'MALLEY.
External Affairs	Hon. HUGH MAHON.
Postmaster-General	Hon. WILLIAM WEBSTER.
Vice-President Executive C'ncil	Hon. ALBERT GARDINER.¶
Assistant Minister... ..	Hon. EDWARD JOHN RUSSELL.¶

(m) Second HUGHES ADMINISTRATION from 14th Nov., 1916, to 17th Feb., 1917.

DEPARTMENTS.	MINISTERS.
Prime Minister and Attorney-General	Rt. Hon. WILLIAM MORRIS HUGHES, P.C.
Minister for Defence	Hon. GEORGE FOSTER PEARCE.
Minister for the Navy	Hon. JENS AUGUST JENSEN.
Postmaster-General	Hon. WILLIAM WEBSTER.
Treasurer	Hon. ALEXANDER POYNTON.
Minister for Trade and Customs	Hon. WILLIAM OLIVER ARCHIBALD.
Minister for Home Affairs	Hon. FREDERICK WILLIAM BAMFORD.
Minister for Works	Hon. PATRICK JOSEPH LYNCH.
Vice-President Executive C'ncil	Hon. WILLIAM GUTHRIE SPENCE.
Assistant Ministers	{ Hon. EDWARD JOHN RUSSELL. Hon. WILLIAM HENRY LAIRD SMITH.

* P.C., 1914.

† K.C.M.G., 1914.

‡ P.C., 1916.

¶ Resigned 27/10/16.

(n) AUSTRALIAN NATIONAL WAR GOVERNMENT from 17th February, 1917.

DEPARTMENTS.		MINISTERS.
Prime Minister and Attorney-General		
General	...	Rt. Hon. WILLIAM MORRIS HUGHES, P.C.
Minister for the Navy	...	Rt. Hon. JOSEPH COOK, P.C.
Treasurer	...	Rt. Hon. SIR JOHN FORREST, P.C., G.C.M.G.
Minister for Defence	...	Hon. GEORGE FOSTER PEARCE.
Vice-President Executive Council	...	Hon. EDWARD DAVIS MILLEN.
Minister for Works & Railways	...	Hon. WILLIAM ALEXANDER WATT.
Minister for Home & Territories	...	Hon. PATRICK McMAHON GLYNN, K.C.
Minister for Trade and Customs	...	Hon. JENS AUGUST JENSEN.
Postmaster-General	...	Hon. WILLIAM WEBSTER.
Honorary Ministers	...	{ Hon. LITTLETON ERNEST GROOM. Hon. EDWARD JOHN RUSSELL.

A further list of the Ministers of State for the Commonwealth, arranged according to the respective offices occupied, is given in the section of this book dealing with the subject of *General Government* (see Section XXV.).

3. **The Course of Legislation.**—The actual legislation by the Commonwealth Parliament up to the end of the 1916 session is indicated in alphabetical order in "Vol. 14 of the Acts of the Parliament of the Commonwealth of Australia, passed in the session of 1916, with Tables, Appendices and Indexes." A "Chronological Table of Acts passed from 1901 to 1916, shewing how they are affected by subsequent legislation or lapse of time" is also given, and further "A Table of Commonwealth Legislation," for the same period, "in relation to the several provisions of the Constitution," is furnished. Reference may be made to these for complete information. The nature of Commonwealth legislation, up to December, 1916, and its relation to the several provisions of the Constitution, are set forth in the following tabular statement:—

**ANALYTIC TABLE OF COMMONWEALTH LEGISLATION
FROM 1901 to DECEMBER, 1916, IN RELATION TO THE SEVERAL PROVISIONS
OF THE CONSTITUTION.¹**

Section of Constitution.	Short Title of Commonwealth Act.*
	AMENDMENT OF THE CONSTITUTION.
	Constitution Alteration (Senate Elections) 1906. Constitution Alteration (State Debts) 1909.
	PARLIAMENTARY AND ELECTORAL LAW.
8—30	PARLIAMENTARY FRANCHISE— Commonwealth Franchise Act 1902.
9—34	ELECTIONS— Commonwealth Electoral Act 1902-1911. Senate Elections Act 1903.
24	DETERMINATION OF NUMBER OF MEMBERS OF HOUSE OF REPRESENTATIVES— Representation Act 1905. Representation Act 1916.
47	DISPUTED ELECTIONS AND QUALIFICATIONS— Commonwealth Electoral Act 1902-1911, Part XVI. Disputed Elections and Qualifications Act 1907.
48	ALLOWANCES TO MEMBERS— <i>Parliamentary Allowances Act 1902.*</i> Parliamentary Allowances Act 1907.
49	PRIVILEGES OF PARLIAMENT— Parliamentary Papers Act 1908.

1. This Table has been prepared by Sir Robert Garran, Solicitor-General to the Commonwealth.
* Acts whose short titles are printed in italics with a * have been repealed or have expired.

Section of Constitution.	Short Title of Commonwealth Act.*
	GENERAL LEGISLATION.
51—(i.)	TRADE AND COMMERCE—EXTERNAL AND INTERSTATE— Sea Carriage of Goods Act 1904 [<i>Bills of Lading</i>]. Secret Commissions Act 1905. Commerce (Trade Descriptions) Act 1905 [<i>Merchandise Marks</i>]. Australian Industries Preservation Act 1906-1910 [<i>Trusts and Dumping</i>]. Spirits Act 1906-1915. <i>Seamen's Compensation Act 1909.*</i> Customs (Inter-State Accounts) Act 1910. Northern Territory Acceptance Act 1910 (s. 13). Seamen's Compensation Act 1911. Navigation Act 1912. Norfolk Island Act 1913 (s. 15). Trading with the Enemy Act 1914-1916. Meat Export Trade Commission Act 1914. Enemy Contracts Annulment Act 1915. Freight Arrangements Act 1915. River Murray Waters Act 1915. Sugar Purchase Act 1915.
(ii.)	TAXATION— <i>Machinery Acts—</i> Customs Act 1901-1916. Beer Excise Act 1901-1912. Distillation Act 1901. Excise Act 1901. Spirits Act 1906-1915. Excise Procedure Act 1907. Australian Notes Act 1910-1914 (s. 12). Land Tax Assessment Act 1910-1916. Estate Duty Assessment Act 1914-1916. Income Tax Assessment Act 1916. <i>Taxing Acts—</i> Entertainments Tax Assessment Act 1916. Customs Tariff 1902. <i>Customs Tariff 1906 [Agricultural Machinery].*</i> Customs Tariff (South African Preference) 1906; <i>amended by Customs Tariff 1908 (s. 9).</i> Customs Tariff 1908; <i>amended by Customs Tariff Amendment 1908, and Customs Tariff 1910, and Customs Tariff 1911.</i> Excise Tariff 1902; <i>amended by Sugar Rebate Abolition Act 1903, Excise Tariff 1905,* Excise Tariff (Amendment) 1906,* Excise Tariff 1908; and Excise (Sugar) Act 1910.*</i> Excise Tariff 1906 [<i>Agricultural Machinery</i>]; 1906 [<i>Spirits</i>]. Excise Tariff 1908; <i>amended by Excise Tariff (Starch) 1908.</i> Bank Notes Tax Act 1910. Land Tax Act 1910-1914. Sugar Excise Repeal Act 1912. <i>Excise Tariff 1913.*</i> Estate Duty Act 1914. Income Tax Acts 1915. Income Tax Act 1916. Entertainments Tax Act 1916.
(iii.)	BOUNTIES ON PRODUCTION OR EXPORT— <i>Sugar Bounty Acts 1903,* 1905,* 1910,* 1912.*</i> Bounties Act 1907-1912. <i>Manufactures Encouragement Act 1908-1914*</i> <i>Shale Oil Bounties Act, 1910.*</i> Sugar Bounty Abolition Act 1912. Wood Pulp and Rock Phosphate Bounties Act 1912. <i>Sugar Bounty Act 1913.*</i> Iron Bounty Act 1914-1915.

Section of Constitution.	Short Title of Commonwealth Act.*
51 (iv.)	<p>BORROWING MONEY ON THE PUBLIC CREDIT OF THE COMMONWEALTH— Commonwealth Inscribed Stock Act 1911-1915. Loan Act 1911-1914, 1912-1914, 1913-1914, 1914, 1915. <i>Naval Loan Act 1909*</i> Naval Loan Repeal Act 1910. Treasury Bills Act 1914-1915. War Loan Act 1914. War Loan Act (No. 1) 1915. War Loan Act (No. 2) 1915. War Loan Act (No. 3) 1915. Sugar Purchase Act 1915. Freight Arrangements Act 1915. States Loan Act 1916. War Loan Act (No. 1) 1916. War Loan Act (United Kingdom, No. 1) 1916. War Loan Act (United Kingdom, No. 2) 1916.</p>
(v.)	<p>POSTAL, TELEGRAPHIC, AND TELEPHONIC SERVICES— Post and Telegraph Act 1901-1916. Post and Telegraph Rates Act 1902-1913. Wireless Telegraphy Act 1905-1915. Tasmanian Cable Rates Act 1906. Telegraph Act 1909. Postal Rates Act 1910. Purchase Telephone Lines Acquisition Act 1911. Pacific Cable Act 1911.</p>
(vi.)	<p>NAVAL AND MILITARY DEFENCE— <i>General—</i> Naval Agreement Act 1903-1912. <i>Naval Loan Act 1909.*</i> Naval Loan Repeal Act 1910, Defence Act 1903-1915. Telegraph Act 1909. Naval Defence Act 1910-1912. Defence Lands Purchase Act 1913. <i>War Legislation—</i> Trading with the Enemy Act 1914-1916. War Precautions Act 1914-1916. War Census Act 1915-1916. War Pensions Act 1914-1916. Australian Soldiers' Repatriation Fund Act 1916. Military Service Referendum Act 1915. Daylight Saving Act 1916. Unlawful Association Acts 1916.</p>
(vii.)	<p>LIGHTHOUSES, LIGHTSHIPS, BEACONS AND BUOYS— Lighthouses Act 1911-1915.</p>
(viii.)	<p>ASTRONOMICAL AND METEOROLOGICAL OBSERVATIONS— Meteorology Act 1906.</p>
(ix.)	<p>QUARANTINE— Quarantine Act 1908-1915.</p>
(xi.)	<p>CENSUS AND STATISTICS— Census and Statistics Act 1905. War Census Act 1915-1916.</p>
(xii.)	<p>CURRENCY, COINAGE, AND LEGAL TENDER— Coinage Act 1909. Australian Notes Act 1910-1914.</p>
(xiii.)	<p>BANKING, OTHER THAN STATE BANKING, ETC.— Commonwealth Bank Act 1911-1914.</p>

* Acts whose short titles are printed in italics with a * have been repealed or have expired.

Section of Constitution.	Short Title of Commonwealth Act.*
51 (xiv.)	INSURANCE— Life Assurance Companies Act 1905. Marine Insurance Act 1909.
(xvi.)	BILLS OF EXCHANGE AND PROMISSORY NOTES— Bills of Exchange Act 1909-1912.
(xviii.)	COPYRIGHT, PATENTS, DESIGNS, AND TRADE MARKS— Customs Act 1901-1916 (s. 52 (a), 57). Patents Act 1903-1909. Trade Marks Act 1905-1912. <i>Copyright Act 1905.*</i> Copyright Act 1912. Designs Act 1906-1912. Patents, Trade Marks and Designs Act 1910. Patents, Trade Marks and Designs Act 1914-1915. Patents Act (Partial Suspension) Act 1916.
(xix.)	NATURALIZATION AND ALIENS— Naturalization Act 1903.
(xxiii.)	INVALID AND OLD-AGE PENSIONS— Invalid and Old-age Pensions Act 1908-1916.
(xxiv.)	SERVICE AND EXECUTION THROUGHOUT COMMONWEALTH OF PROCESS AND JUDGMENTS OF STATE COURTS— <i>Service and Execution of Process Act 1905.*</i> Service and Execution of Process Act 1901-1912.
(xxv.)	RECOGNITION OF STATE LAWS, RECORDS, ETC.— State Laws and Records Recognition Act 1901.
(xxvi.)	PEOPLE OF ANY RACE, OTHER THAN ABORIGINAL—SPECIAL LAWS— Pacific Island Labourers Act 1901-1906. Commonwealth Franchise Act 1902 (s. 4). Naturalization Act 1903 (s. 5).
(xxvii.)	IMMIGRATION AND EMIGRATION— Immigration Act 1901-1912. Pacific Island Labourers Act 1901-1906. Contract Immigrants Act 1905. Emigration Act 1910.
(xxviii.)	INFLUX OF CRIMINALS— Immigration Act 1901-1912 (s. 3 (ga), (gb)).
(xxix.)	EXTERNAL AFFAIRS— Extradition Act 1903. High Commissioner Act 1909.
(xxx.)	RELATIONS WITH PACIFIC ISLANDS— Pacific Island Labourers Act 1901-1906.
(xxxi.)	ACQUISITION OF PROPERTY FOR PUBLIC PURPOSES— <i>Property for Public Purposes Acquisition Act 1901.*</i> <i>Seat of Government Act 1904.*</i> Lands Acquisition Act 1906-1916. Lands Acquisition Act 1912. Seat of Government Act 1908. Seat of Government Acceptance Act 1909. Seat of Government (Administration) Act 1910 (s. 10). Northern Territory (Administration) Act 1910. Defence Lands Purchase Act 1913. Purchase Telephone Lines Acquisition Act 1911.
(xxxii.)	CONTROL OF RAILWAYS FOR DEFENCE PURPOSES— Defence Act 1903-1915 (ss. 64-66, 80, 124). War Precautions Act 1914-1916 (s. 4 (1) (c)). Kalgoorlie to Port Augusta Railway Survey Act 1907.
(xxxiv.)	RAILWAY CONSTRUCTION AND EXTENSION IN ANY STATE WITH THE CONSENT OF THAT STATE— Kalgoorlie to Port Augusta Railway Act 1911-1912.
(xxxv.)	CONCILIATION AND ARBITRATION FOR THE PREVENTION AND SETTLEMENT OF INDUSTRIAL DISPUTES EXTENDING BEYOND THE LIMITS OF ANY ONE STATE— Commonwealth Conciliation and Arbitration Act 1904-1915.

* Acts whose short titles are printed in italics with a * have been repealed or have expired.

Section of Constitution.	Short Title of Commonwealth Act.*
51 (xxxix.)	<p>MATTERS INCIDENTAL TO THE EXECUTION OF POWERS—</p> <p>Acts Interpretation Act 1901-1916. <i>Punishment of Offences Act 1901.*</i> Acts Interpretation Act 1904-1916. Amendments Incorporation Act 1905. Rules Publication Act 1903-1916. Commonwealth Public Service Act 1902-1916. Jury Exemption Act 1905. Royal Commissions Act 1902-1912. Evidence Act 1905. Commonwealth Salaries Act 1907. Excise Procedure Act 1907. Statutory Declarations Act 1911. Arbitration (Public Service) Act 1911. Commonwealth Inscribed Stock Act 1911-1915. Maternity Allowance Act 1912. Commonwealth Workmen's Compensation Act 1912. Committee of Public Accounts Act 1913. Commonwealth Public Works Committee Act 1913. Meat Export Trade Commission Act 1914. Crimes Act 1914-1915. Commonwealth Public Service (Acting Commissioner) Act 1916. Solicitor-General Act 1916. Daylight Saving Act 1916.</p>
	EXECUTIVE GOVERNMENT.
65	<p>NUMBER OF MINISTERS—</p> <p>Ministers of State Act 1915.</p>
67	<p>APPOINTMENT AND REMOVAL OF OFFICERS—</p> <p>Commonwealth Public Service Act 1902-1916. Papua Act 1905 (s. 19). Defence Act 1903-1915 (s. 63). High Commissioner Act 1909 (ss. 8, 9). Northern Territory Acceptance Act 1910 (ss. 11, 12). Norfolk Island Act 1913 (ss. 7, 9). Commonwealth Public Service (Acting Commissioner) Act 1916. Solicitor-General Act 1916.</p>
	THE JUDICATURE.
71—80	<p>CONSTITUTION AND PROCEDURE OF THE HIGH COURT—</p> <p>Judiciary Act 1903-1915. High Court Procedure Act 1903-1915.</p>
73	<p>APPELLATE JURISDICTION OF THE HIGH COURT—</p> <p>Judiciary Act 1903-1915. Papua Act 1905 (s. 43). Inter-State Commission Act 1912 (s. 42). Land Tax Assessment Act 1910-1916 (s. 46). Norfolk Island Act 1913 (s. 11). Estate Duty Assessment Act 1914-1916 (s. 28). Income Tax Assessment Act 1915-1916 (s. 37).</p>
76	<p>ORIGINAL JURISDICTION OF HIGH COURT—</p> <p>(1) <i>In matters arising under the Constitution or involving its interpretation</i> Judiciary Act 1903-1915 (ss. 23, 30).</p> <p>(ii) (2) <i>In matters arising under Laws made by the Parliament—</i> Customs Act 1901-1916 (ss. 221, 227, 245). Excise Act 1901 (ss. 109, 115, 134). Post and Telegraph Act 1901-1916 (ss. 29, 43). <i>Property for Public Purposes Acquisition Act 1901*</i> (ss. 12-17, 25, 52, 55 (b), 58).</p>

* Acts whose short titles are printed in italics with a * have been repealed or have expired.

Section of Constitution.	Short Title of Commonwealth Act *
76 (ii.) cont.	<p>* Commonwealth Electoral Act 1902-1911 (ss. 193, 206AA). Judiciary Act 1903-15. Defence Act 1903-1915 (s. 91). Patents Act 1903-1909 (ss. 47, 58, 67, 75-77, 84-87A, 111). Commonwealth Conciliation and Arbitration Act 1904-1915 (s. 31). Trade Marks Act 1905-1912 (ss. 34, 35, 44, 45, 70-72, 95). <i>Copyright Act 1905*</i> (s. 73 (2)). Copyright Act 1912 (s. 37 (2)). Australian Industries Preservation Act 1906-1910 (ss. 10, 11, 13, 21, 22, 26). Referendum (Constitution Alteration) Act 1906-1915 (ss. 27, 31). Lands Acquisition Act 1906-1916 (ss. 10, 11, 24, 36-39, 45, 46, 50, 54, 56, 59). Disputed Elections and Qualifications Act 1907 (ss. 2, 6). Navigation Act 1912 (ss. 383, 385). Trading with the Enemy Act 1914-1916 (ss. 9c, 9p). (3) <i>In matters of Admiralty and Maritime Jurisdiction—</i> Judiciary Act 1903-1915 (ss. 30, 30A).</p>
(iii.)	
77—(ii.)	<p>EXCLUDING JURISDICTION OF STATE COURTS— Judiciary Act 1903-1915 (ss. 38, 38A, 39, 57, 59).</p>
(iii.)	<p>INVESTING STATE COURTS WITH FEDERAL JURISDICTION— Customs Act 1901-1916 (ss. 221, 227, 245). Excise Act 1901 (ss. 109, 115, 134). Post and Telegraph Act 1901-1916 (ss. 29, 43). <i>Punishment of Offences Act 1901.*</i> Commonwealth Electoral Act 1902-1911 (s. 193). <i>Claims against the Commonwealth Act 1902.*</i> Defence Act 1903-1915 (s. 91). Judiciary Act 1903-1915 (ss. 17, 39, 68). Patents Act 1903-1909 (ss. 30, 47, 58, 67, 75-77, 84-87A, 111). Trade Marks Act 1905 (ss. 34, 35, 44, 45). <i>Copyright Act 1905</i> (s. 60, 73). Designs Act 1906-1912 (s. 25, 39). Copyright Act 1912 (ss. 14-17). Land Tax Assessment Act 1910-1916 (s. 44). Navigation Act 1912 (ss. 91, 92, 318-20, 380-3, 385, 395). Estate Duty Assessment Act 1914-1916 (s. 24). Income Tax Assessment Act 1915-1916 (s. 37).</p>
78	<p>RIGHT TO PROCEED AGAINST COMMONWEALTH OR STATE— Judiciary Act 1903-1915 (ss. 56-67).</p>
	<p>FINANCE.</p>
81	<p>APPROPRIATION OF MONEYS— Appropriation and Supply Acts 1901-1914. Audit Act 1901-1912 (ss. 36-37, 62a).</p>
83	<p>PAYMENT OF MONEYS— Audit Act 1901-1912 (ss. 31-37, 62a).</p>
93	<p>CREDITING OF REVENUE AND DEBITING OF EXPENDITURE— Surplus Revenue Acts 1908, 1909.</p>
94	<p>DISTRIBUTION OF SURPLUS REVENUE— Surplus Revenue Acts 1908, 1909, 1910.</p>
96	<p>ASSISTANCE TO STATES— Tasmania Grant Act 1912. Tasmania Grant Act 1913.</p>
97	<p>AUDIT OF PUBLIC ACCOUNTS— Audit Act 1901-1912.</p>
98	<p>NAVIGATION AND SHIPPING— Sea-Carriage of Goods Act 1904. Navigation Act 1912. River Murray Waters Act 1915.</p>

* Acts whose short titles are printed in italics with a * have been repealed or have expired.

Section of Constitution.	Short Title of Commonwealth Act.*
100	USE OF WATERS— River Murray Waters Act 1915.
101-104	INTER-STATE COMMISSION— Inter-State Commission Act 1912.
	THE STATES.
118	RECOGNITION OF STATE LAWS, RECORDS, ETC.— State Laws and Records Recognition Act 1901.
119	PROTECTION OF STATES FROM INVASION AND VIOLENCE— Defence Act 1903-1915 (s. 51).
	TERRITORIES.
122	GOVERNMENT OF TERRITORIES— Papua Act 1905. Wireless Telegraphy Act 1905-1915. Seat of Government Acceptance Act 1909. Patents Act 1903-1909 (s. 4a). Northern Territory Acceptance Act 1910. Seat of Government (Administration) Act 1910. Northern Territory (Administration) Act 1910. Pine Creek to Katherine River Railway Survey Act 1912. Pine Creek to Katherine River Railway Act 1913. Norfolk Island Act 1913. Jervis Bay Territory Acceptance Act 1915.
	MISCELLANEOUS.
125	SEAT OF GOVERNMENT— <i>Seat of Government Act 1904.*</i> Seat of Government Act 1908. Seat of Government Acceptance Act 1909. Seat of Government (Administration) Act 1910.
128	ALTERATION OF CONSTITUTION— Referendum (Constitution Alteration) Act 1906-1915. Constitution Alteration (Senate Elections) Act 1906. Constitution Alteration (State Debts) Act 1909. <i>Compulsory Voting Act 1915.*</i>

* Acts whose short titles are printed in italics with a * have been repealed or have expired.

SECTION III.

PHYSIOGRAPHY.

§ 1. General Description of Australia.

1. **Geographical Position.**—The Australian Commonwealth, which includes the island continent of Australia proper and the island of Tasmania, is situated in the Southern Hemisphere, and comprises in all an area of about 2,974,581 square miles, the mainland alone containing about 2,948,366 square miles. Bounded on the west and east by the Indian and Pacific Oceans respectively, it lies between longitudes 113° 9' E. and 153° 39' E., while its northern and southern limits are the parallels of latitude 10° 41' S. and 39° 8' S., or, including Tasmania, 43° 39' S. On its north are the Timor and Arafura Seas and Torres Strait, on its south the Southern Ocean and Bass Strait.¹

Tropical and Temperate Regions. Of the total area of Australia the lesser portion lies within the tropics. Assuming, as is usual, that the latitude of the Tropic of Capricorn is 23° 30' S.,² the areas within the tropical and temperate zones are approximately as follows:—

**AREAS OF TROPICAL AND TEMPERATE REGIONS
OF STATES WITHIN TROPICS.**

Areas.	Queensland.	Western Australia.	Northern Territory.	Total.
	Sq. miles.	Sq. miles.	Sq. miles.	Sq. miles.
Within Tropical Zone	359,000	364,000	426,320	1,149,320
Within Temperate Zone	311,500	611,920	97,300	1,020,720
Ratio of Tropical part to whole State ...	0.535	0.373	0.814	0.530
Ratio of Temperate part to whole State ...	0.465	0.627	0.186	0.470

Thus the tropical part is roughly about one-half (0.530) of the three territories mentioned above, or about five-thirteenths of the whole Commonwealth (0.386). See hereafter Meteorology 3.

2. **Area of Australia compared with that of other Countries.**—That the area of Australia is greater than that of the United States of America, that it is four-fifths of that of Canada, that it is nearly one-fourth of the area of the whole of the British Empire, that it is nearly three-fourths of the whole area of Europe, that it is more than 25 times as large as any one of the following, viz., the United Kingdom, Hungary, Italy, the Transvaal, and Ecuador, are facts which are not always adequately realised. It is this great size, taken together with the fact of the limited population, that gives to the problems of Australian development their unique character, and its clear comprehension is essential in any attempt to understand those problems.

1. The extreme points are "Steep Point" on the west, "Cape Byron" on the east, "Cape York" on the north, "Wilson's Promontory" on the south, or, if Tasmania be included, "South East Cape." The limits, according to the 1903-4 edition of "A Statistical Account of Australia and New Zealand," p. 2, and, according to Volume XXV. of the "Encyclopædia Britannica," tenth edition, p. 787, are respectively 113° 5' E., 153° 16' E., 10° 39' S., and 39° 11½' S., but these figures are obviously defective. A similar inaccuracy appears in the XI. edition of the Encyclopædia.

2. Its correct value for 1916 is 23° 27' 0".76, and it decreases about 0".47 per annum.

The relative magnitudes may be appreciated by a reference to the following table, which shews how large Australia is compared with the countries referred to, or *vice versa*. Thus, to take line 1, we see that Europe is about 1 $\frac{1}{10}$ times (1.29676) as large as Australia, or that Australia is about three-quarters (more accurately 0.77) of the area of Europe.

SIZE OF AUSTRALIA IN COMPARISON WITH THAT OF OTHER COUNTRIES.

Commonwealth of Australia		...	2,974,581 square miles.	
Country.	Area.		Australian Commonwealth in comparison with—	In comparison with Australian C'wealth.
Continents—				
Europe	3,857,323		0.77	1.29676
Asia	16,852,853		0.18	5.66562
Africa	12,236,601		0.24	4.11372
North and Central America and West Indies	8,560,315		0.35	2.87782
South America	7,446,202		0.40	2.50327
Australasia and Polynesia	3,462,572		0.86	1.16605
Total, exclusive of Arctic and Antarctic Conts.	52,415,866		0.06	17.62126
Europe—				
Russia (inclusive of Poland, Ciscaucasia & Finland)	2,122,998		1.40	0.71371
Austria-Hungary (incl. of Bosnia & Herzegovina)	261,259		11.39	0.08783
Germany	208,780		14.25	0.07018
France	207,054		14.37	0.06969
Spain	194,778		15.27	0.06548
Sweden	172,963		17.20	0.05814
Norway	124,643		23.86	0.04190
United Kingdom	121,633		24.45	0.04089
Italy	110,632		26.89	0.03719
Denmark (inclusive of Iceland)	55,338		53.73	0.01861
Rumania	53,489		55.61	0.01798
Bulgaria	43,305		68.69	0.01455
Greece	41,933		70.94	0.01409
Portugal	35,490		83.82	0.01193
Serbia	33,891		87.76	0.01139
Switzerland	15,976		186.22	0.00537
Netherlands	12,582		236.42	0.00423
Belgium	11,373		261.78	0.00382
Albania	11,317		262.84	0.00380
Turkey	10,882		273.34	0.00366
Montenegro	5,603		530.88	0.00188
Luxemburg	998		2941.18	0.00034
Andorra	175		16997.61	0.00006
Malta	118		25423.76	0.00004
Liechtenstein	65		45793.55	0.00002
San Marino	38		78278.45	0.00001
Monaco	8		371822.63	...
Gibraltar	2		1487290.50	...
Total, Europe	3,857,323		0.77	1.29676
Asia—				
Russia (inclus. of Transcaucasia, Siberia, Steppes, Transcaspia, Turkestan and inland waters)	6,641,587		0.45	2.23278
China and Dependencies...	3,913,560		0.76	1.31567
British India...	1,093,074		2.72	0.36747
Independent Arabia	1,000,000		2.97	0.33618
Feudatory Indian States...	709,555		4.19	0.23854
Turkey (including Samos)	699,522		4.25	0.23516
Persia	628,000		4.74	0.21112
Dutch East Indies	583,211		5.10	0.19606
Japan (and Dependencies)	263,034		11.31	0.08844

Country.	Area.	Australian Commonwealth in comparison with—	In com- parison with Australian C'wealth.
ASIA (continued)—	Sq. Miles.		
Afghanistan	250,000	11.90	0.08405
Siam	195,000	15.25	0.06555
Philippine Islands (inclusive of Sulu Archipelago)	120,000	23.60	0.04236
Laos	111,940	26.57	0.03763
Bokhara	83,000	35.83	0.02790
Omán	82,000	36.27	0.02757
British Borneo and Sarawak	73,106	40.68	0.02457
Cambodia	67,724	43.92	0.02277
Annam	61,718	48.20	0.02075
Nepál	54,000	55.10	0.01815
Tonking	46,223	64.35	0.01554
Federated Malay States	27,506	108.14	0.00925
Ceylon	25,332	117.42	0.00852
Malay Protectorate (including Johore)	24,970	119.13	0.00839
Khiva	24,000	123.94	0.00807
Cochin China... ..	21,988	135.28	0.00739
Bhután	20,000	148.73	0.00672
Aden and Dependencies	9,005	330.32	0.00303
Timor, etc. (Portuguese Indian Archipelago)	7,330	406.50	0.00246
Brunei	4,000	743.64	0.00134
Cyprus	3,584	833.33	0.00120
Kiauchau (Neutral Zone)	2,500	1189.83	0.00084
Goa, Damao, and Diu	1,638	1818.18	0.00055
Straits Settlements	1,600	1851.85	0.00054
Sokotra	1,382	2152.22	0.00046
Hong Kong and Dependencies	391	7607.62	0.00013
Kwang Chan Wan	386	7706.17	0.00013
Wei-hai-wei	285	10623.50	0.00009
Bahrein Islands	250	11898.32	0.00008
Kiauchau (German)	200	14872.90	0.00007
French India (Pondicherry, etc.)	198	15023.14	0.00007
Macao, etc.	4	748643.25	...
Total, Asia	16,852,853	0.18	5.66566
Africa—			
French Sahara	1,544,000	1.93	0.51907
French Equatorial Africa	1,003,600	2.96	0.33739
Soudan	984,520	3.02	0.33098
Belgian Congo	909,654	3.27	0.30582
French Military District of the Niger	534,124	5.57	0.17956
Angola	484,800	6.14	0.16298
Union of South Africa	473,100	6.28	0.15905
Rhodesia	438,575	6.78	0.14744
Portuguese East Africa	426,712	6.97	0.14345
Tripoli and Benghezi	406,000	7.33	0.13649
German East Africa	384,180	7.74	0.12915
Abyssinia	350,000	8.50	0.11766
Egypt	350,000	8.50	0.11766
Mauretania	344,967	8.62	0.11597
Algeria (including Algerian Sahara)	343,500	8.66	0.11548
Nigeria and Protectorate	336,000	8.85	0.11296
German South-west Africa	322,450	9.23	0.10840
Senegambia and Niger	302,136	9.84	0.10157
Bechuanaland Protectorate	275,000	10.82	0.09245
British East Africa Protectorate	246,822	12.05	0.08298
Madagascar	226,016	13.16	0.07598
Morocco	219,000	13.58	0.07362
Kamerun	191,130	15.56	0.06425

Country.	Area	Australian Common with in comparison with—	In comparison with Australian C'wealth.
AFRICA (continued)—	Sq. miles.		
Italian Somaliland	139,430	21.34	0.04687
Ivory Coast	125,538	23.69	0.04220
Uganda Protectorate	109,119	27.26	0.03668
French Guinea	92,249	32.25	0.03101
Gold Coast Protectorate (with North. Territories)	80,000	37.18	0.02689
Senegal	74,012	40.19	0.02488
Rio de Oro, etc.	73,000	40.75	0.02454
British Somaliland	68,000	43.74	0.02286
Tunis	50,000	59.49	0.01681
French Somali Coast	46,320	64.21	0.01557
Eritrea	45,800	64.95	0.01540
Liberia	40,000	74.36	0.01345
Nyassaland Protectorate... ..	39,315	75.66	0.01322
Dahomey	37,527	79.26	0.01261
Togoland	33,700	88.26	0.01133
Sierra Leone and Protectorate	31,000	95.95	0.01042
Portuguese Guinea	13,940	213.22	0.00469
Spanish Guinea (Rio Muni, etc.)	12,000	247.88	0.00403
Basutoland	11,716	253.89	0.00393
Swaziland	6,536	455.10	0.00219
Gambia and Protectorate	4,504	660.43	0.00151
Cape Verde Islands	1,480	2000.00	0.00050
Zanzibar	1,020	2941.18	0.00034
Réunion	965	3082.47	0.00032
Fernando Po, etc.	814	3654.28	0.00027
Mauritius and Dependencies	809	3676.86	0.00027
Comoro Islands	694	4286.14	0.00023
St. Thomas and Prince Islands	360	8262.73	0.00012
Seychelles	156	19067.82	0.00005
Mayotte, etc.... ..	143	20301.27	0.00005
Spanish North and West Africa	87	34190.59	0.00003
St. Helena	47	63288.95	0.00002
Ascension	34	87487.65	0.00001
Total, Africa	12,236,601	0.24	4.11372
North and Central America and West Indies—			
Canada	3,729,665	0.80	-1.25385
United States (exclusive of Alaska, etc.)	2,973,890	1.00	0.99976
Mexico	785,881	3.78	0.26420
Alaska	590,884	5.03	0.19864
Newfoundland and Labrador	162,734	18.28	0.05471
Nicaragua	49,200	60.46	0.01654
Guatemala	48,290	61.61	0.01623
* Greenland	46,740	63.65	0.01571
Honduras	44,275	67.18	0.01488
Cuba	44,215	67.28	0.01486
Costa Rica	23,000	129.32	0.00773
San Domingo... ..	18,045	164.74	0.00607
Haiti	10,204	291.55	0.00343
British Honduras	8,598	345.96	0.00289
Salvador	7,225	411.52	0.00243
Bahamas	4,404	675.43	0.00148
Jamaica	4,207	707.05	0.00141
Porto Rico	3,606	824.90	0.00121
Trinidad and Tobago	1,868	1592.39	0.00063
Leeward Islands	715	4160.25	0.00024
Guadeloupe and Dependencies	687	4329.81	0.00023
Windward Islands	527	5644.37	0.00018

* Danish colony only. Total area has been estimated as between 827,000 and 850,000 square miles.

Country.	Area.	Australian Commonwe'ltb in comparison with—	In com- parison with Australian C'wealth.
N. & C. AMERICA & W. INDIES (continued)—			
	Sq. miles.		
Curaçao and Dependencies	403	7381.09	0.00014
Martinique	381	7807.30	0.00013
Turks and Caicos Islands	166	17925.18	0.00005
Barbados	166	17925.18	0.00005
Danish West Indies	138	21554.94	0.00005
St. Pierre and Miquelon	93	31984.74	0.00003
Cayman Islands	89	33422.26	0.00003
Bermudas	19	156556.89	...
Total, N. and C. America and W. Indies ...	8,560,315	0.35	2.87782
South America—			
Brazil (inclusive of Acré)... ..	3,364,564	0.88	1.13110
Argentine Republic	1,153,119	2.58	0.38766
Peru	722,461	4.12	0.24288
Bolivia	514,155	5.79	0.17285
Colombia (exclusive of Panama)	440,846	6.75	0.14820
Venezuela	398,594	7.46	0.13400
Chile	289,829	10.26	0.09744
Paraguay	165,000	18.03	0.05546
Ecuador	116,000	25.64	0.03900
British Guiana	89,480	33.24	0.03008
Uruguay	72,153	41.22	0.02426
Dutch Guiana	46,060	64.60	0.01548
French Guiana	34,061	87.33	0.01145
Panamá	32,380	91.86	0.01088
Falkland Islands	6,500	456.62	0.00219
South Georgia	1,000	2974.58	0.00034
Total, South America ...	7,446,202	0.40	2.50327
Australasia and Polynesia—			
Commonwealth of Australia	2,974,581	1.00	1.00000
Dutch New Guinea	151,789	19.60	0.05103
New Zealand and Dependencies	104,751	28.39	0.03522
Papua	90,540	32.85	0.03044
Kaiser Wilhelm Land	70,000	42.50	0.02353
Bismarck Archipelago	20,000	148.73	0.00672
British Solomon Islands	14,800	204.36	0.00497
New Caledonia and Dependencies	8,548	347.99	0.00287
Fiji	7,435	400.08	0.00250
Hawaii	6,449	460.83	0.00217
German Solomon Islands, etc.	5,160	576.46	0.00173
New Hebrides	5,100	583.25	0.00171
French Establishments in Oceania	1,520	1960.78	0.00051
German Samoa	1,000	2974.58	0.00034
Tonga	390	7627.13	0.00013
Guam	210	14164.67	0.00007
Gilbert and Ellice Islands	187	15906.85	0.00006
Samoa (U.S.A. part)	102	29162.56	0.00003
Norfolk Island	10	297458.10	...
Total, Australasia and Polynesia ...	3,462,572	0.86	1.16405
British Empire... ..	12,755,484	0.23	4.28816

3. **Relative Size of Political Subdivisions.**—As already stated, Australia consists of six States and the Northern and Federal Territories. The areas of these, in relation to one another and to the total of Australia, are shewn in the following table :—

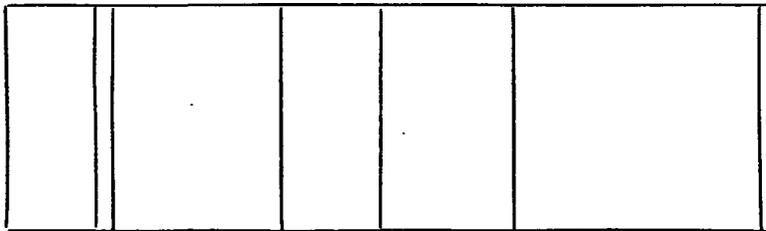
RELATIVE SIZE OF STATES AND COMMONWEALTH.

State.	Area.	Ratio which the Area of each State and Territory bears to that of other States, Territories and Commonwealth.							
		N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	N. Ter.	C'with.
	Sq. miles.								
New South Wales	309,460	1.000	3.522	0.462	0.814	0.317	11.806	0.591	0.104
Victoria ...	87,884	0.284	1.000	0.131	0.231	0.090	3.352	0.168	0.030
Queensland ...	670,500	2.166	7.629	1.000	1.764	0.687	25.577	1.280	0.225
South Australia	380,070	1.228	4.325	0.567	1.000	0.389	14.498	0.726	0.128
West. Australia	975,920	3.153	11.105	1.455	2.568	1.000	37.228	1.864	0.328
Tasmania ...	26,215	0.085	0.298	0.039	0.069	0.027	1.000	0.050	0.009
North. Territory	523,620	1.691	5.958	0.781	1.378	0.537	19.974	1.000	0.176
Federal Territory	912	0.003	0.010	0.001	0.003	0.001	0.034	0.002	0.000 ¹
Commonwealth	2,974,581	9.610	33.847	4.436	7.827	3.048	113.469	5.681	1.000

1. The correct decimal is 0.0003.

Thus, looking at the top line, New South Wales is seen to be over three-and-a-half times as large as Victoria (3.522) and less than one-half the size of Queensland (0.462); or again, looking at the bottom line, the Commonwealth is shewn to be more than nine-and-a-half times as large as New South Wales (9.610), and nearly thirty-four times as large as Victoria (33.847).

These relative magnitudes are shewn in the small diagram below. It may be added that Papua (or British New Guinea), with its area of 90,540 square miles, is 0.030 of the area of the Commonwealth. The comparatively small size of the Federal Territory prevents its being shewn in this diagram.



	N.S.W.	V.	Qld.	S.A.	N.T.	W.A.	Tas.
% of total	10	3	22	13	18	33	1

4. **Coastal Configuration.**—There are no striking features in the configuration of the coast; the most remarkable indentations are the Gulf of Carpentaria on the north and the Great Australian Bight on the south. The York Peninsula on the extreme north is the only other remarkable feature in the outline. In Year Book No. 1, an enumeration of the features of the coast-line of Australia was given (see pp. 60 to 68).

(i.) *Coast-line.* The lengths of coast-line, exclusive of minor indentations, both of each State and of the whole continent, are shewn in the following table :—

SQUARE MILES OF TERRITORY PER MILE OF COAST LINE.

STATES AND CONTINENT.

State.	Coast-line.	Area ÷ Coast-line.	State.	Coast-line.	Area ÷ Coast-line.
	Miles.	Sq. miles.		Miles.	Sq. miles.
New South Wales ¹	700	443	South Australia ...	1,540	247
Victoria ...	680	129	Western Australia	4,350	224
Queensland ...	3,000	223	Continent ² ...	11,310	261
Northern Territory	1,040	503	Tasmania ...	900	29

1. Including Federal Territory.

2. Area 2,948,366 square miles.

For the entire Commonwealth this gives a coast-line of 12,210 miles, and an average of 244 square miles for one mile of coast line. According to Strelbitski, Europe has only 75 square miles of area to each mile of coast line, and, according to recent figures, England and Wales have only one-third of this, viz., 25 square miles.

(ii.) *Historical Significance of Coastal Names.* It is interesting to trace the voyages of some of the early navigators by the names bestowed by them on various coastal features—thus Dutch names are found on various points of the Western Australian coast, in Nuyt's Archipelago, in the Northern Territory and in the Gulf of Carpentaria; Captain Cook can be followed along the coasts of New South Wales and Queensland; Flinders' track is easily recognised from Sydney southwards, as far as Cape Catastrophe, by the numerous Lincolnshire names bestowed by him; and the French navigators of the end of the eighteenth and the beginning of the nineteenth century have left their names all along the Western Australian, South Australian, and Tasmanian coasts.

5. Geographical Features of Australia.—In each preceding issue of this Year Book, fairly complete information has been given concerning some special geographical element. Thus No. 1 Year Book, pp. 60-68, contains an enumeration of Coastal features. No. 2, pp. 66-67, deals with Hydrology, No. 3, pp. 59-72, with Orography, No. 4, pp. 59-82, with the Lakes of Australia, No. 5, pp. 51-80, with the Islands of Australia, No. 6, pp. 55-66, with the Mineral Springs of Australia, and No. 7, pp. 56-58, with the Salient Features in the Geological History of Australia, with special reference to changes of climate. This practically completes the description of the ordinary physical features. An orographical or vertical relief map of Australia will be found on p. 49.

§ 2. The Fauna of Australia.

An authoritative article describing in some detail the principal features of the Fauna of Australia was given in Year Books No. 1 (see pp. 103 to 109) and No. 2 (see pp. 111 to 117), while a synoptical statement appeared in No. 3 (see pp. 73 to 76). Considerations of space will, however, preclude the inclusion in this issue of more than a passing reference to the subject.

§ 3. The Flora of Australia.

In Year Books No. 1 (see pp. 109 to 114) and No. 2 (see pp. 117 to 122) a fairly complete though brief account was given of the Flora of Australia, and in Year Book No. 3 similar information in a greatly condensed form will be found on pp. 76 to 78. Space in this issue will not permit of more than a mere reference to preceding volumes.

A special article dealing with Australian fodder plants, contributed by J. H. Maiden, Esq., F.L.S., Government Botanist of New South Wales, and Director of the Botanic Gardens, Sydney, appeared in Official Year Book No. VI., pp. 1190-6. A special article on the grasses and saltbushes of Australia, contributed by E. Breakwell, B.A., B.Sc., Agrostologist at the Botanic Gardens, Sydney, appeared in Year Book No. 9, pp. 84-90.

§ 4. Seismology in Australia.

A brief statement regarding the position of seismology and seismological record in Australia appears in Year Book No. 4, pp. 82 and 83.

Barisal Guns. Reference may be made here to an interesting pamphlet published by Dr. J. Burton Cleland, in which the author sums up the available information regarding the peculiar explosive or booming noises heard at times in Australia as well as in other parts of the world. As far as inland Australia, at all events, is concerned, it seems clear that the explosions are of earth origin, and are probably due to the sudden sundering of immense rock masses, either as a result of climatic influences, or through folding movements in the earth's crust.

§ 5. The Geology of Australia.

1. **General.**—Independent and authoritative sketches of the geology of each State were given in Year Books No. 1 (see pp. 73 to 103) and No. 2 (see pp. 78 to 111). Want of space has precluded the insertion of these sketches in the present issue of the Year Book, and it has not been considered possible to give anything like a sufficient account of the geology of Australia by presenting here a mere condensation of these sketches. Reference must, therefore, be made to either Year Book No. 1 or No. 2, *ut supra*.

2. **Geological Map of Australia.**—The map of the Geology of Australia on page 50, shews the geographical distribution of the more important geological systems and formations.

3. **The Building Stones of Australia.**—Independent and authoritative descriptions of the building stones of each State (with the exception of Queensland) will be found in Official Year Book No. 9, pp. 446-466. It is not proposed to repeat the information in this issue.

§ 6. Climate and Meteorology of Australia.¹

1. **Introductory.**—In preceding Year Books some account was given of the history of Australian meteorology, including reference to the development of magnetic observations and the equipment for the determination of various climatological records. (See Year Book No. 3, pp. 79, 80.) In Year Book No. 4, pp. 84 and 87, will be found a short sketch of the creation and organisation of the Commonwealth Bureau of Meteorology and a resumé of the subjects dealt with at the Meteorological Conference of 1907. Space will not permit of the inclusion of this matter in the present issue.

2. **Meteorological Publications.**—The following publications are issued daily from the Central Meteorological Bureau, viz.:—(i.) Weather charts. (ii.) Rainfall maps. (iii.) Bulletins, Victoria and Interstate, shewing pressure, temperature, wind, rain, cloud extent, and weather. Similar publications are also issued from the divisional offices in each of the State Capitals.

1. Prepared from data supplied by the Commonwealth Meteorologist, H. A. Hunt, Esquire, F.R.Met.Soc.

The Bulletins of Climatology are as follow:—No. 1.—A general discussion of the climate and meteorology of Australia, illustrated by one map and diagrams. No. 2.—A discussion of the rainfall over Australia during the ten years (1897-1906) compared with the normal, illustrated by one map. No. 3.—Notes and statistics of the remarkable flood rains over south-eastern Australia during the winter of 1909, illustrated by five maps and diagrams. No. 4.—A discussion of the monthly and seasonal rainfall over Australia, illustrated by one map and diagram. No. 5.—An investigation into the possibility of forecasting the approximate winter rainfall for Northern Victoria, illustrated by two diagrams. No. 6.—The physiography of the proposed Federal Territory at Canberra, illustrated by a relief map and 21 plates. No. 7.—On the climate of the Yass-Canberra district, illustrated by one map. No. 8.—Physiography of Eastern Australia, with 28 text illustrations. No. 9.—The climate of Australia, with charts and diagrams, prepared for the Federal Handbook of Australia. No. 10.—Relation between cirrus directions as observed in Melbourne and the approach of the various storm systems affecting Victoria, illustrated by a number of charts. No. 11.—The climatic control of Australian Production, with 43 illustrations. No. 12.—A graphical method of shewing the daily weather and especially cloud types, with two graphs. No. 13.—Initial investigations in the upper air of Australia, with 35 illustrations. No. 14.—The control of settlement by Humidity and Temperature, with 21 charts and diagrams.

Commencing with January 1910, the "Australian Monthly Weather Report," containing statistical records from representative selected stations, with rain maps and diagrams, etc., is being published. Complete rainfall and other climatological data are published in annual volumes of meteorological statistics for each State separately.

The first text book of Australian meteorology, "Climate and Weather of Australia," was published in 1913.

3. General Description of Australia.—In the general description of Australia, page 48, it is pointed out that a considerable portion (0.530) of three divisions of the Australian Commonwealth is north of the tropic of Capricorn, that is to say, within the States of Queensland and Western Australia, and the Northern Territory, no less than 1,149,320¹ square miles belong to the tropical zone, and 1,020,720 to the temperate zone. The whole area of the Commonwealth within the temperate zone, however, is 1,825,261² square miles, thus the tropical part is about 0.386, or about five-thirteenth of the whole, or the "temperate" region is half as large again as the "tropical" (more accurately 1.591). By reason of its insular geographical position, and the absence of striking physical features, Australia is, on the whole, less subject to extremes of weather than are regions of similar area in other parts of the globe; and latitude for latitude Australia is, on the whole, more temperate.

The altitudes of the surface of Australia range up to a little over 7300 feet, hence its climate embraces a great many features, from the characteristically tropical to what is essentially alpine, a fact indicated in some measure by the name Australian Alps given to the southern portion of the great Dividing Range.

While on the coast the rainfall is often abundant and the atmosphere moist, in some portions of the interior the rainfall is very limited, and the atmosphere dry. The distribution of forest, as might be expected, and its climatic influence, is consequently very variable. In the interior there are on the one hand fine belts of trees, on the other there are large areas which are treeless, and where the air is hot and parched in summer. Again, on the coast, even as far south as latitude 35°, the vegetation is tropical in its luxuriance, and also somewhat so in character. Climatologically, therefore, Australia may be said to present a great variety of features. The various climatological characteristics will be referred to in detail.

1. In the article "Australia" in the Encyclopædia Britannica, Vol. II., p. 946 (XI. Edition), this area is given as 1,145,000 square miles.

2. Given as 1,801,700 square miles in the work above quoted, where, however, the statistics are said "to refer only to the continental States of the Federation, not to Tasmania."

4. Meteorological Divisions.—The Commonwealth Meteorologist has divided Australia, for climatological and meteorological purposes, into five divisions. The boundaries between these may be thus defined:—(a) Between divisions I. and II., the boundary between South and Western Australia, viz., the 129th meridian of east longitude; (b) between divisions II. and III., starting at the Gulf of Carpentaria, along the Norman River to Normanton, thence a straight line to Wilcannia on the Darling River, New South Wales; (c) between divisions II. and IV., from Wilcannia along the Darling River to its junction with the Murray; (d) between divisions II. and V., from the junction of the Darling and Murray Rivers, along the latter to Encounter Bay; (e) between divisions III. and IV., starting at Wilcannia, along the Darling, Barwon, and Dumaresq Rivers to the Great Dividing Range, and along that range and along the watershed between the Clarence and Richmond Rivers to Evans Head on the east coast of Australia; (f) between divisions IV. and V., from the junction of the Darling and Murray Rivers along the latter to its junction with the Murrumbidgee, along the Murrumbidgee to the Tumut River, and along the Tumut River to Tumut, thence a straight line to Cape Howe; (g) division V. includes Tasmania.

The population included within these boundaries at the Census of the 3rd April, 1911, was approximately as follows:—

Division	I.	II.	III.	IV.	V.
Population	282,000	429,000	607,000	1,540,000	1,597,000

In these divisions the order in which the capitals occur is as follows:—(i.) Perth, (ii.) Adelaide, (iii.) Brisbane, (iv.) Sydney, (v.) Melbourne, (vi.) Hobart; and for that reason the climatological and meteorological statistics will be set forth in the indicated order in this publication.

Special Climatological Stations. The latitudes, longitudes, and altitudes of special stations, the climatological features of which are graphically represented hereinafter, are as follows:—

SPECIAL CLIMATOLOGICAL STATIONS.

Locality.	Height above Sea Level.	Latitude.		Longitude.		Locality.	Height above Sea Level.	Latitude.		Longitude.	
		S.	E.	S.	E.			S.	E.		
Perth ...	197	31	57	115	50	Darwin ...	97	12	28	130	51
Adelaide ...	140	34	56	138	35	Daly Waters ...	691	16	16	133	23
Brisbane ...	137	27	28	153	2	Alice Springs ...	1926	23	38	133	37
Sydney ...	146	33	52	151	12	Dubbo ...	870	32	18	148	35
Melbourne ...	115	37	49	144	58	Laverton ...	1530	28	40	122	23
Hobart ...	177	42	53	147	20	Coolgardie ...	1402	30	57	121	10

5. Temperatures.—In respect of Australian temperatures generally it may be pointed out that the isotherm for 70° Fahrenheit extends in South America and South Africa as far south as latitude 33°, while in Australia it reaches only as far south as latitude 30°, thus shewing that, on the whole, Australia has a more temperate climate when compared latitude for latitude with places in the Southern Hemisphere.

The comparison is even more favourable when the Northern Hemisphere is included therein, for in the United States the 70° isotherm extends in several of the western States as far north as latitude 41°. In Europe the same isotherm reaches almost to the southern shores of Spain, passing, however, afterwards along the northern shores of Africa till it reaches the Red Sea, when it bends northward along the eastern shore of the Mediterranean till it reaches Syria. In Asia nearly the whole of the land area south of latitude 40° N. has a higher isothermal value than 70°.

The extreme range of shade temperatures in summer and winter in a very large part of Australia amounts to probably only 81°. In Siberia, in Asia, the similar range is no less than 171°, and in North America 153°, or approximately double the Australian range.

Along the northern shores of the Australian continent the temperatures are very equable. At Darwin, for example, the difference in the means for the hottest and coldest months is only 8.3°, and the extreme readings for the year, that is, the highest maximum in the hottest month and the lowest reading in the coldest month, shew a difference of under 50°.

Coming southward the extreme range of temperature increases gradually on the coast, and in a more pronounced way inland.

The detailed temperature results for the several capitals of the States of Australia are shewn in the Climatological Tables hereinafter.

(i.) *Hottest and Coldest Parts.* A comparison of the temperatures recorded at coast and inland stations shews that, in Australia as in other continents, the range increases with increasing distance from the coast.

In the interior of Australia, and during exceptionally dry summers, the temperature occasionally reaches or exceeds 120° in the shade, and during the dry winters the major portion of the country to the south of the tropics is subject to ground frosts. An exact knowledge of temperature disposition cannot be determined until the interior becomes more settled, but from data procurable, it would appear that the hottest area of the continent is situated in the northern part of Western Australia about the Marble Bar and Nullagine goldfields, where the maximum shade temperature during the summer sometimes exceeds 100° for days, and even weeks, continuously. The coldest part of the Commonwealth is the extreme south-east of New South Wales and extreme east of Victoria, namely, the region of the Australian Alps. Here, the temperature seldom, if ever, reaches 100° even in the hottest of seasons.

In Tasmania, although occasionally hot winds may cross the Straits and cause the temperature to rise to 100° in the low-lying parts, yet the island as a whole enjoys a most moderate and equable range of temperature throughout the year.

(ii.) *Monthly Maximum and Minimum Temperatures.* The mean monthly maximum and minimum temperatures can be best shewn by means of graphs, which exhibit the nature of the fluctuation of each for the entire year. In the diagram (on page 67) for nine representative places in Australia, the upper heavy curves shew the mean maximum, the lower heavy curves the mean minimum temperatures based upon daily observations. On the same diagram the thin curves shew the relative humidities (see next paragraph).

6. Relative Humidity.—Next after temperature the degree of humidity may be regarded as of great importance as an element of climate; and the characteristic differences of relative humidity between the various capitals of Australia call for special remark. For six representative places the variations of humidity are shewn on the graph on page 67, which gives results based upon daily observations of the dry and wet bulb thermometers. Hitherto difficulties have been experienced in many parts of Australia in obtaining satisfactory observations for a continuous period of any length. For this reason it has been thought expedient to refer to the record of humidity at first order stations only, where the results are thoroughly reliable. Throughout, the degree of humidity given will be what is known as *relative humidity*, that is, the percentage of aqueous vapour actually existing to the total possible if the atmosphere were saturated.

The detailed humidity results for the several State capitals are given in the Climatological Tables hereinafter. From these, it is seen that, in respect of relative humidity, Sydney and Hobart have the first place, while Brisbane, Melbourne, Perth, and Adelaide follow in the order stated, Adelaide being the driest. The graphs on page 67 shew the annual variations in humidity. It will be observed that the *relative humidity* is ordinarily but not invariably great when the temperature is low.

7. Evaporation.—The rate and quantity of evaporation in any territory is influenced by the prevailing temperature, and by atmospheric humidity, pressure and movement. In Australia the question is of perhaps more than ordinary importance; since in its drier regions water has often to be conserved in "tanks"¹ and dams. The magnitude of the

1. In Australia artificial storage ponds or reservoirs are called "tanks."

economic loss by evaporation will be appreciated from the records on pages 68 and 79 to 84, which shew that the yearly amount varies from about 33 inches at Hobart to 96 inches at Alice Springs in the centre of the Continent.

(i.) *Monthly Evaporation Curves.* The curves shewing the mean monthly evaporation in various parts of the Commonwealth will disclose how characteristically different are the amounts for the several months in different localities. The evaporation for characteristic places is shewn on diagram shewing also rainfalls (see page 68).

(ii.) *Loss by Evaporation.* In the interior of Australia the possible evaporation is greater than the actual rainfall. Since, therefore, the loss by evaporation depends largely on the exposed area, tanks and dams so designed that the surface shall be a minimum are advantageous. Similarly, the more protected from the direct rays of the sun and from winds, by means of suitable tree planting, the less will be the loss by evaporation: these matters are of more than ordinary concern in the drier districts of Australia.

8. *Rainfall.*—As even a casual reference to climatological maps, indicating the distribution of rainfall and prevailing direction of wind, would clearly shew, the rainfall of any region is determined mainly by the direction and route of the prevailing winds, by the varying temperatures of the earth's surface over which they blow, and by the physiographical features generally.

Australia lies within the zone of the south-east trade and prevailing westerly winds. The southern limit of the south-east trade strikes the eastern shores at about 30° south latitude. Hence, we find that, with very few exceptions, the heaviest rains of the Australian continent are precipitated along the Pacific slopes to the north of that latitude, the varying quantities being more or less regulated by the differences in elevation of the shores and of the chain of mountains, upon which the rain-laden winds blow, from the New South Wales northern border to Thursday Island. The converse effect is exemplified on the north-west coast of Western Australia from the summer south-east trade winds. Here the prevailing winds, blowing from the interior of the continent instead of from the ocean, result in the lightest coastal rain in Australia.

The westerly winds, which skirt the southern shores, are responsible for the very reliable, although generally light, rains enjoyed by the south-western portion of Western Australia, by the south-eastern agricultural areas of South Australia, by a great part of Victoria, and by the whole of Tasmania.

(i.) *Factors determining Distribution and Intensity of Rainfall.*

(ii.) *Time of Rainfall.*

In preceding Year Books (see No. 6, pp. 72, 73, 74) some notes were given of the various factors governing the distribution, intensity and period of Australian rainfall.

(iii.) *Wettest and Driest Regions.* The wettest known part of Australia is on the north-east coast of Queensland, between Port Douglas and Cardwell, where three stations situated on, or adjacent to, the Johnstone and Russell Rivers have an average annual rainfall of between 148 and 166 inches. The maximum and minimum falls there are:—Goondi, 241.53 in 1894 and 67.88 inches in 1915, or a range of 165.29 inches; Innisfail, 211.24 in 1894 and 69.87 inches in 1902, or a range of 141.37 inches; Harvey's Creek, 238.45 in 1901 and 80.47 inches in 1902, or a range of 157.98 inches.

On four occasions more than 200 inches have been recorded at Goondi, the last of these being in 1910, when 204.82 inches were registered. The record at this station covers a period of 30 years.

Harvey's Creek in the shorter period of 20 years has twice exceeded 200 inches, the total for 1910 being 201.28 inches.

The driest known part of the continent is about the Lake Eyre district in South Australia (the only part of the continent below sea level), where the annual average is but 5 inches, and where the fall rarely exceeds 10 inches for the twelve months.

The inland districts of Western Australia have until recent years been regarded as the driest part of Australia, but authentic observations taken during the past decade at settled districts in the east of that State shew that the annual average is from 10 to 12 inches.

(iv.) *Quantities and Distribution of Rainfall generally.* The departure from the normal rainfall increases greatly and progressively from the southern to the northern shores of the continent, and similarly also at all parts of the continent, subject to capricious monsoonal rains, as the comparisons hereunder will shew. The general distribution is best seen from the map on page 73, shewing the areas subject to average annual rainfalls lying between certain limits. The areas enjoying varying quantities of rainfall determined from the latest available information are shewn in the following table:—

DISTRIBUTION OF AVERAGE RAINFALL.

Average Annual Rainfall.	N.S.W.	Victoria.	Queensland.	South Aust.	Northern Territory.	Western Aust.	Tasmania.	Commonwealth.
	sqr. mls.	sqr. mls.	sqr. mls.	sqr. mls.	sqr. mls.	sqr. mls.	sqr. mls.	sqr. mls.
Under 10 inches	44,997	nil	91,012	317,600	138,190	513,653	nil	1,105,452
10—15 "	77,268	19,912	87,489	33,405	141,570	232,815	nil	592,459
15—20 "	57,639	12,626	112,738	14,190	62,920	89,922	937	350,972
20—30 "	77,202	29,317	213,779	13,827	93,470	95,404	7,559	530,558
30—40 "	30,700	14,029	69,880	984	40,690	40,750	4,588	201,621
Over 40 "	22,566	12,000	95,602	64	46,780	3,376	10,101	190,489
Total area ...	310,372	87,884	670,500	380,070	523,620	975,920	26,215	2,974,581

* Over 3030 square miles no records available.

Referring first to the capital cities, the complete records of which are given on the following page, it is seen that Sydney with a normal rainfall of 48.28 inches occupies the chief place, Brisbane, Perth, Melbourne, Hobart and Adelaide following in that order, Adelaide with 20.95 inches being the driest. The extreme range from the wettest to the driest year is greatest at Brisbane (72.09 inches) and least at Adelaide (19.48 inches).

In order to shew how the rainfall is distributed throughout the year in various parts of the continent, the figures of representative towns have been selected. (See map on page 74.) Darwin, typical of the Northern Territory, shews that in that region nearly the whole of the rainfall occurs in the summer months, while little or nothing falls in the middle of the year. The figures of Perth, as representing the south-western part of the continent, are the reverse, for while the summer months are dry, the winter ones are very wet. In Melbourne and Hobart the rain is fairly well distributed throughout the twelve months, with a maximum in October in the former, and in November in the latter. The records at Alice Springs and Daly Waters indicate that in the central parts of Australia the wettest months are in the summer and autumn. In Queensland, as in the Northern Territory, the heaviest rains fall in the summer months, but good averages are also maintained during the other seasons.

On the coast of New South Wales, the first six months of the year are the wettest, with slight excesses in April and July; the averages during the last six months are fair and moderately uniform. In general it may be said that one-fourth of the area of the continent, principally in the eastern and northern parts, enjoys an annual average rainfall of from 20 to 50 inches, the remaining three-fourths receiving generally from about 10 to 15 inches.

(v.) *Curves of Rainfall and Evaporation.* The relative amounts of rainfall and evaporation at different times through the year are best seen by referring to the graphs for a number of characteristic places. (See page 68.) It will be recognised at once how large is the evaporation when water is fully exposed to the direct rays of the sun, and to wind.

(vi.) *Tables of Rainfall.* The table of rainfall for a long period of years for each of the various Australian capitals affords information as to the variability of the fall in successive years, and the list of the more remarkable falls furnishes information as to what may be expected on particular occasions.

RAINFALL AT THE AUSTRALIAN CAPITALS, 1840 TO 1916.

Year.	PERTH.			ADELAIDE.			BRISBANE.			SYDNEY.			MELBOURNE.			HOBART.		
	Amount.	No. of Days.	10 Years' Means.	Amount.	No. of Days.	10 Years' Means.	Amount.	No. of Days.	10 Years' Means.	Amount.	No. of Days.	10 Years' Means.	Amount.	No. of Days.	10 Years' Means.	Amount.	No. of Days.	10 Years' Means.
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
1840	...	...	...	24.23	99	...	29.32	...	...	58.52	150	...	29.57	...	...	...	...	...
2	...	...	...	17.96	93	...	49.31	...	...	76.31	142	...	30.18	...	...	13.95	74	...
3	...	...	...	20.32	122	...	28.81	...	...	48.32	138	...	31.16	...	...	23.60	88	...
4	...	...	...	17.19	104	...	51.67	...	...	62.78	162	...	21.54	...	...	13.43	87	...
5	...	...	...	16.88	136	...	63.20	...	...	70.66	156	...	30.74	...	...	26.25	94	...
6	...	...	...	18.83	125	...	39.09	...	...	62.01	133	...	23.93	...	...	16.68	76	...
7	...	...	...	26.89	114	...	31.41	...	41.53	43.83	139	...	30.53	...	...	21.96	59	...
8	...	...	...	27.61	109	...	...	...	(7 yr.)	42.81	142	...	30.18	...	...	13.86	89	...
9	...	...	...	19.74	114	21.07	42.59	...	...	59.17	155	58.27	33.15	28.22	...	23.62	115	...
10	...	...	...	25.44	110	(9 yr.)	...	...	...	21.49	140	(9 yr.)	44.25	(9 yr.)	33.52	103	(8 yr.)	19.24
1850	...	...	...	19.56	84	...	...	...	...	44.88	157	...	26.98	...	...	14.51	70	...
1	...	...	...	30.86	128	...	...	...	...	35.14	142	...	...	...	...	17.14	107	...
2	...	...	...	27.44	118	...	...	...	...	43.79	143	...	...	...	...	23.62	119	...
3	...	...	...	27.08	128	...	...	...	...	46.12	130	...	...	...	...	14.52	113	...
4	...	...	...	15.35	105	...	...	...	...	29.29	136	...	...	...	...	30.54	109	...
5	...	...	...	23.15	124	...	...	...	...	52.86	138	...	28.21	...	...	18.25	131	...
6	...	...	...	24.93	118	...	...	...	...	43.31	116	...	29.76	134	...	22.73	152	...
7	...	...	...	22.15	105	...	...	...	...	50.95	135	...	28.90	138	...	17.14	113	...
8	...	...	...	21.55	107	23.75	43.00	...	...	39.60	129	40.75	26.01	158	...	33.07	129	25.59
9	...	...	...	14.85	95	...	35.00	...	...	42.01	137	...	21.82	156	...	23.31	159	...
1860	...	...	...	19.67	119	...	54.63	144	...	82.76	180	...	25.38	133	...	21.05	142	...
1	...	...	...	24.04	147	...	69.45	155	...	59.36	157	...	29.16	159	...	28.19	167	...
2	...	...	...	21.85	119	...	28.27	93	...	23.99	108	...	22.08	139	...	21.72	148	...
3	...	...	...	23.68	145	...	68.53	146	...	47.08	152	...	36.42	165	...	40.67	163	...
4	...	...	...	19.75	121	...	47.00	114	...	69.12	185	...	27.40	144	...	28.11	142	...
5	...	...	...	15.51	108	...	24.11	52	...	36.15	140	...	15.94	119	...	23.07	146	...
6	...	...	...	20.11	116	...	51.18	142	...	36.91	156	...	22.41	107	...	23.65	127	...
7	...	...	...	19.05	112	...	61.04	112	...	59.56	140	49.99	25.79	133	24.47	22.27	139	...
8	...	...	...	19.99	113	19.85	35.98	110	47.55	42.98	161	49.99	18.27	120	24.47	18.08	112	25.00
9	...	...	...	14.74	117	...	54.39	114	...	48.00	150	...	24.58	129	...	23.87	131	...
1870	...	...	...	23.84	119	...	79.06	154	...	64.47	179	...	33.77	129	...	27.53	123	...
1	...	...	...	23.25	137	...	45.45	119	...	52.27	141	...	30.17	125	...	19.25	131	...
2	...	...	...	22.66	146	...	49.22	131	...	37.12	161	...	32.52	136	...	31.76	160	...
3	...	...	...	21.00	139	...	62.02	138	...	73.40	176	...	25.61	134	...	23.43	157	...
4	...	...	...	17.23	127	...	38.71	135	...	63.60	173	...	28.10	134	...	24.09	138	...
5	...	...	...	29.21	157	...	67.03	162	...	46.25	153	...	32.87	155	...	23.25	162	...
6	28.73	100	...	13.43	110	...	53.42	130	...	45.69	156	...	24.04	134	...	23.63	173	...
7	20.48	103	...	24.95	135	...	30.28	119	...	59.66	147	...	24.10	124	...	30.82	165	...
8	39.72	143	...	22.08	112	21.24	56.33	134	53.59	49.77	129	54.03	25.36	116	28.11	29.76	183	25.34
9	41.34	106	29.64	20.69	130	...	67.90	157	...	63.19	167	...	19.28	127	...	31.07	210	...
1880	31.79	116	...	22.48	142	...	49.12	134	...	29.51	142	...	34.08	147	...	...	...	...
1	24.78	101	...	18.02	135	...	29.39	117	...	40.99	163	...	34.08	134	...	...	...	...
2	35.68	109	...	15.70	134	...	42.62	121	...	42.28	112	...	33.71	130	...	30.60	...	...
3	39.65	122	...	26.76	161	...	32.22	114	...	46.92	157	...	25.94	128	...	24.05	...	...
4	31.96	92	...	18.74	138	...	43.49	136	...	44.04	159	...	26.94	123	...	21.55	171	...
5	33.44	110	...	15.89	133	...	26.85	112	...	39.91	142	...	24.00	128	...	28.29	166	...
6	28.90	89	...	14.42	141	...	53.66	152	...	39.43	152	...	32.99	153	...	21.99	189	...
7	37.52	105	...	25.70	164	...	81.54	242	...	60.16	190	...	32.99	153	...	24.21	174	...
8	27.83	117	33.29	14.55	131	19.30	33.08	143	45.93	23.01	132	42.94	19.42	123	24.66	18.45	151	23.71
9	39.96	123	...	30.87	143	...	49.36	155	...	57.16	186	...	27.14	125	...	30.80	180	...
1890	46.73	126	...	25.78	139	...	73.02	162	...	81.42	184	...	24.24	140	...	27.51	173	...
1	30.33	93	...	14.01	113	...	41.58	143	...	55.30	200	...	26.73	126	...	23.25	160	...
2	31.23	122	...	21.53	137	...	21.49	129	...	69.26	189	...	24.96	124	...	18.62	120	...
3	40.12	145	...	20.78	134	...	88.26	147	...	49.90	209	...	26.80	140	...	27.46	146	...
4	39.72	103	...	20.78	134	...	44.02	143	...	38.22	182	...	26.80	138	...	27.39	141	...
5	33.01	123	...	21.28	130	...	59.11	105	...	31.86	170	...	17.04	131	...	25.40	121	...
6	31.50	103	...	15.17	121	...	44.97	121	...	42.40	157	...	25.16	124	...	21.61	135	...
7	27.17	106	...	15.42	119	...	42.53	115	...	42.52	136	...	25.85	117	...	20.45	153	...
8	31.76	118	33.55	20.75	116	20.71	60.06	131	56.80	43.17	143	51.12	15.61	102	23.61	20.40	164	24.99
9	32.40	107	...	18.84	119	...	38.85	141	...	55.90	174	...	28.87	116	...	20.68	170	...
1900	36.61	124	...	21.63	133	...	34.41	110	...	66.54	170	...	28.09	139	...	19.14	135	...
1	36.75	122	...	18.01	124	...	38.48	110	...	40.10	149	...	27.45	113	...	25.11	149	...
2	27.06	93	...	16.02	123	...	16.17	87	...	43.07	180	...	23.08	102	...	21.85	150	...
3	35.69	140	...	25.47	134	...	49.27	136	...	38.62	173	...	28.43	130	...	25.86	139	...
4	34.35	125	...	20.31	117	...	33.23	124	...	45.93	158	...	29.72	128	...	22.41	139	...
5	34.61	111	...	22.28	131	...	36.76	108	...	35.03	145	...	25.64	129	...	32.09	168	...
6	32.97	126	...	26.51	127	...	42.85	125	...	31.89	160	...	22.29	114	...	23.31	155	...
7	40.12	133	...	17.78	125	...	31.46	119	...	31.32	132	...	22.26	102	...	25.92	166	...
8	30.62	106	34.05	24.56	125	21.15	44.01	125	36.55	45.65	167	43.41	17.72	130	25.36	16.50	148	23.29
9	39.11	107	...	27.69	138	...	34.06	111	...	32.45	177	...	25.86	171	...	27.29	170	...
1910	37.02	135	...	24.62	116	...	49.00	133	...	46.91	160	...	24.61	167	...	25.22	205	...

9. Remarkable Falls of Rain.—The following are the more remarkable falls of rain in the States of New South Wales, Queensland, Western Australia, and South Australia, which have occurred within a period of twenty-four hours:—

HEAVY RAINFALLS, NEW SOUTH WALES, UP TO 1916, INCLUSIVE.

Name of Town or Locality.	Date.	Amnt.	Name of Town or Locality.	Date.	Amnt.
		ins.			ins.
Anthony ...	28 Mar., 1887	17.14	Maitland W. ...	9 Mar., 1893	14.79
" ...	15 Jan., 1890	13.13	Major's Creek ...	14 Feb., 1898	12.32
Araluen ...	15 Feb., 1898	13.36	Marrickville ...	9 Mar., 1913	10.40
Berry ...	13 Jan., 1911	12.05	Morpeth ...	9 " 1893	21.52
Billambil ...	14 Mar., 1894	12.94	Mount Kembla ...	13 Jan., 1911	18.25
Bomaderry ...	13 Jan., 1911	13.03	Mt. Pleasant ...	24 Mar., 1914	10.30
Broger's Creek ...	14 Feb., 1898	20.05	Nepean Tunnel ...	14 Feb., 1898	12.30
" "	19 July, 1910	12.22	Nowra ...	13 Jan., 1911	13.00
" "	13 Jan., 1911	20.83	Padstow Park ...	9 Mar., 1913	10.64
Bulli Mountain ...	13 Feb., 1898	17.14	Prospect ...	28 May, 1889	12.37
Camden Haven ...	22 Jan., 1895	12.23	Richmond ...	28 " 1914	12.18
Castle Hill ...	28 May, 1889	13.49	Rosemount ...	23 Mar., 1914	12.62
Colombo Lyttleton ...	5 Mar., 1893	12.17	Rooty Hill ...	27 May, 1889	11.85
Comboyne ...	18 May, 1914	10.68	Taree ...	28 Feb., 1892	12.24
Condong ...	27 Mar., 1887	18.66	Terara ...	26 " 1873	12.57
Cordeaux River ...	14 Feb., 1898	22.58	Tomago ...	9 Mar., 1893	13.76
" "	13 Jan., 1911	14.52	Tongarra Farm ...	14 Feb., 1898	15.12
Dapto West ...	14 Feb., 1898	12.05	Towamba ...	5 Mar., 1893	20.00
Dunheved ...	28 May, 1889	12.40	The Hill(Shell Harb.)	24 Mar., 1914	12.00
Holy Flat ...	12 Mar., 1887	12.00	Sherwood ...	17 June, 1914	10.00
" "	28 Feb., 1892	12.24	Stockyard Mt. ...	24 Mar., 1914	10.72
Jamberoo ...	23 Mar., 1914	10.22	South Head		
" "	24 " "	11.28	(near Sydney) ...	29 Apr., 1841	20.12
Katoomba ...	7 Apr., 1913	10.50	" "	16 Oct., 1844	20.41
Kembla Heights ...	13 Jan., 1911	17.46	Unanderra ...	24 Mar., 1914	11.68
Leconfield ...	9 Mar., 1893	14.53	Wollongong ...	24 " "	12.50
Madden's Creek ...	13 Jan., 1911	18.68			

HEAVY RAINFALLS, QUEENSLAND, UP TO 1916, INCLUSIVE.

Name of Town or Locality.	Date.	Amnt.	Name of Town or Locality.	Date.	Amnt.
		ins.			ins.
Allomba (Cairns) ...	30 Jan., 1913	13.50	Burnett Head		
Anglesey ...	26 Dec., 1909	18.20	(Bundaberg) ...	16 Jan., 1913	15.22
" ...	10 Feb., 1915	12.00	Burpengary ...	10 Feb., 1915	11.11
Atherton (Cairns) ...	31 Jan., 1913	16.69	Bustard Head ...	17 Jan., 1913	14.93
Ayr ...	20 Sep., 1890	14.58	Cairns ...	11 Feb., 1889	14.74
Babinda (Cairns) ...	31 Jan., 1913	12.79	" ...	21 Apr., ...	12.40
" "	1 Feb., 1913	20.51	" ...	5 " 1891	14.08
" "	24 Jan., 1916	22.30	" ...	11 Feb., 1911	15.17
" "	25 " 1916	13.45	" ...	2 Apr., ...	20.16
Banyan (Cardwell) ...	31 " 1913	13.79	" ...	31 Jan., 1913	13.94
Barrine (Cairns) ...	31 " 1913	13.34	" ...	24 " 1916	12.28
Batheaston ...	27 Dec., 1916	10.00	Calliope ...	9 Feb., 1915	12.09
Bloomsbury ...	14 Feb., 1893	17.40	Cape Grafton ...	5 Mar., 1896	13.37
" ...	10 Jan., 1901	16.62	Cardwell ...	30 Dec., 1889	12.00
Bowen ...	13 Feb., 1893	14.65	" ...	23 Mar., 1890	12.00
Boynedale ...	9 " 1915	11.20	" ...	18 " 1904	18.24
Bracewell ...	9 " 1915	11.59	" ...	3 Apr., 1911	12.84
Brisbane ...	21 Jan., 1887	18.31	Clare ...	26 Jan., 1896	15.30
Bromby Park (Bowen)	14 Feb., 1893	13.28	Clermont ...	28 Dec., 1916	12.28
Brookfield ...	14 Mar., 1908	14.95	Coen ...	17 Feb., 1914	12.03
Buderim Mountain ...	11 Jan., 1898	26.20	Collaroy ...	30 Jan., 1896	14.25
Bundaberg ...	16 " 1913	16.94	" ...	28 Dec., 1916	12.79
Burketown ...	15 " 1891	13.58	Cooktown ...	22 Jan., 1903	12.49
" ...	12 Mar., 1903	14.52	" ...	23 " 1914	13.98

HEAVY RAINFALLS, QUEENSLAND—Continued.

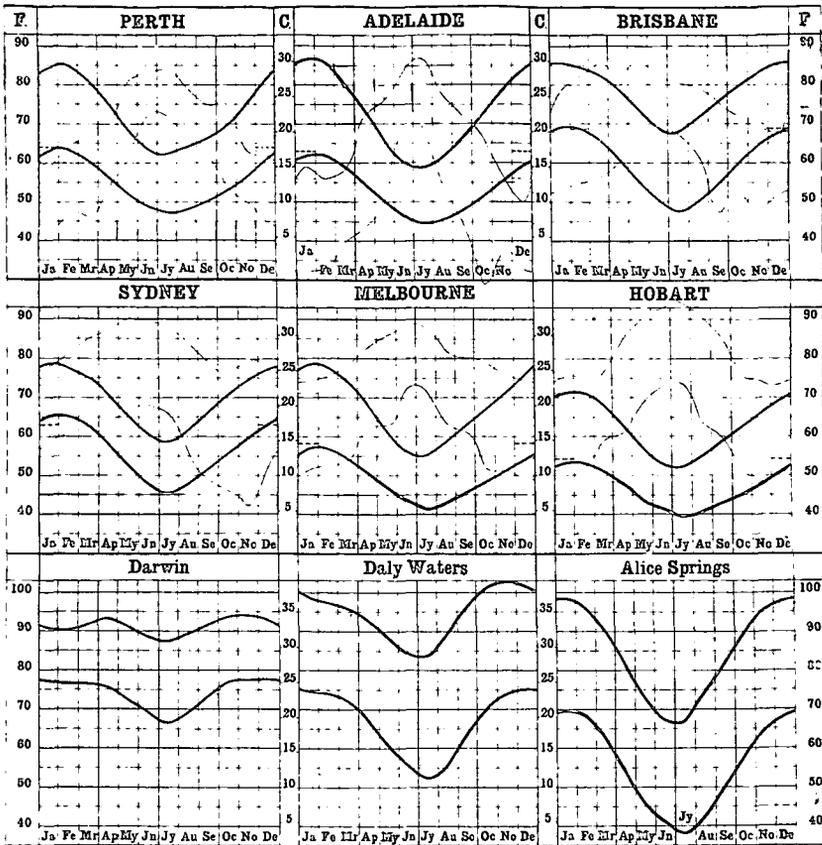
Name of Town or Locality.	Date.	Amnt.	Name of Town or Locality.	Date.	Amnt.
		ins.			ins.
Cooran	1 Feb., 1893	13.62	Halifax	5 Feb., 1899	15.37
"	26 Dec., 1908	14.08	"	6 Jan., 1901	15.68
Cooroy	9 June, 1893	13.60	"	8 Apr., 1912	12.75
"	10 Jan., 1898	13.50	Hambledon Mill ...	13 Jan., 1909	13.80
Crohamhurst (Blackall Range)	2 Feb., 1893	35.71	" "	2 " 1911	18.61
" "	9 June, "	13.31	" "	10 Feb., "	13.97
" "	9 Jan., 1898	19.55	" "	30 Mar., "	13.04
" "	6 Mar. "	16.01	" "	31 " "	14.95
" "	26 Dec., 1909	13.85	" "	1 Apr., "	19.62
" "	10 Feb., 1915	12.98	" "	30 Jan., 1913	17.32
Crow's Nest	2 Aug., 1908	11.17	Harvey Creek	8 Mar., 1899	17.72
Croydon	29 Jan., 1908	15.00	" "	25 Jan., 1900	12.53
Cryna (Beaudesert) ...	21 " 1887	14.00	" "	25 May, 1901	14.00
Dungeness	16 Mar., 1893	22.17	" "	14 Mar., 1903	12.10
"	17 Apr., 1894	14.00	" "	11 Jan., 1905	16.96
Dunira	9 Jan., 1898	18.45	" "	28 " 1906	12.29
"	6 Mar., "	15.95	" "	14 " 1909	14.40
Eddington(Cloncurry)	23 Jan., 1891	10.33	" "	3 " 1911	27.75
Emscote Farm	10 Feb., 1915	13.22	" "	11 Feb., "	12.88
Emu Park	18 Jan., 1913	12.75	" "	1 Apr., "	13.61
Enoggera Railway	14 Mar., 1908	12.14	" "	2 " "	16.46
Ernest Junction	" "	13.00	" "	31 Jan., 1913	24.72
Fairymead Plantation (Bundaberg)	16 Jan., 1913	15.32	" "	24 " 1916	13.17
Flat Top Island	22 Dec., 1909	12.96	Haughton Valley ...	26 Jan., 1896	18.10
Floraville	6 Jan., 1897	10.79	Herberton	31 Jan., 1913	14.00
"	11 Mar., 1903	12.86	Hillcrest (Mooloolah)	26 Dec., 1909	13.35
Flying Fish Point ...	7 Apr., 1912	16.06	Holmwood (Woodf'd)	2 Feb., 1893	16.19
" "	31 Jan., 1913	16.10	" "	10 Jan., 1898	12.40
Gatcombe Head (Gladstone)	18 Jan., 1913	12.88	" "	3 Feb., "	12.04
Gin Gin	16 " 1905	13.61	Homebush	15 Jan., 1905	19.55
"	16 " 1913	12.27	Howard	27 Dec., 1916	18.94
Gladstone	18 Feb., 1888	12.37	Huntley	18 Jan., 1894	12.60
"	31 Jan., 1893	14.62	Ingham	6 " 1901	13.59
"	4 Feb., 1911	18.83	"	25 Dec., 1903	12.30
"	9 " 1915	10.10	Inkerman	21 Sep., 1890	12.93
Glen Boughton	5 Apr., 1894	18.50	Inneshowen (Johnstone River)	30 Dec., 1889	14.01
" "	31 Jan., 1913	14.92	Innisfail (formerly Geraldton)	11 Feb., 1889	17.13
" "	24 " 1916	14.02	" "	31 Dec., "	12.45
Glen Prairie	18 Apr., 1904	12.18	" "	6 Apr., 1894	16.02
Gold Creek Reservoir	14 Mar., 1908	12.50	" "	18 " 1899	13.20
Goldsborough (Cairns)	31 Jan., 1913	19.92	" "	24 Jan., 1900	15.22
" "	1 Feb., 1913	12.22	" "	29 Dec., 1903	21.22
Goodwood(Bund'berg)	16 Jan., 1913	13.07	" "	11 Feb., 1911	14.48
Goondi Mill (Innisfail)	6 Apr., 1894	15.69	" "	1 Apr., 1911	12.35
" "	18 Apr., 1899	14.78	" "	2 " "	15.00
" "	24 Jan., 1900	13.30	" "	7 " 1912	20.50
" "	29 Dec., 1903	17.83	" "	8 " "	12.15
" "	10 Feb., 1911	17.68	" "	31 Jan., 1913	20.91
" "	31 Mar., "	12.38	Invicta (Kolan R.) ...	16 Jan., 1913	14.58
" "	1 Apr., "	13.60	Isis Junction	6 Mar., 1898	13.60
" "	6 Apr., 1912	15.55	Kamerunga (Cairns)	20 Jan., 1892	13.61
Goondi	30 Jan., 1913	24.10	" "	6 Apr., 1894	14.04
Granada (formerly Donaldson)	27 Jan., 1891	11.29	" "	5 " 1895	12.31
" "	8 " 1911	13.50	" "	11 Feb., 1911	13.07
" "	9 " "	14.30	" "	1 Apr., "	14.20
			" "	2 " "	21.00
			" "	31 Jan., 1913	16.00

HEAVY RAINFALLS, QUEENSLAND—Continued.

Name of Town or Locality.	Date.	Amnt.	Name of Town or Locality.	Date.	Amnt.
		ins.			ins.
Kulara (Cairns) ...	31 Jan., 1913	12.69	Nerang ...	15 June 1892	12.35
Kuranda (Cairns) ...	6 Mar., 1899	14.12	North Kolan ...		
" "	20 Apr., 1903	14.16	(Bundaberg) ...	6 Jan., 1913	12.90
" "	14 Jan., 1909	12.37	North Pine ...	16 Feb., 1893	14.97
" "	11 Feb., 1911	16.30	Nundah ...	14 Mar., 1908	12.00
" "	17 Mar., "	15.10	Oxenford ...	14 Mar., 1908	15.65
" "	31 "	18.60	Palmwoods ...	4 Feb., 1893	12.30
" "	1 Apr., "	24.30	" "	10 Jan., 1898	15.85
" "	2 "	28.80	" "	7 Mar., 1898	13.02
" "	31 Jan., 1913	16.34	" "	25 Dec., 1909	17.75
Lake Nash ...	10 Jan., 1895	10.25	Peachester ...	26 "	14.91
" "	20 Mar., 1901	10.02	Pialba (Maryborough) ...	16 Jan., 1913	17.22
Landsborough ...	2 Feb., 1893	15.15	Pittsworth ...	11 Mar., 1890	14.68
" "	9 June, "	12.80	Plane Creek (Mackay) ...	26 Feb., 1913	27.73
" "	26 Dec., 1909	14.00	Point Archer ...	23 Jan., 1914	13.47
Low Island ...	10 Mar., 1904	15.07	Port Douglas ...	5 Mar., 1887	13.00
" "	31 ", 1911	14.70	" "	10 ", 1904	16.34
" "	1 Apr., "	15.30	" "	11 Jan., 1905	14.68
Lucinda ...	17 Feb., 1906	18.35	" "	17 Mar., 1911	16.10
" "	10 Mar., 1906	14.60	" "	1 Apr., "	31.53
Lytton ...	21 Jan., 1887	12.85	Ravenswood ...	24 Mar., 1890	17.00
Mackay ...	23 Dec., 1909	13.96	Redcliffe ...	21 Jan., 1887	14.00
Sugar Experimental Farm, Mackay ...	23 Dec., 1909	12.00	" "	16 Feb., 1893	17.35
Macnade Mill ...	18 Jan., 1894	12.56	Rosedale ...	6 Mar., 1898	12.60
" "	17 Apr., "	14.26	" "	16 Jan., 1913	18.90
" "	5 Feb., 1899	15.20	Sandgate ...	16 Feb., 1893	14.03
" "	6 Jan., 1901	23.33	Somerset ...	28 Jan., 1903	12.02
" "	7 Mar., 1914	12.44	St. Helens (Mackay) ...	24 Feb., 1888	12.00
" "	4 ", 1915	22.00	St. Lawrence ...	17 Feb., 1888	12.10
Maleny ...	26 Dec., 1909	14.76	" "	30 Jan., 1896	15.00
Mapleton ...	14 Mar., 1908	14.29	Tewantin ...	30 Mar., 1904	12.30
" "	26 Dec., 1909	15.72	The Hollow (Mackay) ...	23 Feb., 1888	15.12
" "	10 Feb., 1915	12.75	Thornborough ...	20 Apr., 1903	18.07
Marlborough ...	17 ", 1888	14.24	Townsville ...	24 Jan., 1892	19.20
Milton ...	14 Mar., 1908	12.24	" "	28 Dec., 1903	15.00
" "	9 Feb., 1915	10.15	Victoria Mill ...	6 Jan., 1901	16.67
Mirani ...	12 Jan., 1901	15.59	Walsh River ...	1 Apr., 1911	13.70
Miriam Vale (B'd'berg) ...	17 ", 1913	15.80	Woodford ...	2 Feb., 1893	14.93
" "	9 Feb., 1915	10.22	Woodlands (Yeppoon) ...	25 Mar., 1890	14.25
Mt. Molloy ...	31 Mar., 1911	20.00	" "	31 Jan., 1893	23.07
" "	1 Apr., "	20.00	" "	9 Feb., 1896	13.97
" "	2 ", "	20.00	" "	7 Jan., 1898	14.50
Mt. Mee ...	10 Feb., 1915	12.00	Woody Island ...	16 ", 1913	12.66
Mooloolah ...	13 Mar., 1892	21.53	Woombye ...	26 Dec., 1909	13.42
" "	2 Feb., 1893	19.11	Wootha ...	10 Feb., 1915	15.93
" "	6 Mar., 1898	14.43	Yandina ...	1 ", 1893	20.08
Mount Crosby ...	14 Mar., 1908	14.00	" "	9 June, "	12.70
Mount Cuthbert ...	8 Jan., 1911	18.00	" "	9 Jan., 1898	19.25
Mourilyan ...	14 Jan., 1909	13.00	" "	7 Mar., "	13.52
" "	3 ", 1911	12.70	" "	28 Dec., 1909	15.80
" "	11 Feb., "	17.40	Yarrabah ...	11 Feb., 1911	12.00
" "	1 Apr., "	13.20	" "	2 Apr., "	30.65
" "	7 ", 1912	18.97	" "	24 Jan., 1916	27.20
" "	31 Jan., 1913	15.05	" "	25 ", 1916	18.60
Mundoolun ...	21 Jan., 1887	17.95	Yeppoon ...	31 ", 1893	20.05
Musgrave ...	6 Apr., 1894	13.71	" "	8 ", 1898	18.05
Nambour ...	9 Jan., 1898	21.00	" "	3 Feb., 1906	14.90
" "	7 Mar., "	13.28	" "	" ", 1911	14.92
" "	27 Dec., 1909	16.80	" "	18 Jan., 1913	13.00
			" "	8 Oct., 1914	21.70

NOTE.—In Queensland falls of 12 or more inches on coast or 10 or more inches inland are taken.

GRAPHS SHEWING ANNUAL FLUCTUATIONS OF MEAN MAXIMUM AND MINIMUM TEMPERATURE AND HUMIDITY IN SEVERAL PARTS OF THE COMMONWEALTH OF AUSTRALIA.



EXPLANATION OF THE GRAPHS OF TEMPERATURE AND HUMIDITY.—In the above graphs, in which the heavy lines denote 'temperature' and the thin lines 'humidity,' the fluctuations of mean temperature and mean humidity are shewn throughout the year. These curves are plotted from the data given in the Climatological Tables hereinafter. The temperatures are shewn in degrees Fahrenheit, the inner columns giving the corresponding values in Centigrade degrees. Humidities have not been obtained for Darwin, Daly Waters, and Alice Springs.

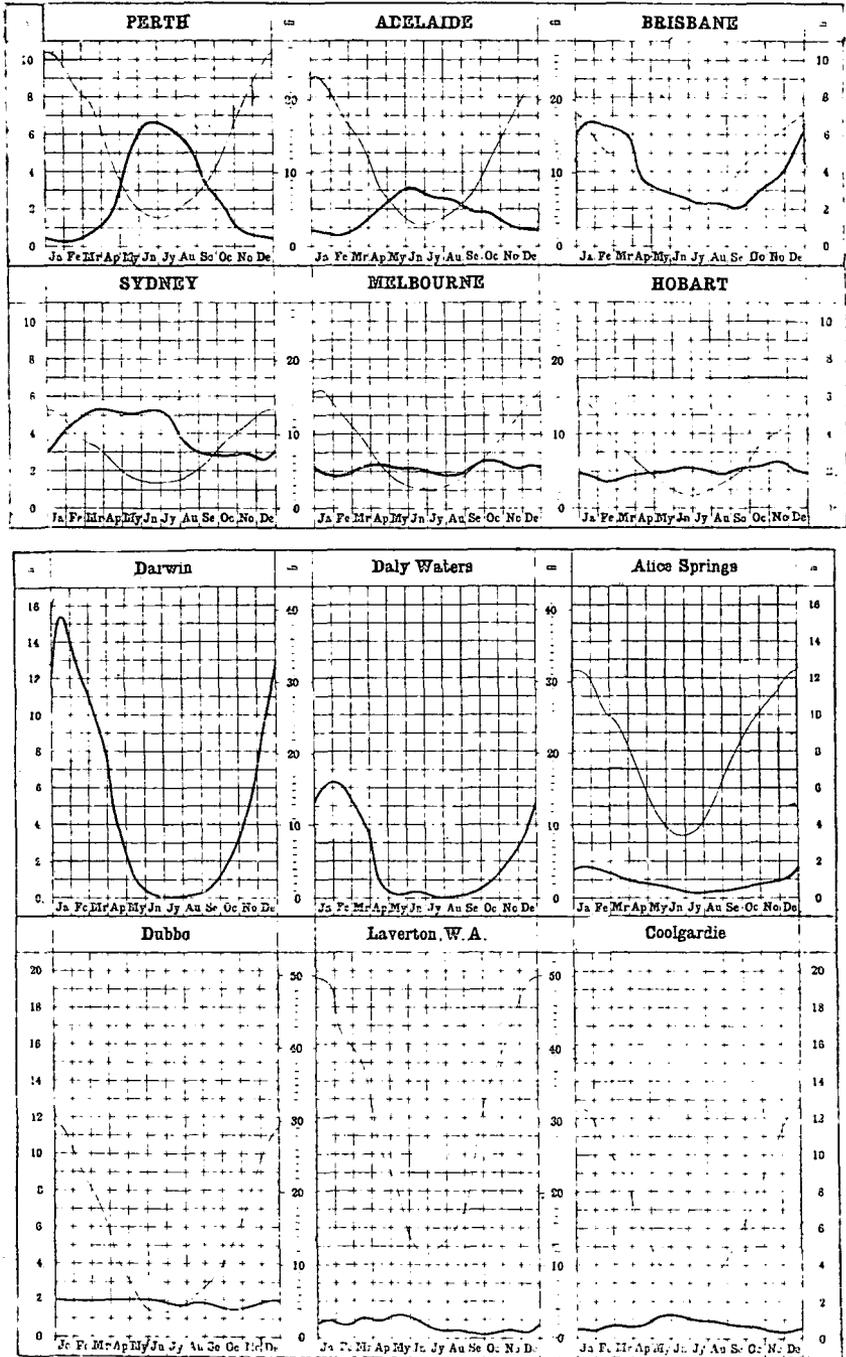
For the thin lines the degree numbers represent relative humidities, or the percentages of actual saturation (absolute saturation = 100).

The upper temperature line represents the mean of the maximum, and the lower line the mean of the minimum results; thus the curves also shew the progression of the range between maximum and minimum temperatures throughout the year. The humidity curves shew the highest and lowest values of the mean monthly humidity at 9 a.m. recorded during a series of years.

INTERPRETATION OF THE GRAPHS.—The curves denote mean monthly values. Thus, taking for example, the temperature graphs for Perth, the mean readings of the maximum and minimum temperatures for a number of years on 1st January would give respectively about 83° Fahr. and 62° Fahr. Thus the mean range of temperature on that date is the difference, viz., 21°. Similarly, observations about 1st June would give respectively about 65° Fahr. and 51° Fahr., or a range of 15°.

In a similar manner it will be seen that the greatest mean humidity, say for March, is about 66° and the least mean humidity for the month 46°; in other words, at Perth, the degree of saturation of the atmosphere by aqueous vapour for the month of March ranges between 66% and 46%.

GRAPHS SHewing ANNUAL FLUCTUATIONS OF MEAN RAINFALL AND MEAN EVAPORATION IN SEVERAL PARTS OF THE COMMONWEALTH OF AUSTRALIA.



(For Explanation see next page.)

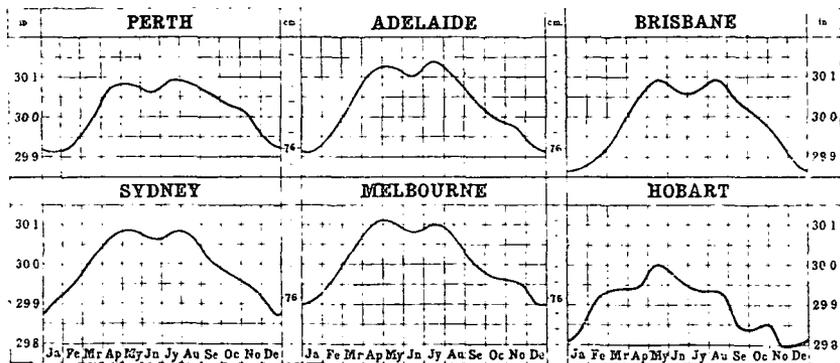
EXPLANATION OF THE GRAPHS OF RAINFALL AND EVAPORATION.—On the preceding graphs thick lines denote rainfall and thin lines evaporation, and shew the fluctuation of the mean rate of fall *per month* throughout the year. The results, plotted from the Climatological Tables hereinafter, are shewn in inches (see the outer columns), and the corresponding metric scale (centimetres) is shewn in the two inner columns. The evaporation is not given for Darwin and Daly Waters.

INTERPRETATION OF THE GRAPHS.—The distance for any date from the zero line to the curve, represents the average number of inches, reckoned as per month, of rainfall at that date. Thus, taking the curves for Adelaide, on the 1st January the rain falls on the average at the rate of about four-fifths of an inch per month, or, say, at the rate of about $9\frac{1}{2}$ inches per year. In the middle of June it falls at the rate of nearly 3 inches per month, or, say, at the rate of about 36 inches per year. At Dubbo the evaporation is at the rate of nearly $11\frac{1}{2}$ inches per month about the middle of January, and only about $1\frac{1}{2}$ inches at the middle of June.

TABLE SHEWING MEAN ANNUAL RAINFALL AND EVAPORATION IN INCHES OF THE PLACES SHEWN ON PRECEDING PAGE, AND REPRESENTED BY THE GRAPHS.

	Rainfall.	Evapora- tion.		Rainfall.	Evapora- tion.
Perth ...	33.23	66.37	Darwin... ..	61.36	—
Adelaide ...	20.95	54.42	Daly Waters ...	26.35	—
Brisbane ...	46.42	51.04	Alice Springs...	10.77	95.72
Sydney ...	48.01	37.32	Dubbo ...	22.37	—
Melbourne ...	25.46	35.68	Laverton, W.A.	9.32	145.55
Hobart ...	23.63	33.29	Coolgardie ...	9.68	55.75

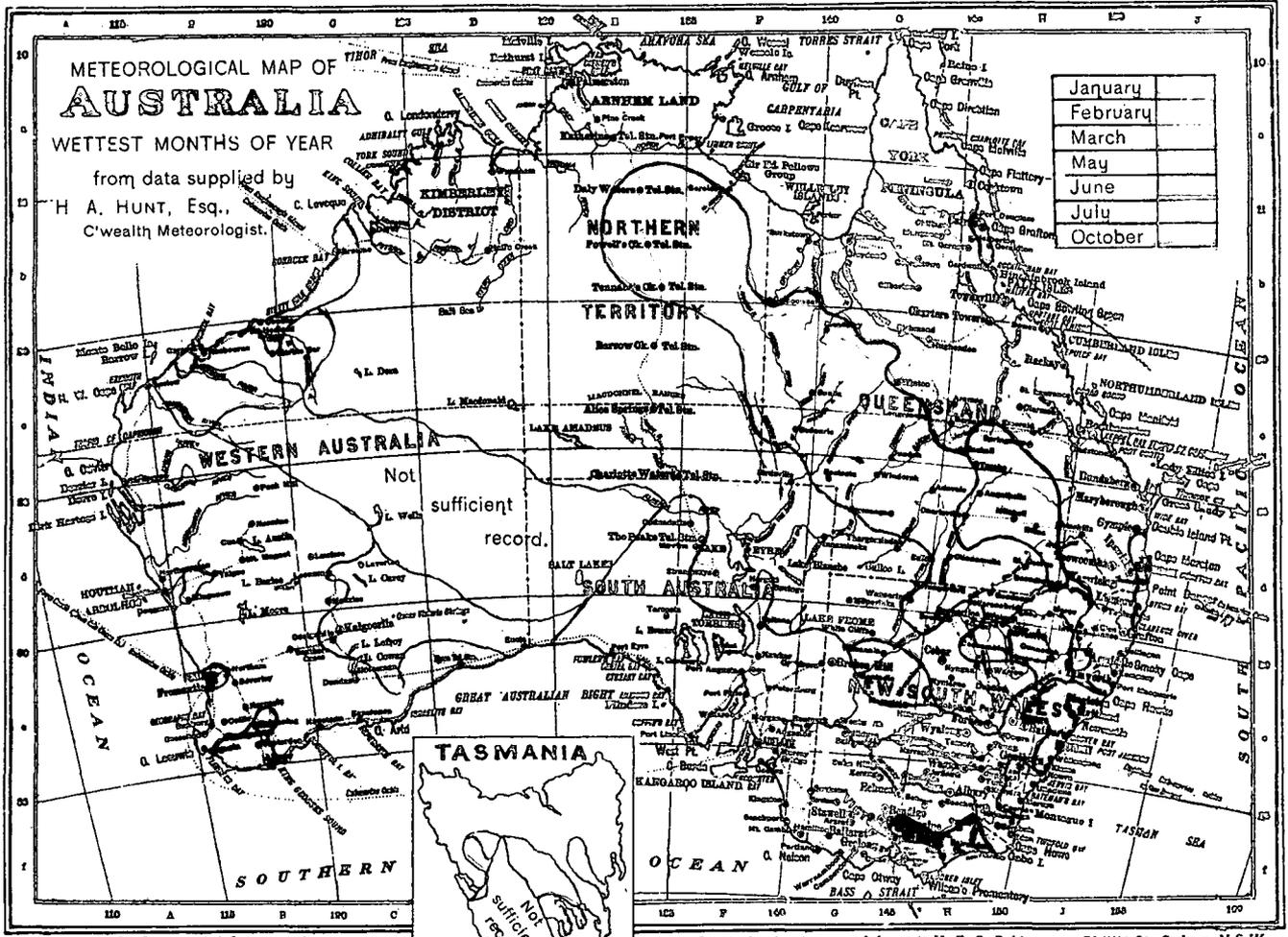
GRAPHS SHEWING ANNUAL FLUCTUATIONS OF MEAN BAROMETRIC PRESSURE FOR THE CAPITALS OF THE SEVERAL STATES OF THE COMMONWEALTH OF AUSTRALIA.



EXPLANATION OF THE GRAPHS OF BAROMETRIC PRESSURE.—On the above graphs the lines representing the yearly fluctuation of barometric pressure at the State capital cities are means for long periods, and are plotted from the Climatological Tables given hereinafter. The pressures are shewn in inches on about $2\frac{1}{2}$ times the natural scale, and the corresponding pressures in centimetres are also shewn in the two inner columns, in which each division represents one millimetre.

INTERPRETATION OF THE BAROMETRIC GRAPHS.—Taking the Brisbane graph for purposes of illustration, it will be seen that the mean pressure on 1st January is about 29.87 inches, and there are maxima in the middle of May and August of about 30.09 inches.

January
February
March
May
June
July
October



METEOROLOGICAL MAP OF AUSTRALIA

WETTEST MONTHS OF YEAR

from data supplied by
H. A. HUNT, Esq.,
 C'wealth Meteorologist.

Printed by McCarron, Bird & Co., Melbourne.

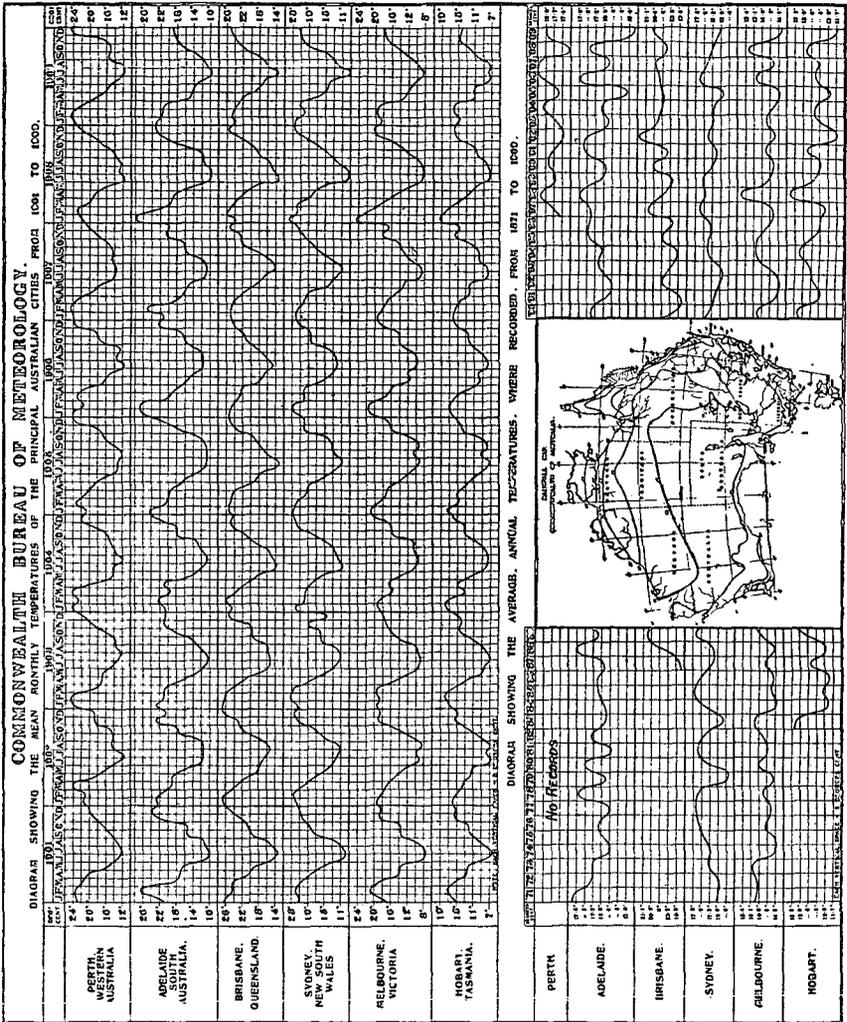
Copyright of outline map belongs to H. E. C. Robinson, 41 Phillip St., Sydney, N.S.W.

METEOROLOGICAL SUB-DIVISIONS.

- | | | | | | | | | |
|--|--|--|---|---|---|---|---|---|
| <p>WEST AUSTRALIA.</p> <ol style="list-style-type: none"> 1. East Kimberley. 2. West Kimberley. 3. North-West. 4. Gascoyne. 5. South-West. 6. Exotic. 7. Exotic. | <p>QUEENSLAND.</p> <ol style="list-style-type: none"> 17. Peninsula. 18. Gulf West. 19. Far West. 20. Central. 21. Nth-East Coast. | <p>WEST AUSTRALIA.</p> <ol style="list-style-type: none"> 8. Northern Territory. 9. Far North and N.W. 10. West. | <p>WEST AUSTRALIA.</p> <ol style="list-style-type: none"> 11. Upper North. 12. North-East. 13. Lower-East. 14. Central North. 15. Murray Valley. 16. South-East. | <p>WEST AUSTRALIA.</p> <ol style="list-style-type: none"> 22. Central Coast. 23. South-East Coast. 24. Maritime Down. 25. Maritime. 26. South-West. | <p>WEST AUSTRALIA.</p> <ol style="list-style-type: none"> 27. Western. 28. North-West Plain. 29. North-West Slope. 30. North-East Slope. 31. Northern Tableland. 32. North Coast. 33. Hunter & Manning. | <p>WEST AUSTRALIA.</p> <ol style="list-style-type: none"> 34. Central Tableland. 35. Metropolitan Slope. 36. Centr. Western Slope. 37. Eastern Western Plain. 38. Riverina. 39. Southern Tableland. 40. Southern Slope. | <p>WEST AUSTRALIA.</p> <ol style="list-style-type: none"> 41. North-East. 42. Central. | <p>TASMANIA.</p> <ol style="list-style-type: none"> 43. North Central. 44. Northern Country. 45. Maritime. 46. Western. 47. Western. 48. Northern Region. 49. West Coast Plateau. 50. Central Plateau. 51. Highland. 52. East Coast. 53. Derwent. 54. South-Eastern. |
|--|--|--|---|---|---|---|---|---|

The above are the meteorological sub-divisions adopted by H. A. HUNT, Esq., C'wealth Meteorologist.





EXPLANATION OF GRAPH.

The six continuous curves on the upper part of the diagram shew the fluctuations of mean monthly temperatures of the Australian capitals from 1901 to 1900. The base of each small square denotes one month, and the vertical side 2° Centigrade or 3.6° Fahrenheit.

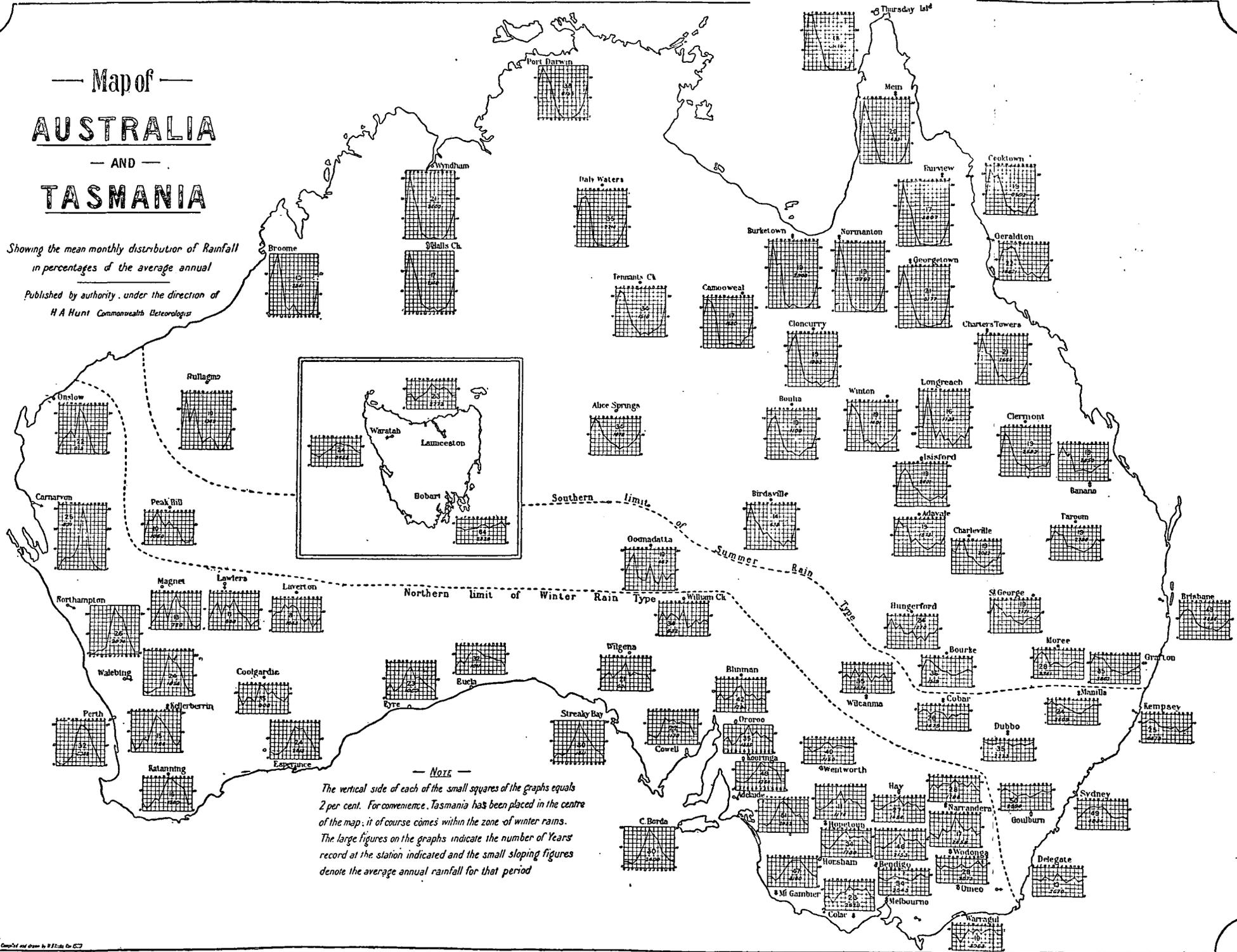
The six curves in lower portion of the diagram similarly shew the fluctuations of the mean annual temperatures, from 1871 in the case of Adelaide, Sydney and Melbourne, from 1883, 1897 and 1897 in the case respectively of Hobart, Brisbane and Perth. The base of each rectangle represents one year, and the vertical side 0.3° Centigrade or 0.54° Fahrenheit.

The map shews the areas affected by given amounts of annual rainfall, and is elsewhere given.

— Map of —
AUSTRALIA
 — AND —
TASMANIA

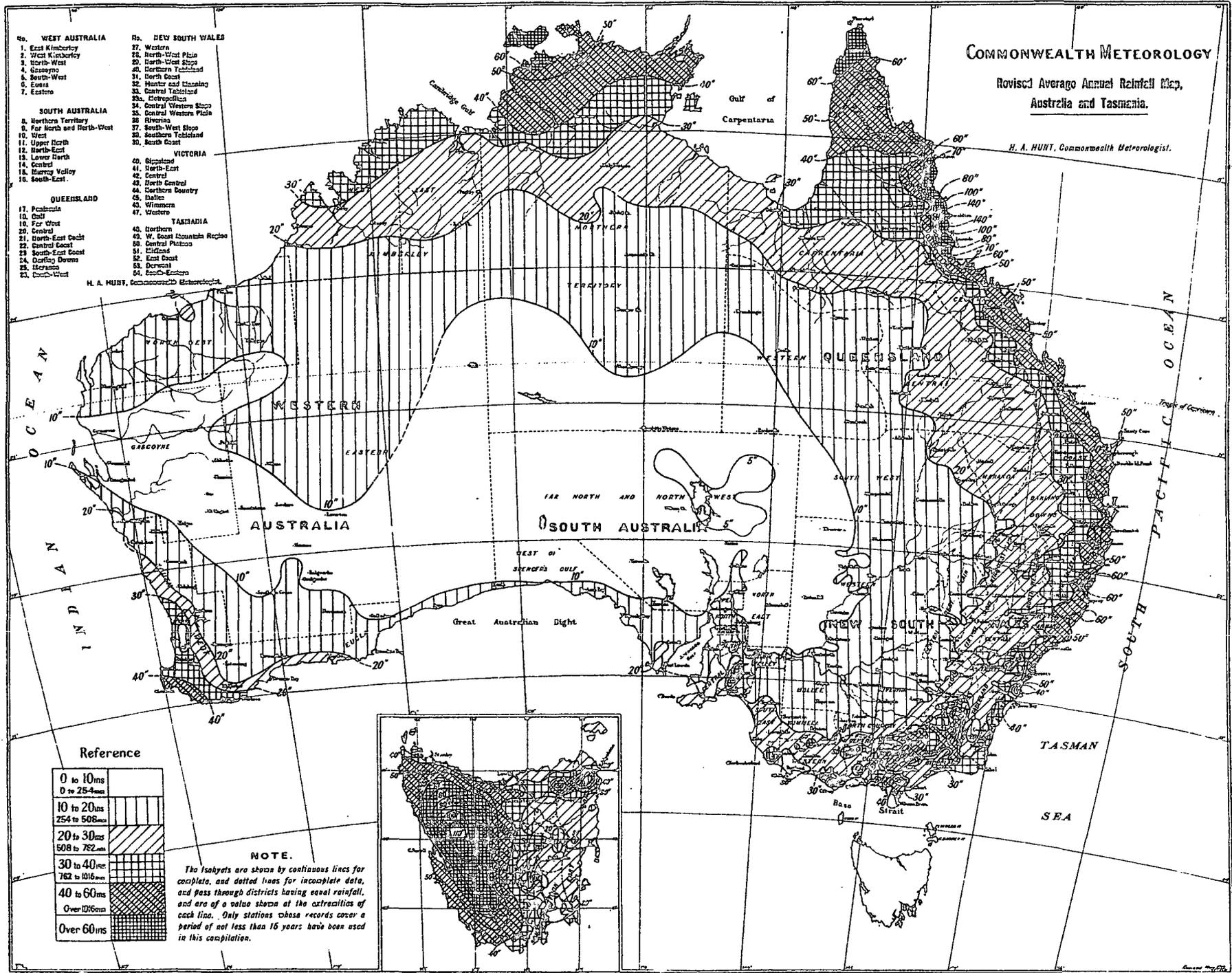
Showing the mean monthly distribution of Rainfall
 in percentages of the average annual

Published by authority, under the direction of
 H A Hunt Commonwealth Meteorologist



— NOTE —

The vertical side of each of the small squares of the graphs equals 2 per cent. For convenience, Tasmania has been placed in the centre of the map; it of course comes within the zone of winter rains. The large figures on the graphs indicate the number of Years record at the station indicated and the small sloping figures denote the average annual rainfall for that period



- | | |
|---|--|
| <p>No. WEST AUSTRALIA</p> <p>1. East Kimberley</p> <p>2. West Kimberley</p> <p>3. North-West</p> <p>4. Gascoyne</p> <p>5. North-West</p> <p>6. Eastern</p> <p>7. Eastern</p> | <p>No. NEW SOUTH WALES</p> <p>27. Western</p> <p>28. North-West Plain</p> <p>29. North-West Slope</p> <p>30. Northern Tableland</p> <p>31. North Coast</p> <p>32. Hunter and Manning</p> <p>33. Central Tableland</p> <p>34. Newcastle</p> <p>35. Central Western Slope</p> <p>36. Central Western Plain</p> <p>37. Riverina</p> <p>38. South-West Slope</p> <p>39. Southern Tableland</p> <p>40. South Coast</p> |
| <p>SOUTH AUSTRALIA</p> <p>8. Northern Territory</p> <p>9. Far North and North-West</p> <p>10. West</p> <p>11. Upper North</p> <p>12. North-East</p> <p>13. Lower North</p> <p>14. Central</p> <p>15. Murray Valley</p> <p>16. South-East</p> | <p>VICTORIA</p> <p>40. Gippsland</p> <p>41. North-East</p> <p>42. Central</p> <p>43. North Central</p> <p>44. Northern Country</p> <p>45. Ballarat</p> <p>46. Wimmera</p> <p>47. Western</p> |
| <p>QUEENSLAND</p> <p>17. Peninsula</p> <p>18. Gulf</p> <p>19. Far West</p> <p>20. Central</p> <p>21. North-East Coast</p> <p>22. Central Coast</p> <p>23. South-East Coast</p> <p>24. Darling Downs</p> <p>25. Stovena</p> <p>26. South-West</p> | <p>TASMANIA</p> <p>48. Northern</p> <p>49. W. Coast Coastal Region</p> <p>50. Central Plateau</p> <p>51. Midlands</p> <p>52. East Coast</p> <p>53. Southern</p> <p>54. South-Eastern</p> |

COMMONWEALTH METEOROLOGY
 Revised Average Annual Rainfall Map,
 Australia and Tasmania.

H. A. HURT, Commonwealth Meteorologist.

Reference

0 to 10 ins	(White)
10 to 20 ins	(Horizontal lines)
20 to 30 ins	(Vertical lines)
30 to 40 ins	(Diagonal lines /)
40 to 60 ins	(Diagonal lines \)
Over 60 ins	(Cross-hatch)

NOTE.
 The isohyets are shown by continuous lines for complete, and dotted lines for incomplete data, and pass through districts having equal rainfall, and are of a value shown at the extremities of each line. Only stations whose records cover a period of not less than 15 years have been used in this compilation.

HEAVY RAINFALLS, WESTERN AUSTRALIA, UP TO 1916, INCLUSIVE.

Name of Town or Locality.	Date.	Amnt.	Name of Town or Locality.	Date.	Amnt.
		ins.			ins.
Alice Downs ...	20 Jan., 1914	8.12	Point Torment ...	17 Dec., 1906	11.86
" ...	21 " "	5.33	Port George, W. ...	17 Jan., 1915	11.24
" ...	22 " "	4.04	Thangoo ...	17-19 Feb. '96	24.18
Balla Balla ...	21 Mar., 1899	14.40	Whim Creek ...	2 Apr., 1898	7.08
Boodarie ...	21 " "	14.53	" ...	3 " "	29.41
Cossack ...	3 Apr., 1898	12.82	" ...	20 Mar., 1899	8.89
" ...	16 " 1900	13.23	" ...	21 " "	18.17
Croydon ...	3 Mar., 1903	12.00	Woodstock ...	21 " 1912	13.00
Cocos Island ...	29 Nov., "	14.38	Wyndham ...	27 Jan., 1890	11.60
Derby ...	29 Dec., 1898	13.09	" ...	11 " 1903	9.98
" ...	30 Dec., "	7.14	" ...	12 " "	6.64
Fortescue ...	3 May, 1890	23.36	" ...	13 " "	4.20
Frazier Downs ...	3 Mar., 1916	11.25	Yeeda ...	28 Dec., 1898	8.42
Kerdiadary ...	7 Feb., 1901	12.00	" ...	29 " "	6.88
Meda ...	9 Jan., 1914	2.87	" ...	30 " "	6.12
" ...	10 " "	8.72	" ...	2 Mar., 1916	10.70
" ...	2 Mar., 1916	10.55	" ...	3 " "	4.80
Obagama ...	28 Feb., 1910	12.00	" ...		

HEAVY RAINFALLS, NORTHERN TERRITORY, UP TO 1916, INCLUSIVE.

		ins.			ins.
Bonrook ...	24 Dec., 1915	10.60	Cosmopolitan Gold		
Borrooloola...	14 Mar., 1899	14.00	Mine ...	24 Dec., 1915	10.60
Brock's Creek ...	4 Jan., 1914	10.68	Lake Nash ...	21 Mar., 1901	10.25
" ...	24 Dec., 1915	14.33	Pine Creek ...	8 Jan., 1897	10.35
Burrundie ...	4 Jan., 1914	11.61	Darwin ...	7 Jan., 1897	11.67

HEAVY RAINFALLS, TASMANIA, UP TO 1916 INCLUSIVE.

		ins.			ins.
The Springs ...	30 Jan., 1916	9.72	The Springs ...	31 Jan., 1916	1.03

10. **Snowfall.**—Light snow has been known to fall even as far north, occasionally, as latitude 31° S., and from the western to the eastern shores of the continent. During exceptional seasons it has fallen simultaneously over two-thirds of the State of New South Wales, and has extended at times along the whole of the Great Dividing Range, from its southern extremity in Victoria as far north as Toowoomba in Queensland. During the winter snow covers the ground to a great extent on the Australian Alps for several months, where also the temperature falls below zero Fahrenheit during the night, and in the ravines around Kosciusko and similar localities the snow never entirely disappears.

The antarctic "V"-shaped disturbances are always associated with our most pronounced and extensive snowfalls. The depressions on such occasions are very steep in the vertical area, and the apexes are unusually sharp-pointed and protrude into very low latitudes, sometimes even to the tropics.

11. **Hail.**—Hail falls throughout Australia most frequently along the southern shores of the continent in the winter, and over south-eastern Australia during the summer months. The size of the hailstones generally increases with distance from the coast, a fact which lends strong support to the theory that hail is brought about by ascending

currents. Rarely does a summer pass without some station experiencing a fall of stones exceeding in size an ordinary hen-egg, and many riddled sheets of light-gauge galvanised iron bear evidence of the weight and penetrating power of the stones.

Hail storms occur most frequently in Australia when the barometric readings indicate a flat and unstable condition of pressure. They are almost invariably associated with tornadoes or tornadic tendencies, and on the east coast the clouds from which the stones fall are generally of a remarkable sepia-coloured tint.

12. Barometric Pressures.—The mean annual barometric pressure (corrected to sea-level and standard gravity) in Australia varies from 29.80 inches on the north coast to 29.92 inches over the central and 30.03 inches in the southern parts of the continent. In January the mean pressure ranges from 29.70 inches in the northern and central areas to 29.91 inches in the southern. The July mean pressure ranges from 29.90 inches at Darwin to 30.12 inches at Alice Springs. Barometer readings, corrected to mean sea-level, have, under anticyclonic conditions in the interior of the continent, ranged from 30.81 inches to as low as 28.44 inches. This lowest record was registered at Townsville during a hurricane on the 9th March, 1903. The mean annual fluctuations of barometric pressure for the capitals of Australia are shewn on page 69.

13. Wind.—Notes on the distinctive wind currents in Australia were given in preceding Year Books (see No. 6, page 83) and are here omitted to save space.

14. Cyclones and Storms.—The "elements" in Australia are ordinarily peaceful, and although severe cyclones have visited various parts, more especially coastal areas, such visitations are rare, and may be properly described as erratic.

During the winter months the southern shores of the continent are subject to cyclonic storms, evolved from the V-shaped depressions of the southern low-pressure belt. They are felt most severely over the south-western parts of Western Australia, to the south-east of South Australia, in Bass Straits, including the coast line of Victoria, and on the west coast of Tasmania. Apparently the more violent wind pressures from these cyclones are experienced in their northern half, that is, in that part of them which has a north-westerly to a south-westerly circulation.

Occasionally the north-east coast of Queensland is visited by hurricanes from the north-east tropics. During the first three months of the year these hurricanes appear to have their origin in the neighbourhood of the South Pacific Islands, their path being a parabolic curve of south-westerly direction. Only a small percentage, however, reach Australia, the majority recurving in their path to the east of New Caledonia.

Very severe cyclones, popularly known as "Willy Willies," are peculiar to the north-west coast of Western Australia from the months of December to March inclusive. They apparently originate in the ocean, in the vicinity of Cambridge Gulf, and travel in a south-westerly direction with continually increasing force, displaying their greatest energy near Cossack and Onslow, between latitudes 20° and 22° South. The winds in these storms, like those from the north-east tropics, are very violent and destructive, causing great havoc amongst the pearl-fishers. The greatest velocities are usually to be found in the south-eastern quadrant of the cyclones, with north-east to east winds. After leaving the north-west coast, these storms either travel southwards, following the coast-line, or cross the continent to the Great Australian Bight. When they take the latter course their track is marked by torrential rains, as much as 29.41 inches, for example, being recorded in 24 hours at Whim Creek from one such occurrence. Falls of 10 inches and over have frequently been recorded in the northern interior of Western Australia from similar storms.

Some further notes on severe cyclones and on "Southerly Bursters," a characteristic feature of the eastern part of Australia, will be found in previous issues of the Year Book (see No. 6, pp. 84, 85, 86).

15. Influences affecting Australian Climate.—Australian history does not cover a sufficient period, nor is the country sufficiently occupied, to ascertain whether or not the advance of settlement has materially affected the climate as a whole. Local changes therein, however, have taken place, a fact which suggests that settlement and the treatment of the land have a distinct effect on local conditions. For example, the mean temperature of Sydney shews a rise of two-tenths of a degree during the last twenty years, a change probably brought about by the great growth of residential and manufacturing buildings within the city and in the surrounding suburbs during that period. Again, low-lying lands on the north coast of New South Wales, that originally were seldom subject to frosts, have, with the denudation of the surrounding hills from forests, experienced annual visitations, the probable explanation being that, through the absence of trees, the cold air of the high lands now flows, unchecked and untempered, down the sides of the hills to the valleys and lower lands.

(i.) *Influences of Forests on Climate.* As already indicated, forests doubtless exercise a great influence on local climate, and hence, to the extent that forestal undertakings will allow, the weather can be controlled by human agency. The direct action of forests is an equalising one; thus, especially in equatorial regions and during the warmest portion of the year, they considerably reduce the mean temperature of the air. They also reduce the diurnal extremes of their shade temperatures, by altering the extent of radiating surface, by evaporation, and by checking the movement of air. While decreasing evaporation from the ground, they increase the relative humidity. Vegetation greatly diminishes the rate of flow-off of rain, and the washing away of surface soil. Thus, when a region is protected by trees, steadier water supply is ensured, and the rainfall is better conserved. In regions of snowfall the supply of water to rivers is similarly regulated, and without this and the sheltering influence of ravines and "gullies," watercourses supplied mainly by melting snow would be subject to alternate periods of flooding and dryness. This is borne out in the inland rivers. Thus, the River Murray, which has never been known to run dry, derives its steadiness of flow mainly through the causes above indicated.

(ii.) *Direct Influences of Forest on Rainfall.* Whether forests have a direct influence on rainfall is a debatable question, some authorities alleging that precipitation is undoubtedly induced by forests, while others contend the opposite.

Sufficient evidence exists, however, to establish that, even if the rainfall has not increased, the beneficial effect of forest lands in tempering the effects of the climate is more than sufficient to disclose the importance of their protection and extension.

It is the rapid rate of evaporation, induced by both hot and cold winds, which injures crops and makes life uncomfortable on the plains. Whether the forest aids in increasing precipitation there may be doubt, but nobody can say that it does not check the winds and the rapid evaporation due to them.

Trees as wind-breaks have been successfully planted in central parts of the United States, and there is no reason why similar experiments should not be successful in many parts of our treeless interior. The belts should be planted at right angles to the direction of the prevailing parching winds, and if not more than half a mile apart will afford shelter to the enclosed areas.

In previous issues some notes on observations made in other countries were added (see Year Book No. 6, pp. 86 and 95).

16. Comparison of Rainfalls and Temperatures.—For the purpose of comparison the following lists of rainfalls and temperatures are given for various important cities throughout the world, for the site of the Federal capital, and for the capitals of the Australian States:—

COMPARISONS OF RAINFALLS AND TEMPERATURES OF CITIES OF THE WORLD WITH THOSE OF AUSTRALIA.

Place.	Height above M.S.L.	Annual Rainfall.			Temperature.					
		Average.	Highest.	Lowest.	*Mean Summer.	†Mean Winter.	Highest on Record.	Lowest on Record.	Average Hottest Month.	Average Coldest Month.
	Ft.	Ins.	Ins.	Ins.	Fahr.	Fahr.	Fahr.	Fahr.	Fahr.	Fahr.
Amsterdam	6	27.29	40.59	17.60	63.2	36.8	90.0	4.1	64.4	35.4
Auckland	125	43.31	63.72	26.32	66.1	52.5	91.0	31.9	67.2	51.8
Athens	351	15.48	33.32	4.55	79.2	49.1	106.5	19.6	81.1	47.5
Bergen	146	89.10	102.80	73.50	56.8	34.5	88.5	4.8	57.9	33.6
Berlin	115	22.95	30.04	14.25	64.7	32.2	98.6	-13.0	66.0	30.0
Berne	1,877	36.30	58.23	24.69	62.2	30.1	91.4	-3.6	64.4	28.0
Bombay	37	71.15	114.89	33.41	33.5	75.1	100.0	55.9	84.8	74.2
Breslau	482	22.00	28.01	16.45	63.9	30.0	100.0	-23.4	65.5	29.3
Brussels	328	28.35	41.18	17.73	62.6	36.0	95.5	-4.4	63.7	34.5
Budapest	500	25.20	35.28	16.79	68.6	30.2	98.6	-5.1	70.4	28.2
Buenos Ayres	72	36.82	89.73	21.53	73.2	51.5	103.1	25.9	74.2	50.5
Calcutta	21	61.98	89.32	39.38	34.9	67.1	102.2	44.2	85.4	65.5
Capetown	40	25.50	36.72	17.71	68.1	54.7	102.0	34.0	68.8	53.9
Caracas	3,420	30.03	47.36	23.70	68.3	65.3	87.8	48.2	69.2	63.7
Chicago	823	33.54	45.86	24.52	69.2	25.4	103.0	-23.0	72.3	24.0
Christchurch	25	25.45	35.30	13.54	61.1	43.4	95.7	21.3	61.6	42.4
Christiania	82	22.52	31.73	16.26	61.0	24.4	95.0	-21.1	62.6	23.9
Colombo	40	83.83	139.70	51.60	81.5	79.9	95.8	65.0	82.6	79.1
Constantinople	245	28.75	42.74	14.78	74.0	43.5	103.6	13.0	75.7	42.0
Copenhagen	46	22.33	28.78	13.94	60.7	32.1	90.5	-13.0	62.2	31.4
Dresden	115	26.80	34.49	17.72	62.9	32.4	93.4	-15.3	64.4	31.6
Dublin	47	27.66	35.56	16.60	59.4	42.0	87.2	13.3	60.5	41.7
Dunedin	300	37.06	53.90	22.15	57.3	43.1	94.0	23.0	57.9	42.0
Durban	260	40.79	71.27	27.24	75.6	64.4	110.6	41.1	76.7	63.8
Edinburgh	441	25.21	32.05	16.44	55.8	33.8	87.7	5.0	57.2	38.3
Geneva	1,328	33.48	46.89	21.14	64.4	33.7	...	...	66.2	32.2
Genoa	157	51.29	108.22	28.21	73.8	46.8	94.5	16.7	75.4	45.5
Glasgow	184	38.49	56.18	29.05	52.7	41.0	84.9	6.6	58.0	38.4
Greenwich	159	24.12	35.54	16.38	61.3	39.3	100.0	4.0	62.7	38.6
Hong Kong	110	84.10	119.72	45.83	81.3	60.3	97.0	32.0	81.8	58.1
Johannesburg	5,750	31.63	50.00	21.66	65.4	54.4	94.0	23.3	68.2	48.9
Leipzig	384	24.69	31.37	17.10	63.1	31.5	97.3	-14.8	64.8	30.6
Lisbon	312	29.15	52.79	17.32	69.6	51.3	94.1	32.5	70.2	38.3
London	18	24.04	38.20	18.23	61.2	39.3	100.0	9.4	62.8	49.7
Madras	22	49.06	88.41	18.45	86.7	76.0	113.0	57.5	87.6	75.3
Madrid	2,149	16.23	27.48	9.13	73.0	41.2	107.1	10.5	75.7	39.7
Marseilles	246	21.88	43.04	12.28	70.3	45.3	100.4	11.5	72.1	43.3
Moscow	526	18.94	29.28	12.07	63.4	14.7	99.5	-44.5	66.1	11.9
Naples	489	34.00	55.58	21.75	73.6	48.0	99.1	23.9	75.4	46.8
New York	314	42.47	59.68	23.78	72.1	31.7	100.0	-6.0	74.5	30.3
Ottawa	294	33.40	44.44	26.36	67.2	14.1	98.5	-33.0	69.7	12.0
Paris	165	21.92	29.56	16.44	63.5	37.1	101.1	-14.1	65.8	36.1
Pekin	143	24.40	36.00	18.00	77.7	26.6	114.0	-5.0	79.2	23.6
Quebec	296	40.46	47.57	32.12	63.5	12.4	95.5	-34.3	66.3	10.1
Rome	166	32.57	57.89	12.72	74.3	46.0	104.2	17.2	76.1	44.6
San Francisco	155	22.83	38.82	9.31	59.0	51.0	101.0	29.0	61.0	50.0
Shanghai	14	44.13	62.52	27.91	77.4	39.4	102.9	10.2	79.7	37.4
Singapore	8	91.99	158.68	32.71	81.2	78.5	94.2	65.4	81.5	73.3
Stockholm	146	18.31	25.46	11.78	59.7	27.0	91.8	-22.0	62.1	25.7
Petrograd	16	21.30	29.52	13.75	61.1	17.4	97.0	-38.2	63.7	15.2
Tokio	70	59.17	77.10	45.72	73.9	38.9	97.9	15.4	77.7	37.1
Trieste	85	42.94	63.14	26.57	73.9	41.3	99.5	14.0	76.3	39.9
Vienna	663	24.50	33.90	16.50	65.7	30.4	97.7	-8.0	67.1	28.0
Vladivostok	55	19.54	33.60	9.39	63.9	11.0	95.7	-21.8	69.4	6.1
Washington	75	43.80	61.33	18.79	74.7	34.5	104.0	-15.0	76.8	32.9
Wellington (N.Z.)	110	49.70	67.68	30.02	61.7	48.4	83.0	30.0	62.4	47.9
Zurich	1,542	45.15	78.27	29.02	63.3	31.3	94.1	-0.8	65.1	29.5

FEDERAL CAPITAL SITE.

Canberra (Dist.)	(2,000 to 2,900)	22.36	41.20	10.45	* 68.5	† 44.0	101.0	20.0	70.6	43.1
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THE STATE CAPITALS.

Perth	197	33.23	46.73	20.21	* 72.9	† 55.8	107.9	34.2	74.1	54.9
Adelaide	140	20.95	30.87	11.39	73.1	53.0	116.3	32.0	74.1	51.6
Brisbane	137	46.20	88.26	16.17	76.7	59.6	108.9	36.1	77.2	58.2
Sydney	146	48.28	82.76	21.49	71.0	53.9	108.5	35.9	71.7	52.4
Melbourne	115	26.11	44.25	15.61	66.5	50.0	111.2	27.0	67.4	48.5
Hobart	177	23.63	43.39	13.43	61.3	46.6	105.2	27.0	62.3	45.3

* Mean of the three hottest months. † Mean of the three coldest months.

17. Climatological Tables.—The means, averages, extremes, totals, etc., for a number of climatological elements have been determined from long series of observations at the Australian capitals up to and including the year 1916. These are given in the following tables:—

CLIMATOLOGICAL DATA FOR PERTH, W.A.

LAT. 31° 57' S., LONG. 115° 50' E. HEIGHT ABOVE M.S.L. 197 FT.

BAROMETER, WIND, EVAPORATION, LIGHTNING, CLOUDS, AND CLEAR DAYS.

Month.	Bar. corrected to 32° F. Mm. Sea-Level and Standard Gravity from 9 a.m. & 3 p.m. readings.	Wind.				Mean Amount of Evaporation.	No. of Days Lightning.	Mean Amount of Clouds, 9 a.m. & 3 p.m.	No. of Clear Days.
		Greatest Number of Miles in one day.	Mean Hourly Pressure. (lbs.)	Total Miles.	Prevailing Direction.				
No. of yrs. over which observation extends	32	19	19	19	19	18	19	20	20
January ...	29.910	797 27/98	0.70	11,321	S	10.45	1.7	2.8	13.9
February ...	29.926	650 6/08	0.65	9,981	SSE	8.70	1.1	3.0	11.4
March ...	29.950	651 6/13	0.55	10,173	SSE	7.75	1.1	3.3	12.0
April ...	30.076	955 25/00	0.42	8,594	SE	4.82	0.8	4.6	7.2
May ...	30.086	768 5/12	0.35	8,050	E NE	2.78	1.9	5.4	5.4
June ...	30.064	861 27/10	0.37	7,993	E	1.73	1.9	6.1	3.2
July ...	30.034	949 11/09	0.40	8,476	N NE	1.64	2.7	5.6	4.9
August ...	30.085	966 15/03	0.43	8,928	W	2.38	1.5	5.6	4.8
September ...	30.062	864 11/05	0.48	9,153	SW	3.36	1.5	5.3	5.4
October ...	30.030	809 6/16	0.54	9,999	SSW	5.25	1.3	5.3	5.4
November ...	29.990	777 18/97	0.60	10,265	S	7.66	1.1	4.0	8.0
December ...	29.929	672 31/98	0.66	11,037	S	9.85	1.5	3.1	11.8
Year { Totals ...	—	—	—	—	—	66.37	18.0	4.5	93.4
Year { Averages ...	30.020	—	0.51	9,503	S	—	—	—	—
Year { Extremes ...	—	966*	—	—	—	—	—	—	—

* August 15, 1903.

TEMPERATURE AND SUNSHINE.

Month.	Mean Temperature.			Extreme Shade Temperature.		Greatest Range.	Extreme Temperature.		Mean of Hours of Sunshine.
	Mean Max.	Mean Min.	Mean	Highest.	Lowest.		Highest in Sun.	Lowest on Grass.	
No. of yrs. over which observation extends	20	20	20	20	20	20	19	18	19
January ...	84.3	63.1	73.7	107.0 16/97	50.6 25/01	56.4	177.3 22/14	42.4 25/02	324.0
February ...	84.8	63.3	74.1	107.3 12/15	47.7 1/02	59.6	169.0 4/99	39.6 1/13	271.7
March ...	81.3	60.6	71.0	106.1 6/14	45.8 8/03	60.3	164.0 6/14	36.7 8/03	270.7
April ...	75.8	56.8	66.3	99.7 9/10	39.3 20/14	60.4	157.0 8/16	31.0 20/14	217.5
May ...	68.7	52.4	60.6	90.4 2/07	34.3 11/14	56.1	139.1 7/14	25.3 11/14	182.4
June ...	63.7	49.2	56.4	81.7 2/14	36.3 29/14	45.4	135.5 9/14	29.0 20/16	146.7
July ...	62.4	47.4	54.9	73.8 24/99	34.2 7/16	39.6	135.2 13/15	25.2 6/7/16	167.0
August ...	63.9	48.2	56.0	81.0 12/14	35.3 31/08	45.7	139.1 21/13	27.9 10/11	186.1
September ...	66.2	50.2	58.2	86.7 30/13	38.9 17/13	47.8	153.6 29/16	29.2 21/16	203.0
October ...	69.4	52.8	61.1	93.4 17/06	41.2 10/03	52.2	154.0 29/14	33.4 1/10	235.7
November ...	75.1	56.3	65.7	104.6 24/13	42.0 1/04	62.6	166.6 23/15	35.5 *	292.0
December ...	80.9	60.6	70.8	107.9 20/04	48.0 2/10	59.9	168.7 25/15	39.1 2/10	327.5
Year { Averages ...	73.0	55.1	64.0	—	—	—	—	—	2827.3 †
Year { Extremes ...	—	—	—	107.9 20/12/1904	34.2 7/7/1916	73.7	177.3 23/1/1914	25.2 6/7/1916	—

* 6/10 and 14/12. † Total for year.

HUMIDITY, RAINFALL, AND DEW.

Month.	Humidity.			Rainfall.				Dew.		
	Mean 9 a.m.	Highest Mean.	Lowest Mean.	Mean Monthly.	Mean No. of Days of Rain.	Greatest Monthly.	Least Monthly.	Greatest in One Day.	Mean No. of Dew.	Mean No. of days Dew
No. of yrs. over which observation extends	20	20	20	41	41	41	41	41	—	20
January ...	53	61	42	0.35	3	2.17 1879	nil. *	1.74 28/79	—	2.0
February ...	55	65	46	0.42	3	2.98 1915	nil. †	1.63 26/15	—	2.8
March ...	57	66	46	0.70	4	4.50 1896	nil. ‡	1.53 17/76	—	5.0
April ...	63	72	53	1.60	7	4.97 1882	0.05 §	3.62 30/04	—	8.0
May ...	73	81	61	4.72	14	12.13 1879	0.98 1903	3.80 20/79	—	12.6
June ...	78	83	72	6.61	16	12.11 1890	2.16 1877	2.65 16/00	—	13.0
July ...	79	84	72	6.47	17	10.90 1902	2.42 1876	3.00 4/91	—	12.0
August ...	74	79	67	5.64	18	10.33 1882	0.46 1902	2.79 7/03	—	11.1
September ...	68	75	62	3.26	14	7.72 1903	0.34 1916	1.73 23/09	—	8.9
October ...	62	75	54	2.09	11	7.87 1890	0.49 1892	1.38 15/10	—	6.0
November ...	55	63	49	0.82	6	2.78 1916	nil. 1891	1.11 30/03	—	4.5
December ...	52	62	44	0.55	4	3.05 1888	nil. 1886	1.72 1/88	—	3.1
Year { Totals ...	—	—	—	—	—	—	—	—	—	89.0
Year { Averages ...	62	—	—	33.23	117	—	—	—	—	—
Year { Extremes ...	—	84	42	—	—	12.13 5/79	nil. §	3.00 4/7/91	—	—

* 1858, 1894, 1897, 1911.

† 1885, 1891, 1896, 1903, 1913.

‡ 1877, 1884, 1886.

§ 1890, 1894.

§ Various years.

CLIMATOLOGICAL DATA FOR ADELAIDE, S.A.

LAT. 34° 56' S., LONG. 138° 35' E. HEIGHT ABOVE M.S.L. 140 FT.

BAROMETER, WIND, EVAPORATION, LIGHTNING, CLOUDS, AND CLEAR DAYS.

Month.	Bar corrected to 33' F. M. Sea Level and Standard Gravity from 9 a.m. & 3 p.m. readings.	Wind.				Mean Amount of Evaporation.	No. of Days Lightning.	Mean Amount of Clouds, p.m. & 9 p.m.	No. of Clear Days.
		Greatest Number of Miles in one day.	Mean Hourly Pressure. (lbs.)	Total Miles.	Prevailing Direction.				
No. of yrs. over which observation extends	60	39	39	39	47	45	49	35	
January ...	29.916	758 19/99	0.35	7,983	S x W	8.97	2.3	3.5	7.7
February ...	29.952	691 22/96	0.30	6,842	S	7.34	2.0	3.4	7.1
March ...	30.036	628 9/12	0.25	6,803	S x W	5.79	2.3	3.9	6.6
April ...	30.117	773 10/96	0.22	6,236	S W x S	3.38	1.7	5.0	3.8
May ...	30.129	760 9/80	0.21	6,188	N N E	2.00	1.7	5.7	1.8
June ...	30.100	750 12/78	0.25	6,632	N x E	1.23	2.2	6.2	1.3
July ...	30.131	674 25/82	0.25	6,804	N x W	1.29	1.6	5.8	1.6
August ...	30.098	773 31/97	0.28	7,234	N N W	1.87	2.3	5.6	2.0
September ...	30.040	720 2/87	0.32	7,405	W S W	2.84	2.4	5.2	2.9
October ...	29.999	768 28/93	0.34	7,988	S W x W	4.78	3.4	4.9	3.9
November ...	29.973	677 2/04	0.34	7,675	S S W	6.51	3.8	4.6	5.1
December ...	29.919	675 12/91	0.35	8,024	S S W	8.42	2.8	3.8	7.1
Year { Totals	—	—	—	—	—	54.42	28.5	—	50.9
Year { Averages	30.034	—	0.29	7,151	S W x S	—	—	4.8	—
Year { Extremes	—	773*	—	—	—	—	—	—	—

* 10/4/96 and 31/8/97.

TEMPERATURE AND SUNSHINE.

Month.	Mean Temperature.			Extreme Shade Temperature.		Greatest Range.	Extreme Temperature.		Mean Hours of Sunshine.
	Mean Max.	Mean Min.	Mean	Highest.	Lowest.		Highest in Sun.	Lowest on Grass.	
No. of yrs. over which observation extends	60	60	60	60	60	60	39	56	35
January ...	86.5	61.6	74.1	116.3	26/58	45.1 21/84	180.0	18/82	368.1
February ...	86.2	62.1	74.1	113.6	19/99	46.4 13/05	170.5	10/00	367.7
March ...	80.8	58.9	69.9	108.0	19/61	44.8 -/57	174.0	17/83	333.8
April ...	73.2	54.6	63.9	98.0	10/66	39.6 15/59	155.0	1/83	303.3
May ...	65.4	50.0	57.7	88.3	5/66	36.9 †	148.2	12/79	25.9
June ...	62.0	46.6	53.4	76.0	23/65	32.5 27/76	138.8	18/79	22.9
July ...	58.7	44.5	51.6	74.0	11/06	32.0 24/08	134.5	26/90	23.3
August ...	62.0	45.9	53.9	85.0	31/11	32.3 17/59	140.0	31/92	23.5
September ...	66.2	47.8	57.0	90.7	23/82	32.7 4/58	160.5	23/82	26.2
October ...	72.5	51.4	62.0	102.2	24/14	36.0 -/57	158.8	19/82	28.5
November ...	78.6	55.3	67.0	113.5	21/65	40.8 2/09	166.9	20/78	31.5
December ...	83.4	58.9	71.1	114.2	14/76	43.0 †	175.7	7/99	32.5
Year { Averages	72.8	53.1	63.0	—	—	—	—	—	—
Year { Extremes	—	—	—	116.3	26/58	32.0	180.0	99.9	2531.5†

† 26/1895 and 24/1904.

† 16/61 and 4/06.

† Total for year.

HUMIDITY, RAINFALL, AND DEW.

Month.	Humidity.			Rainfall.				Dew.		
	Mean 9 a.m.	Highest Mean.	Lowest Mean.	Mean Monthly.	Mean No. of Days of Rain.	Greatest Monthly.	Least Monthly.	Greatest in One Day.	Mean Amount of Dew.	Mean No. of days Dew.
No. of yrs. over which observation extends	49	49	49	78	78	78	78	78	—	45
January ...	38	59	30	0.72	4	4.00 1850	nil.	2.30 2/89	—	4
February ...	41	56	33	0.61	4	2.67 1858	nil.	2.24 14/13	—	5
March ...	47	58	36	1.04	6	4.60 1878	nil.	3.50 5/78	—	11
April ...	57	72	44	1.86	9	6.78 1853	0.06 1910	3.15 5/80	—	14
May ...	68	76	49	2.68	14	7.75 1875	0.20 1891	2.75 1/53	—	16
June ...	73	84	69	3.11	15	8.58 1916	0.42 1886	1.97 26/16	—	16
July ...	76	87	69	2.63	17	5.38 1865	0.96 1889	1.75 10/65	—	17
August ...	67	77	54	2.49	16	6.24 1852	0.35 1914	2.23 19/51	—	16
September ...	61	72	44	1.95	14	4.64 1840	0.45 1896	1.42 25/93	—	15
October ...	51	67	30	1.72	11	3.83 1870	0.17 1914	2.24 16/08	—	12
November ...	43	57	37	1.17	8	3.55 1851	0.04 1885	1.58 28/58	—	15
December ...	39	50	33	0.96	6	3.98 1861	nil. 1904	2.42 23/13	—	7
Year { Totals	—	—	—	20.95	124	—	—	—	—	138
Year { Averages	53	—	—	—	—	8.58	nil.	3.50	—	—
Year { Extremes	—	87	29	—	—	—	—	5/3/78	—	—

* 1848, etc.

† 1848, etc.

† 1859, etc.

‡ January, February, March and December, various years.

CLIMATOLOGICAL DATA FOR BRISBANE, QUEENSLAND.

LAT. 27° 28' S., LONG. 153° 2' E. HEIGHT ABOVE M.S.L. 137 FT.

BAROMETER, WIND, EVAPORATION, LIGHTNING, CLOUDS, AND CLEAR DAYS.

Month.	Bar. corrected to 29.92 F. in Sea Level and Standard Gravity from 9 a.m. & 3 p.m. readings.	Wind.				Mean Amount of Evaporation.	No. of Days of Lightning.	Mean Amount of Clouds, 9 a.m. & 3 p.m.	No. of Clear Days.
		Greatest Number of Miles in one day.	Total Miles.	Mean Hourly Pressure, (lbs.)	Prevailing Direction.				
No. of yrs. over which observation extends	30	6	6	6	30	8	30	30	8
January ...	29.871	315 24/14	3,667	0.07	E	6.690§	5.1	6.2	3.6
February ...	29.893	268 26/14	3,568	0.08	S E	5.104	5.1	6.2	1.9
March ...	29.951	305 29/16	2,916	0.05	S E	4.632	4.0	5.9	4.3
April ...	30.041	215 3/16	2,799	0.05	S E	3.651	3.2	5.0	8.6
May ...	30.091	180 19/20/15	2,545*	0.03	S E	2.841	1.9	4.9	8.9
June ...	30.059	307 23/16	2,742†	0.04	S E	2.081	1.9	4.4	8.1
July ...	30.064	200 1/16	2,524†	0.03	S E	2.186	2.2	3.9	11.0
August ...	30.086	215 5/16	2,871	0.05	S E	2.755	2.2	3.8	11.5
September ...	30.027	205 29/16	2,730	0.04	S E	3.671	5.3	3.9	11.5
October ...	30.003	308 19/15	3,469	0.07	N E	4.992	6.8	3.5	7.9
November ...	29.950	285† 27/14	3,708	0.08	E & N E	5.950	8.0	3.1	6.5
December ...	29.882	295 21/13	3,912	0.08	E & N E	6.482	8.3	5.7	3.1
Year { Totals	—	—	—	—	—	51.044	56.3	—	86.9
{ Averages	29.993	—	3,121	0.06	S'y.	—	—	5.0	—
{ Extremes	—	315 24/14	—	—	—	—	—	—	—

* Mean for 4 years. † 28 days. ‡ Mean for 5 years. § Mean for 6 years.

TEMPERATURE AND SUNSHINE.

Month.	Mean Temperature.			Extreme Shade Temperature.		Greatest Range.	Extreme Temperature.		Mean Hours of Sunshine.
	Mean Max	Mean Min.	Mean	Highest.	Lowest.		Highest in Sun.	Lowest on Grass.	
No. of yrs. over which observation extends	30	30	30	30	30	30	30	30	8
January ...	85.5	68.9	77.2	108.9 14/02	58.8 4/93	50.1	164.4 2/13	49.9 4/93	220.8
February ...	84.6	68.5	76.6	101.9 11/04	58.7 *	43.2	165.2 6/02	49.3 9/59	202.3
March ...	82.4	66.4	74.4	96.8 16/88	52.4 29/13	44.4	160.0 1/87	45.4 29/13	198.2
April ...	79.2	61.7	70.5	95.2 †	48.6 17/00	46.6	162.3 10/14	37.0 17/00	208.2
May ...	73.5	55.4	64.5	88.8 18/97	41.3 24/99	47.5	147.0 1/10	29.6 8/97	194.3
June ...	69.3	50.8	60.1	83.2 28/15	36.3 29/08	46.9	133.9 6/06	25.4 23/88	156.1
July ...	68.2	48.2	58.2	83.4 28/98	36.1 †	47.3	146.1 20/15	23.9 11/90	181.4
August ...	71.3	49.8	60.6	87.5 28/07	37.4 6/87	50.1	140.7 30/88	27.1 9/59	219.9
September ...	76.0	54.7	65.4	95.2 16/12	40.7 1/96	54.5	155.5 26/03	30.4 1/89	229.5
October ...	79.8	59.8	69.8	101.4 18/93	43.3 3/99	58.1	156.5 31/89	34.9 8/89	245.3
November ...	83.1	64.1	73.6	106.1 18/13	48.5 2/05	57.6	162.3 7/89	38.8 1/05	237.6
December ...	85.4	67.4	76.4	105.9 25/98	56.4 13/12	49.5	159.5 23/89	49.1 8/94	239.7
Year { Averages	78.2	59.6	68.9	—	—	—	—	—	2253.9
{ Extremes	—	—	—	108.9 14/1/02	36.1 —	73.8	165.2 6/2/02	23.9 11/7/90	—

* 10-11/04. † 9/96 and 5/03. ‡ 12/94 and 2/96. § 12/7/94 and 2/7/96. ¶ Total for year.

HUMIDITY, RAINFALL, AND DEW.

Month.	Humidity.			Rainfall.				Dew.		
	Mean 9 a.m.	Highest Mean.	Lowest Mean.	Mean Monthly.	Mean No. of Days of Rain.	Greatest Monthly.	Least Monthly.	Greatest in One Day.	Mean Amount of Dew.	Mean No. of Days Dew
No. of yrs. over which observation extends	30	30	30	65	57	63	63	46	—	30
January ...	65	79	53	6.45 14	14	27.72 1895	0.61 1882	18.31 21/87	—	3.5
February ...	69	82	55	6.71 14	14	40.39 1893	0.77 1904	8.36 16/93	—	3.7
March ...	72	85	56	6.01 15	15	34.04 1870	0.58 1868	11.18 14/08	—	6.6
April ...	72	79	60	3.70 12	12	15.28 1867	0.34 1897	4.47 13/16	—	9.9
May ...	74	85	64	2.94 10	10	13.85 1876	0.00 1846	5.62 9/79	—	10.6
June ...	75	82	67	2.66 8	8	14.03 1873	0.00 1847	6.01 9/93	—	8.1
July ...	74	81	67	2.31 8	8	8.46 1889	0.00 1841	3.54 †	—	9.7
August ...	71	80	61	2.26 7	7	14.67 1879	0.00 1847	4.89 12/87	—	7.5
September ...	65	76	47	2.04 9	9	5.43 1886	0.10 1907	2.46 2/94	—	7.3
October ...	63	72	52	2.72 10	10	9.99 1882	0.14 1900	1.95 20/89	—	5.3
November ...	59	71	46	3.60 10	10	10.43 1846	0.00 1842	4.46 16/86	—	2.6
December ...	61	67	52	5.02 13	13	13.99 1910	0.35 1865	6.60 28/71	—	2.0
Year { Totals	—	—	—	46.42	129	—	—	—	—	76.8
{ Averages	68.3	85	46	—	—	40.39	0.00	18.31	—	—
{ Extremes	—	—	—	—	—	2/1993	—	—	—	—

* signifies no record kept. † 1862, 1869, 1880. ‡ 5/1846, 7/1841, 8/1862, 1869, 1880, 11/1842. § 15/76, 16/89.

CLIMATOLOGICAL DATA FOR SYDNEY, N.S.W.

LAT. 33° 52' S., LONG. 151° 12' E. HEIGHT ABOVE M.S.L. 146 FT.

BAROMETER, WIND, EVAPORATION, LIGHTNING, CLOUDS, AND CLEAR DAYS.

Month.	Bar. corrected to 30" F. at Sea Level and Reduced to Gravity from 24 hourly readings.	Wind.				Mean Amount of Evaporation.	No. of Days Lightning.	Mean Amount of Clouds 9 a.m. - 3 p.m. & 9 p.m.	No. of Clear Days.
		Greatest Number of Miles in one day.	Mean Hourly Pressure (lbs.)	Total Miles.	Prevailing Direction.				
No. of yrs. over which observation extends.	57	49	49	49	57	37	56	54	52
January ...	29.902	721 1/71	0.37	8,253	N E	5.18	4.7	5.8	1.9
February ...	29.943	871 12/69	0.33	7,080	N E	4.02	4.3	6.1	1.2
March ...	30.012	943 20/70	0.25	6,841	N E	3.43	4.2	5.6	1.7
April ...	30.071	803 6/82	0.23	6,248	N E	2.45	3.8	5.0	2.5
May ...	30.084	758 6/98	0.22	6,422	W	1.65	3.4	4.9	2.9
June ...	30.061	712 7/00	0.29	7,085	W	1.35	2.2	4.9	3.2
July ...	30.079	930 17/79	0.28	7,187	W	1.43	2.5	4.5	3.9
August ...	30.068	756 22/72	0.27	6,974	W	1.78	3.3	4.1	4.2
September ...	30.005	964 6/74	0.30	7,228	W	2.59	4.1	4.4	4.0
October ...	29.971	926 4/73	0.33	7,847	N E	3.70	4.9	5.0	3.2
November ...	29.936	720 13/68	0.34	7,708	N E	4.48	5.4	5.5	1.6
December ...	29.882	938 3/84	0.36	8,114	N E	5.26	5.6	5.7	1.8
Year { Totals ...	—	—	—	—	—	—	—	—	—
Averages ...	30.001	—	0.30	7,249	N E	37.32	48.4	—	31.1
Extremes ...	—	964 6/9/74	—	—	—	—	—	5.1	—

TEMPERATURE AND SUNSHINE.

Month.	Mean Temperature.			Extreme Shade Temperature.		Greatest Range.	Extreme Temperature.		Mean Hours of Sunshine.
	Mean Max.	Mean Mfn.	Mean	Highest.	Lowest.		Highest in Sun.	Lowest on Grass.	
No. of yrs. over which observation extends.	58	58	58	58	58	58	57	57	6
January ...	78.4	64.9	71.7	108.5 13/96	51.2 14/65	57.3	164.3 26/15	44.2 18/97	204.6
February ...	77.4	64.9	71.2	101.0 19/66	49.3 28/63	51.7	162.1 16/96	43.4 25/91	166.3
March ...	75.5	63.0	69.3	102.6 3/69	48.8 14/66	53.8	172.3 4/89	39.9 17/13	186.0
April ...	71.1	58.0	64.6	89.0 4/09	44.6 27/64	44.4	144.1 10/77	33.3 24/09	150.0
May ...	65.0	52.1	58.5	83.5 1/59	40.2 22/59	43.3	129.7 1/96	30.1 5/09	111.6
June ...	60.5	48.2	54.4	74.7 24/72	38.1 29/62	36.6	123.0 14/78	28.1 24/11	93.0
July ...	59.0	45.8	52.4	74.9 17/71	35.9 12/40	38.9	144.3 15/98	24.0 4/93	105.4
August ...	62.3	47.6	55.0	82.0 31/84	36.8 3/72	45.2	149.0 30/78	26.1 4/09	164.3
September ...	66.5	51.4	59.0	91.1 24/07	40.8 18/64	50.3	142.2 13/78	30.1 17/05	174.0
October ...	71.1	55.9	63.5	99.7 19/98	43.3 4/69	56.4	151.9 2/87	32.7 9/05	195.3
November ...	74.4	59.6	67.1	102.7 21/78	45.8 1/05	56.9	153.5 28/99	36.0 6/06	192.0
December ...	77.2	62.9	70.0	107.5 31/04	49.3 2/59	58.2	171.5 4/88	41.5 6/09	192.2
Year { Averages ...	69.9	56.2	63.1	—	—	—	—	—	1934.7†
Extremes ...	—	—	—	108.5 13/1/96	35.9 12/7/90	72.6	172.3 4/3/89	24.0 4/7/93	—

* 30 and 31/14. † Total for year.

HUMIDITY, RAINFALL, AND DEW.

Month.	Humidity.			Rainfall.				Dew.		
	Mean 9 a.m.	Highest Mean.	Lowest Mean.	Mean Monthly.	Mean No. of Days of Rain.	Greatest Monthly.	Least Monthly.	Greatest in One Day.	Mean Amount of Dew.	Mean No. of days Dew.
No. of yrs. over which observation extends.	58	58	58	58	58	58	58	58	58	58
January ...	69	78	58	3.44	13.9	15.26 1911	0.42 1888	7.08 13/11	0.002	1.3
February ...	72	81	60	4.53	14.2	18.56 1873	0.34 1902	8.90 25/73	0.004	2.1
March ...	75	85	63	5.23	15.1	18.70 1870	0.42 1876	8.52 9/13	0.008	3.4
April ...	77	87	63	5.36	13.2	24.49 1861	0.06 1868	7.52 29/60	0.016	5.6
May ...	76	90	66	5.01	15.3	20.87 1859	0.21 1855	8.36 28/59	0.022	6.3
June ...	79	89	63	5.12	12.9	16.30 1855	0.19 1902	5.17 16/84	0.017	5.3
July ...	77	88	66	4.89	12.7	13.21 1900	0.12 1862	5.72 28/08	0.016	5.4
August ...	73	84	56	3.15	11.4	14.89 1859	0.04 1855	5.33 3/60	0.014	4.9
September ...	69	79	49	2.87	12.0	14.05 1879	0.08 1882	5.69 10/79	0.008	3.5
October ...	67	77	47	2.95	12.7	11.14 1916	0.21 1867	6.37 13/02	0.007	3.1
November ...	66	72	42	2.81	12.4	9.88 1865	0.19 1910	4.23 19/00	0.004	2.2
December ...	68	77	52	2.65	12.9	8.47 1910	0.23 1913	4.75 13/10	0.003	1.5
Year { Totals ...	—	—	—	48.01	153.7	—	—	—	0.121	44.6
Averages ...	72	—	—	—	—	—	—	—	—	—
Extremes ...	—	90	42	—	—	24.49 April/61	0.04 Aug./85	8.90 25/3/73	—	—

CLIMATOLOGICAL DATA FOR MELBOURNE, VICTORIA.

LAT. 37° 49' S., LONG. 144° 58' E. HEIGHT ABOVE M.S.L. 115 FT.

BAROMETER, WIND, EVAPORATION, LIGHTNING, CLOUDS, AND CLEAR DAYS.

Month.	Bar corrected to 32° F. at Sea Level and Gravity hourly means.	Wind.				Mean Amount of Evaporation.	No. of Days Lightning.	Mean Amount of Clouds, 9 a.m. to 3 p.m. & 9 p.m.	No. of Clear Days.
		Greatest Number of Miles in one day.	Mean Hourly Pressure. (lbs.)	Total Miles.	Prevailing Direction.				
No. of yrs. over which observation extends	59	48	48	48	49	44	9	59	9
January ...	29.913	583 10/97	0.29	7,301	S W S E	6.40	1.9	5.1	8.1
February ...	29.961	566 8/68	0.26	6,347	S W S E	5.04	2.6	5.1	7.5
March ...	30.033	677 9/81	0.23	6,313	S W S E	3.94	1.6	5.5	5.8
April ...	30.100	597 7/68	0.19	5,697	S W N W	2.36	1.0	5.3	4.1
May ...	30.108	693 12/65	0.19	5,894	N W N E	1.46	0.3	6.5	2.9
June ...	30.079	761 13/76	0.24	6,387	N W N E	1.10	1.0	6.7	1.9
July ...	30.098	755 8/74	0.23	6,350	N W N E	1.05	0.9	6.3	3.7
August ...	30.065	637 14/75	0.25	6,813	N W N E	1.48	1.0	6.3	2.0
September ...	29.993	617 11/72	0.28	6,993	N W S W	2.27	1.6	6.1	2.6
October ...	29.968	899 5/66	0.29	7,277	S W N W	3.32	3.1	5.9	5.0
November ...	29.948	734 13/66	0.28	7,000	S W S E	4.52	2.8	5.9	3.4
December ...	29.896	655 1/75	0.30	7,439	S W S E	5.74	3.1	5.5	4.2
Year { Totals	—	—	—	—	—	38.68	13.9	—	51.4
Year { Averages	30.014	899 5/10/66	0.25	6,651	S W N W	—	—	5.9	—
Year { Extremes	—	—	—	—	—	—	—	—	—

TEMPERATURE AND SUNSHINE.

Month.	Mean Temperature.			Extreme Shade Temperature.		Greatest Range.	Extreme Temperature.		Mean Hours of Sunshine.
	Mean Max.	Mean Min.	Mean	Highest.	Lowest.		Highest in Sun.	Lowest on Grass.	
No. of yrs. over which observation extends	61	61	61	61	61	61	57	56	35
January ...	78.2	56.7	67.4	111.2 14/62	42.0 28/85	69.0	178.5 14/62	30.2 28/85	247.5
February ...	77.9	56.9	67.4	109.5 7/01	40.3 9/85	69.2	167.5 15/70	30.9 6/91	210.2
March ...	74.5	54.7	64.6	105.5 2/93	37.1 17/84	68.4	164.5 1/83	28.9	174.1
April ...	68.4	50.7	59.5	94.0 6/65	34.8 24/88	59.2	152.0 8/61	25.0 23/97	137.2
May ...	61.4	46.6	54.0	83.7 7/05	29.9 29/16	53.8	142.6 2/59	21.1 28/16	108.1
June ...	56.8	44.0	50.4	72.2 1/07	28.0 11/66	44.2	129.0 11/61	20.4 17/95	84.5
July ...	55.5	41.6	48.5	68.4 24/78	27.0 21/69	41.4	125.8 27/80	20.2 12/03	100.6
August ...	58.8	43.3	51.0	77.0 20/85	28.3 11/63	48.7	137.4 29/69	21.3 14/02	123.8
September ...	62.5	45.5	54.0	82.3 30/07	31.1 16/08	51.2	142.1 20/67	24.7 13/07	143.6
October ...	67.0	48.1	57.6	98.4 24/14	32.1 3/71	66.3	154.3 29/68	25.9 3/71	178.3
November ...	71.4	51.1	61.3	105.7 27/94	36.5 2/96	69.2	159.6 29/65	26.6 2/96	210.3
December ...	75.3	54.0	64.6	110.7 15/76	40.0 4/70	70.7	170.3 20/69	33.2 1/04	233.9
Year { Averages	67.3	49.4	58.4	—	—	—	—	—	1952.6†
Year { Extremes	—	—	—	111.2 14/1/62	27.0 21/7/69	84.2	178.5 14/1/62	20.4 17/6/95	—

* 17/84 and 20/97. † Total for year

HUMIDITY, RAINFALL, AND DEW.

Month.	Humidity.			Rainfall.				Dew.		
	Mean Daily.	Highest Mean.	Lowest Mean.	Mean Monthly.	Mean No. of Days Rain.	Greatest Monthly.	Least Monthly.	Greatest in One Day.	Mean Amount of Dew.	Mean No. of days Dew
No. of yrs. over which observation extends	60	60	60	61	61	61	61	61	—	9
January ...	60	74	52	1.86	7	5.68 1904	0.04 1878	2.97 9/97	—	1.5
February ...	61	75	52	1.70	7	6.24 1904	0.03 1870	2.14 7/04	—	2.5
March ...	65	78	53	2.17	9	7.50 1911	0.18 1859	3.05 15/78	—	6.9
April ...	70	83	62	2.29	11	6.71 1901	0.33 1908	2.28 22/01	—	7.0
May ...	76	86	62	2.18	13	4.31 1862	0.45 1901	1.85 7/91	—	8.6
June ...	78	88	72	2.08	14	4.51 1859	0.73 1877	1.74 21/04	—	8.6
July ...	78	88	72	1.83	13	7.02 1891	0.57 1902	2.71 12/91	—	11.5
August ...	72	81	63	1.80	14	3.59 1909	0.48 1903	1.87 17/81	—	8.6
September ...	69	81	61	2.41	14	7.93 1916	0.52 1907	2.62 12/60	—	6.6
October ...	67	79	52	2.59	13	7.61 1869	0.29 1914	3.00 17/69	—	9.0
November ...	63	75	52	2.24	10	6.71 1916	0.25 1895	2.57 16/76	—	2.0
December ...	60	75	49	2.31	9	7.18 1863	0.11 1904	2.62 23/07	—	1.5
Year { Totals	—	—	—	25.46	134	—	—	—	—	73.1
Year { Averages	68	—	—	—	—	7.93	0/03	3.05	—	—
Year { Extremes	—	88	49	—	—	9/16	2/70	15/3/78	—	—

CLIMATOLOGICAL DATA FOR HOBART, TASMANIA.

LAT. 42° 53' S., LONG. 147° 20' E. HEIGHT ABOVE M.S.L. 177 FT.

BAROMETER, WIND, EVAPORATION, LIGHTNING, CLOUDS, AND CLEAR DAYS.

Month.	Bar. corrected to 32° F. at Sea Level and Standard Gravity from 9 a.m. & 3 p.m. readings.	Wind.				Mean Amount of Evaporation.	No. of Days Lightning.	Mean Am't. of Clouds 9 a.m. to 3 p.m. & 9 p.m.	No. of Clear Days.
		Greatest Number of Miles in one day.	Mean Hourly Pressure. (lbs.)	Total Miles.	Prevailing Direction.				
No. of yrs. over which observation extends	32	6	6	6	19	6	9	54	10
January	29.826	500 30/16	0.19	5,999	NW & SE	5.764	0.6	6.0	3.4
February	29.919	393 19/13	0.12	4,269	SE & N	4.108	1.3	6.0	2.8
March	29.939	406 8/15	0.12	4,670	N & SE	3.134	0.9	5.9	1.8
April	29.945	413 9/11	0.14	4,965	N to NW	2.077	0.9	6.0	1.9
May	29.995	411 3/16	0.19	4,643	N to NW	1.346	0.4	6.0	1.9
June	29.954	415 17/12	0.11	4,309	N to NW	0.740	0.9	6.0	1.9
July	29.938	396 17/11	0.10	4,371	N to NW	0.867	0.3	5.8	3.1
August	29.926	459 30/11	0.13	4,922	N to NW	1.281	1.0	6.0	2.2
September	29.843	516 26/15	0.20	5,813	N to NW	2.013	0.7	6.1	1.8
October	29.841	461 8/12	0.18	5,796	N	3.400	1.1	6.2	1.6
November	29.790	508 18/15	0.20	5,855	N & SE	3.937	0.8	6.3	1.7
December	29.807	375 21/16	0.17	5,679	NW & SE	4.625	1.8	6.2	1.1
Year { Totals	—	—	—	—	—	33.292	10.7	—	25.4
Year { Averages	29.894	—	0.15	5,108	N	—	—	6.0	—
Year { Extremes	—	516 26/9/15	—	—	—	—	—	—	—

TEMPERATURE AND SUNSHINE.

Month.	Mean Temperature.			Extreme Shade Temperature.		Greatest Range.	Extreme Temperature.		Mean Hours of Sunshine.			
	Mean Max.	Mean Min.	Mean	Highest.	Lowest.		Highest in Sun.	Lowest on Grass.				
No. of yrs. over which observation extends	46	46	46	70	70	70	29	50	22			
January	71.5	53.0	62.3	105.0	1/00	40.3	64.7	160.0	†	30.6 19/97	211.1	
February	71.5	53.1	62.3	104.4	12/99	39.0	65.4	165.0	24/98	28.3	-87	178.2
March	68.1	50.7	59.4	98.8	5/46	36.0	62.8	150.0	3/05	27.5	30/02	169.2
April	67.2	47.6	55.2	90.0	2/56	30.0	60.0	142.0	18/93	25.0	-86	136.7
May	67.3	43.5	50.4	77.5	1/41	29.2	48.3	128.0	†	20.0	19/02	129.1
June	62.7	40.9	46.8	75.0	7/74	28.0	47.0	122.0	12/94	21.0	6/87	101.5
July	61.7	39.0	45.3	72.0	22/77	27.0	45.0	118.7	19/96	18.7	16/86	125.1
August	54.9	40.9	47.8	77.0	3/76	30.0	47.0	129.0	1887	20.1	7/09	140.4
September	58.6	42.9	50.8	80.0	9/72	30.0	50.0	138.0	23/93	22.7	-86	137.8
October	62.8	45.3	54.0	92.0	24/14	32.0	60.0	156.0	9/93	33.8	—	162.7
November	66.2	48.2	57.3	98.0	20/88	35.2	61.3	154.0	19/92	26.0	1/06	192.5
December	69.5	51.1	60.3	105.2	30/97	38.0	67.2	156.0	18/05	27.2	-86	187.7
Year { Averages	62.3	46.3	54.3	—	—	—	—	—	—	—	—	1872.0†
Year { Extremes	—	—	—	105.2	27.0	78.2	165.0	18.7	—	—	—	—
				30/12/97	18/7/66		24/2/98	16/7/86				

* 3/72 and 2/06. † 5/86 and 13/05. ‡ 1888 and 1892. ~ \$ 1/86, 1899. ¶ Total for year.

HUMIDITY, RAINFALL, AND DEW.

Month.	Humidity.			Rainfall.					Dew.	
	Mean 9 a.m.	Highest Mean.	Lowest Mean.	Mean Monthly.	Mean No. of Days Rain.	Greatest Monthly.	Least Monthly.	Greatest in One Day.	Mean Amount of Dew.	Mean No. of days Dew
No. of yrs. over which observation extends	37	37	37	74	73	74	74	50	—	7
January	64	75	51	1.80	9	5.91 1893	0.03 1841	2.96 30/16	—	1.0
February	65	76	51	1.44	8	9.15 1854	0.07 1847	4.50* 25/54	—	2.1
March	70	76	59	1.64	10	7.60 1854	0.02 1843	2.06 14/11	—	4.3
April	74	85	60	1.87	11	6.50 1909	0.07 1904	5.02 20/09	—	9.1
May	79	90	68	1.87	13	6.37 1905	0.10 1843	3.22 14/58	—	12.2
June	83	94	73	2.17	13	8.15 1889	0.23 1852	4.11 14/89	—	5.6
July	82	97	74	2.11	14	5.98 1849	0.30 1850	2.00 27/78	—	7.3
August	78	92	64	1.82	13	10.16 1858	0.23 1854	4.35 12/58	—	6.1
September	72	87	60	2.12	14	7.14 1844	0.39 1847	3.50 29/44	—	2.9
October	68	75	51	2.23	15	6.67 1906	0.26 1850	2.58 4/06	—	3.0
November	64	74	50	2.57	14	8.92 1849	0.16 1868	3.97 6/49	—	1.0
December	63	73	51	1.99	11	9.00 1875	0.11 1842	2.48 13/16	—	1.1
Year { Totals	—	—	—	23.63	145	—	—	—	—	55.7
Year { Averages	72	—	—	—	—	—	—	—	—	—
Year { Extremes	—	97	50	—	—	10.16	0/02	5.02	—	—
						8/1858	3/1843	20/4/09		

* 4.18, 26/54 also.

§ 7. Australian Eucalyptus Timbers.*

1. **Historical.**—As shewn by early records, the first conception of the utility of Australian eucalyptus timbers was not at all satisfactory or complimentary, for a certain Major of Engineers in a letter home, containing his impressions of the newly occupied country, writes very disparagingly of matters generally, and particularises the timber resources of Australia as practically *nil*, for he states in this connection, "even the trees (*Eucalyptus*) are worthless, for not only after they fall, but even whilst standing they are turned into *sand*."

Australians, of course, quite understand the reason for this statement, and it is interesting to compare it with the generally accepted verdict to-day—that in regard to hardwoods and decorative timbers the Australian eucalyptus holds its own in the timber markets of the world.

In the early days of Colonial history, when freights were of course scarce, evidence shews that eucalyptus timber was one of the first raw products to be exported to England, where it was used in the Naval dockyards for ship building.

The value of these timbers has from time to time been brought under the notice of the outside world by the collections exhibited at the various exhibitions held in London in 1851 and 1862, and in Paris and other International Exhibition centres.

As population grew, and trade increased, more attention was paid to timber resources; the early researches of Col. Ward Laslett, and more recently those of Professor Warren and G. A. Julius, adding considerably to our knowledge.

The early nomenclature applied to the various eucalyptus species was, naturally, imperfect, and while it possesses a certain value, nevertheless it renders the task of comparison with modern results a somewhat laborious one.

2. **Nomenclature.**—The vernacular naming of the eucalyptus trees has unfortunately been one of the bugbears of the Australian trade since its inception. The prime cause of the trouble was the giving of common English names to Australian trees, having a fancied or supposed resemblance to the English product. This practice was frequently responsible for the most ludicrous results. For example, the name "Apple tree" was applied to some species of eucalyptus which have absolutely nothing in common with their English namesake. Many similar instances could be given. Again, the same common name is sometimes bestowed upon half-a-dozen different species.

As the result of concerted action on the part of the respective State Forestry Departments, immediate action is, however, to be taken to introduce order into the present chaos.

There is, moreover, such a wealth of timber in Australia, that there are not enough common names amongst those so far used to cover each species. This difficulty could, nevertheless, be overcome by employing the specific portion of the scientific names as trade terms. Objection would of course be raised that business people could not use these names, but this objection may be countered by pointing out that in connection with the trade in the essential oils of the eucalyptus no difficulty has been experienced in regard to the adoption of the correct scientific appellation.

The Technological Museum, by suppressing the common name and species synonyms, and using scientific names only from the start, has assisted the perfumery, pharmaceutical and other industrial enterprises in overcoming the difficulty, so that to-day all these various industries give orders for oils under the scientific names, and will have nothing to do with the common names. A guarantee is thus assured of the true origin of the article which is being purchased. It is really remarkable how quickly Australian bushmen familiarise themselves with the scientific terms, and there is hardly a distillery working in Australia to-day, either in the city or the "back blocks," where the worker cannot give the scientific names of the leaves being distilled.

* Contributed by R. T. Baker, Esquire, F.L.S., etc., Curator and Econ. Botanist, Technological Museum: Lecturer on Timbers, Sydney University.

Further, since no one is allowed to sell margarine for butter, a customer ordering ironbark should not be supplied with a timber that is not an ironbark, but really a mountain ash, the former name being applied only in one particular State, and that where the true ironbark does not grow.

The subject of nomenclature is mentioned because it is of the very greatest importance in the timber export trade, and also because serious attention is being given to it by the respective State Forestry Departments, who look to the co-operation of the timber trade to assist in the removal of so serious a handicap to their best interests.

3. Classification.—(i.) *General.* The first practical classification of Australian eucalypts was cortical, *i.e.*, founded on the appearance of the bark, and was adopted by the first settlers at Port Jackson in 1788, and such grouping has lasted to this day. The earliest botanist soon recognised that the bushmen could differentiate his trees in the field very much better than the systematist could in the herbarium, working on the morphology of his material. The principal groups of Eucalypts commercially are:—Ironbarks, gums, tallowwood, stringybarks, ashes, blackbutts, mahoganies, boxes, bloodwoods and peppermints.

These groups are satisfactory so far as they go, but they do not go far enough, for the trade difficulty is to discriminate between the *species* coming into the groups, since they are all classed as hardwoods. This term covers a multitude of timber characteristics, no regard being paid to such distinguishing features as colour, weight, durability, etc., all being placed in one class, simply because they possess one character in common, *viz.*, hardness. Consequently, in buildings, wood pavings, and other constructions there is a medley of timbers.

Few, if any, timber yards or mills are prepared to sell a line of any particular timber such as mahogany, blackbutt, stringybark. They will execute an order for hardwood, and the purchaser has to make the selection from the consignment. A few varieties, such as spotted gum, tallowwood, ironbark (4 spp.) are, however, very often specified, and can be obtained true to name, and a few others outside eucalypts might be mentioned, *i.e.*, teak, myall, etc.

This state of affairs is a great disadvantage in many industries. Thus, in wood blocking, as many as half-a-dozen species of timber will be used each with its own special powers of atmospheric and attrition resistance. Consequently, instead of having the evenness of surface during the life of a road which would obtain if wood of the same kind throughout were used, the variation in the breaking down of each kind produces an irregular surface for the traffic, and thus hastens the disintegration of the best wood, and seriously impairs the life of the road.

The disadvantage can, of course, be overcome by stocking large quantities, from which can be selected the quantity and kind required.

There is perhaps something to be said on behalf of the mill owner, since his action is really governed by nature, which in this continent has not produced forests of specific trees, as is the case in the Northern Hemisphere. There are found entire forests of beech, oak, elm, pine, etc., but here species are met with growing indiscriminately.

In any classification of Australian timbers, Eucalyptus hardwoods are given pride of place, as they embrace by far the largest forest area, but the quantity and value of the ornamental timbers, other than hardwoods, are by no means to be despised. It is only recently, moreover, that it has been shown that a number of our eucalyptus hardwoods may also be placed in the category of cabinet timbers.

(ii.) **IRONBARKS.** The ironbarks are the most noted of the eucalypts for durability, hardness, weight, and closeness of texture. The species are limited in number and vary in quality of timber, their respective suitability for any particular work being a matter of choice with the various trades.

It may be mentioned that these timbers are restricted in their geographical distribution, the marketable varieties practically being found in New South Wales only. Two-

are recorded from Queensland, but these are not appreciated for their timbers. All the ironbarks have very hard, firm, thick, deeply furrowed bark, more or less impregnated with kino, this portion of the tree being much in demand by wheelwrights or blacksmiths for heating tires.

The weight or specific gravity of ironbarks is due to the great predominance of very thick walled wood fibres in the timber structure.

The principal Ironbarks are:—

- (a) The broad-leaved Ironbark, *E. siderophloia*, which is one of the best owing to its great strength and its superiority over iron and steel girders, inasmuch as it will not buckle when subjected to heat. This timber is used for beams, girders, and columns, wharf and bridge decking, heavy carriage work, etc.
- (b) Grey Ironbark, *E. paniculata*. Sm. This is another excellent timber, the tree being separated in the field from other Ironbarks by its hard, compact, corky bark—with less kino than obtains in the others—and its paniculate inflorescence. The wood is grey or chocolate in colour, very hard, compact, and, when interlocked, almost impossible to split. It is chiefly used for purposes similar to the Red Ironbark.
- (c) Narrow-leaved Ironbark, *E. crebra*. F. v. M. This tree has a much wider geographical range than the other species, being found in the coast district of New South Wales, in the coastal ranges, and almost to the interior. It is not considered of equal merit to its congeners.

The Red Flowering Ironbark, *E. sideroxylon* and the Citron Scented Ironbark, are not appreciated for their timber.

(iii.) GUMS. On a timber classification these are divided naturally into two classes:—(a) Pale coloured woods, and (b) Red coloured woods.

These constitute the largest section of the Eucalypts, and have the widest distribution, since representatives are found in all the States. They are recognised in the field broadly by their smooth white bark. Various common names have been bestowed upon the different species by the settlers, timber getters, and sawyers, the appellation having reference to individual peculiarities of the trees, such as: (1) nature and colour of timber, (2) nature and colour of bark, (3) locality of growth, (4) chemical and physical properties of the several parts of the tree, or growth of the tree.

- (a) *Pale Timbers*. Some of the best known trees throughout the world belong to this group, one name especially having gained more notoriety than the rest, viz., *E. globulus*, this being due to the wide distribution of its seed half a century ago.

As a timber it has been extensively exported from Tasmania for wharf piles, and decking, and such uses form about the limit of its employment to-day, as it is one of the most difficult to season. It is for this reason that *E. globulus* is no longer planted or sown for its timber.

Spotted Gum. *E. maculata*. Hook. One of the best known of this group of trees and very extensively used where resilience and lightness combined with strength are the desiderata, such as in coach building and other industries. It has recently been used in the furniture trade with much acceptance, as the colour somewhat resembles that of Oak (*Quercus*).

Care should be taken to see that all the sapwood is removed, as it is most liable to borer attacks, and this defect has often caused great trouble and expense in large buildings where the wood has been used for joists in error for tallow wood.

Giant Gum. *E. regnans*. F. v. M. One of the monarchs of the forests of Victoria and Tasmania, having a timber much approaching in texture and colour that of *E. Delegatensis*, but perhaps more fissile. It might be ranked as an ash, and is a splendid timber for work requiring similar qualities. It is a rapid grower and therefore one of the best for afforestation.

Salmon Gum. E. salmonophloia. F. v. M. Not a large tree, but the timber is hard, strong and durable, and extensively used in mines in West Australia. It has also been used in piles, and with great success in bridges and culverts. The name is derived from the colour of the bark.

Manna or Ribbony Gum. E. viminalis. Labill. This timber is regarded by some as poor in quality, but others again speak very highly of it.

Brown Gum. E. Muelleri. F. B. Moore. A very tall Tasmanian tree attaining a height of 200 ft., having a very pale pink or whitish timber, tough, of medium hardness, and might be classed as an ash, as it much resembles that group of trees.

Mountain Gum. E. goniocalyx. F. v. M. A forest tree producing one of the finest pale hardwoods in the world. It is close grained, hard, tough, interlocked, and useful in constructional works of all kinds, heavy carriage work, and similar structures.

York Gum. E. loxophleba. Benth. A good average forest tree of West Australia, yielding a very hard, durable, tough, red coloured timber, and one of the best for heavy carriage work, building construction, mining, etc.

A *Blue Gum. E. Maidenii. F. v. M.* A fine forest tree of restricted area, yielding a superior pale-coloured hard timber, equal in qualities to *E. goniocalyx*.

(b) *Red Coloured Timbers.* In this section are to be found some of the finest timbers in Australia, and possibly in the world. The timbers here enumerated are all of excellent quality, and are highly valued both outside and in Australia for brightness of colour, easy working, and durability, while for general utility they are equal to any other timbers grown. They specially appeal to the forester for re-forestation, and few more magnificent and valuable forest trees could now be grown.

Murray Red Gum. E. rostrata. Schl. A beautiful forest tree found growing in the neighbourhood of all inland rivers and their tributaries and billabongs. It has deservedly received perhaps more attention at the hands of foresters than any of the other gums, and the red gum timber reserves of the river Murray are now famous. The timber is hard, durable, close, straight grained, but sometimes interlocked, dresses well and is very decorative from its red colour. It is one of our most valuable timbers for bridge decking, construction works, wood blocks, and heavy carriage work.

Sydney Blue Gum. E. saligna. Sm. Next to its variety Flooded Gum, it is one of the lightest in weight of the red gums, but it is probably more extensively used than any other in the group, being in specially great demand for wheelwrights' work, although its suitability for other forms of wood work have yet to be recognised. Its light red colour particularly adapts it for some forms of cabinet work. It is open in the grain, free working, rarely if ever affected with gum veins, and is a splendid timber for general purposes.

Forest Red Gum. E. tereticornis. Sm. One of the finest forest trees of Australia, yielding an excellent red wood. It very closely resembles the Murray red gum in texture, weight, and colour, and it is often cult to differentiate their timber specimens. Forest red gum is a close, compact wood, although it dresses easily, but it is not a specially heavy wood. Its field of utilisation is worthy of great extension.

A *Grey Gum. E. propinqua. H. D. et J. H. M.* This is a superior red timber, but is rather restricted in its geographical distribution, being found only in the North coast district of New South Wales. It is worthy

of re-afforestation, for it is a splendid forest tree. The timber is harder and heavier than its congener the blue gum, *E. saligna*, being of a closer texture, the fibres having thicker walls while there are fewer pores. It is a splendid timber, useful for many purposes, and will no doubt be much appreciated when better known.

Flooded Gum. *E. saligna*, var. *pallidivalvis*. R. T. B. et H. G. S. A well-known variety in the Sydney markets, used for many purposes, but not much valued for use as wood blocks. It is lighter in colour than its type, but more open in the grain, and considered less durable, still it is a useful timber and capable of being used in many ways.

Grey Gum. *E. punctata*. D. C. A well-known timber in the Sydney market, used extensively for railway sleepers. It is a particularly hard, durable, close grained, interlocked timber, and is often very difficult to distinguish from red ironbark.

South Australian Blue Gum. *E. leucoxyton*. F. v. M. A fine forest tree attaining a height of over 100 feet, often 50 or 60 feet without a branch. The timber is pale yellowish or pink in colour, hard, strong, and durable, and one of the best of South Australian timbers. It is used for railway sleepers, piles, jetty planking, naves and felloes, waggon shafts, telegraph poles, axe handles, and building construction.

Slaty Gum. *E. Dawsoni*. R. T. B. A very fine forest tree, with a tall straight white stem, and only a small head of branchlets and leaves. The timber is one of the finest, being hard, close grained, heavy, and equal in every way to ironbark, from which it is difficult to distinguish. It is a splendid timber for heavy constructional works, and, in fact, can be used wherever great strength is required.

Morrell. *E. longicornis*. F. v. M. Not a very large tree but has a very hard, heavy, close grained, interlocked red coloured timber, and one exhibiting great strength, especially suitable for heavy constructional work of all kinds.

Wandoo. *E. redunca*. Schau. A red coloured timber, lighter in weight than morrell, but otherwise possessing all the qualities of that timber for specific applications, suitable for naves, cart and buggy shafts, and railway truck construction.

(iv.) TALLOW-WOOD. A quite limited but excellent group of eucalyptus hardwoods, comes under the category of tallow-woods, viz., *E. microcorys* and *E. planchoniana*. The former is extensively used in heavy carriage and construction work, and is especially adapted for the latter, being a timber never attacked by the borers.

(v.) STRINGYBARKS. This group includes numerous species, but for some reason or other the timber has not received the appreciation it has deserved, probably due to the high value set upon ironbark and a few other excellent woods. Nevertheless these timbers are very valuable as hardwoods, and, as decorative timbers, their use within the last year or two has come as a revelation to the cabinet maker, and few more ornamental timbers have been introduced into the trade. The figure is often unique, and in colour the timber might readily pass as exotic satin wood. This figure must not be confounded with that produced by pronounced rays, such as occur in oaks, etc. (e.g. *Quercus*, *Proteaceæ*, and *Casuarinæ*), but it is due to the undulating disposition of the fibres, which is so frequently found in Australian woods.

The handicap of weight is overcome by using it as veneer on lighter timber, and some very handsome furniture made in this way has recently been exhibited in Melbourne and Adelaide. There is a great future in the cabinet-making trade for the figured eucalyptus hardwoods, especially stringybark and blackbutt.

The majority of these timbers are employed in house building, but a future awaits them in constructional works, and coach work, being durable, hard, fissile, interlocked, and less heavy than ironbark. They are easily distinguished in the bush by their stringy bark, which well describes the nature or character of the cortex.

The principal stringybarks, together with their uses and characters, are:—

White Stringybark. E. eugenioides. Sm. In New South Wales this is considered the best of the group, although not restricted to that State. The wood is close, straight-grained, hard, durable, of a pale grey colour when fresh cut, and on exposure tones down to a rich oak tint. It is used as a general all round timber, but some specimens have recently been tested for their carving qualities, and in this field of applied art white stringybark is shewn to be one of the best, surpassing even English oak. As the more restricted species, such as ironbarks, are cut out, there can be no doubt that many new avenues of utilisation will be found for this splendid wood.

Yellow Stringybark. E. Muelleriana. A.W.H. One of the most prized stringybarks in Gippsland, Victoria, where it appears to be restricted in its geographical location. It is hard, close grained, with a yellowish tinge running through it.

A Stringybark. E. obliqua. L. Her. An historical tree, for this eucalypt was the first one to be described. It is found in Tasmania, South Australia, Victoria, New South Wales and probably in Queensland. The timber is extensively used in the first mentioned State and largely exported for use in general purposes, but it figures now in a new role, in the furniture trade, passing under the name of Tasmanian oak. In natural colour it certainly much resembles that timber, but of course has not the silver grain of oaks produced by the rays, which in the case of all eucalypts are microscopical, but beautiful figures are nevertheless frequently found, due, as stated above, to the peculiar twisting or undulating of the fibres.

Silver Top Stringybark. E. laevopinea. R.T.B. At present this very fine forest tree is only known from one district in New South Wales, but as it closely resembles other stringybarks in morphological characters, it is very probably being passed over as another species, although bushmen were the first to shew the field differences between it and its congeners, such as *E. macrorhyncha* and *E. eugenioides*.

A Stringybark. E. dextropinea. R. T. B. An average forest tree producing a fairly serviceable timber, but not so much appreciated as the previous species.

Red Stringybark. E. macrorhyncha. F. v. M. One of the most widely distributed of the stringybarks, being found in all the eastern states.

(vi.) *ASHES. Mountain Ash or Tasmanian Oak. E. Delegatensis. R. T. B.* When first described it was thought that the species was limited in its distribution, but it has since transpired that it occurs in Victoria and Tasmania as well as in New South Wales, and to-day is one of the best known and most easily procurable of all Australian timbers. It is a very fine wood and quite worthy of its local name Ash, for it possesses all the qualities of the *Frazinus* (Ash) of other parts of the world, and for which it forms an excellent substitute, being light in colour and comparatively so in weight. The timber is straight-grained, free from knots or gum veins, obtainable in long lengths, and planes and dresses easily. It is, however, of no use for carpentry work in exposed positions, and although settlers have used it for fencing it soon rots away at the ground line.

Ash. E. frazinoides. H. D. et J. H. M. A splendid timber possessing all the qualities of the best foreign ashes (*Frazinus*) and for which it is a fine substitute. It is not found in the market, being rather restricted in its geographical distribution, but it is well worthy of cultivation. For casks it appears particularly suited, and its qualities will be more appreciated when the timber is better known.

Mountain Ash. E. Sieberiana. F. v. M. Placed here under the ashes, but only tentatively until the revised nomenclature now being prepared by the State Forestry

Department is published. This should never have been placed in the ash class as the timber is harder, closer grained, and different in colour to the species of that group. In Tasmania it is vernacularly known as "Ironbark."

Smooth Bark Mountain Ash. E. oreades R. T. B. This tree with its tall, white, smooth-barked stem is one of the features of the Blue Mountain gullies. It is occasionally found, however, in the levels and slopes above the gullies, as at Katoomba, but this is exceptional, for it is essentially a gully tree. The timber is not so white as the other ashes, nor quite so fissile, and is more liable to gum veins from which the others are specially exempt, otherwise it can be utilised in the same way as the other species of the group.

(vii.) BLACKBUTTS. Very few species are classed under this common name, and yet the two here mentioned are well known and appreciated in the trade for the quality of their timber.

E. pilularis is the blackbutt of the east coast, and its timber is highly valued for its durability in the soil. It is pale coloured, hard, close grained, with occasional narrow gum veins, by which it is generally identified. It is used principally in building construction, carriage works, bridges, wood blocks, and recently in cabinet work.

E. patens. Benth. A fair sized tree, with a light-coloured, tough, durable timber, suitable for carriage work and general building construction.

(viii.) MAHOGANIES. This group includes some well defined forest trees famous for their timbers, which are divided into two groups, pale and red.

The local application of the common name was due to the supposed resemblance of the red mahogany to the commercial article, Honduras mahogany, familiar no doubt to many of the first settlers. The colour (red) is perhaps the only common character, the Australian wood being much heavier and harder and a deeper red, and subject to gum veins. However, it was used in the early days for cabinet work, but not to any great extent, the discovery of Red Cedar (*Cedrela Toona*) soon superseding it in this direction. The pale timber resembling its prototype in hardness and texture was called white mahogany.

(a) Pale. "White Mahogany." *E. acmenioides. Schau.* A good average forest tree yielding one of the best pale timbers. The timber is hard, close grained, and interlocked. It works well and is a very durable wood, being specially suited for sleepers, constructional works, bridging and heavy work requiring a strong white timber.

A "White Mahogany." *E. umbra. R. T. B.* A tree much resembling its congener *E. acmenioides*, but the timber is not so good in all round qualities.

(b) Red. "Red Mahogany." *E. resinifera. Sm.* It is a hard, close grained timber, darkening in colour with age, and is used for general purposes, but rarely used now for cabinet work. Its chief defect is the presence of borers, and it is not a lasting timber in closed damp positions, such as flooring joists. It is more durable in the light, and is extensively used for rusticated weather boards.

Jarrah. E. marginata. Sm. Although not known on the market as a red mahogany, yet it more resembles this class of timber than any other section. It is a splendid substitute for the Honduras mahogany, so largely used in other parts of the world in the cabinet trade. It is medium in weight, of a good fresh red colour, works up well and easily, takes a good polish, and is a beautiful timber for office fittings and furniture. It is, however, largely used for other purposes, such as constructional works and carriage work of all kinds.

(ix.) BOX TIMBERS. These are a well defined group of Eucalypts, with numerous species well distributed throughout the States. They may be divided into two classes of timber, pale and red. In other respects, such as in texture, grain, weight, durability, and hardness, there is a close resemblance. These timbers are particularly well adapted for heavy constructional work, carriage building, bridge decking, fencing, etc. Being interior species they are rarely found on the export trade market.

The principal boxes with Pale coloured timbers are:—

White box, *E. albens*, *Miq.*; Apple-top box, *E. angophoroides*, *R. T. B.*; Black box, *E. Boormanii*, *D. & J. H. M.*; Grey box, *E. hemiphloia*, *F. v. M.*; Swamp box, *E. microtheca*, *F. v. M.*; Coolabah, *E. Ravertiana*, *F. v. M.*; Thozet's box, *E. Stowena*; Mallee box, *E. Woodiana*, *R. T. B.*; Black or Flooded box, *E. bicolor*, *A. Cunn.*; Lignum vitæ, *E. Fletcheri*, *R. T. B.*; Tuart, *E. gomphocephala*, *D. C.*; Fuzzy box, *E. conica*, *D. & J. H. M.*; Yellow box, *E. melliodora*, *A. Cunn.*

Red:—

Coast Red box, *E. Rudderi*, *J. H. M.*; A Red box, *E. polyanthema*, *Schauer*; South Coast Red box, *E. Bosistoana*, *F. v. M.*; Poplar-leaved box, *E. populifolia*, *Hook*; Ironbark box, *E. affinis*, *D. & J. H. M.*; A Red box, *E. pendula*, *A. Cunn.*

(x.) BLOODWOODS. These trees form a very distinct group from their congeners, their morphological characters being well defined, while their timbers are also *sui generis*. The species are not numerous, but they extend from Western Australia in a northerly direction round to the East coast as far South as the Victorian border. They can be detected in the field at once by the leaf venation alone. The timbers are hard, heavy, open in the grain, some having a large figure, but are very prone to gum (kino) veins, hence their utilisation is limited. They are nevertheless strong and very durable in the ground, this quality being due probably to the tan in the kino. They are very suitable for railway sleepers, posts, bridge decking, etc.

The principal species are:—*E. corymbosa*, *E. calophylla* (the red gum of Western Australia), *E. eximia*, yellow bloodwood, *E. intermedia*, *E. terminalis*, *E. trachyphloia*.

(xi.) PEPPERMINTS. These do not comprise a numerous section of eucalyptus trees. They derived their name originally from the presence of the peppermint odour in the leaves, attention to which was first drawn by the medical officers of the First Fleet. The constituent giving rise to this odour has since been isolated and named Piperitone, and promises to be of considerable value in pharmacy.

The timbers are not generally found on the market, although in the country districts where they occur they are used for many purposes, and some have a reputation for durability in the ground. In recent times the name unfortunately is being applied to trees which have a bark similar to the original peppermint tree, *E. piperita*, but have no trace of Piperitone in the leaves.

§ 8. The Chemical Products of Australian Eucalypts.*

1. General.—The important Australian genus, Eucalyptus, is remarkable for the number and diversity of its chemical constituents. It might perhaps appear from a cursory glance that these were distributed throughout the several groups in an irregular manner, but research has shown that this is not so, for a most orderly arrangement is traceable through the various members and groups of the genus, a peculiarity which suggests a predominating influence of evolutionary conditions.

* Contributed by Henry G. Smith, Esquire, F.C.S., Assistant Curator and Economic Chemist, Technological Museum, Sydney.

2. **Inorganic Influences.**—A distinctive selection in location by very many species, growing under natural conditions, has been recognised. Some prefer a siliceous soil, while others select a basic one, and numerous examples of eucalyptus species approaching a common boundary, yet not intermingling, are known. This peculiarity is well demonstrated by the species growing between Sydney and Penrith, and upon the Blue Mountains. The chief controlling factors governing the geographical distribution of most eucalypts seem to be climate, altitude, and soil, and the adaptation to certain localities, shewn by various species, is directly traceable to chemical influences, and more particularly to available inorganic constituents. It is seldom that species are found growing satisfactorily in a situation unconformable with their usual requirements.

The great differences in size between members of the various groups is also traceable largely to chemical influences, and the largest trees growing in Eastern Australia belong to a group, the species of which have much in common, both botanically and chemically. Four of these may be mentioned in illustration, viz., *E. regnans* ("Giant Gum"); *E. Delegatensis* ("Gum-topped Stringybark"); *E. obliqua* ("Stringybark"); *E. pitularis* ("Blackbutt"); the first three being common to both Australia and Tasmania. Eucalyptus trees that attain a great size usually grow in soils comparatively poor in mineral constituents, and trees of large dimension, so placed, do not store mineral matter in their timbers, except in very small amounts. *E. regnans*, for instance, sometimes exceeds 70 feet in circumference, and reaches a height of over 300 feet, yet it secretes only about 0.05 per cent. of inorganic chemical constituents in its timber (calculated on the anhydrous wood). The other species mentioned above shew the same peculiarity; *E. Delegatensis* about 0.04 per cent.; *E. obliqua* about 0.03 per cent.; and *E. pitularis* about 0.05 per cent. Although the amount of ash constituents in the woody portions of these and allied species is so small, yet a much larger quantity is present in the leaves, buds, petioles, seed-cases and seeds from the same tree. The leaves of *E. pitularis*, for instance, contain about 2.9 per cent. of ash; the buds with petioles about 3.8 per cent.; the seed-cases or fruits about 2.9 per cent., and the seeds 1 per cent. The inorganic material in these portions of the tree would obviously be available for repeated use, but not so if deposited in corresponding amount in the timber.

A striking peculiarity in the eucalypts is the relative constancy of the element manganese in the ash of related species. The mean results in the case of the four species above mentioned shew that the manganese present in their timbers represents only one part in about one million parts of anhydrous timber, being practically the same in each. In the five species of "Ironbarks" the manganese is about one part in sixty thousand parts of anhydrous timber.

The actual part manganese plays in plant metabolism is not well known, although during late years considerable work has been undertaken in regard to its relation to plants generally. It seems remarkable that such relative constancy in the amount of manganese should be shown with members of particular groups of eucalypts, especially as it occurs in such exceedingly small quantities. Although the ash contents in the timbers of the "Ironbarks" vary in amount among themselves, yet the manganese is relatively a constant quantity, and is in amount about five times that found in the ash of timbers belonging to the group of which *E. regnans* may be considered the type.

Another peculiarity shewn by the inorganic constituents of the several groups is the changing amounts of calcium and magnesium. In the ashes of the timbers of the typical "Boxes"—"White Box" *E. albens*, for instance—the lime (Ca O) exceeds 50 per cent., while the magnesia (Mg O), is only about 2 per cent. In the ashes of the "Ironbarks" the lime is about 30 per cent., and the magnesia about 7 per cent. In the inorganic portion of the timber of *E. regnans*, the lime is only about 16 per cent., while the magnesia has increased to about 22 per cent. The reason for this is apparent, because in those species in which lime is the chief constituent, oxalic acid is a characteristic product of metabolism, and Nature usually disposes of an excess of this substance in plants by combining it with calcium to form the insoluble calcium oxalate. In some eucalypts the calcium oxalate is present in such abundance that at times as much as

one-sixth of the entire air-dried bark consists of crystallised calcium oxalate. It is not difficult to separate these crystals as such, and if the smooth barks of certain species are finely powdered, boiled in water until the crystals float out of the cells, they will collect on the top of the water. The crystals from the barks of all the species which contain them are similar in shape, and have the peculiarity of often forming geniculate twins. The crystals are about 0.017 mm. in length and about 0.007 mm. in breadth; they make excellent objects for observation under the microscope.

With the big trees belonging to other groups, oxalic acid is not formed to the same extent, consequently calcium is not in such request, and it is in these trees that the magnesium is at times in excess. The amount of each element is, however, small, the lime in *E. regnans*, for instance, representing about one 15,000th part of the weight of the moisture-free timber, and the magnesia about one 10,000th part. Oxalic acid might be obtained economically from certain eucalypts, because the tannin in those barks which contain it is of very good quality for tanning purposes. The cost of collection and preparation would be borne by the tannin extract so prepared, and the oxalic acid obtained as a by-product. *E. salubris* of West Australia is a species which might be so treated. Already large quantities of the bark of an allied species, the "Mallet," *E. occidentalis*, have been used for tanning purposes, and a considerable trade has been done with it in Western Australia.

3. Eucalyptus Tannins.—It would be well perhaps at this stage to refer generally to the tannins of the eucalypts because of the great diversity in the properties of these substances as derived from members of the several groups. The astringent exudations, or kinos, may be taken as illustrating the particular tannin present in the tree, and this is often associated with well defined chemical bodies such as aromadendrin and eudesmin.

All the exudations of the earlier members of the genus, as well as those of the closely related genus *Angophora*, contain the crystallisable body aromadendrin *alone*, eudesmin not being present in any degree. As the genus evolved, eudesmin, which is a beautifully crystallised body, makes its appearance, and continues to increase in amount until it reaches a maximum in the exudations of the typical "Boxes," (*E. hemiphloia*, *E. albens*, etc.), where it occurs to the extent of about 10 per cent. Although the quantity of eudesmin increases so greatly, yet the aromadendrin has not been entirely eliminated, so that while aromadendrin occurs without eudesmin in some eucalyptus kinos, the reverse is not the case. These two substances can be readily separated from each other, and they give entirely reverse colour reactions with strong sulphuric and nitric acids. As the genus further evolved both these bodies ceased to be formed, and the exudations of the "Stringybarks," the "Peppermints," the "Ashes," and in fact all the more recent groups of the genus do not contain either body. Economically this is of importance because the tannins in those species which contain eudesmin and aromadendrin in their kinos can be utilised for tanning purposes, if sufficiently abundant. Their affinity for hide substance is excellent, but this is not the case with the tannins in which these bodies are absent. Although the kinos of the "Stringybarks," and the "Peppermints," appear to the taste the most astringent of all, and the potassium permanganate test certainly supports this, yet the affinity of these tannins for hide substance is very low indeed, and they are therefore unsuitable as tanning agents.

This peculiarity also accounts for the "sluggishness" in tanning properties of the barks of the "Ironbarks," *E. sideroxylon* for example. But, while the tannin in the exudations of the "Ironbarks" is similar to that in the "Stringybarks," in the former it is combined with a member of the sugar group, so that these exudations consist of a tannin glucoside. This glucoside has been named "Emphloin," and it differs from other eucalyptus exudations in being insoluble in alcohol, although soluble in water. For a long time this substance was thought to be a gum, but gum as such is not present in the eucalypts.

It might be expected that such a diversity in chemical properties would influence the employment of these eucalyptus kinos commercially, and such is the case. Besides being utilised for tanning purposes astringent exudations are employed in pharmacy for the preparation of tincture of kino, but one great objection to them generally has been that after some time the tinctures form a jelly, and thus become spoiled. Eucalyptus kinos have been employed for this purpose, but at times with indifferent success. The reason for this is now easily explained. The kinos of the "Ironbarks" do not go into solution in alcohol, while those of the "Stringybarks" and "Peppermints" quickly form jellies; nevertheless certain very astringent eucalyptus kinos, which are readily soluble in alcohol, do not form jellies, no matter how long the tinctures may be kept. Pharmacists, therefore, need not be troubled further with gelatinized tincture of kino if the proper eucalyptus kinos are used in its manufacture. The exudation of the "Red Gum" of West Australia, *E. calophylla* is, for many reasons, the best of all for this purpose, and the writer has a sample of the tincture of the kino of this species which was prepared over twenty years ago, and is as fluid to-day as it was when first made. The exudation of the "Red Gum" of Eastern Australia, *E. rostrata*, is not so good in many respects, although it makes a very fair tincture, and is now used for this purpose.

4. **Eucalyptus Essential Oils.**—The relative constancy in chemical products derived from a particular species of eucalyptus is a characteristic feature, and as particular chemical constituents can be determined with great accuracy, it follows that considerable assistance can be rendered to botanical diagnosis by this chemical evidence, irrespective of the economic aspect. It is sometimes difficult to place definitely a doubtful species of eucalyptus without a determination of its chemical characteristics. That the changes which have taken place in the genus, both botanically and chemically, have been contemporaneous is shown from the study of the leaf venations in connection with that of the essential oil products. In the earlier members of the genus, the "Bloodwoods" for instance, the venation of the mature lanceolate leaves resembles closely the markings of a feather, the numerous veins being quite obtuse, the midrib thick, and the marginal vein close to the edge of the leaf. The essential oil distilled from species, the leaves of which have this venation, consists largely of the terpene pinene, a substance which has ten carbon atoms and sixteen hydrogen atoms in the molecule. None of the oils from this group is at present of economic value, although a very good turpentine (pinene) is obtainable from species occurring later in the genus. As the genus evolved, the leaf venation became less obtuse, and more open, the marginal vein further removed from the edge, and the midrib less thick. The oil from trees with this leaf venation still has pinene as the chief terpene, but the oxygen-bearing constituent, eucalyptol or cineol ($C_{10}H_{18}O$) occurs in quantity. Eucalyptus oils of this class are now largely in demand for pharmaceutical purposes, and also for the manufacture of pure eucalyptol, so that economically this group is of considerable importance. Those species which occupy the more recent end of the genus, and occur so plentifully on the highlands of the eastern portion of Australia and Tasmania, have again a different leaf venation to those of the other two classes. The midrib is thin, the veins very acute and open, and the marginal vein removed from the edge of the leaf to so great a distance that often a second one has formed. The oil distilled from the leaves of these species consists largely of the terpene phellandrene, a substance also containing ten carbon and sixteen hydrogen atoms, but these are arranged differently in the molecule from those in pinene. This terpene is absent from the oils of the first group, and also from those of distinctive members of the second class. The yield of oil from some species belonging to the third class is very considerable, and it can be cheaply produced. Large quantities are used industrially in the separation, by a flotation process, of metallic sulphides, such as those of lead, zinc, copper, molybdenum, etc.

These cheaper phellandrene eucalyptus oils, moreover, act more satisfactorily in the flotation process than the more expensive eucalyptus oils. The product of the "Broad-leaf Peppermint," *E. dives*, appears to be the best of all essential oils for

mineral separation, and a considerable industry should be established in Eastern Australia in the preparation of the essential oil from this and similar species. Many tons of oil per month are at present being distilled in New South Wales and Victoria for flotation work, and systematic effort should largely increase this output. The yield of oil from *E. dives* is about 3 per cent., and the species has a most extensive range in the highlands of New South Wales and Victoria.

Representative species of the first group are not found in Victoria, except at one locality on the border of New South Wales, and are quite absent in Tasmania. The members of the second group have a more extensive range and occur in all the States, including Tasmania, while those of the third group are found mostly in Eastern Australia and Tasmania. There is, however, no well-marked line of demarcation separating one group from the other, and chemically the constituents gradually increase in amount until a maximum is reached in one or more species of the group.

Although some hundreds of distinct species of eucalyptus occur in Australia, yet the number which can be utilised commercially for oil distillation does not exceed perhaps 10 per cent. The two chief factors which govern production are yield of oil and composition. The yields vary considerably, ranging from about 4 per cent. to practically nothing, and it is a remarkable fact that each species not only gives an oil comparatively constant in composition, but secretes the oil in practically a uniform manner. These characteristics, moreover, hold throughout almost the entire range of the species, the known exceptions being very few. The quantity of oil diminishes somewhat during the winter, increasing again in the spring and summer months. Species which yield oils suitable for pharmaceutical purposes vary in amount from about 2 per cent. downwards, a very large number yielding from half to three-quarters per cent. It is of course evident that the least prolific species cannot compete commercially with those which give a greater amount of oil, if the products are of equal quality; but when the oil constituents of the less prolific varieties are of considerable value, such as those used for perfumery purposes, *i.e.*, the alcohol geraniol, and its ester geranyl-acetate, distilled from the leaves of *Eucalyptus Macarthuri*; or the aldehyde citronellal from *E. citriodora*; or the aldehyde citral from *E. Staigeriana*, the extra value of the oil makes up for the smaller yield.

Pharmaceutical eucalyptus oils, when rectified, are either colourless or tinged yellow. This peculiarity appears to be due to the action of the two phenols peculiar to eucalyptus oils; one of these has been named tasmanol, because it occurs more frequently in the oils of the Tasmanian species. It is a liquid phenol, and in the structure of its molecule differs from the other phenol which is crystallisable. This has not yet been named, but it evidently changes to form a coloured substance with a quinone structure, which tasmanol cannot do as it contains a methoxy group.

Another characteristic of the colourless oils which contain the terpene phellandrene, is that often a constituent is present which has a strong peppermint odour, and this is particularly noticeable in the oils of the "Peppermint" group. This constituent is a ketone, and has been named piperitone; it combines with sodium bisulphite, and can therefore be obtained in a pure condition.

The yellow oils, on the other hand, often contain a characteristic constituent known as aromadendral. This is an aromatic aldehyde, and is particularly associated with the oils of the "Boxes" and of the "Mallees," and it can also be prepared in a pure condition. These two bodies do not appear to occur together in the oil of the same species.

Several other constituents have already been isolated from certain eucalyptus oils, but these at present do not appear to have distinctive group characteristics, or to be of economic value; they are thus only of scientific interest. Among these may be mentioned the low boiling alcohols and aldehydes; the low boiling ester butyl-butyrate;

the solid crystalline substance eudesmol; the two solid paraffins—one having a melting point 64° C., the other melting at $55-56^{\circ}$ C.; the sesquiterpenes ($C_{15}H_{24}$); and the hydrocarbon cymene ($C_{10}H_{14}$).

The terpene limonene ($C_{10}H_{16}$) which occurs in the oil of *E. Staigeriana* may eventually become of economic importance, as it is associated with the aldehyde citral; this eucalyptus oil is thus in agreement in chief constituents with lemon oil, and could be equally well used for flavouring purposes, besides being more cheaply prepared. The optical rotation of the eucalyptus limonene is, however, to the left, while that in lemon oil rotates the ray to the right. This peculiarity is known as stereo-isomerism, and is physical rather than chemical.

5. Rubber and Wax.—The very young leaves and shoots of the earlier species of the genus, the "Bloodwood" group particularly, are coated with an elastic substance which on investigation was found to be a rubber of very good quality, but as it occurs on the exterior of the leaves it is susceptible to alteration under the influences of sun and air, so that it is not found on the older leaves. It has no economic value but is of particular scientific interest, as it does not occur on the leaves of the members of the other groups, and apparently was one of the first chemical constituents to be discarded by nature in the process of evolution.

Another constituent which is found coating the leaves of some species is a vegetable wax, and the pulverulent appearance of their young leaves is due to this substance. It can be easily removed but is not promising economically, as it has a somewhat low melting point, 60° C., and vegetable waxes are known which melt at a much higher temperature.

6. Eucalyptus Dyes.—The leaves of some species of eucalyptus are quite yellow when dry. This peculiarity is due to the presence of a dye-material which has been named myrticolorin. This substance is a glucoside of quercetin, and is thus closely allied to quercitron, a material that has long been used for dyeing purposes. Myrticolorin is easily separated as a definite substance by the following process:—The leaves are finely ground, boiled in water, filtered boiling hot, the filtrate allowed to cool when the myrticolorin crystallises out, the tannins and salts remaining in solution. It is then filtered cold, washed and dried. As much as $8\frac{1}{2}$ pounds of myrticolorin from each 100 pounds of ground leaves were obtained from the leaves of the "Red Stringybark," *Eucalyptus macrorhyncha*. It dyes various colours with different mordants; yellow with aluminium, and khaki with potassium bichromate. As the dye is fast to light and to milling it might be utilised for khaki and other dyeing, as it is quite suitable for the purpose, and at present is going to waste.

Some of the eucalyptus exudations could also be utilised for dyeing purposes, and possibly with advantage. It is very necessary, however, that research work be undertaken to decide this point, as well as to determine the value of other probable Australian vegetable dyes.

7. Carbohydrate.—Chemical constituents other than those enumerated above are known to occur in the eucalypts, but I shall refer here to one only, viz., the carbohydrate raffinose, which was discovered by Johnston in 1843 in eucalyptus manna.

Most persons in Australia, at all events, have heard of eucalyptus manna, the white sweetish material found at times on the ground beneath certain species, *E. viminalis* particularly. Raffinose is the chief constituent in this substance, but is somewhat sparsely distributed in nature; it has been found in sugar beet and also in cotton seed. When the molecule of raffinose is suitably broken down, the sugars formed are dextrose, levulose, and galactose, so that raffinose is a more complex substance than cane sugar.

Two distinct organic chemical substances are thus separately circulating, and are obtained as exudations from some eucalyptus species, viz., an astringent one peculiar to the group, and manna. This sweetish exudation is not peculiar to the leaves of the tree, but is sometimes found exuding from the bark, and a fairly good specimen is in the Sydney Technological Museum, showing the manna attached to the bark from which it was exuding, together with some of the pure kino collected at the same time and from the same tree. The species was *E. punctata*.

8. Economic Advantages of Eucalyptus Cultivation.— In conclusion, reference may be made to the economic advantage to be derived from the cultivation of those eucalyptus species which show the most promising results for the production of chemical products useful for industrial purposes.

It is, perhaps, difficult to impress the ordinary Australian with the advantages to be derived from the cultivation of the "Gum Trees," yet this will eventually be done, and already the cultivation of one species has been commenced in Victoria. If thousands of acres were planted with the right species for the production of the required products, then priority in supply to the world's markets would be secured. It seems certain that particular species of eucalyptus will eventually be cultivated for the chemical products they afford, and if this is not done in Australia, then the people in other countries will reap the advantage to be gained from such cultivation.

SECTION IV. POPULATION.

§ I. Commonwealth Population—Its Distribution and Fluctuation.

1. **Present Population.**—The estimated population of the several States of the Commonwealth at the end of 1901 and of each of the five years 1911-15 is shewn in the following table:—

POPULATION OF COMMONWEALTH, ON 31st DECEMBER, 1901 and 1911-15.

Year.	States.						Territories.		Commonwealth.
	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	North-ern.	Federal. (a)	
MALES.									
1901	720,840	608,436	282,291	180,440	117,885	90,945	3,999	...	2,004,836
1911	888,138	668,759	337,955	212,650	168,094	98,594	2,662	1,068a	2,377,920
1912	934,846	689,825	344,139	218,613	174,056	101,561	2,854	1,074	2,466,968
1913	962,053	706,948	356,613	221,605	180,747	104,476	2,995	1,093	2,536,530
1914	966,675	712,594	364,526	220,550	179,188	103,590	3,252	1,056	2,551,431
1915	953,160	693,490	359,541	212,240	171,304	101,761	3,687	957	2,496,140
FEMALES.									
1901	654,615	601,464	224,430	178,890	75,716	84,288	674	...	1,820,077
1911	808,337	670,343	284,174	205,522	126,087	94,885	586	853a	2,190,787
1912	842,688	690,736	292,286	211,477	132,073	95,644	621	866	2,266,391
1913	869,663	705,171	303,545	218,442	139,937	97,199	677	895	2,335,529
1914	894,847	718,073	312,181	221,140	143,890	97,826	721	903	2,389,521
1915	917,259	725,526	319,134	226,205	146,712	99,264	876	872	2,435,848
TOTAL.									
1901	1,375,455	1,209,900	506,721	359,330	193,601	175,233	4,673	...	3,824,913
1911	1,696,475	1,339,102	622,129	418,172	294,181	193,479	3,248	1,921a	4,568,707
1912	1,777,534	1,380,561	636,425	430,090	306,129	197,205	3,475	1,940	4,733,359
1913	1,831,716	1,412,119	660,158	440,047	320,684	201,675	3,672	1,988	4,872,059
1914	1,861,522	1,430,667	676,707	441,690	323,018	201,416	3,975	1,959	4,940,952
1915	1,870,419	1,419,016	678,675	438,445	318,016	201,025	4,563	1,829	4,931,988

(a) Part of New South Wales prior to 1911.

2. **Growth of Population.**—(i.) *1788 to 1824.* From 1788, when settlement first took place in Australia, until December 1825, when Van Diemen's Land (now Tasmania) became a separate colony, the whole of the British Possessions in Australia were regarded as one colony, viz., that of New South Wales. The population during this period increased very slowly, and at the end of 1824 had reached only 48,072.

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The population with which settlement in Australia was inaugurated, and that at the end of each year until 1824, are as follows:—

POPULATION OF COMMONWEALTH ON 31st DECEMBER, 1788 to 1824.

Year.	Males.	Females.	Total.	Year.	Males.	Females.	Total.
1788 ^a	...	...	1,035	1806	5,389	2,521	7,910
1788	...	...	859	1807	5,939	2,855	8,794
1789	...	...	645	1808	6,822	3,441	10,263
1790	...	...	2,056	1809	7,618	3,942	11,560
1791	...	...	2,873	1810	7,585	3,981	11,566
1792	...	...	3,264	1811	7,697	4,178	11,875
1793	...	...	3,514	1812	8,132	4,498	12,630
1794	...	...	3,579	1813	9,102	4,855	13,957
1795	...	...	3,466	1814	9,295	4,791	14,086
1796	2,953	1,147	4,100	1815	9,848	5,215	15,063
1797	3,160	1,184	4,344	1816	11,690	5,863	17,553
1798	3,367	1,221	4,588	1817	14,178	7,014	21,192
1799	3,804	1,284	5,088	1818	17,286	8,573	25,859
1800	3,780	1,437	5,217	1819	21,366	10,106	31,472
1801	4,372	1,573	5,945	1820	23,784	9,759	33,543
1802	5,208	1,806	7,014	1821	26,179	9,318	35,492
1803	5,185	2,053	7,238	1822	27,915	9,449	37,364
1804	5,313	2,285	7,598	1823	30,206	10,426	40,632
1805	5,395	2,312	7,707	1824	36,871	11,201	48,072

(a) On 26th January. Recent research by Dr. J. F. Watson, now Editor of the Historical Records of Australia, goes to shew that the original nucleus was 1024 persons.

(ii) 1825 to 1858. The period extending from 1825 to 1859 witnessed the birth of the colonies of Tasmania (then known as Van Diemen's Land), Western Australia, South Australia, Victoria, and Queensland. The years in which these came into existence as separate colonies were as follows:—Tasmania, 1825; Western Australia, 1829; South Australia, 1834; Victoria, 1851; Queensland, 1859.

The estimated population of the Commonwealth at the end of each year of this transition period is as follows:—

POPULATION OF COMMONWEALTH ON 31st DECEMBER, 1825 to 1858.

Year.	Males.	Females.	Total.	Year.	Males.	Females.	Total.
1825	40,288	12,217	52,505	1842	153,758	87,226	240,984
1826	41,289	12,593	53,882	1843	153,846	92,002	250,848
1827	43,053	13,247	56,300	1844	165,034	99,253	264,287
1828	44,778	13,419	58,197	1845	173,159	105,989	279,148
1829	46,946	14,988	61,934	1846	181,342	111,907	293,249
1830	52,885	17,154	70,039	1847	190,265	118,532	308,797
1831	57,037	18,944	75,981	1848	201,612	130,716	332,328
1832	62,254	21,683	83,937	1849	221,978	151,384	373,362
1833	71,669	26,426	98,095	1850	238,683	166,673	405,356
1834	76,259	29,297	105,556	1851	256,975	180,690	437,665
1835	81,929	31,425	113,354	1852	304,126	209,670	513,796
1836	89,417	35,703	125,120	1853	358,203	242,789	600,992
1837	94,881	39,607	134,488	1854	414,337	280,580	694,917
1838	105,271	46,597	151,868	1855	470,118	323,142	793,260
1839	115,480	54,459	169,939	1856	522,144	354,585	876,729
1840	127,306	63,102	190,408	1857	574,800	395,487	970,287
1841	144,114	76,854	220,968	1858	624,380	426,448	1,050,828

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(iii.) 1859 to 1915. From 1859, the year in which Queensland came into existence as a separate colony, until the beginning of 1901, when the Commonwealth of Australia was inaugurated under the provisions of the Commonwealth Constitution Act, Australia consisted of six States, practically independent of each other in all matters of government. During this period, the population of the Commonwealth increased from 1,050,828 at the end of 1858 to 3,765,339 on the 31st December, 1900. The particulars for this period are given in the table hereunder.

During the fifteen years that have elapsed since the federation of the States was effected the population of the Commonwealth has increased by 1,166,649, from 3,765,339 on 31st December, 1900, to 4,931,988 on 31st December, 1915. See table hereunder:—

POPULATION OF COMMONWEALTH ON 31st DECEMBER, 1859 to 1915.

Year.	Males.	Females.	Total.	Year.	Males.	Females.	Total.
1859	644,376	452,929	1,097,305	1888	1,610,548	1,371,129	2,981,677
1860	668,560	477,025	1,145,585	1889	1,649,094	1,413,333	3,062,477
1861	669,373	498,776	1,168,149	1890	1,692,831	1,458,524	3,151,355
1862	683,650	523,268	1,206,918	1891	1,736,617	1,504,368	3,240,985
1863	704,259	555,033	1,259,292	1892	1,766,772	1,538,931	3,305,753
1864	740,433	584,750	1,325,183	1893	1,791,815	1,570,080	3,361,895
1865	773,278	616,765	1,390,043	1894	1,824,217	1,602,543	3,426,760
1866	800,648	643,307	1,443,955	1895	1,855,539	1,636,032	3,491,621
1867	819,127	664,721	1,483,848	1896	1,887,174	1,665,924	3,553,098
1868	849,272	690,280	1,539,552	1897	1,917,460	1,700,323	3,617,783
1869	875,139	717,018	1,592,157	1898	1,937,629	1,727,036	3,664,715
1870	902,494	745,262	1,647,756	1899	1,959,074	1,756,914	3,715,988
1871	928,918	771,970	1,700,888	1900	1,976,992	1,788,347	3,765,339
1872	947,422	795,425	1,742,847	1901	2,004,836	1,820,077	3,824,913
1873	972,907	821,613	1,794,520	1902	2,028,008	1,847,310	3,875,318
1874	1,001,096	848,296	1,849,392	1903	2,045,144	1,871,448	3,916,592
1875	1,028,489	869,734	1,898,223	1904	2,072,733	1,901,367	3,974,150
1876	1,061,477	897,202	1,958,679	1905	2,100,118	1,932,859	4,032,977
1877	1,102,340	928,790	2,031,130	1906	2,126,730	1,964,755	4,091,485
1878	1,132,573	959,591	2,092,164	1907	2,160,213	2,001,509	4,161,722
1879	1,168,781	993,562	2,162,343	1908	2,193,981	2,038,297	4,232,278
1880	1,204,514	1,027,017	2,231,531	1909	2,242,215	2,081,745	4,323,960
1881	1,247,059	1,059,677	2,306,736	1910	2,296,308	2,128,775	4,425,083
1882	1,289,892	1,098,190	2,388,082	1911	2,377,920	2,190,787	4,568,707
1883	1,357,423	1,148,313	2,505,736	1912	2,466,968	2,266,391	4,733,359
1884	1,411,996	1,193,729	2,605,725	1913	2,536,530	2,335,529	4,872,059
1885	1,460,394	1,234,124	2,694,518	1914	2,551,431	2,389,521	4,940,952
1886	1,510,954	1,277,096	2,788,050	1915	2,496,140	2,435,848	4,931,988
1887	1,559,118	1,322,244	2,881,362				

It will be seen from the foregoing tables that the population of Australia attained its first million in 1858, seventy years after settlement was first effected; its second million nineteen years later, in 1877; its third million twelve years later, in 1889; and its fourth million sixteen years later, in 1905. The fifth million was expected to be reached in 1915, but owing to the war and the consequent dispatch of men out of Australia this result has not yet been attained.

Owing to the retardation of immigration and the departure of troops consequent upon the war, the total population of Australia diminished during 1915 by 8964 persons. Taking the sexes separately, there was a decrease of 55,291 males and an increase of 46,327 females during the year.

The growth of the total population of the Commonwealth generally, and of each State therein, is graphically shewn on page 139, and of each sex considered separately on pages 140 and 141.

§ 2. Influences affecting Growth and Distribution of Population.

1. **Mineral Discoveries.**—The discovery of gold in Australia in 1851 was undoubtedly one of the most influential factors in bringing about a rapid settlement of the country. Its effect may be gauged by a comparison of the increase during the ten years preceding, with that during the ten years succeeding the discovery. From 31st December, 1840, to 31st December, 1850, the increase was only 214,948 (viz., from 190,408 to 405,356). The rush of people to the newly-discovered goldfields during the succeeding decennium caused an increase of no less than 740,229, the population advancing to 1,145,585 on 31st December, 1860. In 1861, owing to the opening up in that year of the New Zealand goldfields, a rush of population from Australia set in, the result being that the net increase of population of the Commonwealth, which in 1855, amounted to 98,343, and even in 1860 was as much as 48,280, fell in 1861 to 22,564. In fact, during the year 1861 the departures from Australia exceeded the arrivals by 5,958, the gain of 22,564 being due to the births exceeding the deaths by 28,522.

In more recent years the gold discoveries of Western Australia in 1886 and subsequent years, led to such extensive migration to that State, that its population, which on 31st December, 1885, amounted to only 85,959, increased in 30 years by no less than 282,057, totalling 318,016 on 31st December, 1915. In this case, however, the additions to the population of the western State were largely drawn for some years from those of the eastern States, so that the actual gain of population to the Commonwealth was relatively slight.

2. **Pastoral Development.**—Very early in the colonisation of Australia it was recognised that many portions were well adapted for pastoral pursuits, and pastoral developments have led to a considerable distribution of population in various directions. As the numbers engaged in connection therewith, compared with the value of the interests involved, are relatively small, and as pastoral occupancy tends to segregation rather than aggregation of population, the growth of the pastoral industry is but slightly reflected in the population statistics of the Commonwealth.

3. **Agricultural Expansion.**—At the present time the area annually devoted to crops in the Commonwealth is over 18½ millions of acres. Although considerable in itself, this area, viewed in relation to the total area of the Commonwealth, is relatively small, and represents somewhat less than 1 per cent. of the total area. Per head of population of the Commonwealth the area under crop, however, is about 3½ acres, a fairly high amount when allowance is made for the recency of Australian settlement. About 87 per cent. of the area under crop in 1915-16 was devoted to the production of wheat and hay, which for profitable production in Australia require a considerable area in the one holding. Thus, on the whole, the agricultural districts of Australia are somewhat sparsely populated, though in a less marked degree than is the case in the pastoral areas.

4. **Progress of Manufacturing Industries.**—One direct effect of the development of manufacturing industries is the concentration of population in places offering the greatest facilities for the production of the particular commodities. In Australia, where manufacturing industries are as yet in their infancy, the tendency throughout has been to concentrate the manufacturing establishments in each metropolis. This has accentuated the growth of the capital cities, which growth when compared with that of the rest of the country, appears somewhat abnormal.

5. **Influence of Droughts.**—The droughts, which at times so seriously affect the agricultural and pastoral prospects of Australia, have a marked influence on the distribution of population. Districts, which in favourable seasons were fairly populous, have

in times of drought, temporarily become more or less depopulated until the return of better conditions. This movement, however, ordinarily affects only the internal distribution of the population and not the total, but severe drought may even make its influence felt in the statistics of the total population of Australia. Thus in the case of the drought of 1902-3, the departures from the Commonwealth exceeded the arrivals for the two years 1903 and 1904 by 12,859. It may be noted also, that for the former of these years, the natural increase of population by excess of births over deaths was abnormally low, being only 51,150, as compared with 54,698 in the preceding and 60,541 in the succeeding year. As the solution of the problem of dealing with droughts is advanced, their influence will be less marked.

6. **Other Influences.**—(i.) *Commercial Crises.* The effect on population of a commercial crisis, such as that which occurred in Australia in the early years of the final decade of the last century, is clearly indicated on comparing the migration statistics of the Commonwealth for the five years 1887-91 with those for the five years 1892-96. During the former period, the arrivals in the Commonwealth exceeded the departures by no less than 146,872. In the latter period, the corresponding excess amounted to only 2064.

(ii.) *War.* The war in South Africa has left its impress on the population statistics of the Commonwealth, the departures during 1899 and 1900 exceeding the arrivals for the same period by 10,546. A similar but much more marked result is being shewn in connexion with the European war, which, at the time of writing, is still in progress. Thus, for the two years 1914 and 1915 taken together, the departures have exceeded the arrivals by a total of no less than 108,423.

A reference to the graphs of population on pages 139 to 144 will illustrate the preceding observations.

§ 3. Special Characteristics of Commonwealth Population.

1. **Sex Distribution.**—In respect of the relative proportions of the sexes in its population, Australia has, since the first settlement of the continent in 1788, differed materially from the older countries of the world. In the latter, the populations have, in general, grown by natural increase, and their composition usually reflects that fact, the numbers of males and females being in most countries approximately equal, with a more or less marked tendency, however, for the females to slightly exceed the males. The excess of females arises from a variety of causes, amongst which may be mentioned—(a) higher rate of mortality amongst males; (b) greater propensity on the part of males to travel; (c) the effects of war; (d) employment of males in the army, navy, and mercantile marine; (e) preponderance of males amongst emigrants. On the other hand, the last-mentioned cause has tended naturally to produce an excess of males in Australia, since the majority of those emigrating to Australia have been males. The circumstances under which the colonisation of Australia was first undertaken, and the remoteness of this country from Europe, have combined to accentuate this feature.

There is little doubt that the continent presented few attractions to the explorers who visited its shores, mainly on the west and north, during the sixteenth, seventeenth, and early part of the eighteenth centuries, and it was only when the Declaration of Independence of the United States, in 1776, closed to the British prison authorities the North American plantations, which had previously been used as receptacles for the deportation of convicts, that the overcrowding of the gaols caused them to consider the advisability of converting the great southern continent into a convict settlement. This idea was put into practice in 1787, when the first consignment left England, arriving in Sydney Cove on the 26th January, 1788. Reports concerning the number of persons actually landed are conflicting, but it appears that the total may be set down approximately at 1035, including the military. Details as to the sexes are not available, but

the males must have largely preponderated. Indeed, nearly nine years later, on the 31st December, 1796, in a total population of 4100, there was an excess of 44 males in every 100 of the population.

The subsequent progress of Australia resulting from extensive mineral discoveries and the development of its great natural resources, pastoral, agricultural, forestal, etc., have tended to attract male rather than female immigrants, particularly in view of the distance from the principal centres of European population. Even at the Census of 3rd April, 1911, after more than 123 years of settlement, there was an excess of 3.84 males in every 100 of the population, and this notwithstanding the equalising tendency due to additions to the population by means of births and to deductions therefrom by the deaths of immigrants.

In the second issue of this publication, on pages 163 to 165, an extended table was published shewing the masculinity of the population of each of the States for each year from 1796 to 1907. In the fifth issue, on page 123, the figures in this table for the years 1901-7 were modified to agree with the corrected estimates of the population, consequent on the Census of 3rd April, 1911. The figures given in the tables mentioned represent the number of males to each 100 females. The following table gives similar particulars for every fifth year from 1800 to 1910 and for each of the five years 1911 to 1915 :—

MASCULINITY OF COMMONWEALTH POPULATION, 1800 to 1915.

(NUMBER OF MALES TO EACH 100 FEMALES.)

Year.	States.						Territories.		C'wealth.
	N. S. W. (a)	Victoria.	Q'land.	S. A. (b)	W. Aust.	Tasmania	North'n (c)	Federal. (d)	
1800	263.05	...	...	...	...	...	...	...	263.05
1805	233.35	...	...	...	...	...	...	...	233.35
1810	190.53	...	...	...	...	...	...	...	190.53
1815	188.84	...	...	...	...	...	...	...	188.84
1820	243.71	...	...	...	...	...	...	...	243.71
1825	325.51	...	...	...	...	341.71	...	...	329.77
1830	317.18	...	...	...	297.29	293.44	...	...	308.30
1835	268.40	...	...	...	190.26	251.68	...	...	260.71
1840	204.16	...	...	130.10	163.51	229.53	...	...	201.75
1845	153.33	...	...	132.75	150.22	215.62	...	...	163.37
1850	138.47	...	...	129.15	154.81	179.49	...	...	143.20
1855	125.08	187.40	...	100.62	193.55	123.65	...	...	145.48
1860	131.29	158.85	149.63	105.06	166.93	123.61	...	...	140.15
1865	120.08	129.60	158.47	109.11	173.90	116.42	...	...	125.38
1870	120.48	121.59	150.31	105.85	161.17	112.93	...	...	121.10
1875	119.09	114.46	152.61	107.24	148.61	111.45	...	...	118.25
1880	120.45	110.42	142.50	114.33	135.06	111.70	...	...	117.28
1885	121.95	110.61	143.95	110.58	135.47	110.73	...	...	118.33
1890	118.05	110.65	132.21	108.60	146.85	111.88	...	...	116.06
1895	113.78	105.23	128.15	105.05	226.54	108.16	...	...	113.41
1900	111.14	101.23	125.33	104.04	157.54	107.97	753.60	...	110.55
1905	111.05	97.69	121.75	100.17	141.35	106.09	496.76	...	108.65
1910	109.23	98.71	119.02	103.12	132.90	104.14	486.32	...	107.87
1911	109.87	99.78	118.93	103.47	133.32	103.91	454.27	125.21	108.54
1912	110.94	99.87	117.74	103.37	131.79	106.19	459.58	124.02	108.85
1913	110.62	100.25	117.48	101.45	129.16	107.49	442.39	122.12	108.61
1914	108.03	99.24	116.77	99.73	124.58	105.89	451.04	116.94	106.78
1915	103.91	95.58	112.66	93.83	116.76	102.52	420.89	109.75	102.48

(a) Including Federal Territory prior to 1911.

(b) Including Northern Territory prior to 1900.

(c) Included in South Australia prior to 1900.

(d) Part of New South Wales prior to 1911.

The ratios shewn in the preceding table are those which are frequently given as the "masculinity" of the population. A more scientific determination of masculinity, however, may be obtained by computing the ratio of the excess of males over females to the total population. This ratio expressed as a percentage has now been adopted by the Commonwealth Bureau of Census and Statistics as the "masculinity" of the population, and the ratios so computed are given hereunder for intervals of 5 years from 1800 to 1915 for the Commonwealth and each of its component States and Territories:—

MASCULINITY OF THE POPULATION, 1800 to 1915.

(EXCESS OF MALES OVER FEMALES PER 100 OF POPULATION.)

Year.	States.						Territories.		C'wealth.
	N.S.W. (a)	Victoria.	Q'land.	S. A. (b)	W. Aust.	Tasmania	North'rn (c)	Federal. (d)	
1800	44.91	...	...	...	...	...	...	...	44.91
1805	40.00	...	...	...	...	...	...	...	40.00
1810	31.16	...	...	...	...	...	...	...	31.16
1815	30.76	...	...	...	...	...	...	...	30.76
1820	41.81	...	...	...	...	...	...	...	41.81
1825	53.00	...	...	...	...	54.72	...	...	53.46
1830	52.06	...	...	...	49.66	49.17	...	...	51.02
1835	45.71	...	...	...	31.10	43.13	...	...	44.55
1840	34.25	...	...	13.08	24.10	39.31	...	...	33.72
1845	21.05	...	...	14.07	20.07	36.63	...	...	24.06
1850	16.13	...	...	12.72	21.51	28.44	...	...	17.76
1855	11.14	30.41	...	0.31	31.87	10.57	...	...	18.53
1860	13.53	22.74	19.88	2.47	25.07	10.56	...	...	16.72
1865	9.12	12.89	22.62	4.86	26.98	7.59	...	...	11.26
1870	9.29	9.74	20.10	2.84	23.42	6.09	...	...	9.54
1875	8.71	6.74	20.83	3.49	19.55	5.41	...	...	8.36
1880	9.28	4.95	17.53	6.69	14.92	5.53	...	...	7.95
1885	9.89	5.04	18.02	5.02	15.06	5.09	...	...	8.40
1890	8.28	5.06	13.87	4.12	18.98	5.61	...	...	7.43
1895	6.45	2.55	12.34	2.46	11.72	3.92	...	...	6.28
1900	5.28	0.61	11.24	1.98	22.34	3.83	76.57	...	5.01
1905	5.24	-1.17	9.81	0.08	17.13	2.96	66.49	...	4.15
1910	4.41	-0.65	8.68	1.54	14.13	2.03	65.89	...	3.79
1915	1.92	-2.26	5.95	-3.19	7.73	1.24	61.60	4.65	1.22

The influence of the war will be observed in the decline of the masculinity for each of the States and the Commonwealth, and the introduction of negative results in the case of South Australia, indicating an excess of females in this State, as well as in Victoria, where this phenomenon has been in evidence at each of the last three quinquennial points of reference.

The curious inequalities of the increases in the number of males and in the number of females for the Commonwealth as a whole, and for the individual States respectively, will be seen by referring to the graphs on pages 140 and 141.

The significance of the rates of masculinity shewn in the above table will perhaps be better understood by a comparison with the corresponding information for other countries. This has been made in the next table, which shews, for some of the principal countries of the world for which such particulars are available, the masculinity of the population according to the most recent statistics:—

MASCULINITY OF THE POPULATION OF VARIOUS COUNTRIES.

Country.	Year.	Excess of Males over Females in each 100 of population.	Country.	Year.	Excess of Males over Females in each 100 of population.
Canada	1911	6.07	Hungary	1910	-0.94
Serbia	1910	3.27	Russia (European) ...	1914	-1.05
United States of America	1910	2.93	Prussia	1910	-1.17
India (Feudatory States)	1911	2.88	German Empire	1910	-1.30
New Zealand	1915	2.28	Switzerland	1910	-1.66
British India	1911	2.24	France	1911	-1.74
Bulgaria	1910	1.75	Italy	1911	-1.81
Australia	1915	1.22	Austria	1912	-1.85
Japan	1915	1.10	Sweden	1914	-2.20
Rumania	1913	1.05	Spain	1910	-2.84
Greece	1907	0.68	Denmark	1911	-2.95
Poland (Russian)	1914	0.41	Scotland	1911	-3.01
Ireland	1911	-0.14	England and Wales ...	1911	-3.27
Belgium	1912	-0.76	Norway	1910	-3.36
Netherlands	1913	-0.81	Portugal	1911	-5.08

NOTE.— — denotes excess of females.

2. Age Distribution.—The causes which operated to bring about an excess of males in the population of the Commonwealth were equally effective in rendering the age distribution essentially different from that of older countries. The majority of the immigrants, whether male or female, were in the prime of life, and as the Australian birth-rate in earlier years was a comparatively high one, the effect produced was a population in which the proportion of young and middle-aged persons was somewhat above, and the proportion for advanced ages somewhat below the normal. With the progress of time, however, the age distribution for Australia has fallen more and more into line with that for the older countries, and now, except in shewing a lower proportion at old age and a slightly higher at young ages, does not differ essentially therefrom.

Thus in the Commonwealth at the Census of 3rd April, 1911, the age distribution of the population was as shewn in the table hereunder; that for England and Wales for the same Census is given also for the sake of comparison:—

AGE DISTRIBUTION OF POPULATION.

COMMONWEALTH, AND ENGLAND AND WALES.

Age Group.	Population of COMMONWEALTH, 3rd April, 1911.	Percentage on Total Population.	Population of ENGLAND and WALES, 3rd April, 1911.	Percentage on Total Population.
Under 15	1,409,823	31.65	11,050,867	30.63
15 and under 65	2,854,753	64.08	23,141,109	64.16
65 and upwards	190,429	4.27	1,878,516	5.21
Total	4,455,005	100.00	36,070,492	100.00

During the past 50 years, the age distribution of the Australian population has varied considerably, as will be seen from the following table, which gives for each sex the proportion per cent. of the total population in the age groups "under 15," "15 and under 65," and "65 and over." The figures upon which these percentages have been computed are those furnished by the Censuses of the several States and the Commonwealth Census of 1911. Those for 1861 include the results of the Western Australian Census of 1859, while those for 1871 include the results of the Western Australian and Tasmanian Censuses of 1870:—

AGE DISTRIBUTION OF COMMONWEALTH POPULATION, 1861 to 1911.

Census Year.	Males.				Females.				Persons.			
	Under 15 Years.	15 and under 65.	65 and over.	Total.	Under 15 Years.	15 and under 65.	65 and over.	Total.	Under 15 Years.	15 and under 65.	65 and over.	Total
	%	%	%	%	%	%	%	%	%	%	%	%
1861	31.41	67.42	1.17	100	43.03	56.20	0.77	100	36.28	62.72	1.00	100
1871	38.84	59.11	2.05	100	46.02	52.60	1.38	100	42.09	56.17	1.74	100
1881	36.37	60.85	2.78	100	41.89	56.07	2.04	100	38.91	58.65	2.44	100
1891	34.77	62.02	3.21	100	39.36	58.08	2.56	100	36.90	60.20	2.90	100
1901	33.87	61.82	4.31	100	36.50	59.85	3.65	100	35.12	60.88	4.00	100
1911	30.84	64.82	4.34	100	32.52	63.28	4.20	100	31.65	64.08	4.27	100

The excess of males over females, previously referred to, is found mainly in ages of 21 and upwards. In the total population under the age of 21 there was, at the date of the last Census, an excess of males over females amounting to less than 1.5 in each 100 of population, while in that aged 21 and upwards the excess of males over females was about 5.7 in each 100 of population. In the absence of a large immigration of males in excess of females, therefore, the disparity between the sexes in Australia would soon be eliminated.

3. Race and Nationality.—(i.) *Constitution of Australia's Population.* As regards race, the population of the Commonwealth may be conveniently divided into two main groups, one comprising the aboriginal natives of Australia, and the other the various immigrant races which, since the foundation of settlement in 1788, have made the Commonwealth their home. Under the head of "immigrant races" would, of course, be included not only those residents of Australia who had been born in other countries, but also their descendants born in Australia.

(a) *The Aborigines.* It would appear that the aboriginal population of Australia was never large, and that the life led by them was, in many parts of the country, a most precarious one. With the continued advance of settlement the numbers have shrunk to such an extent that in the more densely populated States they are practically negligible. Thus, at the Census of 1911 the number of full-blooded aboriginals who were employed by whites or were living in proximity to settlements of whites was stated to be only 19,939. In some cases, however, more particularly in Queensland, South Australia, Western Australia, and the Northern Territory, there are, in addition, considerable numbers of natives still in the "savage" state, numerical information concerning whom is of a most unreliable nature, and can be regarded as little more than the result of mere guessing.

Ethnologically interesting as is this remarkable and rapidly-disappearing race, practically all that has been done to increase our knowledge of them, their laws, habits, customs, and languages, has been the result of more or less spasmodic and intermittent effort on the part of enthusiasts either in private life or the public service. An enumeration of them has never been seriously undertaken in connection with any Australian Census, though a record of the numbers who were in the employ of whites, or living in contiguity to the settlements of whites, has on the occasion of the recent Censuses usually been made. As stated above, various guesses at the number of aboriginal natives at present in Australia have been made, and the general opinion appears to have prevailed that 150,000 might be taken as a rough approximation to the total. More recent estimates, however, have given results considerably below this figure. Thus, in his report of April 30, 1915, the Queensland Chief Protector of Aborigines estimates the total at 61,705, exclusive of Northern Territory,

distributed as follows:—New South Wales, 6580; Victoria, 283; Queensland, 15,000; South Australia, 4842; Western Australia, 32,000; Northern Territory, 3000. A somewhat similar estimate made at an earlier date by Dr. Roth, formerly Chief Protector of Aborigines in Queensland, gave Queensland at least 18,000; Western Australia at least 24,000, and the Northern Territory from 20,000 to 22,000. In view of these figures it would appear that the number of aboriginal natives in Australia may be said to be not more than 100,000. The whole matter, however, is involved in considerable doubt.

The number of aboriginal natives enumerated in the several States and Territories of the Commonwealth at the Census of 1911 was as shewn hereunder, the figures given relating as before stated only to those in a civilised or semi-civilised condition.

ABORIGINAL NATIVES ENUMERATED AT CENSUS OF 1911.

Persons, etc.	N.S.W.	Victoria.	Queens-land.	South Australia.	Western Australia.	Tasmania.	Northern Territory.	Federal Territory	C'wlth.
Males ...	1,152	103	5,145	802	3,433	2	743	5	11,385
Females ...	860	93	3,542	637	2,936	1	480	5	8,554
Total	2,012	196	8,687	1,439	6,369	3	1,223	10	19,939
Masculinity (a)	14.51	5.10	18.45	11.47	7.80	66.67	21.50	50.00	14.20

(a) Excess of males over females per 100 of the sexes combined.

These figures, as noted above, refer only to those natives who were, at the date of the Census, in the employ of whites or were living in contiguity to the settlements of whites.

In the Commonwealth Constitution Act provision is made for aboriginal natives to be excluded for all purposes for which statistics of population are made use of under the Act, but the opinion has been given by the Commonwealth Attorney-General that, "in reckoning the population of the Commonwealth, half-castes are not aboriginal natives within the meaning of section 127 of the Commonwealth of Australia Constitution Act, and should therefore be included." It may be added, however, that as "half-castes," living in the nomadic state, are practically indistinguishable from aborigines, it has not always been found practicable to make the distinction, and further, that no authoritative definition of "half-caste" has yet been given.¹

(b) *Immigrant Races.* As regards the immigrant races, it may be said that they consist mainly of natives of the three divisions of the United Kingdom and their descendants. The proportion of Australian-born contained in the population of the Commonwealth has, in recent years, increased rapidly, and at the Census of 3rd April, 1911, out of a total population of 4,424,535 persons whose birthplaces were specified, no fewer than 3,667,670, or 82.90 per cent., were Australian born, while of the remainder, 590,722, or 13.35 per cent., were natives of the United Kingdom, and 31,863, or 0.72 per cent., were natives of New Zealand, that is, 96.97 per cent. of the total population at the date of the Census had been born in either Australasia or the United Kingdom. The other birthplaces most largely represented in the Commonwealth were Germany, 32,990 (0.75 per cent.); China, 20,775 (0.47 per cent.); Scandinavia (comprising Sweden, Norway and Denmark), 14,700 (0.33 per cent.); Polynesia, 3410 (0.08 per cent.); British India, 6644 (0.15 per cent.); United States of America, 6642 (0.15 per cent.); and Italy, 6719 (0.15 per cent.). The total population of Asiatic birth was 36,442 (0.82 per cent.), of whom 3474 were born in Japan.

(c) *Non-European Races.* The Census taken on the 3rd April, 1911, was the first occasion on which a systematic attempt had been made to ascertain the number of persons of non-European races in Australia. On former occasions the inquiry did not usually

1. An article on the Aborigines of Australia, specially written for the Year Book by W. Ramsay Smith, D.Sc., M.B., C.M., F.R.S.E., Permanent Head of the Department of Public Health of South Australia, will be found in Year Book No. 3, Section IV., § 12, page 158.

extend further than a request that in all cases in which the person enumerated was an Aboriginal or a Chinese, whether of the full-blood or of the half-blood, the fact should be specially noted in the column on the Census schedule relating to birthplace. At the recent Census the inquiry as to race was made one of the leading items, and all persons of non-European race were required to have their race specified. From the figures so obtained the following table has been compiled:—

PERSONS OF NON-EUROPEAN RACE IN THE COMMONWEALTH, 3rd APRIL, 1911.
(EXCLUSIVE OF FULL-BLOODED ABORIGINALS.)

States and Territories.	Austrian	Asiatic.		African.		American.		Polynesian.		Indefinite.		Total.	
	Half-caste Aborigines	Full-blood.	Half-caste	Full-blood	Half-caste	Full-blood	Half-caste	Full-blood	Half-caste	Full-blood	Half-caste	Full-blood.	Half-caste
States—													
N. S. Wales ...	4,512	10,983	1,390	169	166	10	7	343	70	2	...	11,507	6,145
Victoria ...	447	5,972	1,056	58	63	6	9	12	5	1	2	6,049	1,582
Queensland ...	2,508	9,123	940	53	65	37	5	2,123	142	...	...	11,336	3,660
S. Australia ...	692	1,049	175	18	21	5	1	5	4	2	...	1,079	893
W. Australia ...	1,475	5,578	129	48	15	7	2	25	3	...	...	5,658	1,624
Tasmania ...	227	532	127	4	6	...	...	5	2	...	...	541	362
Territories—													
Northern ...	244	1,594	35	7	...	...	...	11	1	...	...	1,612	280
Federal ...	8	7	...	...	...	...	...	...	...	...	...	7	8
Total ...	10,113	34,838	3,852	357	336	65	24	2,524	227	5	2	37,789	14,554

The proportion of population of non-European race (exclusive of full-blooded aborigines) in each State is shewn in the following table, full-blood and half-caste non-Europeans being shewn separately:—

PROPORTION OF NON-EUROPEAN RACES IN THE COMMONWEALTH, 3rd APRIL, 1911.
(EXCLUSIVE OF FULL-BLOODED ABORIGINALS.)

States and Territories.	Total Population.	Non-European Races.					
		Full-blood.		Half-caste.		Total.	
		Number.	Number per 1000 of Total Populat'n.	Number.	Number per 1000 of Total Populat'n.	Number.	Number per 1000 of Total Populat'n.
States—							
N. S. Wales	1,646,734	11,507	6.99	6,145	3.73	17,652	10.72
Victoria ...	1,315,551	6,049	4.60	1,582	1.20	7,631	5.80
Queensland ...	605,813	11,336	18.71	3,660	6.04	14,996	24.75
S. Australia...	408,558	1,079	2.64	893	2.19	1,972	4.83
W. Australia	282,114	5,658	20.05	1,624	5.76	7,282	25.81
Tasmania ...	191,211	541	2.83	362	1.89	903	4.72
Territories—							
Northern ...	3,310	1,612	487.01	280	84.59	1,892	571.60
Federal ...	1,714	7	4.08	8	4.67	15	8.75
Total C'wealth	4,455,005	37,789	8.48	14,554	3.27	52,343	11.75

(ii.) *Biological and Sociological Significance.* As regards race and nationality, therefore, the population of Australia is fundamentally British, and thus furnishes an example of the transplanting of a race into conditions greatly differing from those in which it had been developed. The biological and sociological significance of this will ultimately appear in the effects on the physical and moral constitution produced by the

complete change of climatic and social environment, for the new conditions are likely to considerably modify both the physical characteristics and the social instincts of the constituents of the population. At present, the characteristics of the Australian population, whether physical, mental, moral, or social, are only in the making, and probably it will not be possible to point to a distinct Australian type until three or four generations more have passed. Even then, it is hardly likely that, with the great extent of territory and varying conditions presented by the Commonwealth there will be but one type; on the contrary, a variety of types may be expected. The Australian, at present, is little other than a transplanted Briton, with the essential characteristics of his British forbears, the desire for freedom from restraint, however, being perhaps somewhat accentuated. The greater opportunity for an open-air existence, and the absence of the restrictions of older civilisations, may be held to be in the main responsible for this.

4. **Differences among the States and Territories.**—(i.) *Sex Distribution.* The varying circumstances under which the settlement of the several States has been effected, and the essentially different conditions experienced in the due development of their respective resources, have naturally led to somewhat marked differences in the constitution of their populations. In the matter of sex distribution, the States in which the normal condition of older countries is most nearly represented are those of Victoria, South Australia, and Tasmania, in the first-mentioned of which, the females have, for some years past, with the exception of the year 1913, exceeded the males. This was also the case in South Australia in the years 1914 and 1915. In Western Australia and Queensland, on the other hand, the position of affairs is somewhat abnormal, excess of males over females in each 100 of population being respectively 7.73 and 6.20.

In the Northern Territory, owing to lack of settlement, the masculinity has always been large, the figures for 1915 giving an excess of males over females in each 100 of population of no less than 62.

The variation in the masculinity of the estimated population of the several States and Territories and of the Commonwealth as a whole for the year 1901 and for the past five years will be seen from the following table:—

MASCULINITY (a) OF THE POPULATION, 31st DECEMBER, 1901 and 1911-15.
(COMMONWEALTH.)

Year.	Masculinity (a) of the Population on 31st December.								
	States.						Territories.		Cwlth.
	N.S.W.	Vict.	Qld.	S. Aust.	W. Aust.	Tas.	North- ern.	Federal (b)	
1901 ...	4.82	0.58	11.42	0.43	21.78	3.80	71.15	...	4.83
1911 ...	4.70	-0.11	8.65	1.71	14.28	1.92	63.92	11.19	4.10
1912 ...	5.19	-0.07	8.15	1.66	13.71	3.00	64.26	10.72	4.24
1913 ...	5.04	0.13	8.04	0.72	12.73	3.61	63.13	9.96	4.13
1914 ...	3.86	-0.38	7.74	-0.13	10.95	2.86	63.71	7.81	3.28
1915 ...	1.83	-2.35	6.20	-2.90	7.73	1.24	61.60	4.65	1.22

The minus sign — denotes the excess of females over males in each 100 of population.

(a) Excess of males over females in each 100 of population. (b) Part of New South Wales prior to 1911.

(ii.) *Age Distribution.* The disparity in sex distribution exhibited by the several States is accompanied by a corresponding inequality in the matter of age distribution. The number of persons in each State at the Census of 3rd April, 1911, at what are commonly known as the "dependent," "supporting," and "old" ages, and the proportion of same to total of each State and Commonwealth, were as follows:—

**NUMBER AND PROPORTION OF PERSONS IN THE COMMONWEALTH OF
DEPENDENT, SUPPORTING, AND OLD AGE, ON 3rd APRIL, 1911.**

State or Territory.	Number of Persons of—				Proportion of Population of—		
	Dependent age (under 15).	Supporting age (15 and under 65).	Old age (65 and upwards).	All ages.	Dependent age (under 15).	Supporting age (15 and under 65).	Old age (65 and upwards).
States—					%	%	%
New South Wales ...	526,625	1,053,400	66,709	1,646,734	31.98	63.97	4.05
Victoria ...	400,260	847,700	67,591	1,315,551	30.42	64.44	5.14
Queensland ...	200,020	383,330	22,463	605,813	33.01	63.28	3.71
South Australia ...	127,290	262,356	18,912	408,558	31.15	64.22	4.63
Western Australia...	87,884	187,574	6,656	282,114	31.15	66.49	2.36
Tasmania ...	66,708	116,604	7,899	191,211	34.89	60.98	4.13
Territories—							
Northern ...	485	2,708	117	3,310	14.65	81.81	3.54
Federal ...	551	1,081	82	1,714	32.15	63.07	4.78
Commonwealth ...	1,409,823	2,854,758	190,429	4,455,005	31.65	64.08	4.27

In Western Australia a larger proportion of its population was of supporting age than in any other State, whilst in Tasmania the proportion was the lowest. On the other hand, in Tasmania the proportion of dependent age was the highest for the Commonwealth, while the Victorian proportion was the lowest. Victoria had the highest and Western Australia the lowest proportion of persons aged 65 years and upwards.

In the Northern Territory the proportions are quite exceptional, the percentage of those of dependent age being much lower, and that for supporting age being much higher, than in any other part of the Commonwealth.

(iii.) *Birthplaces.* The following table exhibits, in a very condensed form, the distribution of the population of the several States and Territories according to birthplace:—

**BIRTHPLACES OF POPULATION AT CENSUS OF 3rd APRIL, 1911.
(COMMONWEALTH.)**

Birthplace.	Total Population of Commonwealth at Census.								
	States.						Territories.		C'wealth.
	N.S.W.	Victoria.	Qld.	S. Aust.	W. Aust.	Tas.	North-ern.	Fede-ral.	
Australia...	1,377,219	1,108,945	446,695	350,261	209,050	172,497	1,505	1,498	3,667,670
New Zealand	13,963	10,067	2,576	986	3,054	1,200	18	4	31,868
United Kingdom	204,394	157,436	120,015	44,431	50,552	13,472	262	160	590,722
Other									
European Countries	19,771	15,346	20,227	7,989	9,428	1,134	49	5	73,949
Asia ...	11,463	6,676	8,867	1,244	5,996	778	1,413	5	36,442
Africa ...	1,999	1,498	527	357	423	145	9	...	4,958
America ...	4,424	2,983	1,688	764	1,123	279	12	5	11,278
Polynesia	1,204	279	1,728	55	88	44	12	...	3,410
At Sea ...	1,479	1,303	629	422	281	122	2	...	4,238
Unspecified	10,818	11,018	2,861	2,049	2,119	1,540	28	37	30,470
Total ...	1,646,734	1,315,551	605,813	408,558	282,114	191,211	3,310	1,714	4,455,005

The proportions for the several States and Territories for each of the birthplaces shewn in the foregoing table expressed as percentages of the total population, the birthplaces of which were specified, are as follows:—

**PERCENTAGE OF COMMONWEALTH POPULATION ACCORDING TO BIRTHPLACE,
3RD APRIL, 1911.**

Birthplace.	Percentage of Total Population.								
	States.						Territories.		C'wth.
	New South Wales.	Victoria.	Queensland.	South Australia	Western Aust.	Tasmania.	Northe'n	Federal	
%	%	%	%	%	%	%	%	%	
Australia ...	84.19	85.01	74.09	86.16	74.66	90.95	45.86	89.32	82.90
New Zealand	0.86	0.77	0.43	0.24	1.10	0.63	0.55	0.24	0.72
U. Kingdom	12.49	12.07	19.90	10.93	18.05	7.10	7.98	9.54	13.35
Other E'pean Countries	1.21	1.18	3.35	1.97	3.37	0.60	1.49	0.30	1.67
Asia ...	0.70	0.51	1.47	0.31	2.14	0.41	43.05	0.30	0.82
Africa ...	0.12	0.11	0.09	0.09	0.15	0.08	0.27	...	0.11
America ...	0.27	0.23	0.28	0.19	0.40	0.15	0.37	0.30	0.25
Polynesia ...	0.07	0.02	0.29	0.01	0.03	0.02	0.37	...	0.08
At Sea ...	0.09	0.10	0.10	0.10	0.10	0.06	0.06	...	0.10
Total ...	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

As regards distribution in the States according to birthplace, the population of New South Wales is very similar to that of Victoria, the proportions born in the United Kingdom and Asia being slightly higher, and that born in Australia slightly lower, in the case of New South Wales. There is also a rough similarity between the population distributions of Queensland and Western Australia. In both, the Australian-born represent a much smaller, and those born in the United Kingdom, in "Other European Countries" and in Asia, a much larger proportion than is the case with the remaining States. Polynesians were, however, more numerously represented in Queensland at the date of the Census than in any other State. Natives of New Zealand were, proportionately, most numerous in Western Australia. Tasmania had the largest proportion of Australian-born population, viz., 91 per cent., while Queensland, with 74 per cent., had the smallest. On the other hand, nearly 20 per cent. of Queensland's population consisted of natives of the United Kingdom, while only 7 per cent. of the population of Tasmania had been born there. For the Commonwealth as a whole, over 98½ per cent. of the population were from Australasian or European birthplaces.

In the case of the Northern Territory, about 46 per cent. of the population were Australian born, while 43 per cent. were of Asiatic birth.

4. Elements of Growth of Population.

1. **Natural Increase.**—The two factors which contribute to the growth of a population are the "natural increase" by excess of births over deaths, and the "net immigration," i.e., the excess of arrivals over departures. While the relative potency of these factors depends upon a variety of causes, it may be said that, in general, in the case of a new country "net immigration" occupies an important position as a source of increase of population, while in an old country "natural increase," modified more or less by "net emigration," or excess of departures over arrivals, is the principal element causing growth of population. The table hereunder gives the total natural increase, as well as that of males and females:—

NATURAL INCREASE (a) OF THE POPULATION
OF STATES, TERRITORIES, AND COMMONWEALTH, FROM 1861 TO 1915.
MALES.

Period.	States.						Territories.		C'wealth.
	N.S.W.	Victoria.	Q'land.	S. Aust. (b)	W. Aus.	Tas.	North- ern. (c)	Federal. (d)	
1861 to 1865 ...	22,055	34,286	2,444	9,645	765	3,893	...	...	73,088
1866 to 1870 ...	25,850	34,997	5,739	10,881	-754	3,281	...	...	81,502
1871 to 1875 ...	30,067	35,132	6,704	9,979	710	3,077	...	...	85,669
1876 to 1880 ...	34,040	31,985	7,960	13,676	1,023	3,472	...	...	92,156
1881 to 1885 ...	42,658	33,614	7,986	16,969	1,002	5,284	...	...	107,513
1886 to 1890 ...	54,753	39,528	17,872	16,519	1,755	6,093	...	...	136,520
1891 to 1895 ...	56,834	45,606	20,525	15,758	1,436	6,889	...	...	147,048
1896 to 1900 ...	43,692	33,645	17,724	12,562	3,402	6,373	...	...	122,398
1901 to 1905 ...	51,179	34,332	16,628	12,149	8,283	7,955	-223	...	130,303
1906 to 1910 ...	64,127	38,948	21,415	14,500	10,762	8,703	-264	...	158,191
1911 to 1915 ...	77,070	46,160	27,497	18,673	12,730	9,386	-201	78	191,393
1861 to 1915 ...	507,325	408,233	152,494	151,311	42,622	64,406	-688	78	1,325,781

FEMALES.

1861 to 1865 ...	26,343	39,615	3,566	9,937	1,105	4,608	...	...	85,224
1866 to 1870 ...	30,327	40,919	7,571	11,223	1,301	4,451	...	...	95,792
1871 to 1875 ...	35,567	41,472	9,706	10,944	1,255	4,192	...	...	103,136
1876 to 1880 ...	40,276	37,551	12,291	14,608	1,585	4,699	...	...	111,010
1881 to 1885 ...	50,204	39,833	15,262	18,033	1,738	6,364	...	...	131,434
1886 to 1890 ...	62,090	48,131	24,238	17,320	2,609	7,228	...	...	161,616
1891 to 1895 ...	63,930	53,190	25,757	16,792	3,376	7,781	...	...	170,826
1896 to 1900 ...	57,107	40,474	24,037	13,443	7,054	6,718	...	...	148,833
1901 to 1905 ...	59,163	39,831	22,910	12,701	11,468	8,027	28	...	154,128
1906 to 1910 ...	71,297	42,629	26,048	14,754	13,354	8,522	33	...	176,637
1911 to 1915 ...	87,074	50,258	33,463	19,318	16,262	9,604	62	78	216,119
1861 to 1915 ...	583,378	473,903	204,849	159,123	61,107	72,194	123	78	1,554,755

PERSONS.

1861 to 1865 ...	48,398	73,901	6,010	19,632	1,870	8,501	...	...	158,312
1866 to 1870 ...	56,177	75,916	13,310	22,104	2,055	7,732	...	...	177,294
1871 to 1875 ...	65,634	76,604	16,410	20,923	1,965	7,269	...	...	188,805
1876 to 1880 ...	74,316	69,536	20,251	28,234	2,608	8,171	...	...	203,166
1881 to 1885 ...	92,862	73,447	23,248	35,002	2,740	11,648	...	...	238,947
1886 to 1890 ...	116,843	87,659	42,110	33,839	4,364	13,321	...	...	298,136
1891 to 1895 ...	120,764	98,796	46,282	32,550	4,812	14,670	...	...	317,874
1896 to 1900 ...	105,799	74,119	41,761	26,005	10,456	13,091	...	...	271,231
1901 to 1905 ...	110,342	74,163	39,538	24,850	19,751	15,982	-195	...	284,431
1906 to 1910 ...	135,424	81,577	47,463	29,254	24,116	17,225	-231	...	334,828
1911 to 1915 ...	164,144	96,418	60,960	37,991	28,992	18,990	-139	156	407,512
1861 to 1915 ...	1,090,703	882,136	357,343	310,434	103,729	136,600	-565	156	2,880,536

(a) Excess of births over deaths. (b) Including Northern Territory prior to 1901. (c) Included in South Australia prior to 1901. (d) Part of New South Wales prior to 1911.

NOTE.—Minus sign (—) denotes excess of deaths over births.

With one exception, viz., Tasmania for the period 1906 to 1910, the natural increase of females exceeded that of males throughout the years referred to in the foregoing table. The quinquennial period in which the largest natural increase of population took place was that of 1911-15 with a total for the Commonwealth of 407,512. For the individual States the quinquennia of maximum natural increase were as follows:—New South Wales, Queensland, South Australia, Western Australia and Tasmania, 1911-15; and Victoria, 1891-5.

2. **Comparison with other Countries.**—Notwithstanding its comparatively low birth-rate, Australia has a high rate of natural increase, owing to the fact that its death-rate is a very low one. The following table furnishes a comparison between the average rates per annum of natural increase for some of the principal countries of the world for which such information is available, and those for the several States of the Commonwealth and the Dominion of New Zealand:—

**NATURAL INCREASE PER ANNUM PER 1000 OF MEAN POPULATION
(VARIOUS COUNTRIES).**

Country.	Increase.	Country.	Increase.	Country.	Increase.
Australasia (1911-15)		Europe—continued.		Europe—continued.	
Tasmania ...	19.46	Prussia ...	(b) 13.93	Belgium ...	(b) 7.83
Western Australia ...	18.73	Denmark ...	13.51	Ireland ...	6.30
Queensland ...	18.70	German Empire ...	(b) 13.09	France ...	0.43
New South Wales ...	18.38	Finland ...	(c) 12.90		
South Australia ...	17.70	Italy ...	(b) 12.78	Asia (1910-14)—	
Commonwealth ...	17.12	Norway ...	12.23	Japan ...	(a) 12.36
New Zealand ...	16.75	Hungary ...	(b) 11.77	Ceylon ...	7.89
Victoria ...	13.93	Austria ...	(b) 10.64		
		Scotland ...	10.55	America (1910-14)—	
Europe (1910-14)—		England & Wales ...	10.40	Jamaica ...	15.45
Bulgaria ...	(a) 17.73	Sweden ...	9.79	Canada (Province	
Rumania ...	17.39	Switzerland ...	(c) 9.30	of Ontario) ...	10.83
Netherlands ...	15.17	Spain ...	8.91	Chile ...	8.61
Serbia ...	(b) 14.12				

(a) 1907-11. (b) 1903-12. (c) 1909-13.

The graphs of natural increase for each of the States, as well as for the Commonwealth, are shewn on page 144.

3. **Net Immigration.**—The other factor of increase in the population, viz., the excess of arrivals over departures, known as "net immigration," is, from its nature, much more subject to marked and extensive variation than is the factor of "natural increase." These variations are due to numerous causes, many of which have already been referred to in dealing with the influences which affect the growth of population. An important cause not yet referred to, is that of assisted immigration. The number of persons so introduced varies considerably in different years.

**NET IMMIGRATION, OR EXCESS OF ARRIVALS OVER DEPARTURES
(STATES, TERRITORIES AND COMMONWEALTH), FROM 1861 TO 1915 INCLUSIVE.**

Period.	States.						Territories.		Cwth.
	N.S.W.	Victoria.	Q'land.	S. Aust. (a)	W. Aust.	Tas.	Northern (b)	Fed. (c)	
MALES.									
1861 to 1865	2,984	-15,871	34,031	10,270	3,213	-2,997	...	...	31,630
1866 to 1870	23,381	13,516	10,190	242	1,182	313	...	...	47,714
1871 to 1875	20,346	-8,093	26,236	3,833	80	-1,916	...	...	40,326
1876 to 1880	48,378	-5,696	13,892	25,056	179	2,418	...	...	83,869
1881 to 1885	70,996	19,925	54,867	-1,982	2,701	1,860	...	...	148,367
1886 to 1890	29,345	51,894	18,514	-12,895	6,411	2,648	...	...	95,917
1891 to 1895	8,671	-33,192	5,088	-1,493	39,443	-2,857	...	...	15,660
1896 to 1900	854	-39,805	8,095	-8,239	36,953	2,905	...	...	945
1901 to 1905	15,671	-37,971	495	-11,031	28,127	-1,771	697	...	-7,177
1906 to 1910	11,157	9,400	12,291	10,590	711	-5,784	366	...	37,999
1911 to 1915	18,878	848	6,531	-12,990	603	-6,491	1,150	-90	8,439
1861 to 1915	268,953	-45,045	190,230	877	119,085	-12,298	87	-90	501,799

Throughout the minus sign (—) signifies that the number of departures was in excess of arrivals.
(a) Including Northern Territory up to 1900. (b) Included in South Australia up to 1900. (c) Part of New South Wales prior to 1911.

NET IMMIGRATION, OR EXCESS OF ARRIVALS OVER DEPARTURES
(STATES, TERRITORIES AND COMMONWEALTH), FROM 1861
TO 1915 INCLUSIVE—Continued.

Period.	States.						Territories.		C'wealth.
	N.S.W.	Victoria.	Q'land.	S. Aust. (a)	W. Aust.	Tas.	North'n (b)	Fed- eral. (c)	
FEMALES.									
1861 to 1865	8,578	21,527	18,824	5,993	952	1,358	...	...	54,516
1866 to 1870	9,928	16,702	4,851	1,207	517	500	...	...	32,705
1871 to 1875	9,395	2,498	11,187	774	18	2,500	...	...	21,336
1876 to 1880	25,081	169	7,792	12,977	130	462	...	...	46,273
1881 to 1885	38,867	7,861	27,526	100	957	562	...	...	75,673
1886 to 1890	23,220	34,337	14,811	11,310	1,768	42	...	...	62,784
1891 to 1895	12,793	13,656	422	1,964	7,758	1,705	...	...	6,732
1896 to 1900	143	23,777	927	7,627	32,043	2,009	...	...	3,432
1901 to 1905	1,566	21,984	2,398	8,448	22,293	726	81	...	9,616
1906 to 1910	9,390	10	7,780	4,403	1,867	4,023	148	...	19,279
1911 to 1915	45,187	20,342	12,168	6,576	11,589	5,277	251	118	90,954
1861 to 1915	183,862	43,691	103,046	6,409	79,856	13,098	184	118	404,068
PERSONS.									
1861 to 1865	11,562	5,656	52,855	16,263	4,165	4,355	...	...	86,146
1866 to 1870	33,309	30,218	15,041	965	1,699	813	...	...	80,419
1871 to 1875	29,741	5,595	37,423	4,607	98	4,416	...	...	61,662
1876 to 1880	73,459	5,865	21,684	38,039	49	2,880	...	...	130,142
1881 to 1885	109,863	27,786	82,393	2,032	3,658	2,422	...	...	224,040
1886 to 1890	52,565	86,231	33,325	24,205	8,179	2,606	...	...	158,701
1891 to 1895	21,464	46,848	4,666	471	47,201	4,562	...	...	22,392
1896 to 1900	997	63,582	9,022	15,866	68,996	4,914	...	...	2,487
1901 to 1905	17,237	59,955	1,903	19,479	50,420	2,497	616	...	16,793
1906 to 1910	20,547	9,410	20,071	14,993	2,578	9,807	514	...	57,278
1911 to 1915	64,065	21,190	18,699	6,414	12,192	11,768	1,401	28	99,393
1861 to 1915	432,815	1,354	293,276	7,286	198,941	25,396	271	28	905,867

Throughout, the minus sign (—) signifies that the number of departures was in excess of arrivals.
(a) Including Northern Territory up to 1900. (b) Included in South Australia up to 1900.
(c) Part of New South Wales prior to 1911.

During the period 1861-1915, viz., 55 years, the gain to the Commonwealth population by excess of arrivals over departures was 905,867 persons, while the gain by excess of births over deaths for the same period was 2,880,536. That is, 23.92 per cent. of the increase for the Commonwealth during the past 55 years has been due to "net immigration" and 76.08 per cent. to "natural increase." In regard to the contribution by individual States to the total net immigration of 905,867, all shewed a gain with the exception of Victoria and Tasmania, which in the period under review had an excess of departures over arrivals of 1,354 and 25,396 respectively. In the case of South Australia the gain was small, viz., 7,286. In New South Wales, Queensland, and Western Australia, on the other hand, the additions due to net immigration during the 55 years were respectively 432,815, 293,276, and 198,941.

The quinquennial period in which the greatest net immigration to the Commonwealth occurred was that of 1881-5 with a total of 224,040, whilst in the period 1901-5, the departures exceeded the arrivals by 16,793. The quinquennial periods

in which maximum net immigration occurred in the several States were as follows:—New South Wales and Queensland 1881-5, Victoria 1886-90, South Australia 1876-80, Western Australia and Tasmania 1896-1900. In all the States quinquennial periods have occurred in which the departures for the five years have exceeded the arrivals. The periods in which such net emigration from the several States was greatest were as follows:—New South Wales and Victoria 1896-1900, Queensland 1901-5, South Australia 1886-90, Western Australia 1871-5, and Tasmania 1911-15.

4. **Net Increase.**—The net increase of the population is found by the combination of the natural increase with the net immigration.

In the following table are set out the figures shewing the net increase in each quinquennium from 1861 onwards:—

**NET INCREASE OF THE POPULATION OF THE STATES, TERRITORIES AND
COMMONWEALTH from 1861 to 1915.**

MALES.

Period.	States.						Territories.			Commonwealth.
	N.S.W.	Vict.	Q'land.	S. Aust. (a)	W. Aust.	Tas.	North'n (b)	Fed'l. (c)		
1861 to 1865	25,039	18,415	36,475	19,915	3,978	896	...	...	104,718
1866 to 1870	49,231	48,513	15,929	10,639	1,936	2,968	...	...	129,216
1871 to 1875	50,413	27,039	32,940	13,812	630	1,161	...	...	125,995
1876 to 1880	82,418	26,289	21,852	38,732	844	5,890	...	...	176,025
1881 to 1885	113,654	53,589	62,853	14,987	3,703	7,144	...	...	255,880
1886 to 1890	84,098	91,422	36,386	3,624	8,166	8,741	...	...	232,437
1891 to 1895	65,505	12,414	25,613	14,265	40,879	4,032	...	...	162,708
1896 to 1900	47,838	6,160	25,819	4,323	40,355	9,278	...	...	121,453
1901 to 1905	66,850	3,639	17,123	1,118	36,410	6,184	920	...	123,126	
1906 to 1910	75,284	48,348	33,706	25,090	11,473	2,919	630	...	196,190	
1911 to 1915	94,177	45,793	35,799	6,898	13,333	2,895	949	12	199,832	
1861 to 1915	754,507	361,973	344,495	153,403	161,707	52,108	601	12	1,827,580	

FEMALES.

1861 to 1865	34,921	61,142	22,390	15,980	2,057	3,250	...	...	139,740
1866 to 1870	40,255	57,621	12,422	12,430	1,818	3,951	...	...	128,497
1871 to 1875	44,962	43,970	20,893	11,718	1,237	1,692	...	...	124,472
1876 to 1880	65,357	37,382	20,083	27,585	1,715	5,161	...	...	157,283
1881 to 1885	89,071	47,694	42,788	17,933	2,695	6,926	...	...	207,107
1886 to 1890	85,310	82,468	39,049	6,010	4,377	7,186	...	...	224,400
1891 to 1895	76,723	39,534	25,335	18,756	11,134	6,076	...	...	177,558
1896 to 1900	56,964	16,697	24,964	5,816	39,097	8,727	...	...	152,265
1901 to 1905	60,729	17,847	20,512	4,253	33,761	7,301	109	...	144,512
1906 to 1910	80,687	42,639	33,828	19,157	15,221	4,499	115	...	195,916
1911 to 1915	132,261	70,600	45,631	25,894	27,851	4,327	313	196	307,073
1861 to 1915	767,240	517,594	307,895	165,532	140,963	59,096	307	196	1,958,823

Note.—The minus sign (—) denotes decrease.

(a) Including Northern Territory up to 1900. (b) Included in South Australia up to 1900.
(c) Part of New South Wales prior to 1911.

NET INCREASE OF THE POPULATION OF THE STATES, TERRITORIES
AND COMMONWEALTH FROM 1861 TO 1915.—Continued.
PERSONS.

Period.	States.						Territories.		Commonwealth.
	N.S.W.	Vic.	Q'land.	S. Aust. (a)	W. Aust.	Tas.	North- ern. (b)	Fed- eral. (c)	
1861 to 1865	59,960	79,557	58,865	35,895	6,035	4,146	...	...	244,458
1866 to 1870	89,486	106,134	28,351	23,069	3,754	6,919	...	...	257,713
1871 to 1875	95,375	71,009	53,833	25,530	1,867	2,853	...	...	250,467
1876 to 1880	147,775	63,671	41,935	66,317	2,559	11,051	...	...	333,308
1881 to 1885	202,725	101,233	105,641	32,920	6,398	14,070	...	...	462,987
1886 to 1890	169,408	173,890	75,435	9,634	12,543	15,927	...	...	456,837
1891 to 1895	142,228	51,948	50,948	33,021	52,013	10,108	...	...	340,266
1896 to 1900	104,802	10,537	50,783	10,139	79,452	18,005	...	...	273,718
1901 to 1905	127,579	14,208	37,635	5,371	70,171	13,485	— 811	...	267,638
1906 to 1910	155,971	90,987	67,534	44,247	26,694	7,418	— 745	...	392,106
1911 to 1915	226,438	116,393	81,430	32,792	41,184	7,222	1,262	184	506,905
1861 to 1915	1,521,747	879,567	652,390	318,935	302,670	111,204	— 294	184	3,736,403

Note.—The minus sign (—) denotes decrease.

(a) Including Northern Territory up to 1900. (b) Included in South Australia up to 1900.

(c) Part of New South Wales prior to 1911.

As regards the Commonwealth as a whole, the greatest increase in any quinquennium up to 1905 was that for the period 1881-5, viz., 462,987. These figures were, however, closely approached in the succeeding quinquennium, viz., 456,837. The rate of increase fell off in subsequent quinquennia, the increase for the years 1901-5 being 267,638. In the following quinquennium an improvement set in, the increase in that period being 392,106. This was followed by a further improvement in the quinquennium 1911-15, the first three years of which gave increases of 143,624, 164,652, and 138,700 respectively. In the two succeeding years a falling-off was recorded, but this must be taken as having been caused by the war, there having been an excess of departures over arrivals in the two years of 17,370 and 91,053 respectively. However, in spite of this adverse influence, the increase for the quinquennium 1911-15, 506,905, is the highest yet recorded for the Commonwealth.

As regards the individual States the maximum increases in any quinquennium are as follows:—New South Wales, 226,438, in 1911-5; Victoria, 173,890, in 1886-90; Queensland, 105,641, in 1881-5; South Australia (including the Northern Territory), 66,317, in 1876-80; Western Australia, 79,452, in 1896-1900; Tasmania, 18,005, in 1896-1900.

As regards the minimum increases, it will be seen that they have occurred as under:—New South Wales, 59,960, in 1861-5; Victoria, 10,537, in 1896-1900; Queensland, 28,351, in 1866-70; South Australia, 5,371, in 1901-5; Western Australia, 1,867, in 1871-5; Tasmania, 2,853, in 1871-5.

For the years 1911, 1912, and 1913, all the States, with the exception of Tasmania, which shews a loss of 324 in 1911, shew a satisfactory rate of increase. In 1914, for the reason above mentioned, the increases fell off in four of the States, Tasmania shewing a loss of 259. In 1915, with the exception of New South Wales and Queensland, the States shew a loss, while the total for the Commonwealth as a whole recorded a loss of 8964. As regards the Northern Territory, the figures for the years 1912 to 1915 record increases of 227, 197, 201, and 590 respectively.

The graphs shewing net increase, both for the Commonwealth as a whole and for each of the States, will be found on pages 142 and 143.

5. Total Increase.—(i.) Rates for various Countries. The table hereunder furnishes particulars concerning rates of increase in population for the Commonwealth, its component States, and other countries:—

RATES OF INCREASE IN POPULATION, 1881 TO 1915 (VARIOUS COUNTRIES).

Countries.	Mean Annual Rate of Increase in Population during period—						
	1881 to 1886.	1886 to 1891.	1891 to 1896.	1896 to 1901.	1901 to 1906.	1906 to 1911.	1911 to 1915.
	%	%	%	%	%	%	%
AUSTRALASIA—							
Commonwealth ...	3.86	3.06	1.86	1.49	1.38	2.03	2.19
New South Wales(a)	4.83	3.23	1.99	1.57	1.99	2.03	2.62
Victoria ...	2.60	3.12	0.37	0.52	0.18	2.17	1.73
Queensland ...	8.42	3.80	2.49	2.25	1.35	2.76	2.60
South Australia (b)	1.41	1.15	1.63	0.77	0.27	2.46	1.61
Western Australia...	6.13	5.54	20.81	7.25	6.22	2.43	2.81
Tasmania ...	2.18	2.87	1.06	1.83	1.33	0.65	0.73
New Zealand ...	3.31	1.47	2.41	1.98	2.86	2.56	1.89
EUROPE—							
England and Wales	1.11	1.11	1.15	1.15	1.04	1.04	1911 to 1914. 0.71
Scotland ...	0.75	0.75	1.06	1.06	0.55	0.56	—0.18
Ireland ...	—0.95	—0.94	—0.60	—0.43	—0.22	—0.06	—0.02
Austria ...	0.73	0.83	0.79	1.05	0.87	0.86	(c) 0.81
Belgium ...	1.13	0.75	1.15	0.92	1.26	0.69	(d) 0.99
Denmark ...	1.05	0.87	0.99	1.32	1.12	1.26	1.41
Finland ...	1.42	1.51	1.20	1.41	1.36	1.43	(d) 1.26
France ...	0.34	0.06	0.09	0.24	0.15	0.16	(d) 0.12
German Empire ...	0.74	1.09	1.17	1.51	1.46	1.36	1.23
Hungary ...	1.09	1.01	0.92	1.03	0.77	0.84	(c) 0.84
Italy ...	0.66	0.71	0.68	0.61	0.52	0.80	1.13
Netherlands ...	1.32	1.03	1.28	1.30	1.53	1.22	1.60
Norway ...	0.36	0.54	0.96	1.31	0.52	0.66	0.97
Prussia ...	0.79	1.15	1.29	1.59	1.57	1.48	(d) 1.29
Rumania ...	1.77	1.34	1.15	1.41	1.46	1.48	2.80
Serbia ...	2.30	2.08	1.37	1.57	1.52	1.55	(c) 1.72
Spain ...	0.54	0.48	0.45	0.45	0.52	0.87	0.74
Sweden ...	0.57	0.40	0.61	0.86	0.61	0.84	0.70
Switzerland ...	0.38	0.40	1.22	1.10	1.28	1.17	(d) 1.26
ASIA—							
Ceylon ...	0.54	1.35	1.41	2.03	1.62	1.20	1.04
Japan ...	0.96	1.12	0.96	1.25	1.29	1.08	(e) 1.25
AMERICA—							
Canada ...	1.10	1.08	0.97	1.19	2.99	2.99	2.91
Chile ...	2.97	0.72	2.66	0.90	1.53	1.56	1.30
Jamaica ...	0.77	1.37	1.66	1.72	1.63	0.28	1.51
United States ...	2.27	2.15	1.93	2.02	2.00	1.82	1.69

(a) Including Federal Territory.
— Decrease. (c) 1911 to 1912.

(b) Including Northern Territory.
(d) 1911 to 1913. (e) 1911 to 1915.

(ii.) *Variations in the Commonwealth Rate.* During the twenty-five years 1881-1906 the annual rate of increase in the population of the Commonwealth exhibited a marked decline, falling from an average of 3.86 per cent. for the five years 1881-6 to an average of 1.38 for 1901-6. During the succeeding two quinquennia, however, an improvement took place, the rates of increase being 2.03 and 2.19 per cent. respectively. As regards the separate States of the Commonwealth, the rates of increase in all cases except that of South Australia were lower, and in most instances considerably lower, for the period 1906-11 than for 1881-6.

(iii.) *Comparison of Rates of Increase.* It may be noted that the highest rates of increase for the period 1906-11 are those for Canada, New Zealand, and the Commonwealth of Australia in the order named. The United States, Chile and Serbia rank next in order.

6. *Density of Population.*—From one aspect population may be less significant in respect of its absolute amount than in respect of the density of its distribution. The Commonwealth of Australia, with an area of 2,974,581 square miles, and a population on

31st December, 1915, of 5,031,988 including aboriginals, has a density of only 1.69 persons to the square mile, and is therefore the most sparsely populated of the civilised countries of the world. For the other continents the densities are approximately as follows:—Europe, 122; Asia, 52; Africa, 11; North and Central America, 16; and South America, 7. The population of the Commonwealth has thus about 10½ per cent. of the density of that of North and Central America, about 23 per cent. of South America, about 15½ per cent. of that of Africa, about 3½ per cent. of that of Asia, and about 1½ per cent. of that of Europe.

Particulars concerning the number and density of the population of the various countries of the world for the latest dates for which such information is available are given in the following table. These figures have in the main been derived from the 1916 issue of the "Statesman's Year Book," and in some instances, more particularly in the case of Africa, must be considered as rough approximations only, complete data not being obtainable:—

NUMBER AND DENSITY OF THE POPULATION OF THE VARIOUS COUNTRIES OF THE WORLD.

Country.	Population.		Country.	Population.	
	Number.	Density (a)		Number.	Density (a)
Continents—			Asia—		
Europe	472,461,658	122.48	China & Dependencies ...	320,650,000	81.93
Asia	878,316,997	52.12	British India	244,267,542	223.45
Africa	130,821,376	10.69	Japan & Dep.(incl. Korea) ...	75,927,901	288.61
North & Central America and the West Indies ...	140,049,554	16.36	Federal Indian States ...	70,888,854	99.91
South America	55,743,015	7.49	Dutch East Indies	37,800,000	64.81
Australasia & Polynesia	8,251,519	2.38	Russia in Asia	28,449,900	4.28
			Turkey in Asia	19,451,849	27.81
			Arabia (Independent) ...	12,000,000	12.00
			Persia	9,500,000	15.13
Total	1,685,644,119	32.16	Philippine Islands	9,937,597	74.48
			Siam	8,149,487	41.79
Europe—			Tonking	6,119,720	132.40
Russia (including Poland Ciscaucasia & Finland) ...	149,927,600	70.62	Afghanistan	6,000,000	24.00
German Empire	87,812,000	324.80	Nepal	5,939,092	109.98
Austria - Hungary (incl. Bosnia & Herzegovina) ...	52,093,117	199.39	Annam	4,702,446	76.19
United Kingdom	46,089,249	378.92	Ceylon	4,260,700	168.19
France	39,700,000	191.74	Cochin China	3,050,785	138.75
Italy	36,120,118	326.49	Cambodia	1,634,252	24.13
Spain (incl. Canary and Balearic Islands)	20,441,693	110.63	Bokhara	1,250,000	15.06
Belgium	7,571,387	665.73	Kiauchau, Neutral Zone ...	1,200,000	480.00
Rumania	7,508,009	140.37	Federated Malay States ...	1,036,999	37.70
Netherlands	6,339,750	503.87	Malay Protectorate	899,937	36.04
Portugal	5,960,056	167.94	Straits Settlements	778,160	486.35
Sweden	5,679,607	32.84	Borneo and Sarawak	708,183	9.69
Greece (including Crete) ...	4,821,300	114.98	Khiva	646,000	26.92
Bulgaria & E. Roumelia ...	4,752,997	109.76	Laos	640,877	5.73
Serbia	4,547,992	134.19	Hong Kong & Territory ...	501,300	1,282.10
Switzerland	3,877,210	242.69	Oman	500,000	6.10
Denmark (incl. Iceland) ...	2,975,188	53.76	Goa	475,513	323.70
Norway	2,440,500	19.58	Timor, etc.	300,000	40.93
Turkey	1,891,000	173.77	Cyprus	290,738	81.13
Albania	850,000	75.11	French India	273,530	1,381.46
Montenegro	516,000	92.09	Bhutan	250,000	12.50
Luxemburg	259,891	260.41	Kiauchau (German)	192,000	960.00
Malta	218,542	1,852.05	Kwang Chau Wan	168,000	435.23
Monaco	23,956	3,869.50	Wei-hai-wei	147,177	516.41
Gibraltar	18,036	9,018.00	Bahrain Islands	110,000	440.00
San Marino	11,513	303.97	Macao, etc.	63,991	15,997.75
Liechtenstein	10,716	164.86	Damao and Diu	56,285	333.06
Andorra	5,231	29.89	Aden & Dependencies ...	46,165	5.13
			Brunei	30,000	7.50
			Socotra & Kuria Muria Is. ...	12,000	8.68
			Tientsin	10,017	50,034.00
Total	472,461,658	122.48	Total	878,316,997	52.18

(a) Number of persons per square mile.

NUMBER AND DENSITY OF THE POPULATION OF THE VARIOUS
COUNTRIES OF THE WORLD.—Continued.

Country.	Population.		Country.	Population.	
	Number.	Density (a)		Number.	Density (a)
Africa—			Porto Rico	1,184,489	328.48
Northern and Southern			Jamaica	883,376	209.98
Nigeria Protectorate ...	17,000,000	50.60	San Domingo	708,000	39.24
Belgian Congo	15,000,000	16.49	Nicaragua	703,540	14.30
Egypt	12,154,000	34.73	Honduras	562,000	12.69
Abyssinia	9,000,000	22.86	Costa Rica	420,179	16.27
German East Africa ...	7,680,332	19.99	Trinidad and Tobago ...	357,553	191.41
Union of South Africa ...	5,973,394	12.63	Newfound'ld & Labrador	251,726	1.55
Upper Senegal and Niger	5,538,973	18.53	Guadeloupe and Depend.	212,430	303.21
Algeria	5,563,828	16.20	Martinique	194,000	509.19
Angola	4,119,000	8.50	Barbados	176,397	1,062.63
French Equat. Africa ...	4,104,076	4.09	Windward Islands ...	176,354	334.64
British East Africa Prot.	4,038,000	16.36	Leeward Islands ...	127,193	177.89
Morocco	3,600,000	16.44	Alaska	66,356	0.11
Sudan	3,380,531	3.43	Coracao	56,725	140.76
Madagascar & adjacent			Bahamas	55,639	12.63
Islands	3,253,581	14.40	British Honduras ...	41,543	4.83
Portuguese East Africa ...	3,150,000	7.31	Danish West Indies ...	27,086	196.33
Uganda Protectorate ...	2,927,494	26.83	Bermudas	20,443	1,075.95
Kamerun	2,650,591	19.37	Greenland	13,517	0.29
French Guinea	1,811,225	19.63	Cayman Islands	5,800	65.17
Liberia	1,800,000	45.00	Turks & Caicos Islands...	5,615	33.83
Tunis	1,780,527	35.61	St. Pierre & Miquelon ...	4,652	50.02
Rhodesia	1,632,250	3.77			
Ivory Coast	1,531,917	12.20	Total	140,049,554	16.36
Gold Coast and Protect.	1,503,386	18.79			
Sierra Leone and Protect.	1,403,132	45.26	South America—		
Senegal	1,282,566	17.33	Brazil (incl. Acre) ...	24,378,219	7.25
Nyasaland Protectorate ...	1,089,241	27.71	Argentine Republic ...	7,979,259	6.92
Togoland	1,032,346	30.63	Colombia (excl. Panama)	5,071,101	11.50
Dahomey	911,637	24.29	Peru	4,500,000	6.23
Military Territory of the			Chile	3,596,541	12.41
Niger (French)	850,094	1.59	Bolivia	2,389,970	5.62
Portuguese Guinea ...	820,000	58.82	Venezuela	2,316,484	7.07
French Sahara	800,000	0.52	Ecuador	1,500,000	12.93
Tripoli and Benghazi ...	523,676	1.30	Uruguay	1,315,714	18.24
Eritrea	450,000	9.83	Paraguay	850,000	5.15
Basutoland	405,903	34.65	Panama	398,021	12.29
Italian Somaliland ...	400,000	2.87	British Guiana	309,938	3.46
Mauritius and Depend. ...	388,603	480.35	Dutch Guiana	85,536	1.86
British Somaliland ...	300,000	4.41	French Guiana	49,009	1.44
Mauretania	222,061	0.64	Falkland Islands and		
French Somali Coast, etc.	208,000	4.49	South Georgia	3,223	0.43
Rio Muni & C. San Juan...	200,000	16.67			
Zanzibar	197,199	193.33	Total	55,743,015	7.49
Réunion	173,822	180.13			
Gambia & Protectorate	146,101	32.44	Australasia & Polynesia—		
Cape Verde Islands ...	143,929	97.25	Commonwealth of Australia ...	(b) 5,031,988	1.69
Bechuanaland Protect...	125,350	0.46	New Zealand	(c) 1,162,134	11.09
Swaziland	107,117	16.39	Kaiser Wilhelm Land &		
German S. W. Africa ...	94,386	0.29	Bismarck Archipelago ...	720,364	8.00
Comoro Islands... ..	84,117	121.21	Papua	251,579	2.78
Spanish N. & W. Africa	69,536	787.77	Hawaii	232,856	36.11
Principe & St. Thomas Is.	68,221	189.50	Dutch New Guinea ...	200,000	1.32
Seychelles	24,141	154.75	Fiji	155,167	20.87
Fernando Po, etc. ...	23,844	29.29	Solomon Islands (British)	150,600	10.18
Mayotte... ..	13,500	94.41	New Hebrides	70,000	13.73
Rio de Oro and Adrar ...	12,000	0.16	New Caledonia & Depend.	57,208	6.69
St. Helena	3,553	75.60	German Solomon Is., etc.	55,264	11.03
Ascension	196	5.76	Samoa (German)	39,105	39.11
			French Estab. in Oceania	31,477	20.71
Total	130,821,376	10.69	Gilbert & Ellice Islands	30,868	165.07
			Tonga	23,956	61.43
North & Central America			Marshall Islands ...	15,179	101.19
& West Indies—			Guam	13,689	65.19
United States	102,017,312	34.30	Samoa (American) ...	9,100	89.22
Mexico	15,501,684	19.73	Norfolk Island	985	98.50
Canada	8,075,000	2.17			
Haiti	2,500,000	245.00	Total	8,251,519	2.38
Cuba	2,471,531	55.90			
Guatemala	2,003,579	41.49			
Salvador	1,225,835	169.67			

(a) Number of persons per square mile. (b) Inclusive of an allowance of 100,000 for Aboriginal Natives. (c) Inclusive of Maoris and population of Cook and other Pacific Islands.

§ 5. Seasonal Variations of Population.

1. **Natural Increase.**—For the Commonwealth as a whole the natural increase of the population is greatest in the quarter ending 30th September, and least in that ending 31st March. The birth rate is usually at its highest, and the death rate at its lowest, in the September quarter, and *vice versa* in the March quarter. The average natural increase in population of the several States for each of the quarters, based upon the experience of the ten years 1906 to 1915, is given in the following table, from which it will be seen that the quarter in which the rate of natural increase was highest is that ended 30th June for Victoria and Queensland, that ended 30th September for New South Wales, South Australia, and Western Australia, and that ended 31st December for Tasmania. The rate of natural increase was lowest in the quarter ended 31st March in all the States except Queensland and Western Australia, in both of which the lowest rate occurred in the quarter ended 31st December.

AVERAGE QUARTERLY NATURAL INCREASE, STATES AND COMMONWEALTH, 1906 to 1915.

State.	(a) Average Natural Increase for Quarter ended on last day of—								Average Natural Increase per annum, 1906-15.	
	March.		June.		September.		December.			
	Persons	‰	Persons	‰	Persons	‰	Persons	‰	Persons	‰
New S. Wales (b)	7,360	4.44	7,408	4.44	7,703	4.59	7,501	4.44	29,972	18.07
Victoria ...	4,232	3.24	4,664	3.56	4,450	3.39	4,453	3.38	17,799	13.63
Queensland ...	2,578	4.34	2,823	4.71	2,795	4.60	2,646	4.32	10,842	18.24
S. Australia (c)	1,538	3.79	1,775	4.37	1,778	4.37	1,597	3.90	6,688	16.49
W. Australia ...	1,270	4.53	1,330	4.70	1,490	5.22	1,221	4.25	5,311	18.93
Tasmania ...	855	4.42	869	4.53	891	4.69	1,007	5.29	3,622	18.73
Commonwealth	17,833	4.02	18,869	4.23	19,107	4.26	18,425	4.09	74,234	16.73

(a) The symbol ‰ denotes "per thousand."

(b) Including Federal Territory.

(c) Including Northern Territory.

2. **Net Immigration.**—For the Commonwealth as a whole the excess of arrivals over departures for the years 1906 to 1915 was greatest in the September quarter. In New South Wales the March quarter gave the greatest excess of arrivals over departures. In Western Australia the largest excess was in the June quarter. In Tasmania the arrivals largely exceeded the departures in the December quarter, but in all the other quarters the departures were in excess. In Queensland, the December quarter shewed an excess of departures over arrivals. In Victoria the arrivals were greatest in the December quarter, and the departures exceeded the arrivals in the June quarter. In South Australia the arrivals exceeded the departures in the December quarter, but the departures exceeded the arrivals in the first two quarters. Particulars concerning the average net immigration of the several States are as follows:—

AVERAGE QUARTERLY NET IMMIGRATION, STATES AND COMMONWEALTH, 1906 to 1915.

State.	Quarter ended on last day of—								Average Net Immigration per annum, 1906-15.	
	March.		June.		September.		December.			
	Persons	‰	Persons	‰	Persons	‰	Persons	‰	Persons	‰
N.S.W. a	3,753	2.26	1,573	0.94	2,832	1.69	129	0.08	8,237	5.00
Victoria	277	0.21	-1,944	-1.48	1,551	1.68	3,054	2.32	2,938	2.25
Q'land	2,295	3.86	5,736	9.57	1,123	1.85	-5,100	-8.33	4,054	6.82
S. Aust. b	960	-2.37	901	-2.22	590	1.45	2,339	5.71	1,068	2.63
W. Aust.	739	2.64	1,479	5.23	778	2.72	-1,519	-5.28	1,477	5.26
Tas. ...	-2,573	-13.30	-2,548	-13.29	566	-2.98	3,530	18.55	-2,157	-11.16
C'wealth	3,531	0.80	3,395	0.76	6,308	1.41	2,433	0.54	15,667	3.53

Throughout, the minus sign (—) denotes that the departures were in excess of arrivals, and ‰ denotes per thousand of population.

(a) Including Federal Territory. (b) Including Northern Territory

§ 6. Urban Population.

1. **The Metropolitan Towns.**—A feature of the distribution of population in Australia is the tendency to accumulate in the capital cities. To such an extent is this metropolitan aggregation carried, that in every State the population of the capital far outnumbers that of any other town therein, and ranges between 20 and 48 per cent. of the entire population of the State. The estimated populations of the several capitals on 31st December, 1915, and the percentages of such populations on the totals for the respective States, are shewn in the table hereunder. That this metropolitan concentration is phenomenal, may be readily seen by comparing the percentage on the total population with the similar figures for the principal countries of Europe, also given in the table hereunder:—

METROPOLITAN POPULATION.

(VARIOUS COUNTRIES.)

State or Country.	Metropolis.	Year.	Population.	Percentage on total of State or Country.
				%
New South Wales ...	Sydney ...	31st Dec., 1915.	763,000	40.83
Victoria ...	Melbourne ...		684,000	48.24
Queensland ...	Brisbane ...		161,938	23.80
South Australia ...	Adelaide ...		205,000	46.63
Western Australia ...	Perth ...		122,000	38.36
Tasmania ...	Hobart ...		40,000	19.90
Commonwealth ...	(6 Cities) ...		1,975,938	40.06
New Zealand ...	Wellington ...		74,811	6.45
Denmark ...	Copenhagen ...	1911	559,398	20.29
England ...	London (a) ...	1911	4,521,685	12.54
Saxony ...	Dresden ...	1910	548,308	11.41
Norway ...	Christiania ...	1910	241,834	10.11
Ireland ...	Dublin ...	1911	403,030	9.18
Belgium ...	Brussels ...	1912	663,647	8.77
Bavaria ...	Munich ...	1910	596,467	8.66
Portugal ...	Lisbon ...	1911	435,359	7.31
France ...	Paris ...	1911	2,888,110	7.29
Austria ...	Vienna ...	1910	2,031,498	7.11
Sweden ...	Stockholm ...	1914	386,270	6.80
Scotland ...	Edinburgh ...	1911	320,318	6.73
Greece ...	Athens ...	1907	167,479	6.36
Prussia ...	Berlin ...	1910	2,071,257	5.16
Netherlands ...	The Hague ...	1914	312,430	4.93
Hungary ...	Budapest ...	1910	880,371	4.22
Spain ...	Madrid ...	1910	599,807	2.95
Switzerland ...	Berne ...	1913	94,700	2.48
Russia (European) ...	Petrograd ...	1914	2,133,100	1.66
Italy ...	Rome ...	1914	590,960	1.64

(a) Population of Greater London in 1911 was 7,251,358.

2. **Urban Population Generally.**—In connection with the particulars shewing the tendency in Australia to concentrate population in the metropolis, it should be borne in mind that in most of the European States the capital is but one of many populous cities, and in some instances is by no means the most populous. In Australia, on the other hand, the metropolis is in every instance the most populous city, and, in some of the States, is also the only town of considerable magnitude.

In the following table will be found particulars of all localities in the Commonwealth returned at the date of the Census, on 3rd April, 1911, as having a population of over 3000. From this it will be seen that there were, in all, 29 localities in the Commonwealth returned as having a population upwards of 20,000. Of these 11 were in New South Wales, 13 in Victoria, 1 in Queensland, 1 in South Australia, 1 in Western Australia and 2 in Tasmania.

The figures given in this table relate to the localities specified as defined by the residents therein. It must be understood that no clearly defined boundaries exist in these cases, and the population given for any locality represents the number of persons who returned themselves as belonging to that locality. For the population within the boundaries of the principal Local Government Areas in the States, reference should be made to paragraph 3 following.

POPULATION OF PRINCIPAL TOWNS IN THE COMMONWEALTH, 3rd APRIL, 1911.

Town.	State in which Situated.	Approx. Population.	Town.	State in which Situated.	Approx. Population.
100,000 and over—			10,000 and under 20,000—cont.		
Sydney	N.S.W.	107,133	Toowoomba	Qld.	16,160
20,000 and under 100,000—			Townsville	"	13,678
Adelaide	S.A.	32,981	Waverley	N.S.W.	18,961
Ballarat	Vic.	38,686	Williamstown	Vic.	12,114
Balmain	N.S.W.	31,961	Woolahra	N.S.W.	12,316
Brisbane South	Qld.	21,332	5000 and under 10,000—		
Broken Hill	N.S.W.	30,953	Abbotsford	Vic.	9,308
Brunswick	Vic.	32,201	Adelaide North	S.A.	9,300
Carlton	"	27,476	Albury	N.S.W.	5,862
Collingwood	"	20,254	Alexandria	"	9,491
Fitzroy	"	34,141	Ararat	Vic.	5,402
Footscray	"	21,933	Armidale	N.S.W.	6,530
Geelong	"	21,630	Arncliffe	"	5,034
Hawthorn	N.S.W.	21,444	Ascot Vale	Vic.	5,655
Hobart	Tas.	27,505	Auburn	N.S.W.	5,602
Launceston	"	20,937	Bathurst	"	9,219
Leichhardt	N.S.W.	24,139	Bexley	"	6,241
Marrickville	"	25,993	Bundaberg	Qld.	8,727
Melbourne	Vic.	38,393	Burwood	N.S.W.	8,281
Melbourne South	"	46,016	Cairns	Qld.	5,193
Newtown	N.S.W.	26,427	Camberwell	Vic.	6,547
Paddington	"	24,150	Castlemaine	"	5,219
Perth	W.A.	31,300	Caulfield	"	7,669
Petersham	N.S.W.	20,407	Chatswood	N.S.W.	5,482
Prahran	Vic.	25,489	Claremont	W.A.	6,252
Richmond	N.S.W.	24,275	Coburg	Vic.	9,454
St. Kilda	Vic.	33,559	Cottesloe	W.A.	5,142
Sydney North	N.S.W.	32,764	Drummoyne	N.S.W.	5,947
10,000 and under 20,000—			Dubbo	"	3,368
Anandale	N.S.W.	11,250	Eaglehawk	Vic.	6,998
Ashfield	"	12,096	Elsternwick	"	6,790
Bendigo	Vic.	17,833	Erskineville	N.S.W.	7,234
Botany	N.S.W.	10,228	Flemington	Vic.	6,108
Boulder	W.A.	12,833	Fortitude Valley	Qld.	7,080
Brighton	Vic.	11,096	Fremantle	W.A.	6,406
Brisbane	Qld.	17,715	Fremantle South	"	6,253
Chartiers Towers	"	15,037	Glenelg	S.A.	5,003
Essendon	Vic.	10,067	Grafton and Grafton South	N.S.W.	6,123
Goulburn	N.S.W.	10,187	Granville	"	6,938
Gympie	Qld.	11,718	Hamilton	"	6,914
Ipswich	"	10,445	"	Vic.	5,551
Kalgoorlie	W.A.	13,488	Hurstville	N.S.W.	5,112
Kew	Vic.	11,143	Inverell	"	5,131
Malvern	"	15,319	Kensington	Vic.	7,341
Manly	N.S.W.	10,687	Kogarah	N.S.W.	6,300
Melbourne North	Vic.	17,750	Leederville	W.A.	5,499
Mosman	N.S.W.	13,189	Lismore	N.S.W.	7,609
Newcastle	"	12,816	Lithgow	"	6,921
Northcote	Vic.	17,491	Mackay	Qld.	6,135
Parramatta	N.S.W.	12,520	Maitland West	N.S.W.	7,395
Port Melbourne	Vic.	13,471	Maryborough	Qld.	9,410
Randwick	N.S.W.	15,793	"	Vic.	5,804
Rockhampton	Qld.	15,451	Moonee Ponds	"	8,065
South Yarra	Vic.	10,060	Mount Morgan	Qld.	9,772
			New Farm	"	5,394
			Newtown	Vic.	5,863
			Norwood	S.A.	9,464

POPULATION OF PRINCIPAL TOWNS IN THE COMMONWEALTH,
3RD APRIL, 1911—Continued.

Town.	State in which Situated.	Approx. Population.	Town.	State in which Situated.	Approx. Population.
5000 and under 10,000—cont.			3000 and under 5000—cont.		
Orange ...	N.S.W.	5,263	Gunnedah ...	N.S.W.	4,100
Paddington ...	Qld.	5,273	Hamilton ...	Qld.	3,229
Parkside ...	S.A.	7,774	Hindmarsh ...	S.A.	3,556
Port Pirie ...	"	7,968	Horsham ...	Vic.	3,554
Preston ...	Vic.	5,025	Ithaca ...	Qld.	3,378
Rockdale ...	N.S.W.	7,453	Junea ...	N.S.W.	3,606
Rookwood ...	"	5,374	Kangaroo Point ...	Qld.	4,417
St. Peters ...	"	7,037	Katoomba ...	N.S.W.	3,950
Subiaco ...	W.A.	8,701	Kensington ...	S.A.	4,175
Tamworth ...	N.S.W.	7,607	Kurri-Kurri ...	N.S.W.	4,154
Toowong ...	Qld.	5,645	Kyneton ...	Vic.	3,174
Wagga Wagga ...	N.S.W.	7,446	Liverpool ...	N.S.W.	3,081
Walleroo ...	S.A.	5,282	Maldon ...	Vic.	3,077
Warrnambool ...	Vic.	7,543	Merewether ...	N.S.W.	4,135
Warwick ...	Qld.	5,562	Midland Junction ...	W.A.	3,881
Waterloo ...	N.S.W.	9,471	Mildura ...	Vic.	4,608
Woolloongabba ...	Qld.	8,326	Moonta ...	S.A.	3,772
3000 and under 5000—			3000 and under 5000—		
Albany ...	W.A.	3,699	Mount Gambier ...	N.S.W.	3,161
Armadale ...	Vic.	4,298	Mudgee ...	S.A.	4,531
Bairnsdale ...	"	3,412	Narrabri ...	N.S.W.	3,621
Beechworth ...	"	3,409	Newtown ...	Tas.	4,686
Benalla ...	"	3,172	Northam ...	W.A.	3,382
Bunbury ...	W.A.	3,920	Oakleigh ...	Vic.	4,205
Camperdown ...	N.S.W.	4,768	Parkes ...	Vic.	3,341
"	Vic.	3,473	Perth North ...	N.S.W.	3,411
Campsie ...	N.S.W.	3,957	Perth West ...	W.A.	4,895
Canterbury ...	"	4,190	Perth Adelaide ...	"	3,291
Casino ...	"	3,635	Prospect ...	S.A.	3,386
Cessnock ...	"	3,957	Queenstown ...	"	3,998
Clifton Hill ...	Vic.	4,023	Roma ...	Tas.	3,659
Cobar ...	N.S.W.	4,619	Ryde ...	Qld.	3,157
Colac ...	Vic.	3,992	St. Arnaud ...	N.S.W.	3,247
Concord ...	N.S.W.	3,799	Sale ...	Vic.	4,096
Coonamble ...	"	3,280	Semaphore ...	S.A.	3,491
Cootamundra ...	"	3,352	Shepparton ...	S.A.	3,495
Cowra ...	"	3,981	Singleton ...	Vic.	4,049
Darlington ...	"	3,815	Stawell ...	N.S.W.	3,655
Daylesford ...	Vic.	3,928	Strathfield ...	Vic.	4,843
Devonport ...	Tas.	3,620	Summer Hill ...	N.S.W.	3,093
Dulwich Hill ...	N.S.W.	3,578	Temora ...	"	3,854
Echuca ...	Vic.	4,137	Toorak ...	"	3,561
Enfield ...	N.S.W.	3,475	Unley ...	Vic.	3,630
Forbes ...	"	4,654	Wangaratta ...	S.A.	4,397
Fremantle East ...	W.A.	3,856	Waratah ...	Vic.	4,136
" North ...	"	3,315	Wellington ...	N.S.W.	3,597
Gawler ...	S.A.	4,037	Willoughby ...	"	4,400
Geraldton ...	W.A.	3,494	Windsor ...	"	4,693
Glen Innes ...	N.S.W.	4,030	Wollongong ...	Vic.	3,953
Goodwood ...	S.A.	3,443	Wonthaggi ...	N.S.W.	4,725
Grenfell ...	N.S.W.	3,007	Wyalong ...	Vic.	3,223
Guildford ...	W.A.	3,224	Young ...	N.S.W.	3,301
			Zeehan ...	Tas.	3,619

3. **Municipal Population.**—In the following table the population of the Local Government Areas in the several States will be found set out. It includes only those areas having upwards of 5000 in population.

By the term "Local Government Areas" is meant those districts which have been incorporated for Municipal purposes, and are variously known in the several States as Cities, Towns, Boroughs, Shires, Municipalities, Corporations, District Councils and Road Districts.

POPULATION OF PRINCIPAL LOCAL GOVERNMENT AREAS IN THE COMMONWEALTH, 3rd APRIL, 1911.

Local Government Area.	State in which Situated.	Approx. Population.	Local Government Area.	State in which Situated.	Approx. Population.
100,000 and upwards—			5000 and under 10,000—		
Sydney	N.S.W.	112,921	Alberton	Vic.	5,479
Melbourne	Vic.	103,593	Albury	N.S.W.	6,309
20,000 and under 100,000—			Ararat (Shire)	Vic.	6,335
Adelaide	S.A.	42,294	Auburn	N.S.W.	5,559
Ashfield	N.S.W.	20,431	Bairnsdale	Vic.	8,190
Ballarat (City)	Vic.	22,017	Bathurst	N.S.W.	8,575
Balmain	N.S.W.	32,038	Beechworth	Vic.	5,978
Bendigo	Vic.	28,539	Bellingen	N.S.W.	9,124
Brisbane	Qld.	39,917	Benalla	Vic.	7,688
Brisbane, South	"	30,061	Berwick	"	6,632
Broken Hill	N.S.W.	30,972	Bexley	N.S.W.	6,517
Brunswick	Vic.	32,215	Bland	"	5,522
Cessnock	N.S.W.	21,018	Blaxland	"	9,661
Collingwood	Vic.	34,190	Blue Mountains	"	6,902
Essendon	"	23,749	Boree	"	5,111
Fitzroy	"	34,283	Borong	Vic.	5,412
Footscray	"	23,643	Botany, North	N.S.W.	5,896
Glebe	N.S.W.	21,943	Bright	Vic.	5,943
Hawthorn	Vic.	24,450	Bundaberg	Qld.	5,516
Hobart	Tas.	27,526	Buninyong (Shire)	Vic.	5,594
Launceston	"	20,754	Burnside	S.A.	9,416
Leichhardt	N.S.W.	24,254	Burwood	N.S.W.	9,380
Marrickville	"	30,653	Byron	"	6,553
Melbourne, South	Vic.	46,190	Cabootture	Qld.	5,759
Newtown	N.S.W.	26,498	Cairns (Town)	"	5,164
Paddington	"	24,317	Canoblas	N.S.W.	5,140
Perth (Municipality)	W.A.	35,767	Castlemaine	Vic.	5,223
Petersham	N.S.W.	21,712	Clifton	Qld.	7,099
Port Adelaide	S.A.	24,015	Coburg	Vic.	9,505
Prahran	Vic.	45,367	Coolamon	N.S.W.	5,600
Redfern	N.S.W.	24,427	Crookwell	"	6,223
Richmond	Vic.	40,442	Dandenong	Vic.	5,134
St. Kilda	"	25,334	Deloraine	Tas.	5,779
Sydney, North	N.S.W.	34,646	Dimboola	Vic.	5,796
Unley	S.A.	23,773	Dorrigo	N.S.W.	7,984
10,000 and under 20,000—			Drummoynye	"	8,678
Alexandria	N.S.W.	10,123	Eaglehawk	Vic.	7,588
Annandale	"	11,240	Erina	N.S.W.	9,176
Ballarat, East	Vic.	15,962	Ersleville	"	7,299
Boulder	W.A.	10,824	Esk	Qld.	5,575
Brighton	Vic.	12,083	Euroa	Vic.	5,130
Bulli	N.S.W.	10,123	Glengallan	Qld.	5,982
Camberwell	Vic.	12,551	Gobang	N.S.W.	5,326
Canterbury	N.S.W.	11,335	Goolman	Qld.	5,289
Caulfield	Vic.	15,919	Granville	N.S.W.	7,231
Colac	"	14,213	Guyra	"	6,534
Fremantle (Municipality)	W.A.	14,499	Gympie	Qld.	8,923
Geelong	Vic.	13,618	Hamilton	N.S.W.	7,908
Goulburn	N.S.W.	10,023	Hampden	Vic.	9,829
Hindmarsh	S.A.	11,335	Hastings	N.S.W.	5,746
Ithaca	Qld.	15,756	Heidelberg	Vic.	8,610
Kalgoorlie (Road District)	W.A.	12,061	Highfields	Qld.	5,656
Kensington and Norwood	S.A.	13,892	Hornsby	N.S.W.	8,901
Kew	Vic.	11,152	Hunter's Hill	"	5,013
Lake Macquarie	N.S.W.	14,610	Hurstville	"	6,533
Malvern	Vic.	15,969	Illawarra, Central	"	5,000
Manly	N.S.W.	10,465	Illawarra, North	"	5,157
Manning	"	11,137	Imlay	"	5,564
Moorabbin	Vic.	12,757	Ipswich	Qld.	9,528
Mosman	N.S.W.	13,243	Jondaryan	"	7,469
Newcastle	"	11,610	Kadina (District Council)	S.A.	8,096
Northcote	Vic.	17,519	Kalgoorlie (Municipality)	W.A.	8,781
Parramatta	N.S.W.	12,465	Karkaroc	Vic.	5,743
Port Melbourne	Vic.	13,515	Kentish	Tas.	5,571
Queenton	Qld.	14,277	Kerang	Vic.	8,969
Randwick	N.S.W.	19,463	Kogarah	N.S.W.	6,953
Rockdale	"	14,095	Korong	Vic.	5,517
Rockhampton	Qld.	15,456	Ku-ring-gai	N.S.W.	9,458
Toowoomba	"	13,119	Kyneton	N.S.W.	6,904
Townsville	"	10,636	Leederville	W.A.	5,457
Waterloo	N.S.W.	10,072	Leven	Tas.	5,450
Waverley	"	19,831	Lilydale	Vic.	6,322
Williamstown	Vic.	15,275	Lismore	N.S.W.	7,381
Willoughby	N.S.W.	13,036	Lithgow	"	8,196
Woollahra	"	15,989	Liverpool Plains	"	5,651

POPULATION OF PRINCIPAL LOCAL GOVERNMENT AREAS IN THE
COMMONWEALTH, 3rd APRIL, 1911.—Continued.

Local Government Area.	State in which Situated.	Approx. Population.	Local Government Area.	State in which Situated.	Approx. Population.
5000 and under 10,000—cont.			5000 and under 10,000—cont.		
Livingstone	Qld.	5,656	St. Peters	N.S.W.	8,410
Lyndhurst	N.S.W.	6,740	"	S.A.	9,073
Mackay	Qld.	5,141	Severn	N.S.W.	6,865
Macleay	N.S.W.	6,679	Shepparton	Vic.	6,099
Maitland, West	"	8,210	Stephens	Qld.	5,415
Marong	Vic.	6,646	Stroud	N.S.W.	5,117
Maroochy	Qld.	5,288	Subiaco	W.A.	8,926
Maryborough	Vic.	5,675	Swan Hill	Vic.	6,795
"	Qld.	9,673	Tamworth	N.S.W.	7,145
Mildura	Vic.	6,119	Tarampa	Qld.	6,699
Mitcham	S.A.	5,035	Tarro	N.S.W.	6,492
Mount Morgan	Qld.	8,504	Tenterfield (Shire)	"	5,153
Mulwaree	N.S.W.	7,009	Terania	"	5,621
Namoi	"	8,092	Thebarton	S.A.	8,720
Nanango	Qld.	6,433	Thuringowa	Qld.	5,095
Narracan	Vic.	5,408	Tintenbar	N.S.W.	5,865
New Norfolk	Tas.	6,124	Toombul	Qld.	6,791
Newtown and Chilwell	Vic.	5,831	Toowong	"	6,286
Numurkah	"	6,844	Towong	Vic.	6,418
Nunawading	"	7,120	Tungamah	"	5,376
Patrick's Plains	N.S.W.	6,894	Tweed	N.S.W.	7,308
Perth (Road District)	W.A.	5,066	Wagga Wagga	"	6,419
Phillip Island & Woolamai	Vic.	7,067	Wallarobba	"	5,619
Pioneer	Qld.	9,752	Wambo	Qld.	6,749
Poowong and Jeetho	Vic.	7,449	Waranga	Vic.	5,291
Port Germein	S.A.	5,210	Warrnambool (Shire)	"	8,653
Portland (Shire)	Vic.	5,291	Warrnambool (Town)	"	7,010
Port Pirie	S.A.	9,385	Warwick	Qld.	5,248
Preston	Vic.	5,049	Waugoola	N.S.W.	5,262
Prospect	S.A.	6,813	Wickham	"	8,434
Rodney	Vic.	6,718	Windsor	Qld.	8,970
Rookwood	N.S.W.	5,418	Woodville	S.A.	7,787
Rosalie	Qld.	7,982	Zeehan	Tas.	5,726
Ryde	N.S.W.	5,281			

§ 7. Assisted Immigration.

In the earlier days of settlement in Australia, State-assisted immigration played an important part. Such assistance ceased for the time being in Victoria in 1873, in South Australia in 1886, and in Tasmania in 1891. In New South Wales, general State-aided immigration was discontinued in the year 1887, but those who arrived under that system and were still residing in New South Wales might, under special regulations, send for their wives and families. A certain amount of passage money, graduated according to the age of the immigrant, was required to be paid in each case. Under the provisions of these regulations, immigrants to the number of 1994 received State assistance during the years 1888 to 1899 inclusive. From 1900 to 1905 no assistance of any kind was given, but from 1906 onwards assistance has again been afforded. In Queensland and Western Australia, such assistance, although varying considerably in volume from year to year, has been accorded for many years past. Assistance to immigrants, which in the case of Victoria, had practically ceased in 1873, has recently been again afforded. In South Australia the principle of State assistance was again introduced in 1911, and in Tasmania in 1912.

The number of assisted immigrants for the years 1912, 1913, 1914 and 1915, and the total from the earliest times up to the end of 1915, are given in following table:—

ASSISTED IMMIGRANTS DURING 1912, 1913, 1914 AND 1915, AND UP TO THE END OF 1915.

STATES AND COMMONWEALTH.

State	N.S.W.	Victoria.	Qld.	S. Aust.	W.A.	Tas.	C'wlth.
No. Assisted during 1912	14,956	15,112	6,462	3,212	6,970	(a)	b 46,712
" " " 1913	9,860	12,146	4,757	2,759	7,708	215	37,445
" " " 1914	6,655	7,496	4,096	644	1,729	185	20,805
" " " 1915	1,595	1,724	1,599	79	635	64	5,796
Total to end of 1915 ...	270,847	186,181	213,656	102,707	41,666	22,163	837,220

(a) Figures not available.

(b) Exclusive of Tasmania.

§ 8. Enumerations and Estimates.

1. **Musters.**—Actual enumerations of Australia's population, of varying accuracy, have been made from the earliest times onward. Originally known as "Musters," these were first undertaken with a view to estimating the food and other requirements of the settlements. These musters, the results of which are said to have been very unreliable, appear to have been carried out at least annually from 1788 to 1825, when they were discontinued.

2. **Census-taking.**—The first regular Census in Australia was that of New South Wales, in November, 1828. The dates on which Censuses have been taken in the several States, and the populations enumerated thereat, are as shewn in the table on the next page.

3. **The Census of 1901.**—A conference of the Government Statisticians of Australia and New Zealand, held in Sydney in February and March, 1900, aimed at securing uniformity in the collection and compilation of the Census of 1901. The householder's schedule which it drafted made provision for the collection of information in all the States under the following heads, viz.: Name, Sex, Age, Conjugal Condition, Relation to Head of Household, Occupation, Sickness and Infirmary, Birthplace, Length of Residence in Colony, Religion, Education, Materials of Houses and Number of Rooms. In addition to these, it was agreed that States so desiring might include further inquiries relating to Land, Live Stock, Crops, and certain other matters.

Provision was made for uniformity in the classification and compilation of the data by formulating rules for dealing with cases in which differences of opinion as to methods of treatment might exist. Thus, although conducted by six different States, the Census of the Commonwealth, as taken in 1901, was carried out on a fairly uniform plan, and consequently furnished data, in many ways suitable for purposes of aggregation or comparison. A detailed examination of the results, however, gives many indications of departure from a common line of action, which, in the absence of a central authority, can hardly be avoided in an undertaking of this nature.

4. **The Census of 1911.**—Under Section 51, sub-section (xi.) of the Constitution Act, power is given to the Parliament of the Commonwealth to make laws with respect to "Census and Statistics." This power was brought into requisition in 1905, when the Census and Statistics Act of 1905 became law, being assented to on 8th December, 1905. Under this Act provision is made for the appointment of a Commonwealth Statistician and amongst other duties that officer is charged with the taking of a Census in the year 1911 and in every tenth year thereafter.

The particulars which the Act requires to be included in the Census schedule are almost identical with those which were contained in the 1901 schedule, the principal alterations being that "Length of Residence in Australia" is specified instead of "Length of Residence in the Colony of Enumeration," that "Duration of Marriage" was to be asked in all cases, and that nationality was to be ascertained in addition to birthplace. As already stated in § 1 of this section, the Census was taken as at 3rd April, 1911.

In each State a Census supervisor was appointed to control the collection within that State under the direction of the Commonwealth Statistician. Each State was then divided into Census districts, each of which was placed in the charge of an enumerator, and each Census district was further subdivided into collectors' districts, one collector for each district.

It should be noted, in connection with the Census of 1911, that a slight change in defining the date of reference has been made in order to accord with the English practice. In previous Australian censuses the date of the Census has been taken to be that of the day preceding the midnight which is adopted as the determining point. Thus, at the Census of 1901, where the figures given relate approximately to midnight between the 31st March and the 1st April, the Australian Census was stated to be that of the 31st March, while in a precisely similar case in England it was stated to be that of 1st April.

At the Census of 1911, taken as at midnight between the 2nd and 3rd April, the date of the Census has, in accordance with the English practice, been stated to be the 3rd April, and that day was gazetted as the day of the Census.

The total populations enumerated at the several Australian Censuses are shown in the following table:—

AUSTRALIAN CENSUSES.

Census Year.	Population Enumerated (exclusive of Aborigines).						
	New South Wales.	Victoria.	Queensland	South Australia.	Western Australia.	Tasmania.	Commonwealth. (Total)
1828	(Nov.) 36,598	...	...	...	...	...	...
1833	(2nd Sept.) 60,794	...	...	...	...	...	...
1836	(2nd Sept.) 77,096	...	...	...	...	...	...
1841	(2nd March) 130,856	...	...	...	...	(27th Sept.) 50,216	...
1844	...	...	...	(26th Feb.) 17,366	...	...	...
1846	(2nd March) 189,609	...	...	(26th Feb.) 22,390	...	...	...
1847	...	...	...	...	...	(31st Dec.) 70,164	...
1848	...	...	...	...	(10th Oct.) 4,622	...	...
1851	(1st Mar.) (a) 268,344	...	...	(1st Jan.) 63,700	...	(1st Mar.) 70,130	...
1854	...	(26th Apr.) (b) 234,298	...	...	(30th Sept.) 11,743	...	...
1855	...	...	...	(31st Mar.) 85,821	...	...	...
1856	(1st March) 269,722	...	...	...	...	...	...
1857	...	(29th Mar.) 408,998	...	...	...	(31st Mar.) 81,492	...
1859	...	...	...	...	(31st Dec.) 14,837	...	...
1861	(7th April) 350,860	(7th April) 538,628	(7th April) (b) 30,059	(7th April) 126,830	...	(7th April) 89,977	...
1864	...	...	(1st Jan.) 61,467	...	...	...	...
1866	...	...	...	(26th Mar.) 163,452	...	...	...
1868	...	...	(2nd Mar.) 99,901	...	...	...	...
1870	...	...	...	...	(31st Mar.) 24,785	(7th Feb.) 99,328	...
1871	(2nd April) 502,998	(2nd April) 730,198	(1st Sept.) 120,104	(2nd April) 185,626	...	...	...
1876	...	...	(1st May) 173,283	(26th Mar.) 213,271	...	...	...
1881 (c)	749,825	861,566	213,525	279,865	29,708	115,705	2,250,194
1886	...	...	(1st May) 322,853	...	...	...	...
1891 (d)	1,123,954	1,139,840	393,718	320,431	49,782	146,667	3,174,392
1901 (e)	1,354,846	1,201,070	493,129	363,157	184,124	172,475	3,773,801
1911 (f)	1,646,734	1,315,551	605,813	408,558	282,114	191,211	4,455,005
	(g) 1,714			(h) 3,310			

(a) Including Port Phillip District, which afterwards became the Colony of Victoria. (b) Previously included with New South Wales. (c) 3rd April. (d) 5th April. (e) 31st March. (f) 3rd April. (g) Federal Territory, previously included with New South Wales. (h) Northern Territory, previously included with South Australia.

5. **Estimates of Population.**—In the absence of an annual enumeration of the population, it becomes necessary to adopt some method of estimating it for intercensal periods, basing such estimates on the results of the most recent Censuses. The manner in which

this is effected varies, however, in different parts of the world. In England, for example, the assumption made is that the rate of increase of the preceding intercensal period will continue unchanged during the current period. Again, in the United States, it has been assumed, in certain cases, that the numerical increase per annum ascertained for the preceding intercensal period will hold good for the current period. From the earliest times in Australia, "statistics of fluctuation" have been obtained from the records of births, deaths, arrivals and departures. With reasonable thoroughness in the collection of such statistics, the deduced estimates possess much greater weight than those based on the mere assumption of a continuation of the increase experienced in the preceding period. In most cases, however, estimates of population, based on statistics of fluctuation, are found to be in excess at the Census, thus indicating a uniform tendency to over-estimation, and the necessity for a correction. In the population figures given in the earlier portion of the present section, the estimates of the population of the several States have been carefully revised, the results of the various Censuses being taken in conjunction with the records of births, deaths, arrivals and departures. It is believed that by this means the population of the Commonwealth from the date of settlement onwards has been obtained with a high degree of accuracy, and that the figures supplied represent a reasonably close approximation to the actual numbers. A detailed account of the adjustment for the decennium 1901-10 will be found on pp. 112-118 of Year Book No. 6. Particulars for the several States from the date of settlement onwards are given in the following tables, and are shown by graphs on pages 139 to 141:—

COMMONWEALTH POPULATION FROM EARLIEST DATE.

MALES.

Year.	Estimated Population at end of Year.								Commonwealth.
	States.						Territories.		
	New S. Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	North-eastern.	Federal	
1788	...	...	...	...	...	...	...	...	*
1790	...	...	...	...	...	...	...	...	*
1795	...	...	...	...	...	...	...	...	*
1800	3,780	...	...	...	...	...	...	...	3,780.
1805	5,395	...	...	...	...	...	...	...	5,395
1810	7,585	...	...	...	...	...	...	...	7,585
1815	9,848	...	...	...	...	...	...	...	9,848
1820	23,784	...	...	...	...	...	...	...	23,784
1825	29,309	...	...	...	...	10,979†	...	...	40,288
1830	33,900	...	...	...	877	18,108	...	...	52,885
1835	51,949	...	...	...	1,231	28,749	...	...	81,929
1840	85,560	...	...	8,272	1,434	32,040	...	...	127,306
1845	113,739	...	...	12,810	2,689	43,921	...	...	173,159
1850	154,976	...	...	35,902	3,576	44,229	...	...	238,683
1855	147,822	226,462†	...	48,843	8,311	38,680	...	...	470,118
1860	197,851	330,302	16,817†	64,340	9,597	49,653	...	...	668,560
1865	222,890	348,717	53,292	84,255	13,575	50,549	...	...	773,278
1870	272,121	397,230	69,221	94,894	15,511	53,517	...	...	902,494
1875	322,534	424,269	102,161	108,706	16,141	54,678	...	...	1,028,489
1880	404,952	450,558	124,013	147,438	16,985	60,568	...	...	1,204,514
1885	518,606	504,097	186,866	162,425	20,688	67,712	...	...	1,460,394
1890	602,704	595,519	223,252	166,049	28,854	76,453	...	...	1,692,831
1895	668,209	607,933	248,865	180,314	69,733	80,485	...	...	1,855,539
1900	716,047	601,773	274,684	180,349	110,088	89,763	4,288†	...	1,976,992
1905	782,897	598,134	291,807	181,467	146,498	95,947	3,368	...	2,100,118
1910	858,181	646,482	325,513	206,557	157,971	98,866	2,738	...	2,296,308
1915	951,389	692,275	361,312	213,455	171,304	101,761	3,687	957†	2,496,140

* Details not available. † Previously included with New South Wales. ‡ Previously included with South Australia.

COMMONWEALTH POPULATION FROM EARLIEST DATE.—Continued.

FEMALES.

Year.	Estimated Population at end of Year.								
	STATES.						TERRITORIES.		C'wealth.
	N.S.W.	Victoria.	Q'nsland.	S Aust.	W. Aust.	Tas.	North-ern.	Fed-eral.	
1788	...	...	...	...	...	...	...	...	*
1790	...	...	...	...	...	...	...	...	*
1795	...	...	...	...	...	...	...	...	*
1800	1,437	...	...	...	...	...	...	...	1,437
1805	2,312	...	...	...	...	...	...	...	2,312
1810	3,981	...	...	...	...	...	...	...	3,981
1815	5,215	...	...	...	...	...	...	...	5,215
1820	9,759	...	...	...	...	...	...	...	9,759
1825	9,004	...	...	...	...	3,213†	...	...	12,217
1830	10,688	...	...	...	295	6,171	...	...	17,154
1835	19,355	...	...	...	647	11,423	...	...	31,425
1840	41,908	...	...	6,358	877	13,959	...	...	63,102
1845	74,179	...	...	9,650	1,790	20,370	...	...	105,989
1850	111,924	...	...	27,798	2,310	24,641	...	...	166,673
1855	118,179	120,843†	...	48,544	4,294	31,282	...	...	323,142
1860	150,695	207,932	11,239†	61,242	5,749	40,168	...	...	477,025
1865	185,616	269,074	33,629	77,222	7,806	43,418	...	...	616,765
1870	225,871	326,695	46,051	89,652	9,624	47,369	...	...	745,262
1875	270,833	370,665	66,944	101,370	10,861	49,061	...	...	869,734
1880	336,190	408,047	87,027	128,955	12,576	54,222	...	...	1,027,017
1885	425,261	455,741	129,815	146,888	15,271	61,148	...	...	1,234,124
1890	510,571	538,209	168,864	152,898	19,648	68,334	...	...	1,458,524
1895	587,294	577,743	194,199	171,654	30,782	74,410	...	...	1,636,082
1900	644,258	594,440	219,163	176,901	69,879	83,137	569†	...	1,788,347
1905	704,987	612,287	239,675	181,154	103,640	90,438	678	...	1,932,859
1910	785,674	654,926	273,503	200,311	118,861	94,937	563	...	2,128,775
1915	917,259	725,526	319,134	226,205	146,712	99,264	676	872†	2,435,848

PERSONS.

1788	859	...	...	...	...	...	...	...	859
1790	2,056	...	...	...	...	...	...	...	2,056
1795	3,466	...	...	...	...	...	...	...	3,466
1800	5,217	...	...	...	...	...	...	...	5,217
1805	7,707	...	...	...	...	...	...	...	7,707
1810	11,566	...	...	...	...	...	...	...	11,566
1815	15,063	...	...	...	...	...	...	...	15,063
1820	33,543	...	...	...	...	...	...	...	33,543
1825	38,313	...	...	...	...	...	...	...	52,505
1830	44,588	...	...	...	1,172	24,279	...	...	70,089
1835	71,304	...	...	...	1,878	40,172	...	...	113,345
1840	127,468	...	...	14,630	2,311	45,999	...	...	190,408
1845	187,918	...	...	22,460	4,479	64,291	...	...	279,148
1850	266,900	...	...	63,700	5,886	68,870	...	...	405,356
1855	266,001	347,305†	...	97,387	12,605	69,962	...	...	793,260
1860	348,546	538,234	28,056†	125,582	15,346	89,821	...	...	1,145,585
1865	408,506	617,791	86,921	161,477	21,381	93,967	...	...	1,390,043
1870	497,992	723,925	115,272	184,546	25,135	100,886	...	...	1,647,756
1875	593,367	794,934	169,105	210,076	27,002	103,739	...	...	1,898,223
1880	741,142	858,605	211,040	276,393	29,561	114,790	...	...	2,231,531
1885	943,867	959,838	316,681	309,313	35,959	128,860	...	...	2,694,518
1890	1,113,275	1,133,728	392,116	318,947	48,502	144,787	...	...	3,151,355
1895	1,255,503	1,185,676	443,064	351,968	100,515	154,895	...	...	3,491,621
1900	1,360,305	1,196,213	493,847	357,250	179,967	172,900	4,857†	...	3,765,339
1905	1,487,884	1,210,421	531,482	362,621	250,138	186,385	4,046	...	4,032,977
1910	1,643,855	1,301,408	599,016	406,868	276,832	193,803	3,301	...	4,425,083
1915	1,868,648	1,417,801	680,446	439,660	318,016	201,025	4,563	1,829†	4,931,988

* Details not available.

† Previously included with New South Wales.

‡ Previously included with South Australia.

The tables on the two preceding pages, shewing the quinquennial and other figures for the male, female, and total population of each State and the Commonwealth, give sufficient indication, for general purposes, of its progress. A reference to the diagrams given hereinafter (pp. 139 to 141), on which the graphs shew the particulars for *each* year, is also desirable. The characteristics of the fluctuations of each element, or of the totals, will be more readily perceived by reference to the graphs than they possibly can by reference to these numerical tables. The earliest date for which particulars as to sex were available is 1796. The figures from 1788 to 1825 inclusive, as already mentioned, are based upon the results of the musters taken in those years; those for subsequent years are founded upon estimates made on the basis of the Census results and the annual returns of births and deaths and immigration and emigration.

The following table furnishes particulars relative to the increase of population of the Commonwealth during each decade, and the percentage of such increase on the population at the commencement of the decade:—

INCREASE OF COMMONWEALTH POPULATION.

Decade ended 31st December.	Increase during Decade—					
	Numerical.			Percentage.		
	Males.	Females.	Persons.	Males.	Females.	Persons.
1790 ...	*	*	2,056	%	%	%
1800 ...	*	*	3,161	...	...	...
1810 ...	3,805	2,544	6,349	100.66	177.04	121.70
1820 ...	16,199	5,778	21,977	213.57	145.14	190.01
1830 ...	29,101	7,395	36,496	122.36	75.78	108.80
1840 ...	74,421	45,948	120,369	140.72	267.86	171.86
1850 ...	111,377	103,571	214,948	87.49	164.13	112.89
1860 ...	429,877	310,352	740,229	180.10	186.20	182.61
1870 ...	233,934	268,237	502,171	34.99	56.23	43.84
1880 ...	302,020	281,755	583,775	33.47	37.81	35.43
1890 ...	488,317	431,507	919,824	40.54	42.02	41.22
1900 ...	284,161	329,823	613,984	16.79	22.61	19.48
1910 ...	319,316	340,428	659,744	16.15	19.04	17.52

* Not available.

§ 9. Census of 3rd April, 1911.

1. **Numbers Enumerated.**—As already mentioned, the Census for the whole of the Australian Commonwealth was taken as for the night between the 2nd and the 3rd of April, 1911, and was the first Census under the provisions of the Commonwealth Census and Statistics Act 1905, which provides for the enumeration of the whole of Australia being dealt with from one centre instead of each State being responsible for its own count as on previous occasions. The numbers recorded in the several States and Territories of the Commonwealth were as follows:—

POPULATION OF THE COMMONWEALTH, 3rd APRIL, 1911.
(EXCLUSIVE OF FULL-BLOODED ABORIGINALS).

States and Territories.	Males.	Females.	Persons.
States—			
New South Wales ...	857,698	789,036	1,646,734
Victoria ...	655,591	659,760	1,315,551
Queensland ...	329,506	276,307	605,813
South Australia ...	207,358	201,200	408,558
Western Australia ...	161,565	120,549	282,114
Tasmania ...	97,591	93,620	191,211
Territories—			
Northern ...	2,734	576	3,310
Federal ...	992	722	1,714
Total Commonwealth ...	2,313,035	2,141,970	4,455,005

2. **Growth during last Three Decennia.**—The total increase of population of the Commonwealth between the Census of 31st March, 1901, and that of 3rd April, 1911, was 681,204, of which 335,107 were males and 346,097 were females, as compared with a total increase of 599,409, comprising 273,889 males and 325,520 females, for the preceding ten years. The population of each sex enumerated at the Censuses of 3rd April, 1881, 5th April, 1891, 31st March, 1901, and 3rd April, 1911, was as follows:—

POPULATION OF COMMONWEALTH AT LAST FOUR CENSUSES.

(EXCLUSIVE OF FULL-BLOODED ABORIGINALS).

Date of Census.	Males.	Females.	Persons.	(a) Masculinity.
3rd April, 1881	1,214,913	1,035,281	2,250,194	7.98
5th April, 1891	1,704,039	1,470,353	3,174,392	7.36
31st March, 1901	1,977,928	1,795,873	3,773,801	4.83
3rd April, 1911	2,313,035	2,141,970	4,455,005	3.84

(a) Excess of males over females per 100 of population.

The increases in the populations of the several States during the past three decennia have been as follow:—

DECENNIAL INCREASES IN THE TOTAL POPULATION.

State.	1881-1891.		1891-1901.		1901-1911.	
	Numerical.	Per cent.	Numerical.	Per cent.	Numerical.	Per cent.
N.S. Wales (a)	374,129	49.90	230,892	20.54	293,602	21.67
Victoria	278,274	32.30	61,230	5.37	114,481	9.53
Queensland	180,193	84.39	104,411	26.52	107,684	21.62
South Australia	39,119	14.15	42,813	13.57	50,212	14.01
West. Australia	20,074	67.57	134,342	269.86	97,990	53.22
Tasmania	30,962	26.76	25,808	17.60	18,736	10.86
N. Territory	1,447	41.93	(b)— 87	(b)—1.78	(b)—1,501	(b)—31.20
Commonwealth	924,198	41.07	599,409	18.88	681,204	18.05

(a) Including Federal Territory. (b) Decrease.

For the Commonwealth as a whole, the increase in population during the decennium 1901-11 was greater by 81,795 than that for the decennium 1891-1901. The rate of increase per cent. was, however, not so great, being 18.05 per cent. for 1901-11, as against 18.88 for 1891-1901. The former corresponds to an increase of 1.67 per cent. per annum, the latter to an increase of 1.74 per cent. per annum.

As regards the separate States, the numerical increases in the case of New South Wales, Victoria, Queensland and South Australia were greater for 1901-11 than for 1891-1901. On the other hand, Western Australia and Tasmania experienced greater numerical increases in the earlier than in the later decennium, while the Northern Territory, which exhibited an actual loss of population in both decennia, experienced a much heavier loss in 1901-11 than in 1891-1901. In the matter of rates of increase per cent. New South Wales, Victoria and South Australia were higher in 1901-11 than in 1891-1901, while Queensland, Western Australia and Tasmania were lower, and the rate of decrease in the Northern Territory was much heavier.

§ 10. Principal Results of Census of 1911.

1. **Census Results.**—In the first issue of the Official Year Book tables are given shewing in some detail particulars concerning the Census of 1901 for the several States under the headings of Ages, Birthplaces, Occupations, Religions, and Conjugal Condition. (See Year Book No. 1, pp. 164 to 179.) In the Official Year Book No. 6, pp. 143 to 171, similar and a few additional particulars appeared as to the Census of 3rd April, 1911. In the following tables this information is given in a condensed form.

2. **Ages.**—The numbers of persons of each sex at each age enumerated in the several States of the Commonwealth at the Census of 3rd April, 1911, are as follows:—

AUSTRALIAN POPULATION AT 3rd APRIL, 1911, CLASSIFIED ACCORDING TO AGE.
(EXCLUSIVE OF FULL-BLOODED ABORIGINALS).

Age Group.	States.						Territories.		Total C'wth.
	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	North'n.	Federal.	
MALES.									
Under 5 years	102,003	73,061	37,724	24,109	17,709	12,636	84	85	267,411
5 & under 15	164,273	129,201	63,522	40,059	26,596	21,393	158	188	445,390
15 21	100,551	81,223	39,533	25,861	14,533	11,744	107	119	273,670
21 45	316,463	229,179	121,711	75,059	72,569	32,779	1,002	358	849,120
45 65	133,550	106,201	51,716	32,067	25,090	14,659	1,221	181	364,685
65 .. upwards	36,368	33,467	13,319	9,285	3,916	3,848	102	53	100,358
Unspecified ...	4,490	3,259	1,982	918	1,152	532	60	8	12,401
Total	857,698	655,591	329,506	207,358	161,565	97,591	2,734	992	2,313,035
FEMALES.									
Under 5 years	98,863	70,417	35,980	23,421	17,215	12,144	87	95	258,222
5 & under 15	161,118	126,427	62,413	39,262	26,014	20,455	148	180	436,017
15 21	97,950	81,564	37,160	25,605	13,974	11,751	83	106	267,193
21 45	292,364	242,746	97,377	73,022	47,268	32,018	201	213	785,109
45 65	104,804	100,670	33,039	29,206	13,638	13,729	47	88	294,221
65 .. upwards	30,134	34,356	9,254	9,730	2,720	3,993	6	32	90,225
Unspecified ...	3,903	3,780	1,184	954	720	530	4	8	10,983
Total	789,036	659,960	276,307	201,200	120,549	93,620	576	722	2,141,970
PERSONS.									
Under 5 years	200,866	143,478	73,704	47,530	34,924	24,780	171	180	525,633
5 & under 15	325,391	255,628	125,935	79,321	52,610	41,848	306	368	881,407
15 21	198,501	162,787	76,692	51,466	27,607	23,495	190	225	540,863
21 45	608,827	471,925	218,988	148,081	119,837	64,797	1,203	571	1,634,229
45 65	238,354	206,871	84,755	61,273	38,728	27,398	1,268	269	658,926
65 .. upwards	66,502	67,823	22,573	19,015	6,636	7,841	108	85	190,583
Unspecified ...	8,293	7,039	3,166	1,872	1,872	1,062	64	16	23,384
Total	1,646,734	1,315,551	605,813	408,558	283,114	191,211	3,310	1,714	4,455,005

3. **Birthplaces.**—In the next table particulars are given of the populations of the several States of the Commonwealth on 3rd April, 1911, classified according to sex and birthplace, the birthplaces being grouped under the five continental divisions of the globe, with two additional headings for those born in Polynesia, and those born at sea. Of the total population of 4,455,005, those of unspecified birthplace numbered 30,470, or slightly less than 7 per thousand:—

**AUSTRALIAN POPULATION at 3rd APRIL, 1911, CLASSIFIED ACCORDING
TO BIRTHPLACE.**

(EXCLUSIVE OF FULL-BLOODED ABORIGINALS).

Birthplace.	States.						Territories.		Total C'with.
	N.S.W.	Vic.	Q'land	S.A.	W.A.	Tas.	North- ern.	Federal.	
MALES.									
Australia	691,736	541,659	232,757	173,811	111,269	86,948	1,029	844	1,840,053
New Zealand	7,296	4,968	1,632	554	1,819	574	17	2	16,862
United Kingdom	121,046	82,927	68,406	24,283	32,191	7,577	224	113	336,767
Other European Countries...	15,507	11,501	12,997	5,636	8,080	776	45	4	54,546
Asia... ..	10,386	5,939	8,378	1,033	5,605	579	1,359	5	33,284
Africa	1,087	747	332	193	244	70	9	...	2,682
America	3,111	1,874	1,218	523	813	183	12	4	7,738
Polynesia	676	121	1,567	23	57	21	11	...	2,476
At Sea	817	630	342	211	146	62	1	...	2,209
Unspecified	6,036	5,225	1,877	1,091	1,341	801	27	20	16,418
Total	857,698	655,591	329,506	207,358	161,565	97,591	2,734	992	2,313,035
FEMALES.									
Australia	685,483	567,286	213,938	176,450	97,781	85,549	476	654	1,827,617
New Zealand	6,687	5,099	944	432	1,235	626	1	2	15,006
United Kingdom	83,348	74,509	51,609	20,148	18,361	5,835	38	47	253,955
Other European Countries...	4,264	3,845	7,230	2,353	1,348	358	4	1	19,403
Asia... ..	1,077	737	489	211	931	199	54	...	3,153
Africa	912	751	195	164	179	75	...	...	2,276
America	1,313	1,109	470	241	310	96	...	1	3,540
Polynesia	628	158	161	32	31	23	1	...	894
At Sea	662	673	287	211	135	60	1	...	2,029
Unspecified	4,782	5,793	984	958	778	739	1	17	14,052
Total	789,036	659,960	276,307	201,200	120,549	93,620	576	722	2,141,970
PERSONS.									
Australia	1,377,319	1,108,945	446,695	350,261	209,050	172,497	1,505	1,498	3,667,670
New Zealand	13,963	10,067	2,576	966	3,054	1,200	18	4	31,868
United Kingdom	204,394	157,436	120,015	44,431	50,552	13,472	262	160	590,722
Other European Countries...	19,771	15,346	20,227	7,989	9,428	1,134	49	5	73,949
Asia... ..	11,463	6,676	8,867	1,244	5,996	778	1,413	5	36,442
Africa	1,999	1,498	527	357	423	145	9	...	4,958
America	4,424	2,983	1,688	764	1,123	279	13	5	11,278
Polynesia	1,204	279	1,728	55	88	44	12	...	3,410
At Sea	1,479	1,303	629	422	261	122	2	...	4,238
Unspecified	10,818	11,018	2,861	2,049	2,119	1,540	28	37	30,470
Total	1,646,734	1,315,551	605,813	408,558	282,114	191,211	3,310	1,714	4,455,005

4. **Occupations.**—In the compilation of the results of the Census of 3rd April, 1911, the populations of the several States and Territories were tabulated according to occupation in the following classes:—

(i.) *Professional.* Embracing all persons not otherwise classed, mainly engaged in the government and defence of the country, and in satisfying the moral, intellectual, and social wants of its inhabitants.

(ii.) *Domestic.* Embracing all persons engaged in the supply of board and lodging, and in rendering personal services for which remuneration is usually paid.

(iii.) *Commercial.* Embracing all persons directly connected with the hire, sale, transfer, distribution, storage, and security of property and materials.

(iv.) *Transport and Communication.* Embracing all persons engaged in the transport of persons or goods, or in effecting communication.

(v.) *Industrial.* Embracing all persons not otherwise classed who are principally engaged in various works of utility, or in specialities connected with the manufacture, construction, modification, or alteration of materials so as to render them more available

for the various uses of man, but excluding, as far as possible, all who are mainly or solely engaged in the service of commercial interchange.

(vi.) *Agricultural, Pastoral, Mineral, and other Primary Producers.* Embracing all persons mainly engaged in the cultivation or acquisition of food products, and in obtaining other raw materials from natural sources.

(vii.) *Independent.* Embracing all persons of independent means having no specific occupation.

(viii.) *Dependents.* Embracing all persons dependent upon relatives or natural guardians, including wives, children, and others, not otherwise engaged in pursuits for which remuneration is paid, and all persons depending upon private charity, or whose support is a burthen on the public revenue.

Particulars concerning the number contained in each of these classes are given in the table hereunder:—

AUSTRALIAN POPULATION AT 3rd APRIL, 1911, CLASSIFIED ACCORDING TO OCCUPATION.

(EXCLUSIVE OF FULL-BLOODED ABORIGINALS).

Occupation.	States.						Territories.		Total Cwealth
	N.S.W.	Vic.	Q'land.	S. Aus.	W. Aus.	Tas.	North-ern.	Fede-ral.	
MALES.									
Class									
I. Professional	36,763	26,607	11,403	6,644	6,746	3,350	73	52	91,638
II. Domestic	18,898	19,619	6,354	3,418	4,319	1,489	127	11	48,235
III. Commercial	88,206	74,448	28,905	22,304	15,378	7,041	196	19	236,499
IV. Transport and Communication	60,367	37,629	22,521	15,523	11,900	4,407	194	13	152,554
V. Industrial	171,921	141,317	56,949	44,885	24,043	14,710	208	210	453,743
VI. Primary Producers	199,143	139,221	98,721	47,642	53,059	30,413	1,673	396	670,265
VII. Independent	5,507	4,546	2,027	931	478	436	9	6	13,939
VIII. Dependents	265,731	202,357	98,359	62,275	43,913	33,630	236	272	706,773
Unspecified	11,160	15,847	4,267	4,236	1,729	2,115	18	14	39,366
Total	857,698	655,591	329,506	207,358	161,565	97,591	2,734	992	2,313,035
FEMALES.									
Class									
I. Professional	19,377	17,212	6,250	4,529	3,453	2,131	13	8	52,973
II. Domestic	54,483	48,556	20,216	14,060	9,303	6,375	74	64	153,131
III. Commercial	18,112	17,163	5,659	4,674	2,906	1,671	...	3	50,188
IV. Transport and Communication	1,597	1,609	621	347	326	331	...	6	4,837
V. Industrial	36,093	46,456	11,313	8,181	3,985	2,558	4	4	108,594
VI. Primary Producers	4,950	5,163	3,183	1,406	528	614	12	24	15,880
VII. Independent	3,401	3,507	731	761	272	443	...	1	9,116
VIII. Dependents	650,480	518,780	227,711	166,432	99,554	79,171	473	612	1,743,213
Unspecified	543	1,514	623	810	222	326	...	...	4,038
Total	789,036	659,960	276,307	201,200	120,549	93,620	576	722	2,141,970
PERSONS.									
Class									
I. Professional	56,140	43,819	17,653	11,173	10,199	5,481	86	60	144,611
II. Domestic	73,391	62,175	26,570	17,478	13,622	7,864	201	75	201,366
III. Commercial	106,320	91,611	34,564	26,978	18,284	8,712	196	22	286,687
IV. Transport and Communication	61,964	39,238	23,142	15,870	12,226	4,738	194	19	157,391
V. Industrial	208,014	187,773	68,262	52,566	28,028	17,268	212	214	662,337
VI. Primary Producers	204,093	144,384	101,904	49,048	53,587	31,027	1,685	420	586,148
VII. Independent	8,908	8,053	2,758	1,692	750	879	9	6	23,055
VIII. Dependents	916,211	721,137	326,070	228,707	143,467	112,301	709	884	2,449,986
Unspecified	11,703	17,361	4,890	5,046	1,951	2,441	18	14	43,424
Total	1,646,734	1,315,551	605,813	408,558	282,114	191,211	3,310	1,714	4,455,005

5. **Religions.**—In the Act under which the Census of 1911 was taken in the several States, persons enumerated were required under penalty to furnish replies to all the inquiries contained in the schedule, with the exception of that relating to religion. In this case, any person objecting to give such particulars was allowed to insert the words "Object to state" in the space provided for religion. Of the total population of 4,455,005 there were 83,003, or 1.86 per cent., who availed themselves of this option. There were also 36,114, or 0.81 per cent., concerning whom no particulars as to religion were obtained.

Of the remainder, 4,274,414, or 95.95 per cent., were members of the various Christian denominations, 36,785 were members of non-Christian religions, 14,673 were of indefinite religious belief, and 10,016 stated that they were of no religion.

Amongst the Christian denominations, that most numerous represented was the Church of England, with 1,710,443 adherents, the next in order being the Roman Catholic (921,425), the Presbyterian (558,336), the Methodist (547,806), the Baptist (97,074), the Congregational (74,046), the Lutheran (72,395), the Church of Christ (38,748), and the Salvation Army (26,665).

The principal non-Christian religions represented in Australia were the Hebrew, Confucian, Mohammedan and Buddhist, the members of the Hebrew congregation totalling 17,287.

Those included under the head of "Indefinite" in the attached table consist mainly of persons who stated that they were "Freethinkers" or "Agnostics," or returned themselves as being of "No Denomination," while under the head of "No Religion" are given those who were so returned on the schedules as well as a small number who stated that they were "Atheists."

AUSTRALIAN POPULATION at 3rd APRIL, 1911, CLASSIFIED ACCORDING TO RELIGION
(EXCLUSIVE OF FULL-BLOODED ABORIGINALS).

Religion.	States.						Territories.		Total C'w'ltb.
	N.S.W.	Vic.	Q'land	S.A.	W.A.	Tas.	North- ern.	Fede- ral.	
MALES.									
Christian	820,484	623,789	305,929	192,825	147,116	92,902	1,050	961	2,185,056
Non-Christian	8,965	5,618	5,627	989	4,913	265	1,256	1	27,634
Indefinite	3,068	3,347	1,662	791	1,223	284	20	3	10,336
No Religion	2,471	2,110	1,595	787	1,074	169	31	2	8,239
Object to State	14,969	14,212	8,981	9,930	4,547	3,008	86	13	55,766
Unspecified	7,721	6,515	5,712	2,036	2,692	963	291	12	25,942
Total	857,698	655,591	329,506	207,358	161,565	97,591	2,734	992	2,313,035
FEMALES.									
Christian	773,845	643,264	269,895	193,718	116,644	90,938	349	705	2,089,358
Non-Christian	3,808	3,224	563	442	937	71	106	...	9,151
Indefinite	1,143	1,877	435	344	332	142	2	...	4,275
No Religion	481	531	311	221	186	41	6	...	1,777
Object to State	6,997	7,758	3,611	5,331	1,598	1,921	12	9	27,237
Unspecified	2,762	3,306	1,492	1,144	852	507	101	8	10,172
Total	789,036	659,960	276,307	201,200	120,549	93,620	576	722	2,141,970
PERSONS.									
Christian	1,594,329	1,267,053	575,824	386,543	263,760	183,840	1,399	1,666	4,274,414
Non-Christian	12,773	8,842	6,190	1,431	5,850	336	1,362	1	36,785
Indefinite	4,211	5,224	2,097	1,135	1,555	426	22	3	14,673
No Religion	2,952	3,641	1,906	1,008	1,260	210	37	2	10,016
Object to State	21,986	21,970	12,592	15,261	6,145	4,929	98	22	83,003
Unspecified	10,483	9,821	7,204	3,180	3,544	1,470	392	20	36,114
Total	1,646,734	1,315,551	605,813	408,558	282,114	191,211	3,310	1,714	4,455,005

6. **Conjugal Condition.**—In the following tables particulars are given concerning the population of the several States and Territories on 3rd April, 1911, classified according to conjugal condition and age:—

AUSTRALIAN POPULATION AT 3rd APRIL, 1911, CLASSIFIED ACCORDING TO CONJUGAL CONDITION AND AGE.

MALES.

Age Group.	States.						Territories.		Total C'wealth.
	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	North-ern.	Fed-eral.	
NEVER MARRIED.									
Under 15 ...	266,274	202,261	101,246	64,168	44,305	34,029	242	273	712,798
15 & under 21	99,446	80,655	39,270	25,648	14,432	11,630	106	119	271,306
21 „ 45	153,938	113,648	65,276	36,380	38,446	14,707	733	225	423,353
45 „ 65	27,381	18,713	13,684	4,749	7,294	2,158	862	52	74,893
65 & upwards	7,222	5,527	2,954	938	942	413	63	10	18,069
Unspecified	2,089	1,800	1,148	459	641	263	54	4	6,458
Total	556,350	422,604	223,578	132,342	106,060	63,200	2,060	683	1,506,877

MARRIED.									
Under 15 ...	2	1	...	...	...	...	...	...	3
15 & under 21	1,097	566	260	210	99	114	1	...	2,347
21 „ 45	157,224	111,942	54,549	37,708	32,725	17,488	236	125	411,997
45 „ 65	95,496	79,536	34,056	24,987	15,630	11,291	304	114	261,414
65 & upwards	20,086	18,594	7,159	5,879	1,997	2,389	32	33	56,169
Unspecified	1,523	1,111	522	318	251	188	2	4	3,919
Total	275,428	211,750	96,546	69,102	50,702	31,470	575	276	735,849

WIDOWED.									
Under 15 ...	...	...	...	...	...	...	...	...	...
15 & under 21	8	2	2	2	1	...	...	...	15
21 „ 45	3,951	2,956	1,540	865	1,153	402	12	6	10,885
45 „ 65	9,855	7,496	3,740	2,268	2,029	1,102	46	15	26,551
65 & upwards	8,903	9,220	3,169	2,457	962	1,021	6	9	25,747
Unspecified	170	146	62	35	35	28	1	...	477
Total	22,887	19,820	8,513	5,627	4,180	2,553	65	30	63,675

DIVORCED.									
Under 15 ...	...	...	...	...	...	...	...	...	...
15 & under 21	...	...	...	1	1	...	...	...	2
21 „ 45	569	258	115	45	99	24	...	...	1,110
45 „ 65	566	267	81	39	77	31	1	...	1,062
65 & upwards	81	41	9	7	6	3	...	1	148
Unspecified	14	9	9	1	4	1	...	...	38
Total	1,230	575	214	93	187	59	1	1	2,360

AUSTRALIAN POPULATION AT 3RD APRIL, 1911.—Continued.

MALES—Continued.

Age Group.	States.						Territories.		Total C'wealth.
	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	North- ern.	Fed- eral.	
NOT STATED.									
Under 15 ...	...	...	...	...	...	...	...	...	...
15 & under 21	...	...	...	...	...	...	...	...	...
21 „ 45	781	375	231	61	146	158	21	2	1,775
45 „ 65	252	189	155	24	60	77	8	...	765
65 & upwards	76	85	28	4	9	22	1	...	225
Unspecified	694	193	241	105	221	52	3	...	1,509
Total	1,808	842	655	194	436	309	33	2	4,274

FEMALES.

NEVER MARRIED.

Under 15 ...	259,975	196,838	98,389	62,681	43,229	32,598	235	275	694,220
15 & under 21	90,844	78,170	34,851	24,409	11,969	10,919	63	104	251,329
21 „ 45	103,042	101,293	32,510	28,098	12,199	11,209	43	66	288,460
45 „ 65	10,689	15,274	2,030	3,288	1,048	1,563	2	1	33,895
65 & upwards	1,868	2,027	322	543	110	330	...	1	5,201
Unspecified	1,185	1,255	377	311	252	174	3	4	3,561
Total	467,603	394,857	168,479	119,330	68,807	56,793	346	451	1,276,666

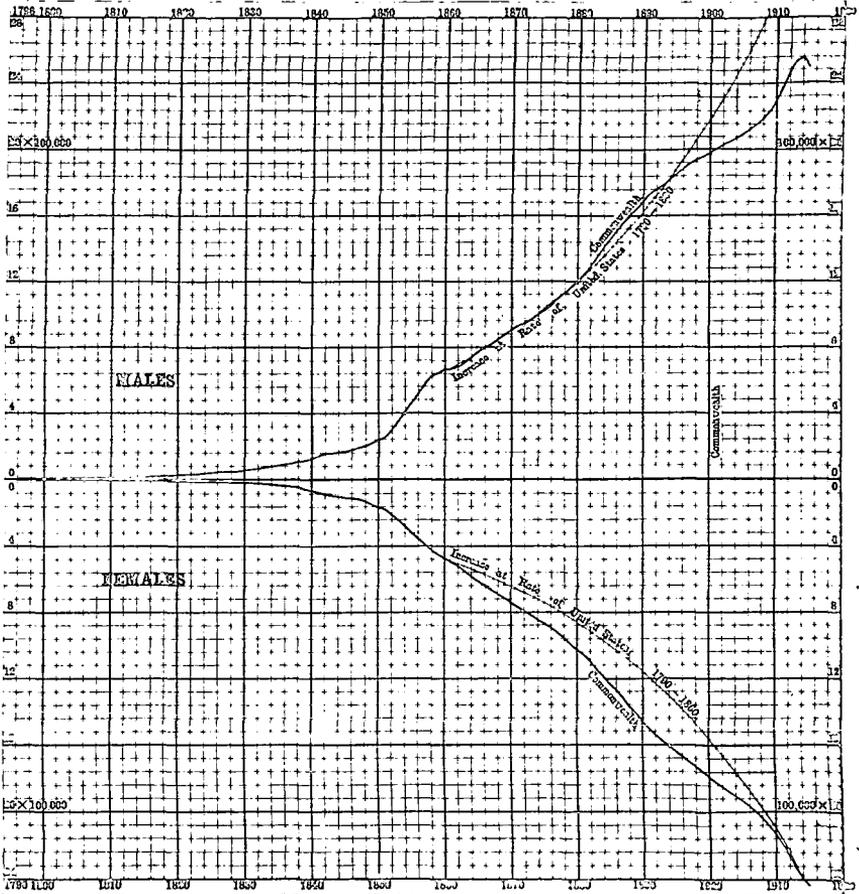
MARRIED.

Under 15 ...	6	6	4	2	...	1	...	...	19
15 & under 21	6,977	3,303	2,280	1,166	988	818	18	2	15,552
21 „ 45	181,426	134,801	62,181	43,392	33,554	20,063	147	141	475,705
45 „ 65	74,473	65,795	24,769	20,798	9,945	9,048	39	70	204,937
65 & upwards	11,245	10,748	3,998	3,521	917	1,338	2	16	31,785
Unspecified	2,089	1,812	682	506	376	305	1	4	5,775
Total	276,216	216,465	93,914	69,385	45,780	31,573	207	233	733,773

WIDOWED.

Under 15 ...	...	...	...	...	...	...	...	...	...
15 & under 21	29	25	9	6	7	5	...	...	81
21 „ 45	6,936	6,143	2,487	1,469	1,407	666	9	5	19,122
45 „ 65	19,234	19,329	6,200	5,090	2,617	2,060	6	17	54,553
65 & upwards	16,959	21,515	4,924	5,657	1,692	2,306	4	15	53,072
Unspecified	413	504	100	112	62	49	...	...	1,240
Total	43,571	47,516	13,720	12,334	5,785	5,086	19	37	128,068

GRAPHS OF MALE AND FEMALE POPULATIONS, COMMONWEALTH OF AUSTRALIA, 1798-1915.

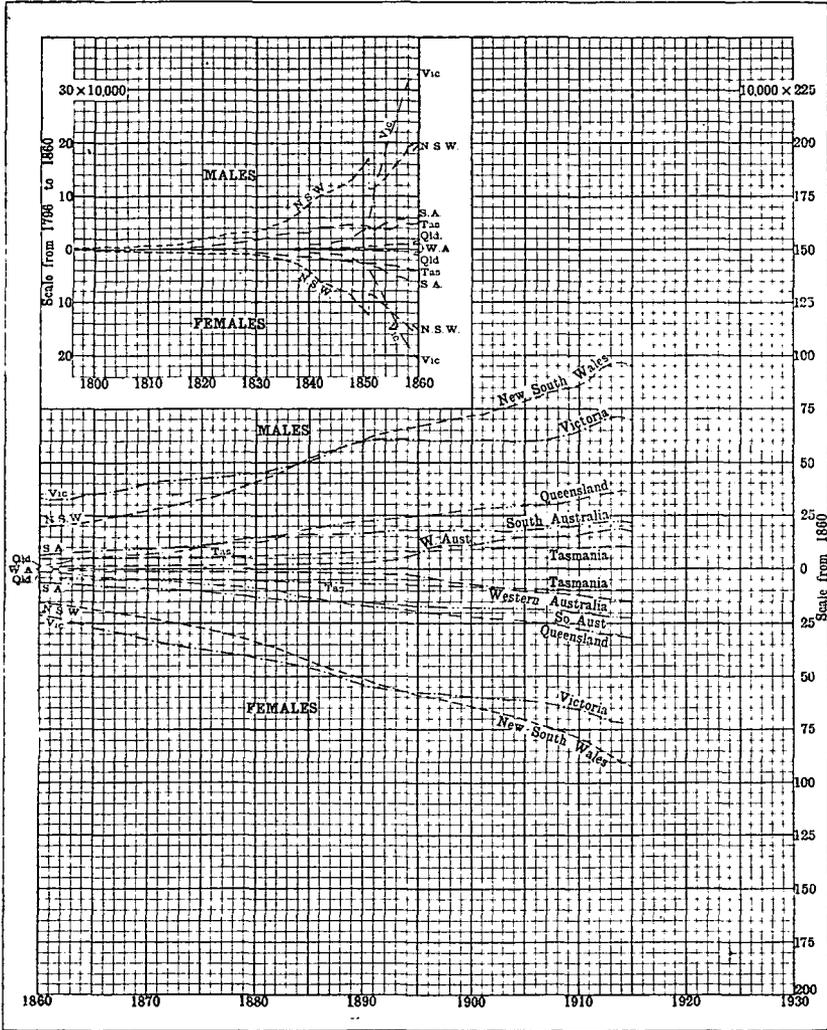


(See Tables pages 99 to 101.)

EXPLANATION OF GRAPHS.—The base of each small square represents two years' interval, and the vertical height 80,000 persons. The distances upward from the heavy zero line denote the number of males, and downward the number of females. From 1860 onward is shown, for purposes of comparison, the manner in which the numbers of each sex in the Commonwealth would have grown from 1860 to 1903 (1914 for females), if, during that period, there had been in operation the rate of increase actually experienced in the United States from 1790 to 1860.

The asymmetry of the two graphs reveals the want of uniformity in the increase of the two sexes.

GRAPHS OF MALE AND FEMALE POPULATION OF THE STATES,
AUSTRALIA, 1796-1915.



(See Table page 90.)

EXPLANATION OF GRAPHS.

1796-1860.—The base of each small square represents two years' interval, and the vertical height 20,000 persons. The distances upward from the zero line represent the number of males, and downward the number of females.

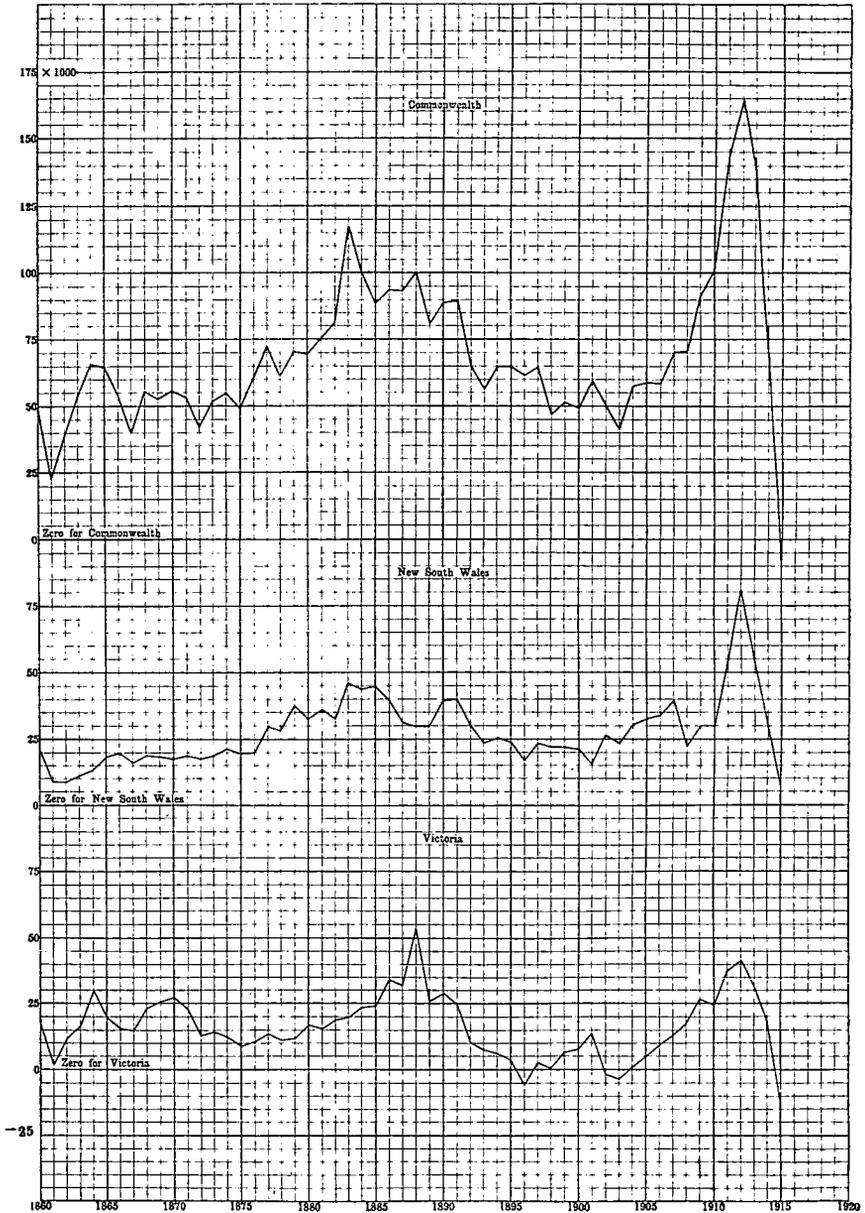
The sudden falls denote the creation of new colonies.

1860 onward.—The base of each small square represents one year's interval, and the vertical height 50,000 persons.

The names on the curves denote the States to which they refer, and the curves are as follows:—New South Wales, ———; Victoria, - - - - -; Queensland, - - - - -; South Australia, - - - - -; Western Australia, - - - - -; Tasmania, - - - - -.

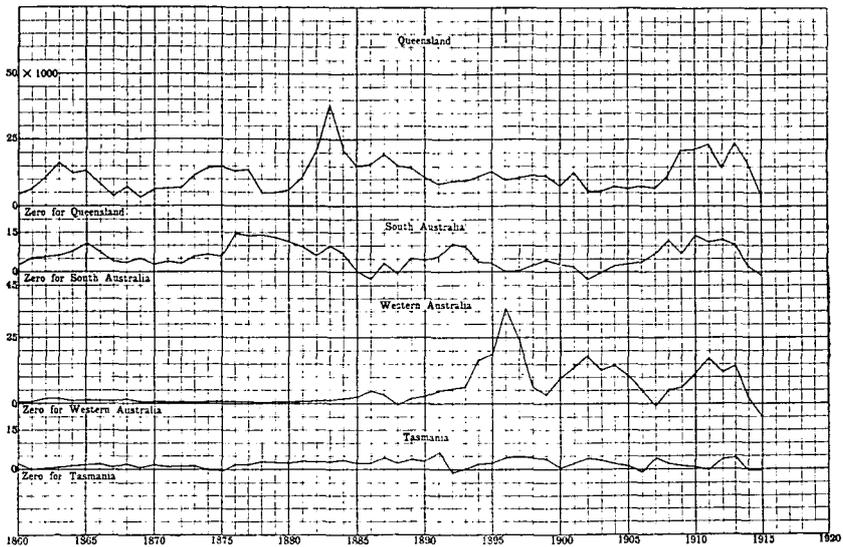
The asymmetry of the two series of graphs reveals the want of uniformity in the increase of the two sexes.

GRAPHS SHEWING NET INCREASE OF POPULATION OF THE COMMONWEALTH OF AUSTRALIA AND THE STATES OF NEW SOUTH WALES AND VICTORIA, 1860-1915.



(For explanation see foot of next page.)

GRAPHS SHEWING NET INCREASE OF POPULATION OF THE STATES OF QUEENSLAND, SOUTH AUSTRALIA, WESTERN AUSTRALIA, AND TASMANIA, 1860-1915.



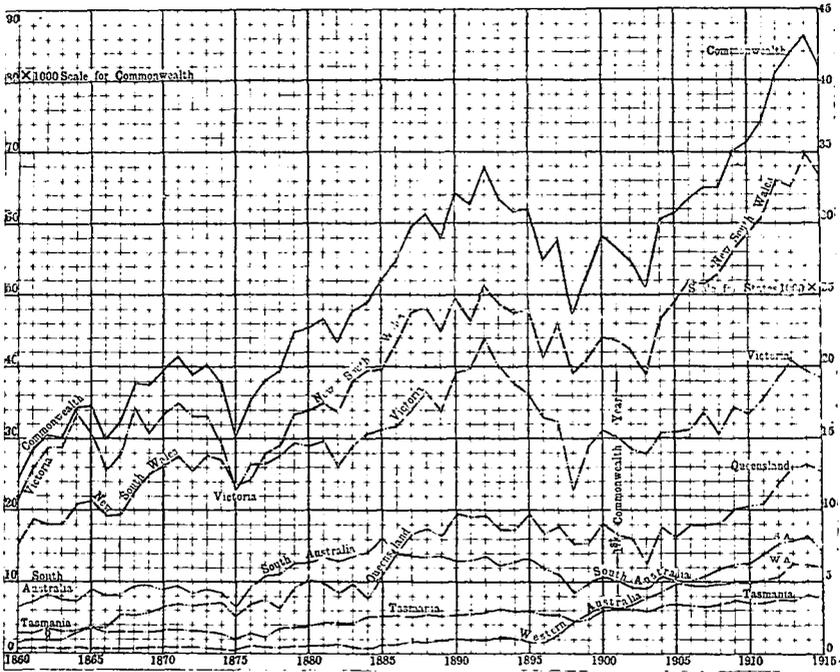
EXPLANATION OF GRAPHS SHEWING NET INCREASE.—The base of each small square represents an interval of a year for both States and Commonwealth; the vertical height represents 5000 for the Commonwealth and the States. In the first graph (on page 142) three zero lines are taken (i.) for the Commonwealth, (ii.) for New South Wales, and (iii.) Victoria. In the second graph four zero lines are taken (i.) for Queensland, (ii.) for South Australia, (iii.) for Western Australia, and (iv.) for Tasmania.

NET DECREASES in population are shown by carrying the graph in such cases below the zero line, the distance of the graph below the zero line indicating the extent of the decrease

The names above the curves denote the States to which they belong.

(See Tables pages 116 and 117.)

GRAPHS OF NATURAL INCREASE OF THE POPULATION OF THE COMMONWEALTH AND STATES OF AUSTRALIA, 1860-1915.

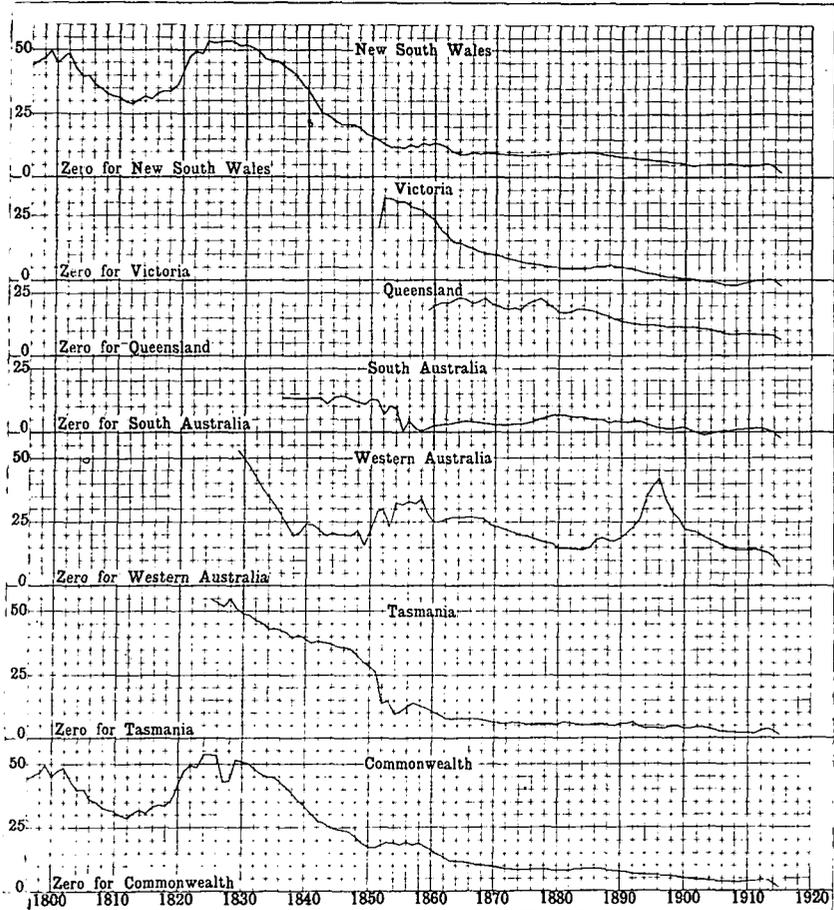


EXPLANATION OF GRAPHS.—The base of each small square represents one year for both States and Commonwealth, and the vertical height 1000 persons for the States and 2000 persons for the Commonwealth.

The distances upward from the zero line, marked 0 for both Commonwealth and States, denote the excess of births over deaths. The scale on the left relates to the Commonwealth, and that on the right to the States. The names show the States to which the curves refer, they are as follows:—Commonwealth —; New South Wales, - - - -; Victoria, - · - · -; Queensland, · · · · ·; South Australia, - - - - -; Western Australia, - - - - -; Tasmania, - · - · -.

(See Table page 113.)

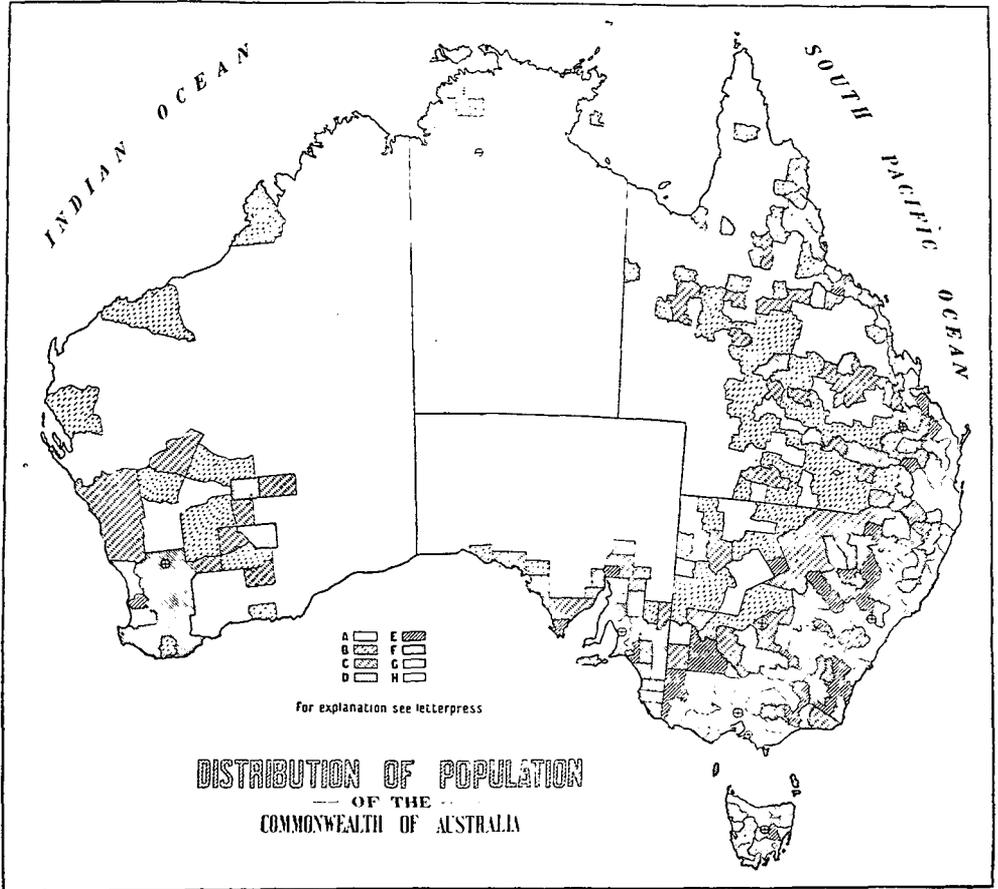
GRAPHS SHEWING MASCULINITY OF THE POPULATION OF THE
COMMONWEALTH AND STATES OF AUSTRALIA, 1796-1915.



(See Tables pages 105 and 110.)

EXPLANATION OF GRAPHS—The base of each small square represents an interval of two years and the vertical height an excess of five males per 100 of population. The basic lines (shewn thickened) for Commonwealth and all the States are at zero, equivalent to a numerical equality of the sexes.

DISTRIBUTION OF POPULATION THROUGHOUT THE COMMONWEALTH OF AUSTRALIA, ACCORDING TO CENSUS OF 1911.



The map above furnishes a graphic representation of the distribution of the population of the Commonwealth at the date of the census of 1911. For this purpose the density of the population has been computed for the counties of each State, and the areas representing these counties have been shaded in accordance with the following scale of density:—

—Less than 1 inhabitant to 16 sq. miles			
B	—	From 1 inhabitant in 16 sq. miles to less than 1 in 4 sq. miles	
C	—	1 " " 4 " " 1 in 1 sq. mile	
D	—	1 " " 1 sq. mile " 2 in 1 "	
E	—	2 inhabitants in 1 " " 4 in 1 "	
F	—	4 " " 1 " " 8 in 1 "	
G	—	8 " " 1 " " 16 in 1 "	
H	—	16 inhabitants and upwards in 1 square mile	

AUSTRALIAN POPULATION AT 3RD APRIL, 1911—Continued.
FEMALES—Continued.

Age Group.	States.						Territories.		Total C'wealth.
	N.S.W.	Vict.	Q'land.	S. Aust.	W. Aust.	Tas.	North-ern.	Federal.	
DIVORCED.									
Under 15 ...	...	...	...	...	...	...	...	...	...
15 & under 21	4	4	...	...	...	...	...	...	8
21 „ 45	774	396	57	34	76	21	...	1	1,359
45 „ 65	360	231	24	24	26	12	...	...	677
65 & upwards	36	27	4	3	...	1	...	...	71
Unspecified	16	7	...	1	1	...	...	...	25
Total	1,190	665	85	62	103	34	...	1	2,140

NOT STATED.									
Under 15 ...	...	...	...	...	...	...	...	...	...
15 & under 21	96	62	20	24	10	9	2	...	223
21 „ 45	186	113	42	29	32	59	2	...	463
45 „ 65	48	41	16	6	2	46	...	...	159
65 & upwards	26	39	6	6	1	18	...	...	96
Unspecified...	100	202	25	24	29	2	...	...	382
Total ...	456	457	109	89	74	134	4	...	1,323

SUMMARY OF PERSONS RECORDED IN EACH STATE AND TERRITORY OF THE COMMONWEALTH AT THE CENSUS OF 3RD APRIL, 1911, CLASSIFIED ACCORDING TO CONJUGAL CONDITION AND SEX (EXCLUSIVE OF FULL-BLOODED ABORIGINALS).

Conjugal Condition.	States.						Territories.		Total C'wealth.
	N.S.W.	Victoria	Q'land.	S. Aust.	W. Aust.	Tas.	North-ern.	Federal.	
MALES.									
Never married ...	556,350	423,604	223,578	132,342	106,060	63,200	2,060	683	1,506,877
Married ...	275,428	211,750	96,546	69,102	50,702	31,470	575	276	735,349
Widowed ...	23,887	19,820	8,513	5,627	4,180	2,653	65	30	63,675
Divorced...	1,230	575	214	93	187	59	1	1	2,360
Not stated ...	1,803	842	655	194	436	309	33	2	4,274
Total ...	857,698	655,591	329,506	207,358	161,565	97,591	2,734	992	2,313,035
FEMALES.									
Never married ...	467,603	394,857	168,479	119,330	68,807	56,793	346	451	1,276,666
Married ...	275,216	216,465	93,914	69,385	45,780	31,573	207	233	733,773
Widowed ...	43,571	47,516	13,720	12,334	5,785	5,086	19	37	128,068
Divorced...	1,190	665	85	62	103	34	...	1	2,140
Not stated ...	456	457	109	89	74	134	4	...	1,323
Total ...	789,036	659,960	376,307	201,200	120,549	93,620	576	722	2,141,970
PERSONS.									
Never married ...	1,023,953	817,461	392,057	251,672	174,867	119,993	2,406	1,134	2,783,543
Married ...	551,644	428,215	190,460	138,487	96,482	63,043	782	509	1,469,622
Widowed ...	66,458	67,336	22,333	17,961	9,965	7,639	84	67	191,743
Divorced ...	2,420	1,240	299	155	290	93	1	2	4,500
Not stated ...	2,259	1,299	764	283	510	443	37	2	5,597
Total ...	1,646,734	1,315,551	605,813	408,558	282,114	191,211	3,310	1,714	4,455,005

7. Education.—In the following table are contained particulars of the education of the population of the States and Territories of the Commonwealth as at the date of the Census of 3rd April, 1911. Of the total population of 4,455,005, there were 3,650,030, or 81.93 per cent., who were able to read and write in the English language, and 26,210, or 0.59 per cent., who were able to read and write in a foreign language, though unable to read or write English.

**EDUCATION OF THE POPULATION OF THE STATES AND TERRITORIES OF
THE COMMONWEALTH OF AUSTRALIA**

AT THE CENSUS OF 3RD APRIL, 1911 (EXCLUSIVE OF FULL-BLOODED
ABORIGINALS).

MALES.

States and Territories.	English Language.		Foreign Language only.		Cannot Read.	Not Stated.	Total.
	Read and Write.	Read only.	Read and Write.	Read Only.			
STATES—							
New South Wales ...	696,258	2,565	5,889	497	134,215	18,274	857,698
Victoria ...	547,753	1,271	3,572	532	88,995	13,468	655,591
Queensland ...	265,896	1,136	6,185	678	49,406	6,205	329,506
South Australia ...	169,508	556	1,156	102	31,891	4,145	207,358
Western Australia ...	128,648	311	4,371	303	22,524	5,408	161,565
Tasmania ...	76,247	456	181	20	18,244	2,443	97,591
TERRITORIES—							
Northern ...	1,126	4	852	29	642	81	2,734
Federal... ..	820	9	2	...	140	21	992
Total Commonwealth ...	1,886,256	6,308	22,208	2,161	346,057	50,045	2,313,035

FEMALES.

STATES—							
New South Wales ...	645,022	3,140	650	61	123,808	16,355	789,036
Victoria ...	555,675	2,626	665	66	84,449	16,479	659,960
Queensland ...	225,086	1,272	1,772	252	43,787	4,138	276,307
South Australia ...	165,634	993	531	88	29,987	3,967	201,200
Western Australia ...	96,702	256	317	15	20,724	2,535	120,549
Tasmania ...	74,795	409	30	4	16,235	2,147	93,620
TERRITORIES—							
Northern ...	292	...	37	...	203	44	576
Federal... ..	568	5	...	...	132	17	722
Total Commonwealth ...	1,763,774	8,701	4,002	486	319,325	45,682	2,141,970

PERSONS.

STATES—							
New South Wales ...	1,341,280	5,705	6,539	558	253,023	34,629	1,646,734
Victoria ...	1,103,428	3,897	4,237	598	173,444	29,947	1,315,551
Queensland ...	490,982	2,408	7,957	930	93,193	10,343	605,813
South Australia ...	335,142	1,549	1,687	190	61,878	8,112	408,558
Western Australia ...	225,350	567	4,688	318	43,248	7,943	282,114
Tasmania ...	151,042	865	211	24	34,479	4,590	191,211
TERRITORIES—							
Northern ...	1,418	4	869	29	845	125	3,310
Federal... ..	1,388	14	2	...	272	38	1,714
Total Commonwealth ...	3,650,030	15,009	26,210	2,647	665,382	95,727	4,455,005

From the following table, which gives for the Commonwealth as a whole, particulars of education in conjunction with age, it will be seen that the major portion of those who were unable to read were under the age of 9. Of persons aged 20 and upwards only about 2½ per cent. were unable to read.

**POPULATION OF THE COMMONWEALTH OF AUSTRALIA AT THE CENSUS OF
3rd APRIL, 1911, CLASSIFIED ACCORDING TO EDUCATION AND AGE**

(EXCLUSIVE OF FULL-BLOODED ABORIGINALS).

MALES.

Age.	English Language.		Foreign Language only.		Cannot Read.	Not Stated.	Total.
	Read and Write.	Read only.	Read and Write.	Read only.			
0-4 ... ..	...	...	...	...	267,411	...	267,411
5-9	177,463	1,131	53	24	39,764	11,151	229,586
10-14	212,935	89	146	9	1,444	1,181	215,804
15-19	221,279	109	800	46	1,813	2,784	226,831
20 and upwards	1,266,625	4,911	20,813	2,062	34,307	32,284	1,361,002
Unspecified ...	7,954	68	396	20	1,318	2,645	12,401
Total	1,886,256	6,308	22,208	2,161	346,057	50,045	2,313,035

FEMALES.

0-4 ... ..	...	...	...	...	258,222	...	258,222
5-9	173,567	1,116	46	8	36,536	12,387	223,660
10-14	209,904	75	95	6	1,062	1,215	212,357
15-19	218,273	50	101	5	847	2,429	221,705
20 and upwards	1,153,611	7,375	3,735	462	21,819	28,041	1,215,043
Unspecified ...	8,419	85	25	5	839	1,610	10,983
Total	1,763,774	8,701	4,002	486	319,325	45,682	2,141,970

PERSONS.

0-4 ... ..	...	...	...	...	525,633	...	525,633
5-9	351,030	2,247	99	32	76,300	23,538	453,246
10-14	422,839	164	241	15	2,506	2,396	428,161
15-19	439,552	159	901	51	2,660	5,213	448,536
20 and upwards	2,420,236	12,286	24,548	2,524	56,126	60,325	2,576,045
Unspecified ...	16,373	153	421	25	2,157	4,255	23,384
Total	3,650,030	15,009	26,210	2,647	665,382	95,727	4,455,005

8. **School Attendances.**—In the following table are set out particulars of school attendances of children aged last birthday from 6 to 13 years at the Census of 3rd April, 1911 :—

**SCHOOL ATTENDANCES OF CHILDREN AGED LAST BIRTHDAY FROM 6 to 13 YEARS
IN THE STATES AND TERRITORIES OF THE COMMONWEALTH OF AUSTRALIA
AT THE CENSUS OF 3RD APRIL, 1911 (EXCLUSIVE OF FULL-BLOODED
ABORIGINALS).**

NOTE — In this table the term "State School" comprises all schools, whether primary or secondary, which are under the direct control of the State.

States and Territories.	Number being educated at—			Number recorded as "scholar," but class of school not stated	Number not indicated as receiving instruction.	Total.
	State School.	Private School.	Home.			
MALES.						
STATES—						
New South Wales ...	91,979	19,107	3,436	3,809	11,574	129,905
Victoria ...	78,185	15,367	1,198	1,826	6,031	102,607
Queensland ...	38,167	5,184	1,517	904	5,089	50,861
South Australia ...	22,817	3,548	521	380	4,409	31,675
Western Australia ...	15,289	3,239	558	508	1,653	21,247
Tasmania ...	11,042	2,113	459	485	2,832	16,931
TERRITORIES—						
Northern ...	32	25	9	1	56	123
Federal ...	98	...	22	4	25	149
Total Commonwealth ...	257,609	48,583	7,720	7,917	31,669	353,498
FEMALES.						
STATES—						
New South Wales ...	84,129	23,329	4,191	3,279	12,802	127,730
Victoria ...	73,136	17,447	1,602	1,832	6,493	100,510
Queensland ...	35,656	6,765	1,713	1,032	4,759	49,925
South Australia ...	21,343	4,005	631	762	4,293	31,034
Western Australia ...	13,906	4,015	681	404	1,813	20,819
Tasmania ...	10,267	2,496	594	477	2,501	16,335
TERRITORIES—						
Northern ...	32	20	6	...	69	127
Federal ...	85	3	13	5	27	133
Total Commonwealth ...	238,554	58,080	9,431	7,791	32,757	346,613
PERSONS.						
STATES—						
New South Wales ...	176,108	42,436	7,627	7,088	24,376	257,635
Victoria ...	151,321	32,814	2,800	3,658	12,524	203,117
Queensland ...	73,823	11,949	3,230	1,936	9,848	100,786
South Australia ...	44,160	7,553	1,152	1,142	8,702	62,709
Western Australia ...	29,195	7,254	1,239	912	3,466	42,066
Tasmania ...	21,309	4,609	1,053	962	5,333	33,266
TERRITORIES—						
Northern ...	64	45	15	1	125	250
Federal ...	183	3	35	9	52	282
Total Commonwealth ...	496,163	106,663	17,151	15,708	64,426	700,111

9. **Blind Persons and Deaf Mutes.**—The following table contains particulars of the number of blind persons and deaf mutes as recorded at the date of the Census of 3rd April, 1911 :—

**NUMBER OF BLIND PERSONS AND DEAF MUTES IN THE SEVERAL STATES
OF THE COMMONWEALTH**

AT THE CENSUS OF 3RD APRIL, 1911 (EXCLUSIVE OF FULL-BLOODED
ABORIGINALS).

States.	Blind.			Deaf and Dumb.		
	Males.	Females.	Persons.	Males.	Females.	Persons.
New South Wales	591	420	1,011	330	310	640
Victoria	595	507	1,102	280	255	535
Queensland	213	170	383	160	97	257
South Australia	192	166	358	134	112	246
Western Australia	35	57	142	40	36	76
Tasmania	78	68	146	54	44	98
Total Commonwealth ...	1,754	1,388	3,142(a)	998	854	1,852(a)

(a) Including 21 blind deaf mutes.

§ II. Naturalisation.

1. **The Commonwealth Act.**—The Commonwealth Constitution empowers the Commonwealth Parliament to make laws with respect to "Naturalisation and Aliens," a power which was exercised when the "Naturalisation Act of 1903" was passed. This Act was assented to on 13th October of that year, and came into force on 1st January, 1904, in accordance with a proclamation by *Gazette* of 14th November, 1903.

Prior to the passing of this Act the issue of certificates of naturalisation had been a function of the State Governments, carried out under Acts of the several State Legislatures, which, however, did not differ materially from each other, and furnished the basis on which the Commonwealth Act was drafted. From 1st January, 1904, when the Commonwealth Act became operative, the right to issue certificates of naturalisation in the Commonwealth has been vested exclusively in the Federal Government, but all certificates or letters of naturalisation issued under the several State Acts prior to that date entitle the recipients to be deemed to be naturalised under the Commonwealth Act.

The grant of a certificate of naturalisation entitles the recipient within the limits of the Commonwealth to all the rights and privileges, and renders him subject to all the obligations, of a natural-born British subject, with the exception that where, by any Commonwealth or State Constitution or Act, a distinction is made between natural-born British subjects and naturalised persons, such distinction shall hold good in the case of all persons naturalised under the Commonwealth Act.

Applications for certificate of naturalisation must be made to the Governor-General, the qualifications required in an applicant being :—

- (i.) That he is not a British subject.
- (ii.) That he is not an aboriginal native of Asia, Africa, or the Islands of the Pacific, excepting New Zealand.

- (iii.) That he intends to settle in the Commonwealth.
- (iv.) (a) That he has resided in Australia continuously for two years immediately preceding naturalisation ; or
- (b) That he has obtained in the United Kingdom a certificate or letters of naturalisation.

An applicant who has already obtained a certificate or letters of naturalisation in the United Kingdom is required to furnish, in support of his application—

- (i.) His certificate or letters of naturalisation.
- (ii.) His statutory declaration—
 - (a) That he is the person named therein.
 - (b) That he obtained the certificate or letters without fraud or intentional false statement.
 - (c) That the signature and seal thereto are, to the best of his knowledge and belief, genuine.
 - (d) That he intends to settle in the Commonwealth.

If the applicant is not already naturalised in the United Kingdom the particulars which he is required to furnish in support of his application are as follows:—

- (i.) His own statutory declaration stating—
 - (a) Name ; (b) Date of birth ; (c) Birthplace ; (d) Occupation ; (e) Residence ; (f) Length of residence in Australia ; (g) Intention to settle in the Commonwealth.
- (ii.) A certificate signed by a Justice of the Peace, a postmaster, a teacher of a State school, or an officer of police, that the applicant is known to him and is of good repute.

In connexion with any application for naturalisation, the Governor-General in Council is authorised to grant or withhold a certificate as he thinks most conducive to the public good, but the issue of a certificate to any person who is not already naturalised in the United Kingdom is not admissible until the applicant has taken an oath or affirmation of allegiance. The grant of a certificate is made free of charge.

In addition to naturalisation by grant of certificate, the Act makes provision for—

- (i.) Naturalisation by marriage.
- (ii.) Naturalisation by residence with naturalised parent.

The former relates to the case of a woman who is not herself a British subject, but is married to a British subject ; the latter to that of an infant who is not a natural-born British subject, but who has resided at any time in Australia with a father or mother who is a naturalised British subject. In each instance the person concerned is deemed to be naturalised under the Commonwealth Act.

The administration of the Act is carried out by the Home and Territories Department and the Governor-General is authorised to make such regulations as are necessary or convenient for giving effect to the Act.

2. Statistics of Naturalisation.—Particulars relative to the nationalities of the recipients of certificates of naturalisation issued under the Act during each of the five years 1911 to 1915, and to the countries from which such recipients had come, are shewn in the following table:—

COMMONWEALTH NATURALISATION CERTIFICATES GRANTED, 1911 to 1915.

Nationalities of Recipients.	No. of Certificates Granted.					Countries from which Recipients of Commonwealth Certificates had come.	No. of Certificates Granted.				
	1911.	1912.	1913.	1914.	1915.		1911.	1912.	1913.	1914.	1915.
Italian ...	210	174	223	335	251	Great Britain ...	367	352	382	782	275
Swedish ...	210	204	227	375	247	Italy ...	200	160	220	341	229
Danish ...	156	123	163	248	193	Germany ...	676	614	661	1,391	149
Russian ...	159	182	246	452	187	America (North)...	140	108	133	239	134
German ...	813	757	789	1,536	179	Sweden ...	82	73	95	149	111
Norwegian ...	103	86	122	208	140	Denmark ...	100	67	86	131	103
Greek ...	87	89	79	112	90	Norway ...	54	43	71	113	72
American (Nth.)	61	43	47	83	79	Greece ...	38	45	36	55	51
Dutch ...	27	36	65	115	72	France ...	36	36	39	70	49
Swiss ...	42	39	47	84	45	Egypt ...	26	55	49	75	38
French...	69	59	66	104	44	America (South)	24	19	28	82	36
Spanish ...	26	25	26	34	18	Holland ...	6	20	41	77	34
Belgian ...	8	6	14	16	17	Russia ...	37	36	53	98	32
Bulgarian ...	2	3	7	16	15	South Africa ...	53	33	53	99	29
Rumanian ...	7	4	7	21	10	Belgium ...	18	21	33	65	28
Portuguese ...	8	4	9	6	3	New Zealand ...	42	33	39	75	26
American (Sth.)	...	1	5	3	3	Switzerland ...	27	28	36	56	26
Austrian ...	76	95	131	205	2	Spain ...	25	24	25	26	15
Mexican ...	1	...	1	1	2	Austria ...	29	40	56	71	2
Chilian... ..	1	1	1	...	1	India ...	13	9	6	24	7
Luxembourger...	...	...	...	...	1	New Caledonia ...	10	7	11	9	5
Chinese ...	...	1*	3	7*	1	Turkey ...	11	6	4	4	3
Serbian ...	...	1	4	2	1	China ...	...	10	34	43	3
Icelandic ...	...	...	...	...	1	Pacific Islands ...	13	...	...	...	...
Montenegrin ...	1	1	1	3	...	Hong Kong ...	7	...	...	...	...
Peruvian ...	...	...	...	2	...	Mauritius ...	...	7	...	...	...
Turkish ...	6	10	8	2	...	Other Countries...	43	99	100	197	145
Japanese ...	...	...	...	2*	...						
Brazilian ...	2	1	...	...	...			
South Sea Islnds	1	...	...	...	...		
Syrian ...	1	...	...	...	...		
Total ...	2,077	1,945	2,291	4,272	1,602	Total ...	2,077	1,945	2,291	4,272	1,602

* By marriage.

The following table furnishes particulars concerning the States in which the recipients of Commonwealth certificates of naturalisation during the years 1905 to 1915 were resident :—

NATURALISATION CERTIFICATES GRANTED BY COMMONWEALTH, 1905 to 1915.

Year.	N.S.W.	Victoria.	Qld.	S. Aust.	W.A.	Tas.	Nor. Ter.	C'wlth.
1905 ...	544	213	150	34	166	11	...	1,118
1906 ...	475	301	177	45	150	39	...	1,187
1907 ...	458	214	193	27	134	16	...	1,042
1908 ...	396	243	377	45	152	28	...	1,241
1909 ...	644	507	378	600	221	81	...	2,431
1910 ...	665	329	333	299	187	36	...	1,849
1911 ...	565	491	469	282	248	22	...	2,077
1912 ...	565	295	464	343	243	35	...	1,945
1913 ...	603	434	525	355	342	30	2	2,291
1914 ...	1,327	1,202	625	552	520	43	3	4,272
1915 ...	411	378	345	260	191	16	1	1,602

3. Census Particulars.—On the Personal Card used at the Census of 3rd April, 1911, an inquiry as to naturalisation was made, all persons who were British subjects by naturalisation being required to indicate the fact by inserting the letter N in the place provided for the purpose on the card. In addition, in checking the cards in the Census Bureau, instructions were given that cases of women naturalised by marriage to British subjects, and of children naturalised by residence with parents who have become British subjects, should be duly taken into account by the insertion of the letter N if originally omitted. The results of the tabulation will be found in the following table :—

NUMBER OF NATURALISED BRITISH SUBJECTS
RECORDED AT THE AUSTRALIAN CENSUS OF 3RD APRIL, 1911.
STATES.

Particulars.	N. S. W.	Victoria	Qld.	S. Aust.	W. Aus.	Tas.	Territories.		C'wth.
							North-ern.	Federal	
Males ...	11,333	8,445	11,025	4,141	3,544	734	457	4	39,683
Females ...	2,808	2,182	5,562	1,763	646	293	13	1	13,268
Persons ...	14,141	10,627	16,587	5,904	4,190	1,027	470	5	52,951

§ 12. Graphical Representation of Growth of Population.

1. **General.**—The nature of the fluctuations of the numbers representing (a) total population, or those representing (b) births and deaths from year to year, or (c) the natural increase, *i.e.*, the difference of births and deaths, or (d) the net immigration, all of which taken together make up the element of increase of total population, cannot be readily discerned from mere numerical tables. It has been deemed desirable therefore to furnish a series of graphical representations, shewing in some cases the characteristics of these elements from 1788 to 1915, and in others from 1860 to 1915. The graphs furnish at a glance a clear indication of the changes taking place, and of their significance from year to year. The great importance of such representations is that only by their means can the most recent changes be justly apprehended, either in their relation to the past, or their meaning for the future.

2. **Graphs of Total Population** (page 139).—These graphs furnish interesting evidence of the comparatively slow rate of growth of the several States and of the Commonwealth as a whole, during the period from the foundation of settlement in 1788 until 1832. From that year onwards to 1851, a moderately increased rate of progress was experienced. In 1851 gold was discovered in Australia, and the effect of this discovery on the population of the Commonwealth is shewn by the steepness of the curves for New South Wales and Victoria, and also for the Commonwealth, from this point onwards for a series of years. The sudden breaks in the continuity of the curves for New South Wales indicate the creation of new colonies, and their separation from the mother colony. Thus, Tasmania came into existence in 1825, Victoria in 1851, and Queensland in 1859. Owing to the extensive gold discoveries in Victoria, its population increased so rapidly that in 1854 its total passed that of New South Wales, and remained in excess until 1892, when the mother State again assumed the lead, which it has since maintained. The rate of increase in New South Wales is large, but the State is still only sparsely populated. A feature of the New South Wales curve is its comparative regularity as compared with that of Victoria, the population of which State increased with great rapidity from 1851 to 1860, less rapidly from 1861 to 1878, with a further period of increased rapidity from 1878 to 1891, and a period of very slow and fluctuating growth from the latter year to 1915. Victoria, however, has a population density more than double that of Tasmania, and nearly three times that of New South Wales.

In the case of Queensland, the curve indicates a rate of growth which, though varying somewhat, has on the whole been satisfactory, and at times very rapid. Periods of particularly rapid increase occurred from 1862 to 1865, from 1873 to 1877, and from 1881 to 1889. The population of Queensland passed that of Tasmania in 1867, and that of South Australia in 1885. The population density of Queensland is one-sixteenth of that of Victoria.

The curve for South Australia indicates that with fluctuations more or less marked, the population increased at a moderate rate from the date of the foundation of the colony in 1834 until 1884, and that from that point onwards, a diminished rate of increase was experienced. The population of South Australia passed that of Tasmania in 1852. Its density is nearly one and one-fifth of that of Queensland, about one-fifth of that of New South Wales, and about one-fourteenth of that of Victoria.

The curve for Western Australia indicates that the population increased regularly but very slowly until 1886, when the discovery of gold in the Kimberley division caused an influx of population. The effects of the further rich discoveries of gold in the Murchison and Coolgardie districts in 1891 and 1892, are clearly shewn in the rapid increase of population in those and subsequent years to 1897. Two years of retarded progress then occurred, followed by a satisfactorily rapid rate of increase from 1899 to 1906, a slight decline in 1907 and a further advance in 1908 and subsequent years. The population of Western Australia became greater than that of Tasmania in 1899. Its density is little more than one-fourth of that of South Australia, one-third of that of Queensland, one-nineteenth of that of New South Wales, and about one-fiftieth of that of Victoria.

The Tasmanian population curve indicates a comparatively slow rate of growth throughout. Its most noticeable feature is a retardation in increase in 1852 and subsequent years, brought about by the discovery of gold on the mainland. The population density of Tasmania is about 30 per cent. greater than that of New South Wales, and a little less than half of that of Victoria.

3. Graphs for Commonwealth of Male and Female Population (page 140).—These curves shew the relative growth of male and female population of the Commonwealth, and it will be seen that the former are far more liable to marked fluctuations than the latter. The curves representing an increase of population on the basis of the United States rate for 1790 to 1860, indicate that on the whole the female rate of increase in the Commonwealth has been a fairly satisfactory one, and that from 1860 to 1893 the same might be said of the male population. From 1893 onwards, however, the male population of the Commonwealth has fallen considerably below this rate, and it may be added that the rapid lowering of the rate of increase of the male population must be regarded as unsatisfactory from a national standpoint.

Although the rate of increase of the female population from 1860 onwards is on the whole very satisfactory, it should be noted that the total number at the beginning of this period was relatively very small, and that from 1894 there is an unsatisfactory falling-off in the rate of increase, similar to that experienced in the case of males.

4. Graphs for each State of Male and Female Population (page 141).—These graphs, shewing the relative progress in male and female population for each of the States, disclose the fact that in all cases the female population is much less liable to marked fluctuations than the male, and further, that in cases where rapid increases have taken place in the latter, a similar, but much more gradual, increase is in evidence in the former, commencing usually, however, somewhat later than in the case of the males. A comparison of the graphs of each of the States with that of the Commonwealth shews that the fluctuations in the latter case are smaller than in the former. This is largely due to internal migrations of the male element of the population, brought about by various causes, amongst which mining developments figure prominently.

5. Graphs for Natural Increase of Population, Commonwealth and States (page 144).—The graphs indicate that, with the exception of certain marked variations, the natural increase of the population of the Commonwealth, i.e., the excess of births over deaths, advanced with fair rapidity from 1860 to 1892, in which year it attained its maximum, and then fell rapidly till 1898. A subsequent rise to 1900 was followed by a continuous fall for the three years succeeding, viz., to 1903. The recovery shews a fairly rapid rise to 1909, during which year the natural increase was 16.35 per 1000 of mean population. In succeeding years a correspondingly high rate was maintained with minor

fluctuations until 1914, when a record of 17.54 was obtained. In 1915 the rate declined to 16.59. In 1912 a rate of 17.42 was obtained; this was, however, an over-statement of the true natural increase for the year, owing to the fact that the introduction of "Maternity Allowances" in 1912 resulted in expediting the registration of births. The years in which the natural increase of the Commonwealth was at its highest were 1865, 1871, 1881, 1892, 1900, 1909, and 1914, and the years of extraordinarily low rates of natural increase were 1866, 1875, 1882, 1898, and 1903. The low rate of 1898 was due in large measure to a phenomenally high death rate experienced in practically all the States in that year, when an epidemic of measles was prevalent throughout the Commonwealth. The low rate of 1903 was brought about by the low birth rates and the high death rates which accompanied the drought of 1902-3, while the advance in the rate of natural increase since 1903 has been collateral with the marked improvement in material conditions experienced throughout the Commonwealth during that period.

6. Graphs shewing Net Increase of Population (pages 142 and 143).—The graphs disclose the fact that the most notable years of large net increases of population of the Commonwealth as a whole were 1864, 1877, 1883, 1888, 1909, 1910, 1911 and 1912. The highest increase was attained in 1912. The net increase for 1910 was higher than for any year since 1883, while that for 1912 was the highest on record. The years in which low net increases were noticeable were 1861, 1867, 1872, 1878, 1889, 1893, 1898, and 1903. The decrease in the year 1915 is a direct effect of the war.

The graph for New South Wales indicates a high net increase of population between 1876 and 1894, advancing to a maximum in 1883, and then declining to 1901. From the latter year onwards to 1907 an advance in the net increase was in evidence, followed by a decline in 1908, and a recovery in 1909, which was maintained in subsequent years to 1912. In 1913 the figures fell off somewhat. In 1914 there was a large drop followed by a further fall in the year 1915.

Some features of the graph shewing the Victorian net increase are the height attained in 1864, 1870, 1888, 1901, and 1912, the smallness of the increase for the years 1861 and 1875, and the decreases for 1896, 1902, and 1903. The increase fell off in 1913 and 1914 and a decrease was experienced in 1915.

For Queensland it will be seen that the years of high net increases were 1863, 1875, 1883, 1895, 1901, 1909, 1910, 1911, and 1913, while the years in which these were at very low level were 1869, 1878, 1891, and 1903. In 1914 and 1915 there was a progressive decline.

In South Australia the net increases were exceptionally high in 1865, 1876, 1877, 1878, 1883, 1892, 1908, 1910, 1911, and 1912, and correspondingly low in 1870, 1885, 1896, and 1903, while actual decreases took place in 1886, 1888, and 1902. In 1913 there was a slight decline in the net increase followed by a larger one in 1914, while in 1915 there was a decrease.

In Western Australia the net increase graph indicates no very marked advance until about 1884, from which it rises somewhat rapidly to 1886, and then declines to 1888. This is followed by an exceedingly rapid rise to 1896, and a subsequent fall to 1899, succeeded by a further rise to 1902, and a fall thereafter to 1907, followed by a rise to 1911, a further fall in 1912, and a rise in 1913. Decreases took place in 1888, 1907 and 1915.

In the case of the Tasmanian graph, indications of a very varied net increase are in evidence, the principal high points being those for the years 1887, 1891, 1897, 1902, 1907, 1912, and 1913, while actual decreases were experienced in 1874, 1875, 1892, 1906, 1911, 1914 and 1915.

In the year 1915, there were small net increases in New South Wales and Queensland and net decreases in the rest of the States. In the case of the Northern Territory the net increase was the largest experienced since the year 1901.

7. **Graphs shewing Masculinity of Population, Commonwealth and States** (page 145).—These graphs furnish information concerning the variations which have taken place in the relative numbers of males and females in the populations of the Commonwealth and the several States during the years 1796 to 1915, and incidentally serve to indicate special features of growth in the respective populations. In general it will be noted that in recent years there has been a marked tendency towards a masculinity of zero, that is, to a condition in which the numbers of males and females in the population were equal, but that with the exception of Victoria and South Australia the masculinity has never fallen below zero. The early experience of the Commonwealth exhibits a fairly rapid decline in masculinity to 1812, followed by an even more rapid rise to 1828 and a subsequent fall with more gentle slope to 1850. From 1850 onwards the decline in masculinity has been fairly continuous though subject to fluctuations. It should be noted that the marked variations of the earlier as compared with the later years have been due to a considerable extent to the fact that, owing to the smallness of the population, any considerable influx of male immigrants had a marked effect in increasing the masculinity of the population, while an influx of female immigrants tended to considerably reduce it. Two points of special interest in the graphs of the separate States are the maxima attained in 1852 in Victoria and 1896 in Western Australia, as the result of extensive male immigration consequent on the gold discoveries in the respective States.

SECTION V.

VITAL STATISTICS.

NOTE.—The rates quoted throughout this Section for the years 1905 to 1915 have been calculated in accordance with the corrected populations as determined by the results of the Census of 1911.

§ 1. Births.

1. Male and Female Births, 1905 to 1915.—The total number of male and female births registered in the Commonwealth during the years 1905 to 1915 is as shown in the two tables hereunder:—

TOTAL MALE BIRTHS, COMMONWEALTH, 1905 to 1915.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	North. Terr.	Federal Territory.	C'wealth.
1905 ...	20,206	15,523	6,978	4,491	3,862	2,812	23	...	53,895
1906 ...	21,066	15,716	7,280	4,605	4,043	2,792	12	...	55,514
1907 ...	21,604	15,986	7,451	4,675	3,962	2,797	14	...	56,489
1908 ...	21,605	16,071	7,677	4,924	3,993	2,818	25	...	57,113
1909 ...	22,464	16,096	7,954	5,224	3,884	2,849	11	...	58,482
1910 ...	23,368	16,412	8,260	5,395	3,855	2,888	28	...	60,206
1911 ...	24,383	16,934	8,703	5,615	4,124	2,716	16	(a) 17	62,508
1912 ...	26,524	18,226	9,576	6,168	4,469	3,016	23	20	68,022
1913 ...	26,624	18,434	10,041	6,505	4,710	3,071	27	22	69,434
1914 ...	27,452	18,545	10,120	6,668	4,663	3,094	31	31	70,604
1915 ...	27,085	17,820	10,444	6,076	4,578	2,991	33	22	69,049

(a) Part of New South Wales prior to 1911.

TOTAL FEMALE BIRTHS, COMMONWEALTH, 1905 to 1915.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	North. Terr.	Federal Territory.	C'wealth.
1905 ...	19,295	14,584	6,648	4,341	3,720	2,445	13	...	51,046
1906 ...	19,882	15,128	6,739	4,316	3,757	2,541	13	...	52,376
1907 ...	20,597	15,379	7,089	4,536	3,750	2,494	13	...	53,858
1908 ...	20,853	15,026	7,153	4,832	3,762	2,797	9	...	54,432
1909 ...	21,318	15,448	7,598	4,840	3,718	2,651	16	...	55,589
1910 ...	22,076	15,025	7,909	5,145	3,730	2,698	12	...	56,595
1911 ...	23,154	16,092	8,281	5,442	3,967	2,721	15	(a) 13	59,685
1912 ...	25,337	17,570	9,162	5,911	4,220	2,837	10	19	65,066
1913 ...	25,562	17,536	9,690	6,122	4,508	2,815	25	22	66,280
1914 ...	26,189	17,677	9,762	6,236	4,541	2,923	27	24	67,379
1915 ...	25,846	17,189	9,719	5,722	4,439	2,854	28	25	65,822

(a) Part of New South Wales prior to 1911.

2. Total Births, 1905 to 1915.—The total number of births for the Commonwealth was higher in 1914 than in any of the preceding years, but the 1915 figures shew a falling off for the Commonwealth as compared with those for 1913 and 1914, the only State in which births were more numerous in 1915 than in 1914 being Queensland.

TOTAL BIRTHS, COMMONWEALTH, 1905 to 1915.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	North-Terr.	Fed'l Terr.	C'wealth.
1905 ...	39,501	30,107	13,626	8,832	7,582	5,257	36	...	104,941
1906 ...	40,948	30,844	14,019	8,921	7,800	5,333	25	...	107,890
1907 ...	42,201	31,365	14,540	9,211	7,712	5,291	27	...	110,347
1908 ...	42,458	31,097	14,830	9,756	7,755	5,615	34	...	111,545
1909 ...	43,782	31,544	15,552	10,064	7,602	5,500	27	...	114,071
1910 ...	45,444	31,437	16,169	10,540	7,585	5,586	40	...	116,801
1911 ...	47,537	33,026	16,984	11,057	8,091	5,437	31	(a) 30	122,193
1912 ...	51,861	35,796	18,738	12,079	8,689	5,853	33	39	133,088
1913 ...	52,186	35,970	19,731	12,627	9,218	5,886	52	44	135,714
1914 ...	53,641	36,232	19,832	12,904	9,204	6,017	58	55	137,983
1915 ...	52,931	35,009	20,163	11,798	9,017	5,845	61	47	134,871

(a) Part of New South Wales prior to 1911.

3. Birth Rates, 1905 to 1915.—(i.) *Crude Birth Rate.* The laws relating to Maternity Allowances which came into force on 10th October, 1912, had the effect of materially diminishing the period between the dates of birth and the date of registration, so that probably 6000 births were registered during the last three months of the year which, under ordinary circumstances, would not have been registered before the beginning of 1913. The increase shewn by the 1912 birth rate over the rate for 1911 is, therefore, to some extent fictitious, and the true birth rate for the whole Commonwealth in 1912 was more probably about 27.42 per thousand than 28.65 as shewn in the subjoined table. If due allowance be made for this fact, it may be stated that the birth rate for the Commonwealth was not only higher in 1913 than in any of the preceding nine years, but that the increase which began with the year 1909, was maintained to the end of 1913, while the years 1914 and 1915 shew decreases in the rate, that for 1915 having practically receded to the 1911 level. The very high masculinity of the population accounts for the low birth rate experienced in the Northern Territory:—

CRUDE BIRTH RATE (a), COMMONWEALTH, 1905 to 1915.

Year.	N.S.W.	Vic.	Qld.	S.A.	W.A.	Tas.	North-Terr.	Federal Territory.	Cwltth.
1905 ...	26.85	24.96	25.76	24.54	30.74	28.50	8.72	...	26.23
1906 ...	27.21	25.41	26.15	24.57	30.66	28.94	6.29	...	26.57
1907 ...	27.34	25.59	26.79	25.05	30.18	28.63	7.06	...	26.76
1908 ...	26.99	25.07	26.79	25.81	30.08	29.95	9.30	...	26.59
1909 ...	27.40	25.01	27.29	25.91	28.87	28.91	7.63	...	26.69
1910 ...	27.83	24.51	27.33	26.50	27.99	29.25	11.75	...	26.73
1911 ...	28.60	25.01	27.65	26.89	28.21	28.57	9.34	(c) 16.85	27.21
1912 ...	29.86	26.39	29.67	28.65	28.83	30.53	9.82	19.15	28.65
1913 ...	28.86	25.82	30.24	29.12	29.36	30.03	14.21	17.97	28.25
1914 ...	28.96	25.45	29.46	29.33	28.45	30.33	15.46	20.79	28.05
1915 ...	28.33	24.55	29.35	26.81	27.97	29.32	13.85	19.05	27.25
Density (b)* (No. per square mile) ...	6.04	16.13	1.01	1.16	0.33	7.67	0.009	2.01	1.66

(a) Number of births per 1,000 of the mean annual population. (b) On 31st December, 1915. (c) Part of New South Wales prior to 1911.

The population density of each State and of the Commonwealth has been given for the purpose of considering the influence, if any, of concentration of population on birth rate, in connection with the disparities of the rate in different parts of Australia.

(ii.) *Objections to Crude Birth Rate.* The figures just given represent the "crude birth rate," i.e., the number of births per thousand of mean annual population. The number of births per thousand of the female population of child-bearing ages, i.e., from 15 to 45, furnishes a more significant rate. This calculation has been made for the four last Census periods, and covers in each case the Census year together with the year immediately preceding and the year immediately following. The following results have

been obtained for the four Census periods:—Total births per 1000 women (married and unmarried) of ages 15 to 45:—Years 1880-82, 169.69; years 1890-92, 158.81; years 1900-02, 117.26; years 1910-12, 117.22. Nuptial births per 1000 married women of ages 15 to 45:—Years 1880-82, 320.96; years 1890-92, 332.03; years 1900-02, 235.84; years 1910-12, 236.06.

4. **Birth Rates of Various Countries.**—A comparison with other countries shews that the Australian States occupy a very low position, which is, however, fortunately counterbalanced by a still lower position in regard to their death rates, as will be seen from the table hereinafter in the section dealing with "Deaths."

CRUDE BIRTH RATE (a) OF VARIOUS COUNTRIES.

Country.	Year.	Rate.	Country.	Year.	Rate.
Russia, European ...	1909	44.0	Commonwealth ...	1915	27.3
Rumania ...	1914	42.5	Finland ...	1914	26.9
Bulgaria ...	1911	40.2	South Australia ...	1915	26.8
Serbia ...	1912	38.0	Netherlands... ..	1915	26.2
Ceylon ...	1915	37.0	New Zealand ...	1915	25.4
Chile ...	1914	37.0	Victoria ...	1915	24.6
Hungary ...	1912	36.3	Denmark ...	1915	24.2
Jamaica ...	1915	34.6	Ontario (Canada) ...	1915	24.2
Japan ...	1913	33.3	Scotland ...	1915	23.9
Austria ...	1912	31.3	Norway ...	1915	23.8
Italy ...	1914	31.1	Belgium ...	1912	22.6
Spain ...	1914	29.8	United Kingdom ...	1915	22.2
Queensland ...	1915	29.4	England and Wales ...	1915	22.0
Tasmania ...	1915	29.3	Ireland ...	1915	22.0
New South Wales ...	1915	28.3	Sweden ...	1915	21.6
Prussia ...	1913	28.2	Switzerland... ..	1915	19.5
Western Australia ...	1915	28.0	France ...	1913	19.0
German Empire ...	1913	27.5			

(a) Number of births per 1000 of the mean population.

5. **Masculinity at Birth.**—The masculinity of births, *i.e.*, the number of males per 100 females, registered during the last eleven years in the several States of the Commonwealth has, apart from the Northern Territory and the Federal Territory, the figures for which are useless for comparative purposes on account of the smallness of the returns on which they are based, varied from 99.82 in Tasmania in 1911 to 115.01 in Tasmania in 1905. The following table, which gives the values for the States and Commonwealth for 1905 to 1915, shews the remarkable fact that for the Commonwealth there was a steady increase of masculinity from 1904 to 1906, with a sharp decrease in 1907, a further increase in 1908, 1909, 1910, a rapid decrease in 1911 and 1912, and slight increases in 1913, 1914, and 1915:—

MASCULINITY (a) OF BIRTHS REGISTERED, COMMONWEALTH, 1905 to 1915.

Year.	N.S.W.	Vict.	Q'land.	S. Aust.	W. Aust.	Tas.	Northern Territory.	Federal Territory.	C'wealth.
1905 ...	104.72	106.44	104.96	103.46	103.82	115.01	176.92	...	105.58
1906 ...	105.96	103.89	108.03	106.70	107.61	109.88	92.31	...	105.99
1907 ...	104.89	103.95	105.11	103.06	105.65	112.15	107.69	...	104.89
1908 ...	103.61	106.95	107.33	101.90	106.14	100.75	277.78	...	104.93
1909 ...	105.38	104.19	104.69	107.93	104.46	107.47	68.75	...	105.20
1910 ...	105.85	109.23	104.44	104.86	103.35	107.04	233.33	...	106.38
1911 ...	105.31	105.23	105.10	103.18	103.96	99.82	106.67	(b) 130.77	104.73
1912 ...	104.68	103.73	104.52	104.35	105.90	106.31	230.00	105.26	104.54
1913 ...	104.15	105.12	103.62	106.26	104.48	109.09	108.00	100.00	104.76
1914 ...	104.82	104.91	103.67	106.93	102.69	105.85	114.81	129.17	104.79
1915 ...	104.79	103.67	107.46	106.18	103.13	104.80	117.86	88.00	104.90

(a) Number of males to each 100 females.

(b) Part of New South Wales prior to 1911.

There is ordinarily a very small difference between the masculinity of nuptial and ex-nuptial births. Thus, according to Bodio, whose figures are quoted in the following table, for the period about 1887-1891, the masculinity ranged from 108.3 to 103.6, and from 107.9 to 101.6 for total and ex-nuptial births respectively.

MASCULINITY OF BIRTHS IN VARIOUS COUNTRIES.

Country.	Masculinity of Births. (a)		Country.	Masculinity of Births. (a)	
	All Live Births.	Ex-nuptial Live Births.		All Live Births.	Ex-nuptial Live Births.
Spain ...	108.3	107.9	German Empire ...	105.2	104.7
Rumania ...	107.7	103.4	Finland ...	105.0	105.2
Portugal ...	107.5	106.4	Hungary ...	105.0	102.9
Austria ...	105.8	105.5	Sweden ...	105.0	104.3
Italy ...	105.8	104.4	Denmark ...	104.8	105.0
Norway ...	105.8	105.9	Serbia ...	104.7	103.5
Ireland ...	105.5	104.8	France ...	104.6	102.9
Netherlands ...	105.5	104.7	Belgium ...	104.5	102.2
Scotland ...	105.5	105.9	Switzerland ...	104.5	101.6
Russia, European ...	105.4	104.5	England ...	103.6	104.4

(a) Number of males to each 100 females.

The masculinity of ex-nuptial births in the Commonwealth was as follows:—

**MASCULINITY (a) OF EX-NUPTIAL BIRTHS REGISTERED, COMMONWEALTH,
1905 TO 1915.**

Year.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	North Territ'y.	Federal Territ'y.	C'wth.
1905 ...	102.50	102.52	105.63	96.94	98.75	102.80	...	...	102.44
1906 ...	103.10	102.23	104.17	116.97	118.13	124.82	100.00	...	105.44
1907 ...	104.91	105.59	100.90	113.56	115.94	100.00	...	...	105.11
1908 ...	103.60	105.38	96.83	96.82	89.33	108.51	150.00	...	104.00
1909 ...	105.46	102.16	103.90	105.37	129.14	129.01	66.67	...	106.25
1910 ...	104.96	103.59	100.39	101.33	89.70	106.94	200.00	...	103.05
1911 ...	101.73	106.61	97.94	106.19	108.05	105.67	28.57	(b)	103.10
1912 ...	109.83	95.98	97.80	120.85	124.40	82.69	200.00	...	104.05
1913 ...	101.52	105.79	106.39	110.36	110.36	145.97	133.33	100.00	106.21
1914 ...	109.30	103.16	104.63	110.97	107.49	101.70	133.33	...	107.75
1915 ...	98.42	103.21	99.26	101.71	100.52	100.64	70.00	...	100.00

(a) Number of males to each 100 females. (b) Part of New South Wales prior to 1911.

It is curious to note that while, so far as the total births are concerned, there has always been an excess of male births over female births (excepting Tasmania in 1911), this has not been the case in regard to ex-nuptial births, where in Tasmania in 1912 the masculinity was only 82.69, while on the other hand it rose as high as 145.97 in the following year. Little weight, however, can be attached to those results on account of the small totals on which they are based, and for the same reason the figures for the Northern Territory are not taken into consideration.

6. Ex-nuptiality of Births.—The total ex-nuptial births rose rapidly from 1905 to 1908 and remained almost stationary till 1909, when the number again decreased, so that the year 1910 shewed the lowest number recorded since 1906. During the three years 1911-13 the numbers shew a considerable increase, with further decreases in 1914 and 1915. (See the table on the following page).

It is, of course, possible that the number of ex-nuptial births is somewhat understated, owing to diffidence in proclaiming the fact of ex-nuptiality, and it is not unlikely that the majority of unregistered births are ex-nuptial.

TOTAL EX-NUPTIAL BIRTHS REGISTERED IN THE COMMONWEALTH, 1905 to 1915.

Year.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	North Terr.	Fed'l Terr.	C'wealth.
1905 ...	2,912	1,689	950	385	318	290	1	...	6,545
1906 ...	2,882	1,721	1,076	356	373	308	2	...	6,718
1907 ...	2,920	1,764	1,117	378	298	306	...	...	6,783
1908 ...	2,887	1,793	1,118	433	337	294	5	...	6,867
1909 ...	2,821	1,870	1,097	421	346	300	5	...	6,860
1910 ...	2,853	1,759	1,034	455	313	298	9	...	6,721
1911 ...	2,921	1,969	1,057	466	362	290	9	(a)...	7,074
1912 ...	2,904	2,046	1,170	572	377	285	3	1	7,358
1913 ...	2,793	2,169	1,228	528	406	305	7	2	7,438
1914 ...	2,836	2,015	1,148	500	388	355	21	...	7,263
1915 ...	2,633	2,012	1,082	472	383	311	17	...	6,910

(a) Part of New South Wales prior to 1911.

(i.) *Rate of Ex-nuptiality, 1905 to 1915.* The rate of ex-nuptiality, i.e., the percentage of ex-nuptial to total births, has been gradually decreasing during the last ten years, as the subjoined table shews:—

PERCENTAGE OF EX-NUPTIAL ON TOTAL BIRTHS, COMMONWEALTH, 1905 to 1915.

Year.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	North Terr.	Fed'l Terr.	C'wealth.
	%	%	%	%	%	%	%	%	%
1905 ...	7.37	5.61	6.97	4.36	4.19	5.52	2.78	...	6.24
1906 ...	7.04	5.58	7.68	3.99	4.78	5.78	8.00	...	6.23
1907 ...	6.92	5.62	7.68	4.10	3.86	5.78	...	...	6.15
1908 ...	6.80	5.77	7.54	4.44	4.35	5.24	14.71	...	6.16
1909 ...	6.44	5.94	7.05	4.18	3.95	5.45	18.52	...	6.01
1910 ...	6.28	5.60	6.39	4.32	4.13	5.33	22.50	...	5.75
1911 ...	6.14	5.96	6.22	4.21	4.47	5.33	29.03	(a)...	5.79
1912 ...	5.60	5.72	6.24	4.74	4.34	4.87	9.09	2.56	5.53
1913 ...	5.35	6.03	6.22	4.18	4.40	5.18	13.46	4.55	5.48
1914 ...	5.29	5.56	5.77	3.87	4.22	5.90	36.21	...	5.26
1915 ...	4.97	5.74	5.36	4.00	4.24	5.32	27.87	...	5.12

(a) Part of New South Wales prior to 1911.

A comparison of greater significance is obtained by calculating the number of ex-nuptial births per thousand of the single and widowed female population between the ages of 15 and 45. The calculation has been made for the last four Census periods, and covers in each case the Census year, together with the year immediately preceding and the year immediately following. The number of ex-nuptial births per 1000 unmarried women of ages 15 to 45 has been found to be as follows:—Years 1880-82, 14.49; years 1890-92, 15.93; years 1900-02, 13.30; years 1910-12, 12.53.

(ii.) *Comparison of Rates.* Since the rate of ex-nuptiality might appear to increase by the mere decrease in the general birth rate, the following table has been prepared:—

CRUDE EX-NUPTIAL, NUPTIAL, AND TOTAL BIRTH RATES (a), COMMONWEALTH, 1905 TO 1915.

Rates.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.
Ex-nuptial	1.64	1.65	1.64	1.64	1.60	1.54	1.57	1.58	1.55	1.48	1.40
Nuptial ...	24.59	24.92	25.12	24.95	25.09	25.19	25.64	27.07	26.70	26.57	25.85
Total ...	26.23	26.57	26.76	26.59	26.69	26.73	27.21	28.65	28.25	28.05	27.25

(a) Number of births per 1000 of mean population.

(iii.) *Ex-nuptiality—Rates of Various Countries.* The rate for the Commonwealth is higher than that for England and Wales, slightly lower than that for Scotland, and considerably below the rates for many of the countries for which returns are available, as the table hereunder shews. The rates shewn below refer to three triennial periods, 1880-2, 1890-2, and 1900-2, and are given per thousand of the unmarried and widowed female population:—

EX-NUPTIAL BIRTHS PER THOUSAND OF UNMARRIED AND WIDOWED FEMALE POPULATION IN VARIOUS COUNTRIES.

Country.	Rate.			Country.	Rate.		
	1880-2.	1890-2.	1900-2.		1880-2.	1890-2.	1900-2.
Ireland ...	4.4	3.9	3.8	Belgium ...	20.0	20.6	17.8
Netherlands ...	9.7	9.0	6.8	France ...	17.6	17.7	19.1
England and Wales ...	14.1	10.5	8.5	Italy ...	25.4	...	19.4
New Zealand ...	13.4	9.0	8.9	Russia ...	25.8	25.1	23.7
Switzerland ...	10.8	10.0	9.8	Denmark ...	26.9	24.5	24.2
Commonwealth ...	14.5	15.9	13.3	Sweden ...	22.6	22.9	24.3
Scotland ...	21.4	17.1	13.4	German Empire ...	29.6	28.7	27.4
Spain ...	16.0	17.5	15.5	Austria ...	43.4	42.7	40.1
Norway ...	19.7	16.9	17.2				

It may be added that the general circumstances in Australia with regard to opportunity for marriage are probably relatively easy as compared with those in older established countries.

7. Multiple Births.—Among the total number of 134,871 births registered in the Commonwealth in 1915 there were 132,027 single births, 2814 twins, and 30 triplets. The number of cases of twins was 1407, and the number of cases of triplets 10. The total number of mothers was, therefore, 133,444, the proportion of mothers of twins being one in every 95, and of mothers of triplets one in every 13,444 of total mothers. The proportion of multiple births is a fairly constant one. In 1907 they numbered 1043 out of a total of 109,306, or one in 105; in 1908, 1065, or one in 104; in 1909, 1142, or one in 99; in 1910, 1189, or one in 99; in 1911, 1236, or one in 98; in 1912, 1350, or one in 98; in 1913, 1369, or one in 99; in 1914, 1401, or one in 97; and in 1915, 1417, or one in 94. The number of cases of triplets is so small that a slight alteration in the total will completely change the proportion. Thus, there were 14 cases in 1907, or one in 7872 of total mothers, as compared with one in 18,415 in 1908; one in 8066 in 1909, one in 8893 in 1910, one in 8639 in 1911, one in 8233 in 1912, one in 16,793 in 1913, one in 12,415 in 1914, and one in 13,444 in 1915.

8. Ages of Parents.—The relative ages of the parents of children registered in 1915 have been tabulated separately for male and female births, twins and triplets being distinguished from single births, and are shewn for single ages and for every State in "Bulletin of Population and Vital Statistics, No. 33; Commonwealth Demography, 1915 and previous years." In the present work the exigencies of space allow only the insertion of corresponding tables shewing the relative ages of parents in groups of five years. It will be seen from the tables that the largest number of both single and twin births occurred where the ages of both father and mother were between 25 and 29. The largest number of mothers was found at ages 25 to 29.

(a) AGES OF PARENTS IN CASES OF SINGLE BIRTHS, COMMONWEALTH, 1915.

Ages of Fathers.		Total Children.	Ages of Mothers.								45 and Upwards.	Not Stated.
			Under 15.	15 to 19.	20 to 24.	25 to 29.	30 to 34.	35 to 39.	40 to 44.			
Under 20	Males	235	2	153	76	4	...	...	...	...	...
	Females	202	...	133	65	4	...	...	...	...	...
	Total	437	2	286	141	8	...	...	...	...	...
20 to 24	Males	6,936	1	1,273	4,519	1,015	112	14	2	1	...	
	Females	6,673	...	1,201	4,413	943	105	8	2	...	1	
	Total	13,609	1	2,473	8,932	1,958	217	23	4	...	1	
25 to 29	Males	17,124	...	655	6,734	7,974	1,531	206	22	...	2	
	Females	16,173	...	642	6,343	7,533	1,476	162	16	...	...
	Total	33,297	1	1,297	13,077	15,507	3,007	368	38	...	2	
30 to 34	Males	16,102	...	156	2,619	6,574	5,728	941	76	4	4	
	Females	14,995	...	167	2,426	6,271	5,159	897	68	1	6	
	Total	31,097	...	323	5,045	12,845	10,887	1,838	144	5	10	
35 to 39	Males	11,518	...	58	739	2,760	4,349	3,273	327	10	2	
	Females	11,094	...	53	761	2,584	4,254	3,097	332	10	3	
	Total	22,612	...	111	1,500	5,344	8,603	6,370	659	20	5	
40 to 44	Males	6,808	...	14	219	819	1,958	2,586	1,191	41	...	
	Females	6,614	...	21	213	809	1,800	2,515	1,222	33	1	
	Total	13,422	...	35	432	1,628	3,758	5,091	2,413	74	1	
45 to 49	Males	3,707	...	7	71	334	710	1,362	1,084	134	5	
	Females	3,395	...	2	83	308	647	1,241	969	144	1	
	Total	7,102	...	9	154	642	1,357	2,603	2,053	278	6	
50 to 54	Males	1,264	...	...	24	94	225	410	421	89	1
	Females	1,331	...	4	20	97	231	490	464	83	2	
	Total	2,595	...	4	44	191	456	840	885	172	3	
55 to 59	Males	392	...	2	9	25	72	131	119	34	...	
	Females	374	...	...	9	36	54	115	120	40	...
	Total	766	...	2	18	61	126	246	239	74	...	
60 to 64	Males	84	...	...	2	5	22	30	21	4	...
	Females	100	...	...	2	12	17	28	31	10	...
	Total	184	...	...	4	17	39	58	52	14	...
65 and upwards	Males	58	...	...	3	7	12	18	14	4	...
	Females	37	...	...	1	4	6	11	8	7	...
	Total	95	...	...	4	11	18	29	22	11	...
Not stated	Males	10	...	...	1	2	5	1	1	...	1
	Females	3	...	...	...	1	...	...	1	...	...
	Total	13	...	...	1	3	5	1	2	...	1
Nuptial children.	Males	64,338	3	2,317	15,016	19,613	14,724	8,952	3,278	321	14	
	Females	60,991	1	2,223	14,336	18,602	13,749	8,504	3,233	328	15	
	Total	125,229	4	4,540	29,352	38,215	28,473	17,456	6,511	649	29	
Ex-nuptial children	Males	3,406	8	854	1,363	600	324	192	57	9	9	
	Females	3,392	13	937	1,326	589	267	175	69	8	8	
	Total	6,798	21	1,791	2,689	1,189	591	357	126	17	17	
Total children	Males	67,644	11	3,171	16,379	20,213	15,048	9,134	3,335	330	23	
	Females	64,383	14	3,160	15,662	19,191	14,016	8,679	3,302	336	23	
	Total	132,027	25	6,331	32,041	39,404	29,064	17,813	6,637	666	46	

(b) AGES OF PARENTS OF TWINS, COMMONWEALTH, 1915.

Ages of Fathers.		Total Children.	Ages of Mothers.						45 & upwards.
			Under 20.	20 to 24.	25 to 29.	30 to 34.	35 to 39.	40 to 44.	
Under 20	Males	1	...	1	...	...	...	...
	Females	3	...	1	...	...	...	...
	Total	4	...	2	...	...	...	...
20 to 24	Males	118	24	59	22	3	...	...
	Females	104	14	69	18	1	2	...	
	Total	222	38	138	40	4	2	...	
25 to 29	Males	281	...	89	134	50	8	...	
	Females	285	...	6	89	152	34	4	
	Total	566	...	95	178	286	84	12	
30 to 34	Males	336	...	2	25	130	145	28	
	Females	350	...	...	29	140	153	24
	Total	686	...	2	54	270	298	52	
35 to 39	Males	273	...	...	8	65	96	103
	Females	299	...	...	16	55	92	127
	Total	572	...	...	24	110	188	230
40 to 44	Males	194	...	...	7	21	55	86
	Females	186	...	...	3	15	51	88
	Total	380	...	...	10	36	106	174

(b) AGES OF PARENTS OF TWINS, COMMONWEALTH, 1915—Continued.

Ages of Fathers.		Total Children.	Ages of Mothers.						
			Under 20.	20 to 24.	25 to 29.	30 to 34.	35 to 39.	40 to 44.	45 & upwards.
45 to 49	Males	103	...	2	14	17	46	24	...
	Females	91	...	2	16	13	40	18	...
	Total	194	...	4	30	30	86	42	3
50 to 54	Males	27	...	...	3	7	7	7	3
	Females	35	...	...	5	11	9	9	1
	Total	62	...	...	8	18	16	16	4
55 to 59	Males	10	...	...	2	...	2	4	2
	Females	...	...	...	...	...	...	...	...
	Total	10	...	...	2	...	2	4	2
60 to 64	Males	1	...	...	...	1	...	...	...
	Females	5	...	...	...	3	...	2	...
	Total	6	...	...	...	4	...	2	...
Nuptial children	Males	1,344	26	201	381	374	280	75	7
	Females	1,358	22	209	401	358	294	71	3
	Total	2,702	48	410	782	732	574	146	10
Ex-nuptial children	Males	49	3	15	13	12	6	...	...
	Females	63	9	23	5	12	12	2	...
	Total	112	12	38	18	24	18	3	...
Total children	Males	1,393	29	216	394	386	286	75	7
	Females	1,421	31	232	406	370	306	73	3
	Total	2,814	60	448	800	756	592	148	10

(c) AGES OF PARENTS OF TRIPLETS, COMMONWEALTH, 1915.

Ages of Fathers.		Total Children.	Ages of Mothers.			
			20 to 24.	25 to 29.	30 to 34.	35 to 39.
20 to 24	Males	...	...	...	...	...
	Females	...	3	...	...	...
	Total	...	3	3	...	...
25 to 29	Males	...	...	3	...	...
	Females	...	3	...	...	...
	Total	...	3	...	...	...
30 to 34	Males	...	...	4	...	...
	Females	...	5	...	...	...
	Total	...	9	...	...	...
35 to 39	Males	...	...	1	...	...
	Females	...	2	...	...	...
	Total	...	3	3	...	...
40 to 44	Males	...	...	...	...	3
	Females	...	...	...	...	...
	Total	...	3	...	...	3
45 to 49	Males	...	...	...	...	1
	Females	...	5	...	...	5
	Total	...	6	...	...	6
50 to 54	Males	...	...	...	...	3
	Females	...	...	...	...	...
	Total	...	3	...	...	3
Nuptial children	Males	...	12	...	5	7
	Females	...	18	3	10	5
	Total	...	30	3	15	12
Ex-nuptial children	Males	...	...	...	...	...
	Females	...	...	...	...	...
	Total	...	...	...	...	...
Total children	Males	...	12	...	5	7
	Females	...	18	3	10	5
	Total	...	30	3	15	12

No conclusions can, of course, be drawn from one year's figures as to variations in the masculinity of the births at different ages of the parents, but so far as the figures go they indicate a few particulars which may be mentioned, viz.: In cases where the father is older than the mother the masculinity has a tendency to be above the average,

while in cases where both parents belong to the same age group or where the father is younger than the mother the masculinity is rather below the average. It is also below the average in cases where the father, or both father and mother, are under 25; and it is above the average where the mother alone is under 25.

9. **Birthplaces of Parents.**—The relative birthplaces of the parents of children whose births were registered during the year 1915 will be found tabulated in the Bulletin before-mentioned. A summary of the results of the tabulation is here given:—

BIRTHPLACES OF PARENTS OF CHILDREN, COMMONWEALTH, 1915.

Birthplaces.	Fathers.			Mothers of Nuptial Children.			Mothers of Ex-nuptial Children.		
	Single Births.	Twins.	Trip-lets.	Single Births.	Twins.	Trip-lets.	Single Births.	Twins.	Trip-lets.
AUSTRALASIA—									
Commonwealth of									
Australia—									
N. South Wales	38,547	405	3	42,064	432	4	2,359	15	...
Victoria ...	32,603	369	1	32,604	359	1	1,887	24	...
Queensland ...	11,557	116	1	14,134	144	1	956	5	...
South Australia	11,919	119	1	12,213	124	1	473	2	...
Western Australia	1,560	17	...	2,061	22	...	161	1	...
Tasmania ...	5,543	50	1	5,762	57	1	372	3	...
North. Territory	13	...	...	26	...	...	17	...	...
New Zealand ...	1,348	14	...	1,083	12	...	58	...	...
EUROPE—									
England... ..	13,145	155	2	9,510	123	2	316	3	...
Wales	346	6	...	227	4	...	1	...	...
Scotland... ..	3,136	36	1	2,399	31	...	80	2	...
Ireland	1,835	29	...	1,224	19	...	44	1	...
Isle of Man	18	...	...	16	...	...	...	...	...
Other European Bri-									
tish Possessions...	67	1	...	41	...	...	...	...	...
Austria-Hungary ...	107	...	...	70	...	...	1	...	...
Belgium... ..	12	1	...	2	2	...	...	...	...
Denmark	189	2	...	57	2	...	2	...	...
France	64	...	...	33	2	...	2	...	...
Germany	867	6	...	371	5	...	18	...	...
Greece	101	...	...	53	...	...	...	...	...
Italy	363	8	...	247	4	...	4	...	...
Netherlands	58	2	...	27	1	...	...	...	...
Norway	85	2	...	31	...	...	...	...	...
Portugal... ..	1	...	...	3	...	...	...	...	...
Russia	312	3	...	225	2	...	2	...	...
Spain	31	1	...	26	1	...	...	...	...
Sweden	168	1	...	27	...	...	1	...	...
Switzerland	47	...	...	23	...	...	...	...	...
Other European									
Countries	37	...	...	21	...	...	2	...	...
ASIA—									
British India	155	2	...	82	...	...	1	...	...
Ceylon	19	...	...	6	...	...	1	...	...
Hong Kong ... ..	...	...	...	1	...	...	...	...	...
Straits Settlements	7	...	...	...	...	...	1	...	...
Other Asiatic British									
Possessions	2	...	...	4	...	...	...	...	...
Afghanistan	3	...	...	...	...	...	...	...	...
Arabia	3	...	...	...	...	...	...	...	...
China	155	...	...	50	...	...	...	...	...
Japan	25	...	...	14	...	...	...	...	...
Java	5	...	...	...	...	...	...	...	...
Philippine Islands	4	...	...	...	...	...	...	...	...
Syria	77	...	...	57	...	...	...	...	...
Other Asiatic Coun-									
tries	6	...	...	7	...	...	...	...	...

BIRTHPLACES OF PARENTS OF CHILDREN—Continued.

Birthplace.	Fathers.			Mothers of Nuptial Children.			Mothers of Ex-nuptial Children.		
	Single Births.	Twins.	Trip-lets.	Single Births.	Twins.	Trip-lets.	Single Births.	Twins.	Trip-lets.
AFRICA—									
Mauritius ...	19	...	...	5	...	...	...	...	...
S. Africa, Union of	95	1	...	99	...	...	4	...	...
Other African British Possessions ...	2	...	...	...	...	...	...	...	...
Egypt ...	5	...	...	8	...	...	...	...	...
Other African Countries ...	3	...	...	2	...	...	...	...	...
AMERICA—									
Canada ...	85	1	...	32	1	...	...	...	...
Jamaica ...	2	...	...	...	...	...	...	...	...
Newfoundland ...	1	...	...	1	...	...	...	...	...
Other American British Pos. ...	6	...	...	1	...	...	...	...	...
Argentine Republic	4	...	...	3	...	...	...	...	...
Brazil ...	2	...	...	1	...	...	...	...	...
Chile ...	1	...	...	1	...	...	...	...	...
Mexico ...	3	...	...	...	...	...	...	...	...
United States of America ...	238	2	...	113	1	...	5	...	...
Other American Countries ...	37	...	...	16	...	...	...	...	...
POLYNESIA—									
Fiji ...	28	...	...	23	...	...	1	...	...
Friendly Islands ...	2	...	...	...	...	...	...	...	...
Papua ...	1	...	...	2	...	...	...	...	...
Other Polynesian British Pos. ...	2	...	...	2	...	...	...	...	...
New Caledonia ...	13	...	...	10	...	...	...	...	...
New Hebrides ...	2	...	...	...	...	...	...	...	...
Samoa ...	4	...	...	3	...	...	...	...	...
Other Polynesian Islands ...	2	...	...	...	...	...	1	...	...
South Sea Islands (so described) ...	20	1	...	3	...	...	...	...	...
At Sea ...	97	1	...	68	1	...	4	...	...
Unspecified ...	15	...	...	35	1	...	24	...	...
Total ...	125,229	1,351	10	125,229	1,351	10	6,798	56	...

10. Occupations of Fathers.—A summary of the occupations of the fathers of all nuptial children, whose births were registered in 1915, will be found in the following table. The figures include all the States and Territories of the Commonwealth:—

OCCUPATIONS OF FATHERS OF ALL NUPTIAL CHILDREN, COMMONWEALTH, 1915.

Occupations.	Number of Fathers.	Occupations.	Number of Fathers.
CLASS I.—PROFESSIONAL.		Wool and Tallow	97
General Government	640	Hay, Corn, etc.	195
Local Government	146	Other Vegetable Matter, n.e.i.	36
Defence	1,241	Wood and Coal	186
Law and Order	1,194	Stone, Clay, and Glass	23
Religion	401	Gold, Silver, and Precious Stones	4
Charities	2	Ironmongery	189
Health	920	Merchants, Importers	499
Literature	159	Shopkeepers and Assistants	1,206
Science	101	Dealers and Hawkers	361
Civil Engineering, Architecture, and Surveying	404	Agents and Brokers	573
Education	795	Clerks, Bookkeepers, etc.	3,812
Fine Arts	146	Commercial Travellers, Salesmen	1,553
Music	166	Others engaged in Commercial Pursuits	1,237
Amusements	511	Speculators on Chance Events	43
Total Professional	6,826	Storage	9
CLASS II.—DOMESTIC.		Total Commercial	17,163
Hotelkeepers and Assistants	909	CLASS IV.—TRANSPORT AND COMMUNICATION.	
Others engaged in providing board and lodging	308	Railway Traffic	4,886
House Servants	248	Tramway Traffic	1,115
Coachmen and Grooms... ..	308	Road Traffic	5,661
Hairdressers	660	Sea and River Traffic	1,757
Laundrymen	59	Postal Service	559
Others engaged in domestic occupations	259	Telegraph and Telephone Service	641
Total Domestic	2,751	Messengers, etc.	7
CLASS III.—COMMERCIAL.		Total Transport & Communication	14,626
Banking and Finance	434	CLASS V.—INDUSTRIAL.	
Insurance and Valuation	506	Books and Publications	916
Landed and House Property	156	Musical Instruments	47
Property Rights not elsewhere clsd.	2	Prints, Pictures and Art Materials	66
Books, Publications, Advertising	156	Ornaments and Small Wares	103
Musical Instruments	13	Equipment for Sports and Games	5
Prints, Pictures and Art Materials	6	Medals, Type, and Dies	28
Ornaments and Small Wares	4	Watches, Clocks, and Scientific Instruments	144
Watches, Clocks, Jewellery	26	Surgical Instruments	11
Surgical Instruments	2	Arms and Ammunition	20
Arms and Ammunition	7	Engines, Machines, Tools, and Implements	1,527
Machinery	53	Carriages and Vehicles	1,014
Carriages and Vehicles	26	Harness, Saddlery & Leatherware	414
Harness, Saddlery & Leatherware	3	Ships, Boats, etc.	132
Building Materials	113	Furniture	688
Furniture	46	Building Materials	590
Chemicals and By-products	10	Chemicals and By-Products	59
Paper and Stationery	45	Textile Fabrics	130
Textile Fabrics	564	Dress	2,072
Dress	139	Fibrous Materials	73
Fibrous Materials	12	Animal Food... ..	420
Animal Food	2,556	Vegetable Food	1,604
Vegetable Food	748	Groceries, Drinks, Narcotics, and Stimulants... ..	1,362
Groceries, Drinks, Narcotics, and Stimulants... ..	1,362	Living Animals	131
Living Animals	131	Manures and Waste Products	1
Manures and Waste Products	1	Leather, Raw Materials	19
Leather, Raw Materials	19	Animal Matter, not elsewhere clsd.	284
		Workers in wood, not elsewhere clsd.	196
		Vegetable Produce for Fodder	3

OCCUPATIONS OF FATHERS OF ALL NUPTIAL CHILDREN—Continued.

Occupations.	Number of Fathers.	Occupations.	Number of Fathers.		
Paper	25	CLASS VI.—AGRICULTURAL, PASTORAL, MINING, ETC.	19,671		
Stone, Clay, Glass, etc. ...	591			Pastoral	3,621
Jewellery and Precious Stones ...	228			Dairy Farming	934
Metals, other than Gold & Silver ...	3,421			Bees, Fisheries, and Wild Animals ...	356
Gas, Electric Lighting, etc. ...	865			Forestry	789
Building—				Water Conservation and Supply ...	114
Builders	600			Mines and Quarries	5,912
Stonemasons	291			Total Primary Producers	31,997
Bricklayers	755				
Carpenters	3,574			CLASS VII.—INDEFINITE.	
Slaters	45	Independent Means, having no			
Plasterers	393	specific occupation	76		
Painters	1,419	Occupation not stated	38		
Plumbers	948	Total Indefinite	114		
Signwriters	59				
Others	44	CLASS VIII.—DEPENDENTS.			
Roads, Railways, Earthworks ...	225	Dependent Relatives	2		
Disposal of the Dead	43	Dependent on State	1		
Disposal of Refuse	116	Total Dependents	3		
Other Industrial Workers—		Total all Occupations	126,590		
Manufacturers, etc.	507				
Engineers, Firemen	3,673				
Contractors	1,129				
Labourers, undefined	23,264				
Others	559				
Total Industrial	53,710				

11. Mothers' Age, Duration of Marriage, and Issue.—A tabulation has been made shewing, in age-groups, the duration of marriage and issue of mothers. The total number of nuptial confinements in 1915 was 126,590, viz., 125,229 single births, 1351 cases of twins, and 10 cases of triplets. From this number 254 mothers must be deducted, in whose case the necessary particulars either as to date of marriage or as to previous issue were not stated. The tables refer, therefore, to a total of 126,366 mothers. They exclude children by former marriages and still-born children, but include ex-nuptial children, previous issue by the same father. The tables cannot be given *in extenso*, but the following are their most salient features. The complete tabulations are shewn in "Commonwealth Bulletin of Population and Vital Statistics, No. 33; Commonwealth Demography, 1915, and previous years."

DURATION OF MARRIAGE AND ISSUE OF MOTHERS OF ALL AGES,
COMMONWEALTH, 1915.

Duration of Marriage.	Total Mothers.	Total Issue.	Average Number of Children.	Duration of Marriage.	Total Mothers.	Total Issue.	Average Number of Children.
Years.				Years.			
0-1 ...	20,877	21,224	1.01	18-19 ...	1,434	10,802	7.53
1-2 ...	10,260	11,751	1.15	19-20 ...	1,184	9,376	7.92
2-3 ...	10,957	19,730	1.80	20-21 ...	899	7,459	8.30
3-4 ...	11,735	24,716	2.10	21-22 ...	724	6,291	8.69
4-5 ...	9,947	24,972	2.51	22-23 ...	547	4,922	9.00
5-6 ...	8,859	25,635	2.88	23-24 ...	434	3,983	9.18
6-7 ...	7,092	23,371	3.29	24-25 ...	338	3,345	9.89
7-8 ...	6,499	23,666	3.64	25-26 ...	230	2,336	10.16
8-9 ...	5,772	23,262	4.03	26-27 ...	150	1,489	9.93
9-10 ...	5,083	22,199	4.37	27-28 ...	92	1,019	11.08
10-11 ...	4,364	20,759	4.76	28-29 ...	39	430	11.03
11-12 ...	3,748	19,039	5.08	29-30 ...	26	296	11.38
12-13 ...	3,202	17,225	5.38	30-31 ...	8	87	10.88
13-14 ...	3,099	17,669	5.70	31-32 ...	4	49	12.25
14-15 ...	2,670	16,286	6.10	32-33 ...	5	72	14.40
15-16 ...	2,516	16,164	6.42	34-35 ...	1	8	8.00
16-17 ...	1,963	13,433	6.84				
17-18 ...	1,588	11,364	7.16	Total	126,336	404,429	3.20

AGES AND ISSUE OF MOTHERS, COMMONWEALTH, 1915.

Ages of Mothers.	Total Mothers.	Total Issue.	Average Number of Children.	Ages of Mothers.	Total Mothers.	Total Issue.	Average Number of Children.
Under 20 years	4,559	5,580	1.22	40-44 years ...	6,568	43,862	6.68
20-24 years ...	29,514	51,890	1.67	45 yrs. and over	654	5,413	8.28
25-29 " ...	38,548	99,938	2.59				
30-34 " ...	28,787	106,968	3.72				
35-39 " ...	17,706	90,778	5.13	All ages ...	126,336	404,429	3.20

PREVIOUS ISSUE OF MOTHERS OF VARIOUS AGES, COMMONWEALTH, 1915.

Previous Issue.	Mothers' Ages.							Total.
	Under 20 Years.	20-24 Years.	25-29 Years.	30-34 Years.	35-39 Years.	40-44 Years.	45 Years and Over.	
0	3,660	14,853	10,860	4,313	1,541	320	31	35,578
1	810	9,101	10,451	5,239	1,691	368	14	27,674
2	81	4,031	7,755	5,307	2,234	475	30	19,913
3	7	1,174	5,131	4,571	2,406	605	27	13,921
4	1	303	2,743	3,699	2,334	689	34	9,803
5	...	41	1,149	2,686	2,226	733	58	6,893
6	...	10	336	1,596	1,821	768	59	4,590
7	...	1	91	853	1,449	709	30	3,183
8	...	...	26	334	974	636	75	2,045
9	...	...	5	124	572	500	75	1,276
10	...	...	...	39	249	326	52	666
11	...	...	...	19	119	211	46	395
12	...	...	1	5	58	119	32	215
13	...	...	...	...	21	63	21	105
14	...	...	...	1	8	23	10	42
15	...	...	...	1	3	13	4	21
16	...	...	...	...	...	7	3	10
17	...	...	...	...	...	3	2	5
19	...	...	...	...	...	...	1	1
Total Mothers	4,559	29,514	38,548	28,787	17,706	6,568	654	126,336

The tables show a fairly regular increase in the number of children up to the period where the marriage has lasted twenty years, and it appears that the average interval between successive confinements up to that period was rather more than two years and eight months. The average number of children of all marriages was 3.20, the corresponding figure for 1914 having been 3.22, for 1913, 3.21, for 1912, 3.29, for 1911, 3.34, and for 1910, 3.41.

A similar table has been prepared showing the previous issue of mothers of twins and triplets, from which it appears that 334 mothers had twins at their first confinement; 279 at their second; 200 at their third; 154 at their fourth; 131 at their fifth; 85 at their sixth; 61 at their seventh; 38 at their eighth; 24 at their ninth; 24 at their tenth; 11 at their eleventh; 5 at their twelfth; 3 at their thirteenth; 1 at her fourteenth; and 1 at her seventeenth.

Of the ten cases of triplets, 1 occurred at the first confinement; 3 at the second; 3 at the third; 1 at the fourth; 1 at the fifth; and 1 at the sixth.

12. **Interval between Marriage and First Birth.**—The following table shows the interval between marriage and first birth. Twins and triplets are included, the eldest born only being enumerated:—

INTERVAL BETWEEN MARRIAGE AND FIRST BIRTH, COMMONWEALTH, 1915.

Interval.	Number of First Children.	Interval.	Number of First Children.	Interval.	Number of First Children.
Under 1 month	594	1 year	8,953	13 years	38
1 month	582	2 years	2,788	14 "	21
2 months	847	3 "	1,242	15 "	9
3 "	1,110	4 "	645	16 "	5
4 "	1,371	5 "	379	17 "	6
5 "	1,668	6 "	208	18 "	4
6 "	2,172	7 "	173	19 "	3
7 "	1,993	8 "	96	20 "	5
8 "	1,663	9 "	82	21 "	1
9 "	3,605	10 "	57	22 "	1
10 "	3,012	11 "	37	23 "	1
11 "	2,178	12 "	28	24 "	1
				Total	35,578

Of these 35,578 children 18,356 were males and 17,222 were females; the masculinity of first births was therefore 106.58 as compared with 104.90 for total births.

The previous issue of mothers of ex-nuptial children is not recorded, but for the purposes of the following table all ex-nuptial births have been assumed to be first births. The table shows the ages of mothers of ex-nuptial births, of nuptial births occurring less than nine months after marriage, and of nuptial births occurring nine months or more after marriage. A comparison of the combined total of the first two columns with the total of nuptial children born nine months or more after marriage, reveals the fact that for all ages the ratio of the two was as 4 is to 5. At all ages up to and including 21, however, there was a great preponderance of ex-nuptial births and of births following on ante-nuptial conception. It must, of course, be understood that a certain number of premature births are necessarily included among the births which occurred less than nine months after marriage, but there is no means of arriving at the proportion of those births.

**AGES OF MOTHERS AND INTERVAL BETWEEN MARRIAGE AND FIRST BIRTH, etc.
COMMONWEALTH, 1915.**

Age of Mother at Birth of Child.	Ex-nuptial Births.	Nuptial Births less than nine months after Marriage.	Total of two preceding columns.	Nuptial Births nine months after Marriage and later.	Total Nuptial First Births.	Nuptial First Births and Ex-nuptial Births.
Years.						
13 ...	6	...	6	..	...	6
14 ...	15	3	18	1	4	19
15 ...	70	20	90	7	27	97
16 ...	184	139	323	12	151	335
17 ...	355	440	795	89	529	884
18 ...	556	879	1,435	265	1,144	1,700
19 ...	632	1,229	1,861	576	1,805	2,437
20 ...	649	1,295	1,944	974	2,269	2,918
21 ...	658	1,556	2,214	1,397	2,953	3,611
22 ...	566	1,257	1,823	1,832	3,139	3,705
23 ...	468	1,133	1,601	2,191	3,324	3,792
24 ...	367	909	1,276	2,259	3,168	3,535
25 ...	326	657	983	2,167	2,824	3,150
26 ...	247	570	817	1,954	2,524	2,771
27 ...	253	431	684	1,731	2,162	2,415
28 ...	191	347	538	1,529	1,876	2,067

AGES OF MOTHERS AND INTERVAL BETWEEN MARRIAGE AND FIRST BIRTH—Continued.

Age of Mother at Birth of Child.	Ex-nuptial Births.	Nuptial Births less than nine months after Marriage.	Total of two preceding columns.	Nuptial Births nine months after Marriage and later.	Total Nuptial First Births.	Nuptial First Births and Ex-nuptial Births.
Years.						
29 ...	181	236	417	1,238	1,474	1,655
30 ...	149	210	359	1,132	1,342	1,491
31 ...	121	141	262	806	947	1,068
32 ...	126	133	259	734	867	993
33 ...	105	80	185	538	618	723
34 ...	102	71	173	468	539	641
35 ...	72	56	128	412	468	540
36 ...	84	50	134	295	345	429
37 ...	69	42	111	250	292	361
38 ...	84	47	131	204	251	335
39 ...	57	23	80	162	185	242
40 ...	38	16	54	119	135	173
41 ...	30	10	40	54	64	94
42 ...	26	6	32	58	64	90
43 ...	16	7	23	30	37	53
44 ...	17	2	19	18	20	37
45 ...	6	2	8	13	15	21
46 ...	5	2	7	6	8	13
47 ...	3	1	4	3	4	7
48 ...	...	...	...	3	3	3
49 ...	2	...	2	...	...	2
50 ...	...	...	...	1	1	1
53 ...	1	...	1	...	...	1
Not stated	17	...	17	...	...	17
Total ...	6,854	12,000	18,854	23,578	35,578	42,432

These results have sometimes been wrongly interpreted. In order to make their true significance more clear, it may be pointed out that during the seven years 1908 to 1914 inclusive there were, in an average female population between the ages 12 to 54 inclusive of about 1,377,108, an annual average of 114,832 nuptial and 6935 ex-nuptial confinements. Of the former, about 31,431 were first births, of which 10,952 occurred within 9 months of marriage (and 19,105 within 12 months), leaving 90,336 which were either not first confinements, or were ex-nuptial confinements. The female population between 12 and 54 inclusive was characterised as follows:—

"Never married"	690,845	"Married"	639,570
"Widowed"	... 44,764	"Divorced"	1,929

Thus the female population between the age limits mentioned, not living in the state of marriage, were 737,538 or 53.56 per cent., the married being 46.44 per cent. In the course of the period mentioned, the proportion of married women giving birth during the interval of 0 to 9 months from marriage was 0.34843 of the total nuptial first confinements, or 0.09537 of the total nuptial confinements. During the same period 269,452 marriages were consummated, the brides aged 12 to 54 inclusive being 267,852 in number. Thus the relative numbers can be set out as follow, the basis being 1,000,000 females of the ages of 12 to 54 inclusive.

CHARACTERISTICS OF FERTILITY IN AUSTRALIA, 1908-1914.

1,000,000 Females ages 12 to 54 inclusive.					Confinements, average for 1 Year.						Marriages, ages 12-54 inclusive.	
Married.	Never Married.	Widowed	Divorced	Total.	First Confinements.			All Confinements.			Marri-ages.	First Confinements.
					After 9 Months.	Within 9 Months.	Total.	Nuptial.	Ex-Nuptial.	Total.		
464,430	501,663	32,506	1,401	1,000,000	14,871	7,953	22,824	83,387	5,035	88,422	194,503	159,769
464,430	535,570			1,000,000	(6,516)	(3,484)	(10,000)	(94,306)	(5,694)	(100,000)	(100,000)	(82,142)
100,000	1,000,000							17,955	9,401			

If we add the total ex-nuptial cases in the 7 years (48,546), to the total nuptial cases born within 9 months of marriage (76,662), the grand total is 125,208, which is equivalent for 7 years to 90,921 for the 1,000,000 females of ages 12 to 54 inclusive. The ratio of the sum of the ex-nuptial children and those born within 9 months of marriage in one year to the total unmarried (i.e., never married, widowed, and divorced), is consequently 0.02425, or about one-fortieth, while the ratio of the births within 9 months of marriage to the total unmarried females is 0.01485, or about one-seventieth. The matter may be put another way. In a female population of 1,000,000 of ages 12 to 54, there are on the average per diem 62.48 first births; the ex-nuptial births are 13.79 per diem; and the nuptial births, occurring within 9 months of marriage, are 21.77 per diem, the total births being 242.06 per diem, of which 228.27 are nuptial.

13. **Interval between Birth and Registration of Birth.**—Information was obtained during 1915 as to the period elapsing between birth and registration. It has already been mentioned at the beginning of this section that one of the effects of the law relating to maternity allowances has been to accelerate the registration of births, as the certificate of registration must be produced when a claim under the Act is lodged. In 1912, during the last quarter of which year the Act was in force, about 6 per cent. of all births were registered within seven days; in 1913 this percentage had risen to 34; in 1914 to 40; and in 1915 to 45.

INTERVAL BETWEEN BIRTH AND REGISTRATION, COMMONWEALTH, 1915.

Interval.	Nuptial Births.	Ex-Nuptial Births.	Total Births.	Interval.	Nuptial Births.	Ex-Nuptial Births.	Total Births.
Under 1 day ...	1,778	116	1,894	16 days ...	2,851	165	3,016
1 day ...	6,948	489	7,437	17 " ...	2,476	130	2,606
2 days ...	8,618	692	9,310	18 " ...	2,269	126	2,395
3 " ...	9,044	507	9,551	19 " ...	2,066	109	2,175
4 " ...	8,632	410	9,042	20 " ...	1,861	92	1,953
5 " ...	8,036	367	8,403	21 " ...	1,689	81	1,770
6 " ...	7,298	284	7,582	22 " ...	1,571	70	1,641
7 " ...	6,737	279	7,016	23 " ...	1,461	65	1,526
8 " ...	5,887	225	6,112	24 " ...	1,244	43	1,287
9 " ...	5,333	232	5,565	25 " ...	1,202	57	1,259
10 " ...	4,822	270	5,092	26 " ...	1,188	54	1,242
11 " ...	4,619	270	4,889	27 " ...	1,039	50	1,089
12 " ...	4,632	274	4,906	28 " ...	966	49	1,015
13 " ...	4,323	290	4,613	29 " ...	935	35	970
14 " ...	3,885	274	4,159	30 " ...	848	27	875
15 " ...	3,300	173	3,473	31 " ...	824	36	860

INTERVAL BETWEEN BIRTH AND REGISTRATION, COMMONWEALTH,
1915—Continued.

Interval.	Nuptial Births.	Ex-Nuptial Births.	Total Births.	Interval.	Nuptial Births.	Ex-Nuptial Births.	Total Births.
32 days ...	759	36	795	55 days ...	125	13	138
33 " ...	616	22	638	56 " ...	153	12	165
34 " ...	610	32	642	57 " ...	151	8	159
35 " ...	547	23	570	58 " ...	166	12	178
36 " ...	517	24	541	59 " ...	141	17	158
37 " ...	485	14	499	60 " ...	113	9	122
38 " ...	481	14	495	61 to 69 days	192	31	223
39 " ...	476	19	495	70 " 79 "	108	8	116
40 " ...	423	25	448	80 " 89 "	45	11	56
41 " ...	433	22	455	90 " 99 "	37	8	45
42 " ...	388	17	405	100 " 109 "	20	3	23
43 " ...	322	13	335	110 " 119 "	13	2	15
44 " ...	282	15	297	120 " 129 "	12	1	13
45 " ...	277	17	294	130 " 139 "	16	3	19
46 " ...	234	17	251	140 " 149 "	11	2	13
47 " ...	197	12	209	150 " 159 "	3	1	4
48 " ...	203	10	213	160 " 169 "	6	1	7
49 " ...	188	8	196	170 " 179 "	6	1	7
50 " ...	191	8	199	180 " 365 "	27	10	37
51 " ...	147	7	154	1 to 2 years ...	5	2	7
52 " ...	138	15	153	2 years and over	6	15	21
53 " ...	151	15	166				
54 " ...	158	14	172	Total Births	127,961	6,910	134,871

The weighted average interval between the dates of birth and registration has been found to be as follows:—

INTERVAL BETWEEN BIRTH AND REGISTRATION, COMMONWEALTH, 1911 to 1915.

Year.	For Nuptial Children.	For Ex-nuptial Children.
1911	37.4 days	26.7 days
1912	*	*
1913	15.6 "	15.2 "
1914	13.4 "	14.3 "
1915	12.3 "	12.4 "
1916	12.6 "	14.9 "

* Introduction of maternity allowance.

Similar information for years prior to 1911 is not available, but it may be assumed that the averages did not vary much from year to year. The figures for 1912 have been omitted; they would shew an average similar to that for 1911 for the first three quarters of the year, and one similar to that for 1913 for the last quarter.

§ 2. Marriages.

1. **Marriages, 1905 to 1915.**—The number of marriages registered in the Commonwealth in 1915 was 45,224, the highest number ever recorded. There has been a steady increase in the annual number of marriages in each State since 1905, and the crude marriage-rate increased similarly in all the States until 1907, with the exception of Western Australia. In 1908 all the States, with the exception of New South Wales and Tasmania, had a lower marriage rate than in 1907, but the rate recovered in 1909 and the three following years, and was considerably higher in 1912 than in 1907 in all the States. In 1913, although the actual number of marriages was greater in Queensland, South Australia, Western Australia, and Tasmania than it had been in 1912, the marriage rate shewed a decrease in every State with the exception of Tasmania. In 1914 the number of marriages and the marriage rate increased in all the States with the exception of South Australia and Tasmania, and in 1915 there were further increases both in the actual number of marriages and in the marriage rate in all States, with the exception of South Australia and Western Australia. The number of marriages in each State since 1905 is shewn below. The rate for 1915 was the highest ever experienced in the Commonwealth.

TOTAL MARRIAGES, COMMONWEALTH, 1905 to 1915.

Year.	N.S.W.	Victoria.	Qld.	S. Aust.	W. Aust.	Tas.	North Terr.	Federal Terr.	C'wealth.
1905 ...	10,970	8,774	3,173	2,594	2,123	1,365	5	...	29,004
1906 ...	11,551	8,980	3,588	2,679	2,261	1,399	2	...	30,410
1907 ...	12,187	9,575	4,105	3,070	2,114	1,410	9	...	32,470
1908 ...	12,641	9,335	4,009	3,112	2,012	1,432	10	...	32,551
1909 ...	13,025	9,431	4,543	3,275	1,997	1,494	10	...	33,775
1910 ...	14,307	10,239	4,768	3,661	2,107	1,493	17	...	36,592
1911 ...	15,278	11,088	5,167	4,036	2,421	1,477	10	(a) 5	39,432
1912 ...	16,666	11,738	5,627	4,056	2,524	1,506	24	6	42,147
1913 ...	16,307	11,324	5,655	4,094	2,572	1,620	16	6	41,594
1914 ...	17,357	11,829	5,894	4,010	2,660	1,543	17	1	43,311
1915 ...	18,095	12,832	6,135	3,965	2,581	1,600	12	4	45,224

(a) Part of New South Wales prior to 1911.

2. **Marriage Rates, 1905 to 1915.**—The number of marriages registered per thousand of mean population is shewn in the following table for the same period :—

CRUDE MARRIAGE RATE (a), COMMONWEALTH, 1905 to 1915.

Year.	N.S.W.	Victoria.	Qld.	S. Aust.	W. Aust.	Tas.	North Terr.	Federal Territory.	C'wealth.
1905 ...	7.46	7.28	6.00	7.21	8.61	7.40	1.21	...	7.25
1906 ...	7.68	7.36	6.69	7.38	8.89	7.59	0.50	...	7.49
1907 ...	7.89	7.81	7.56	8.35	8.27	7.63	2.35	...	7.87
1908 ...	8.03	7.53	7.24	8.23	7.80	7.64	2.74	...	7.76
1909 ...	8.15	7.48	7.97	8.43	7.59	7.85	2.83	...	7.90
1910 ...	8.76	7.98	8.06	9.21	7.77	7.82	5.00	...	8.37
1911 ...	9.19	8.40	8.41	9.81	8.44	7.76	3.01	(b) 2.81	8.79
1912 ...	9.60	8.65	8.91	9.62	8.37	7.86	7.14	2.95	9.07
1913 ...	9.02	8.13	8.67	9.44	8.19	8.27	4.37	2.45	8.66
1914 ...	9.37	8.31	8.73	9.11	8.22	7.78	4.53	0.38	8.80
1915 ...	9.68	9.00	8.93	9.01	8.01	8.03	2.73	1.62	9.14

(a) Number of marriages (not persons married) per 1000 of mean annual population.

(b) Part of New South Wales prior to

As in some international tabulations the marriage rates are calculated per 1000 of the unmarried population of 15 years and over, the corresponding rates have been worked out for the Commonwealth for the four last Census periods. The figures comprise in each case the Census year with the year immediately preceding and the year immediately following, and are as follows:—Years 1880-82, 48.98; years 1890-92, 45.74; years 1900-02, 42.14; years 1910-12, 50.10. These rates refer, of course, to persons married and not to marriages, as do the rates in the preceding table.

3. **Marriage Rates in Various Countries.**—A comparison of the Australian marriage rate with that of European countries shews that during the last few years it has once or twice been surpassed by the rate for Ontario, and equalled by the rate of some of the countries of the East of Europe, and that it has been higher than the rate of the countries of Central and Western Europe, and especially than the rate of countries of the North of Europe:—

CRUDE MARRIAGE RATES.—VARIOUS COUNTRIES.

Country.	Year.	Crude Marriage Rate.	Country.	Year.	Crude Marriage Rate.
Serbia ...	1911	10.3	Russia (European) ...	1909	7.9
England and Wales ...	1915	9.8	German Empire ...	1913	7.7
New South Wales ...	1915	9.7	Scotland ...	1915	7.6
Bulgaria ...	1911	9.4	France ...	1913	7.5
New Zealand ...	1915	9.2	Austria ...	1912	7.4
United Kingdom ...	1915	9.2	Ceylon ...	1915	7.2
Commonwealth ...	1915	9.1	Italy ...	1914	7.1
Victoria ...	1915	9.0	Denmark ...	1915	6.9
South Australia ...	1915	9.0	Netherlands ...	1915	6.6
Queensland ...	1915	8.9	Norway ...	1915	6.5
Hungary ...	1912	8.6	Spain ...	1914	6.5
Ontario (Canada) ...	1915	8.5	Sweden ...	1915	5.8
Rumania ...	1914	8.5	Finland ...	1914	5.7
Japan ...	1913	8.1	Ireland ...	1915	5.6
Western Australia ...	1915	8.0	Chile ...	1914	5.2
Tasmania ...	1915	8.0	Switzerland ...	1915	5.0
Belgium ...	1912	8.0	Jamaica ...	1915	3.0
Prussia ...	1912	8.0			

4. **Age at Marriage.**—(a) The age at marriage of bridegrooms and brides will be found in the following table, the previous conjugal condition of the contracting parties being distinguished. It will be seen that no less than 1591 males who were less than twenty-one years of age, one of whom was a widower, were married during 1915. The corresponding number of females was 8604, of whom nine were widows, and two were divorced. At the other extreme there were twenty-seven men of sixty-five years and upwards, who described themselves as bachelors, and one spinster of corresponding age.

AGES AND CONJUGAL CONDITION OF PERSONS MARRIED, 1915.
COMMONWEALTH.

Age at Marriage.	Bridegrooms.				Brides.			
	Bachelors	Widowers	Divorced.	Total.	Spinsters.	Widows.	Divorced.	Total.
13 years	...	...	...	...	1	...	...	1
14 "	...	...	...	...	10	...	...	10
15 "	...	...	...	...	72	...	...	72
16 "	7	...	...	7	348	...	...	348
17 "	49	...	...	49	994	...	...	994
18 "	165	...	...	165	1,774	2	1	1,777
19 "	464	...	...	464	2,455	3	1	2,459
20 "	905	1	...	906	2,939	4	...	2,943
21 "	2,516	...	1	2,517	4,768	7	4	4,779
22 "	3,134	2	...	3,136	4,283	9	7	4,299
23 "	3,739	4	...	3,743	4,173	17	1	4,191
24 "	4,013	11	3	4,027	3,787	24	12	3,823
25 "	4,002	21	2	4,025	3,105	33	11	3,149
26 "	3,732	22	2	3,756	2,685	39	10	2,734
27 "	3,286	24	4	3,314	2,194	50	26	2,270
28 "	2,788	39	9	2,836	1,826	50	21	1,897
29 "	2,355	45	12	2,412	1,395	68	20	1,483
30 "	1,892	45	8	1,945	1,162	81	22	1,265
31 "	1,490	61	11	1,562	775	66	15	856
32 "	1,315	77	15	1,407	706	66	20	792
33 "	980	74	12	1,066	587	58	18	663
34 "	919	70	10	999	469	85	20	574
35 "	803	73	11	887	436	81	9	526
36 "	598	65	18	681	326	75	16	417
37 "	488	71	15	574	271	77	13	361
38 "	480	68	8	556	253	73	16	342
39 "	430	67	14	511	192	72	12	276
40 "	298	83	9	390	141	72	16	229
41 "	200	62	5	267	97	59	3	159
42 "	242	80	10	332	130	77	13	220
43 "	206	55	5	266	85	63	4	152
44 "	163	63	8	234	77	63	9	149
45 "	192	89	10	291	72	69	6	147
46 "	131	74	8	213	54	63	10	127
47 "	104	75	8	187	41	61	3	105
48 "	112	73	5	190	51	50	3	104
49 "	82	66	6	154	23	44	4	71
50 "	62	54	6	122	31	38	1	70
51 "	60	54	3	117	18	21	1	40
52 "	56	45	2	103	17	28	1	46
53 "	28	47	4	79	10	28	1	39
54 "	42	63	4	109	14	26	5	45
55 "	26	35	2	63	8	17	2	27
56 "	15	35	3	53	6	19	1	26
57 "	17	40	1	58	10	15	...	25
58 "	14	37	...	51	5	11	1	17
59 "	18	26	...	44	3	14	...	17
60 "	21	37	3	61	8	14	...	22
61 "	10	27	...	37	...	7	...	7
62 "	4	25	...	29	2	4	...	6
63 "	5	20	...	25	...	8	...	8
64 "	6	10	...	16	1	4	...	5
65 "	3	29	...	32	...	17	...	17
66 "	3	13	...	16	...	7	...	7
67 "	1	18	...	19	1	2	...	3
68 "	4	12	...	16	...	2	...	2
69 "	2	14	...	16	...	7	...	7
70 "	2	12	...	14	...	5	...	5

AGES AND CONJUGAL CONDITION OF PERSONS MARRIED, 1915—Continued.
COMMONWEALTH.

Age at Marriage.	Bridegrooms.				Brides.			
	Bachelors	Widowers	Divorced.	Total.	Spinsters.	Widows.	Divorced.	Total.
71 years ...	1	7	...	8	...	1	...	1
72 " ...	3	13	...	16	...	2	...	2
73 " ...	1	6	...	7	...	...	...	...
74 " ...	2	6	...	8	...	3	...	3
75 " ...	3	3	1	7	...	3	...	3
76 " ...	...	3	...	3	...	...	...	...
77 " ...	2	5	...	7	...	...	...	...
78 " ...	...	4	...	4	...	...	...	...
79 " ...	...	3	...	3	...	...	...	...
80 " ...	...	2	...	2	...	...	...	...
82 " ...	...	1	...	1	...	...	...	...
86 " ...	...	1	...	1	...	...	...	...
Not stated ...	6	2	...	8	9	1	...	10
Total ...	42,697	2,269	258	45,224	42,900	1,965	359	45,224

(b) The relative ages of bridegrooms and brides are shewn for single years in "Bulletin of Population and Vital Statistics, No. 33"; a condensation into age-groups of five years is here given:—

RELATIVE AGES OF PERSONS MARRIED, COMMONWEALTH, 1915.

Ages.	Total Bridegrooms.	Ages of Brides.								
		Under 15.	15 to 19.	20 to 24.	25 to 29.	30 to 34.	35 to 39.	40 to 44.	45 and Upwds.	Not Stated.
Ages of Bridegrooms.										
Under 20 ...	685	1	459	214	10	...	1	...	...	...
20 to 24 ...	14,329	5	3,270	8,675	1,893	224	47	10	4	1
25 to 29 ...	16,343	3	1,425	7,866	5,627	1,152	234	38	16	2
30 to 34 ...	6,979	...	328	2,160	2,550	1,407	403	91	40	...
35 to 39 ...	3,209	1	108	629	931	761	552	154	73	...
40 to 44 ...	1,459	...	37	191	316	334	274	228	109	...
45 to 49 ...	1,035	1	14	64	144	182	237	178	216	...
50 to 54 ...	530	1	5	16	45	70	90	117	186	...
55 to 59 ...	269	...	4	7	8	26	41	49	134	...
60 to 64 ...	168	...	...	9	5	9	23	23	99	...
65 and upwards ...	180	...	...	4	3	5	20	21	127	...
Not stated ...	8	...	...	...	1	...	...	...	...	7
Total Brides ...	45,224	11	5,650	20,035	11,533	4,150	1,922	909	1,004	10

5. Previous Conjugal Condition.—In a previous table the total number of bachelors and spinsters, widowed and divorced persons, who were married during the year 1915, was shewn. In the following table the relative conjugal condition of the contracting parties is given:—

RELATIVE CONJUGAL CONDITION OF PERSONS MARRIED, COMMONWEALTH, 1915.

Conjugal Condition.	Total Bridegrooms.	Brides.		
		Spinsters.	Widows.	Divorced.
Bridegrooms { Bachelors ...	42,697	41,064	1,353	280
{ Widowers ...	2,269	1,618	587	64
{ Divorced ...	258	218	25	15
Total Brides ...	45,224	42,900	1,965	359

6. **Birthplaces of Persons Married.**—Information as to the birthplaces of persons who were married in 1915 was not obtained in the State of Western Australia; the following figures refer, therefore, only to New South Wales, Victoria, Queensland, South Australia, Tasmania, the Northern Territory and Federal Territory. As might be expected, there were more brides than bridegrooms who were natives of the Commonwealth. In "Bulletin No. 33, Commonwealth Demography," the relative birthplaces of bridegrooms and brides will be found tabulated.

BIRTHPLACES OF PERSONS MARRIED, 1915.

COMMONWEALTH (a)

Birthplaces.	Bridegrooms.	Brides.	Birthplaces.	Bridegrooms.	Brides.
AUSTRALASIA—			ASIA—cont.—		
New South Wales ...	13,450	15,328	Java ...	3	1
Victoria ...	11,893	12,334	Philippine Islands ...	1	...
Queensland ...	4,206	5,097	Syria ...	14	9
South Australia ...	3,652	3,778	Other Asiatic Countries	7	2
Western Australia ...	69	52	AFRICA—		
Tasmania ...	1,699	1,818	Union of South Africa	38	19
Northern Territory ...	3	6	Mauritius ...	5	1
New Zealand ...	514	286	Other African British Possessions ...	1	1
EUROPE—			Egypt ...	4	1
England ...	4,493	2,563	Other African Countries ...	3	3
Wales ...	83	51	AMERICA—		
Scotland ...	1,023	630	Canada ...	49	7
Ireland ...	556	362	Jamaica ...	1	...
Isle of Man ...	7	2	Newfoundland ...	2	...
Other European British Possessions ...	21	12	Other American British Possessions ...	4	1
Austria-Hungary ...	16	2	Argentine Republic ...	2	2
Belgium ...	9	2	Chile ...	1	...
Denmark ...	50	16	Mexico ...	1	...
France ...	23	20	United States ...	98	30
Germany ...	181	46	Other American Countries ...	10	3
Greece ...	19	2	POLYNESIA—		
Italy ...	55	24	Fiji ...	6	8
Netherlands ...	29	9	Friendly Islands ...	3	2
Norway ...	25	6	Other Polynesian British Possessions ...	2	...
Portugal ...	1	1	New Caledonia ...	7	5
Russia ...	81	26	New Hebrides ...	2	...
Spain ...	7	4	Other Polynesian Islands ...	1	1
Sweden ...	47	7	South Sea Islands (so described) ...	9	1
Switzerland ...	13	3	At sea ...	20	9
Other European Countries ...	7	...	Not stated ...	14	20
ASIA—			Total ...		
British India ...	54	20		42,643	42,643
Ceylon ...	8	1			
Straits Settlements ...	2	1			
Other Asiatic British Possessions ...	1	...			
China ...	32	7			
Japan ...	6	1			

(a) Exclusive of Western Australia.

7. **Occupations and Ages of Bridegrooms.**—A tabulation has been made of the occupations and ages of all males married in the Commonwealth in the years 1907 to 1915. In "Bulletin No. 33" the 1915 tabulation is shown for orders of occupations: here it is repeated for classes only, with a subdivision of the Industrial class and of the class of Primary Producers. The average ages of the persons

falling under those twelve subdivisions were determined, and it appears that, apart from the Indefinite class, which consists chiefly of persons who have retired from business and who are living on their own means, and where a high average age may naturally be expected, the average age ranges from 27.93 in the Manufacturing class to 31.95 years in the Pastoral class. The averages for the five years 1907-1911 and the figures for 1912, 1913 and 1914 have been added for the purposes of comparison. The results obtained are shewn in the following table:—

OCCUPATIONS AND AGES OF BRIDEGROOMS, COMMONWEALTH, 1915.

Ages at Marriage.	Professionals.	Domestic.	Mercantile.	Transport and Communication.	Industrial.			Primary Producers.				Indefinite.
					Manufacturing.	Building and Construction.	Indefinite Industrial Workers.	Agricultural.	Pastoral.	Mines and Quarries.	Other Primary Producers.	
16 years ...	...	...	2	...	1	...	4	...	...	...	...	...
17 " ...	3	...	6	7	11	2	14	...	...	...	1	...
18 " ...	10	1	33	19	27	6	49	...	...	3	5	2
19 " ...	31	6	68	58	71	35	126	...	...	5	22	2
20 " ...	67	21	108	118	139	63	250	...	...	17	38	1
21 " ...	260	66	322	314	446	148	642	163	43	88	21	4
22 " ...	322	72	450	367	437	236	720	276	63	117	20	6
23 " ...	414	70	548	442	613	251	833	342	73	129	24	4
24 " ...	391	78	676	515	593	273	868	399	78	120	30	6
25 " ...	449	89	736	469	583	275	756	431	91	107	36	3
26 " ...	444	74	676	445	499	224	752	416	88	97	39	2
27 " ...	358	60	629	365	404	203	663	421	98	88	20	5
28 " ...	330	64	497	307	340	174	555	345	104	92	27	1
29 " ...	275	41	412	253	296	133	527	323	67	66	17	2
30 " ...	203	42	342	198	232	132	385	255	80	58	13	5
31 " ...	178	38	257	186	185	97	284	227	72	38	8	2
32 " ...	152	20	273	162	144	84	273	201	50	39	7	2
33 " ...	116	18	190	123	108	59	222	153	45	26	4	2
34 " ...	91	19	164	100	109	50	199	181	62	25	8	1
35 to 39 years	352	73	529	295	339	155	653	486	167	122	26	12
40 " 44 "	166	54	235	112	144	70	319	226	83	62	10	8
45 " 49 "	98	38	167	76	104	66	205	169	63	33	9	7
50 years and upwards	83	42	149	100	112	84	214	195	68	46	12	42
Not stated	1	...	...	...	...	...	1	1	...	...	...	5
Total	4,794	986	7,469	5,031	5,987	2,810	9,514	5,332	1,413	1,419	345	124
Average age—years (1915)	28.87	30.14	29.03	28.22	27.93	28.67	28.64	30.54	31.95	29.24	29.14	40.63
" " (1914)	30.03	30.07	29.31	27.94	27.94	28.56	28.73	30.35	32.16	28.55	29.92	40.28
" " (1913)	30.54	29.82	29.33	28.07	27.95	28.81	28.45	30.79	32.24	29.08	30.02	42.38
" " (1912)	30.75	30.29	29.45	28.70	27.58	30.33	28.57	30.85	32.09	28.94	29.54	41.90
" " (1907-1911)	31.12	30.32	29.73	28.65	28.27	29.11	28.83	30.99	32.50	29.14	29.43	41.60

The average age at marriage of brides has slowly risen from 25.56 years in 1907 to 25.78 years in 1913 and 1914 and 25.75 years in 1915. The figures for the nine years are:—1907, 25.56 years; 1908, 25.67 years; 1909, 25.74 years; 1910, 25.77 years; 1911, 25.74 years; 1912, 25.74 years; 1913, 25.78 years; 1914, 25.78 years; and 1915, 25.75 years. For the five years 1907-11 the average age was 25.70 years, compared with 25.74 years in 1912, and 25.78 years in 1913 and 1914. As the average age of all bridegrooms during 1915 was 29.00 years, it follows that brides are on an average about three years and a quarter younger than bridegrooms.

8. Fertility of Marriages.—The quotient obtained by division of the nuptial births registered, say during the five years 1911 to 1915, by the number of marriages registered during the five years 1906 to 1910, i.e., the period antecedent by five years to the period of the births, has been called the "fertility of marriages." This works out at 3.79, or in other words, the number of children to be expected from every marriage in the Commonwealth is under four. This method, while not professing any claim to accuracy, generally furnishes results which agree fairly well with those found by more elaborate and careful investigation, but in this instance it is, owing chiefly to the fictitious increase in the number of births shewn in 1912, rather higher than for a number of years prior to 1912. For the period 1907-11 the result was 3.43, for the year 1912, 3.87, for the year 1913, 3.85, and for the year 1914, 3.86.

9. **Registration of Marriages.**—In all the States of the Commonwealth marriages may be celebrated either by ministers of religion, whose names are registered for that purpose with the Registrar-General, or by certain civil officers, in most cases district registrars. The percentage of marriages celebrated by ministers of religion has fluctuated during the last eleven years between 96.10 per cent. in 1915 and 97.55 per cent. in 1909. The figures for the individual States in 1915 were: New South Wales, 97.26 per cent.; Victoria, 96.64 per cent.; Queensland, 96.30 per cent.; South Australia, 95.69 per cent.; Western Australia, 84.31 per cent.; and Tasmania, 97.94 per cent., the percentage for the Commonwealth being 96.10. The registered ministers in 1915 belonged to more than forty different denominations, some of which, however, can hardly be regarded as having any valid existence. A number of these have been omitted from the tabulation, and are bracketed under the heading "Other Christians." The figures for 1915 are shewn in the following table:—

MARRIAGES IN EACH DENOMINATION, COMMONWEALTH, 1915.

Denomination.	N.S.W.	Vic.	Qld.	S.A.	W.A.	Tas.	N. Ter.	Fed. Ter.	Commonwealth
Church of England ...	7,782	3,551	1,675	996	980	564	...	4	15,552
Roman Catholic Church ...	3,398	2,186	1,207	427	396	204	7	...	7,825
Presbyterian Church of Aust. ...	2,473	2,432	873	217	197	196	2	...	6,390
Methodist Church ...	2,458	1,945	1,014	1,137	381	254	2	...	7,191
Congregational Church ...	622	1,157	183	235	96	124	...	...	2,417
Baptist Church ...	327	550	344	307	60	86	...	...	1,674
Church of Christ ...	265	312	29	190	24	24	...	...	844
Lutheran Church ...	36	55	177	175	7	...	...	...	450
Greek Orthodox Church ...	9	3	...	...	3	...	...	...	15
Unitarian Church ...	22	5	...	6	...	...	...	...	33
Salvation Army ...	88	51	42	76	12	9	...	...	278
Seventh-Day Adventists ...	19	15	7	9	4	5	...	...	59
Other Christians ...	45	101	346	16	1	100	...	...	609
Hebrew ...	47	38	8	3	15	1	...	...	112
Registrar's Office ...	495	431	227	171	405	33	1	...	1,763
Unspecified ...	9	...	3	...	...	...	...	...	12
Total ...	18,095	12,832	6,135	3,965	2,581	1,600	12	4	45,224

10. **Mark Signatures.**—The marriage registers afford some clue, even if an imperfect one, to the illiteracy of the adult population, since a small and constantly diminishing percentage of bridegrooms and brides sign the registers with marks.

(i.) *Males and Females, 1905 to 1915.* For a number of years, with the exception of 1905, 1908, 1910, 1912, and 1913 mark signatures by males have been slightly more numerous than those by females, the percentages for the Commonwealth during the past eleven years having been as follows:—

PERCENTAGE OF MARK SIGNATURES AT MARRIAGE, COMMONWEALTH, 1905 to 1915.

Year ...	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.
Male ...	0.91	0.92	0.81	0.71	0.65	0.56	0.56	0.43	0.36	0.41	0.27
Female ...	0.93	0.86	0.70	0.73	0.62	0.59	0.54	0.45	0.38	0.38	0.27

(ii.) *Mark Signatures in Commonwealth States, 1905 to 1915.* The following table shews that while the Tasmanian percentage has been the highest, and the Victorian the lowest, in each of the eleven years under review, there has been a marked decrease in every State:—

PERCENTAGE OF MARK SIGNATURES AT MARRIAGE, COMMONWEALTH, 1905 to 1915.

Year.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	North. Terr.	Fed. Terr.	C'wealth.
1905 ...	1.12	0.44	1.39	0.83	0.57	2.12	...	...	0.92
1906 ...	0.94	0.43	1.67	0.65	0.66	2.18	25.00	...	0.89
1907 ...	0.87	0.36	1.14	0.55	0.64	2.02	...	...	0.76
1908 ...	0.79	0.33	1.20	0.56	0.82	1.57	...	...	0.72
1909 ...	0.60	0.22	1.16	0.55	0.68	2.07	30.00	...	0.64
1910 ...	0.61	0.29	0.92	0.44	0.52	1.17	29.41	...	0.58
1911 ...	0.54	0.22	0.84	0.46	0.78	1.96	15.00	(a)...	0.55
1912 ...	0.33	0.27	0.60	0.54	0.61	1.29	25.00	...	0.44
1913 ...	0.33	0.17	0.45	0.34	0.78	1.20	8.33	...	0.37
1914 ...	0.36	0.19	0.59	0.45	0.53	1.00	1.47	...	0.39
1915 ...	0.25	0.11	0.26	0.32	0.43	1.47	...	...	0.27

(a) Part of New South Wales prior to 1911.

A complete disappearance of mark signatures is hardly to be expected, for the available information tends to shew that two-thirds of those who sign with marks are natives of their respective States, who apparently have not made use of the advantages offered to them by the State schools.

§ 3. Deaths.

1. Male and Female Deaths, 1905 to 1915.—The total number of deaths registered in the Commonwealth from 1905 to 1915 inclusive, gives an annual average of 27,559 males and 20,230 females, the details being as follow:—

MALE DEATHS, COMMONWEALTH, 1905 to 1915.

Year.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	Nor. Terr.	Fed. Terr.	C'wealth.
1905 ...	8,709	8,273	3,499	2,003	1,728	1,061	38	...	25,311
1906 ...	8,715	8,342	3,212	2,053	1,878	1,118	56	...	25,374
1907 ...	9,444	7,977	3,482	1,998	1,866	1,083	89	...	25,939
1908 ...	9,293	8,816	3,500	2,029	1,800	1,112	77	...	26,632
1909 ...	9,184	8,070	3,419	2,080	1,671	1,030	60	...	25,514
1910 ...	9,339	8,128	3,594	2,163	1,760	1,098	72	...	26,154
1911 ...	9,973	8,355	4,060	2,179	1,923	1,037	59	(a) 5	27,591
1912 ...	11,094	9,072	4,305	2,409	2,210	1,130	61	4	30,285
1913 ...	11,508	8,495	4,195	2,563	1,852	1,189	53	4	29,859
1914 ...	10,984	9,017	4,132	2,621	1,942	1,063	69	7	29,835
1915 ...	11,439	8,860	4,695	2,587	1,887	1,083	89	14	30,654
Rate, (b) 1915	11.89	12.57	12.73	11.93	10.68	10.61	24.58	9.48	12.08

(a) Part of New South Wales prior to 1911.

(b) Number of deaths per 1000 of mean population.

FEMALE DEATHS, COMMONWEALTH, 1905 to 1915.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aus.	Tas.	North. Terr.	Fed. Terr.	C'wealth
1905 ...	6,269	6,403	2,004	1,758	981	783	5	...	18,203
1906 ...	6,260	6,895	1,883	1,819	1,206	893	3	...	18,959
1907 ...	6,967	6,562	2,116	1,738	1,065	915	3	...	19,366
1908 ...	6,757	6,950	2,180	1,805	1,079	1,017	6	...	19,794
1909 ...	6,626	6,366	2,111	1,702	1,033	812	8	...	18,658
1910 ...	6,819	6,604	2,150	1,851	980	1,022	10	...	19,436
1911 ...	7,173	6,861	2,484	1,859	1,000	890	6	(a) 5	20,278
1912 ...	7,768	7,517	2,616	1,927	1,125	927	6	6	21,892
1913 ...	8,191	6,979	2,588	2,130	1,082	942	11	7	21,930
1914 ...	7,736	7,486	2,599	2,092	1,101	855	12	4	21,885
1915 ...	8,146	6,963	2,864	2,107	1,105	932	8	3	22,128
Rate, (b) 1915	8.98	9.65	9.00	9.44	7.58	9.58	10.22	3.03	9.16

(a) Part of New South Wales prior to 1911.

(b) Number of deaths per 1000 of mean population.

2. **Male and Female Death Rates, 1915.**—The crude male and female death rates for 1915 only are given in the last line of the preceding tables. Victoria has the highest rate both for males and for females, while Tasmania has the lowest male, and Western Australia the lowest female death rate. The rates for the two Territories are based on very small numbers, and comparisons with the States are misleading.

Owing to differences in the age constitution of the six States, the crude rates are not, however, strictly comparable, but for the purposes of calculating the "Index of Mortality" (see page 195) a distribution into five age-groups has been made, and the death rates are shown for males and females in each State in five-year age groups for the three years 1910-1912, that is, for the census year and for the year immediately preceding and following, on page 190.

3. **Death Rates of Various Countries.**—A comparison with foreign States is, for the same reason, apt to shew the Commonwealth in too favourable a light, but even if an allowance for the different age constitution were made, it would still be found occupying a very enviable position. The following table gives particulars of the death rates of various countries for the latest available years:—

DEATH RATES (a) OF VARIOUS COUNTRIES.

Country.	Year.	Crude Death Rate.	Country.	Year.	Crude Death Rate.
New Zealand ...	1915	9.1	United Kingdom ...	1915	15.6
Western Australia ...	1915	9.3	England and Wales ...	1915	15.7
Tasmania ...	1915	10.1	Scotland ...	1915	17.1
New South Wales ...	1915	10.5	Ireland ...	1915	17.6
Commonwealth ...	1915	10.7	France ...	1913	17.7
South Australia ...	1915	10.7	Italy ...	1914	17.9
Queensland ...	1915	11.0	Japan ...	1913	19.5
Victoria ...	1915	11.1	Austria ...	1912	20.5
Ontario (Canada) ...	1915	12.0	Serbia ...	1912	21.1
Netherlands ...	1915	12.4	Bulgaria ...	1911	21.5
Denmark ...	1915	12.8	Jamaica ...	1915	21.6
Norway ...	1915	13.3	Spain ...	1914	22.1
Switzerland ...	1915	13.3	Hungary ...	1912	23.3
Sweden ...	1915	14.6	Rumania ...	1914	23.8
Belgium ...	1912	14.8	Ceylon ...	1915	25.2
Prussia ...	1913	14.9	Chile ...	1914	27.8
German Empire ...	1913	15.0	Russia, European ...	1909	28.9
Finland ...	1914	15.6			

(a) Number of deaths per 1000 of mean population.

4. **Total Deaths, 1905 to 1915.**—The total number of deaths in each of the Commonwealth States during the eleven years 1905 to 1915, is shown below:—

TOTAL DEATHS, COMMONWEALTH, 1905 to 1915.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aus.	Tas.	North Terr.	Federal Terr.	C'wealth.
1905 ...	14,978	14,676	5,503	3,761	2,709	1,844	43	...	43,514
1906 ...	14,975	15,237	5,095	3,872	3,084	2,011	59	...	44,333
1907 ...	16,411	14,539	5,598	3,736	2,931	1,998	92	...	45,305
1908 ...	16,055	15,766	5,680	3,834	2,879	2,129	83	...	46,426
1909 ...	16,810	14,436	5,530	3,782	2,704	1,842	68	...	44,172
1910 ...	16,158	14,732	5,744	4,014	2,740	2,120	82	...	45,590
1911 ...	17,146	15,216	6,544	4,038	2,923	1,927	65	(a) 10	47,869
1912 ...	18,862	16,589	6,921	4,336	3,335	2,057	67	10	52,177
1913 ...	19,699	15,474	6,783	4,693	2,934	2,131	64	11	51,789
1914 ...	18,720	16,503	6,731	4,713	3,043	1,918	81	11	51,720
1915 ...	19,585	15,823	7,559	4,694	2,992	2,015	97	17	52,782

(a) Part of New South Wales prior to 1911.

5. Crude Death Rates, 1905 to 1915.—The death rate for 1915 shewed an increase on that for 1914 in New South Wales, Queensland, Tasmania, and the Commonwealth as a whole, and a decrease in Victoria, South Australia, and Western Australia. The rates for Victoria and Western Australia were the lowest on record. The Commonwealth rate for 1915 was equal to that for 1911, and lower than in any of the other years of the period under review excepting the years 1909, 1910, and 1913.

CRUDE DEATH RATE (a), COMMONWEALTH, 1905 to 1915.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	North Terr.	Federal Terr.	C'wealth.
1905 ...	10.18	12.17	10.40	10.45	10.98	10.00	10.42	...	10.88
1906 ...	9.95	12.55	9.50	10.66	12.12	10.91	14.84	...	10.92
1907 ...	10.63	11.86	10.31	10.16	11.47	10.81	24.07	...	10.99
1908 ...	10.20	12.71	10.26	10.14	11.17	11.36	22.71	...	11.07
1909 ...	9.89	11.45	9.70	9.74	10.27	9.68	19.22	...	10.33
1910 ...	9.89	11.49	9.71	10.09	10.11	11.10	24.10	...	10.43
1911 ...	10.32	11.52	10.65	9.82	10.19	10.13	19.58	(b)5.62	10.66
1912 ...	10.86	12.23	10.96	10.28	11.06	10.73	19.95	4.91	11.23
1913 ...	10.89	11.11	10.39	10.82	9.34	10.87	17.49	4.49	10.78
1914 ...	10.11	11.59	9.97	10.71	9.41	9.67	21.59	4.16	10.51
1915 ...	10.48	11.10	11.00	10.67	9.28	10.11	22.08	6.89	10.66

(a) Number of deaths per thousand of mean population for year. (b) Part of New South Wales prior to 1911.

6. Male and Female Death Rates, 1905 to 1915.—The rise in the Commonwealth rate from 1905 to 1907 was due to an increase in the female death rate, while the increase in 1908 was practically limited to the male death rate, as the subjoined table shews. The decrease from 1908 to 1909 was fairly equal for the male and female rates, and the increase in 1910 was due to a rise in the female rate. From 1910 to 1911, and again from 1911 to 1912 the increase in the male rate was about one and a half times as marked as that in the female rate, while the decrease from 1912 to 1913 was more than twice as great for the male rate than for the female rate. The decrease from 1913 to 1914 was fairly equal for the male and female rates, while in 1915 there was a fairly sharp increase in the male rate, with a further slight decrease in the female rate, making the latter the lowest but one on record.

MALE AND FEMALE DEATH RATES (a), COMMONWEALTH, 1905 to 1915.

Year.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.
Male rate	12.14	12.01	12.11	12.24	11.51	11.54	11.82	12.51	11.93	11.67	12.08
F ^o male ,,	9.50	9.73	9.77	9.81	9.06	9.24	9.40	9.84	9.53	9.27	9.16
Crude total rate	10.88	10.92	10.99	11.07	10.33	10.43	10.66	11.23	10.78	10.51	10.66

(a) Number of deaths per thousand of mean population.

7. Infantile Death Rate.—(i.) *Deaths and Death Rates of Male and Female Infants, 1905 to 1915.* Improvement continues to take place in the infantile death rate since 1905, in which year it stood at 81.76 per thousand births registered, while in 1915 it had fallen to 67.52 per thousand, a rate lower than that experienced in any previous year. In the following table, which shews both the total number of deaths of children under one year and the rate per thousand births since 1905, males and females are distinguished. The universal experience that during the first few years of life the excess of male births tends to disappear, as a consequence of the higher death rate of male infants is shewn by the fact that out of 681,316 male infants born from 1905 to 1915, 55,656 died during their first year of life, while of 648,128 female infants the number who died was only 43,114:—

**NUMBER OF INFANTILE DEATHS AND RATES OF INFANTILE MORTALITY,
COMMONWEALTH, 1905 to 1915.**

Year.	Registered Deaths under one year.			Rate of Infantile Mortality (a).		
	Males.	Females.	Total.	Males.	Females.	Total.
1905 ...	4,884	3,696	8,580	90.62	72.41	81.76
1906 ...	5,002	3,981	8,983	90.10	76.01	83.26
1907 ...	4,993	3,952	8,945	88.39	73.38	81.06
1908 ...	4,885	3,791	8,676	85.53	69.65	77.78
1909 ...	4,604	3,559	8,163	78.73	64.02	71.56
1910 ...	4,916	3,822	8,738	81.65	67.53	74.81
1911 ...	4,745	3,624	8,369	75.91	60.72	68.49
1912 ...	5,446	4,102	9,548	80.06	63.04	71.74
1913 ...	5,472	4,328	9,800	78.81	65.30	72.21
1914 ...	5,582	4,279	9,861	79.06	63.51	71.47
1915 ...	5,127	3,980	9,107	74.25	60.47	67.52

(a) Number of deaths under 1 year per 1000 births registered.

(ii.) *Infantile Mortality, 1905 to 1915.* Divided among the States and Territories, the rates of infantile mortality during the last eleven years was as follows:—

RATES (a) OF INFANTILE MORTALITY, COMMONWEALTH, 1905 to 1915.

Year.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	Nor. Terr.	Federal Territory.	Com'-wealth.
1905 ...	80.55	83.30	75.52	72.80	104.19	80.65	111.11	...	81.76
1906 ...	74.53	92.92	74.68	75.66	110.00	90.19	160.00	...	83.26
1907 ...	88.46	72.60	77.65	66.23	97.51	82.97	185.19	...	81.06
1908 ...	75.20	86.05	70.67	69.50	84.72	75.16	58.82	...	77.78
1909 ...	73.87	71.36	71.50	60.91	78.01	64.91	111.11	...	71.56
1910 ...	74.71	76.88	62.90	70.21	78.18	101.68	200.00	...	74.81
1911 ...	69.46	68.70	65.36	60.60	76.01	73.39	96.77	...	68.49
1912 ...	71.00	74.48	71.73	61.68	82.06	66.80	121.21	(b) 33.34	71.74
1913 ...	77.78	70.53	63.35	69.83	70.30	70.68	115.38	...	72.21
1914 ...	69.29	78.27	63.93	75.79	68.12	71.46	51.72	22.73	71.47
1915 ...	67.67	68.78	64.33	67.04	66.54	72.37	65.57	42.55	67.52

(a) Number of deaths under 1 year per 1000 births registered. (b) Part of New South Wales prior to 1911.

The movement has been a fairly regular one, shewing slight increases in the rates during 1906, 1910, and 1913. The minimum rates in the six States occurred at different periods, viz., Tasmania, in 1909; Queensland, in 1910; Victoria and South Australia, in 1911; New South Wales and Western Australia, in 1915. The regrettable increase in the Victorian rate for 1907 was wholly due to the large mortality caused by the phenomenal heat of January, 1908. With the exception of Queensland, where the 1908 rate was exceptionally low, the 1909 rate was the lowest ever experienced up to that date in any of the States. A rise occurred in every State in 1910, with the exception of Queensland, which was counterbalanced by a considerable decrease during 1911 in every State but Queensland. In 1912 the rates shewed a rise in every State except Tasmania, and this was followed by a decrease in 1913 in Victoria, Queensland, and Western Australia, and by a further rise in New South Wales, South Australia, and Tasmania. In 1914 the rates increased in every State except New South Wales and Western Australia, the increases in Victoria and South Australia being particularly noticeable. In 1915 the rate decreased in New South Wales, Victoria, South Australia, and Western Australia, and increased slightly in Queensland and Tasmania. The Commonwealth rate for 1915 was the lowest on record.

(iii) *Infantile Mortality in Various Countries and Cities.* Compared with European countries, the cities and States of the Commonwealth occupy a very enviable position, and it may be pointed out that experience has shewn that a high birth rate is often, though not invariably, accompanied by a high infantile death rate. The figures in the subjoined tables relate to the latest years for which returns are available:—

RATE (a) OF INFANTILE MORTALITY IN VARIOUS COUNTRIES.

Country.	Year.	Rate of Infantile Mortality. (a)	Crude Birth Rate. (b)	Country.	Year.	Rate of Infantile Mortality. (a)	Crude Birth Rate. (b)
New Zealand ...	1915	50	25.4	United Kingdom...	1915	110	22.2
Queensland ...	1915	64	29.4	Belgium	1912	120	22.6
South Australia ...	1915	67	26.8	Scotland	1915	126	23.9
Western Australia .	1915	67	28.0	Italy	1913	137	31.7
Commonwealth ...	1915	68	27.3	Prussia	1912	146	28.9
New South Wales ...	1915.	68	28.3	Serbia	1911	146	36.2
Norway	1914	68	25.2	Japan	1913	150	33.3
Victoria	1915	69	24.6	German Empire ...	1913	151	27.5
Sweden	1913	70	23.2	Bulgaria	1911	156	40.2
Tasmania	1915	72	29.3	Spain	1907	158	33.6
France	1912	78	19.0	Ceylon	1915	171	37.0
Netherlands ...	1915	87	26.2	Jamaica	1915	175	34.6
Switzerland ...	1914	91	22.5	Austria	1912	180	31.3
Ireland	1915	92	22.0	Hungary	1912	186	36.3
Denmark	1915	95	24.2	Rumania	1914	187	42.5
Ontario (Canada) ...	1915	102	24.2	Russia, European	1909	248	44.0
Finland	1915	104	26.9	Chile	1914	286	37.0
England and Wales	1915	110	22.0				

(a) Number of deaths under 1 year per 1000 births registered. (b) Number of births per 1000 of mean population.

RATE (a) OF INFANTILE MORTALITY IN VARIOUS CITIES.

City.	Year.	Rate of Infantile Mortality. (a)	City.	Year.	Rate of Infantile Mortality. (a)
Rome	1915	56	Florence	1915	131
Amsterdam	1915	63	Edinburgh	1915	132
Zurich	1915	68	Milan	1915	132
Rotterdam	1915	69	Leipzig	1912	133
Brisbane	1915	70	Liverpool	1915	133
Sydney	1915	71	Munich	1912	134
Adelaide	1915	75	Lyons	1915	136
Stockholm	1915	77	Antwerp	1912	140
Perth	1915	78	Budapest	1912	141
Melbourne	1915	80	Berlin	1912	142
Geneva	1915	83	Glasgow	1915	143
Hobart	1915	86	Marseilles	1911	144
Copenhagen	1915	92	Vienna	1912	149
Buenos Aires	1912	96	Genoa	1915	151
Chicago	1915	98	Brussels	1912	166
New York	1915	102	Dublin	1915	167
Christiania	1912	108	Aberdeen	1915	173
London	1915	110	Rio de Janeiro	1912	174
Washington	1915	110	Madrid	1915	177
Toronto	1911	114	Monte Video	1915	179
Birmingham	1915	118	Bucharest	1912	185
Paris	1915	125	Montreal	1911	242
Belfast	1912	129	Petrograd	1912	249
Manchester	1915	129	Moscow	1915	317
Hamburg	1912	130	Bombay	1915	329

(a) Number of deaths under 1 year per 1000 births registered.

(iv.) *The Effect of Infantile Mortality on Birth Rate.* It has been contended by certain investigators that the birth-rate question is intimately related to that of infantile mortality, and that in many cases a declining birth rate may be to a large extent accounted for by a decline in the infantile death rate, since, in the case in which an infant has survived, the period elapsing before the birth of the next child is likely to be longer than in the case in which the infant has died. It may indeed be readily admitted that in any community the birth rate may be affected in a definite way by variations of infantile mortality, but careful investigation of the question serves to shew that, whether considered from the theoretical aspect with a view to determining the *maximum* and the *probable* effects which a given change in the rate of infantile mortality would produce in the birth rate, or from the practical point of view by observing the fluctuations in the birth rates of various countries which have been collateral with changes in their rates of infantile mortality, there is little ground for the contention that the rate of infantile mortality is an important factor in determining the variations in the birth rate. One calculation which has been made on the basis of normal Australian conditions indicates that the *maximum* effect of increasing the rate of infantile mortality 100 per cent. would, in the absence of other disturbing causes, be to increase the birth rate by only $3\frac{1}{2}$ per cent., whilst the *probable* effect would be considerably less than this. In other words, the *maximum* effect of an increase in the rate of infantile mortality from 100 to 200 per 1000 births would be to increase the birth rate from say 30 to 31 per 1000 of population. It may be noted too, that although in some countries an increase in birth-rate accompanies an increase in the rate of infantile mortality, in others the birth rate would appear to be quite unaffected by such an increase, while in the case of England and Wales, Scotland, and Ireland, the tendency apparently exhibited is for an increase in the rate of infantile mortality to be associated with a decrease in the birth rate. The conclusion which these results appear to warrant is that although infantile mortality undoubtedly tends on the whole to increase the birth rate, the practical effect produced is so slight that the existence of such a relation may in any instance be quite masked by more important causes of variation.

8. *Deaths in Age-Groups, 1905 to 1915.*—A distribution into age-groups has been made of the 525,677 deaths which occurred in the Commonwealth from 1905 to 1915, and the results are tabulated for each State. It is, however, sufficient here to shew the results for the Commonwealth as a whole, which are as follows:—

DEATHS IN AGE-GROUPS, COMMONWEALTH, 1905 to 1915.

Ages.	Males.	Females.	Total.	Percentage of Total Males.	Percentage of Total Females.	Percentage of Total.
Under 1 year ...	55,656	43,114	98,770	18.36	19.38	18.79
1 year and under 5 ...	16,892	14,966	31,858	5.57	6.73	6.06
5 years and under 20 ...	16,326	14,282	30,608	5.38	6.42	5.82
20 years and under 40 ...	39,742	35,002	74,744	13.11	15.73	14.22
40 years and under 60 ...	64,078	37,235	101,313	21.14	16.73	19.27
60 years and under 65 ...	17,790	10,601	28,391	5.87	4.76	5.40
65 years and over ...	92,058	67,211	159,269	30.37	30.20	30.30
Age not stated ...	606	118	724	0.20	0.05	0.14
Total ...	303,148	222,529	525,677	100.00	100.00	100.00

9. *Deaths at Single Ages and in Age-Groups, 1915.*—The 52,782 deaths which were registered in the Commonwealth in the year 1915 will be found tabulated under single years, and in groups of five years for each State and Territory, in "Bulletin No.

33, Commonwealth Demography, 1915." It has been thought advisable to tabulate the deaths during the first two years of life in greater detail. The first month has, therefore, been shewn in weeks, and the twenty-three months up to the end of the second year in months. This tabulation shews a great number of children dying during the first week, the number gradually diminishing towards the end of the second year. The particulars relating to the Commonwealth are given in the following table:—

DEATHS AT SINGLE AGES AND IN AGE-GROUPS, 1915.

COMMONWEALTH.

Ages.	Males.	Females.	Total.	Ages.	Males.	Females.	Total.
Under 1 week ...	1,804	1,423	3,227	10 years ...	72	71	143
1 week and under 2 ...	297	227	524	11 " ...	79	55	134
2 weeks " " 3 ...	191	139	330	12 " ...	72	62	134
3 " " " 4 ...	175	109	284	13 " ...	71	66	137
				14 " ...	88	83	171
Total under one month ...	2,467	1,898	4,365	Total 10 years and under 15	382	337	719
1 month and under 2 ...	442	309	751	15 years ...	105	68	173
2 months " " 3 ...	323	237	560	16 " ...	100	80	180
3 " " " 4 ...	278	232	510	17 " ...	123	101	224
4 " " " 5 ...	254	206	460	18 " ...	151	96	247
5 " " " 6 ...	230	177	397	19 " ...	170	127	297
6 " " " 7 ...	243	173	416	Total 15 years and under 20	649	472	1,121
7 " " " 8 ...	234	157	391	20 years ...	187	114	301
8 " " " 9 ...	188	148	336	21 " ...	207	139	346
9 " " " 10 ...	163	171	334	22 " ...	210	161	371
10 " " " 11 ...	159	145	304	23 " ...	194	176	370
11 " " " 12 ...	156	137	293	24 " ...	201	156	357
Total under 1 year ...	5,127	3,980	9,107	Total 20 years and under 25	999	746	1,745
12 months and under 13 ...	276	231	507	25 years ...	207	159	366
13 " " " 14 ...	104	84	188	26 " ...	199	173	372
14 " " " 15 ...	91	78	169	27 " ...	205	168	373
15 " " " 16 ...	89	68	157	28 " ...	196	222	418
16 " " " 17 ...	83	55	138	29 " ...	201	166	367
17 " " " 18 ...	75	47	122	Total 25 years and under 30	1,008	888	1,896
18 " " " 19 ...	60	65	125	30 years ...	213	176	389
19 " " " 20 ...	41	43	84	31 " ...	171	141	312
20 " " " 21 ...	51	39	90	32 " ...	217	179	396
21 " " " 22 ...	60	35	95	33 " ...	191	138	329
22 " " " 23 ...	45	36	81	34 " ...	213	181	394
23 " " " 24 ...	30	29	59	Total 30 years and under 35	1,005	815	1,820
Total under 2 years ...	6,132	4,790	10,922	35 years ...	236	147	383
2 years ...	434	334	768	36 " ...	214	175	389
3 " ...	233	232	465	37 " ...	240	157	397
4 " ...	190	167	357	38 " ...	259	184	443
Total under 5 years ...	6,989	5,523	12,512	39 " ...	201	181	382
5 years ...	152	143	295	Total 35 years and under 40	1,150	844	1,994
6 " ...	137	111	248				
7 " ...	94	117	211				
8 " ...	109	102	211				
9 " ...	97	76	173				
Total 5 years and under 10	589	549	1,138				

DEATHS AT SINGLE AGES AND IN AGE-GROUPS, 1915—Continued.

Ages.	Males.	Females.	Total.	Ages.	Males.	Females.	Total.
40 years	242	173	415	75 years	529	380	909
41 " "	194	118	312	76 " "	428	337	765
42 " "	241	213	454	77 " "	357	300	657
43 " "	267	154	421	78 " "	438	364	802
44 " "	238	160	398	79 " "	345	284	629
Total 40 years and under 45	1,182	818	2,000	Total 75 years and under 80	2,097	1,655	3,762
45 years	362	213	575	80 years	430	326	756
46 " "	291	157	449	81 " "	305	238	543
47 " "	270	177	447	82 " "	373	305	678
48 " "	312	183	495	83 " "	306	206	512
49 " "	301	204	505	84 " "	288	260	548
Total 45 years and under 50	1,536	984	2,470	Total 80 years and under 85	1,702	1,335	3,037
50 years	430	215	645	85 years	281	202	483
51 " "	291	158	449	86 " "	239	186	425
52 " "	367	228	595	87 " "	153	154	307
53 " "	358	207	565	88 " "	119	138	257
54 " "	410	239	649	89 " "	109	97	206
Total 50 years and under 55	1,856	1,047	2,903	Total 85 years and under 90	901	777	1,678
55 years	408	207	615	90 years	81	92	173
56 " "	367	237	604	91 " "	48	54	102
57 " "	400	211	611	92 " "	45	47	92
58 " "	432	222	654	93 " "	36	35	71
59 " "	392	204	596	94 " "	23	32	55
Total 55 years and under 60	1,999	1,081	3,080	Total 90 years and under 95	233	260	493
60 years	494	230	724	95 years	25	24	49
61 " "	351	167	518	96 " "	22	16	44
62 " "	359	221	580	97 " "	6	9	15
63 " "	376	235	611	98 " "	4	11	15
64 " "	421	214	635	99 " "	4	5	9
Total 60 years and under 65	2,001	1,067	3,068	Total 95 yrs. and under 100	67	65	132
65 years	507	259	766	100 years	5	5	10
66 " "	369	223	592	101 " "	2	4	6
67 " "	416	240	656	102 " "	3	1	4
68 " "	406	261	667	107 " "	1	...	1
69 " "	379	254	633	117 " "	1	...	1
Total 65 years and under 70	2,077	1,237	3,314	Total 100 years and over...	12	10	22
70 years	489	344	833	Age not stated	70	7	77
71 " "	376	281	657	Total all ages	30,654	22,128	52,782
72 " "	410	348	758				
73 " "	441	320	761				
74 " "	434	358	792				
Total 70 years and under 75	2,150	1,651	3,801				

The following tables shew the death rate per 1000 living at each age for the three years 1910, 1911 and 1912, viz., the Census year 1911, and the years immediately preceding and following. The Northern Territory is included with South Australia, and the Federal Territory with New South Wales:—

**AVERAGE ANNUAL DEATH RATES PER 1000 LIVING IN VARIOUS
AGE-GROUPS, 1910 to 1912.**

MALES.

Age Group.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
0 to 4 years	25.40	24.71	23.30	21.30	28.44	24.65	24.71
5 " 9 "	2.11	2.39	2.39	1.85	2.61	2.53	2.26
10 " 14 "	1.75	1.69	1.74	1.40	2.16	1.70	1.72
15 " 19 "	2.42	2.41	2.92	2.43	2.86	2.59	2.52
20 " 24 "	3.37	3.27	4.83	3.00	5.17	3.57	3.65
25 " 29 "	3.91	4.13	5.57	3.57	5.86	4.49	4.35
30 " 34 "	4.90	4.83	5.96	5.40	6.75	3.77	5.20
35 " 39 "	6.03	6.31	7.54	7.15	8.41	6.28	6.68
40 " 44 "	8.25	8.26	9.65	8.31	10.37	6.17	8.58
45 " 49 "	10.91	11.05	13.83	10.27	14.96	9.25	11.58
50 " 54 "	14.78	15.33	17.77	13.02	17.66	14.08	15.36
55 " 59 "	21.93	21.41	23.01	19.99	24.65	16.24	21.67
60 " 64 "	30.99	31.52	31.25	31.94	35.06	28.39	31.38
65 " 69 "	45.80	50.53	51.53	45.94	45.96	38.29	47.69
70 " 74 "	71.49	74.28	70.94	58.38	78.74	58.79	70.88
75 " 79 "	117.05	115.68	112.40	99.49	110.54	108.60	114.04
80 " 84 "	181.34	174.56	190.89	165.68	185.23	148.67	176.32
85 " 89 "	252.58	270.76	202.56	225.42	328.21	313.87	257.73
90 and over	375.35	365.88	272.73	279.57	321.43	465.61	357.11

FEMALES.

0 to 4 years	20.96	19.79	20.07	16.96	21.76	21.27	20.22
5 " 9 "	1.78	2.27	2.29	1.71	2.58	1.88	2.04
10 " 14 "	1.41	1.81	1.45	1.25	1.77	2.51	1.59
15 " 19 "	1.96	2.42	2.20	2.19	2.01	3.47	2.22
20 " 24 "	3.22	3.74	3.76	3.44	3.82	4.09	3.53
25 " 29 "	4.02	4.31	4.68	4.79	4.42	4.66	4.31
30 " 34 "	4.51	4.98	4.46	4.92	4.88	4.93	4.93
35 " 39 "	5.84	6.02	5.79	5.71	6.15	7.68	5.97
40 " 44 "	6.24	6.63	7.11	5.80	6.73	5.67	6.44
45 " 49 "	7.63	8.05	9.07	7.91	8.40	7.02	7.98
50 " 54 "	11.22	11.30	11.73	9.72	11.82	8.76	11.07
55 " 59 "	14.38	15.55	14.13	12.63	14.18	15.80	14.60
60 " 64 "	21.69	22.27	21.64	20.54	20.44	19.50	21.60
65 " 69 "	37.81	36.48	34.69	35.01	34.59	35.09	36.47
70 " 74 "	55.75	58.36	57.82	48.28	54.52	55.11	56.13
75 " 79 "	97.62	98.27	86.11	91.32	92.45	93.30	95.91
80 " 84 "	154.31	157.19	138.33	137.37	144.14	150.77	151.89
85 " 89 "	184.60	225.65	200.82	202.17	186.67	254.45	208.59
90 and over	307.43	361.44	351.52	328.17	358.97	317.88	334.87

PERSONS.

0 to 4 years	23.21.	22.29	21.72	19.16	25.15	23.00	22.50
5 " 9 "	1.95	2.33	2.34	1.78	2.60	2.21	2.15
10 " 14 "	1.58	1.75	1.60	1.33	1.97	2.10	1.66
15 " 19 "	2.19	2.42	2.57	2.31	2.45	3.03	2.37
20 " 24 "	3.30	3.51	4.33	3.22	4.60	3.84	3.59
25 " 29 "	3.96	4.22	5.17	4.17	5.29	4.58	4.33
30 " 34 "	4.71	4.92	5.29	5.16	6.00	4.34	4.97
35 " 39 "	5.97	6.16	6.78	6.44	7.51	6.94	6.34
40 " 44 "	7.31	7.44	8.58	7.09	9.06	5.94	7.59
45 " 49 "	9.45	9.59	11.95	9.14	12.73	8.20	9.96
50 " 54 "	13.25	13.40	15.48	11.49	15.64	11.63	13.48
55 " 59 "	18.63	18.52	19.59	16.67	20.87	16.04	18.52
60 " 64 "	26.79	26.86	27.44	26.48	29.25	24.08	26.87
65 " 69 "	42.18	43.26	44.44	40.58	41.22	36.66	42.37
70 " 74 "	64.41	65.98	65.87	53.36	68.67	56.91	63.91
75 " 79 "	108.56	107.11	101.89	95.17	103.30	100.66	105.58
80 " 84 "	169.10	171.29	166.15	150.82	170.12	149.75	164.97
85 " 89 "	217.51	248.40	201.72	211.72	266.67	284.83	232.64
90 and over	337.70	363.94	308.54	307.81	333.33	404.98	345.44

The tables shew a high death rate for children under five years of age, which rapidly diminishes until, at ages 10 to 14, a rate of 1.66 per 1000 is shewn, which is the lowest at any age. The rate then gradually rises with increasing age until, at the ages 90 and over, more than one-third die every year.

10. Deaths of Centenarians, 1915.—Particulars as to the twenty-two persons who died in 1915, aged 100 years and upwards, are given in the following table. It must, of course, be understood that while the Registrars-General of the various States take the greatest care to have statements as to abnormally high ages verified as far as possible, no absolute reliance can be placed on the accuracy of the ages shewn, owing to the well-known tendency of very old people to overstate their ages. The fact must not be lost sight of in connection with this question, that while parish registers in the United Kingdom often date very far back, compulsory registration of births dates practically only from 1874, the Act passed in 1836 having left many loop-holes open for those unwilling to register the births of their children:—

DEATHS OF CENTENARIANS, 1915.—COMMONWEALTH.

MALES.

Age	Locality where Death occurred.	State.	Cause of Death.	Occupation.	Birth-place.	Length of Residence in Commonwealth.
Yrs						
117	Coonamble	N.S.W.	Senility	Labourer...	China	87 years
107	Cootamundra	"	"	Unspecified	Scotland	Unspecified
102	Windsor	"	"	Blacksmith	N.S.W.	Native
102	Liverpool	"	"	Labourer...	Ireland	45 years
102	Liverpool	"	Cancer	Labourer...	England	64
101	Dungog	"	Senility	Farmer	England	63
101	Barraba	"	"	Grazier	England	86
100	Balmain South	"	"	Carpenter	Scotland	70
100	Mudgee	"	"	Labourer...	England	80
100	Brisbane	Queensland	General Paralysis	Scalper	N.S.W.	Native
100	Rockhampton	"	Senility	Labourer...	China	Unspecified
100	Hobart	Tasmania	"	Bootmaker	Unspecified	Unspecified

FEMALES.

102	Adelaide	S. Australia	Senility	...	Ireland	73 years
101	Auburn	N.S.W.	"	...	Ireland	80
101	Castlemaine	Victoria	"	...	Scotland	75
101	Clare	S. Australia	"	...	England	70
101	New Town	Tasmania	"	...	U. States	66
100	Kempsey	N.S.W.	"	...	Ireland	75
100	Mudgee	"	"	...	Ireland	72
100	Cootamundra	"	"	...	England	62
100	Hawthorn	Victoria	"	...	Ireland	66
100	Essendon	"	"	...	Scotland	67

11. Length of Residence in the Commonwealth of Persons who Died in 1915.—The length of residence in the Commonwealth of all persons whose deaths were registered in the year 1915 has been tabulated for all the States, and a summary of the results is shewn below:—

LENGTH OF RESIDENCE IN COMMONWEALTH OF PERSONS WHO DIED IN 1915.

Length of Residence.	Male Deaths.	Female Deaths.	Total Deaths.	Length of Residence.	Male Deaths.	Female Deaths.	Total Deaths.
Born in the C'wealth...	17,563	14,107	31,670	Resident 25 to 29 years	716	421	1,137
Resident under 1 year	138	44	182	" 30 to 34 "	1,284	621	1,905
" 1 year	110	73	183	" 35 to 39 "	812	442	1,254
" 2 years	157	89	246	" 40 to 44 "	802	456	1,258
" 3 "	201	114	315	" 45 to 49 "	634	418	1,052
" 4 "	141	81	222	" 50 to 54 "	1,446	1,010	2,466
" 5 "	96	46	142	" 55 to 59 "	1,031	890	1,921
" 6 "	83	25	108	" 60 to 64 "	1,559	1,403	2,932
" 7 "	65	26	91	" 65 yrs. & over	779	856	1,635
" 8 "	42	20	62	Length of residence not stated...	2,139	615	2,754
" 9 "	25	15	40				
" 10 to 14 years...	175	50	255				
" 15 to 19 "	243	97	340				
" 20 to 24 "	413	179	592	Total ...	30,654	22,123	52,782

12. Birthplaces of Persons who Died in 1915.—In the following table are shewn the birthplaces of persons whose deaths were registered in 1915:—

BIRTHPLACES OF PERSONS WHO DIED IN 1915.

COMMONWEALTH.

Birthplace.	Males.	Females.	Total.	Birthplace.	Males.	Females.	Total.
AUSTRALASIA—				ASIA—continued.			
Commonwealth of				Java	4	...	4
Australia—				Philippine Islands	11	...	11
New South Wales ...	6,809	5,588	12,397	Syria	6	7	13
Victoria	5,342	4,094	9,436	Other Asiatic			
Queensland	1,954	1,549	3,503	Countries	17	...	17
South Australia ...	1,801	1,445	3,246	AFRICA—			
Western Australia...	610	522	1,132	Union of Sth Africa	18	11	29
Tasmania	1,043	900	1,943	Mauritius	5	1	6
Northern Territory	4	9	13	Other African Brit.			
New Zealand	155	99	254	Possessions	2	1	3
EUROPE—				Other African			
England	5,563	3,505	9,068	Countries	7	...	7
Wales	146	88	234	AMERICA—			
Scotland	1,609	1,039	2,648	Barbados	2	...	2
Ireland	2,666	2,479	5,145	Canada	38	20	58
Isle of Man	4	3	7	Jamaica... ..	5	1	6
Other European				Newfoundland ...	8	2	10
Brit'h Possessions	20	20	40	Other American			
Austria-Hungary ...	37	5	42	Brit. Possessions	7	3	10
Belgium	5	4	9	Argentine Republic	6	1	7
Denmark	107	19	126	Brazil	2	...	2
France	56	24	80	Chile	3	...	3
Germany	601	313	914	Mexico	1	...	1
Greece	25	...	25	United States of			
Italy	80	14	94	America	85	21	106
Netherlands	14	2	16	Other American			
Norway	62	8	70	Countries	29	10	39
Portugal... ..	16	1	17	POLYNESIA—			
Russia	97	23	120	Fiji	2	2	4
Spain	13	8	21	Papua	1	1	2
Sweden	127	9	136	Other Polynesian			
Switzerland	46	6	52	Brit. Possessions	3	1	4
Other European				New Caledonia ...	3	3	6
Countries	10	1	11	New Hebrides ...	2	...	2
ASIA—				Samoa	1	...	1
British India	95	26	121	Other Polynesian			
Ceylon	11	1	12	Islands	2	...	2
Hong Kong	1	...	1	South Sea Islands			
Straits Settlements	9	1	10	(so described) ...	32	7	39
Other Asiatic British				At Sea	55	31	86
Possessions	6	...	6	Not stated... ..	735	198	933
Afghanistan	3	...	3	Total Deaths ...	30,654	22,128	52,782
China	363	1	364				
Japan	52	1	53				

13. Occupations of Male Persons who Died in 1915.—Information as to the occupations of the 30,654 males who died in the Commonwealth in 1915, is contained in the following statement:—

OCCUPATIONS OF MALES WHO DIED IN 1915.

COMMONWEALTH.

Occupation.	No. of Deaths.	Occupation.	No. of Deaths.
CLASS I.—PROFESSIONAL.			
General Government	146	Vegetable food	95
Local Government	25	Groceries and stimulants	119
Defence	341	Living animals... ..	32
Law and order	171	Leather, raw material	3
Religion	126	Wool and tallow	13
Charity	1	Hay, corn, etc.	35
Health	173	Other vegetable matter	6
Literature	34	Wood and coal... ..	25
Science	17	Stone, clay, glass	4
Civil and mechanical engineering, architecture and surveying	85	Gold, silver, and precious stones	3
Education	131	Ironmongery	26
Fine arts	32	Merchants	117
Music	32	Shopkeepers and assistants	213
Amusements	95	Dealers and hawkers	121
		Agents and brokers	125
		Clerks, bookkeepers, etc.	598
		Commercial travellers and salesmen	187
		Others engaged in commercial pur- suits	107
Total Professional	1,409	Speculators on chance events	11
		Storage	4
		Total Commercial	2,538
CLASS II.—DOMESTIC.			
Hotelkeepers and assistants	276	CLASS IV.—TRANSPORT AND COMMUNICATION.	
Others engaged in providing board and lodging... ..	80	Railway traffic	406
House servants	140	Tramway traffic	60
Coachmen and grooms	73	Road traffic	608
Hairdressers	74	Sea and river traffic	530
Laundrymen	11	Postal service	84
Others engaged in domestic occu- pations	141	Telegraph and telephone service	41
		Messengers, etc.	5
Total Domestic	795	Total Transport & Communication	1,734
CLASS III.—COMMERCIAL.			
Banking and finance	99	CLASS V.—INDUSTRIAL.	
Insurance and valuation	50	Books and publications	129
Land and household property	39	Musical instruments	7
Property rights, n.e.i.	1	Prints, pictures, and art materials	7
Books, publications and advertising	50	Ornaments and small wares	26
Musical instruments	3	Sports and games	1
Prints, pictures and art materials... ..	2	Designs, medals, type	4
Ornaments, small wares	1	Watches and clocks	39
Sports and games	1	Surgical Instruments	1
Surgical instruments	2	Arms and ammunition	4
Machines, tools, and implements	2	Engines, machines, tools, etc.	148
Carriages and vehicles	3	Carriages and vehicles	112
Ships and Boats... ..	5	Harness, saddlery, and leatherware	111
Building materials	7	Ships, boats, and equipment	50
Furniture	6	Furniture	109
Chemicals	1	Building material	46
Paper and stationery	10	Chemicals and by-products	6
Textile fabrics	134		
Dress	17		
Animal food	261		

OCCUPATIONS OF MALES WHO DIED IN 1915—Continued.

Occupation.	No. of Deaths.	Occupation.	No. of Deaths
INDUSTRIAL—Continued.		CLASS VI.—AGRICULTURAL, PASTORAL, MINING PURSUITS, ETC.	
Textile fabrics	26	Agricultural	3,195
Dress	405	Pastoral	782
Fibrous materials	13	Dairy farming	35
Animal food	23	Bees, fisheries and wild animals	97
Vegetable food	186	Forestry	80
Groceries and stimulants	72	Water conservation and supply	21
Animal matter	37	Mines and quarries	1,605
Workers in wood not elsewhere classed	24		
Paper	4	Total Primary Producers	5,815
Stone, clay, glass	76		
Jewellery and precious stones	29	CLASS VII.—INDEFINITE.	
Metals, other than gold and silver	402	Independent means, having no specific occupation	551
Gas, electric lighting, etc.	50	Occupation unspecified	938
		Total Indefinite	1,489
Buildings—		CLASS VIII.—DEPENDENTS.	
Builders	99	Dependent relatives (including persons under 20 years of age with no specified occupation)	8,144
Stonemasons... ..	97	Supported by voluntary and State contributions	172
Bricklayers	83	Total Dependents	8,316
Slaters	8		
Carpenters	515		
Plasterers	55		
Painters and glaziers	219		
Plumbers	96		
Signwriters	4		
Others	3		
Roads, railways, and earthworks... ..	51		
Disposal of the dead	11		
Disposal of refuse	14		
Other industrial workers—			
Manufacturers	46		
Engineers, firemen	467		
Contractors	188		
Labourers, undefined	4,419		
Others	36		
Total Industrial	8,558	Total Male Deaths	30,654

14. **Index of Mortality.**—The death rates, those for age-groups on pages 187 and 190 excepted, so far shewn are crude rates, *i. e.*, they simply shew the number of deaths per thousand of mean population, without taking the age constitution of that population into consideration. It is, however, a well-known fact that the death rate and age constitution of a people are intimately related, thus, other conditions being equal, the death rate of a country will be lower if it contain a large percentage of young people (not infants). In order to have a comparison of the mortality of various countries on a uniform basis, so far as age constitution is concerned, the International Statistical Institute in its 1895 session recommended the universal adoption of the population of Sweden in five age-groups, as ascertained at the Census of 1890, as the standard population by which this "Index of Mortality," as distinguished from the crude death rate, should be ascertained. The calculation for 1915 is shewn below for each of the States and Territories and for the Commonwealth, the distribution of the mean population of 1915 into age-groups being in accordance with the distribution as found at the Census of 1911:—

INDEX OF MORTALITY, 1915.—(STATES AND COMMONWEALTH).

Age-Group.	Mean Population, 1915, distributed according to Results of Census of 1911.	Number of Deaths, 1915.	No. of Deaths per 1000 of Mean Population, 1915, in each Age-Group.	Age Distribution per 1000 of Standard Population.	Index of Mortality.
NEW SOUTH WALES.					
Under 1 year	51,380	3,590	69.87	25.5	1.78
1 year and under 20	735,797	2,684	3.65	398.0	1.45
20 years " 40	626,017	2,688	4.29	269.6	1.16
40 " " 60	337,990	3,723	11.01	192.3	2.11
60 " " and upwards	117,323	6,900	58.81	114.6	6.74
Total	1,968,507	19,585	10.48	1,000.0	13.24
VICTORIA.					
Under 1 year	33,739	2,408	71.37	25.5	1.82
1 year and under 20	548,928	1,617	2.95	398.0	1.17
20 years " 40	451,414	2,027	4.49	269.6	1.21
40 " " 60	237,408	3,199	11.13	192.3	2.14
60 " " and upwards	104,597	6,572	62.83	114.6	7.20
Total	1,426,086	15,823	11.10	1,000.0	13.54
QUEENSLAND.					
Under 1 year	18,577	1,301	70.03	25.5	1.79
1 year and under 20	281,439	1,012	3.60	398.0	1.43
20 years " 40	225,091	1,219	5.42	269.6	1.46
40 " " 60	122,043	1,509	12.36	192.3	2.38
60 " " and upwards	39,860	2,518	63.17	114.6	7.24
Total	687,010	7,559	11.00	1,000.0	14.30
SOUTH AUSTRALIA.					
Under 1 year	11,333	791	69.80	25.5	1.73
1 year and under 20	172,324	502	2.91	398.0	1.16
20 years " 40	144,999	734	5.06	269.6	1.36
40 " " 60	80,450	828	10.29	192.3	1.98
60 " " and upwards	30,960	1,839	59.40	114.6	6.81
Total	440,066	4,694	10.67	1,000.0	13.09
WESTERN AUSTRALIA.					
Under 1 year	8,618	603	69.97	25.5	1.75
1 year and under 20	118,060	340	2.88	398.0	1.18
20 years " 40	118,368	534	4.51	269.6	1.22
40 " " 60	64,380	814	12.64	192.3	2.43
60 " " and upwards	12,931	701	54.21	114.6	6.21
Total	322,357	2,992	9.28	1,000.0	12.79
TASMANIA.					
Under 1 year	5,603	423	75.50	25.5	1.93
1 year and under 20	84,374	232	2.73	398.0	1.09
20 years " 40	60,970	248	4.07	269.6	1.10
40 " " 60	35,432	347	9.79	192.3	1.88
60 " " and upwards	12,458	765	61.41	114.6	7.04
Total	199,337	2,015	10.11	1,000.0	13.04
NORTHERN TERRITORY.					
Under 1 year	39	4	102.56	25.5	2.61
1 year and under 20	810	10	12.35	398.0	4.91
20 years " 40	1,175	17	14.47	269.6	3.90
40 " " 60	1,979	46	23.24	192.3	4.47
60 " " and upwards	400	20	50.00	114.6	5.73
Total	4,403	97	22.03	1,000.0	21.62
FEDERAL TERRITORY.					
Under 1 year	57	2	35.09	25.5	0.89
1 year and under 20	1,011	3	2.97	398.0	1.18
20 years " 40	758	6	7.92	269.6	2.14
40 " " 60	459	4	8.72	192.3	1.68
60 " " and upwards	182	2	10.99	114.6	1.26
Total	2,467	17	6.89	1,000.0	7.15

INDEX OF MORTALITY, 1915.—(STATES AND COMMONWEALTH)—Continued.

Age-Group.	Mean Population, 1915, distributed according to Results of Census of 1911.	Number of Deaths, 1915.	No. of Deaths per 1000 of Mean Population, 1915, in each Age-Group.	Age Distribution per 1000 of Standard Population.	Index of Mortality
COMMONWEALTH.					
Under 1 year	129,346	9,122	70.52	25.5	1.80
1 year and under 20	1,943,243	6,400	3.29	398.0	1.31
20 years " 40	1,628,792	7,473	4.59	269.6	1.24
40 " " 60	930,141	10,470	11.26	192.3	2.17
60 " " and upwards	318,711	19,317	60.61	114.6	6.95
Total	4,950,233	52,782	10.66	1,000.0	13.47

NOTE.—The small number of persons whose ages were not ascertained at the 1911 Census have been proportionately distributed among the various age-groups, and the same plan has been followed in regard to the 77 persons who died in 1915, and whose ages were not stated in the certificates of death.

It will be seen that among the States in 1915, Queensland had the highest index and the second highest crude rate, while Western Australia had the lowest index and crude rate. Victoria experienced the highest crude death rate and the second highest index. The range of the indexes was below that of the crude rates, the latter varying from 9.28 per thousand in Western Australia to 11.10 per thousand in Victoria, a range of 1.82 per thousand, while the index varied from 12.79 per thousand in Western Australia to 14.30 per thousand in Queensland, a range of 1.51 per thousand.

For purposes of comparison with previous years the index of mortality is shown in the following table for each of the eleven years 1905-1915 :—

INDEX OF MORTALITY 1905-1915 (STATES AND TERRITORIES).

Year.	N.S.W.	Vic.	Qld.	S.A.	W.A.	Tas.	Northern Territory.	Federal Territory.	Com'wealth.
1905	13.23	14.80	13.72	13.49	14.17	12.95	...	...	13.94
1906	12.91	15.26	12.44	13.78	15.84	14.10	...	...	13.94
1907	13.66	14.55	13.52	13.12	14.94	14.10	...	...	13.97
1908	13.13	15.58	13.37	12.89	14.81	14.46	...	...	14.10
1909	12.61	14.11	12.57	12.27	13.91	12.32	...	...	13.15
1910	12.48	14.15	12.60	12.50	13.48	13.62	...	...	13.17
1911	13.23	14.23	13.57	12.18	13.47	12.97	(a) 17.91	(b) 6.53	13.55
1912	13.63	14.94	13.91	12.76	14.55	13.69	17.23	6.36	14.08
1913	13.61	13.50	13.25	13.25	12.58	13.54	20.17	6.13	13.47
1914	12.72	14.11	12.70	13.03	12.56	12.11	20.35	5.17	13.18
1915	13.24	13.54	14.30	13.09	12.79	13.04	21.62	7.15	13.47

(a) Included in South Australia prior to 1911. (b) Part of New South Wales prior to 1911.

A comparison of the above figures with the crude death rates given on a previous page shows that while the crude rate was highest in Victoria every year, the index was highest in Victoria seven times, in Western Australia twice, and in New South Wales and Queensland once each in the same period. South Australia had the lowest index five times, Western Australia and Tasmania twice, and New South Wales and Queensland, once each, while the crude rate was lowest four times in South Australia, three times in Western Australia, twice in Queensland, and twice in Tasmania. The high index in Victoria is due to the large proportion of persons over 60 years of age, and in Western Australia to the heavy mortality in the early period of life.

15. Monthly Variations in Death Rates.—(i.) *General Death Rates.* The annual death rates, corresponding to the number of deaths registered in each equalised month, have been calculated for the six years 1907-1912, and a series of diagrams shewing the results for each State and the Commonwealth as a whole appears on page 216 of this issue, distinguishing the rates for males, females, and persons. The curves shewing the male and female rate exhibit in each State a fairly parallel course,

irregularities being, however, more strongly marked in the case of the male curve. The minimum rates in New South Wales and Queensland fall within the autumn months, from March to May, while in Victoria, South Australia, Western Australia, and Tasmania they fall in the spring months, October and November. In no case is there, however, a very great difference between the rates in spring and in autumn, the figures for the Commonwealth being 10.19 per thousand in March, and 10.34 per thousand in October. The maximum rates in New South Wales, Victoria, and Tasmania are experienced in August, and in Queensland in September, with the rates for December and January as secondary maxima. In South Australia the maximum rate of 11.33 per thousand falls in January, the rate for August standing next with 10.80 per thousand. In Western Australia the maximum rate is found in May.

(ii.) *Infantile Death Rates.* A similar series of diagrams, shewing the monthly variations in the infantile death rates, appears on page 217. With the exception of Western Australia, where the maximum occurs in May, the maxima are found in the summer months in every State. The rates gradually decrease from January to March, shewing in several States a slight increase in April, with a further diminution until July. In July and August the rates rise to some extent, to fall again until October or November. From that time a rapid rise takes place, until the maximum is reached in December or January. Tasmania, where the seasons are rather later than in the continental States, shews two distinct minima in May and November, with a summer maximum in February, and a fairly high rate in September. In Western Australia the rates are moderately high in December and January, and drop until March, to rise rapidly in April and May when the maximum is reached. From May to September there is a gradual decrease, with a quick rise from the latter month until December.

16. **Causes of Death.**—(i.) Information regarding the changes in the classification of causes of death will be found in previous editions of this Year Book (*e.g.*, Year Book No. 5, pages 222 and 223). The statement will suffice, therefore, that the classification adopted by the Commonwealth Bureau of Census and Statistics is that of the International Institute of Statistics, as amended by the Committee of Revision which met in 1909. The detailed classification groups causes of death under 189 different headings in fourteen categories, as follows:—

- | | |
|---|---|
| i. General Diseases. | viii. Diseases of the Skin and Cellular Tissue. |
| ii. Diseases of the Nervous System and Organs of Special Sense. | ix. Diseases of the Organs of Locomotion. |
| iii. Diseases of the Circulatory System. | x. Malformations. |
| iv. Diseases of the Respiratory System. | xi. Infancy. |
| v. Diseases of the Digestive System. | xii. Old Age. |
| vi. Diseases of the Genito-urinary System and Adnexa. | xiii. Violence. |
| vii. Puerperal Condition. | xiv. Ill-defined Diseases. |

(ii.) *Compilation of Vital Statistics for 1907 and Subsequent Years in Commonwealth Bureau.* The vital statistics of the Commonwealth from the year 1907 onward have been tabulated according to this classification in the Commonwealth Bureau, and the system is being employed in all the State offices in the preparation of their monthly and quarterly bulletins of vital statistics.

(iii.) *Classification of Causes of Death, 1907 to 1915, according to Abridged International Classification.* An abridged classification, which enumerates thirty-eight diseases and groups of diseases according to the revised classification, is in use in many European and American States, while the Commonwealth Statistics have been compiled on the detailed classification of 189 headings. A table has been compiled shewing the causes of death according to the abridged classification, so that the results may be compared with those of countries which use the abridged index.

The compilations for the years 1907 to 1915 will be found in full in "Bulletins Nos. 8, 14, 20, 25, 29, 30, 31, 32, and 33 of Population and Vital Statistics"; here it will suffice to give the abridged classification under thirty-eight headings for the year 1915:—

CAUSES OF DEATH—COMMONWEALTH, 1915.

(a) MALES.

Cause.	N.S.W.	Vic.	Q'land.	S.Aust.	W.Aus.	Tas.	Nor. Ter.	Fed. Ter.	C'wlth.
1 Typhoid Fever ...	140	52	111	34	32	10	...	...	379
2 Typhus ...	...	...	...	...	...	...	...	...	...
3 Malaria ...	5	1	8	...	2	...	7	...	23
4 Small-pox ...	...	...	...	...	1	...	...	...	1
5 Measles ...	166	23	39	21	11	1	...	...	261
6 Scarlet Fever ...	38	5	...	1	...	2	...	...	46
7 Whooping Cough ...	26	45	5	2	4	11	1	...	94
8 Diphtheria and Croup ...	157	112	40	29	17	11	...	1	367
9 Influenza ...	50	41	60	5	16	11	...	2	185
10 Asiatic Cholera ...	...	...	...	...	...	...	...	...	...
11 Cholera Nostras ...	1	...	...	...	...	...	...	...	1
12 Other Epidemic Diseases ...	55	17	34	12	7	2	3	...	190
13 Tuberculosis of the Lungs	645	499	226	172	159	52	6	1	1,760
14 Tuberculosis of the Men- inges ...	40	38	4	19	6	8	...	...	115
15 Other forms of Tubercu- losis ...	39	53	19	18	9	4	...	...	142
16 Cancer and other Malignant Tumours ...	687	566	258	201	130	68	3	...	1,913
17 Simple Meningitis ...	195	342	87	82	28	28	1	...	763
18 Congestion, Hæmorrhage and Softening of Brain	468	317	130	111	51	42	1	...	1,120
19 Organic Diseases of the Heart ...	969	709	384	198	118	134	4	2	2,518
20 Acute Bronchitis ...	120	71	46	25	6	12	...	...	280
21 Chronic Bronchitis ...	190	187	86	42	12	16	1	...	534
22 Pneumonia ...	537	432	167	82	63	47	2	...	1,380
23 Other Diseases of the Res- piratory System (Tuber- culosis excepted) ...	496	518	180	69	69	42	...	...	1,374
24 Diseases of the Stomach (Cancer excepted) ...	59	52	30	14	17	6	...	...	178
25 Diarrhœa & Enteritis (chil- dren under 2 years only)	637	352	266	162	108	38	1	1	1,565
26 Appendicitis and Typhlitis	82	62	34	16	15	9	1	...	219
27 Hernia, Intestinal Ob- structions ...	86	86	53	18	15	10	...	...	268
28 Cirrhosis of the Liver ...	103	67	39	20	16	7	1	...	253
29 Nephritis and Bright's Disease ...	549	418	220	130	50	44	1	1	1,413
30 Non-cancerous Tumours and other Diseases of Female Genital Organs	...	...	...	...	...	...	...	...	...
31 Puerperal Septicæmia (Puerperal Fever, Puer- peral Peritonitis, Puer- peral Phlebitis)	...	...	...	...	...	...	...	...	...
32 Other Puerperal Accidents of Pregnancy and Con- finement ...	...	...	...	...	...	...	...	...	...
33 Congenital Debility and Malformations ...	846	651	278	190	141	119	...	1	2,226
34 Senile Debility ...	857	982	323	217	118	84	13	...	2,594
35 Violence ...	788	535	450	184	220	62	10	2	2,251
36 Suicide ...	206	115	108	39	51	14	2	1	536
37 Other Diseases ...	1,950	1,409	969	405	346	163	15	2	5,259
38 Unspecified or Ill-defined Diseases ...	202	103	41	69	49	26	16	...	506
Total—Males ...	11,439	8,860	4,695	2,587	1,887	1,083	89	14	30,654

CAUSES OF DEATH—COMMONWEALTH, 1915.

(b) FEMALES.

Cause.	N.S.W.	Vic.	Q'land.	S. A.	W.A.	Tas.	Nor. Ter.	Fed. Ter.	C'wth.
1 Typhoid Fever ...	78	27	43	16	13	5	...	...	182
2 Typhus ...	...	...	...	...	...	...	...	...	...
3 Malaria ...	1	...	6	...	...	...	...	...	7
4 Small-pox ...	...	...	...	...	...	...	...	...	...
5 Measles ...	111	14	26	15	10	2	...	...	178
6 Scarlet Fever ...	47	7	1	...	...	3	...	...	58
7 Whooping Cough...	24	44	6	...	3	14	...	...	91
8 Diphtheria and Croup ...	142	92	34	32	18	18	...	...	336
9 Influenza ...	43	46	70	18	14	13	...	...	204
10 Asiatic Cholera ...	...	...	...	...	...	...	...	...	1
11 Cholera Nostras ...	...	...	...	...	1	2	...	...	7
12 Other Epidemic Diseases ...	18	15	21	16	3	...	...	...	15
13 Tuberculosis of the Lungs...	458	424	120	170	78	52	2	...	1,304
14 Tuberculosis of the Meninges	30	38	4	15	4	7	...	...	98
15 Other forms of Tuberculosis	48	47	8	16	14	3	...	...	136
16 Cancer and other Malignant Tumours ...	648	606	180	194	90	71	...	...	1,789
17 Simple Meningitis ...	135	171	55	42	25	18	...	...	446
18 Congestion, Hæmorrhage, & Softening of the Brain ...	346	360	101	95	56	40	...	...	998
19 Organic Diseases of the Heart	683	535	240	229	76	89	...	...	1,852
20 Acute Bronchitis ...	84	57	30	16	8	14	...	...	209
21 Chronic Bronchitis ...	146	118	61	25	15	14	...	...	379
22 Pneumonia ...	331	287	95	57	40	33	1	1	845
23 Other Diseases of the Respiratory System (Tuberculosis excepted) ...	321	322	81	51	32	31	...	...	838
24 Diseases of the Stomach (Cancer excepted) ...	60	60	17	11	13	12	...	...	173
25 Diarrhœa and Enteritis (children under 2 yrs only)	517	256	227	122	98	30	...	...	1,250
26 Appendicitis and Typhlitis...	51	37	29	9	5	6	...	...	137
27 Hernia, Intestinal Obstructions...	80	66	19	35	14	5	1	...	220
28 Cirrhosis of the Liver ...	46	39	12	8	15	3	...	...	123
29 Nephritis & Bright's Disease	264	361	126	59	27	24	...	...	861
30 Non-cancerous Tumours and other Diseases of the Female Genital Organs	59	30	22	20	5	3	...	...	139
31 Puerperal Septicæmia (Puerperal Fever, Puerperal Peritonitis, Puerperal Phlebitis) ...	81	39	30	18	7	7	...	...	182
32 Other Puerperal Accidents of Pregnancy & Confinement	160	91	64	36	24	19	...	...	394
33 Congenital Debility and Malformations ...	719	460	241	156	106	84	1	...	1,767
34 Senile Debility ...	673	838	188	224	67	101	...	1	2,092
35 Violence...	224	197	84	38	32	25	...	...	600
36 Suicide ...	49	39	22	5	6	1	...	...	122
37 Other Diseases ...	1,389	1,173	590	338	170	167	3	1	3,831
38 Unspecified or Ill-defined Diseases ...	80	67	11	21	16	16	...	...	211
Total—Females ...	8,146	6,963	2,864	2,107	1,105	932	8	3	22,128

CAUSES OF DEATH—COMMONWEALTH, 1915.

(c) TOTAL, MALES AND FEMALES.

Cause.	N.S.W.	Vic.	Qld.	S.A.	W.A.	Tas.	Nor. Ter.	Fed. Ter.	Commonwealth
1 Typhoid Fever	218	79	154	50	45	15	...	...	561
2 Typhus ... ..	...	...	...	...	...	...	...	...	...
3 Malaria	6	1	14	...	2	...	7	...	30
4 Small-pox ... ..	...	...	...	...	1	...	...	...	1
5 Measles	277	37	65	36	21	3	...	...	439
6 Scarlet Fever	85	12	1	1	...	5	...	...	104
7 Whooping Cough	50	89	11	2	7	25	1	...	185
8 Diphtheria and Croup	299	204	74	61	35	29	...	1	703
9 Influenza	93	87	130	23	30	24	...	2	369
10 Asiatic Cholera ... ..	...	...	...	...	...	...	...	...	...
11 Cholera Nostras	1	...	...	...	1	...	...	...	2
12 Other Epidemic Diseases	73	32	55	28	10	4	3	...	205
13 Tuberculosis of the Lungs .	1,103	923	346	342	237	104	8	1	3,064
14 Tuberculosis of the Meninges	70	76	8	34	10	15	...	...	213
15 Other forms of Tuberculosis	87	100	27	34	23	7	...	...	278
16 Cancer and other Malignant Tumours	1,335	1,172	438	395	220	139	3	...	3,702
17 Simple Meningitis	330	513	142	124	53	46	1	...	1,209
18 Congestion, Hæmorrhage, & Softening of the Brain	814	677	231	206	107	82	1	...	2,118
19 Organic Diseases of Heart	1,652	1,244	624	427	194	223	4	2	4,370
20 Acute Bronchitis	204	128	76	41	14	26	...	...	489
21 Chronic Bronchitis	336	305	147	67	27	30	1	...	913
22 Pneumonia	918	719	262	139	103	80	3	1	2,225
23 Other Diseases of the Respiratory System (Phthisis excepted)	817	840	261	120	101	73	...	...	2,212
24 Diseases of the Stomach (Cancer excepted)	119	112	47	25	30	18	...	...	351
25 Diarrhœa and Enteritis (children under 2 yrs. only)	1,154	608	493	284	206	68	1	1	2,815
26 Appendicitis and Typhlitis .	133	99	63	25	20	15	1	...	356
27 Hernia, Intestinal Obstructions	166	152	72	53	29	15	1	...	488
28 Cirrhosis of the Liver	149	106	51	28	31	10	1	...	376
29 Nephritis & Bright's Disease	813	779	346	189	77	68	1	1	2,274
30 Non-cancerous Tumours & other Diseases of the Female Genital Organs	59	30	22	20	5	3	...	...	139
31 Puerperal Septicæmia (Puerperal Fever, Puerperal Peritonitis, Puerperal Phlebitis)	81	39	30	18	7	7	...	...	182
32 Other Puerperal Accidents of Pregnancy and Confinement	160	91	64	36	24	19	...	...	394
33 Congenital Debility and Malformations	1,565	1,111	519	346	247	203	1	1	3,993
34 Senile Debility	1,530	1,820	511	441	185	185	13	1	4,686
35 Violence	1,012	732	534	222	252	87	10	2	2,851
36 Suicide	255	154	130	44	57	15	2	1	658
37 Other Diseases	3,339	2,582	1,559	743	516	330	18	3	9,090
38 Unspecified or Ill-defined Diseases	282	170	52	90	65	42	16	...	717
Total—Males and Females	19,585	15,823	7,559	4,694	2,992	2,015	97	17	52,782

(d) The classification for the years 1908 to 1914 is shewn for the Commonwealth in the following table, and for purposes of comparison the figures for the year 1915 have

been repeated from the preceding table. Male and female deaths for 1905, 1906, and 1907 are shown separately on page 237 of the second issue, those for 1908 on pages 211 and 212 of the third issue, for 1909 on pages 200 and 201 of the fourth issue, for 1910 on pages 202 and 203 of the fifth issue, for 1911 on pages 224 and 225 of the sixth issue, for 1912 on pages 182 and 183 of the seventh issue, for 1913 on pages 182 and 183 of the eighth issue of this Year Book; and for 1914 on pages 188 and 189 of the ninth issue, while the figures for 1915 are given on pages 198 and 199 of this issue.

The figures for 1908 and 1909, which were compiled under thirty-five headings, have here been distributed among the corresponding headings of the revised classification.

CAUSES OF DEATH—COMMONWEALTH, 1908 to 1915.

MALES AND FEMALES.

Cause.	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.
1 Typhoid Fever ...	736	661	648	488	619	576	604	561
2 Typhus ...	...	...	...	...	...	...	...	...
3 Malaria ...	52	59	55	19	17	24	22	30
4 Small-pox ...	...	1	4	1	...	1	3	1
5 Measles ...	125	31	124	206	519	186	155	439
6 Scarlet Fever ...	63	74	58	24	41	39	29	104
7 Whooping Cough...	249	257	476	291	301	560	320	185
8 Diphtheria and Croup ...	421	435	555	696	754	808	716	703
9 Influenza ...	588	326	324	447	386	341	331	389
10 Asiatic Cholera ...	...	...	...	...	...	...	...	...
11 Cholera Nostras ...	4	1	1	6	5	3	2	2
12 Other Epidemic Diseases ...	268	221	184	295	224	185	176	205
13 Tuberculosis of the Lungs...	3,409	3,169	3,059	3,164	3,146	3,252	3,111	3,064
14 Tuberculosis of the Meninges	205	220	215	269	215	252	207	213
15 Other forms of Tuberculosis	352	332	343	303	327	296	256	278
16 Cancer & other Mal. Tumours	2,921	3,112	3,205	3,321	3,537	3,603	3,675	3,702
17 Simple Meningitis ...	676	616	567	636	749	753	812	1,209
18 Congestion, Hæmorrhage, and Softening of the Brain	1,867	1,665	1,704	2,178	2,176	2,281	2,204	2,118
19 Organic Diseases of the Heart	4,066	3,940	4,378	4,896	5,267	4,989	4,836	4,370
20 Acute Bronchitis...	412	422	420	515	460	397	389	489
21 Chronic Bronchitis ...	818	897	859	1,046	1,053	991	959	913
22 Pneumonia ...	1,871	1,752	1,612	1,869	2,107	1,966	1,992	2,225
23 Other Diseases of the Respir. System (Tuberculosis ex.)	1,569	1,565	1,544	1,872	1,863	1,812	1,866	2,212
24 Diseases of the Stomach (Cancer excepted) ...	308	272	297	370	457	447	368	351
25 Diarrhœa & Enteritis (Child- ren under two years only)	3,236	2,803	3,145	2,462	3,248	3,176	3,506	2,815
26 Appendicitis and Typhlitis	293	344	315	320	347	364	374	356
27 Hernia, Intest. Obstructions	389	396	398	439	463	486	460	488
28 Cirrhosis of the Liver ...	362	331	368	385	426	365	380	376
29 Nephritis & Bright's Disease	1,864	1,799	1,771	1,951	2,188	2,211	2,127	2,274
30 Non-cancerous Tumours and other Diseases of the Female Genital Organs ...	159	130	149	120	145	153	138	139
31 Puerperal Septicæmia (Puer. Fever, Periton'ts, Phleb'ts)	202	201	218	209	231	235	215	182
32 Other Puerperal Accidents of Pregnancy & Confinement	404	376	373	406	413	428	419	394
33 Congenital Debility, etc. ...	2,973	2,905	3,221	3,142	3,611	3,323	3,860	3,993
34 Senile Debility ...	3,466	3,194	3,353	3,849	4,124	4,116	4,130	4,686
35 Violence ...	2,922	2,664	2,738	3,018	3,237	3,168	3,121	2,851
36 Suicide ...	497	495	516	544	631	647	643	658
37-Other Diseases ...	7,417	7,419	7,795	7,652	8,300	8,241	8,670	9,090
38 Unspec. or Ill-defined Dis's.	1,262	1,087	598	460	590	614	644	717
Total ...	46,426	44,172	45,590	47,869	52,177	51,789	51,720	52,782

17. **Certification of Deaths.**—Information was obtained in 1915 as to the persons by whom the 52,782 deaths which occurred in the Commonwealth were certified. The result of the enquiry shews that approximately 89.3 per cent. (in 1910, 88.1 per cent., in 1911, 88.2 per cent., in 1912, 88.1 per cent. in 1913, 88.7 per cent., and in 1914, 88.8 per cent.) were certified by medical practitioners, and 10.2 per cent. (in 1910, 11.1 per cent., in 1911, 10.9 per cent., in 1912, 10.9 per cent., in 1913, 10.8 per cent., and in 1914, 10.7 per cent.) by coroners after inquests, or magisterial enquiries, while in 0.5 per cent. (in 1910, 0.8 per cent., in 1911, 0.9 per cent., in 1912, 1.0 per cent., in 1913, 0.5 per cent., and in 1914, 0.5 per cent.) of the cases there was either no certificate given or particulars were not forthcoming. The results are shewn in detail in Bulletin No. 33; a short summary will therefore suffice here:—

CERTIFICATION OF DEATHS, COMMONWEALTH, 1915.

Death Certified by—	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N.T.	Fed. Ter.	C'wlth.
Medical practitioner	17,436	13,795	7,106	4,268	2,645	1,830	49	13	47,142
Coroner ...	2,130	2,025	251	419	316	169	48	4	5,362
Not certified or not stated ...	19	3	202	7	31	16	...	...	278
Total Deaths ...	19,585	15,823	7,559	4,694	2,992	2,015	97	17	52,782

Of the cases certified by coroners, violent deaths numbered 2578, ill-defined causes 366, organic heart disease 415, senile decay 410, congenital debility 140, cerebral hæmorrhage and apoplexy 118, pneumonia 129, tuberculosis of lungs 84, Bright's disease 112, infantile diarrhoea and enteritis 54, infantile convulsions 52, diseases of arteries, aneurisms, etc. 34, acute and chronic alcoholism 54, other diseases peculiar to early infancy 48, diarrhoea and enteritis of adults and children over 2, 39, epilepsy 33, broncho-pneumonia, 78, hernia and intestinal obstruction, 22; a total of 4766 out of 5,362.

Of uncertified causes of death, violent deaths numbered 46, senile debility 51, ill-defined causes 29, infantile convulsions 18, congenital debility 42; a total of 186 out of 278.

18. **Deaths from Special Causes.**—The table on p. 201 furnishes comparisons for the last eight years only, and comparisons will, therefore, be restricted to that period.

(i.) *Typhoid Fever.* Deaths from typhoid fever were more numerous in 1908 than in any succeeding year, numbering 736. A continuous decline continued until 1911, when 488 deaths were recorded. Since 1911 the number of deaths from typhoid has risen and fallen twice. Of the 561 deaths recorded in 1915, 218 occurred in New South Wales, 79 in Victoria, 154 in Queensland, 50 in South Australia, 45 in Western Australia, and 15 in Tasmania.

(ii.) *Typhus.* No deaths from typhus have been registered from 1903 to 1915.

(iii.) *Malaria.* Deaths from malarial diseases are practically confined to the tropical districts of Northern Queensland and Western Australia, and to the Northern Territory, 14 out of 30 deaths registered in 1915 having occurred in Queensland, 2 in Western Australia, and 7 in the Northern Territory.

(iv.) *Small-pox.* The number of deaths from small-pox in Australia is very small, eleven deaths only resulting in the eight years under review. An epidemic occurred in 1913, but only caused one death. There were three deaths in 1914, and one in 1915 in Western Australia.

(v.) *Measles.* No serious epidemic of measles has occurred for several years; the deaths in 1908 numbered 125. In 1909 the deaths numbered 31, while 124 were registered in 1910, and 206 in 1911. In 1912 New South Wales experienced a slight epidemic, and was responsible for 352 deaths out of 519 registered. In 1913 the number of deaths fell to 186, and in 1914 to 155. A large increase in the number of deaths occurred in 1915 in every State with the exception of Victoria.

(vi.) *Scarlet Fever.* 29 deaths were registered in 1914, but 104 occurred in 1915, of which 85 took place in New South Wales.

(vii.) *Whooping Cough*. A rather severe epidemic of whooping cough visited New South Wales in the early part of 1907, causing 592 deaths out of a total of 1070 registered in the Commonwealth. The deaths in 1908 fell to 249, with a slight increase to 257 in 1909, and a much greater increase to 476 in 1910. During 1911, however, only 291 deaths, and in 1912, 301 deaths were registered. In 1913 the number of deaths was 560, falling to 185 in 1915, of which 50 occurred in New South Wales and 89 in Victoria.

(viii.) *Diphtheria and Croup*. Deaths from this cause increased each year from 421 in 1908 to a maximum of 808 in 1913. Since 1913 the numbers have declined to 716 in 1914 and 703 in 1915, of which 299 were registered in New South Wales, 204 in Victoria, 74 in Queensland and 61 in South Australia.

(ix.) *Influenza*. This disease was rather more prevalent in 1908 than in any succeeding year, the deaths numbering 588; in 1909, 326; 324 in 1910; in 1911, 447; in 1912, 386; in 1913, 341, in 1914, 331; and in 1915, 389, of which 93 occurred in New South Wales, 87 in Victoria, 130 in Queensland, 23 in South Australia, 30 in Western Australia, 24 in Tasmania and 2 in the Federal Territory.

(x.) *Asiatic Cholera*. No cases of Asiatic Cholera have ever occurred in the Commonwealth.

(xi.) *Cholera Nostras*. Isolated cases only of choleric form diarrhoea occurred in each of the seven years. Two deaths from this cause occurred during 1915.

(xii.) *Other Epidemic Diseases*. The number of deaths registered under this heading was 268 in 1908, 221 in 1909, 184 in 1910, 295 in 1911, 224 in 1912, 185 in 1913, 176 in 1914, and 205 in 1915. The list in 1915 includes the following diseases:—Dysentery 115, erysipelas 64, leprosy 11, of which 7 occurred in Queensland, yellow fever 1, other epidemic diseases 14. Prior to 1910 beri-beri was included in other epidemic diseases, but is now included in No. 27 of the revised classification. Of the 81 deaths from leprosy in the years 1908 to 1915, 67 occurred in Queensland. There have been no deaths from plague in the Commonwealth since 1912. In 1908, 14 deaths were registered; in 1909, 13 deaths, and in 1912, 1 death.

(xiii.) *Tuberculosis of the Lungs and Acute Miliary Tuberculosis*. The deaths in 1915 numbered 3064; viz., 1760 males and 1304 females. The figures for the years 1908 to 1914 were 3409, 3169, 3059, 3164, 3146, 3252 and 3111 respectively. Of the deaths in 1915, 1103 occurred in New South Wales, 923 in Victoria, 341 in Queensland, 342 in South Australia, 237 in Western Australia, 104 in Tasmania, 8 in the Northern Territory and 1 in the Federal Territory. In accordance with the revised classification, deaths from tuberculosis of the larynx are now included with tuberculosis of the lungs, instead of in class 15 as in years prior to 1910. In the table on page 201 deaths from tuberculosis of the larynx have been included with tuberculosis of the lungs, so that figures allow of correct comparison.

(xiii.a.) *Tuberculosis of the Respiratory System*. Of the various forms of tuberculosis prevalent in the Commonwealth, that which has probably attracted the most attention and has been the subject of the widest comment is phthisis, or tuberculosis of the lungs. The intimate relation, however, between tuberculosis of the lungs and that of other parts of the respiratory system renders it desirable that all forms of tuberculosis of the respiratory system should be brought under one head for various investigations concerning the age incidence and duration of this disease.

In the matter of the age incidence of death from tuberculosis of the respiratory system, diagrams were given in Year Books 2, 3, and 4, pp. 239, 217, and 206 respectively, shewing the frequency of deaths at successive ages in England and Wales during 1906 (Fig. 1), and in the Commonwealth during 1907 (Fig. 2). These were superseded by a fuller reference based on later results in Year Book No. 5, pp. 230, etc. The results given depended upon intercensal estimates of population, and these having now been adjusted to agree with the Census of 3rd April, 1911, some slight amendments of the figures in previous issues were made in Year Book No. 5. The figures are not now repeated.

(xiv.) *Tuberculosis of the Meninges*. The number of deaths ascribed to this cause has varied very slightly during the last eight years. The greatest number of deaths, viz., 269, occurred in 1911, and the least number, viz., 205, in 1908; 213 deaths were registered in 1915.

(xv.) *Other Forms of Tuberculosis.* The deaths in 1915 include the following forms of tuberculosis:—Abdominal tuberculosis, 103; Pott's disease, 55; white swellings, 18; tuberculosis of other organs, 55; and disseminated tuberculosis, 47. Tuberculosis of the larynx (see paragraph xiii.)

(xva.) *All Forms of Tuberculosis.* A complete tabulation of all the different tubercular diseases from which deaths occurred in 1915, will be found in Bulletin No. 33 of Population and Vital Statistics. Here it will suffice to show a few of the features of the tabulation mentioned. The total number of deaths due to tubercular diseases was 3555, viz., 2107 males and 1538 females. The following table shews the ages of these 3555 persons:—

AGES OF PERSONS WHO DIED FROM TUBERCULAR DISEASES, 1915.
COMMONWEALTH.

Ages.	Male.	Female	Total.	Ages.	Male.	Female	Total.
Under 5 years ...	89	103	192	55 years and under 60	156	46	202
5 years and under 10	36	24	60	60 " " 65	91	28	119
10 " " 15	15	14	33	65 " " 70	71	26	97
15 " " 20	79	114	193	70 " " 75	32	21	53
20 " " 25	176	218	394	75 " " 80	13	8	21
25 " " 30	217	253	470	80 " " over ...	6	6	12
30 " " 35	204	217	421	Unspecified ...	4	...	4
35 " " 40	235	142	377				
40 " " 45	45	196	318				
45 " " 50	207	104	311				
50 " " 55	191	73	264				
				Total Deaths ...	2,017	1,538	3,555

A tabulation has been made of the occupations of males dying from tubercular diseases during 1915. A summary is here given:—

OCCUPATIONS OF MALES WHO DIED FROM TUBERCULAR DISEASES, 1915.
COMMONWEALTH.

Occupation.	No. of Deaths	Occupation.	No. of Deaths
Professional class ...	84	Agricultural class ...	132
Domestic class ...	85	Pastoral class ...	40
Mercantile class ...	278	Working in mines and quarries ...	193
Engaged in transport and communication ...	155	Other primary producers ...	11
Manufacturing class ...	242	Independent means ...	13
Engaged in building and construction ...	110	Dependents ...	192
Other industrial workers ...	423	Occupation not stated ...	59
		Total male deaths ...	2,017

The length of residence in the Commonwealth of persons who died from tubercular diseases has been tabulated for the year 1915 for all the Commonwealth States, with the following results:—

LENGTH OF RESIDENCE IN COMMONWEALTH
OF PERSONS WHO DIED FROM TUBERCULAR DISEASES, 1915.

Length of Residence in Commonwealth.	Male.	Fem.	Total.	Length of Residence in Commonwealth.	Male.	Fem.	Total.
Born in Commonwealth ...	1,280	1,253	2,533	Resident 10 yrs. & under 15	27	7	34
Resident under 1 year ...	25	4	29	" 15 " " 20	33	15	48
" 1 year ...	25	10	35	" 20 " " over ...	353	138	491
" 2 years ...	24	21	45	Length of residence not stated	114	32	146
" 3 " ...	39	21	60				
" 4 " ...	32	18	50				
" 5 " & under 10	65	19	84				
				Total Deaths ...	2,017	1,538	3,555

From the above table and the table on page 191, it will be seen that, among persons who had lived less than 5 years in Australia, 1148 deaths occurred, and of these 219, or 19 per cent., were due to tubercular diseases.

In order to shew the prevalence of tuberculosis in the several States, the death rates from tubercular diseases are shewn in the following table, together with the percentage which deaths from tuberculosis bear on the total number of deaths registered:—

DEATH RATES (a) FROM TUBERCULOSIS AND PERCENTAGE ON TOTAL DEATHS.
COMMONWEALTH, 1915.

State.	Death Rates (a) from Tuberculosis.			Percentage on Total Deaths.		
	Males.	Females.	Total.	Males.	Females.	Total.
New South Wales	0.75	0.59	0.67	6.33	6.58	6.43
Victoria ...	0.84	0.71	0.77	6.66	7.31	6.94
Queensland ...	0.68	0.41	0.55	5.31	4.61	5.04
South Australia ...	0.96	0.90	0.93	8.08	9.54	8.74
Western Australia	0.99	0.66	0.84	9.22	8.69	9.03
Tasmania ...	0.63	0.64	0.63	5.91	6.65	6.26
North. Territory	1.66	2.55	1.82	6.74	25.00	8.25
Federal Territory	0.68	...	0.40	7.14	...	5.88
Commonwealth	0.80	0.64	0.72	6.58	6.95	6.74

(a) Number of deaths from tuberculosis per 1000 of mean population.

The following table, which gives for a number of countries the death-rates from pulmonary and military tuberculosis per 1000 persons living, shews that the Commonwealth occupies a very enviable position when compared with most European countries.

PULMONARY AND MILIARY TUBERCULOSIS—DEATHS PER 1000 PERSONS LIVING.

Country.	Year.	Death Rate.	Country.	Year.	Death Rate.
Rumania ...	1914	0.40	United States (Registra- tion Area) ...	1915	1.28
Denmark ...	1914	0.44	Prussia ...	1913	1.37
New Zealand ...	1915	0.63	Switzerland ...	1914	1.38
Commonwealth ...	1915	0.63	Jamaica ...	1915	1.47
Ceylon ...	1915	0.89	Japan ...	1913	1.50
Belgium ...	1912	0.93	Sweden ...	1912	1.60
Ontario (Canada) ...	1915	0.99	Ireland ...	1915	1.74
Italy ...	1914	1.05	Norway ...	1914	1.76
Netherlands ...	1915	1.10	France ...	1911	1.80
Scotland ...	1915	1.11	Chile ...	1914	2.55
England and Wales ...	1915	1.18	Finland ...	1914	2.57
United Kingdom ...	1915	1.18	Austria ...	1912	2.83
Spain ...	1914	1.23	Serbia ...	1911	3.24
German Empire ...	1913	1.24	Hungary ...	1912	3.49

(xvi.) *Cancer and other Malignant Tumours.* The number of deaths from cancer has increased continuously from 2921 in 1908 to 3702 deaths in 1915. Of the deaths registered in 1915, 1913 were those of males, viz., 687 in New South Wales, 566 in Victoria, 258 in Queensland, 201 in South Australia, 130 in Western Australia, 68 in Tasmania, and 3 in the Northern Territory; while 1789 were those of females, viz., 648 in New South Wales, 606 in Victoria, 180 in Queensland, 194 in South Australia, 90 in Western Australia, and 71 in Tasmania. Bulletin No. 33 contains a complete tabulation of the various types of cancer and of the seat of the disease, of which the following is a summary:—

DEATHS FROM CANCER, COMMONWEALTH, 1915.

Seat of Disease.	Male.	Female	Total.
Cancer, etc., of the buccal cavity	225	18	243
" " the stomach and liver	818	569	1,387
" " the peritoneum, the intestines, and the rectum	257	251	508
" " the female genital organs ... ..	...	342	342
" " the breast ... ..	...	261	261
" " the skin	86	31	117
" " other organs	527	317	844
Total Deaths	1,913	1,789	3,702

Of these deaths, 1004 were described as cancer, 1724 as carcinoma, 145 as epithelioma, 464 as "malignant disease," 88 as "malignant tumour," 5 as neoplasm, 38 as "rodent ulcer," 222 as sarcoma, and 12 as scirrhus.

The ages of the 3702 persons who died from cancer in 1915, are shown in the following table, from which it will be seen that while the ages below 35 are not by any means immune from the disease, the great majority of deaths occurred at ages from 35 upwards, the maximum being found in the age group 60 to 65.

AGES OF PERSONS WHO DIED FROM CANCER, 1915.

COMMONWEALTH.

Ages.	Male.	Female	Total.	Ages.	Male.	Female	Total.
Under 15 years ...	18	12	30	55 years and under 60	252	223	475
15 years and under 20	5	7	12	60 " " 65	304	216	520
20 " " 25	7	7	14	65 " " 70	291	209	500
25 " " 30	27	26	53	70 " " 75	235	200	435
30 " " 35	23	36	59	75 " " 80	162	150	312
35 " " 40	47	83	130	80 " " 85	88	74	162
40 " " 45	64	112	176	85 years and over ...	45	35	80
45 " " 50	132	177	309	Unspecified ...	3	1	4
50 " " 55	210	221	431	Total Deaths ...	1,913	1,789	3,702

A tabulation, of which the following is a summary, has been made of the occupations of the males who died from cancer:—

OCCUPATIONS OF PERSONS WHO DIED FROM CANCER, 1915.

COMMONWEALTH.

Occupation.	No. of Deaths.	Occupation.	No. of Deaths.
Professional class	102	Pastoral class	87
Domestic class	49	Working in mines and quarries ...	101
Mercantile class	220	Other primary producers	7
Engaged in transport and communication	131	Independent means	49
Manufacturing class	190	Dependents	34
Engaged in building and construction	106	Occupation not stated	67
Other industrial workers	439	Total Male Deaths	1,913
Agricultural class	331		

As the following tables shew, the total death rates from cancer are below those for tubercular diseases in South Australia and Western Australia only. The male death rates from cancer were, in 1915, in excess of those from tuberculosis in Queensland and Tasmania, while the female death rates were in excess in all the States with the exception of South Australia and Western Australia. While the death rates from tuberculosis have a general tendency to decrease, the death rates from cancer have, on the contrary, shewn an increase in nearly every recent year. Thus for the whole Commonwealth in 1908 the death rate from tuberculosis was 0.25 per thousand greater than that from cancer. In 1909 this decreased to 0.14; in 1910 to 0.10; in 1911 to 0.09; and in 1912 to 0.03 per thousand, while 1913 shews a slight increase in the excess to 0.04 per thousand. In 1914, while the death rate from tuberculosis decreased from 0.79 to 0.73 per thousand, the rate for cancer remained stationary, the result being that the rate for cancer exceeded that for tuberculosis by 0.02 per thousand. In 1915 the death rate from cancer was 0.03 in excess of that of tuberculosis.

DEATH RATES (a) FROM CANCER AND PERCENTAGE ON TOTAL DEATHS, 1915.
COMMONWEALTH.

State.	Death Rates (a) from Cancer.			Percentage on Total Deaths.		
	Males.	Females.	Total.	Males.	Females.	Total.
New South Wales	0.71	0.71	0.71	6.01	7.95	6.82
Victoria ...	0.80	0.84	0.82	6.39	8.70	7.40
Queensland ...	0.70	0.57	0.64	5.50	6.29	5.80
South Australia ...	0.93	0.87	0.90	7.78	9.21	8.42
Western Australia	0.73	0.62	0.68	6.89	8.10	7.35
Tasmania ...	0.67	0.73	0.70	6.28	7.62	6.90
Northern Territ'y	0.83	...	0.68	3.37	...	3.09
Federal Territory	...	...	...	...	...	...
Commonwealth	0.75	0.74	0.75	6.24	8.09	7.01

(a) Number of deaths from Cancer per 1000 of mean population.

The following table shows the death rate of the Commonwealth in comparison with other countries:—

CANCER—DEATH RATE IN VARIOUS COUNTRIES.

Country.	Year.	Rate.	Country.	Year.	Rate.
Ceylon ...	1915	0.09	Austria ...	1912	0.81
Rumania ...	1914	0.13	New Zealand ...	1915	0.82
Serbia ...	1911	0.14	Prussia ...	1913	0.83
Jamaica ...	1915	0.17	Ireland ...	1915	0.88
Chile ...	1914	0.36	German Empire ...	1913	0.91
Hungary ...	1912	0.47	United States (Registra- tion Area) ...	1915	0.91
Spain ...	1914	0.57	Norway ...	1914	1.02
Denmark ...	1914	0.58	United Kingdom ...	1915	1.06
Japan ...	1913	0.66	Netherlands ...	1915	1.09
Italy ...	1914	0.67	Sweden ...	1912	1.10
Belgium ...	1912	0.71	Scotland ...	1915	1.11
Ontario (Canada) ...	1915	0.72	England and Wales ...	1915	1.13
Commonwealth ...	1915	0.75	Switzerland ...	1914	1.28
France ..	1911	0.80			

The fifth issue of this Year Book contains, on pages 230, etc.; a paper dealing, *inter alia*, with the incidence of cancer in the Commonwealth. The paper is not reprinted in the present issue.

(xvii.) *Simple Meningitis.* Deaths from this cause decreased from 676 deaths in 1908 to 567 in 1910. Since that year the number has increased each year until during 1914 812 deaths were registered. Sporadic cases of cerebro-spinal meningitis, which occurred to the end of 1914, are included in these figures, but in 1915 they were tabulated separately, the deaths during the year from cerebro-spinal meningitis being 529, and those from all other forms of meningitis, 680. Of the former, 76 occurred in New South Wales, 339 in Victoria, 37 in Queensland, 59 in South Australia, 4 in Western Australia, and 14 in Tasmania.

(xviii.) *Apoplexy, Hemorrhage, and Softening of the Brain.* The deaths registered under this heading, in 1908, were 1867, viz., 991 males and 876 females; in 1909, 1665, viz., 869 males and 796 females; in 1910, 1704, viz., 864 males and 840 females; in 1911, 2178, viz., 1122 males and 1056 females; in 1912, 2176, viz., 1146 males and 1030 females; in 1913, 2281, viz., 1188 males and 1093 females, in 1914, 2204, viz., 1143 males and 1061 females, and in 1915, 2118, viz., 1120 males and 998 females. The 1915 figures are made up of hemorrhage of the brain and apoplexy—1079 males, 998 females, total 2047; and softening of the brain—41 males, 30 females, total 71.

(xix.) *Organic Diseases of the Heart.* The number of deaths registered in 1915 was 4370, viz., 2518 males and 1852 females. Of these deaths, New South Wales was responsible for 969 males and 683 females; Victoria for 709 males and 535 females; Queensland for 384 males and 240 females; South Australia for 198 males and 229 females; Western Australia for 118 males and 76 females; Tasmania for 134 males and 89 females; the Northern Territory for 4 males; and the Federal Territory for 2 males. To the figures for 1915 correspond the following death rates and percentages to total deaths:—

DEATH RATES (a) FROM ORGANIC HEART DISEASE AND PERCENTAGE ON TOTAL DEATHS, COMMONWEALTH, 1915.

State.	Death Rates (a) from Organic Heart Disease.			Percentage on Total Deaths.		
	Males.	Females.	Total.	Males.	Females.	Total.
New South Wales	1.01	0.75	0.88	8.47	8.38	8.44
Victoria ...	1.01	0.74	0.87	8.00	7.68	7.86
Queensland ...	1.04	0.75	0.91	8.18	8.38	8.24
South Australia ...	0.91	1.03	0.97	7.66	10.87	9.10
Western Australia	0.67	0.52	0.60	6.25	6.88	6.49
Tasmania ...	1.31	0.91	1.12	12.20	9.55	11.08
Northern Territory	1.10	...	0.91	4.50	...	4.13
Federal Territory	1.35	...	0.81	14.29	...	11.77
Commonwealth ...	0.99	0.77	0.88	8.21	8.37	8.28

(a) Number of deaths from Organic Heart Disease per 1000 of mean population.

(xx.) *Acute Bronchitis.* The classification of causes of deaths requires deaths of persons under five years of age, which are merely ascribed to "bronchitis," to be classified under "acute bronchitis," and similarly certified deaths of older persons under "chronic

bronchitis." This rule has been followed throughout in compiling the tables for 1908-1915, with the result that acute bronchitis is credited with 412 deaths in 1908, 422 deaths in 1909, 420 deaths in 1910, 515 deaths in 1911, 460 deaths in 1912, 397 deaths in 1913, 389 in 1914, and 489 deaths in 1915, viz., 280 males and 209 females.

(xxi.) *Chronic Bronchitis.* The adjustment mentioned in the preceding paragraph gives a total of 913 deaths in 1915.

(xxii.) *Pneumonia.* The 1915 figures were 1380 males and 845 females, a total of 2225 deaths.

(xxiii.) *Other Diseases of the Respiratory System.* This head was established in 1910, the figures previously being included in "Other Diseases" (paragraph xxxvii.). Deaths in 1908, 1569; in 1909, 1565; in 1910, 1544; in 1911, 1872; in 1912, 1863; in 1913, 1812; in 1914, 1866, and in 1915, 2212. The total for 1915 is made up as follows, viz.:—Diseases of the nasal fossæ, 2 deaths; diseases of the larynx, 75 deaths; diseases of the thyroid body, 15 deaths; broncho-pneumonia, 1184 deaths; pleurisy, 185 deaths; pulmonary congestion and apoplexy, 248 deaths; gangrene of the lung, 28 deaths; asthma, 197 deaths; pulmonary emphysema, 20 deaths; fibroid phthisis, miners' complaint, 168 deaths; other diseases of the respiratory system (tuberculosis excepted), 90 deaths.

(xxiv.) *Diseases of the Stomach (Cancer excepted).* In 1915 this heading includes: Ulcer of the stomach, 57 males, 47 females; and other diseases of the stomach (cancer excepted), 121 males, 126 females; a total of 351 deaths.

(xxv.) *Diarrhœa and Enteritis (Children under two years only).* The number of deaths due to these causes is always a large one, varying from 2462 deaths in 1911 to a maximum of 3506 deaths in 1914. The total for 1915 was 2815, distributed amongst the six States as follows:—New South Wales, 637 males, 517 females, total 1154; Victoria, 352 males, 256 females, total 608; Queensland, 266 males, 277 females, total 493; South Australia, 162 males, 122 females, total 284; Western Australia, 108 males, 98 females, total 206; and Tasmania, 38 males, 30 females, total 68.

The following are the death rates and percentages on total deaths due to infantile diarrhœa and enteritis in the States and Territories for the year 1915:—

DEATH RATES (a) FROM INFANTILE DIARRHŒA AND ENTERITIS, AND PERCENTAGE ON TOTAL DEATHS, COMMONWEALTH, 1915.

State.	Death Rates (a) from Infantile Diarrhœa and Enteritis.			Percentage on Total Deaths.		
	Males.	Females.	Total.	Males.	Females.	Total.
New South Wales	0.66	0.57	0.62	5.57	6.35	5.90
Victoria ...	0.50	0.36	0.43	3.97	3.68	3.84
Queensland ...	0.72	0.71	0.72	5.67	7.93	6.53
South Australia ...	0.75	0.55	0.65	6.26	5.79	6.05
Western Australia	0.61	0.67	0.64	5.73	8.87	6.89
Tasmania ...	0.37	0.31	0.34	3.51	3.22	3.38
Northern Territory	0.28	...	0.23	1.12	...	1.03
Federal Territory	0.68	...	0.40	7.14	...	5.88
Commonwealth	0.62	0.52	0.57	5.11	5.65	5.33

(a) Number of deaths from these diseases per 1000 of mean population.

As a large number of these deaths is directly due to improper feeding, it would be interesting to know the percentage of infants who were bottle-fed, but, unfortunately, no provision exists for the registration of this information. The number of deaths was larger than usual in 1908, particularly in Victoria, and to a lesser degree in South Australia and in Tasmania, owing to the phenomenal heat experienced in the early part of that year. The death rates for the three States named were 0.83, 0.61, and 0.71 per 1000 respectively in 1908, compared with 0.55, 0.45 and 0.48 in 1907, and with 0.50, 0.36 and 0.51 in 1911. The rate in 1912 was higher in every State, Tasmania excepted, than that for 1911, the increase being particularly noticeable in New South Wales, Queensland, and Western Australia. In 1913 all the States, with the exception of New South Wales and South Australia, experienced lower rates than in 1912, and in 1914 the rate fell in New South Wales and Western Australia, while it rose in Victoria, South Australia and Tasmania, and remained stationary in Queensland. The rates for 1915 were considerably lower than those for 1914 in every State with the exception of Queensland and South Australia.

(xxvi.) *Appendicitis and Typhlitis.* Prior to 1910, deaths from these causes were included in *Other Diseases*, paragraph xxxvii. Deaths numbered 293 in 1908, 344 in 1909, 315 in 1910, 320 in 1911, 347 in 1912, 364 in 1913, 374 in 1914, and in 1915, 356, viz., 219 males and 137 females.

(xxvii.) *Hernia, Intestinal Obstructions.* The number of deaths has not varied much from year to year, the number registered in 1908 being 389; and in 1915, 488, viz., 268 males and 220 females.

(xxviii.) *Cirrhosis of the Liver.* There is little variation in the number of deaths from 1908 to 1915. 362 deaths were registered in 1908 and 376 in 1915, viz., 253 males and 123 females.

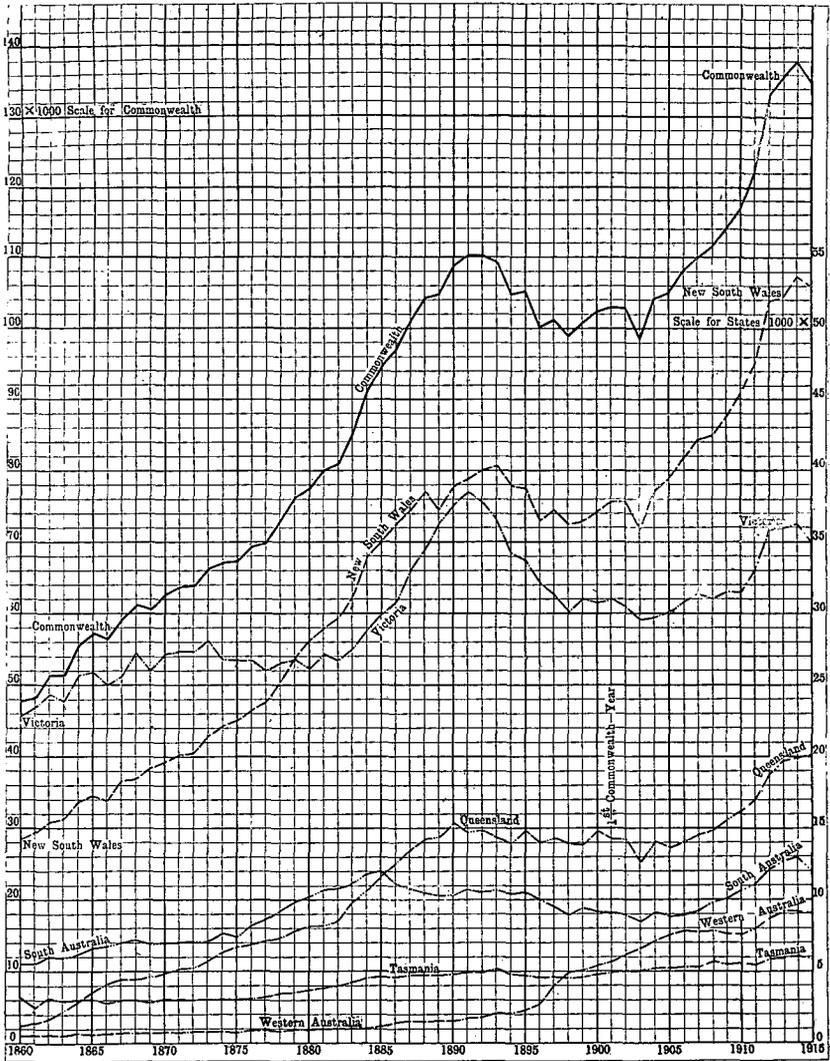
(xxix.) *Nephritis and Bright's Disease.* The number of deaths attributable to these diseases from year to year is a very large one. In 1908 there were registered the deaths of 1140 males and 724 females; in 1909, those of 1076 males and 723 females; in 1910, 1771, 1077 males and 694 females; in 1911, 1951, 1197 males and 754 females; in 1912, 2188, 1352 males and 836 females; in 1913, 2211, 1363 males and 848 females; in 1914, 2127, 1281 males and 846 females; and in 1915, 2274, 1413 males and 861 females. Of the deaths registered in 1915, those of 89 males and 86 females were ascribed to acute nephritis, and those of 1324 males and 775 females to Bright's Disease. New South Wales was responsible for 813 deaths; Victoria for 779; Queensland for 346; South Australia for 189; Western Australia for 77; Tasmania for 68; Northern Territory 1 and Federal Territory 1; making a total of 2274.

(xxx.) *Non-cancerous Tumours and other Diseases of the Female Genital Organs.* Deaths in 1908 numbered 159; in 1909, 130; in 1910, 149; in 1911, 120; in 1912, 145; in 1913, 153; in 1914, 138; and in 1915, 139. Included in the 139 deaths registered in 1915 were the following:—Non-puerperal uterine hæmorrhage, 5; non-cancerous uterine tumours, 35; other diseases of the uterus, 25; cysts and ovarian tumours, 37; salpingitis and other diseases of the female genital organs, 37.

(xxxi.) *Puerperal Septicæmia (Puerperal Fever, Puerperal Peritonitis, Puerperal Phlebitis).* The number of deaths is fairly constant, varying from a maximum of 235 in 1913 to a minimum of 182 in 1915.

(xxxii.) *Other Puerperal Accidents of Pregnancy and Confinement.* The deaths in 1908 numbered 404; in 1909, 376; in 1910, 373; in 1911, 406; in 1912, 413; in 1913, 428; 1914, 419; and in 1915, 394. Included in the 394 deaths registered in 1915 were the following:—Accidents of pregnancy, 129; puerperal hæmorrhage, 64; other accidents of

GRAPHS SHEWING TOTAL ANNUAL BIRTHS IN THE COMMONWEALTH AND STATES OF AUSTRALIA, 1860-1915.



(See Table page 159.)

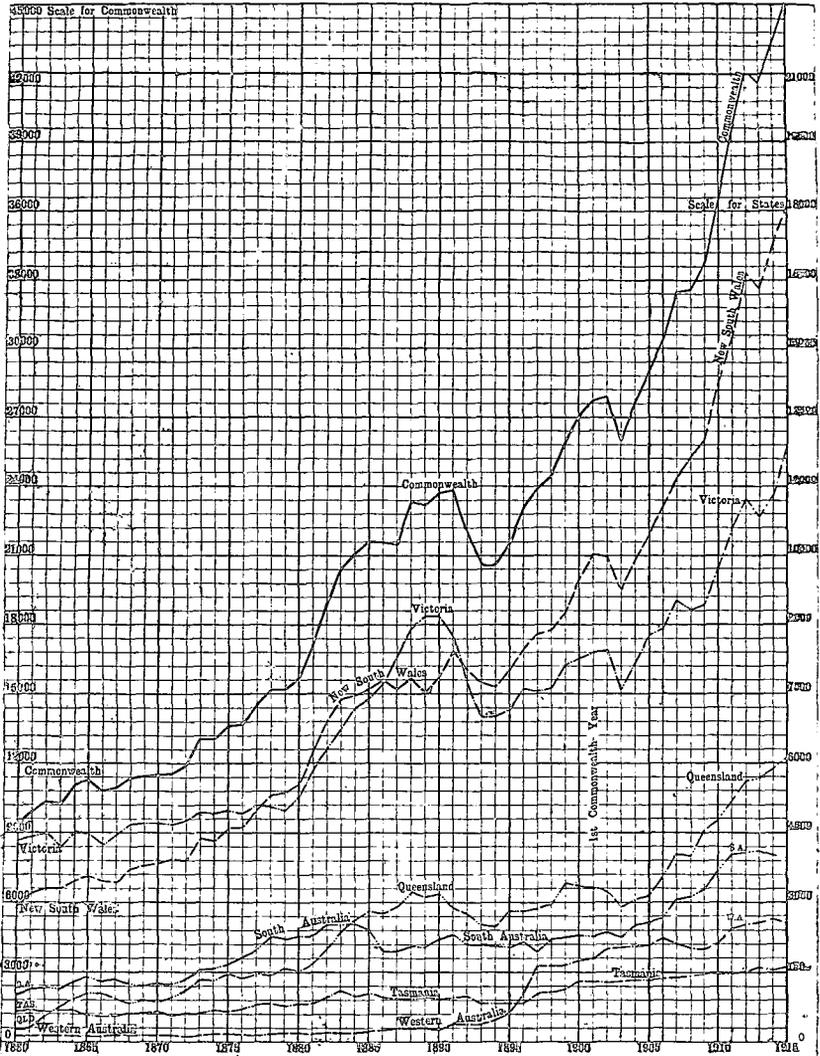
EXPLANATION OF GRAPHS.—The base of each small square represents an interval of one year for both Commonwealth and States, and the vertical height represents 2000 persons for the Commonwealth, and 1000 for the States.

The scale on the left relates to the Commonwealth, and that on the right to the States.

The distances upwards from the common zero lines of the States and Commonwealth, marked 0, denote the total annual number of births in the States and Commonwealth, the scale of the latter being reduced one-half.

The names of the States to which the graphs refer are written thereon, and the characters of the lines used are as follows:— Commonwealth, ———— ; New South Wales, ———— ; Victoria, - - - - ; Queensland, ———— ; South Australia, ———— ; Western Australia, ———— ; Tasmania, ———— .

GRAPHS SHEWING TOTAL ANNUAL MARRIAGES IN THE COMMONWEALTH AND STATES OF AUSTRALIA, 1860-1915.



(See Table page 175.)

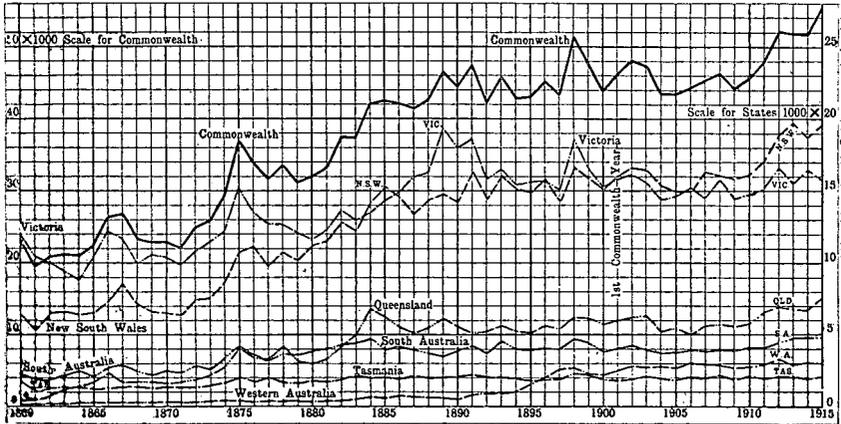
EXPLANATION OF GRAPHS.—The base of each small square represents an interval of one year for both Commonwealth and States, and the vertical height represents 630 marriages for the Commonwealth and 300 for the States.

The scale on the left relates to the Commonwealth, and that on the right relates to the States.

The distances upwards from the zero line, marked 0, denote the total annual number of marriages in the States and Commonwealth, the scale of the latter being reduced one-half.

The names of the States to which the graphs refer are written thereon, and the lines used are similar to those for births on page 211.

GRAPHS SHEWING TOTAL ANNUAL DEATHS IN THE COMMONWEALTH AND STATES OF AUSTRALIA, 1860-1915.



(See Table page 183.)

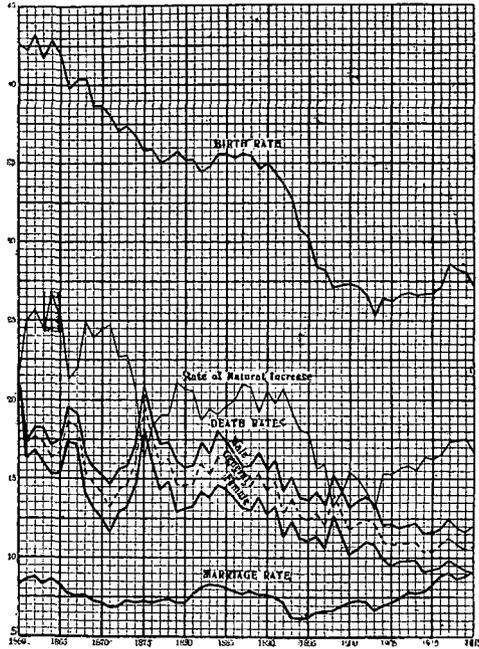
EXPLANATION OF GRAPHS.—The base of each small square represents an interval of one year for both Commonwealth and States, and the vertical height represents 2000 persons for the Commonwealth and 1000 for the States.

The scale on the left relates to the Commonwealth, and that on the right relates to the States.

The distances upwards from the common zero line for States and Commonwealth, marked 0, denote the total annual number of deaths in the States and Commonwealth, the scale of the latter being reduced one-half.

The names of the States to which the curves refer are written thereon, and the lines used are similar to those for births on page 211.

GRAPHS SHEWING GENERAL BIRTH, NATURAL INCREASE, DEATH (MALE, GENERAL, AND FEMALE), AND MARRIAGE RATES IN THE COMMONWEALTH OF AUSTRALIA, 1860-1915.



(See pages 159, 175, 184 and 232.)

EXPLANATION OF GRAPHS.—The base of each small square represents one year's interval, and the vertical height, according to the character of the curve, one half per thousand of the population—the basic line being five per thousand of the population.

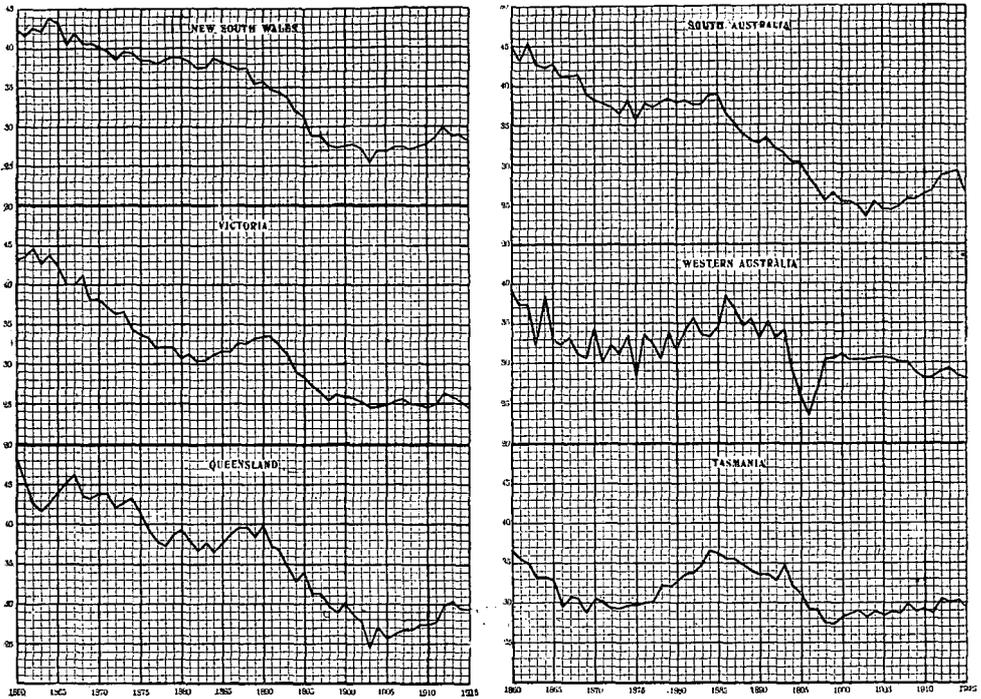
BIRTH RATE GRAPHS. (See next page.)

EXPLANATION OF GRAPHS.—The base of each small square represents one year's interval, and the vertical height one birth per thousand of the population—the basic line for each State being twenty per thousand of the population.

DEATH RATE GRAPHS. (See next page.)

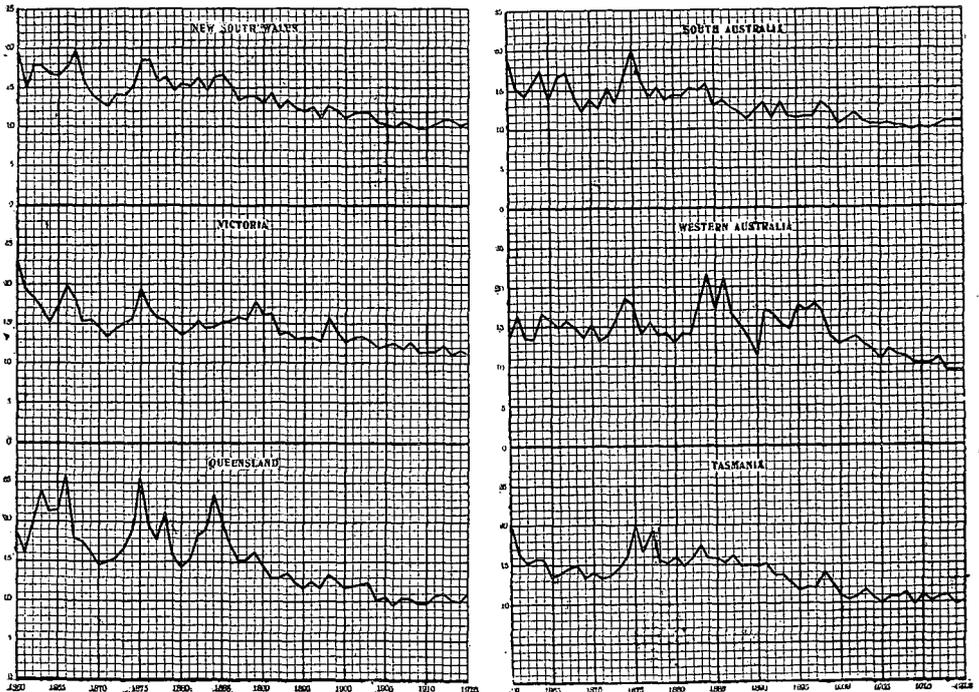
EXPLANATION OF GRAPHS.—The base of each small square represents one year's interval, and the vertical height one death per thousand of the population. The zero for each State is shewn by a thickened line.

GRAPHS SHEWING BIRTH RATES IN THE STATES OF NEW SOUTH WALES, VICTORIA, QUEENSLAND, SOUTH AUSTRALIA, WESTERN AUSTRALIA, AND TASMANIA, 1860-1915.



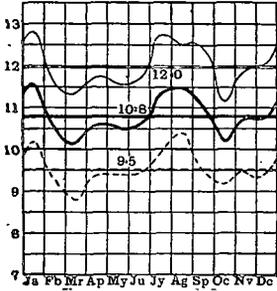
(See Table page 159.)

GRAPHS SHEWING DEATH RATES IN THE STATES OF NEW SOUTH WALES, VICTORIA, QUEENSLAND, SOUTH AUSTRALIA, WESTERN AUSTRALIA, AND TASMANIA, 1860-1915.

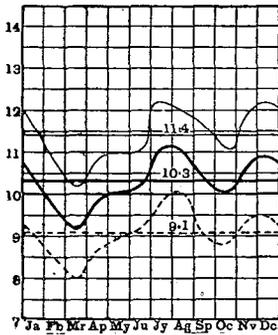


(See Table page 184.) For explanation of above graphs see page 214.

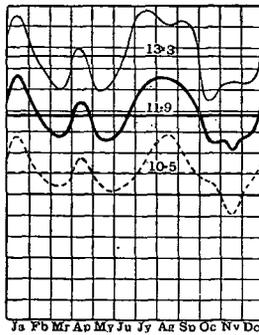
GRAPHS SHEWING GENERAL MONTHLY DEATH RATES, 1907-1912.



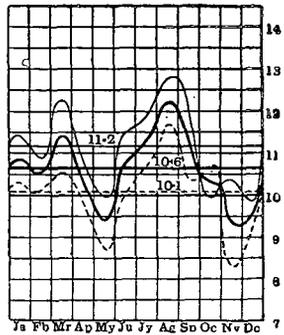
COMMONWEALTH.



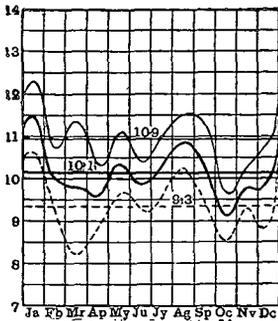
NEW SOUTH WALES.



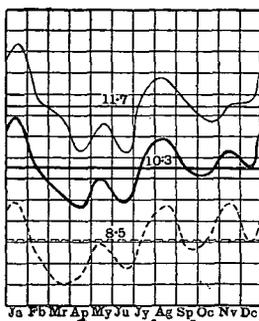
VICTORIA.



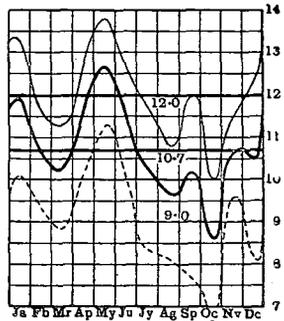
TASMANIA.



SOUTH AUSTRALIA.



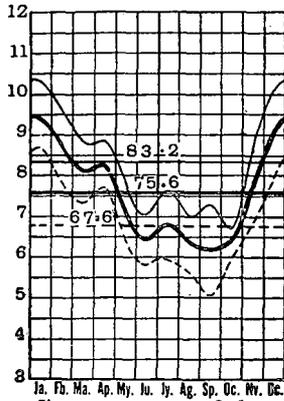
QUEENSLAND.



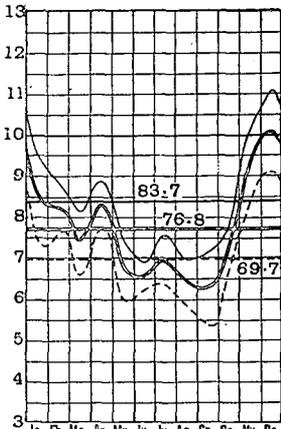
WESTERN AUSTRALIA

Male Death Rates shewn: ————
 Female " " - - - - -
 General " " — · — · —

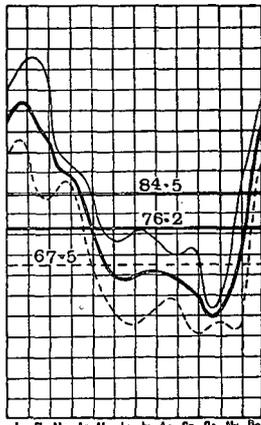
GRAPHS SHEWING INFANTILE MONTHLY DEATH RATES, 1907-1913.



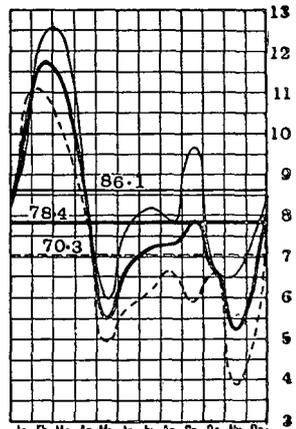
COMMONWEALTH.



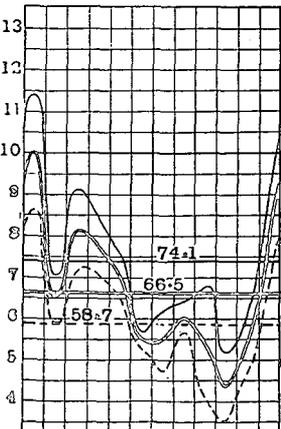
NEW SOUTH WALES.



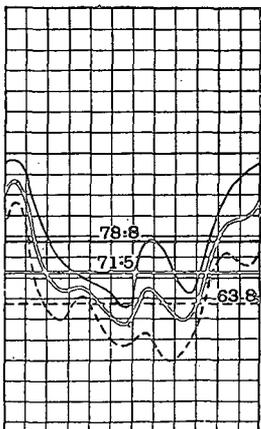
VICTORIA.



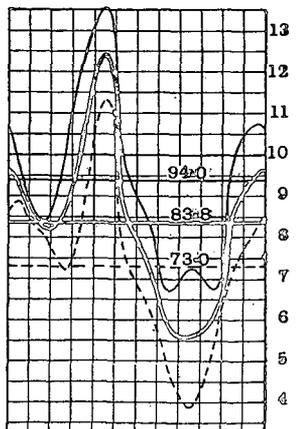
TASMANIA.



SOUTH AUSTRALIA.



QUEENSLAND.



WESTERN AUSTRALIA.

Male Death Rates shown: —————
 Female " " - - - - -
 General " " - · - · -

childbirth, 82; puerperal albuminuria and convulsions, 94; puerperal phlegmasia alba dolens, embolus, sudden death, 20; death following childbirth, 5.

(xxxiii.) *All Puerperal Causes.* The 576 deaths registered in 1915 under the two preceding headings will be found tabulated in "Bulletin No. 33; Commonwealth Demography" under various aspects. It will suffice to repeat here the following facts:—

Of the 576 mothers who died from puerperal causes during the year 1915, 506 were married and 70 were single. As the total number of nuptial confinements was 126,590, and of ex-nuptial confinements 6854, it follows that one in 250 of married mothers, and one in 70 of single mothers, died from puerperal causes, the general proportion being one in 229, as against one in 215 in 1914, and one in 181 in 1908, a gradual improvement having occurred in every year since 1908.

The ages of the mothers who died varied from 16 to 48 years, and are shewn in the following table:—

AGES OF MOTHERS WHO DIED FROM PUERPERAL CAUSES, COMMONWEALTH, 1915.

Age at Death.	Married Women.	Single Women.	Total.	Age at Death.	Married Women.	Single Women.	Total.
16 years ...	1	3	4	34 years ...	20	2	22
17 " ...	2	4	6	35 " ...	21	2	23
18 " ...	4	2	6	36 " ...	23	1	24
19 " ...	7	10	17	37 " ...	19	...	19
20 " ...	9	6	15	38 " ...	27	1	28
21 " ...	20	3	23	39 " ...	20	...	20
22 " ...	15	2	17	40 " ...	14	...	14
23 " ...	21	5	26	41 " ...	10	...	10
24 " ...	21	4	25	42 " ...	7	1	8
25 " ...	25	3	28	43 " ...	10	...	10
26 " ...	24	2	26	44 " ...	6	...	6
27 " ...	26	1	27	45 " ...	4	...	4
28 " ...	30	2	32	46 " ...	1	...	1
29 " ...	24	10	34	47 " ...	2	...	2
30 " ...	31	2	33	48 " ...	1	...	1
31 " ...	19	2	21	Unspecified	2	...	2
32 " ...	24	1	25				
33 " ...	16	1	17				
				Total deaths	506	70	576

Of the 506 married women shewn in the above table, 77 died after their first confinement, 106 at their second, 71 at their third, 67 at their fourth, 54 at their fifth, 31 at their sixth, 31 at their seventh, 27 at their eighth, 21 at their ninth, 7 at their tenth, 5 at their eleventh, 1 at her twelfth, 2 at their thirteenth, 1 at her fifteenth, and 1 at her seventeenth. In four cases no particulars are available. The total number of children of the 506 mothers was 1541.

Forty-three of the mothers who died had been married less than one year, 61 between one and two years, 44 between two and three years, the duration of marriage ranging up to 29 years, apart from 20 cases in which the date of marriage cannot be stated. This tabulation will be found in detail, distinguishing the ages at marriage, in "Bulletin No. 33; Commonwealth Demography," as will a further tabulation shewing in combination

the duration of marriage and previous issue. These tables shew, for instance, that one mother, who had been married at the age of 14 years, died at the age of 43, in the 29th year of her marriage, after her sixteenth confinement.

(xxxiii.) *Congenital Debility and Malformations.* The total deaths registered under these heads in 1915 were 3993, of whom 3911 were children under 1 year of age, inclusive of 3538 under three months. The figures include:—Malformations, 341 males, 244 females, total 585; and congenital debility, icterus, and sclerema of children under one year of age, 1885 males and 1523 females, total 3408; or a grand total of 3993. Of these deaths, 1565 were registered in New South Wales, viz., 846 males and 719 females; 1111 in Victoria, viz., 651 males and 460 females; 519 in Queensland, viz., 278 males and 241 females; 346 in South Australia, viz., 190 males and 156 females; 247 in Western Australia, viz., 141 males and 106 females; 203 in Tasmania, viz., 119 males and 84 females; 1 female in the Northern Territory, and 1 male in Federal Territory.

(xxxiv.) *Senile Debility.* The deaths ascribed to "old age" form a large group, and are slightly in excess of those due to infantile debility. In 1915, 4685 deaths were attributed to this cause, and were distributed among the States as follows: 1530 occurred in New South Wales, viz., 857 males and 673 females; 1820 in Victoria, viz., 982 males and 838 females; 511 in Queensland, viz., 323 males and 188 females; 441 in South Australia, viz., 217 males and 224 females; 184 in Western Australia, viz., 117 males and 67 females; 185 in Tasmania, viz., 84 males and 101 females; 13 males in the Northern Territory, and 1 female in the Federal Territory.

Of the males whose death was described as due to senility, 3 were aged between 50 and 54; 10 between 55 and 59; 56 between 60 and 64; 135 between 65 and 69; 409 between 70 and 74; 621 between 75 and 79; 707 between 80 and 84; 444 between 85 and 89; 151 between 90 and 94; 44 between 95 and 99; while 10 were 100 years old and upwards; and of three the age was not stated.

Of the females, 4 were between 50 and 54; 6 were between 55 and 59; 15 were between 60 and 64; 85 between 65 and 69; 304 between 70 and 74; 456 between 75 and 79; 558 between 80 and 84; 447 between 85 and 89; 162 between 90 and 94; 45 between 95 and 99; while 10 were 100 years old and upwards.

(xxxv.) *Violence.* A very large number of deaths is due every year to external violence, and, as might be expected from the fact that their occupations expose them much more to accidents, males largely predominate. The figures quoted are exclusive of suicides, which have been treated as a separate group. Deaths ascribed to violence numbered, in 1908, 2922, viz., 2187 males and 735 females; in 1909, 2664, viz., 2050 males and 614 females; in 1910, 2738, viz., 2128 males and 610 females; in 1911, 3018, viz., 2323 males and 695 females; in 1912, 3237, viz., 2559 males and 678 females; in 1913, 3168, viz., 2503 males and 665 females; in 1914, 3121, viz., 2458 males and 663 females; and in 1915, 2851, viz., 2251 males and 600 females. Of the deaths registered in 1915, those of 788 males and 224 females occurred in New South Wales; those of 535 males and 197 females in Victoria; those of 450 males and 84 females in Queensland; those of 184 males and 38 females in South Australia; those of 220 males and 32 females in Western Australia; those of 62 males and 25 females in Tasmania; those of 10 males in the Northern Territory, and 2 males in Federal Territory.

The following table shews the various kinds of accidental deaths which occurred in 1915, distinguishing males and females:—

DEATHS FROM VIOLENCE, COMMONWEALTH.

Cause of Death.	Males.	Females.	Total.
Poisoning by food	18	16	34
Venomous bites and stings	6	...	6
Other acute poisonings	38	24	62
Conflagration	16	14	30
Burns (conflagration excepted)	117	143	260
Absorption of deleterious gases (conflagration excepted)	33	32	65
Accidental drowning	412	65	477
Traumatism by firearms	99	12	111
Traumatism by cutting or piercing instruments	5	2	7
Traumatism by fall	248	42	290
Traumatism in mines or quarries	115	...	115
Traumatism by machines	23	1	24
Traumatism by other crushing (vehicles, rail- ways, etc.)	527	82	609
Injuries by animals	45	7	52
Starvation, thirst, fatigue	31	2	33
Excessive cold	4	1	5
Effects of heat	76	28	104
Lightning	8	1	9
Electricity (lightning excepted)	7	...	7
Homicide by firearms	15	11	26
Homicide by cutting or piercing instruments...	4	6	10
Homicide by other means	34	21	55
Fractures (cause not specified)	116	51	167
Other external violence	253	39	292
Total Deaths	2,250	600	2,850

In every kind of violent death there was, therefore, an excess of males, with the exception of burning accidents, in which female deaths largely predominated, and homicide by cutting or piercing instruments.

(xxxvi.) *Suicide.* It may be said that suicides have shewn a slight tendency to increase during recent years, the number in 1908 having been 497, viz., 413 males and 84 females; in 1909, 495, viz., 398 males and 97 females; in 1910, 516, viz., 432 males and 84 females; in 1911, 544, viz., 446 males and 98 females, in 1912, 631, viz., 514 males and 117 females; in 1913, 647, viz., 516 males and 131 females; in 1914, 643, viz., 534 males and 109 females, and in 1915, 658, viz., 536 males and 122 females. Of the suicides in 1915, those of 206 males and 49 females occurred in New South Wales; those of 115 males and 39 females in Victoria; those of 108 males and 22 females in Queensland; those of 39 males and 5 females in South Australia; those of 51 males and 6 females in Western Australia; those of 14 males in Tasmania; those of 2 males in the Northern Territory, and 1 in Federal Territory.

The modes adopted by persons who committed suicide in the years 1908 to 1915 were as follows:—

MALE AND FEMALE SUICIDES, COMMONWEALTH (MODES ADOPTED), 1908 to 1915.

Mode of Death.	Males.		Females.		Total.	
	Total of 7 years 1908-14.	1915.	Total of 7 years 1908-14.	1915.	Total of 7 years 1908-14.	1915.
Poisoning	706	104	382	64	1,088	168
Asphyxia	13	...	2	1	15	1
Hanging or Strangulation	506	84	93	18	599	102
Drowning	229	38	107	21	336	59
Firearms	1,083	196	51	5	1,134	201
Cutting instruments	512	89	48	6	560	95
Precipitation from a height	26	4	10	3	36	7
Crushing... ..	45	8	7	2	52	10
Other modes	133	13	20	2	153	15
Total	3,253	536	720	122	3,973	658

The death rates from suicides and the percentage on total deaths borne by suicides are shewn in the following table:—

DEATH RATES (a) FROM SUICIDE AND PERCENTAGE ON TOTAL DEATHS, 1915.
COMMONWEALTH.

State.	Death Rates (a) from Suicide.			Percentage on Total Deaths.		
	Males.	Females.	Total.	Males.	Females.	Total.
New South Wales	0.21	0.05	0.14	1.80	0.75	1.30
Victoria	0.16	0.05	0.11	1.30	0.56	0.97
Queensland	0.30	0.07	0.20	2.32	0.77	1.74
South Australia	0.18	0.02	0.10	1.57	0.24	0.94
Western Australia	0.29	0.04	0.18	2.73	0.54	1.95
Tasmania	0.14	0.01	0.08	1.29	0.11	0.75
Northern Territory	0.55	...	0.45	2.25	...	2.06
Federal Territory	0.68	...	0.40	7.14	...	5.88
Commonwealth	0.21	0.05	0.13	1.75	0.56	1.25

(a) Number of deaths from suicide per 1000 of mean population.

From the following table, which shews the ages of the persons who committed suicide in 1915, it will be seen that both extreme youth and extreme old age are represented:—

AGES OF PERSONS WHO COMMITTED SUICIDE, COMMONWEALTH, 1915.

Ages.	M.	F.	Total.	Ages.	M.	F.	Total.		
15 years and under	20	9	10	19	60 years and under	65	27	5	42
20	25	27	10	37	65	70	32	1	33
25	30	51	14	65	70	75	18	1	19
30	35	49	18	67	75	80	11	...	11
35	40	67	9	76	80	85	2	...	2
40	45	66	15	81	85	90	2	...	2
45	50	52	17	69	Age not stated	...	3	...	3
50	55	57	6	63					
55	60	53	16	69					
					Total Deaths	...	536	122	658

The following table shews the occupations of the 536 males who committed suicide:—

OCCUPATIONS OF MALE PERSONS WHO COMMITTED SUICIDE, 1915.

COMMONWEALTH.

Occupation.	Deaths.	Occupation.	Deaths.
Professional class	31	Pastoral class	24
Domestic class	19	Working in mines and quarries ...	33
Mercantile class	77	Other primary producers	6
Engaged in transport and communication	38	Independent means	8
Manufacturing class	53	Dependents	4
Engaged in building and construction	23	Occupation not stated	21
Indefinite industrial workers ...	125		
Agricultural class	74	Total Deaths	536

It has been said that suicide has become more frequent during recent years, but an examination of the figures from the year 1871 onwards shews that the assertion needs qualification. The absolute figures have certainly increased, but proportionately to the population the figures for 1906-10 were practically the same as those for 1886-90 and 1891-95. The figures for the four years 1911-15, which have been added to the table, shew, however, a regrettable increase, not only absolutely, but also in proportion to the population. No particulars are available for Western Australia prior to 1886, and from 1886 to 1895 the sexes are not distinguished. The figures for the first five periods are, therefore, exclusive of Western Australia:—

SUICIDES, COMMONWEALTH, 1871-75 TO 1911-15.

Period.	Number of Suicides.			Suicides per One Million.			Suicides of Females to 100 Suicides of Males. Based on	
	Males.	Females.	Total.	Males.	Females.	Total.	Absolute Figures.	Rates.
1871-75	715	150	865	150.94	37.56	99.07	20.98	24.88
1876-80	878	145	1,023	159.69	31.06	100.62	16.51	19.45
1881-85	999	183	1,182	152.58	32.90	97.61	18.32	21.56
1886-90	1,394	292	a1,686	179.20	43.97	c116.92	20.95	24.54
1891-95	1,574	337	b1,911	181.34	44.09	d117.07	21.41	24.31
1896-1900	1,838	410	2,248	191.11	47.88	123.65	22.31	25.05
1901-05	2,054	380	2,434	201.78	40.88	124.98	18.50	20.26
1906-10	2,031	437	2,468	186.11	43.22	117.39	21.51	23.22
1911-15	2,546	577	3,123	206.15	50.36	131.17	22.66	24.43

a. 1705 inclusive of Western Australian figures. b. 1984 inclusive of Western Australian figures. c. 116.49 inclusive of Western Australian figures. d. 119.11 inclusive of Western Australian figures.

In the fifth issue of this Year-Book (pp. 240, etc.), the result of a series of investigations into the periodicity of suicide was published. The paper was partly reprinted in the sixth issue (pp. 241, etc.), but is not repeated in the present issue.

(xxxvii.) *Other Diseases.* The number of causes included under this heading is a very large one, amounting to no less than 79 of the items shewn in the detailed classification, and deaths were recorded under every one of these with the exception of the following four:—Glanders, rabies, pellagra, and non-puerperal diseases of the breast. The total number of deaths under "other diseases" in 1908 was 7417, viz., 4351 males and

3066 females; in 1909, 7419, viz., 4344 males and 3075 females; in 1910, 7794, viz., 4590 males and 3204 females; in 1911, 7652, viz., 4508 males, 3144 females; in 1912, 8300, viz., 4777 males and 3523 females; in 1913, 8241, viz., 4794 males and 3447 females; in 1914, 8670, viz., 5081 males and 3589 females, and in 1915, 9090, viz., 5259 males and 3831 females. In accordance with the revised edition of the classification, the following changes were made in this heading during 1910: beri-beri is now included under this heading instead of under xii., "Other Epidemic Diseases." Other diseases of the respiratory system (2212 deaths) are now shewn under a new head (xxiii.), and appendicitis and typhlitis (356 deaths) under head xxvi. Some of the diseases included here account for very considerable numbers of deaths. Thus there were 931 deaths ascribed to diarrhœa and enteritis of children over two years of age and of adults; 618 to diseases of the arteries, atheroma, and aneurysm; 567 to "other diseases peculiar to early infancy"; 519 to diabetes; 391 to convulsions of children under five years of age; 396 to paralysis without indicated cause; 339 to embolism and thrombosis; 261 to "other diseases of the spinal cord"; 276 to anæmia and chlorosis; 349 to acute endocarditis; 261 to "other diseases of the nervous system"; and 214 to simple peritonitis. Particulars of the deaths included in 1915 are shewn in the following table:—

CAUSES OF DEATH INCLUDED UNDER "OTHER DISEASES," COMMONWEALTH, 1915.

Causes.	M.	F.	T'tal.	Causes.	M.	F.	T'tal.
Purulent Infection and Septicæmia	106	99	205	Diseases of the Lymphatic System	11	12	23
Anthrax	1	...	1	Hæmorrhages, Other Diseases of Circulatory System ...	49	24	73
Tetanus	64	23	87	Diseases of the Mouth and its Associated Organs	9	9	18
Mycoses	1	3	4	Diseases of the Pharynx	29	27	56
Beri-beri	24	1	25	Diseases of the Oesophagus ...	13	3	16
Rickets	10	3	13	Diarrhœa and Enteritis of Children over two years of age and Adults	458	473	931
Syphilis	98	53	151	Ankylostomiasis	3	1	4
Gonococcus Infection	2	1	3	Intestinal Parasites	1	...	1
Other Tumours (Tumours of the female genital organs excepted)	17	27	44	Other Diseases of the Intestine's Acute Yellow Atrophy of the Liver	49	39	88
Acute Articular Rheumatism ...	118	135	253	Hydatid Tumours of the Liver ...	4	10	14
Chronic Rheumatism & Gout ...	62	70	132	Biliary Calculi	27	21	48
Scurvy	4	2	6	Other Diseases of the Liver ...	97	113	210
Diabetes	250	269	519	Diseases of the Spleen	7	3	10
Exophthalmic Goitre	10	39	49	Simple Peritonitis (non-puerperal)	107	107	214
Addison's Disease	12	15	27	Other Diseases of the Digestive System	16	13	29
Leucæmia	45	28	73	Chyluria	1	...	1
Anæmia, Chlorosis	130	146	276	Other Diseases of the Kidneys and their Adnexa	107	50	157
Other General Diseases	46	46	92	Calculi of Urinary Passages ...	27	11	38
Acute and Chronic Alcoholism ...	195	47	242	Diseases of the Bladder	135	21	156
Chronic Lead Poisoning	11	...	11	Other Diseases of the Urethra, Urinary Abscess, etc.	28	2	30
Other Chronic Poisonings due to occupations	1	...	1	Diseases of the Prostate	228	...	228
Other Chronic Poisonings	4	...	4	Non-venereal Diseases of the Male Genital Organs	2	...	2
Encephalitis	45	26	71	Gangrene	61	45	106
Progressive Locomotor Ataxia ...	59	10	69	Furuncle	11	4	15
Other Diseases of the Spinal Cord	144	117	261	Acute Abscess	49	28	77
Paralysis without indicated cause	228	168	396	Other Diseases of the Skin and Adnexa	22	25	47
General Paralysis of the Insane ...	138	14	152	Non-tuberculous Diseases of the Bones	42	14	56
Other Forms of Mental Alienation	39	66	105	Other Diseases of the Joints (Tuberculosis & Rheumatism excepted)	9	3	12
Epilepsy	115	116	231	Amputations	1	...	1
Convulsions (non-puerperal) ...	4	20	24	Other Diseases of the Organs of Locomotion	4	1	5
Convulsions of Children under five years of age	223	168	391	Other Diseases peculiar to Infancy	327	240	567
Chorea	5	5	10	Want of Care (Infants)	4	4	8
Neuralgia and Neuritis	18	18	36				
Other Diseases of the Nervous System	149	112	261				
Diseases of the Eye ... ..	...	1	1				
Diseases of the Ear	16	6	22				
Pericarditis	41	22	63				
Acute Endocarditis	196	153	349				
Angina Pectoris	78	29	107				
Diseases of the Arteries, Atheroma, Aneurysm	431	187	618				
Embolism and Thrombosis	147	192	339				
Diseases of the Veins (Varices, Varicose Ulcers, Hæmorrhoids)	9	13	22				
				Total Deaths	5,259	3,831	9,090

(xxxviii.) *Unspecified or Ill-defined Diseases.* The number of cases which has to be included here is a considerable one from year to year, comprising 1262 in 1908, 1087 in 1909, 598 in 1910, 460 in 1911, 590 in 1912, 614 in 1913, 644 in 1914, and 717, viz., 506 males and 211 females, in 1915. The detailed classification distinguishes these ill-defined diseases under three headings:—Ill-defined organic diseases, including such definitions as dropsy, anasarca, ascites, general œdema, etc.; sudden death, including syncope; and unspecified or ill-defined causes, of which the following are specimens:—Asthenia, coma, dentition, exhaustion, heart failure, etc. In 1915 the number of cases of death which would have to be classed under the first of these categories was 42; those belonging to the second, 42; and those belonging to the third, 634. It is, of course, true that there must always occur some cases where the disease is not well characterised, or where sufficient information is not procurable to allow of a clear definition being given in the certificate of death, but in the majority of cases included under this heading a more complete diagnosis and consequently a more satisfactory certificate would no doubt have been possible.

In the fifth issue of this Year Book, pp. 234, etc., some observations were published, dealing with the incidence of scarlet fever, measles, whooping cough, diphtheria and croup, typhoid, diarrhœa, enteritis, and dysentery.

COMMONWEALTH

19. *Causes of Death in Classes.*—The figures presented in the preceding paragraphs relate to certain definite causes of death. It is almost generally acknowledged that figures of this kind are of greater value in medical statistics than is a classification under general headings. The classification under fourteen general headings adopted by the compilers of The International Nomenclature is, however, shewn in the following table, together with the death rates and percentages on total deaths pertaining to those classes:

DEATHS, DEATH RATES (a), AND PERCENTAGES ON TOTAL DEATHS IN CLASSES, 1915.—COMMONWEALTH.

Class.	Total Deaths.			Death Rate. (a)			Percentage on Total Deaths.		
	M.	F.	Total.	M.	F.	Total	M.	F.	Total.
1. General diseases	6,628	5,466	12,094	2.61	2.26	2.44	21.62	24.69	22.91
2. Diseases of the Nervous System & of the Organs of Special Sense...	3,066	2,291	5,357	1.21	0.94	1.08	10.00	10.36	10.15
3. Diseases of the Circulatory System	3,480	2,484	5,964	1.37	1.03	1.20	11.35	11.22	11.30
4. Diseases of the Respiratory System	3,568	2,271	5,839	1.41	0.94	1.18	11.64	10.27	11.06
5. Diseases of the Digestive Organs...	3,328	2,800	6,128	1.31	1.16	1.24	10.86	12.64	11.61
6. Diseases of the Genito-Urinary System and Adnexa	1,941	1,084	3,025	0.77	0.45	0.61	6.33	4.90	5.73
7. Puerperal Condition ... ..	...	576	576	...	0.24	0.12	...	2.63	1.09
8. Diseases of the Skin and of the Cellular Tissue	143	102	245	0.06	0.04	0.05	0.47	0.46	0.46
9. Diseases of the Organs of Locomotion	56	18	74	0.02	0.01	0.01	0.18	0.08	0.14
10. Malformations	341	244	585	0.13	0.10	0.12	1.11	1.10	1.11
11. Infancy	2,216	1,767	3,983	0.87	0.73	0.80	7.24	7.98	7.55
12. Old Age	2,593	2,092	4,685	1.02	0.87	0.95	8.46	9.46	8.88
13. Violence	2,787	732	3,509	1.10	0.30	0.71	9.09	3.26	6.65
14. Ill-defined Diseases	507	211	718	0.20	0.09	0.15	1.65	0.95	1.36
Total	30,654	22,128	52,782	12.08	9.16	10.65	100.00	100.00	100.00

(a) Number of deaths per 1000 of mean population.

20. *Deaths of Children under 1 Year.*—"Bulletin No. 33; Commonwealth Demography" contains tables shewing for nineteen causes the age at death of children dying during the first year of life. In the Bulletin mentioned, the particulars are published for males and females separately for the States, Territories and Commonwealth, but the totals for the Commonwealth only are here shewn for both sexes combined:—

DEATHS OF CHILDREN UNDER 1 YEAR, COMMONWEALTH, 1915.

Age at Death.		Whooping Cough.	Pulmonary Tuberculosis.	Acute Miliary Tuberculosis.	Tubercular Meningitis.	Abdominal Tuberculosis.	Tuberculosis of Other Organs.	Disseminated Tuberculosis.	Syphilis.	Meningitis.	Convulsions.	Acute Bronchitis.
Under 1 week	...	...	...	...	...	...	...	...	4	6	95	10
1 week and under 2	...	...	...	...	1	1	...	...	4	4	35	15
2 weeks	3	2	...	...	...	...	...	...	8	5	10	8
3 "	" 1 month	4	...	...	...	...	...	...	5	3	11	14
1 month	" 2	21	1	...	...	...	...	...	14	17	16	44
2 months	" 3	17	...	...	2	2	...	...	12	14	19	21
3 "	" 4	16	...	...	4	...	...	1	8	24	8	12
4 "	" 5	7	1	...	1	1	...	...	6	23	10	17
5 "	" 6	9	3	2	5	3	...	...	3	15	11	7
6 "	" 7	6	1	1	3	2	...	...	3	10	14	10
7 "	" 8	7	1	1	1	1	...	...	2	29	9	9
8 "	" 9	7	1	...	3	1	1	...	...	22	11	8
9 "	" 10	8	1	...	2	1	1	...	...	28	17	9
10 "	" 11	7	...	1	7	2	...	...	1	18	10	5
11 "	" 12	6	...	1	6	1	...	...	2	24	9	9
Total under 1 year	...	117	9	6	35	14	2	1	70	242	285	198

Age at Death.	Broncho-Pneumonia.	Pneumonia.	Diarrhea and Enteritis.	Hernia and Intestinal Obstruction.	Malformations.	Congenital Debility, Icterus and Sclerema.	Other Diseases peculiar to Early Infancy.	Lack of Care.	Other Causes.	Total.	
Under 1 week	6	11	30	9	249	2,217	471	12	97	3,227	
1 week & under 2	6	10	33	3	45	268	40	...	59	524	
2 weeks	5	10	23	3	22	176	18	...	40	330	
3 "	" 1 month	13	9	43	3	17	124	8	30	284	
1 month	" 2	39	39	203	4	46	218	9	80	751	
2 months	" 3	36	11	217	3	21	125	8	1	41	550
3 "	" 4	26	21	244	4	18	85	3	...	36	510
4 "	" 5	22	23	234	6	15	44	...	...	51	460
5 "	" 6	21	21	209	7	6	37	...	1	37	397
6 "	" 7	36	21	224	12	11	31	3	...	28	416
7 "	" 8	22	30	202	9	14	28	...	...	28	391
8 "	" 9	24	16	169	7	8	18	...	...	40	336
9 "	" 10	31	24	155	4	5	15	1	...	32	334
10 "	" 11	33	17	142	2	8	12	...	...	39	304
11 "	" 12	36	12	122	1	8	10	...	...	46	293
Total under 1 year	...	356	275	2,250	77	503	3,408	561	14	684	9,107

It will be seen that the maximum number of deaths from convulsions, pneumonia, acute bronchitis, malformations, congenital debility, icterus and sclerema, other diseases peculiar to early infancy, and lack of care, occurred during the first month of life, while broncho-pneumonia was most fatal during the second

month. Diarrhoea and enteritis carried off more children in the third and fourth months than in any other, the numbers gradually decreasing toward the end of the year. Whooping cough reached its maximum during the second month of life.

21. **Ages at Death of Married Males and Females, and Issue.**—"Bulletin No. 33; Commonwealth Demography" contains a number of tables, for the Commonwealth, shewing the age at marriage, age at death, duration of life after marriage, birthplaces, and occupations, in combination with the issue, of married persons who died in 1915. A short summary of the tables mentioned is given hereunder. Deaths of married males in 1915 numbered 13,845, and of married females, 12,495. The ages at death of the males ranged from 19 to 101 years, and those of the females, from 16 to 102 years. The total number of children in the families of the 13,845 males was 72,553, the maximum in one family being 21; and of the 12,495 females, 65,302, with a maximum of 21. The average number of children is shewn for various age-groups in the following table:—

AGES AT DEATH OF MARRIED MALES AND FEMALES, AND AVERAGE ISSUE.

COMMONWEALTH, 1915.

Age at Death.	Average Family of Males.	Average Family of Females.	Age at Death.	Average Family of Males.	Average Family of Females.
Under 20 years ...	1.00	0.79	70 to 74 years ...	6.26	6.31
20 to 24 years ...	1.04	1.25	75 " 79 " ...	6.72	6.57
25 " 29 " ...	1.43	1.86	80 " 84 " ...	6.69	6.59
30 " 34 " ...	1.98	2.78	85 " 89 " ...	6.83	6.29
35 " 39 " ...	2.88	3.41	90 " 94 " ...	6.90	5.59
40 " 44 " ...	3.45	3.72	95 " 99 " ...	6.27	5.48
45 " 49 " ...	3.83	4.24	100 years and upwards	5.50	4.70
50 " 54 " ...	4.38	4.73	Age not stated ...	5.09	6.00
55 " 59 " ...	4.90	5.34			
60 " 64 " ...	5.39	6.19	All ages ...	5.24	5.23
65 " 69 " ...	6.03	6.27			

The figures shewn in the preceding table include the issue both living and dead; and the proportion between them, taking the issue of deceased males and females together, was about as 1000 to 297, or, roughly speaking, as ten to three. The totals are shewn in the following table:—

ISSUE OF MARRIED MALES AND FEMALES.

COMMONWEALTH, 1915.

Issue of Married Males.	Males.	Females.	Total.	Issue of Married Females.	Males.	Females.	Total.
Living ...	29,089	28,276	57,365	Living ...	24,480	24,425	48,905
Dead ...	8,159	7,029	15,188	Dead ...	8,896	7,501	16,397
Total ...	37,248	35,305	72,553	Total ...	33,376	31,926	65,302

These figures show a masculinity in the births of 105.04, which agrees fairly well with the experience of the birth statistics, the masculinity of the births in the Commonwealth from 1905 to 1915 having averaged 105.12.

22. Ages at Marriage of Males and Females, and Issue.—While the table giving the average families of married males and females naturally shows an increase in the averages with advancing ages at death, the following table, which gives the average families of males and females according to the age at marriage of the deceased parents, shows a corresponding decrease in the averages as the age at marriage advances :—

AGES AT MARRIAGE OF MALES AND FEMALES, AND AVERAGE ISSUE.
COMMONWEALTH, 1917.

Age at Marriage.	Average Family of Males.	Average Family of Females.	Age at Marriage.	Average Family of Males.	Average Family of Females.
Under 20 years ...	6.72	7.10	55 to 59 years ...	1.22	...
20 to 24 years ...	6.18	5.59	60 „ 64 „ ...	0.80	...
25 „ 29 „ ...	5.59	4.23	65 years and upwards ...	1.32	...
30 „ 34 „ ...	4.81	3.05	Age not stated ...	4.27	4.76
35 „ 39 „ ...	4.23	1.52			
40 „ 44 „ ...	3.14	0.77			
45 „ 49 „ ...	2.13	0.42			
50 „ 54 „ ...	1.76	...	All ages ...	5.24	5.23

It will be seen that of women who were married at ages from 40 to 44 years, three in every four gave birth to a child, while in the case of women who were married at ages from 45 to 49 years, the proportion fell to about two in every five.

23. Duration of Life after Marriage of Males and Females.—The duration of life after marriage has been tabulated for males and females both in combination with the age at marriage, and with the total and average issue. The tables shewing the result do not, however, lend themselves to condensation, and are, therefore, omitted here. They will be found in "Bulletin No. 33 of Commonwealth Demography," pages 198 to 203.

24. Birthplaces of Married Males and Females, and Issue.—The following table shows the birthplaces of married males and females whose deaths were registered in 1915, together with their average issue. No generalisations can, of course, be made in those cases where the number of deaths is small, and where the average family had to be worked out on small figures. But where the figures are comparatively large, as in the case of natives of the Commonwealth, differences occur between the averages of the individual States which appear inexplicable on any other ground than that of inefficient registration in some of the States. It will be noted that the differences occur both in the male and female averages. Although the figures apply to the Commonwealth as a whole, it must be borne in mind that the vast majority of deaths of natives of any one State are registered in that particular State. The average family of all deceased males who were natives of the Commonwealth was 4.68, and that of deceased females who were natives of the Commonwealth, 4.58.

**BIRTHPLACES AT MARRIAGE OF MALES AND FEMALES, AND AVERAGE ISSUE.
COMMONWEALTH, 1915.**

Birthplace.	Married Males.		Married Females.		Birthplace.	Married Males.		Married Females.	
	Deaths.	Average Family.	Deaths.	Average Family.		Deaths.	Average Family.	Deaths.	Average Family.
New South Wales ...	2,138	5.15	2,263	5.05	Japan ...	2	0.50	...	...
Victoria ...	1,770	4.01	1,683	3.91	Java ...	1	6.00	...	...
Queensland ...	317	3.61	397	3.72	Philippine Islands ...	3	1.66	...	...
South Australia ...	697	5.07	693	4.56	Syria ...	4	4.50	5	4.00
Western Australia ...	65	5.28	91	5.06	Cape of Good Hope ...	2	3.00	1	5.00
Tasmania ...	452	5.17	453	5.44	Natal ...	1	12.00	1	3.00
Northern Territory ...	1	1.00	2	5.50	Mauritius ...	4	7.25	...	...
New Zealand... ..	82	3.12	64	3.53	South Africa (so descd.)	5	4.00	8	5.00
England ...	4,128	5.69	3,103	5.68	Other African British Possessions ...	2	3.50	...	...
Wales ...	109	4.89	80	6.37	Other African C'ntries	2	3.50	2	3.50
Scotland ...	1,135	5.52	943	5.92	Barbados ...	1	7.00	...	...
Ireland ...	1,741	5.91	2,143	5.82	Canada ...	25	4.00	14	4.43
Isle of Man ...	2	0.50	3	4.33	Jamaica ...	4	6.50	1	9.00
Other European Brit'h Possessions ...	18	5.61	16	7.18	Newfoundland ...	3	9.66	2	9.00
Austria-Hungary ...	22	4.51	4	4.50	Other American British Possessions ...	7	4.57	2	4.00
Belgium ...	2	3.50	4	4.25	Argentine Republic ...	1	1.00	...	...
Denmark ...	73	5.63	19	4.37	Brazil ...	1	3.00	...	...
France ...	35	4.37	18	4.50	Chile ...	1	1.00	...	...
Germany ...	445	6.60	290	6.66	Mexico ...	1	0.00	...	...
Greece ...	8	4.50	...	...	United States ...	53	4.49	16	3.44
Italy ...	46	3.68	12	4.58	Other American Countries ...	15	3.53	7	5.43
Netherlands ...	11	4.18	1	8.00	Fiji ...	1	7.00	2	2.00
Norway ...	26	3.50	7	2.28	Other Polynesian British Possessions... ..	3	2.33	...	...
Portugal ...	12	4.92	1	2.00	New Caledonia ...	1	0.00	1	1.00
Russia ...	50	5.10	20	5.00	Samoa ...	1	4.00	...	...
Spain ...	6	3.83	7	7.28	S. Sea Islands (so descd.)	3	1.33	2	4.00
Sweden ...	61	4.23	9	5.11	At Sea... ..	45	5.51	28	5.89
Switzerland ...	23	4.96	6	4.83	Not stated ...	41	3.68	45	3.69
Other Europ. Countries	4	4.25	1	...					
British India ...	47	5.45	24	5.45					
Ceylon ...	2	3.00	...	...			
Straits Settlements ...	3	3.00	1	4.00					
Afghanistan ...	2	1.50	...	...			
China ...	79	2.61	...	...			
					Total ...	13,845	5.24	12,495	5.23

25. **Occupations of Married Males, and Issue.**—A final tabulation shows the average issue in combination with the occupation of deceased males. When these figures are available for a number of years they will afford some clue to the much debated question as to the decrease in the birth rate among various classes of the population.

OCCUPATIONS OF MARRIED MALES, AND AVERAGE ISSUE.

COMMONWEALTH, 1915.

Occupation.	Deaths of Married Males.	Average Family.
Professional class ...	827	4.54
Domestic class ...	486	4.03
Mercantile class... ..	1,746	4.45
Engaged in transport and communication	1,091	4.59
Manufacturing class ...	1,524	5.06
Engaged in building and construction ...	894	5.13
Indefinite industrial workers	2,410	4.97
Agricultural class ...	2,405	6.73
Pastoral class ...	527	5.83
Working in mines and quarries	976	5.47
Other primary producers ...	84	4.69
Independent means ...	372	5.49
Dependents ...	43	3.51
Occupation not stated ...	460	5.65
Total ...	13,845	5.24

In the fifth issue of this Year Book (pp. 227 to 229), a series of observations was published dealing with the Commonwealth Rates of Infantile Mortality. These observations are not reprinted in the present issue.

§ 4. Graphical Representation of Vital Statistics.

1. **General.**—The progressive fluctuations of the numbers representing the total births and marriages are important indexes of the economic conditions and social ideals of a community. For this reason graphs have been prepared (see pages 211 and 212), shewing these fluctuations from 1860 to 1915, both for the States and the Commonwealth. The facts are very significant from the national point of view and call for serious consideration. To properly appreciate the situation it should be remembered that, normally, the increase of births and also of marriages will be similar to the increase of population. Although the marriage curve shews a falling off in marriages after 1891 (see page 212), it shows a recovery in 1894, and, with the exception of a small fall for 1903, it has continually advanced. The same characteristic is not seen in the curve of births, which discloses a recovering tendency only in 1904.

The table printed below shews the number of births, marriages and deaths which would have been experienced had the rate for 1890 continued, and reveals the significance of the facts disclosed by the curves. It may be remarked that the death rate has greatly improved, and among other countries Australia stands in a very favourable position in this respect. At the same time the decline in the marriage rate, overtaken once more in 1907, and the still more serious decline in the birth rate, in a country but sparsely populated, have an obvious and most important bearing on the national future, and on the extent to which it is desirable to promote immigration.

ACTUAL BIRTHS, DEATHS, AND MARRIAGES

EXPERIENCED IN THE COMMONWEALTH DURING THE YEARS 1890 TO 1915, COMPARED WITH THE NUMBER THAT WOULD HAVE OCCURRED IF THE RATES OF 1890 HAD REMAINED IN OPERATION.

Year.	BIRTHS.		DEATHS.		MARRIAGES.	
	Actual.	Number of Births that would have been experienced if the 1890 birth rate had been in operation.	Actual.	Number of Deaths that would have been experienced if the 1890 death rate had been in operation.	Actual.	Number of Marriages that would have been experienced if the 1890 marriage rate had been in operation.
1890	108,683		44,449		23,725	
1891	110,187	111,802	47,430	45,737	23,862	24,419
1892	110,158	114,502	42,268	46,842	22,049	25,009
1893	109,322	116,617	45,801	47,707	20,631	25,470
1894	104,660	118,734	42,958	48,573	20,625	25,938
1895	105,084	111,002	43,080	49,501	21,564	26,428
1896	100,134	123,212	45,202	50,405	23,068	26,911
1897	101,137	125,419	43,447	51,308	23,939	27,393
1898	98,845	127,371	51,406	52,106	24,472	27,819
1899	100,638	129,088	47,629	52,809	25,958	28,194
1900	102,221	130,848	44,060	53,529	27,101	28,579
1901	102,945	132,599	46,330	54,245	27,753	28,961
1902	102,776	134,603	48,078	55,065	27,926	29,399
1903	98,443	136,189	47,293	55,714	25,977	29,745
1904	104,113	137,917	43,572	56,420	27,682	30,122
1905	104,941	139,959	43,514	57,256	29,004	30,569
1906	107,890	142,080	44,333	58,103	30,410	31,021
1907	110,347	144,248	45,305	59,011	32,470	31,505
1908	111,545	146,720	46,426	60,022	32,551	32,045
1909	114,071	149,526	44,172	61,170	33,775	32,658
1910	116,801	152,869	45,590	62,537	36,592	33,388
1911	122,193	157,072	47,869	64,257	39,482	34,306
1912	133,088	162,477	52,177	66,468	42,147	35,487
1913	135,714	168,032	51,789	68,740	41,594	36,700
1914	137,983	172,073	51,720	70,394	43,311	37,583
1915	134,871	173,159	52,782	70,838	45,224	37,820

2. **Graphs of Annual Births, Commonwealth and States** (page 211).—A striking feature of the graphs of births is the practically continuous increase in the number of births exhibited in the graph for the Commonwealth from 1860 to 1891, and the marked variations of subsequent years. As the curve clearly shews, a turning point in the number of births occurred in 1891, whilst, as regards the separate States, New South Wales and Tasmania date their decline in number from 1893, Victoria from 1891, and Queensland from 1890. In South Australia the corresponding decline took place as early as 1885, while in Western Australia the increase in number of births has been practically continuous throughout.

It is of special interest to note the decline in births associated with the commercial crisis of 1891-3, and also the decline occurring in 1903, an accompaniment of the severe drought of that period.

In the case of New South Wales the graph crosses that of Victoria in 1879, *i.e.*, the births for that year were sensibly identical in the two States. A fairly continuous increase was experienced in the former State from 1860 to 1893, the only marked fluctuation being a sudden decline in 1889 and an equally rapid recovery in 1890. From 1893 to 1898 a somewhat rapid decline again took place, succeeded by a rise, the continuity of which was broken only by a sharp decline in 1903 and recovery in 1904.

In the case of Victoria the graph shews the increase between 1860 and 1880 to have been comparatively slight, the curve being a gradual rise, with fluctuations more or less marked to 1873, with a subsequent decline. From 1880 to 1891 the increase in the number of births is seen to be very rapid and practically continuous, while from 1891 to 1898 an equally sharp and continuous decline was experienced. A further rise and fall took place between 1898 and 1903, succeeded by a continuous rise from the last-mentioned year to 1907, and a slight fall in 1908, followed by a recovery in 1909.

Starting in 1860 with a lower number of births than any State except Western Australia, the Queensland graph shews that the births increased somewhat rapidly until 1867. The equality in the number of births in Queensland and Tasmania in 1864 is shewn by the Queensland curve crossing the Tasmanian curve at the line for that year. From 1867 to 1882 a continuous though somewhat less rapid increase was experienced, followed by a very rapid rise to 1890, in which year Queensland's maximum number of births prior to 1909 and subsequent years was recorded. The South Australian graph is crossed by that of Queensland at the year 1885. From 1890 onwards the number of births has fluctuated somewhat, but has, on the whole, retained a practically stationary position at a height rather less than that of 1890. The most serious variation was a sudden fall in 1903, the drought year, and rapid recovery in 1904, with a further fall in 1905 and a continuous rise since 1906.

The South Australian graph, a slow but practically continuous rise from 1860 to 1885, exhibits the steady increase in the total number of births. This rise is followed by a slow but fluctuating decline to 1903, and a slight recovery to 1914.

The Tasmanian curve may be regarded as made up of five portions, of which the first, from 1860 to 1877, represents a period of very slight variation, with, on the whole, an increase; the second, from 1877 to 1884, a period of continuous and moderately rapid increase; the third, from 1884 to 1893, a period of rapid increase; the fourth, from 1893 to 1898, a period of continuous but slow decrease; and the fifth, from 1898 onwards, a period of steady recovery.

The Western Australian curve indicates that an increase, which was practically continuous but very slow, took place from 1860 to 1884, and that a somewhat quicker rate of increase, experienced from 1884 to 1896, was succeeded by a still more rapid and very satisfactory rate of increase from 1896 onwards.

It will be seen that the years in which the highest points were reached by the several curves are as follows :—

State ...	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
Year ...	1914	1891	1915	1914	1913	1914	1914

3. **Graphs of Annual Marriages, Commonwealth and States** (page 212).—The Commonwealth marriage graph from 1860 to 1885 reveals a moderate but somewhat fluctuating increase in the annual number of marriages between 1860 and 1871, a more rapid increase between 1871 and 1879, a still more rapid increase between 1879 and 1885. From 1885 to 1891 the numbers continued to increase, but with marked fluctuations in rate. The financial crisis associated with the period subsequent to the latter year was accompanied by a strongly-marked decline in the number of marriages, which reached its lowest point in 1894. From that year onwards a fairly rapid recovery was effected, the record for 1891 being exceeded by that of 1897. This progress was maintained until 1902, when the severe drought of that and the succeeding year were collateral with a rapid fall in the number of marriages. An equally rapid recovery, however, has since taken place, and the number of marriages in the Commonwealth during 1915 was greater than in any preceding year.

4. **Graphs of Annual Deaths, Commonwealth and States** (page 213).—The curves shewing the progression of the annual number of deaths indicate clearly that the periods for which exceptionally large numbers of deaths occurred were:—(a) 1866-7, (b) 1875-6, (c) 1884-5, (d) 1889-1891, (e) 1893, (f) 1898, and (g) 1902-3. It is remarkable that in each of the periods specified the phenomenon of a relatively high number of deaths was experienced in the majority of the States. Thus, as regards 1866-7, all the States except Western Australia and Tasmania were so affected; in 1875-6 all except Western Australia; in 1884-5 all were affected; in 1889 all except Western Australia and South Australia; in 1891 all except Queensland; whilst in 1893 and 1898, and 1902-3 all were affected. The fact that the periods of high death rates have been practically identical in the several States furnishes an indication that the excessive mortality has been due to a considerable extent to some common cause operating throughout the Commonwealth.

It may be noted as curious that periods of heavy mortality have occurred at intervals of approximately nine years, viz.:—1866-7, 1875-6, 1884-5, 1893, and 1902-3. There are, however, two marked increases between the third and fourth dates, and one between the fourth and fifth. Thus there is no real indication of the periodicity of the death rate.

Periods in which the number of deaths was exceptionally low are far less clearly defined than those in which the number was high, and the agreement amongst the States is also less complete. The principal periods of low mortality may be said to be 1861, 1869-71, 1879, 1892, 1897, 1900, 1904-5, 1909, 1914.

5. **Graphs of Annual Birth, Death, and Marriage Rates and of Rate of Natural Increase—Commonwealth** (page 214).—(i.) *General*. These graphs represent the number of births, deaths, and marriages, and the excess of births over deaths (natural increase) per 1000 of the population of the Commonwealth, for each of the years 1860 to 1915.

(ii.) *Births*. In the case of births, the graph indicates a well marked decline in rate during the period, and represents a fall from 42.56 per 1000 of population in 1860 to 27.25 per 1000 in 1915. This enormous reduction has been subject to small fluctuations during the period under review, but may, on the whole, be said to have been in evidence throughout. There are, however, two periods of arrested decline noticeable, one from 1877 to 1890, and the other from 1898 to the present time. The course of the graph thus indicates a rapid fall from 42.56 in 1860 to 34.99 in 1877, succeeded by a fluctuating but, on the whole, fairly stationary period to 34.98 in 1890, then a fall even more rapid to 27.15 in 1898, and a further comparatively stationary period to 27.25 in 1915. The lowest point reached, viz., 25.29, was attained in 1903, the year in which the Commonwealth suffered severely from the worst drought it has ever experienced.

Since then a small but well defined advance in the birth rate has been in evidence. A declining birth rate is usually due to complex causes, amongst which the variations in the age constitution of the population, and the adoption of preventive measures, are generally considered the most potent.

(iii.) *Deaths.* The three graphs relating to deaths furnish particulars concerning the rates experienced during the period amongst males and females separately, and in the population as a whole, the latter occupying naturally a position between the other two. Throughout the period the rate for males has largely exceeded that for females, but the fluctuations in the two rates have synchronised remarkably, indicating that the conditions which have been responsible for the marked variations which have occurred from time to time have affected males and females alike. On the whole, the graphs furnish clear evidence of a satisfactory decline in the death rate of the Commonwealth, a fall having taken place from 20.86 in 1860 to 10.66 in 1915. The graphical representation of the death rates brings into prominence five years in which the rates were exceptionally high when compared with those of adjacent years. These years are 1860, 1866, 1875, 1884, and 1898. The principal cause of the excessive rate of 1860 was the prevalence in that year of measles, scarlatina, and diphtheria, while the high rates of 1866, 1875, and 1898 were also largely due to epidemics of measles. Prior to 1892, when a rate of 12.91 was experienced, the lowest general death rate for the Commonwealth was that of 1871, viz., 13.24. The highest male death rate for the period was 20.97 in 1860, and the lowest 11.51 in 1909. For females the highest was 20.71 in 1860, and the lowest 9.06 in 1909. The difference between the male and female rate has, since 1869, been fairly constant, and has ranged between 1.97 and 3.44, with a mean value of about 2.7.

(iv.) *Marriages.* In the case of the graph representing marriage rates, the fluctuations are less abrupt than in the case of the birth rate and death rate graphs, and the rate for 1915, the final year of the period, viz., 9.14, does not differ very considerably from that of 1860, which was 8.42. The lowest marriage rate for the period was that of 1894, viz., 6.08, marking the culmination of the commercial and financial depression indicated by the declining rates from 1888 onwards. From 1894 to the present time a satisfactory increase has been in evidence, disturbed only by the sharp decline which, in 1903, accompanied the severe drought experienced in the Commonwealth in that year. The rate for 1915 was the highest ever recorded.

(v.) *Natural Increase.* This graph, which represents the excess of births over deaths per 1000 of population, exhibits marked fluctuations arising from the combined fluctuations in birth and death rates. Thus, corresponding to the high death rates of 1860, 1866, 1875, and 1898, there are exceptionally low rates of natural increase, accentuated in the last-mentioned year by a comparatively low birth rate. A combination of low birth rate and comparatively high death rate was also responsible for a very low rate of natural increase in 1903. The highest rate of natural increase for the period was 26.58 in 1864, and the lowest 13.03 in 1898.

6. Graphs of Annual Birth Rates—States (page 215).—These graphs furnish for the several States information similar to that supplied in the graph on page 214 for the Commonwealth as a whole. It will be seen that in every case the total effect has been an extensive decline in rate, subject to very marked fluctuations. In all the States the period from 1875 to 1885 was one of arrested decline, if not of actual advance, in the birth rate. With the exception of the very low rate accompanying the drought in 1903, the variations in any of the States since 1901 have not been very marked, and in most cases a slight tendency to increase is in evidence.

The highest birth rates during the period were as follows:—New South Wales (1864), 44.00; Victoria, 1862), 44.71; Queensland (1860), 47.93; South Australia (1862),

45.44; Western Australia (1860), 38.96; and Tasmania (1884), 36.63. The following were the lowest rates for the period:—New South Wales (1903), 25.44; Victoria (1910), 24.51; Queensland (1903), 24.53; South Australia (1903), 23.84; Western Australia (1896), 23.44; Tasmania (1899), 27.43.

7. **Graphs of Annual Death Rates—States** (page 215).—These graphs furnish for the several States similar information to that given for the Commonwealth as a whole in the diagram on page 214, and indicate in each case a satisfactory decline in death rate. It may be noted that an exceptionally high death rate was experienced in all the States in 1875, and that a similar uniformity, though on a smaller scale, is observable for the year 1898, the principal cause in each case having been an epidemic of measles. The highest death rates experienced during the period were as follows:—New South Wales (1867), 19.79; Victoria (1860), 22.77; Queensland (1866), 25.96; South Australia (1875) 19.97; Western Australia (1884), 21.54; and Tasmania (1875), 19.99. The following were the lowest death rates for the period:—New South Wales (1909 and 1910), 9.89; Victoria (1915), 11.10; Queensland (1906), 9.50; South Australia (1909), 9.74; Western Australia (1915), 9.28; and Tasmania (1914), 9.67.

8. **Graphs shewing Variations in Annual Death Rates from Month to Month.**—The graphs on pages 216 and 217 shew for the Commonwealth as a whole and for each of the six States the annual death rates for males, females, and persons calculated for equalised months, and the infantile death rate, calculated in the same way, and also distinguishing males, females, and persons. Further particulars in regard to these graphs will be found on pages 196 and 197.

SECTION VI.

LAND TENURE AND SETTLEMENT.

§ 1. Introduction and Early History.

1. **Introduction.**—A comprehensive description, in a classified form, of the land tenure systems of the several States has been given in preceding issues of this book; see especially Year Book No. 4 (pp. 235 to 339). The details of that description have been necessarily condensed in the present issue, and for more complete information for past years, reference may therefore be made to Year Book No. 4. The historical matter dealing with the development of land legislation in the individual States may be found in Year Book No. 2 (pp. 263 to 272), and in a more condensed form in Year Books No. 3 (pp. 245 to 254), and No. 4 (pp. 235 to 244).

§ 2. Land Legislation in Individual States.

1. **New South Wales.**—(i.) *Acts now in Force.* The Crown Lands Act of 1884 and the supplementary Act of 1889 (now incorporated in the Crown Lands Consolidation Act 1913), were passed chiefly for the purpose of putting an end to speculative selection without *bona fide* intention of settlement. Pastoral leases were required to be surrendered to the Crown and divided into two equal parts, one of which was returned to the lessee under a lease with a fixity of tenure for a term of years, the other half the lessee was allowed to hold under an annual occupation license, but this half was always open for selection.

Nevertheless accumulation of land into large estates continued, and settlement proceeded slowly. Entirely new principles of agrarian legislation have been embodied in Crown Lands Acts passed in years 1895 to 1914, the Labour Settlements Act 1902, the Closer Settlement Acts 1904 to 1909, and the Closer Settlement Promotion Act 1910, which offer *bona fide* settlers special inducements by the introduction of new forms of tenure on easy terms and conditions.

(ii.) *The Western Lands Acts.* All Crown lands in the Western Division of New South Wales are now subject to the special provisions of the Western Lands Acts 1901 and 1905. All leases or occupation licenses could be brought within the provisions of the Western Lands Act by application before the 30th June, 1902. Otherwise the leases or licenses were dealt with by the Board as if the Act had not been passed. All leases issued or brought under the provisions of the Western Lands Acts expire on the 30th June, 1943, except in cases where part of the land leased is withdrawn for the purpose of sale by auction, or to provide small holdings, in which case an extension of the term of lease of the remainder may be granted as compensation for the part withdrawn.

2. **Victoria.**—(i.) *Acts now in Force.* The Land Act 1901-1915, deals with the whole system of land occupation and alienation in this State. Closer Settlement was provided for by the Land Acts of 1898 and 1901 and amendments, until the introduction of the Closer Settlement Act 1904, amended in 1906, 1907, 1909, 1910, 1911, and 1912. Other special forms of tenure have been provided for by the Settlement on Lands Act 1893, and the Small Improved Holdings Act 1906; these, however, are now embraced in the Land Acts and Closer Settlement Act respectively.

(ii.) *Mallee Lands.* The lands in the Mallee territory, comprising an area of about 11,000,000 acres in the north-western district of the State, can be cleared at a moderate expenditure. An extension of railway facilities and of successful systems of water supply should bring this territory into greater prominence as a field for agricultural enterprise. More than one-half of this area is unalienated and available for occupation.

3. **Queensland.**—*Acts now in Force.* The Closer Settlement Acts 1906-1913 and the Land Act 1910 control the alienation of Crown lands in this State. The latter Act consolidates, amends and simplifies the law relating to the occupation and alienation of Crown lands.

4. **South Australia.**—*Acts now in Force.* The Crown Lands Act 1915 and Amending Act of 1915, repealed and consolidated previous Acts, and also consolidated the Closer Settlement and Village Settlement Acts. The Pastoral Act 1904 controls the pastoral occupation of lands, and the Irrigation and Reclaimed Land Acts of 1914 provide for leases of reclaimed and irrigable lands.

5. **Western Australia.**—*Acts now in Force.* The Land Act 1898, which consolidated previous legislation as to the management of Crown lands, has in turn been amended at various times, and, with such amendments, is now in force. The principle of repurchasing Crown lands for the purpose of Closer Settlement was introduced by the Agricultural Lands Purchase Acts 1896 to 1904; these Acts were repealed and consolidated by the Agricultural Lands Purchase Act 1909.

6. **Tasmania.**—*Acts now in Force.* The law relating to land tenure and settlement is now consolidated in the Crown Lands Act 1911; and in the Closer Settlement Act 1913.

7. **Northern Territory.**—Prior to the transfer of the Northern Territory to the Commonwealth on the 1st January, 1911, the sale and occupation of lands in the Territory were regulated by the Northern Territory Crown Lands Act 1890, the Northern Territory Land Act 1899, and the Northern Territory Tropical Products Act 1904, but from that date the further alienation and occupation of land in the Territory were suspended, pending a complete reorganisation of the system of land settlement by the Commonwealth Government. In December, 1912, an ordinance, cited as the Crown Lands Ordinance 1912, dealing with this question, was made, by which the conditions of land tenure and settlement in the Territory are now determined. Under this ordinance no further alienation of Crown lands is permitted, unless such alienation is in pursuance of existing agreements.

8. **Administration and Classification of Crown Lands.**—In each of the States of the Commonwealth there is now a Lands Department under the direction of a responsible Cabinet Minister, who is charged generally with the administration of the Acts relating to the alienation, occupation, and management of Crown Lands. The administrative functions of most of the Lands Departments are to some extent decentralised by the division of the States into what are usually termed Land Districts, in each of which there is a Lands Office, under the management of a land officer, who deals with applications for selections and other matters generally appertaining to the administration of the Acts within the particular district. In some of the States there is also a Local Land Board or a Commissioner for each district or group of districts. In the Northern Territory the administration of the regulations relating to the occupation and management of Crown lands is in the hands of a Classification Board, consisting of the Director of Lands, the Government Secretary, the Chief Surveyor, and any other officer appointed by the Administrator.

In most of the States, Crown lands are classified according to their situation, the suitability of the soil for particular purposes, and the prevailing climatic and other conditions. The modes of tenure under the Acts, as well as the amount of purchase money

or rent and the conditions as to improvements and residence, may vary in each State according to the classification of the land. The administration of certain special Acts relating to Crown lands has in some cases been placed in the hands of a Board under the general supervision of the Minister; for such purpose, for instance, are constituted the Western Lands Board in New South Wales, the Lands Purchase and Management Board in Victoria, and the Closer Settlement Board in Tasmania.

In each of the States and in the Northern Territory there is also a Mines Department, which is empowered under the several Acts relating to mining to grant leases and licenses of Crown lands for mining and auxiliary purposes. Such leases and licenses are more particularly referred to in a later part of this section. (See § 9.)

Full information respecting lands available for settlement or on any matter connected with the selection of holdings may be obtained from the Commonwealth representative in London, from the Lands Departments, or from the Agents-General of the respective States. The administration and classification of Crown lands in each State were more fully dealt with in Year Book No. 2, (pp. 273-6).

§ 3. Tenures under which Crown Lands may be Alienated or Occupied.

1. Introduction.—The freehold of Crown lands in the several States of the Commonwealth may now ordinarily be alienated either by free grant (in trust for certain specified purposes), by direct sale and purchase (which may be either by agreement or at auction), or by conditional sale and purchase. Crown lands may be occupied in the several States under a variety of forms of leases and licenses, issued both by the Lands and the Mines Departments.

2. Classification of Tenures.—The tabular statement given on pages 238 and 239 shews the several tenures under which Crown lands may be acquired or occupied in each State of the Commonwealth. The forms of tenure are dealt with individually in succeeding parts of this section. In the State of Victoria it is proposed to amend and consolidate the Land Acts at an early date, and to abolish some of the existing forms of tenure. Reference to any amending Acts which are passed up to the latest available date prior to the publication of this book may be found in the Appendix.

(i.) *Free Grants, Reservations, and Dedications.* The modes of alienation given in this category include all free grants either of the fee simple or of leases of Crown lands. "Free" homesteads in Queensland and Western Australia are not included in this class, these tenures being free in the sense that no purchase money is payable, but not free from residential and improvement conditions. Reservation and dedication, which are ordinarily conditions precedent to the issue of free grants, are also dealt with therein.

(ii.) *Sales by Auction and Special Sales.* This class of tenure includes all methods by which the freehold of Crown lands may be obtained (exclusive of sales under the Closer Settlement and kindred Acts) for cash or by deferred payments, and in which the only condition for the issue of the grant is the payment of the purchase money.

(iii.) *Conditional Purchases.* In this class are included all tenures (except tenures under Closer Settlement and kindred Acts) in which the issue of the grant is governed by the fulfilment of certain conditions (as to residence or improvements) other than, or in addition to, that of the payment of purchase money.

(iv.) *Leases and Licenses.* This class includes all forms of occupation of Crown lands (other than under Closer Settlement and kindred Acts) for a term of years under leases and licenses issued by the Lands Departments. As the terms indicate, the freehold cannot be obtained under these forms of tenure.

**CLASSIFICATION OF TENURES UNDER WHICH CROWN LANDS MAY BE
ALIENATED OR OCCUPIED.**

New South Wales.	Victoria.	Queensland.
FREE GRANTS, RESERVATIONS, AND DEDICATIONS.		
Free grants in trust Volunteer land grants Reservations and dedications under Land Act 1884 and Mining Act 1906	Free grants in trust and re- servations under Land Act 1901	Free grants in trust Reservations under Land Act 1910 and under State Forests and National Parks Act 1906
SALES BY AUCTION AND SPECIAL SALES.		
Auction sales for cash or on credit After-auction sales Special sales Improvement purchases	Auction sales for cash or on credit Special sales	Auction sales for cash or on credit After-auction sales Special sales Unconditional selections
CONDITIONAL PURCHASES.		
Residential or non-residential conditional purchases Conversion of conditional pur- chase leases Homestead selections	Agricultural allotments, resi- dential or non-residential Grazing allotments, resi- dential or non-residential Selection from grazing area, perpetual or auriferous leases Selection from pastoral leases Mallee agricultural licenses Murray settlements leases Selection purchase leases	Agricultural farms Agricultural homesteads Prickly pear selections Free homesteads
LEASES AND LICENSES.		
Conditional leases Conditional purchase leases Settlement leases Improvement leases Annual leases Residential leases Special leases Snow leases Pastoral leases Scrub leases Inferior lands leases Occupation licenses Western lands leases Homestead farms Suburban holdings Crown leases Leases in Irrigation Areas	Grazing area leases Perpetual leases Mallee leases Licenses of auriferous lands Leases of swamp or reclaimed lands Grazing licenses Leases and licenses for other than pastoral or agricultural purposes State forest and timber re- serve licenses	Grazing homesteads Grazing farms Occupation licenses Special leases Perpetual lease selections Pastoral leases
CLOSER SETTLEMENT SALES, LEASES AND LICENSES.		
Sales by auction Settlement purchase Annual leases Labour settlements	Special sales	Sales by auction Agricultural farms Unconditional selections
MINES DEPARTMENTS' LEASES AND LICENSES.		
Miners' rights Business licenses Authorities to prospect Leases	Mining leases Special licenses Miners' rights Business & residence licenses	Miners' rights Mining leases and licenses Miners' homestead leases

CLASSIFICATION OF TENURES UNDER WHICH CROWN LANDS MAY BE ALIENATED OR OCCUPIED.

South Australia.	Western Australia.	Tasmania.
FREE GRANTS, RESERVATIONS, AND DEDICATIONS.		
Free grants in trust Reservations and dedications under Crown Lands Act 1915 Artesian leases	Free grants in trust and free leases Reservations under Land Acts 1898 and 1906	Free leases Reservations under Crown Lands Act 1911
SALES BY AUCTION AND SPECIAL SALES.		
Auction sales for cash After-auction sales Sales for special purposes	Auction sales for cash (The right to lease town and suburban lots is sold by auction)	Auction sales or cash or on credit After-auction sales Special sales of residence or business allotments
CONDITIONAL PURCHASES.		
Agreements to purchase Special agreements under Pin- naroo Railway Act	Conditional purchase, resi- dential or non-residential Conditional purchase by direct payment Conditional purchase of small blocks Homestead farms Conditional auction sales Workingmen's blocks	Selection of rural lands Homestead areas Selection in mining areas Conditional auction sales
LEASES AND LICENSES.		
Perpetual leases Miscellaneous leases Miscellaneous grazing and cul- tivation leases Irrigation and reclaimed land leases Special licenses Pastoral leases Leases with right of purchase	Pastoral leases Special leases Quarrying licenses	Grazing leases Miscellaneous leases Timber licenses and leases Occupation licenses Temporary licenses
CLOSER SETTLEMENT SALES, LEASES, AND LICENSES.		
Sales by auction Agreements to purchase Miscellaneous leases Irrigation and reclaimed area leases Village settlements Homestead blocks	Sales by auction Conditional purchases	Special sales Leases with right of purchase
MINES DEPARTMENTS' LEASES AND LICENSES.		
Miners' rights Mining leases Miscellaneous leases Business licenses Occupation licenses Mineral claims Search licenses	Miners' rights Mining leases Miners' homestead leases	Prospectors' licenses Miners' rights Mining leases Miscellaneous licenses

NOTE.—Northern Territory.—By the Crown Lands Ordinance of 1912, the only form of tenure under which land may be held in the Northern Territory, exclusive of land held under pre-existing rights, is that of leasehold. See § 7 of this section.

(v.) *Closer Settlement Sales, Leases, and Licenses.* In this division are included all forms of tenure provided for under the various Closer Settlement Acts, and also under kindred Acts, such as the Village Settlements and Small Holdings Acts.

(vi.) *Mines Departments' Leases and Licenses.* The tenures specified include all methods in which Crown lands may be occupied for mining and auxiliary purposes under leases and licenses issued by the Mines Department in the several States.

3. Limitation of Tenures in New South Wales.—In October, 1910, it was officially stated that it was the policy of the Government to discontinue the granting of the freehold of Crown Lands. Under the Crown Lands Act 1912 this policy was partially given effect to by the discontinuance of the disposal of Crown Lands by conditional purchase or as homestead selections, and by the institution of several new forms of tenure, viz., homestead farms, suburban holdings, irrigation farms, and Crown leases.

The first three are leases in perpetuity, while the term of a Crown lease is 45 years.

4. Tenure of Lands by Aliens.—In the States of New South Wales, Queensland, North Australia and Tasmania restrictions are imposed upon the tenure of lands by aliens (i.e. persons other than natural-born or naturalised British subjects). In Victoria and Western Australia there are no such restrictions. This matter, however, is subject to the war-time regulations of the Commonwealth.

(i.) *New South Wales.*—Under the Crown Lands Consolidation Act 1913, an alien is not qualified to apply for an original homestead selection, original conditional purchase lease, settlement lease, original homestead lease, or original conditional purchase, unless he has resided in New South Wales for one year, and at the time of making application he lodge a declaration of his intention to become naturalised within five years. If he fails to become naturalised within that period, the land is forfeited. This residential limit of twelve months does not, however, apply to applicants for homestead farms, Crown leases, suburban holdings, and leases within irrigation areas, but any alien who shall become the holder of any of these tenures shall become naturalised within three years after his becoming such holder. Failure to comply with this regulation involves forfeiture of such holding, together with all improvements thereon.

(ii.) *Victoria.* Under the Supreme Court Act 1915 (section 3), every alien friend resident in Victoria may acquire, either by grant from the Crown or otherwise, both real and personal property.

(iii.) *Queensland.* Under the Land Act 1910 (sections 59 b and 62) an alien cannot apply for any land in Queensland unless he obtain a certificate that he is able to read and write from dictation, words in such language as the Minister for Lands may direct. If he acquire a selection he must within five years of such acquisition become a naturalised subject.

(iv.) *South Australia.* In South Australia, Asiatics are disqualified from holding perpetual leases of lands in irrigation areas under Section 19 of the Irrigation and Reclaimed Lands Act 1914.

(v.) *Western Australia.* In this State aliens are under no disability as regards the acquisition of the freehold of lands already alienated. Every application to acquire Crown lands, whether by a British subject or an alien, is subject to the approval of the Minister for Lands, with an appeal to the Governor-in-Council.

(vi.) *Tasmania.* Under the Aliens Act 1861 (section 2), aliens cannot hold real estate. An alien, if the subject of a friendly State, may, however, occupy lands for any term not exceeding twenty-one years.

(vii.) *Northern Territory.* No restrictions are imposed upon the tenure of lands by aliens, excepting that under the Mining Act 1903, Asiatic aliens are disqualified from holding gold or mineral leases.

§ 4. Free Grants, Reservations, and Dedications.

1. **Introduction.**—Although free grants of Crown lands were virtually abolished as far back as 1831, the Land Acts of all the States now contain provisions under which the free alienation or occupation of Crown lands for certain specified purposes—comprising generally charitable, educational, and public purposes—is allowed. In all the States, also, Crown lands may be excepted from sale and reserved to the Crown or dedicated for various public and special purposes. Generally, reservation and dedication are conditions precedent to the issue of a free grant. In addition to reservations of a permanent nature, temporary reservations are also made, but these are, as a rule, subject to considerable fluctuations in area by reason of withdrawals, renotifications, and fresh reservations.

The following table shews the area for which free grants were issued and the areas permanently reserved or dedicated in each State during 1901, and from 1911 to 1915 inclusive:—

PARTICULARS OF FREE GRANTS, RESERVATIONS, AND DEDICATIONS, 1901 AND 1911-15.

Year.	N.S.W.	Victoria.*	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
FREE GRANTS.							
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1901	282	7	425	5	156	10†	885
1911	2,186	38,890	287	211	309	109†	41,932
1912	3,805	358	283	173	2,663	3,054	10,336
1913	2,256	62	1,805	42	106	118	4,389
1914	1,888	290	295	33	17	223	2,746
1915	1,596	96	1,271	22	3	172	3,160
RESERVATIONS AND DEDICATIONS.							
1901	1,595	19,278	811,200	†	189,856	4,231	1,026,160§
1911	2,195	34,080	200,062	14,179	4,603,748	16,949	4,871,213
1912	1,915	3,686	250,372	13,975	724,757	14,402	1,009,107
1913	1,370	8,135	...	35,382	128,229	21,811	194,927
1914	1,430	5,303	...	16,120	502,167	6,718	531,738
1915	512	2,280	103,494	46,738	173,155	27,066	353,245

* Including both permanent and temporary reservations and dedications.

† Free leases.

‡ Not available. § Exclusive of South Australia.

2. **New South Wales.**—Crown lands may be reserved or dedicated for certain charitable, educational, and public purposes specified. No promises of dedication for religious purposes were made after the 11th May, 1880, on which date a resolution against any further such grants was passed by the Legislative Assembly. Volunteer Land Office Certificates ceased to be operative after the 31st January, 1912. All cases have now been dealt with.

(i.) **Reservations.** In addition to the reservations referred to above, Crown lands may also be temporarily reserved as sites for cities, towns, or villages, and may be reserved for mining purposes. Crown lands within one mile of any made or projected railway may be temporarily reserved from sale, and any Crown lands may be reserved from sale for the preservation and growth of timber. Further, Crown lands may be reserved by notification in the *Gazette* from being sold or let upon lease or license, in such particular manner as may be specified, or may be reserved from sale or lease generally.

(ii.) *Areas Granted and Reserved, 1915-16.* During the financial year 1915-16, the total area for which free grants were prepared was 1679 acres, including grants of 1580 acres of land resumed under the 12th clause of the Public Roads Act 1902. During the same period 2426 acres were dedicated and permanently reserved, the number of separate dedications being 187.

On the 30th June, 1916, the total area temporarily reserved was 27,575,210 acres, of which 6,149,130 acres were for travelling stock, 6,346,584 acres for forest reserves, 2,318,105 acres for water, 1,239,589 acres for mining, and the remainder for temporary commons, railways, recreation and parks, and miscellaneous purposes.

3. **Victoria.**—Under Section 10 of the Land Act 1901, the Governor is authorised to reserve Crown lands, either temporarily or permanently, from sale, lease or license, for any public purpose whatever.

During the year 1915 eight free grants, comprising an area of 96 acres, were issued. During the same year reservations of both a permanent and temporary nature, comprising an area of 2280 acres, were made; of this area 500 acres were reserved for recreation grounds.

4. **Queensland.**—Under the Land Act 1910, the Governor-in-Council may grant in trust, or reserve from sale, or lease, temporarily or permanently, any Crown lands required for public purposes.

(i.) *Reservations.* Under Section 2 of the State Forests and National Parks Act 1906, the Governor-in-Council may permanently reserve any Crown lands and declare them to be a State Forest or a National Park.

(ii.) *Areas Granted and Reserved, 1915.* During the year 1915 there were 51 free grants issued for a total area of 1271 acres. During the same period the area reserved was 103,494 acres in excess of areas cancelled. The total area reserved up to the end of the year 1915 was 13,540,528 acres.

5. **South Australia.**—Under Section 7 (d) of the Crown Lands Act 1915, the Governor is empowered to dedicate by proclamation any Crown lands for various charitable, educational and public purposes, and may, at any time after dedication, grant the fee simple of such lands to secure the use thereof for the purpose for which they were dedicated.

(i.) *Reservations.* Under Section 7 (f) of the same Act, the Governor may by proclamation reserve any Crown lands (i.) for the use of aborigines, (ii.) for the purposes of military defence, (iii. and iv.) for forest or travelling stock reserves, (v.) for public recreation grounds, (vi.) for railways or tramways, (vii.) for park lands, and (viii.) for any other purpose he may think fit.

(ii.) *Artesian Leases.* Under special circumstances free leases of pastoral lands may be granted to discoverers of artesian wells.

(iii.) *Areas Granted and Reserved, 1915.* During the year 1915 there were 16 free grants issued for a total area of 22 acres. During the same year 109 reserves, comprising 46,738 acres, were proclaimed.

6. **Western Australia.**—Under Section 39 of the Land Act 1898, as amended by Section 27 of the Act of 1906, the Governor may reserve any Crown lands which may be required for religious, charitable, or public purposes. These reservations may be either temporary or permanent.

During the year 1915, 4 free grants totalling 3 acres were issued, while the area reserved was 173,155 acres.

7. **Tasmania.**—Under Section 11 of the Crown Lands Act 1911, the Governor may reserve any Crown lands for the purposes therein specified. The lands are ordinarily leased for a period of ninety-nine years at a peppercorn rental.

During the year ending 31st December, 1915, there were 15 free leases, comprising an area of 172 acres, issued. During the same period 27,066 acres were reserved, 27,000 acres being reserved for National Park purposes, 20 acres for quarry purposes, 32 acres for recreation grounds, and 14 acres for other public reserves. The total area permanently reserved to the end of the year 1915 was 1,111,784 acres.

§ 5. Sales by Auction and Special Sales.

1. **Introduction.**—In all the States, sales by auction of Crown lands are held from time to time. Notifications of such sales are given in the *Government Gazettes*, together with particulars as to the upset price and conditions of sale. Excepting in the case of South Australia, where land is sold at auction for cash only, the purchase may be either for cash or on credit by deferred payments. In most of the States land may also be purchased by private contract at the upset price, when it has been offered at auction and not sold. In the case of auction sales on credit in the States of Western Australia and Tasmania, certain improvement conditions are imposed, and such sales are therefore classed for the purposes of this article among *Conditional Purchases*. (See § 6.) In most of the States comparatively small areas of Crown lands may be sold without competition under special circumstances. Sales by auction and special sales under Closer Settlement Acts are referred to in a later part of this section. (See § 8.)

2. **New South Wales.**—Under the Crown Lands Act, lands not exceeding in the aggregate 200,000 acres for the whole State may be sold by auction during any one year. The sales are notified in the *Gazette* not less than one month before the day of sale. The upset prices may not be less than £8 an acre for town lands; £2 10s. for suburban lands; and other lands fifteen shillings. Town lands may not be sold in areas exceeding half-an-acre; suburban lands in areas exceeding twenty acres; and country lands in areas exceeding 640 acres. A deposit of 25 per cent. on the purchase money must be paid at the sale, and the balance in ordinary circumstances within three months. In the case of town or suburban lands, or portions of less than 40 acres, the Minister may submit the land to sale on deferred payments, in which case the balance is spread over a fixed period (not exceeding 5 years) and is payable in annual instalments with 5 per cent. interest.

A fuller description of the conditions under which land may be purchased at auction may be found in the previous issues of the Year Book. (See Year Book No. 5, p. 273.)

Alienation by Auction and Special Sales. During the year ended the 30th June, 1916, the area of Crown lands sold by auction and special sales for which grants were prepared amounted to 3107 acres, of which 463 acres were sold by auction in 389 lots; 284 acres were sold by after-auction sales in 471 lots; 65 acres were sold as improvement purchases in 145 lots; and 2294 acres were sold as special purchases in 250 lots. The following table gives particulars of Crown lands alienated by auction and special sales during 1901 and for each year from 1911 to 1916:—

NEW SOUTH WALES—AUCTION AND SPECIAL SALES, 1901 and 1911-16.

Year.	Auction and After-auction Sales.	Improvement Purchases.	Special Sales.	Total.	
				Area.	Price.
	Acres.	Acres.	Acres.	Acres.	£
1901*...	49,074	43	445	49,562	116,562
1911 ...	6,732†	47	1,348	8,127	86,601
1912 ...	4,530†	32	2,063	6,625	77,274
1913 ...	3,764†	53	2,739	6,556	58,552
1914 ...	748†	51	2,801	3,600	32,222
1915 ...	501†	49	1,897	2,447	36,411
1916 ...	492	66	2,707	3,265	35,614

* Year ended 31st December. Subsequent years to 30th June. † Exclusive of frontages sold under the Centennial Park Sale Act.

Particulars of total areas alienated are given hereafter. (See § 11.)

3. **Victoria.**—Lands specially classed for sale by auction, and any land in any city, town, or borough, may be sold by auction in fee simple, not exceeding 100,000 acres in any one year, at an upset price of £1 an acre, or at any higher price determined. The purchaser must pay the survey charge at the time of the sale, together with a deposit of 12½ per cent. of the whole price; the residue is payable in equal half-yearly instalments, not exceeding forty in number, according to the amount, with interest at the rate of 4 per cent. per annum.

(i.) *Special Sales without Competition.* Detached strips of land not exceeding twenty acres may be sold at a valuation to the owner of the adjoining freehold in cases somewhat similar to those specified above in respect to Crown lands in New South Wales.

(ii.) *Areas Sold at Auction and by Special Sales.* The following table gives particulars of auction sales and special sales for the year 1901 and from 1911 to 1915:—

VICTORIA—AUCTION AND SPECIAL SALES, 1901 and 1911-15.

Particulars.	1901.	1911.	1912.	1913.	1914.	1915.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Country lands	4,079	1,096	1,178	1,196	983	818
Town and suburban lands	2,127	1,263	1,412	1,278	1,273	1,276
Special sales	846	1,709	1,530	1,731	1,449	1,193
Total	7,052	4,068	4,120	4,205	3,705	3,287

Particulars of total areas alienated are given hereafter. (See § 11.)

4. **Queensland.**—The Minister may, with the approval of the Governor-in-Council, cause any Crown lands to be offered for sale by auction. The notification must specify the amount of deposit, and the term for payment of the balance of the money, which term may not exceed ten years. The upset price may not be less than £8 per acre for town lands, £2 per acre for suburban lands, and 10s. per acre for country lands.

(i.) *After-auction Sales.* The notification of lands for sale by auction may declare that any lands therein mentioned, which have been offered at auction, but not sold or withdrawn, shall be open to purchase at the upset price by the first applicant. The price may be paid in the same instalments and at the same periods as if the land had been bought at the auction.

(ii.) *Special Sales without Competition.* Land may be sold without competition to the holder or holders of adjoining lands at a price to be determined by the Land Court, under circumstances similar to those specified above in the case of New South Wales. When the holder of any land proves that, owing to danger from floods or other reasons, it is unsafe to reside on his holding, he may be granted, on payment of a price determined by the Land Court, an area not exceeding ten acres out of the nearest convenient and available Crown lands.

(iii.) *Areas Sold at Auction, after Auction, and by Special Sales.* The following table shews the areas sold at or after auction, and by special sales, during the year 1901 and from 1911 to 1915:—

QUEENSLAND.—AUCTION AND SPECIAL SALES, 1901 and 1911-15.

Particulars.			1901.	1911.	1912.	1913.	1914.	1915.
			Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Town	...	...	334	764	646	608	446	149
Suburban	...	...	793	1,462	1,015	741	923	541
Country—								
Ordinary sales	...	...	52,132	7,897	4,733	8,770	5,260	2,623
Special Sales	...	...	55	155	200	835	87	79
Total	...	...	53,314	10,278	6,594	10,954	6,716	3,392

Particulars of total areas alienated are given hereafter. (See § 11.)

During 1915, there were in Queensland auction sales, under perpetual lease, of 158 acres for town areas and 749 acres for suburban areas, a total of 907 acres.

(iv.) *Unconditional Selections.* This form of tenure is similar to that of a sale by auction with deferred payment. The minimum price for the land is 13s. 4d. an acre, payable in twenty annual instalments, and the maximum area granted to the applicant is 1280 acres. A deed of grant may be obtained upon payment of the purchase money.

The following table shews the number and area of unconditional selections for which applications were accepted during the year 1901 and from 1911 to 1915:—

QUEENSLAND.—UNCONDITIONAL SELECTIONS, 1901 and 1911-1915.

Particulars.			1901.	1911.	1912.	1913.	1914.	1915.
Number	...	...	151	76	51	41	48	35
Area	...	Acres	24,322	12,968	14,578	6,603	12,081	5,639
Rent	...	£	1,180	525	565	266	448	213

5. *South Australia.*—The following lands may be sold by auction for cash:—(a) Special blocks. Any single section of Crown lands which may be surrounded by lands sold or contracted to be sold, and any section (not exceeding 100 acres in area) which may be required for the establishment of any industry. (b) Crown lands which have been offered for perpetual lease, and not taken up for two years. (c) Town lands. (d) Suburban lands. The upset price is determined by the Commissioner, and 20 per cent. of the purchase money must be deposited at the time of sale, and the residue paid within such a time as the Commissioner may allow.

(i.) *After-auction Sales.* All Crown lands, except town or suburban lands, offered at auction and not sold remain open for leasing or sale under agreement or may be sold by private contract for cash at the upset price.

(ii.) *Sales for Special Purposes.* The Governor may, on the application of the purchaser or lessee under any of the Crown Lands Acts, grant two acres of the land comprised in such agreement or lease to trustees, to be used for any public or charitable purposes, or he may grant not over one acre of land, comprised in such agreement, as a site for a shop, mill, or post office. The purchase money for such land must be paid at the time of application.

(iii.) *Areas Sold for Cash.* The following table shews the areas sold for cash during the year 1901 and from 1911 to 1915. The total areas sold under all types of sale are shewn in a later part of this section. (See § 11.)

SOUTH AUSTRALIA—AUCTION AND SPECIAL SALES, 1901 and 1911-1915.

Year	1901.	1911.	1912.	1913.	1914.	1915.
Area in acres	11,314	470,003	277,665	106,432	51,248	29,081

6. **Western Australia.**—Surveyed town lots notified in the *Gazette* as open for sale, were sold by public auction at a prescribed upset price up to 18th October, 1911, since which date, however, all town lands have been withdrawn from sale and are now granted under lease only. In the case of suburban lands, the purchaser must carry out certain improvements, which are more particularly referred to later. (See § 6, *Conditional Purchases*.)

Areas Sold by Auction. The following table shews the areas of town and suburban lands sold at auction during the year 1901 and from 1911 to 1916 :—

WESTERN AUSTRALIA—AUCTION SALES, 1901 and 1911-16.

Year	1901.	1911. ¹	1912. ¹	1913. ¹	1914. ¹	1915. ¹	1916. ¹
Area sold ... Acres	856	1,848	1,359	1,087	890	1,396	419
Number of Allotments	1,366	778	705	530	263	353	102

1. For the year ended 30th June.

Particulars as to total areas alienated are given in a later part of this section. (See § 11.)

7. **Tasmania.**—Any town lands may be sold at auction or by private contract, either for cash or on credit, provided that no such lands may be sold on credit if the price is less than £15. Rural lands may also be sold at auction or by private contract, but lots of first-class land may not be sold on credit if less than fifteen acres in area. In the case of sales on credit both of town and rural lands, improvement conditions are imposed, and such sales are therefore classified for the purposes of this article as *Conditional Purchases*. (See § 6.)

(i.) *After-auction Sales.* All rural lands and town lands, not within five miles of any city, which have been offered at auction and not sold, may be purchased by private contract at the upset price, and subject to the conditions on which they were offered at auction.

(ii.) *Sale of Land in Mining Towns.* The holder of a residence or business license, who is in occupation and is the owner of buildings and improvements upon the area licensed of a value equal to the upset price of such area, is entitled to purchase not more than half an acre in area. The areas may be sold on credit.

(iii.) *Areas Sold for Cash.* The following table shews the areas sold for cash during the year 1901 and from 1911 to 1915 :—

TASMANIA.—AUCTION AND SPECIAL SALES, 1901 and 1911-1915.

Year	1901.	1911.	1912.	1913.	1914.	1915.
Area in acres	1,915	190	2,026	383	2,260	339

Particulars of total areas alienated are given in a later part of this section. (See § 11.)

§ 6. Conditional Purchases.

1. **Introduction.**—In all the States of the Commonwealth the freehold of the land may be acquired under what are known as systems of conditional purchase by deferred payments of half-yearly or yearly instalments. Certain conditions, generally as to residence and improvements, have to be complied with before the freehold is granted, but these conditions are usually of a light nature and are inserted chiefly with the object of guaranteeing that the occupier will become of benefit to the community by making a reasonable effort to render his holding wealth-producing. Though there is a considerable similarity between some of the forms of tenure in the several States, the terms and conditions vary greatly in detail. As a rule a lease or license for a certain period is first issued to the selector, and upon fulfilment of the prescribed conditions and payment of the full amount of purchase-money the freehold is conveyed to him. In Queensland and Western Australia "free" homesteads may be acquired. Although under these tenures no purchase-money is payable, the grant is conditional on the performance of residential and improvement conditions; these tenures are therefore included here with conditional purchases rather than with free grants.

2. **New South Wales.**—The following are the methods by which land may be alienated by conditional purchase:—(i.) Residential conditional purchase; (ii.) non-residential conditional purchase; (iii.) conversion of certain holdings into conditional purchase; and (iv.) homestead selections.

A description of the conditions under which land may be taken up under this form of tenure is given in previous issues of the Year Book. (See No. 6, p. 277.)

During the year ended the 30th June, 1916, deeds of grant were prepared on the completion of conditional purchases for 307,016 acres, making the total number of conditional purchases in existence at the end of the financial year 89,672 for a total area of 18,315,181 acres. The following table gives particulars of conditional purchases in 1901 and from 1911 to 1916:—

NEW SOUTH WALES.—CONDITIONAL PURCHASES, 1901 and 1911 to 1916.

Year.	Applications Made.		Applications Confirmed.		Areas for which Deeds have been Issued.	
	Number.	Area.	Number.	Area.	During the Year. ²	To end of Year.
1901	2,277	549,898	1,555	360,910	500,564	4,212,189
1911 ¹	1,602	221,537	1,613	227,520	632,738	15,614,036
1912 ¹	1,258	190,969	1,099	175,004	671,564	15,232,355
1913 ¹	783	103,844	839	105,167	406,019	15,638,374
1914 ¹	512	65,306	554	67,534	322,556	15,960,930
1915 ¹	362	47,175	287	35,249	304,012	16,264,942
1916 ¹	216	22,495	183	23,552	307,016	16,571,958

1. Year ended 30th June. 2. Exclusive of exchanges under the Crown Lands Act 1895.

Further particulars as to the total areas alienated and in process of alienation are given hereinafter. (See § 11.)

During the year ended 30th June, 1916, there were 3 original and 25 additional homestead selections applied for, comprising an area of 3141 acres. During the same period the total number of applications confirmed was 17, comprising 7559 acres, and 3694 homestead selections and grants, comprising an area of 1,317,120 acres, were in existence on the 30th June, 1916. This tenure is now practically superseded by the Homestead Farm tenure. Further particulars for previous years are given in a later part of this section. (See § 11.)

3. **Victoria.**—The freehold of agricultural and grazing lands may be acquired by conditional purchase under the following tenures:—(i.) Agricultural, grazing and selection purchase allotments; (ii.) agricultural and grazing allotments by selection from grazing area or perpetual leases; (iii.) Mallee selection purchase leases; (iv.) Murray settlements leases; and (v.) swamp or reclaimed lands purchase leases.

A description of the conditions under which land may be taken up under this form of tenure may be found in previous issues of the Year Book. (See No. 6, p. 278.)

With reference to Murray settlement leases, two settlement areas have been laid out under the Act with due regard to irrigation conditions, viz., those at White Cliffs and Nyah, and at the former place a dry farm area has also been subdivided. At White Cliffs 6273 acres were subdivided as homestead allotments, and 50,345 acres as dry farm allotments, while at Nyah 1960 acres were subdivided as homestead allotments. No additional subdivision has been made during 1915.

The subjoined table gives particulars shewing the areas selected conditionally during the year 1901 and from 1911 to 1915. A large proportion of the areas shewn has reverted to the Crown in consequence of non-fulfilment of conditions.

VICTORIA.—AREAS PURCHASED CONDITIONALLY, 1901 and 1911 to 1915.

(Exclusive of selection in the Mallee country.)

Particulars.	1901.	1911.	1912.	1913.	1914.	1915.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
With residence	466,155	172,599	97,766	138,955	132,085	112,144
Without residence	50,257	33,109	16,864	30,392	23,599	15,645
Total	516,412	205,708	114,630	169,347	155,684	127,789
No. of selectors	2,979	1,608	1,072	1,548	1,307	883

Particulars as to total areas alienated and in process of alienation are given in a later part of this section. (See § 11.)

4. **Queensland.**—The several types of selection under which the freehold may be acquired by conditional purchase are as follows:—(i.) Agricultural farms; (ii.) agricultural homesteads; (iii.) prickly pear selections; and (iv.) free homesteads.

In previous issues of this book may be found the conditions under which land may be selected under this form of tenure. (See No. 6, p. 280.)

Number and Area of Conditional Purchases. The following table shews the number and area of conditional purchases for which applications were accepted in 1901 and from 1911 to 1915:—

QUEENSLAND.—CONDITIONAL PURCHASES (APPLICATIONS ACCEPTED),

1901 AND 1911 TO 1915.

Year.	Agricultural Farms.		Agricultural Homesteads.		Prickly Pear Selections.		Total.	
	Number.	Area.	Number.	Area.	Number.	Area.	Number.	Area.
		Acres.		Acres.		Acres.		Acres.
1901 ...	661	160,804	669	155,512	19	48,450	1,349	364,766
1911 ...	2,046	714,733	30	5,814	806	1,020,615	2,882	1,741,162
1912 ...	1,717	614,269	18	3,771	544	628,614	2,279	1,246,654
1913 ...	1,477	527,461	24	3,934	548	546,749	2,049	1,078,144
1914 ...	1,554	538,844	25	5,927	636	683,000	2,215	1,227,771
1915 ...	978	300,302	12	1,913	451	481,258	1,441	783,473

During the year 1915, applications were accepted to select agricultural farms to the number of 978 for 300,302 acres, an average area of 307 acres, at an average price of 17s. 10d. per acre. The number of selections and the total area selected are less than the corresponding figures for the previous year by 576 and 238,542 acres respectively. The average area is less by 40 acres, and the average price per acre is 11d. less.

The average area of agricultural homesteads was 160 acres. The average price of the land selected as prickly pear selections during the year was 2s. 9d. per acre.

During the year 1915 for land opened for selection as free homesteads, 3 applications totalling 460 acres, were accepted.

Particulars as to total areas alienated and in process of alienation may be found hereinafter. (See § 11.)

5. **South Australia.**—The types of conditional purchases under which land may be alienated in this State are as follows :—(i.) Agreement to purchase, and (ii.) Agreement under the Pinnaroo Railway Act 1903.

(i.) *Agreement to Purchase.*—Surveyed Crown lands are available for agreement to purchase, as well as for perpetual lease under the Crown Lands Acts of 1915, the purchase money being fixed by the Land Board, and payable in sixty half-yearly payments, including interest at not less than 2 per cent. per annum. The condition as to payment of instalments for land offered under the provisions of Act of 1915 in newly surveyed mallee lands is that no payment is made for the first four years, from the fifth to end of the tenth year, interest only at the rate of 2 per cent. per annum on value of land is payable, the first instalment of purchase money, including interest at the rate of 4 per cent. per annum, being payable at the commencement of the eleventh year. All payments are made in advance, the term of agreement being thereby extended to forty years. If the conditions relating to fencing, vermin destruction, and in some cases to residence, are fulfilled, the purchase may be completed after a term of six years from commencement of the agreement on payment of all principal and interest due. All minerals are reserved to the Crown, and the Crown may resume any part of the land for the purposes of roads, water conservation, mining, etc., compensation being payable to the purchaser for loss occasioned by resumption.

(ii.) *Pinnaroo Railway Lands.* Under the Pinnaroo Railway Act 1903 provision was made for opening up about 1,500,000 acres of good agricultural country in the vicinity of a line from Pinnaroo adjoining the Victorian border to Tailem Bend, a distance of eighty-seven miles. These lands are now offered on agreement with covenant to purchase or on perpetual lease under the Crown Lands Act 1915. The railway has been paid for from the proceeds of the land already selected. The conditions of purchase are similar to those stated in par. (i.) above.

The total area held on 30th June, 1916, was 1,090,029 acres; of this area purchase has been completed of 460,723 acres, and 16,179 acres are held on perpetual and right of purchase leases, allotted before the Pinnaroo Railway Act was passed.

(iii.) *Particulars of Conditional Purchases.* The subjoined table gives particulars of the areas alienated by conditional purchase, on fulfilment of the conditions, at the end of 1901 and from 1911 to 1915 :—

**SOUTH AUSTRALIA.—AREAS ALIENATED UNDER AGREEMENTS TO PURCHASE,
1901 AND 1911 TO 1915.**

Year	...	...	...	1901.	1911.	1912.	1913.	1914.	1915.
Area in acres	...	...	...	57,460	153,594	51,702	59,670	36,186	55,181

Particulars as to the total areas alienated and in process of alienation are given in a later part of this section. (See § 11.)

6. **Western Australia.**—The various types of selection under which the freehold can be alienated by conditional purchase in this State are as follows:—(i.) Residential conditional purchase; (ii.) non-residential conditional purchase; (iii.) conditional purchase by direct payment; (iv.) conditional purchase of blocks for vineyards, orchards, or gardens; (v.) conditional purchase of grazing lands; and (vi.) free homestead farms.

A full description of the various conditions under which land may be held under this form of tenure may be found in the previous issues of the Year Book. (See Year Book No. 5, pp. 283 and 284.) The following table shews the area of the selections for which grants were issued, the prescribed conditions having been fulfilled, during the year 1901 and from 1911 to 1916.

WESTERN AUSTRALIA.—AREAS SELECTED CONDITIONALLY FOR WHICH CROWN GRANTS WERE ISSUED, 1901 and 1911-16.

Particulars.	1901.	1911. ¹	1912. ¹	1913. ¹	1914. ¹	1915. ¹	1916. ¹
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Free homestead farms	147	93,444	83,686	96,435	80,784	62,520	61,395
Conditional purchases	5,234	92,986	97,286	113,885	101,421	144,684	50,845
Poison land leases ...	...	...	2,593	6,282	5,357	4,001	5,034
Total ...	5,381	186,430	183,565	216,552	187,562	211,205	117,274
Number of holdings	48	1,073	998	1,232	994	859	724

1. For financial year ended 30th June.

Particulars as to the total areas alienated absolutely, and in process of alienation, are given in a later part of this section. (See § 11.)

Area Conditionally Alienated. The following table shews the areas conditionally alienated under various methods of selection during the year 1901 and from 1911 to 1916:—

WESTERN AUSTRALIA.—AREAS CONDITIONALLY ALIENATED, 1901 and 1911-16.

Particulars.	1901.	1911. ¹	1912. ¹	1913. ¹	1914. ¹	1915. ¹	1916. ¹
<i>Conditional Purchase—</i>	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Deferred payments (with residence)	161,302	899,816	791,844	510,195	338,804	164,461	85,957
" (without residence)	46,498	574,805	391,397	149,648	88,854	43,203	31,137
Direct payments (without residence)	1,909	2,458	5,661	3,548	985	685	208
Free Homestead Farms	63,623	201,172	203,791	151,985	112,874	62,140	32,549
Under the Agric. Lands Purchase Acts	4,295	49,983	8,375	10,835	2,451	4,122	1,026
Grazing Leases	64,834	194,839	568,958	585,382	454,881	227,940	157,712
Poison Land Leases ² ...	9,530	...	...	...	...	...	...
Workingmen's Blocks ³ ...	8	99	56	4	1	...	1
Total ...	351,999	1,923,172	1,970,082	1,411,597	998,850	502,551	308,590
Number of holdings ...	1,888	4,265	4,871	3,771	2,788	1,514	860

1. For year ended 30th June.

2. Provisions repealed by Act of 1906.

3. Closer settlement. (See § 8, 7.)

Particulars as to the total areas in process of alienation are given in a later part of this section. (See § 11.)

7. **Tasmania.**—The various types of conditional purchases in this State are as follows:—(i.) Selection of rural land; (ii.) homestead areas; (iii.) selection in mining

areas; and (iv.) sales by auction on credit, either of town or rural lands. The conditions under which land may be selected under this form of tenure are given in previous issues of the Year Book. (See No. 6, p. 233.)

The following table shows the areas alienated absolutely under systems of conditional purchases and sales on credit, the conditions having been fulfilled, and also shows the areas sold conditionally and the applications for conditional purchases received and confirmed, during the year 1901 and from 1911 to 1915:—

TASMANIA.—CONDITIONAL PURCHASES, 1901 and 1911 to 1915.

Particulars.	1901.	1911.	1912.	1913.	1914.	1915.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
<i>Completion of Conditional Purchases</i> ¹	23,781	33,055	39,844	45,937	34,756	39,329
<i>Sold Conditionally—</i>						
Free Selections	40,004	211,447	91,513	51,622	38,774	42,584
Homestead Areas	9,108	274	199	370	164	100
Auction Sales on Credit	12,961	2,437	2,026	1,916	986	3,202
Other Sales (Town Lands)	636	1,493	1,915	1,037	1,260	740
Total... ..	62,709	215,651	95,653	54,945	41,184	46,626
<i>Applications—</i>						
Received	1,444	2,136	1,800	1,631	1,515	1,610
Confirmed	768	1,241	652	698	543	563

1. Including selections and sales on credit.

Particulars of total areas alienated and in process of alienation are given hereinafter. (See § 11.)

§ 7. Leases and Licenses.

1. **Introduction.**—Leases and licenses are issued in all the States and in the Northern Territory for various terms and upon various conditions. In Victoria, Queensland, South Australia, and the Northern Territory perpetual leases are issued for an indefinitely long period upon payment of an annual rent, while in all the States leases or licenses of comparatively large areas may be obtained for pastoral purposes. Provision has also been made in all the States for convenient forms of leases and licenses for various special purposes, and also for special classes of lands. The leases and licenses dealt with below are exclusive of those issued under Closer Settlement and kindred Acts, and also of those issued for mining and auxiliary purposes. (See §§ 8 and 9.)

2. **New South Wales.**—The following are the various types of leases and licenses issued in this State:—(i.) Conditional leases; (ii.) conditional purchase leases; (iii.) settlement leases; (iv.) improvement leases; (v.) annual leases; (vi.) residential leases; (vii.) special leases; (viii.) snow leases; (ix.) pastoral leases; (x.) scrub leases; (xi.) inferior lands leases; (xii.) occupation licenses; (xiii.) Western lands leases; (xiv.) homestead farm leases; (xv.) suburban holdings leases; (xvi.) Crown leases; (xvii.) irrigation farm leases.

A description in detail of the conditions which govern the issue of these various leases and licenses may be found in previous editions of the Year Book. (See Year Book No. 6, p. 285.)

On the 30th June, 1916, there were 59,051 leases and licenses current under the Lands Department and the Western Land Board, comprising 118,141,247 acres of Crown lands. Of these leases there were 56,053, comprising 43,014,162 acres, in the Eastern and Central Divisions; and 2,998, comprising 75,627,085 acres, in the Western Division.

The following table shews the areas held under various descriptions of leases and licenses at the end of the year 1901, and at the end of 1912-13 and following financial years, and also the area and rental of leases current on the 30th June, 1916 :—

NEW SOUTH WALES.—AREAS OCCUPIED UNDER LEASES AND LICENSES,
1901 AND 1912-1916.

Leases and Licenses.	1901.	1912-13.	1913-14.	1914-15.	1915-16.	
					Area.	Rent.
	Acres.	Acres.	Acres.	Acres.	Acres.	£
Pastoral	44,805,221	1,137,095	1,137,095	1,136,475	1,136,475	734
Outgoing pastoral lessees ...	—	996,272	1,061,240	964,081	857,313	7,914
Western land leases & licenses	—	74,368,024	*74,434,751	74,197,826	73,755,143	91,005
Occupation { (i.) Ordinary	25,812,215	6,401,989	5,923,013	5,672,117	5,400,305	9,608
licenses (ii.) Preferential	12,985,651	1,703,260	1,487,289	1,304,376	1,204,845	6,757
Homestead leases	10,953,388	480,210	388,378	351,374	351,374	614
Condit'l. leases—(i.) Gazetted	13,014,055	15,987,366	15,688,322	15,995,625	15,663,382	194,038
(ii.) Not gazetted (under pro-						
visional rent)	966,887	202,155	110,549	65,477	33,322	278
Conditional purchase leases...	—	611,152	579,108	549,772	515,312	18,928
Settlement leases	3,468,675	7,256,701	6,591,911	6,316,739	5,167,063	62,466
Improvement "	5,551,060	6,014,906	5,448,966	5,781,979	4,902,058	35,954
Annual "	6,755,942	4,237,898	3,705,570	3,184,830	2,991,573	22,123
Scrub "	1,535,415	2,211,234	2,053,634	1,991,066	1,854,648	7,032
Snow land "	79,582	60,104	52,970	11,549	6,069	138
Special "	124,377	620,447	622,079	648,509	647,916	36,600
Inferior land "	288,530	108,664	104,674	104,524	75,451	287
Artesian well "	358,071	71,680	71,680	71,680	71,680	144
Blockholders' "	—	1	1	1	1	6
Residential leases (on gold and						
mineral fields)	5,751	13,427	13,353	13,366	13,435	1,644
Church and school lands ...	97,207	6,855	4,384	4,082	4,078	400
Permissive occupancies †	118,634	1,002,794	1,203,244	1,409,502	1,041,890	12,378
Prickly pear leases	—	62,687	50,187	47,329	47,316	644
Crown lease "	—	555,864	880,785	1,563,684	1,896,765	21,561
Homestead farms "	—	241,221	450,499	748,918	969,453	796
Suburban holdings	—	9,731	22,114	30,717	34,110	4,043
Total under Lands Dept.						
and Western Land Board	126,921,161	124,361,737	122,085,796	121,565,598	118,641,247	536,092

* Includes 1,108,706 acres held under Permissive Occupancy.

† Permissive Occupancies in the Western Division not included.

‡ Rent received.

|| Includes 777,657 acres held under Permissive Occupancy at a rental of £591.

The total annual rent derived from the leases and licenses issued by the Lands Department and the Western Lands Board amounted to £536,092, or an average of 1.08 pence per acre. Particulars regarding leases and licenses issued by the Mines Department are given in a later part of this section. (See § 9, *Occupation of Crown Lands for Mining Purposes*.)

3. *Victoria*.—The various types of leases and licenses (exclusive of Closer Settlement and Mines Department leases and licenses) which may be issued in this State are as follows:—(i.) Grazing area leases; (ii.) selection purchase leases; (iii.) perpetual leases; (iv.) Mallee perpetual leases; (v.) licenses of auriferous lands; (vi.) swamp or reclaimed lands leases; (vii.) grazing licenses; (viii.) leases and licenses for other than pastoral purposes; and (ix.) State forests and timber reserves licenses.

A description in detail of the conditions which govern the issue of these various leases and licenses may be found in the previous issues of the Year Book. (See Year Book No. 5, pp. 291-2.)

Areas held under Leases and Licenses. The following statement shews the areas of Crown lands occupied under leases and licenses at the end of the year 1901, and from 1911 to 1915 :—

VICTORIA.—OCCUPATION OF CROWN LANDS UNDER LEASE OR LICENSE, 1901 AND 1911-15.

Tenure.	Area in Acres.					
	1901.	1911.	1912.	1913.	1914.	1915.
Pastoral Leases	39,450	...	...	...	...	...
Grazing Area Leases... ..	2,338,649	2,950,226	2,869,095	2,747,571	2,648,281	2,575,480
Grazing Licenses—						
Land Acts 1890-91	5,908,985	...	...	...	...	...
Land Acts 1901 (exclus. of Mallee)	...	5,328,249	5,777,386	5,291,179	5,437,929	5,254,997
Mallee Lands ... ..	...	5,413,216	5,016,456	4,694,213	4,851,246	4,868,746
Auriferous Lands (Licenses)... ..	377,427	99,008	92,873	86,667	82,032	79,618
Swamp Lands (Leases)	4,200	4,001	3,981	3,900	3,868	3,824
Perpetual Leases	8,137	9,950	7,899	8,407	8,344	8,182
Mallee Pastoral Leases	7,980,593	327,149	114,287	...	...	...
Mallee Allotment Leases ... ..	...	...	...	...	...	...
Perpetual Leases under Mallee Lands	...	...	...	...	...	...
Acts 1896-1901	448,842	587,350	561,214	398,274	293,716	244,765
Wattles Act 1890	4,427	...	...	...	...	...
Total	17,110,709	14,719,149	14,443,191	13,230,211	13,325,416	13,035,612

4. Queensland.—In this State Crown lands may be occupied under the following types of leases and licenses:—(i.) Grazing homesteads; (ii.) grazing farms; (iii.) occupation licenses; (iv.) special leases; (v.) perpetual lease selections; and (vi.) pastoral leases. An applicant for a grazing homestead or grazing farm may not hold more than 60,000 acres, and the term of the lease may not exceed 28 years.

(i.) *Grazing Homesteads.* Lands opened for grazing selections are available for fifty-six days as grazing homesteads only. Personal residence is necessary for the first 5 years, and prior to the expiration of such period or the earlier death of the lessee, a grazing homestead cannot be assigned or transferred. Without the special permission of the Minister it may not be mortgaged during the five years except to the Agricultural Bank; thereafter the lease is subject to the condition of occupation.

(ii.) *Grazing Farms.* In order to obtain priority of claim the applicant may tender an annual rent higher than the notified one, for the first seven years. As soon as the land is fenced the selector becomes entitled to a lease, and may thereafter mortgage the same. The lease is subject to the condition of occupation during the whole term. The Crown may resume the whole or part of the lease.

Particulars of grazing farms and grazing homesteads are given in the following paragraph:—

(iii.) *Grazing Farms, Homestead and Scrub Selections.* The following table shows the number of grazing farms, grazing homesteads, and scrub selections, for which applications were accepted in 1901 and from 1911 to 1915:—

QUEENSLAND.—GRAZING FARMS, HOMESTEAD AND SCRUB SELECTIONS, 1901 AND 1911-15.

Year.	Grazing Farms.		Grazing Homesteads		Scrub Selections.		Total.	
	No.	Area.	No.	Area.	No.	Area.	No.	Area.
1901 ...	247	Acres. 1,371,283	47	Acres. 290,785	19	48,450	313	1,710,518
1911 ...	161	1,762,406	253	2,726,306	...	...	414	4,488,712
1912 ...	223	1,834,920	348	3,860,887	...	...	571	5,695,807
1913 ...	230	2,681,948	317	3,698,600	...	...	547	6,380,548
1914 ...	272	3,380,918	288	3,462,488	...	...	560	6,843,406
1915 ...	222	2,461,836	275	3,984,517	...	...	497	6,446,353

The average rent in 1915 was .3d. per acre for grazing farms and 1.25d. per acre for grazing homesteads.

Particulars of total areas held under leases and licenses are given in a later part of this section. (See § 11.)

(iv.) *Occupation Licenses.* Annual licenses are granted to occupy Crown lands which have been declared open for such occupation by notification in the *Gazette*. The rent is as specified by the notification or as bid by the licensee, but the Minister may by notice before the 1st September in any year increase the rent. The total number of licenses in force at the end of the year 1915 was 2411, comprising an area of 71,264 square miles, the total rent being £53,317. Particulars of the area held under license for previous years are given in a later part of this section. (See § 11.)

(v.) *Special Leases.* Leases of any portion of land may be issued for a term not exceeding thirty years to any person for any manufacturing, industrial, business or recreation purposes. Leases for a similar term may be issued for any country lands reserved for public purposes and which are infested with noxious weeds.

During the year 1915 there were 101 leases for special purposes granted, comprising an area of 10,515 acres, the total annual rent being £550, and there were extant at the end of the year 648 such leases, reserving rents amounting to £3632 per annum. In addition, 57 leases of reserves, aggregating 35,963 acres, were granted at rentals amounting to £368 per annum; the total number of these leases of reserves in force at the end of the year being 269, reserving rents amounting to £1120. Particulars of special leases for previous years are given in a later part of this section. (See § 11.)

(vi.) *Perpetual Lease Selections.* Land proclaimed to be open for agricultural farm selection (see § 6, 4) may also be opened for perpetual lease selection, and the latter mode may be conceded priority of application over the former. The rent for the first period of ten years of the lease is $1\frac{1}{2}$ per cent. on the proclaimed purchase price of the land for agricultural farm selection. The rent for each succeeding period of ten years is determined by the Land Court. Similar conditions of occupation and improvement as are prescribed for agricultural farms are attached to perpetual lease selections.

QUEENSLAND.—PERPETUAL LEASE SELECTIONS, 1911 to 1915.

Particulars.	1911.	1912.	1913.	1914.	1915.
Number	24	20	12	18	175
Area—Acres	16,660	19,226	10,887	12,991	59,760
Rent £	292	212	106	153	973

(vii.) *Special Licenses.* Licenses to cut timber or to dig for any stone, gravel, earth, shells, or guano, may be issued.

(viii.) *Pastoral Leases.* Existing pastoral leases are now deemed to be held under the Land Act 1910. Lands open for pastoral lease may be leased for a period not exceeding thirty years. The annual rent, per square mile, for the first ten years must be as notified in the *Gazette*, or in case of competition, bid at auction. If the value of the holding become enhanced by the development of public works in the neighbourhood, or by the occurrence of minerals on or near the holding, the rent may be redetermined.

The following table shows the total areas of pastoral leases occupied under the various Acts at the end of the year 1901 and from 1911 to 1915 inclusive:—

* QUEENSLAND.—PASTORAL LEASES OCCUPIED UNDER VARIOUS ACTS, 1901 AND 1911 TO 1915.

Particulars.	Area in Square Miles.					
	1901.	1911.	1912.	1913.	1914.	1915.
Pastoral Leases Act 1869	39,307	...	...	...	...	...
Crown Lands Act 1884	243,586	...	...	...	...	...
Land Act 1897	15,046	...	...	...	...	...
Pastoral Leases Act 1900	50,076	...	...	...	...	...
Pastoral Holdings New Leases Act 1901 ... ..	...	...	...	...	...	...
Land Act 1902 ... ..	...	...	...	...	...	...
Land Act 1910 ... ..	...	346,637	354,843	357,615	353,312	349,838
Total	348,015	346,637	354,843	357,615	353,312	349,838

* Up to the year 1910, resumed parts of pastoral holdings were included in these figures, but since that year they are held under occupation license, and are included in the figures under that head.

The gross area held at the end of the year 1915 for purely pastoral purposes (under *Occupation Licenses and Pastoral Leases*) was 421,102 square miles, at rentals aggregating £347,756 per annum. The area was 5,358 square miles less than that for the previous year, and the rental was £4,306 less. The average rent was 16s. 6½d. per square mile, as against 16s. 6d. for the previous year.

5. **South Australia.**—The following are the various types of leases and licenses which are issued in this State:—(i.) Perpetual leases; (ii.) miscellaneous leases; (iii.) miscellaneous grazing and cultivation leases; (iv.) irrigation and reclaimed swamp leases; (v.) licenses for special purposes; (vi.) leases under the Pastoral Act 1904; and (vii.) leases with right of purchase.

(i.) *Perpetual Leases.* Surveyed Crown lands are available for perpetual leases as well as for agreements to purchase under Crown Lands Acts of 1915. Under the Crown Lands Act of 1888 perpetual leases were granted in perpetuity, and the rent determined for each period of fourteen years, at least twelve months before the expiration of each such period. Under the Crown Lands Act of 1893 the revaluation section was repealed and the rent was fixed in perpetuity, generally at rates varying from 2 per cent. to 4 per cent. per annum on the value of the land as fixed by the Land Board. The condition as to payment of rent of land offered under provisions of the Act of 1915 in newly surveyed mallee lands is that no rent is charged for the first four years, and from the fifth to the end of the tenth year payment is made at the rate of 2 per cent. per annum, the full rate at 4 per cent. becoming due at the commencement of the eleventh year. All minerals are reserved to the Crown, and the Crown may reserve any part of the land for the purposes of roads, water conservation, mining, etc., compensation being payable to the lessee for loss occasioned by resumption.

The conditions under which the other leases and licenses are issued will be found in detail in the previous issues of the Year Book. (See Year Book No. 5, pp. 294 and 295.)

(ii.) *Area held under Lease.* The following table shows the area held under leases and licenses at the end of the year 1901, and from 1911 to 1915:—

SOUTH AUSTRALIA.—AREA UNDER LEASES AND LICENSES, 1901 and 1911 to 1915.

Particulars.	1901.	1911.	1912.	1913.	1914.	1915.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Right of Purchase Leases ...	5,639,519	3,150,533	2,836,346	2,702,210	2,634,685	2,574,640
Perpetual Leases ...	7,115,782	15,020,544	15,070,607	15,048,199	14,569,877	14,943,771
Pastoral Leases ...	68,916,125	91,546,770	96,356,850	96,933,810	96,382,130	95,756,850
Other Leases ...	3,905,729	1,283,663	1,273,350	1,230,105	1,193,787	1,144,683
Total held under Lease ...	85,577,155	111,001,510	115,537,153	115,914,324	115,180,459	114,419,944

6. **Western Australia.**—The following are the various types of leases and licenses issued in this State:—(i.) Pastoral leases; (ii.) permits and licenses to cut timber; (iii.) special leases; and (iv.) licenses for quarrying.

The conditions of tenure with respect to these leases and licenses may be found in the previous issues of the Year Book. (See Year Book No. 5, pp. 296-7.)

Area Held under Leases and Licenses. The following table shows the number and area of leases and licenses issued during the year 1901, and from 1911 to 1916:—

WESTERN AUSTRALIA.—LEASES AND LICENSES ISSUED, 1901 and 1911 to 1916.

Particulars.	1901.	1911.*	1912.*	1913.*	1914.*	1915.*	1916.*
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Pastoral Leases	19,909,251	9,057,002	11,245,895	18,135,488	8,365,927	7,630,023	7,489,683
Special Leases	149	3,112	6,760	3,993	3,382	5,571	1,707
Leases in Reserves	324	174,107	188,444	2,901,238	233,037	196,340	434,455
Timber Leases and Permits†	109,630	68,430	119,000	129,317	20,141	†	†
Residential Lots	221	4	18	2	...	...	...
Total	20,019,575	9,302,655	11,560,117	21,170,038	8,622,487	7,831,934	7,925,845
Number Issued	1,466	396	437	1,918	1,709	1,410	1,105

* For financial year ended the 30th June. † No timber leases granted since 1903.

† Timber Leases and Permits are now under the control of the Mines Department.

Particulars as to the total area occupied under leases and licenses are given in a later part of this section. (See § 11.)

7. **Tasmania.**—The several forms of leases and licenses in this State are as follows:—(i.) Grazing leases; (ii.) miscellaneous leases; (iii.) timber licenses; (iv.) occupation licenses; (v.) temporary licenses; and (vi.) timber leases.

The conditions which govern the issue of these leases and licenses are more fully dealt with in the previous issues of the Year Book. (See Year Book No. 5, p. 297).

Area held under Leases and Licenses. The following table shews the areas of Crown lands occupied under leases and licenses at the end of the year 1901 and from 1911 to 1915:—

TASMANIA.—LEASES AND LICENSES ISSUED, 1901 and 1911-15.

Particulars.	1901.	1911.	1912.	1913.	1914.	1915.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Ordinary Leased Land	1,280,688	1,242,400	1,245,400	1,280,400	1,400,300	1,452,068
Islands	149,165	62,000	135,025	134,908	135,000	204,630
Land Leased for Timber	40,768	134,516	136,471	160,216	162,631	120,832
Total	1,470,621	1,438,916	1,516,896	1,575,524	1,697,931	1,777,530

8. **Northern Territory.**—The system of land settlement in the Northern Territory has been reorganised by the Commonwealth Government. A New Lands Ordinance was passed in December, 1912, known as the Crown Lands Ordinance 1912, and future disposal of land in the Territory will be made in accordance with this Ordinance, which provides for a leasehold system only, and no further alienation of Crown lands will be permitted, unless such alienation is in pursuance of existing agreements. Under this Ordinance, the classification and control of Crown lands is in the hands of a Board, consisting of the Director of Lands, the Director of Agriculture, and the Chief Surveyor. The classified land is leased in blocks, the maximum area ranging from 300 square miles of first-class pastoral to 1280 acres of first-class agricultural land. Before offering any land for leasing, the Board fixes the annual rental, but every lease is subject to reappraisal of rent at specified periods, viz., every fourteen years in the case of town lands, and every twenty-one years in the case of agricultural and pastoral lands.

Leases under this Ordinance are in perpetuity, except as regards pastoral and miscellaneous leases, the term of which is 21 or 42 years, according to the quality of the land leased.

The lessee must reside on the land leased for a certain period every year, must fence, stock, and cultivate it to the extent prescribed, and must, within two years of the commencement of the lease, establish a home on it. In order to promote settlement in the Territory, the first five thousand blocks of agricultural land taken up on perpetual lease under this ordinance will be rent free during the life of the applicant, or for 21 years from the commencement of the lease, whichever period is longer. By an amending ordinance of 1913, additional powers are given to the Administrator in revoking and granting leases.

The various types of leases, licenses, and permits current are as follows:—(i.) Agricultural leases; (ii.) pastoral leases; (iii.) special leases; (iv.) leases with right of purchase; (v.) tropical products leases; (vi.) leases for horsebreeding stations; (vii.) licenses; and (viii.) pastoral and other permits. (See § 2, 7). The permit system was discontinued at the end of 1911.

Area held under Lease, License, and Permit. The following table shows the total area held under lease, license, and permit at the end of the year 1901 and 1912 to 1916:—

**NORTHERN TERRITORY.—AREA HELD UNDER LEASE, LICENSE OR PERMIT,
1901 AND 1912-1916.**

Particulars.	1901.	1912.	1913.	1914.	1915.	1916.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Right of Purchase Leases ...	1,067	667	667	436	436	436
Pastoral Leases ¹ ...	111,476,240	94,329,600	93,748,100	104,370,160	113,813,329	110,560,129
Other Leases ^{2*} ...	1,176,981	1,696,171	1,762,538	88,637	112,862	109,353
Total Leased ...	112,654,288	96,026,438	95,511,305	104,459,233	113,926,627	110,669,918

¹ See Table given below.

The following table gives particulars of the areas held under the various types of lease and license as at the end of the years 1915 and 1916, and included in the previous table under the heads of "pastoral leases" and "other leases."

**NORTHERN TERRITORY.—AREA HELD UNDER LEASE, LICENSE OR PERMIT,
AT 31ST DECEMBER, 1915 and 1916.**

Particulars.	1915.		1916.	
	No. of leases	Area in acres.	No. of leases	Area in acres.
(UNDER SOUTH AUSTRALIAN ACTS.)				
Pastoral leases ...	234	64,682,880	234	64,682,880
Pastoral permits ...	89	12,385,920	80	12,072,370
Annual pastoral leases ...	2	63,360	2	63,360
Mixed farming leases ...	1	1,280	...	...
Right of purchase leases ...	3	436	3	436
Agricultural leases ...	20	5,000	15	3,061
Leases, special purposes ...	2	10	2	10
Occupation, special licenses and permits	20	50	— 24	65
Gold-mining leases ...	14	209	...	...
Mineral leases ...	14	970	...	...
Water leases ...	3	1,920	3	1,920

(UNDER CROWN LANDS ORDINANCE, 1912.)

Grazing Licenses ...	148	30,805,120	124	24,605,440
Pastoral leases ...	32	5,896,049	51	9,136,129
Miscellaneous leases ...	12	81,754	20	82,032
Agricultural leases (cultivation) ...	8	3,923	9	4,489
Agricultural leases (mixed farming and grazing) ...	7	17,648	7	17,648
Town leases ...	44	98	59	128
Total ...	...	113,926,627	...	110,669,918

§ 8. Closer Settlement.

1. **Introduction.**—In all the States, Acts have been passed authorising the Governments to repurchase alienated lands for the purpose of cutting them up into blocks of suitable size and throwing them open to settlement on easy terms and conditions. Special Acts have also been passed in several of the States authorising the establishment on particular lines of co-operative communities, village settlements, and labour colonies. Lands may be acquired either compulsorily or voluntarily in New South Wales, Victoria, Queensland, and Tasmania, but only voluntarily in South Australia and Western Australia.

The following table gives particulars up to the latest available date of operations under the Closer Settlement Acts for each State and the whole Commonwealth:—

CLOSER SETTLEMENT.—TOTAL AREAS ACQUIRED AND ALLOTTED UP TO 30th JUNE, 1916.

Particulars.	N.S.W.	Victoria.	Qld.	S. Aust.	W. Aust.	Tas.	Cwth.
Area acquired ... acres	837,870	568,073	664,363	709,621	446,804	73,320	3,300,051
Purchasing price ... £	3,038,078	4,230,779	1,713,165	2,261,082	421,373	261,212	11,925,689
Farms, etc., allotted { No.	1,609	4,321	2,636	2,183	704*	243	11,696
acres	4748,573	494,965	586,301	609,598	271,242	65,844	2,776,523

* Includes only farms for which Crown Grants have not issued.

† Including 38 Settlement purchases converted into Homestead Farms of an area 19,887 acres.

The following table shews the areas of private lands acquired in each State for the financial year 1901, and for each year from 1911 to 1916:—

CLOSER SETTLEMENT.—AREAS OF PRIVATE LANDS ACQUIRED, 1901 and 1911 to 1916.

Year ended 30th June.	N.S.W.	Victoria.	Q'land.*	S. Aust.*	W. Aust.	Tasmania.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.*	Acres.	Acres.
1901 ...	...	28,553	132,760	...	46,624	...	207,937
1911 ...	676,278	455,954	537,449†	592,972‡	297,391	34,448§	2,594,492
1912 ...	676,438	515,604	664,363†	619,469‡	303,469	45,731§	2,825,074
1913 ...	676,439	560,081	664,363	624,202‡	446,804	49,476§	3,021,365
1914 ...	685,156	567,687	664,363	632,715‡	446,804	60,232§	3,056,957
1915 ...	685,156	564,520	664,363	611,402‡	446,804	73,162§	3,045,407
1916 ...	745,883	564,600	664,363	661,117‡	446,804	73,320§	3,156,087

* Particulars are for calendar years.

† To the preceding 31st December.

‡ To 30th June. § Including 10,382 acres of Crown lands.

2. **Government Loans to Settlers.**—For the purpose of promoting pastoral, agricultural, and similar pursuits, and with the object of assisting settlers in erecting buildings and carrying out improvements on their holdings, general systems have been established in all the States, under which financial aid is rendered to settlers by the State Governments. These general systems are more particularly referred to in the section in this book dealing with "Agriculture." In many of the Closer Settlement and similar Acts, however, special provisions have been inserted with the object of lending money to settlers taking up land under these Acts, with which to build homes or effect improvements. The principal features of these provisions are referred to below.

3. **New South Wales.**—Under the Closer Settlement Act of 1901 provision was made for the acquisition of private lands or of Crown lands held under lease, for the purpose of closer settlement. No power of compulsory resumption was conferred by the Act, which was in consequence practically inoperative. Under the Closer Settlement Act of 1904, and subsequent amendments, and the Closer Settlement Promotion Act 1910, the Government is empowered to resume private lands, either by agreement or by compulsory purchase, and to alienate them on favourable terms to persons who desire to settle and make homes for themselves and their families on the soil. Land acquired under the Acts is subdivided into blocks or farms, and by notification in the *Government*

Gazette is declared to be a settlement purchase area available for application. The *Gazette* notice also gives all necessary information as to the class and character of the land, and the capital value, area, etc., of each block or farm.

(i.) *Closer Settlement Purchase.* Under this tenure a settler may acquire the freehold of the land under a system of deferred payments. A deposit of 6 per cent. of the notified value of the settlement purchase must be lodged with the application, and a similar amount by way of instalment, paid annually until the purchase-money, together with interest at the rate of $4\frac{1}{2}$ per cent., is paid off. Prior to 1st July, 1915, the deposit and annual instalments ranged from 5 per cent. to $5\frac{1}{2}$ per cent., and the interest from 4 per cent. to $4\frac{1}{2}$ per cent. Under this system the balance due to the Crown will be paid off in from thirty-three to thirty-eight years, the holding then becoming a freehold. A condition of residence for ten years attaches to every settlement purchase. Under the amending Act of 1909 postponement of the payment of two instalments may be granted by the Minister, subject to the conditions (a) that additional improvements to the value of the amount postponed be made on the land within twelve months, and (b) that interest at 4 per cent. per annum be paid on the amount postponed. The Minister may also grant extension of time to pay overdue instalments under certain conditions. The period allowed under any one such extension must not exceed five years, interest being charged on overdue instalments at the rate of 5 per cent. per annum.

(ii.) *Closer Settlement Permissive Occupancies.* The Minister may grant permits to occupy from month to month any lands within a settlement purchase area which remain undisposed of, subject to certain terms and conditions.

(iii.) *Sales by Auction.* Areas within closer settlement districts necessary for township settlement may be set apart by notification in the *Gazette*. Allotments, each of which may not exceed half an acre in extent, within such areas may be sold by auction.

(iv.) *The Closer Settlement Promotion Act 1910.* Under this Act any three or more persons who are qualified to hold settlement purchases and who desire to purchase from the same owner any private lands may, upon entering into an agreement with the owner and subject to valuation by the Advisory Board and the Savings Bank Commissioners, acquire such lands through the Minister on Closer Settlement conditions. The maximum sum which may be advanced for the purposes of this Act may not exceed £1,000,000 in any financial year.

The following table shews the number and area of farms allotted since the passing of the Act:—

NEW SOUTH WALES.—CLOSER SETTLEMENT PROMOTION ACT 1910.

Year.	Farms Allotted—		
	Number.	Area.	Amount Advanced.
		Acres.	£
1910-11	26	10,785	54,131
1911-12	209	84,279	418,941
1912-13	274	107,791	599,145
1913-14	183	62,598	361,351
1914-15	95	35,963	201,163
1915-16	141	61,626	300,103
Total	928	363,042	1,934,834

(v.) *Areas Acquired and Disposed of.* Up to the 30th June, 1916, thirty-four estates had been opened for settlement under the Closer Settlement Acts.

The following statement gives particulars of the aggregate areas opened up to the 30th June, in each year from 1912 to 1916:—

NEW SOUTH WALES.—CLOSER SETTLEMENT AREAS, 1912 to 1916.

Year Ended 30th June.	Areas.			Capital Values.		
	Acquired Lands.	Adjoining Crown Lands.	Total.	Acquired Lands.	Adjoining Crown Lands.	Total.
	Acres.	Acres.	Acres.	£	£	£
1912 ...	676,438	87,760	764,198	2,666,516	156,796	2,823,312
1913 ...	676,439	87,759	764,198	2,667,203	159,973	2,827,176
1914 ...	685,156	89,540	774,696	2,685,660	163,254	2,848,914
1915 ...	685,156	89,540	774,696	2,685,660	163,254	2,848,914
1916 ...	745,883	91,987	837,870	2,870,116	167,962	3,038,078

The total area thus set apart has been divided into 1678 farms comprising 810,464 acres, the remaining area being reserved for recreation areas, roads, stock routes, schools, etc.

The following table gives particulars as to the disposal of the farms by closer settlement purchase for the years ended the 30th June, 1912 to 1916:—

NEW SOUTH WALES.—CLOSER SETTLEMENT ALLOTMENTS, 1912 to 1916.

Year.	Farms Allotted by Board to Date.			Total Amount received in respect of Settlement Purchases.	Total Number of Applications received.
	Number.	Area.	Value.		
	No.	Acres.	£	£	No.
1911-12 ...	1,485	673,610	2,722,564	274,440	1,555
1912-13 ...	1,554	724,924	2,767,370	363,425	1,568
1913-14 ...	1,567	734,125	2,806,285	493,795	1,578
1914-15 ...	1,588	742,610	2,834,792	506,073	1,591
1915-16 ...	1,609*	748,573*	2,860,636*	718,660	1,612

* Including 44 Settlement Purchase Farms of 23,734 acres, with a capital value of £104,946, since converted into Homestead Farms.

(vi.) *Labour Settlements.* These settlements were founded by the Labour Settlements Acts 1893 and 1894, which have now been amended and repealed by the Labour Settlements Act 1902. Land may be set apart for lease for a period of 28 years as a labour settlement under the superintendence of a Board of Control. The functions of the Board of Control are to enrol members of the settlement; to make regulations concerning the work to be done; to apportion the work among the members; and to distribute the wages and profits. The Minister is empowered to grant financial assistance to the Board of Control. Only two settlements had been established under the Act up to the 30th June, 1916. Particulars are given in the following statement:—

NEW SOUTH WALES.—PARTICULARS OF LABOUR SETTLEMENTS, 30th JUNE, 1916.

Settlement.	Date of Establishment.	Area.	Population.				Value of Improvements.	Loans Advanced by the Govern- ment.
			Men Enrolled.	Women.	Children.	Total.		
Bega ...	1893	Acres. 1,036	26	30	90	146	£ 3,000	£ 2,420
Wilberforce ...	1893	409	9	10	24	43	1,600	2,479
Total ...	—	1,445	35	40	114	189	4,600	4,899

The Murrumbidgee Irrigation Act 1910 provides for the acquisition of 1,668,000 acres near Narrandera, in Riverina, for irrigation and other purposes in connection with the Burrinjuck Irrigation Scheme. Part of this area has since been made available. (See *Water Conservation*, Section XVI., § 3.)

4. *Victoria*.—(i.) *Closer Settlement Act 1915*. The Closer Settlement Act in Victoria is administered by a Board consisting of three persons appointed by the Government-in-Council, and entrusted with power to acquire, either compulsorily or by agreement, private lands in any part of the State for the purpose of Closer Settlement. The Board may dispose of all lands acquired, either Crown lands or repurchased lands, on conditional purchase leases either as (a) farm allotments not exceeding £2,500 in value, (b) workmen's homes allotments not exceeding £250 in value, and (c) agricultural labourers' allotments not exceeding £350 in value. The price of the land must cover the cost of the original purchase and the cost of all improvements. Land acquired by the Board may also be sold in small areas in fee simple as sites for churches, public halls, butter factories, creameries, recreation reserves, or other public purposes.

The Board may approve of an agreement between an owner and one or more persons to purchase a farm or farms, not exceeding £2,500 in value. On the property being acquired by the Board, the applicant obtains a lease under Closer Settlement conditions.

(a) *Closer Settlement Leases*.—Every conditional purchase lease is for such a term of years as may be agreed upon by the lessee and the Board, and payment must be made with interest at 4½ per cent. per annum by sixty-three half-yearly instalments, or such lesser number as may be agreed upon. Under the Act postponement of payment of instalments may be granted by the Board up to 60 per cent. of the value of improvements. The lessee must personally reside during eight months in each year on his allotment, and for six years he must carry out prescribed improvements. Thereafter he may, with permission, transfer, assign, mortgage or sublet his allotment. After twelve years, if all conditions have been fulfilled, a Crown grant, with the same residence condition as that contained in the lease, will be issued. In the case of workmen's homes allotments the land must be fenced within one year, and a dwelling-house to the value of at least £50 must be erected within the same time; within two years further improvements must be made to the value of at least £25. As regards agricultural labourers' allotments, a dwelling-house to the value of at least £30 must be erected within one year, and within two years the allotment must be fenced. In the case of workmen's homes and agricultural labourers' allotments, the lessee may at any time transfer, assign or sublet with the consent of the Board.

(b) *Advances to Settlers*.—The Board may make advances for the purpose of fencing and building dwelling-houses, and is empowered to erect dwelling-houses, outbuildings, or improvements on any allotment at a cost not exceeding £500 for any one allotment. Any sum so expended is repayable, with interest added, by instalments extending over a prescribed period, not greater than twenty years. Provision has also been made for deferring payments in case of hardship, as well as for advances (to the extent of 60 per cent. of the value of the improvements) to enable work to be carried on. Special advances may also be granted to purchase wire netting in rabbit-infested districts.

(c) *Loans to Municipalities*. Loans may be made out of the Closer Settlements Fund for the purpose of carrying out any road-making or other public works within the boundaries of an estate.

(d) *Areas acquired and made available for Closer Settlement*. The following statement shows the operations which have taken place in Victoria under the provisions of the Closer Settlement Acts, 1898 to 1915, up to the 30th June, 1901 and 1912 to 1916.

VICTORIA.—CLOSER SETTLEMENT, 1901 and 1912-1916.

Year ended 30th June.	Total Area Acquired by Government to Date.	Total Cost to Date.	How Made Available for Settlement.					Number of Applications Granted to Date.	Total Receipts to Date.	Repayments of Principal to Date.	Area Available for Settlement.
			Farm Allotments.	Workmen's Homes Allotments.	Agricultural Labourers' Allotments.	Town Allotments.	Roads and Reserves.				
	Acres.	£	Acres.	Acres.	Acres.	Acres.	No.	£	£	Acres.	
1901	23,553	151,566	23,461	89	—	—	193	7,529	—	—	
1912	515,604	3,721,485	474,410	512	3,651	44	3,354	765,076	318,338	71,367	
1913	563,554	4,315,305	498,701	513	3,658	3,564	3,306	922,842	397,803	64,550	
1914	567,637	4,222,248	500,819	828	8,829	24,903	4,119	1,323,593	456,511	60,028	
*1915	567,963	4,230,055	509,454	783	5,111	26,163	4,227	1,432,187	528,060	56,525	
1916	563,073	4,230,779	513,231	778	5,547	27,193	4,321	1,661,427	569,445	51,878	

* During 1915, areas previously classed as Workmen's Homes and Agricultural Allotments were transferred to Farm Allotments.

(ii.) *The Small Improved Holdings Act 1906.* Under this Act, which has been repealed, 2822 acres at a cost of £53,568 allotted to 260 settlers were purchased close to towns where industrial employment could be obtained by the settlers.

These settlements are now under the control of the Closer Settlement Board.

(iii.) *Village Communities.* The rights of lessees of land in Village Communities is now provided for in the Land Act 1915. Certain unalienated Crown lands were surveyed into allotments of one to twenty acres. The price is not less than twenty shillings an acre. Additional areas may be acquired by conditional purchase. The rent is a nominal one for three years. The total amount of monetary aid advanced up to the 30th June, 1914, was £67,379, of which sum the amount repaid to date was £43,308. After three years a lease may be obtained.

Particulars of areas in process of cultivation under the Act are given hereinafter. (See § 11, 3.)

On the 30th June, 1916, there were 707 settlers actually residing, and 103 not residing, but improving, making a total of 809 in occupation. Including wives and children the total number in residence was 3,430. At the same date the area under cultivation was 8,550 acres; the value of live stock £40,478, and of improvements, £143,570.

(iv.) *Closer Settlement in the Irrigated Districts.* The movement for closer settlement in the irrigated districts started about seven years ago. The State had expended between three and four million pounds on irrigation works, which were not being used to their full extent. Under the Goulburn Scheme, the largest of the State works, more than half the available water was being wasted. The reason was lack of people to cultivate the land as irrigation requires. Previously, in the various districts the average size of farms varied from 400 to 600 acres, while under irrigation from about 20 to 80 acres will now give employment to a good-sized family and furnish them a comfortable living. The large farms of the irrigation districts could not be properly cultivated by their owners, and the only way to make irrigation a success was to subdivide these holdings and bring in farmers to cultivate the smaller areas. To this end the State offered to buy suitable land in any district having a reliable and ample water supply, at a price fixed by impartial expert valuers, and has now purchased 111,234 acres for this purpose. This land is sold to settlers on 31½ years' terms with 4½% interest on deferred payments, under what are known as closer settlement conditions, which, while providing for the liberal terms and advances referred to in this paragraph, require, on the part of the settler or his successor, residence on the block for at least 8 months in each year. These payments are calculated on the Credit Foncier basis and are equalised throughout the whole period. As a result, the settlers by paying an additional 1½ per cent., or six per cent. in all, on the cost for 31½ years pay off both principal and interest. To help the settler of small capital, the State will build him a house and give 20 years to pay for it, will prepare a part of his area for irrigation and allow payments to be extended.

over 10 years. The cash payments required are as follows:—On houses costing less than £100, £10; from £100 to £150, £15; while on houses costing more, the cash payment varies from 12 to 30 per cent. of the estimated cost. The State also makes loans to settlers equal to 60 per cent. of the value of permanent improvements, these loans to be repaid in 20 years. Five per cent. interest is charged on all advances—whether for houses, preparing land, or money furnished the settler. During the past seven years 67,408 acres have been settled in farms averaging 59 acres each—the homes of 1152 new settlers—779 Australian, and 373 from oversea. There are also 413 allotments comprising 20,304 acres ready for immediate occupation, and a further 16,670 acres being prepared for settlers. At Shepparton, one of the oldest of these settlements, there are now 245 settlers living where there were originally 19. In Koyuga there are 49 settlers with good houses, many young orchards, fine crops of lucerne and vegetables, where in November 1910 there was not a house, a family, or an acre of cultivated land. Taking the settlements as a whole, there are now ten settlers' homes for every one that existed on these areas when repurchased by the State.

Houses now being erected are of a better type than the original ones. This has been made possible because the settlers now applying have as a rule more capital than the earlier ones and desire better homes.

5. **Queensland.**—(i.) *Closer Settlement.* Under the provisions of the Closer Settlement Act of 1906, private lands may be repurchased by the Crown, either by agreement or compulsorily.

(a) *Compulsory Acquisition.* The owner of an estate in possession, the whole of which is proposed to be taken compulsorily, has the right to retain in one block, land of the value of £10,000 to £20,000 according to the value of the whole estate. The maximum sum which may be expended on the acquisition of land for the purpose of closer settlement is £500,000 in any one year.

(b) *Disposal of Land.* A sufficient part of the land acquired must be set apart for roads, public reserves, and townships, and the remainder is proclaimed open for selection as agricultural farms under the Land Act 1910, which repealed the Land Acts 1897 to 1909 and under the Closer Settlement Act Amendment Act of 1913; the term of the lease is 40 years. The rent to be paid for the first year is equal to £10 for every £100 of the purchasing price; and (no payment being required during the second, third, or fourth years) an annual payment of £6 6s. 0d. for every £100, continued from the fifth to the fortieth year, will, at the end of the term, have paid off the principal sum together with interest.

(c) *Areas Acquired and Selected.*—The following table gives particulars of the operations under the above Acts at the end of the year 1901 and of each year from 1911 to 1915:—

QUEENSLAND.—CLOSER SETTLEMENT, 1901 and 1911-15.

Year.	Number of Estates Acquired.	Total Area Acquired to Date.	Total Amount of Purchase Money.	Total Area Selected to Date.
		Acres.	£	Acres.
1901	15	132,760	335,056	124,710
1911	29	644,385	1,670,330	498,315 ¹
1912	29	664,363	1,713,165	525,168
1913	29	664,363	1,713,165	543,738
1914	29	664,363	1,713,165	559,597
1915	29	664,363	1,713,165	582,788

1. In addition there were at the end of the year 1915, 12,468 acres sold at auction and 3246 acres retained by the Government for experimental farms and for other sales.

The total area opened for selection up to the end of the year 1915 was 639,037 acres, of which 582,788 acres had been selected by 2184 selectors. There remained 56,249 acres unselected or reserved. The total amount of rent paid up to the same date was £1,128,474, the amount in arrear being £9,317. At the end of the year 1915 there were 2,224 selectors holding 2369 agricultural farms, 253 unconditional selections, and four prickly pear infested selections. In addition, land and improvements to the value of £90,230 had been sold at auction.

(ii.) *Group Settlement.* The Special Agricultural Selections Acts 1901 to 1905 were partly repealed by the Amending Act of 1909, which was in its turn repealed by the Land Act 1910. Under the last Act, land may be set apart for members of bodies of selectors who desire to settle in the same locality. The terms and conditions are similar to those in force for single selectors. Every group selection shall be subject to the condition of personal residence during the first five years of the term.

The Special Agricultural Selections Act 1905 provides that financial aid may be granted to all or any of the members of a body of selectors of agricultural homesteads. Advances may also be made to each selector for a value not exceeding £80 for the purpose of buying tools, rations, stock and poultry.

The portions opened for *group settlement* in 1915 numbered 104, and comprised a gross area of 59,703 acres. Up to the end of that year 91 portions, comprising 48,924 acres, valued at £22,762, had been applied for by members of the bodies of settlers for whom they were opened.

6. *South Australia.*—Under the provisions of the Crown Lands Acts the Commissioner may repurchase land for the purposes of closer settlement at a cost not exceeding £600,000 in any two years.

Reference has already been made to the provisions of the Irrigation and Reclaimed Lands Acts 1908, and consolidated by the Act of 1914, regarding the settlement of reclaimed lands. (See § 7, 5 iv.)

(i.) *Disposal of Land.* The Crown Lands Act Further Amendment Act 1910 enlarges the value of the blocks into which estates may be subdivided for closer settlement purposes from £2000 to £5000 unimproved value. The purchase money with interest thereon at 4 per cent. per annum is payable in 128 half-yearly instalments.

For the first five years, improvements to the value of £3 for every £100 of the purchase money must be yearly effected.

(ii.) *Areas Acquired and Selected.* The following table shews the area of land acquired by the Government in South Australia for the purposes of closer settlement, and the manner in which the same has been disposed of under the provisions of the Crown Lands Acts for the years 1902 and 1911 to 1915:—

SOUTH AUSTRALIA.—CLOSER SETTLEMENT, 1902 and 1911-15.

Year.	Area of Lands Repurchased to 31st Dec.	Agreements with Covenants to Purchase.	Total Area Leased as Homestead Blocks.		Perpetual Leases.	Miscellaneous Leases.	Sold.	Remainder Unoccupied (including Roads).
			Right of Purchase.	Perpetual Lease.				
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1902	156,481	—	2,717	3,073	90,128	309	403	59,851
1911	622,422	411,370	1,077	1,414	55,121	40,082	43,969	69,389
1912	624,122	436,038	894	1,386	49,857	40,101	57,884	38,408
1913	629,574	434,417	818	1,344	50,993	134	61,061	82,146
1914	657,629	476,332	796	1,584	51,863	164	63,964	63,204
1915	666,299	487,853	753	1,579	51,588	164	65,484	59,372

During the financial year 1915-16, six properties of 56,062 acres were repurchased. The total area repurchased at 30th June, 1916, was 714,627 acres, the purchase money being £2,289,783. Of that area 614,683 acres had been allotted to 2673 persons, the average area to each being 230 acres.

(iii.) *Irrigation Areas.* Under the Irrigation and Reclaimed Lands Act, 1908, 1909, 1910 and 1912, special provisions are made for granting perpetual leases of reclaimed lands. The maximum area of irrigable or reclaimed land one person may hold in any irrigation area is 50 acres, but in the case of partnerships 50 acres may be held by each partner up to a maximum of 150 acres. Land above the irrigating channels is also offered to lessees of irrigable blocks for dry farming, grazing, etc. Each block is offered under perpetual lease, at a rent not less than a sum equivalent to 4 per cent. on the unimproved value of the land, plus the cost of reclaiming. In the case of swamp lands in the reclaimed lands a drainage rate of from 5s. to 7s. 6d. per acre per annum is payable. On the irrigable land the water rate has been fixed at 30s. per acre per annum for the first four years, after which an amount will be charged sufficient to cover actual cost of supplying water, and the interest on pumping plants, channels, etc. A sliding scale covers both the rent and water rates for the first four years.

Under Part V. of the Act a fund has been constituted called the Lessees of Reclaimed Lands Loan Fund, consisting of money provided by Parliament to be expended by the Department in assisting settlers on the irrigation areas by fencing, clearing and grading their blocks, and constructing irrigation channels and drains and concrete tanks thereon. Such improvements will be undertaken up to a value not exceeding £15 per acre of the irrigable area of a lessee's block, but before the work can be commenced a deposit must be paid equal to 15 per cent. of the Department's estimated value of such improvements.

The total cost of the work, less amount of deposit paid, will be treated as a loan to the lessee, and will be repayable in twenty equal annual instalments, after the expiration of five years, or at any shorter period if so desired by the lessee, current rate of interest being charged.

Any lessee will be permitted to accept the contract for carrying out his own improvements, according to the specifications and estimate of the Department, up to the maximum amount per acre, as mentioned above.

(iv.) *Village Settlement.* Out of the reserved lands the Commissioner is directed to set apart for the purpose of village settlement such land as he shall consider fit (a) for horticultural purposes, to be termed "horticultural land"; (b) for agricultural purposes, to be termed "commonage land"; and (c) land whereon any irrigation works are situated. Land so set apart is to be divided as follows:—Horticultural lands into blocks of as nearly as practicable equal unimproved value, and of about ten acres in extent; and the commonage lands into one or more blocks of such area as the Commissioner may determine, and the lands so set apart in each case form the district of the association. No person may hold more than two blocks. Commonage lands may only be leased to the association on perpetual lease, and all unleased horticultural blocks are under the control of the association. Every member of each association must provide or contribute towards the maintenance and regulation of irrigation works, and the care and cultivation of the commonage lands.

As the Waikerie and Kingston districts were proclaimed irrigation areas under the Irrigation and Reclaimed Lands Acts 1908 and 1909, this would leave only the Lyrup Village Settlement, which is in a better position, both financially and as regards population, than the others.

(v.) *Homestead Blocks.* Aboriginal reservations, except those at Point McLeay or Point Pearce, and other suitable lands may be offered as homestead blocks on perpetual lease or lease with a right of purchase. Each block must not exceed £100 in value, and residence by a member of the family for at least nine months of every year is compulsory.

There is now hardly any demand for homestead blocks, persons generally preferring small blocks of repurchased or Crown lands on ordinary conditions. The system appears to be of value only in centres of population where work can be obtained, and within a reasonable distance of a school.

- (a) *Advances to Blockholders.* Advances up to £50 may be made by the Commissioner to any homestead blockholder who has complied with the conditions of his lease or agreement, to assist in erecting permanent buildings on the blocks, or other improvements. Advances must be repaid, with interest at 4 per cent. per annum, by twenty equal instalments, commencing twelve months from the date of advance. The Commissioner may, in case of hardship, extend the time of repayment, deferred payments bearing interest at 5 per cent. per annum. The total amount advanced up to the 30th June, 1916, was £41,359, of which £39,119 had been repaid.
- (b) *Particulars of Homestead Blocks.* The total number of leases and agreements of which purchase had been completed to the 31st December, 1915, was 2223, comprising 33,716 acres, at a purchase price of £30,504, or an average of £2 7s. 9d. per acre, the average of each holding of which purchase was completed being 15 acres.

7. *Western Australia.*—Under the Agricultural Lands Purchase Act 1909, which repealed and consolidated the Agricultural Lands Purchase Acts 1896 to 1904, sums not exceeding in the aggregate £400,000 may be expended on the repurchase of Crown lands near the railways, suitable for immediate cultivation.

(i.) *Acquisition of Land by the Government.* For the purpose of carrying out the provisions of the Acts, a Land Purchase Board has been constituted. Advised by the report of the Board, the Minister, with the approval of the Governor, may make a contract for the acquisition of the land by surrender at the price fixed by the Board, or at any lesser price.

(ii.) *Sale of Repurchased Land.* After reservation of part of the repurchased land for public purposes, the remainder is thrown open for selection. The maximum quantity held by one person must not exceed 1000 acres; in special cases 2000 acres.

(iii.) *Conditions of Sale to Selectors.* The maximum selling price of any repurchased land is equal to 105 per cent. of the actual cost of the land plus the cost of any improvements made upon it. A lease for twenty years is issued at a rent, the half-yearly instalments of which are to be at the rate of £3 17s. 9d. for each £100 of the selling price. Improvements must be made to the value of one-fifth of the purchase-money every two years of the first ten years of the lease. One-half of the land must be fenced within the first five years and the whole within ten years. Loans may be granted to selectors under the provisions of the Agricultural Bank Acts.

(iv.) *Areas Acquired and Selected.* The transactions conducted under the provisions of the Agricultural Lands Purchase Acts are shown for 1901 and for each year from 1911 to 1916 in the subjoined table:—

WESTERN AUSTRALIA.—CLOSER SETTLEMENT, 1901 and 1912-16.

Year.	Total Area Acquired.	Total Purchase-money.	Roads, Reserves, etc.	Total Area made available for Selection	Area Selected during the Year.	Total Area occupied to Date.	Balance of Area available for Selection.	Total Revenue received to Date.
	Acres.	£	Acres.	Acres.	Acres.	Acres.	Acres.	£
1901 ...	46,624	52,764	1,459	45,165	4,295	37,235	7,929	14,451
1911-12	303,469	270,622	14,506	282,885	3,375	284,885	18,000	151,110
1912-13	446,804	421,333	12,799	290,670	10,335	270,945	19,724	175,245
1913-14	446,804	421,333	128,605	315,133	2,451	268,260	46,873	210,675
1914-15	446,804	421,373	15,825	430,979	4,122	272,190	158,789	239,409
1915-16	446,804	421,373	15,825	430,979	342	271,242	159,737	268,232

* The figures for 1901 are up to 31st December. For subsequent years they are given as up to 30th June.

On the 30th June, 1915, the total expenditure, exclusive of purchase-money but including interest, was £142,202, which left a balance of £126,030. At the same date the amount invested as sinking fund was £116,481.

(v.) *Workingmen's Blocks.* Any person not already holding land within the State is entitled to obtain a lease of lands which have been surveyed and thrown open for selection as workingmen's blocks. The maximum area that may be selected by one person is, if within any town or goldfield, half an acre, or five acres elsewhere. The price is not less than twenty shillings per acre, payable in ten years by half-yearly instalments. Residence and improvement conditions must be fulfilled. At the expiration of the lease, or at any time after five years from the date of the commencement of the lease, upon compliance with all conditions and upon payment of the full purchase-money and fee, a Crown grant will be issued. No person who has once held a workingman's block is allowed to select another, except under very special circumstances.

The following table shows the number and area of accepted applications for workingmen's blocks during each year, as well as the total number and area in existence at the end of the year 1901 and for each year from 1911 to 1916:—

**WESTERN AUSTRALIA.—PARTICULARS OF WORKINGMEN'S BLOCKS,
1901 AND 1911-16.**

Year ...	1901.	1911. ¹	1912. ¹	1913. ¹	1914. ¹	1915. ¹	1916. ¹
NUMBER AND AREA OF ACCEPTED APPLICATIONS DURING YEAR.							
Number	2	53	28	1	1	Nil	1
Area in Acres	6	99	56	4	1	Nil	1
NUMBER AND AREA OF BLOCKS OCCUPIED AT END OF YEAR.							
Number	7	388	327	230	168	189*	176
Area in Acres	31	722	688	617	590	584	565

1. For financial year ended 30th June.

* Increase due to cancelled leases being reinstated.

During the years 1907 to 1911 residential blocks on the goldfields were made available as workingmen's blocks, instead of under residential lease, as before, and since 19th October, 1911, the system of leasehold has been reverted to.

8. *Tasmania.*—The principles of closer settlement were not introduced into Tasmania until the Closer Settlement Act of 1906 was passed. Under this Act, which was amended in 1908 and 1911, and consolidated in 1913, power is given to the Minister for Lands, on the recommendation of the Closer Settlement Board, to purchase compulsorily or by agreement private land in any part of Tasmania for the purpose of closer settlement, and also to deal with and dispose of any unoccupied Crown land for the same purpose.

(i.) *Disposal of Land.* Lands so brought under the Act are subdivided into farm allotments of a suitable size—not exceeding £4000 in value—and are disposed of by way of lease for ninety-nine years. The rental is determined by the Board at a rate not exceeding 5 per cent. per annum on the capital value of the land. Any lessee who has fulfilled the conditions under the Act may, after the expiration of ten years of the term of the lease, purchase the land leased to him. The Minister has power to dispose of the fee simple of such land in any estate which is considered unsuitable for closer settlement.

A lessee must improve his holding to a value equal to $2\frac{1}{2}$ per cent. on the capital value of the land in each of the first ten years of the term of his lease, and he must, within two years of the date of the lease, personally reside on his allotment during at least eight months of each of the following nine years. Provision is made for reserving a proportion of the allotments thrown open, and leasing the same, under special terms and conditions, to *bond fide* immigrants.

(ii.) *Advances to Settlers.* The total advance by the Government in aid of the cost of effecting improvements to any one lessee must not exceed pound for pound of the sum expended by him in building and other improvements. Such advances must be repaid, together with interest at 5 per cent., in equal half-yearly instalments within a period not exceeding 21 years.

(iii.) *Special Sales.* The fee-simple of land acquired may be disposed of by sale on the recommendation of the Board as sites for churches, public halls, dairy factories, fruit-preserving factories, mills, or creameries. The area sold may not exceed one acre in the case of a church or public hall, or five acres in other cases.

(iv.) *Areas Acquired and Selected.* Up to the 30th June, 1916, twenty-two areas had been opened up for closer settlement. Particulars are given in the following statement:—

TASMANIA.—CLOSER SETTLEMENT, 1909 to 1916.

Year.	Number of Farms made Available.	Number of Farms Allotted.	Area of Farms Allotted.	Rental of Farms Allotted.	Total Area Purchased.
			Acres.	£	Acres.
1909	49	45	9,117	789	7,902
1910	9	15	1,872	539	1,362
1911	37	36	4,965	168	5,143
1912	11	7	3,912	563	6,147
1913	18	21	5,652	1,184	3,745
1914	24	17	8,975	1,959	10,756
1915	36	53	15,153	4,393	12,930
1916	5	11	1,729	476	157

The total purchase-money paid by the Government up to the 30th June, 1916, was £261,212.

§ 9. Occupation of Crown Lands under Leases and Licenses Issued by Mines Departments.

1. *Introduction.*—Leases and licenses for the occupation of Crown lands for mining and other purposes are issued by the Mines Departments in all the States. Such leases and licenses may be issued with respect to all Crown lands, whether otherwise unoccupied or whether occupied also under leases and licenses issued by the Lands Departments. Certain Crown lands, such as reserves, etc., are, however, subject to special conditions.

(i.) *Mining on Private Lands.* Certain of the Crown lands of the several States have been alienated from time to time, subject to various reservations in respect of gold and other minerals which might afterwards be found therein. Other lands have been

alienated without such reservation, but as the mineral gold does not pass from the Crown unless by express conveyance, it has remained the property of the State on all alienated lands. All lands alienated or in process of alienation are open to mining for gold; but to mining for other minerals, those lands only are open, in respect of which the rights are reserved in the grants. There are, however, generally certain reservations, such as those with reference to town or village lands and lands which have been built on or are used for special purposes. The working of minerals on private lands is regulated in the several States either by special Acts or by special provisions of the Acts relating to mining.

(ii.) *Leases and Licenses Issued and Total Areas of Crown Lands Occupied.* The following tables shew the total areas of Crown lands for which leases and licenses for mining purposes were issued in each State during 1901 and for each year from 1911 to 1915 inclusive, and also the total areas of Crown lands occupied for mining purposes at the end of each year during the same period:—

CROWN LANDS, LEASES AND LICENSES FOR MINING PURPOSES,

1901 AND 1911 TO 1915.

Particulars.	N.S.W.	Victoria. ¹	Qld. ²	S. Aust. ³	W. Aust.	Tas.	Cwlth.
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AREAS FOR WHICH LEASES AND LICENSES ISSUED.

	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1901	50,349	...	55,698	93,985	37,593	18,125	255,750
1911	42,865	25,353	40,642	59,918	94,853	26,454	290,085
1912	15,548	34,047	50,783	259,381	64,939	13,920	438,618
1913	25,154	36,141	146,366	244,528	62,773	15,534	530,496
1914	31,573	12,774	126,160	766,866	29,127	15,123	981,623
1915	14,219	10,103	56,518	965,596	37,989	13,919	1,098,344

TOTAL AREA OCCUPIED AT END OF YEAR.

	Not available						
1901	134,209	124,182	14,140	66,682	50,362	438,575	
1911	233,030	171,078	89,077	158,946	58,038	826,582	
1912	228,526	203,059	292,320	144,846	49,239	1,041,218	
1913	219,488	285,966	412,693	149,801	45,913	1,237,181	
1914	230,493	283,704	805,839	128,609	49,963	1,618,062	
1915	224,621	242,196	1,012,427	145,920	53,060	1,786,997	

1. Including private lands, leases, and water right licenses only. 2. Exclusive of lands held under miners' rights only. 3. Exclusive of miners' rights. 4. Excluding Victoria.

2. **New South Wales.**—Under the provisions of the Mining Act 1906 and the regulations made thereunder, Crown lands may be occupied for mining or other purposes by virtue of (i.) miners' rights; (ii.) business licenses; (iii.) authorities to prospect; or (iv.) leases.

A description of the conditions under which these licenses and leases are granted may be found in previous issues of the Year Book. (See Year Book No. 6, p. 307.)

(i.) *Particulars of Leases and Licenses Issued, 1915.* The following table gives particulars of leases and licenses of Crown lands issued by the Mines Department during the year 1915:—

NEW SOUTH WALES.—LEASES AND LICENSES
ISSUED BY MINES DEPARTMENT DURING YEAR 1915.

Particulars.	Act under which Issued.	Purpose for which Issued.	Area.
<i>Leases—</i>	Mining Act 1906	To mine for—	Acres.
	" "	Gold	1,708
	" "	Minerals other than coal	3,090
	" "	Coal	6,651
	Mining Act 1906 (Dredging)	Leases (mining purposes)	382
<i>Other forms of occupancy—</i>	" " " "	Gold	1,949
	" " " "	Minerals other than gold	
<i>Total</i>	Mining Act 1906	Authorities to prospect	439
	—	—	14,210

(ii.) *Leases and Licenses Issued and Areas Occupied.* The following table gives particulars of the areas of Crown lands for which leases and licenses were issued by the Mines Department during each year, and of the total areas of Crown lands occupied under such leases and licenses at the end of the year 1901 and from 1911 to 1915 inclusive:—

NEW SOUTH WALES.—LEASES AND LICENSES
ISSUED BY MINES DEPARTMENT, 1901 AND 1911-1915.

Purposes for which Issued or Occupied.	1901.	1911.	1912.	1913.	1914.	1915.
LEASES AND LICENSES ISSUED.						
Gold mining	Acres. 2,272	Acres. 3,708	Acres. 3,584	Acres. 4,253	Acres. 4,047	Acres. 3,657
Mining for other minerals	47,990	27,347	11,671	14,248	26,590	9,741
Authorities to prospect ... ..	...	11,569	183	6,385	134	439
For other purposes	87	241	110	268	802	382
Total	50,349	42,865	15,548	25,154	31,573	14,219

TOTAL AREAS OCCUPIED.

Gold mining	6,942	15,455	15,531	12,623	12,832	11,098
Mining for other minerals	126,885	213,209	208,286	198,415	212,864	207,812
Authorities to prospect ... ..	...	...	139	3,989	10	15
For other purposes	382	4,366	4,570	4,461	4,787	5,696
Total	134,209	233,030	228,526	219,488	230,493	224,621

3. *Victoria.*—The occupation of Crown lands for mining and auxiliary purposes in this State is regulated by the Mines Act 1890-1907. The Department of Mines and Forests is authorised to issue mining leases (gold-mining, mineral, and dredging), and special license (searching, tailings, and water-right), while the issue of miners' rights, business licenses and residence areas is restricted to the Treasury Department. A description of the conditions governing the issue of these leases and licenses will be found in previous editions of the Year Book. (See Year Book No. 6, p. 308.)

Licenses of auriferous lands not for mining purposes may be issued by the Lands Department. (§ 7, 3 iv.)

Leases and Licenses Issued and Areas Occupied for Mining. Particulars of leases and licenses for mining purposes of Crown lands alone are not available, the official returns including also private lands. During the year 1915 the number of mining leases, licenses, etc., issued was 197, covering an area of 10,103 acres; the rent, fees, etc., received amounted to £891. No particulars are available as to the total area of either Crown or private land occupied for mining purposes.

4. **Queensland.**—The occupation of the Crown lands for mining purposes in this State is regulated by the Mining Acts 1898 to 1902; the Mining for Coal and Mineral Oil Act 1912, and the Miners' Homestead Leases Act 1913. Under these Acts the Department of Mines is authorised to issue:—(i.) Miners' rights; (ii.) mining leases; (iii.) mining leases and licenses for coal and mineral oil; and (iv.) miners' homestead leases.

The conditions which govern the issue of miners' rights, mining leases, and miners' homestead leases are described in previous issues of the Year Book. (See Year Book No. 6, p. 309.)

Mineral leases for coal and mineral oil may be granted for a term of twenty-one years at an annual rent of sixpence an acre, together with a royalty, according to the distance the lease is from a seaport or other place of delivery, of twopence to threepence per ton of coal raised during the first five years of the lease, and of fourpence to sixpence per ton during the remainder of the term. A lease for mineral oil with a maximum area of 320 acres may be granted for a term of 21 years at an annual rental of 6d. per acre, with a royalty of 5% of the value of all crude oil produced. Licenses to occupy not more than 2560 acres may be granted to any person desiring to prospect Crown lands for coal and mineral oil upon payment of one penny for every acre comprised in the application.

The "Mining on Private Land Act 1909," authorises the granting of leases, etc. on and under private land, under conditions as to compensation, etc.

(i.) *Particulars of Leases and Licenses Issued, 1915.* The subjoined table gives particulars of the leases and licenses of Crown lands issued for mining purposes during the year 1915:—

QUEENSLAND.—LEASES AND LICENSES

ISSUED BY MINES DEPARTMENT DURING YEAR 1915.

Lease or License.	Mining Leases.				Miners' Homestead Leases.	Coal Prospecting Licenses.	Miscellaneous Rights & Licenses.
	Purpose for which issued.	To mine for gold.	To mine for minerals other than gold.	Tramways			
Area in acres...	581	9,391	1	19	10,368	36,158	*18,000

* Approximate.

(ii.) *Particulars of Areas Occupied.* The following table shews the areas for which leases and licenses of Crown lands were issued during each year, and the total area occupied at the end of the year 1901 and from 1911 to 1915 inclusive.

QUEENSLAND.—LEASES AND LICENSES

ISSUED BY MINES DEPARTMENT, 1901 AND 1911-1915.

Particulars.	1901.	1911.	1912.	1913.	1914.	1915.
* LEASES AND LICENSES ISSUED DURING YEAR.						
Gold mining	Acres. 3,581	Acres. 532	Acres. 918	Acres. 1,055	Acres. 356	Acres. 581
Mining for other minerals	7,142	2,715	3,198	7,248	10,895	9,391
For other purposes	44,975	37,417	46,667	138,072	114,909	46,546
Total	55,698	40,664	50,783	146,375	126,160	56,518

* TOTAL AREA OCCUPIED AT END OF YEAR.

Gold mining	11,296	7,820	6,884	5,915	5,479	4,736
Mining for other minerals	23,113	24,895	31,253	34,711	39,205	43,389
For other purposes	89,773	138,363	164,922	245,340	239,020	194,071
Total	124,182	171,078	203,059	285,966	283,704	242,196

* Exclusive of lands held under miners' rights only.

5. *South Australia.*—In this State leases and licenses for mining purposes are issued by the Department of Mines under the authority of the Mining Act 1893, and amending Acts. Under these Acts mining and prospecting are permitted in virtue of (i.) miners' rights; (ii.) mining leases; (iii.) coal or oil leases; and (iv.) miscellaneous leases, and in addition occupation of Crown lands is permitted by virtue of (v.) business claims, and (vi.) occupation licenses.

The conditions which govern the issue of these various leases and licenses have been described in previous issues of the Year Book. (See Year Book No. 6, p. 311.)

(i.) *Particulars of Leases and Licenses.* The following table gives particulars of leases and licenses of Crown lands issued by the Mines Department during the year 1915:—

SOUTH AUSTRALIA.—LEASES AND LICENSES

ISSUED BY MINES DEPARTMENT DURING YEAR 1915.

Particulars.	Act under which issued.	Purpose for which issued.	Area.
			Acres.
<i>Leases</i>	Mining Act 1893	To mine for—	3,788
<i>Mineral claims</i> ... ..	... ..	Gold and other metals and miner's	9,474
<i>Licenses</i>	Mining Act Amendment Act 1900	To search for "precious stones, mineral phosphates, oil, rare metals, minerals, and earths, the mining for which has not proved payable in any portion of the State	952,320
<i>Occupation licenses</i>	Mining Act 1893	Occupation by miners	14
Total	—	—	955,596

(ii.) *Leases and Licenses Issued and Areas Occupied.* The following table gives particulars of the areas of Crown lands for which leases and licenses were issued by the Mines Department during each year, and of the total area of Crown lands occupied under such leases and licenses at the end of the year 1901 and from 1911 to 1915 inclusive:—

SOUTH AUSTRALIA.—LEASES AND LICENSES

ISSUED BY MINES DEPARTMENT, 1901 AND 1911 TO 1915.

Particulars.	1901.	1911.	1912.	1913.	1914.	1915.
LEASES AND LICENSES ISSUED.*						
Gold mining	Acres. 1,377	Acres. 340	Acres. 480	Acres 312	Acres. 625	Acres. 356
Mining for other minerals	92,587	59,578	258,901	244,204	766,213	965,226
For other purposes	21	...	...	12	28	14
Total	93,985	59,918	259,381	244,528	766,866	965,596

TOTAL AREAS OCCUPIED.*

Gold mining	14,140	1,512	1,536	1,419	1,581	1,840
Mining for other minerals . . . . .	...	87,459	290,667	411,175	804,205	1010474
For other purposes . . . . .	...	106	117	99	103	113
Total	14,140	89,077	292,320	412,693	805,889	1012427

* Exclusive of miners' rights.

The following table shows the total area occupied (exclusive of miners' rights) at the end of the year 1915, classified according to the nature of the holding:—

SOUTH AUSTRALIA.—TOTAL AREA UNDER MINING ACTS, 1915.

Nature of Holding.	Number.	Area.	Nature of Holding.	Number.	Area.
Mineral leases	303	Acres. 13,704	Search licenses	361	Acres. 942,720
Gold leases	100	1,820	Coal and oil claims	26	16,640
Gold dredging leases . . . . .	...	...	Gold claims	10	20
Miscellaneous leases	66	16,772	Coal and oil leases	4	1,360
Mineral claims	488	19,278	Total	1,585	1,012,427
Occupation licenses	227	113-			

6. *Western Australia.*—The issue of leases and licenses by the Mines Department is regulated by the Mining Act 1904. Under this Act Crown lands may be occupied by virtue of (i.) miners' rights; (ii.) mining leases; and (iii.) miners' homestead leases.

The conditions governing the issue of these leases and licenses are described in previous issues of the Year Book. (See Year Book No. 6, p. 312.)

(i.) *Particulars of Leases and Licenses Issued, 1916.* The following table gives particulars of mining leases and licenses of Crown lands issued during 1916:—

**WESTERN AUSTRALIA.—LEASES AND LICENSES ISSUED BY MINES
DEPARTMENT, 1916.***

Particulars.	Gold-Mining.	Minerals other than Gold.	Miners' Homesteads.	Miscellaneous.	Total.
	Acres.	Acres.	Acres.	Acres.	Acres.
Leases ...	5,159	1,534	1,355	87	8,135
Licenses ...	9,795	5,113	...	405	15,313

* Exclusive of miners' rights.

(ii.) *Particulars of Areas Occupied.* The following table shows the areas for which leases and licenses of Crown lands were issued during each year, and the total area occupied at the end of the year 1901 and from 1912 to 1916 inclusive:—

**WESTERN AUSTRALIA.—LEASES AND LICENSES
ISSUED BY MINES DEPARTMENT, 1901 AND 1912-1916.**

Particulars.	1901.	1912.	1913.	1914.	1915.	1916.
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LEASES AND LICENSES ISSUED DURING YEAR.*

	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Gold mining ...	17,454	23,285	20,657	18,070	26,162	14,954
Mining for other minerals ...	19,281	33,318	40,111	9,434	9,389	6,647
For other purposes ...	858	8,336	2,005	1,623	2,438	1,847
Total ...	37,593	64,939	62,773	29,127	37,989	23,448

* Exclusive of miners' rights.

TOTAL AREA OCCUPIED AT END OF YEAR.*

Gold mining ...	40,525	33,737	30,464	26,941	30,532	24,391
Mining for other minerals ...	14,091	62,998	71,291	57,495	70,146	69,405
For other purposes ...	12,066	48,111	48,046	44,173	45,242	44,361
Total ...	66,682	144,846	149,801	128,609	145,920	138,157

* Exclusive of miners' rights.

7. *Tasmania.*—Under the provisions of the Mining Act 1905, Crown lands in this State may be occupied for mining and auxiliary purposes by virtue of (i.) prospectors' licenses; (ii.) miners' rights; (iii.) mining leases; and (iv.) miscellaneous licenses. Business and residence licenses within mining areas may be issued by the Lands Department. (See § 7, 8 iv.)

A description of the conditions under which these leases and licenses are issued may be found in previous editions of the Year Book. (See Year Book No. 6, p. 314.)

(i.) *Particulars of Leases and Licenses Issued, 1915.* The following table shows particulars of leases and licenses of Crown lands, exclusive of prospectors' licenses and miners' rights, issued by the Mines Department during the year 1915:—

TASMANIA.—LEASES AND LICENSES
ISSUED BY MINES DEPARTMENT DURING 1915.*

Mineral.	No. of Applications.	Area.	Mineral.	No. of Applications.	Area.
		Acres.			Acres.
Asbestos ...	1	80	Silver ...	18	856
Cobalt ...	1	80	Tin ...	142	2,164
Coal ...	15	3,912	Zinc Sulphide ...	1	40
Copper... ..	1	15	Wolfram ...	11	476
Gold ...	31	520	Dredging claims ...	6	87
Iron ...	1	10	Machinery sites ...	5	35
Manganese ...	1	63	Mining easements... ..	4	39
Minerals ...	59	3,178	Water rights ...	65	114
Nickel... ..	1	80			
Serpentine ...	1	50			
Shale ...	7	2,120	Total... ..	371	13,919

* Exclusive of prospectors' licenses and miners' rights, which are issued by officers in different districts throughout the State, and as to which particulars are not available.

(ii.) *Leases and Licenses Issued and Areas Occupied.* The following tables give particulars of the areas of Crown lands for which leases and licenses (exclusive of prospectors' licenses and miners' rights) were issued during each year, and of the total area of Crown lands occupied under such leases and licenses at the end of the year 1901 and from 1910 to 1914 inclusive:—

TASMANIA.—LEASES and LICENSES
ISSUED BY MINES DEPARTMENT, 1901 AND 1911 TO 1915.*

Particulars.	1901.	1911.	1912.	1913.	1914.	1915.
LEASES AND LICENSES ISSUED.*						
Gold mining	Acres. 1,067	Acres. 737	Acres. 477	Acres. 529	Acres. 1,354	Acres. 520
Mining for other minerals	17,058	25,316	12,729	14,444	13,588	13,211
For other purposes ... ..	...	401	714	561	181	188
Total	18,125	26,454	13,920	15,534	15,123	13,919
TOTAL AREAS OCCUPIED.*						
Gold mining	3,394	1,220	1,344	988	2,130	2,026
Mining for other minerals	46,968	55,007	45,500	42,360	44,593	48,330
For other purposes ... ..	...	1,811	2,395	2,565	3,240	2,704
Total	50,362	58,038	49,239	45,913	49,963	53,060

* See note to preceding table.

8. **Northern Territory.**—The granting of leases and licenses for mining purposes in Northern Territory is under the control of the Administrator. The area of land held under Mining Regulations in the Northern Territory has been previously referred to in § 7 of this chapter (page 256).

§ 10. Resumption by Crown of Alienated Lands.

1. General.—Under various Acts, alienated lands may be compulsorily resumed by the Crown in the several States for certain purposes, generally connected with works of a public nature. Resumptions for closer settlement purposes have already been referred to (see § 8, above). In most of the States there are Lands Clauses or similar Acts providing the machinery, and indicating the procedure to be adopted in assessing the compensation to be paid by the Crown to private owners in cases where the parties have failed to agree as to the amount to be paid. The provisions of these Acts are generally incorporated in the special Acts specifying the purposes for which alienated lands may be resumed. Lands leased for pastoral purposes may generally be resumed by the Crown on short notice. The lessee is ordinarily entitled to compensation for land resumed, for loss or depreciation in value of the lease caused by such resumption, and for improvements.

(a) *New South Wales.* Alienated lands may be recovered by the Crown for authorised works and certain public purposes under the provisions of the Public Works Act 1900, and in other cases may be acquired by the Crown by purchase, gift, or surrender under Executive authority. Alienated lands required for public roads may be resumed under the Public Roads Act 1902, and if containing gold may be resumed for mining under Section 72 of the Mining Act 1906. Lands dedicated or granted by the Crown for public purposes may be resumed under Section 25 of the Crown Lands Consolidation Act 1913, and Section 1 of the Public Trusts Act 1897. Surrender and exchange of lands alienated or in process of alienation may be carried out under Section 195 of the Crown Lands Consolidation Act 1913.

(b) *Victoria.* In Victoria lands may be resumed in accordance with the provisions of the Lands Compensation Act 1915, the Public Works Act 1915, the Railways Act 1915, the Land Act 1915, the Local Government Act 1915, the Water Act 1915, and the Forests Act 1915.

(c) *Queensland.* In this State alienated lands may be resumed under the provisions of the Public Works Land Resumption Act 1906, for any of the purposes specified in Section 4 of that Act.

(d) *South Australia.* In this State the principal Acts under which land is repurchased for public works are the Railway Commissioners Act 1887, the Water Conservation Acts 1886, 1889, and 1900, the Waterworks Act 1882, and the Sewers Act 1878.

(e) *Western Australia.* In Western Australia private lands may be resumed under the provisions of the Land Act 1898, the Roads Act 1902, and the Public Works Act 1902.

(f) *Tasmania.* The procedure for resuming land when required for road purposes is as follows:—

When provision is made by Parliament for a Public Works vote for any road, or when an amount is available from other sources, as under the Crown Lands Act (under which a proportion of the amount paid as purchase money is set aside for road purposes), application is made to the owner of the property through which the road is to pass. In most cases either land is given free or a price is agreed on between the owner and the officers of the Department. The purchase-money, with cost of necessary survey, is charged against the provision as referred to above, the land is surveyed and proclaimed under the provisions of the Lands Vesting Act. In case of it being impossible to settle the matter by arrangement with the owner, the land can be acquired by arbitration under the Lands Clauses Act, which is incorporated with the Public Works and Crown Lands

Acts, but since the passing of the Lands Resumption Act it is possible to acquire it compulsorily without waiting for the usual formalities. Under this Act a notification is given to the owner, the land is surveyed, and then resumed by notification in the Gazette, on the publication of which the fee simple of the land vests at once in the Crown absolutely. The owner is then called upon to submit his claim, and the amount can be settled either by arbitration or by a court of competent jurisdiction in accordance with the provisions of the Lands Resumption Act. This procedure under the Lands Resumption Act is now becoming much more general in cases where the land cannot be acquired by arrangement, and it is expected that the effect of the operation of the Act will be to the advantage of the Government and consequently to the public, in enabling land to be acquired more economically than under the former practice. The local bodies, *i.e.*, the municipalities, have also power to acquire land under the provisions of the Local Government Act, but in practice it has been found most convenient for the procedure to be carried out by the Public Works Department on behalf of the local bodies, and this insures the title being vested in the Crown, which gives uniformity of practice, and has also the effect that inquiry made as to title at the Government office shews at once the land that has been acquired.

2. Areas Resumed.—The subjoined table shews, so far as particulars are available, the areas of private lands resumed, exclusive of resumptions for closer settlement purposes, in each State during 1901 and 1911-15:—

AREAS OF PRIVATE LANDS RESUMED BY THE CROWN

(EXCLUSIVE OF RESUMPTIONS FOR CLOSER SETTLEMENT), 1901 AND 1911-15.

Year.	N.S.W.*	Victoria.**	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1901 ...	7,864	52	26	†	91	120	8,153‡
1911 ...	2,169	†	...	†	†	690	†
1912 ...	2,021	†	123	†	†	†	†
1913 ...	2,363	†	79	†	†	†	†
1914 ...	527	†	...	†	†	†	†
1915 ...	1,997	†	84	†	†	492	†

* To 30th June. ** Exclusive of resumptions for railway purposes, which for the years 1901 to 1906 inclusive, amounted to 13,081 acres. † Not available. ‡ Exclusive of South Australia.

§ 11. Alienation and Occupation of Crown Lands in the Several States.

1. Introduction.—The tables given in the previous parts of this section shew separately the areas alienated, in process of alienation, and occupied under various tenures in the several States. The tables given below shew collectively the general condition of the public estate in each State, having regard to (a) the area alienated absolutely, which includes free grants, sales, and conditional purchases for which grants have been issued, the conditions having been complied with; (b) the area in process of alienation, comprising holdings for which the fee-simple has not yet been alienated, but which are in process of sale under systems of deferred payments; (c) the area occupied under all descriptions of leases and licenses; and (d) the area unoccupied, which, ordinarily, includes roads, permanent reserves, forests, etc. In some cases, however, lands which are permanently reserved from alienation are occupied under leases and licenses, so that

in such cases the areas reserved are comprised in class (c) and not in class (d). Particulars of leases and licenses of reserved areas, as distinguished from leases and licenses of other lands, are not available. It should be observed that in many cases lands occupied under leases or licenses for pastoral purposes are held on short tenures only, and could thus be made available for settlement practically whenever required.

2. New South Wales.—The total area of the State of New South Wales (exclusive of Commonwealth Territory) is 198,054,420 acres, of which on the 30th June, 1916, 40,363,316 acres, or over one-fifth, were alienated absolutely; 20,409,656 acres, or over one-tenth, were in process of alienation; 118,865,868 acres, or about three-fifths, were occupied under Lands Department, Western Land Board, or Mines Department leases and licenses; and the remaining 18,415,580 acres, or about one-eleventh, were unoccupied. The next table shows the areas alienated, in process of alienation, held under leases and licenses, and unoccupied, in 1901 and from 1912-13 to 1915-16.

During the year 1915-16, a total area of 2,279,417 acres became available for Crown leases, homestead farms, suburban holdings, additional holdings, etc. Of this area, 19,901 acres were made available for irrigation farms, and 52,057 acres were acquired under the Closer Settlement Promotion Act.

**NEW SOUTH WALES.—ALIENATION AND OCCUPATION OF CROWN LANDS,
1901 AND 1912-16.***

Particulars.	Area in Acres.				
	1901.	1912-13.	1913-14.	1914-15.	1915-16.
1. Alienated.					
Granted and sold by private tender and public auction, at prices ranging from five to twenty shillings per acre, prior to 1862 ...	7,146,579	7,146,579	7,146,579	7,146,579	7,144,573
Sold by auction and other sales, 1862 to date ...	14,638,858	14,912,708	14,914,336	14,914,920	14,916,901
Conditionally sold, 1862 to date ...	4,212,189	15,638,374	15,960,980	16,264,942	16,571,958
Granted under Volunteer Land Regulations, 1867 to date ...	168,545	171,998	172,198	172,198	174,198
Granted for public and religious purposes ...	241,968	234,192	235,622	236,134	238,560
Homestead grants ...	35,385	1,480,834	1,396,911	1,365,719	1,317,126
Total area alienated ...	26,443,554	39,584,685	39,826,576	40,100,492	40,363,316
2. In Process of Alienation.					
Under system of deferred payments ...	20,044,703	17,305,305	17,837,702	18,035,210	18,515,181
Under system of homestead selections (including leases converted, but excluding grants issued) ...	1,550,985	‡	‡	‡	‡
Closer settlement purchases ...	...	928,033	999,579	1,029,408	1,894,475
Total area in process of alienation ...	21,595,688	18,233,338	18,837,281	19,064,618	20,409,656
3. Held under Leases and Licenses.					
Total under Lands Department and Western Land Board ...	126,921,161	124,361,637	122,085,796	121,565,598	118,641,247
Mineral and auriferous leases and licenses (Mines Department) ...	134,209	228,526	219,488	230,493	224,621
Total leases under all Government Departments ...	127,055,370	124,590,163	122,305,284	121,796,091	118,865,868
4. Unoccupied ...	23,543,468	15,646,234	17,086,475	17,093,219	18,415,580

Area of State (exclusive of Commonwealth Territory)—198,054,420 acres.

* The figures for 1901 are up to the 31st December, while for the other years given they are up to the 30th June. † Inclusive of alienated and dedicated areas within Commonwealth Territory, and areas acquired for closer settlement and promotion of same. ‡ Now included under Homestead grants.

3. **Victoria.**—The total area of the State of Victoria is 56,245,760 acres, of which 24,256,222 acres, or about three-eighths, had been alienated absolutely up to the end of the year 1915; 8,075,653 acres, or about one-eighth, were in process of alienation under deferred payments; and 13,035,612 acres were occupied under leases and licenses (exclusive of leases and licenses held under the Mines Department). The following table shews the areas alienated and in process of alienation, together with the areas reserved, leased, and available for occupation at the end of the year 1901 and from 1911 to 1915:—

**VICTORIA.—ALIENATION AND OCCUPATION OF CROWN LANDS,
1901 AND 1911-15.**

Particulars.	Area in Acres.					
	1901.	1911.	1912.	1913.	1914.	1915.
1. <i>Alienated</i>	20,066,875	23,727,962	23,856,389	24,009,440	24,138,965	24,256,222
2. <i>In Process of Alienation</i> —						
Exclusive of Mallee, etc.	3,587,668	1,953,268	1,932,189	1,971,614	2,004,248	2,025,172
Mallee Lands	87,606	4,076,792	4,838,883	5,165,799	5,334,113	5,534,655
Under Closer Settlement Acts ..		303,024	397,402	§ (449,791)	§ (484,548)	494,965
Village Settlements	55,077	31,911	30,057	25,103	24,529	20,861
Total	3,730,351	6,364,995	7,198,531	7,162,516	7,362,890	8,075,653
3. <i>Leases and Licenses Held</i> —						
Under Lands Department ..	17,110,709	14,719,149	14,443,191	13,230,211	13,325,416	13,035,612
Under Mines Department ..	...	...	...	...	...	...
4. <i>Unoccupied Crown Lands</i> † ..	15,337,825	11,433,654	10,747,649	11,843,593	11,418,489	10,878,273

Total area of State—56,245,760 acres.

† Not available. ‡ Including leases and licenses held under the Mines Department, which are not available. § This area is also included with land alienated.

Crown lands in Victoria include roads, 1,732,720 acres; water reserves, 316,204 acres; agricultural colleges, etc., 85,107 acres; State forests and timber reserves (now under Forests Act 1907), 3,886,546 acres; State forests and timber reserves under Land Acts, 227,078 acres; reserves in the Mallee, 397,881 acres; unsold land in towns, etc., 2,685,642 acres; and other reserves, 305,584 acres.

4. **Queensland.**—The total area of this State is 429,120,000 acres, of which, on the 31st December, 1915, 16,447,382 acres, or about one-twenty-sixth, were alienated absolutely; 10,776,793 acres, or about one-fortieth, were in process of alienation; 332,824,904, or three-quarters, were occupied under leases and licenses; roads, reserves, etc., occupied 15,793,438 acres, the remaining 53,277,433 acres being unoccupied. From 1901 to 1915 the area alienated absolutely increased by 2,913,914 acres or 21 per cent., and the area in process of alienation by 7,985,129 acres or 286 per cent.

The following table shews the area alienated absolutely, the area in process of alienation, and the area held under various forms of lease and license at the end of the year 1901 and from 1911 to 1915:—

**QUEENSLAND.—ALIENATION AND OCCUPATION OF CROWN LANDS,
1901 AND 1911-15.**

Particulars.	Area in Acres.					
	1901.	1911.	1912.	1913.	1914.	1915.
1. Alienated Absolutely—						
By Purchase	13,462,304	15,626,173	15,790,907	15,956,663	16,159,145	16,360,715
Without Payment	71,164	83,013	83,295	85,100	85,396	86,667
Total	13,533,468	15,709,186	15,874,202	16,041,763	16,244,541	16,447,382
2. In Process of Alienation	2,791,664	9,025,049	9,577,037	10,039,255	10,586,914	10,776,793
3. Occupied under Leases and Licenses—						
Runs in Settled Districts	176,000	222,158,880	227,410,480	223,873,480	226,119,640	223,896,160
" Unsettled Districts	222,553,760	43,478,880	42,465,360	40,535,160	46,814,060	45,609,280
Occupation Licenses	35,103,600	49,130,631	47,179,483	52,251,784	57,869,972	62,568,511
Grazing Farms and Homesteads	21,793,242	234,435	233,436	216,438	214,932	213,648
Scrub Selections	272,946	45,000	88,147	107,707	121,595	158,045
Leases Special Purposes	249	140,021	203,059	310,966	308,704	267,195
Under Mines Department	124,182	18,089	35,179	42,363	49,905	112,065
Perpetual Lease Selections ... ..	...	...	...	...	...	...
Total	280,023,979	308,205,936	317,615,144	322,337,898	331,499,708	332,824,904
4. Roads and Reserves ... ..	...	14,828,256	15,371,446	15,473,444	15,561,184	15,793,438
5. Unoccupied	132,770,889	81,351,573	70,682,171	65,227,640	55,227,653	53,277,433

Total area of State—429,120,000 acres.

The area open for selection (as distinguished from occupation for purely pastoral or special purposes) under every mode at the beginning of the year 1915 was 10,330,929 acres, and the area opened during the year was 10,672,179 acres, while the area withdrawn was 1,815,933 acres. The area selected was 7,822,934 acres, and the area remaining open at the end of the year was 11,864,241 acres. The number of grazing selections was 497 as against 560 in the previous year, and their gross area 6,446,353 acres, as against 6,843,406 acres.

5. South Australia.—The area of the State of South Australia is 243,244,800 acres. In this State, at the end of the year 1915, there were 10,590,756 acres, or about one twenty-fourth, alienated absolutely; 2,943,395 acres, or about one one-hundred and thirty-sixth, were in process of alienation; 115,396,433 acres, or about one-half, were occupied under leases and licenses; while the remaining 114,314,216 acres were unoccupied. From 1901 to the end of 1915, the area of land absolutely alienated has increased by more than three million acres, or nearly 50 per cent., while, during the same period, the area of land in process of alienation has increased by over two million acres, or over 400 per cent. The subjoined table shews for South Australia the area of land alienated absolutely, and in process of alienation under deferred payments, and the area held under different forms of leases:—

**SOUTH AUSTRALIA.—ALIENATION AND OCCUPATION OF CROWN LANDS,
1901 AND 1911-15.**

Particulars.	Area in Acres.					
	1901.	1911.	1912.	1913.	1914.	1915.
1. Alienated—						
Sold	7,413,510	9,769,993	10,129,969	10,296,156	10,383,620	10,467,883
Granted for Public Purposes	121,613	122,604	123,777	122,818	122,851	122,873
Total	7,535,123	9,892,597	10,252,746	10,418,974	10,506,471	10,590,756
2. In Process of Alienation—	553,774	1,761,442	1,782,451	2,032,635	2,410,137	2,943,395
3. Held under Lease and License—						
Right of Purchase	5,639,519	3,150,533	2,836,346	2,701,392	2,634,685	2,574,640
Perpetual	7,115,782	15,020,544	15,070,607	14,997,201	14,969,877	14,943,771
Pastoral	68,916,125	91,546,770	96,356,850	96,933,810	96,382,130	95,756,850
Other Leases and Licenses	3,905,729	1,283,663	1,273,350	1,229,971	1,193,767	1,144,683
*Mining " "	14,140	89,077	292,323	412,693	805,889	976,489
Total	85,591,295	111,090,587	115,829,476	116,275,067	115,986,348	115,396,433
4. Total Occupied	88,680,192	122,744,626	127,864,673	128,726,676	128,902,956	129,930,584
5. Area Unoccupied	149,564,608	120,500,174	115,380,127	114,518,124	114,341,844	114,314,216
Total area of State—243,244,500 acres.						

* Exclusive of miners' rights.

6. Western Australia.—The total area of Western Australia is 624,588,800 acres, of which on the 30th June, 1915, 8,125,629 acres, or about a one-seventy-eighth part, were alienated absolutely; 13,584,076 acres, or about one-fourth part, were in process of alienation; while 196,772,098 acres, or nearly one-third, were occupied under leases and licenses issued either by the Lands or the Mines Departments. The remaining 406,106,997 acres, or about two-thirds, were unoccupied.

The following table shows the areas alienated absolutely and conditionally, and the areas held under leases and licenses at the end of the year 1901 and on 30th June, 1912 to 1916:—

**WESTERN AUSTRALIA.—ALIENATION AND OCCUPATION OF CROWN LANDS,
1901 AND 1912-16.**

Particulars.	Area in Acres.					
	1901.	1911-12.*	1912-13.*	1913-14.*	1914-15.*	1915-16.*
1. Absolutely Alienated	3,468,878	7,387,929	7,606,759	7,795,319	8,007,937	8,125,629
2. In Process of Alienation—						
Midland Railway Concessions	2,768,810	121,800	121,800	121,800	54,800	54,800
Free Homestead Farms	283,455	1,531,424	1,547,817	1,517,330	1,469,132	1,404,237
Conditional Purchases	1,349,554	8,285,058	8,294,524	8,255,604	8,402,856	7,911,998
Selections from the late W.A. Company	75,213	16,413	12,716	7,182	4,851	3,728
Selections under the Agricultural Lands Purchase Act	37,235	253,588	261,517	258,191	260,697	259,055
Special Occupation Leases and Licenses	8,867	2,110	2,010	1,803	1,498	1,398
Homestead or Grazing Leases	286,425	3,115,727	3,442,557	3,634,233	3,832,648	3,901,011
Poison Land Leases or Licenses	1,306,270	78,426	72,194	56,862	52,286	47,252
Immigrants' Grants	400	100	...	...	...	...
Village Allotments	6	35	35	35	34	32
Working-men's Blocks	31	688	617	590	584	565
Total in Process of Alienation	6,116,266	13,405,369	13,755,787	13,853,630	14,079,386	13,584,076

WESTERN AUSTRALIA.—ALIENATION AND OCCUPATION OF CROWN LANDS, 1901 AND 1912-1916.—Continued.

Particulars.	Area in Acres.					
	1901.	1911-12.*	1912-13.*	1913-14.*	1914-15.*	1915-16.*
3. Leases and Licenses in Force—						
(i.) <i>Issued by Lands Department</i>						
Pastoral Leases	96,506,549	173,431,848	183,477,495	180,891,721	186,418,417	193,023,620
Special Leases	448	33,157	34,442	30,401	35,948	37,559
Leases of Reserves	5,296	630,127	3,402,605	2,136,072	2,129,118	2,301,587
Selections in Goldfields	3,955	100	100	100	...	...
Timber Leases and Licenses	865,180	1,423,282	775,769	658,146	1,650,613	1,654,550
Timber Permits ... ..	...	...	761,790	411,191	1,410,943	1,608,594
Residential Lots	550	405	318	224	267	268
(ii.) <i>Issued by Mines Department</i>						
Gold Mining Leases... ..	34,066	1158,946	† 94,899	† 149,801	† 128,609	† 145,920
Mineral Leases	6,576					
Other Leases	8,623					
Licenses	17,397					
Total under Leases and Licenses	97,450,660	175,677,865	188,547,418	184,277,656	189,773,915	196,772,098
4. Area Unoccupied	517,552,996	428,117,637	414,678,836	418,662,195	412,727,562	406,106,997

Total area of State—624,588,800 acres.

* Figures are now given as up to the 30th June, instead of as up to 31st December. Figures for previous years may be obtained from the Statistical Registers of Western Australia. † On the 31st December.

7. *Tasmania.*—Of the total area of Tasmania, namely, 16,777,600 acres, there were at the end of the year 1915, 5,125,197 acres, or about three-tenths, alienated absolutely; 1,225,924 acres, or about one-thirteenth, were in process of alienation; 2,006,212 acres, or about one-eighth, were occupied under leases and licenses for either pastoral, agricultural, timber, or mining purposes, the remaining 8,420,267 acres, or about one-half, being unoccupied. The following table shews the areas alienated, in process of alienation, and held under lease or license, and the area unoccupied at the end of the year 1901 and from 1911 to 1915:—

TASMANIA.—ALIENATION AND OCCUPATION OF CROWN LANDS, 1901 and 1911-15.

Particulars.	Area in Acres.					
	1901.	1911.	1912.	1913.	1914.	1915.
1. Alienated Absolutely	4,621,585	4,965,331	5,005,175	5,051,112	5,085,868	5,125,197
2. In Process of Alienation	272,376	1,274,947	1,310,728	1,290,705	1,248,844	1,225,924
3. Leases or Licenses—						
(i.) <i>Issued by Lands Department</i>						
Islands	149,165	62,000	135,025	134,908	135,000	204,630
Ordinary Leased Land	1,280,688	1,242,400	1,245,400	1,280,400	1,400,300	1,452,068
Land Leased for Timber	40,768	134,516	136,471	160,216	162,631	120,832
Closer Settlement	—	34,841	46,217	* 45,572	* 52,800	66,307
(ii.) <i>Issued by Mines Department</i>	50,362	44,953	79,239	45,913	52,376	53,060
(iii.) <i>Occupied by Commonwealth and State Departments</i> ... ..	...	...	...	7,121	8,498	14,315
(iv.) <i>Reserved for Public Purposes</i> ... ..	...	...	...	63,000	68,000	95,000
Total	1,520,983	1,518,710	1,642,352	1,691,558	1,826,805	2,006,212
4. Total Area Occupied	6,414,944	7,758,988	7,958,255	8,033,375	8,161,517	8,357,333
5. Area Unoccupied	10,362,656	9,018,612	8,819,345	8,744,225	8,616,083	8,420,267

Total area of State—16,777,600 acres.

* Included in 1. *Alienated Land.*

8. **Northern Territory.**—On the 1st January, 1911, the Northern Territory was taken over by the Commonwealth. In the Northern Territory at the end of the year 1916, there were 475,542 acres, or only about one seven-hundred-and-seventh part alienated absolutely; 110,669,918 acres, or about two-sevenths, were held under leases and licenses; while the remaining 223,971,340 acres, or about five-sevenths, were unoccupied. The following table shews the area of land alienated absolutely, and also the area under lease:—

**NORTHERN TERRITORY.—ALIENATION AND OCCUPATION OF CROWN LANDS,
1901 and 1912-16.**

Particulars.	Area in Acres.					
	1901.	1912.	1913.	1914.	1915.	1916.
1. Alienated—						
Sold	473,230	473,942	473,942	474,222	474,542	475,494
Granted for Public Purposes	48	48	48	48	48	48
Total Alienated	473,278	473,990	473,990	474,470	474,590	475,542
2. Leased—						
Right of Purchase	1,067	667	667	436	436	436
Pastoral	111,476,240	94,329,600	93,748,100	104,370,160	113,813,329	110,560,129
Other Leases	1,176,981	1,696,171	1,762,538	88,637	112,862	109,353
Total Leased	112,654,288	96,026,438	95,511,305	104,459,233	113,926,627	110,669,918
3. Total Occupied¹	113,127,566	96,500,428	95,985,295	104,933,703	114,401,217	111,145,460
4. Remainder Unoccupied*	221,989,234	238,616,372	239,131,505	230,183,097	220,715,583	223,971,340

Total area of Northern Territory—335,116,800 acres.

* Including Aboriginal and other reserves, and Mission stations.

§ 12. Classification of Holdings according to Size.

1. **General.**—The classification of holdings according to their area is of interest chiefly in relation to the efforts made by the several States in recent years to promote settlement on the land on blocks of suitable size, especially by means of the Closer Settlement Acts. Returns shewing such a classification are not available for Queensland and the Northern Territory.

The following table gives particulars of the number of holdings in area series, as returned to the collectors of agricultural and pastoral statistics, for all the States excepting Queensland for the season 1915-16. The figures necessarily fall short of those given in preceding tables relating to total alienations.

* CLASSIFICATION OF HOLDINGS (ONE ACRE AND OVER) IN AREA SERIES,
1915-16.

Size of Holdings.	N.S.W.	Victoria.†	S. Aust.	W. Aust.	Tasmania.	N. (a) Territory	Federal Territory	C'with.(b)
NUMBER.								
Acres.								
1 and under 50	40,033	18,757	7,195	3,898	4,403	...	36	74,322
50 .. 100	8,536	7,356	1,793	640	2,299	4	26	20,704
100 .. 500	26,405	24,735	6,033	3,370	5,148	19	65	65,775
500 .. 1,000	9,326	10,181	3,977	3,687	729	4	27	27,931
1,000 .. 5,000	7,971	5,364	3,794	4,229	674	...	34	22,066
5,000 .. 10,000	942	267	125	254	167	...	4	1,759
10,000 .. 20,000	411	116	42	82	69	...	...	720
20,000 .. 50,000	233	34	24	27	35	...	2	355
50,000 and over	76	1	...	7	3	...	...	87
Total... ..	93,983	66,811	22,983	16,194	13,527	27	194	213,719

AREA.

Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1 and under 50	501,402	356,959	111,005	48,058	74,045	...	725	1,092,194
50 .. 100	677,346	558,534	133,264	54,697	161,859	307	1,987	1,587,994
100 .. 500	6,788,814	6,359,230	1,679,987	916,798	1,064,244	4,170	16,657	16,829,900
500 .. 1,000	6,544,181	7,123,402	2,829,380	3,012,905	496,729	2,560	20,508	20,029,665
1,000 .. 5,000	15,895,070	9,552,404	6,634,345	8,300,610	1,406,857	...	57,031	41,846,317
5,000 .. 10,000	6,468,693	1,825,862	852,601	1,756,960	809,288	...	31,605	11,745,009
10,000 .. 20,000	5,677,826	1,609,045	581,194	1,157,374	946,324	...	...	9,971,763
20,000 .. 50,000	6,879,609	992,521	684,493	773,453	912,882	...	62,502	10,305,460
50,000 and over	6,665,923	51,400	...	564,635	325,693	...	...	7,606,751
Total... ..	56,097,964	28,429,357	13,506,269	16,585,490	6,197,921	7,037	191,015	121,015,063

(a) Figures for 1912-13.

(b) Exclusive of Queensland.

* See 1. General above.

† For the year 1912-13.

2. New South Wales.—The total number of holdings of one acre and over in area in this State on the 31st March, 1901, was 69,439. On the 31st March, 1916, the corresponding number was 93,983, shewing an increase of about 35 per cent. The following table shews the number of holdings for which returns were received for 1900-1 and the past five years :—

NEW SOUTH WALES.—* CLASSIFICATION OF HOLDINGS (ONE ACRE AND OVER)
IN AREA SERIES, 1901 and 1912-16.

Size of Holdings.	1900-01.	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.
Acres.	Number.	Number.	Number.	Number.	Number.	Number.
1 to 50	28,155	38,211	38,641	39,268	39,602	40,033
51 .. 100	8,929	9,027	8,955	8,923	8,771	8,586
101 .. 500	20,504	25,964	26,251	26,493	26,576	26,405
501 .. 1,000	6,105	8,329	8,616	8,842	9,068	9,326
1,001 .. 5,000	4,464	6,934	7,237	7,529	7,777	7,971
5,001 .. 10,000	579	825	853	889	928	942
10,001 .. 20,000	352	371	379	394	389	411
20,001 .. 50,000	202	247	245	235	231	233
50,001 and over	149	84	86	82	78	76
Total	69,439	89,992	91,313	92,655	93,420	93,983

* See 1. General above.

3. **Victoria.**—The following table shews the number and area of holdings on the 1st March of those years for which figures are available:—

VICTORIA.—* CLASSIFICATION OF HOLDINGS (ONE ACRE AND OVER) IN AREA SERIES, 1906-1912.

Size of Holdings.				1906.	1908.	1910.	1912.
Acres.				Number.	Number.	Number.	Number.
1 to	50	...	...	13,309	14,692	16,609	18,757
51 "	100	...	...	5,864	6,223	6,696	7,356
101 "	500	...	...	21,628	22,510	23,397	24,735
501 "	1,000	...	...	7,688	7,817	8,216	10,181
1,001 "	5,000	...	...	4,083	4,409	4,908	5,364
5,001 "	10,000	...	...	220	231	239	267
10,001 "	20,000	...	...	116	118	131	116
20,001 "	50,000	...	...	73	61	42	34
50,001 and over		...	...	6	4	2	1
Total				52,987	56,065	60,240	66,811

* See 1. General above.

4. **South Australia.**—In the State of South Australia the classification of holdings was available for the first time in 1910-11. The following table shews the number and area of such holdings for that year and the last four years:—

SOUTH AUSTRALIA.—* CLASSIFICATION OF HOLDINGS (ONE ACRE AND OVER) IN AREA SERIES, 1910-11 to 1915-16.

Size of Holdings.				1910-11.	1912-13.	1913-14.	1914-15.	1915-16.
Acres.				Number.	Number.	Number.	Number.	Number.
1 to	50	...	...	6,745	6,909	6,757	7,013	7,195
51 "	100	...	...	1,646	1,724	1,726	1,778	1,793
101 "	500	...	...	5,542	5,691	5,806	5,801	6,033
501 "	1,000	...	...	3,370	3,590	3,707	3,835	3,977
1,001 "	5,000	...	...	2,540	3,075	3,196	3,417	3,794
5,001 "	10,000	...	...	110	109	112	114	125
10,001 "	20,000	...	...	53	48	42	41	42
20,001 "	50,000	...	...	23	22	22	23	24
50,001 and over		...	...	1	...	1	1	...
Total				20,030	21,168	21,369	22,023	22,983

* See 1. General above.

5. **Western Australia.**—In this State the number of holdings of one acre and over in area was 5699 for the season 1900-1 (see Year Book No. 1), and 16,194 for the season 1915-16, shewing an increase of 10,495, or 184 per cent. The subjoined table shews the classification of holdings for which agricultural and pastoral returns were received for 1901 and 1912-1916:—

**WESTERN AUSTRALIA.—* CLASSIFICATION OF HOLDINGS (ONE ACRE AND OVER)
IN AREA SERIES, 1901 and 1912-16.**

Size of Holdings.		1900-1.	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.
Acres.		Number.	Number.	Number.	Number.	Number.	Number.
1 to	50 ...	1,728	3,274	3,656	3,820	4,031	3,898
51 "	100 ...	198	571	609	608	645	640
101 "	500 ...	2,302	3,171	3,320	3,354	3,349	3,370
501 "	1,000 ...	717	3,024	3,465	3,569	3,676	3,687
1,001 "	5,000 ...	607	2,967	3,545	3,912	4,025	4,229
5,001 "	10,000 ...	73	200	213	240	235	254
10,001 "	20,000 ...	38	77	82	82	93	82
20,001 "	50,000 ...	36†	26	28	27	25	27
50,001 and over	...	...	6	7	8	7	7
Total	...	5,699	13,316	14,925	15,620	16,086	16,194

* See 1. General above:

† Including all holdings of 20,001 acres and upwards.

6. **Tasmania.**—In Tasmania the total number of holdings for which returns were received as on the 1st March, 1909, was 12,413. Particulars for previous years are not available. The following table shows the classification of such holdings in area series for 1911-12 and subsequent years :—

**TASMANIA.—* CLASSIFICATION OF HOLDINGS (ONE ACRE AND OVER)
IN AREA SERIES, 1911-12 to 1915-16.**

Size of Holdings.		1911-12.	1912-13.	1913-14.	1914-15.	1915-16.
Acres.		Number.	Number.	Number.	Number.	Number.
1 to	50 ...	4,624	4,752	4,402	4,416	4,403
51 "	100 ...	2,413	2,378	2,271	2,306	2,299
101 "	500 ...	5,036	5,161	5,088	5,165	5,148
501 "	1,000 ...	669	705	721	731	729
1,001 "	5,000 ...	621	634	667	676	674
5,001 "	10,000 ...	117	123	116	168	167
10,001 "	20,000 ...	60	62	69	70	69
20,001 "	50,000 ...	31	28	34	35	35
50,001 and over	...	2	1	3	3	3
Total	...	13,573	13,844	13,371	13,570	13,527

* See 1. General above.

§ 13. The Progress of Land Settlement, 1901 to 1915.

1. **Recent Progress.**—The progress of settlement and the growth of land alienation in the States of the Commonwealth under recent legislation is seen in the subjoined statement, which shows concisely the condition of the public estate in each State and in the Commonwealth, at the end of 1901 and of each year from 1911 to 1915 inclusive. The effect of the land laws during that period has been generally to diminish the number of large holdings, at the same time decreasing the area held under lease, while both the area alienated and the area in process of alienation have increased. As leases of large areas fall in or are otherwise terminated they are in many cases not renewed, but the land is then cut up for the purpose of settlement under systems of deferred payment; the

State Governments, also, have in many cases acquired by repurchase considerable areas under the provisions of the various Closer Settlement Acts. Further, greater facilities have been granted to the working classes to acquire possession of the soil, and special inducements have been offered to *bona fide* settlers by the introduction of new forms of tenure on easy terms and conditions.

From 1901 to 1915 the area alienated absolutely in the whole Commonwealth increased by 29,279,292 acres, or 38 per cent.; the area in process of alienation increased by 21,036,357 acres, or 59 per cent.; the area leased by 171,646,854 acres, or 23 per cent.; while the area unoccupied decreased by 221,962,503 acres, or 20 per cent.

TOTAL AREA ALIENATED, IN PROCESS OF ALIENATION, HELD UNDER LEASE OR LICENSE AND UNOCCUPIED.

EXPRESSED ABSOLUTELY AND AS PERCENTAGES OF AREA OF ENTIRE STATE FOR THE YEARS 1901 AND 1911-15.

Year.	Alienated.		In Process of Alienation.		Held under Lease or License.		Occupied by the Crown or Unoccupied.*	
	Area in Acres.	Per Cent.	Area in Acres.	Per Cent.	Area in Acres.	Per Cent.	Area in Acres.	Per Cent.
NEW SOUTH WALES.—AREA, 198,054,420 ACRES.								
1901†	26,443,554	13.32	21,595,688	10.87	127,055,370	63.96	23,543,468	11.85
1911	38,741,736	19.50	16,210,185	8.16	123,223,559	62.04	20,462,600	10.30
1912‡	39,211,263	19.75	17,341,434	8.75	126,064,031	63.65	15,437,687	7.85
1913‡	39,584,685	19.98	18,233,338	9.21	124,590,163	62.91	15,646,234	7.90
1914‡	39,825,380	20.11	18,837,281	9.51	122,305,284	61.75	17,086,475	8.63
1915‡	40,100,492	20.25	19,064,618	9.62	121,796,091	61.50	17,093,219	8.63
1916‡	40,363,316	20.38	19,409,656	9.79	118,865,868	60.02	19,415,580	9.81
VICTORIA.—AREA, 56,245,760 ACRES.								
1901	20,066,875	35.67	3,730,351	6.63	17,110,709	30.42	\$15,337,825	\$27.28
1911	23,727,962	42.18	6,364,995	11.31	14,719,149	26.34	\$11,433,654	\$20.17
1912	23,856,389	42.41	7,198,531	12.79	14,443,191	25.67	\$10,747,649	\$19.13
1913	24,009,440	42.68	7,162,516	12.73	13,230,211	23.54	\$11,843,593	\$21.05
1914	24,138,965	42.92	7,362,890	13.09	13,325,416	23.69	\$11,418,489	\$20.30
1915	24,256,222	43.12	8,075,653	14.36	13,035,612	23.18	\$10,878,273	\$19.34
QUEENSLAND.—AREA, 429,120,000 ACRES.								
1901	13,533,468	3.15	2,791,664	0.65	280,023,979	65.26	132,770,889	30.94
1911	15,709,186	3.66	9,025,049	2.10	308,205,936	71.82	96,179,829	22.42
1912	15,874,202	3.69	9,577,037	2.23	317,615,144	74.01	86,053,617	20.07
1913	16,041,763	3.74	10,039,255	2.34	322,337,898	75.11	80,701,084	18.81
1914	16,244,541	3.79	10,586,914	2.47	331,499,708	77.25	70,788,837	16.49
1915	16,447,382	3.83	10,776,793	2.51	332,824,905	77.56	69,070,920	16.10
SOUTH AUSTRALIA.—AREA, 243,244,800 ACRES.								
1901	7,535,123	3.10	553,774	0.23	85,591,295	35.18	149,564,608	61.49
1911	9,892,597	4.07	1,761,442	0.72	111,090,587	45.67	120,500,174	49.54
1912	10,252,746	4.22	1,782,451	0.73	115,829,476	47.62	115,380,127	47.43
1913	10,418,974	4.28	2,032,635	0.84	116,275,067	47.79	114,518,124	47.09
1914	10,506,471	4.32	2,410,137	0.99	115,986,348	47.68	114,341,844	47.01
1915	10,590,756	4.35	2,943,395	1.21	115,396,433	47.44	114,314,216	47.00

* Including roads and reserves. † To 31st December; subsequent years to 30th June.

‡ Exclusive of Commonwealth Territory. § Including Mines Department leases and licenses.

TOTAL AREA ALIENATED, IN PROCESS OF ALIENATION, ETC.—Continued.

Year.	Alienated.		In Process of Alienation.		Held under Lease or License.		Occupied by the Crown or Unoccupied.*	
	Area in Acres.	Per Cent.	Area in Acres.	Per Cent.	Area in Acres.	Per Cent.	Area in Acres.	Per Cent.

WESTERN AUSTRALIA.—AREA, 624,588,800 ACRES.

1901	3,468,878	0.56	6,116,266	0.98	97,450,660	15.60	517,552,996	82.86
1911*	7,202,696	1.15	11,843,236	1.90	169,937,644	27.21	435,605,224	69.74
1912*	7,387,929	1.18	13,405,369	2.16	175,677,865	28.13	428,117,637	68.53
1913*	7,606,759	1.21	13,755,787	2.20	188,547,418	30.18	414,678,836	66.41
1914*	7,795,319	1.25	13,853,630	2.22	184,277,656	29.50	418,662,195	67.03
1915*	8,007,937	1.28	14,079,386	2.26	189,773,915	30.38	412,727,562	66.08
1916*	8,125,629	1.31	13,584,076	2.17	196,772,098	31.49	406,106,997	65.03

* To 30th June.

TASMANIA.—AREA, 16,777,600 ACRES.

1901	4,621,585	27.54	272,376	1.62	1,520,983	9.06	10,362,656	61.78
1911	4,965,331	29.60	1,274,947	7.60	1,518,710	9.05	9,018,612	53.75
1912	5,005,175	29.83	1,310,728	7.82	1,642,352	9.78	8,819,345	52.57
1913	5,051,112	30.09	1,290,705	7.68	1,691,558	10.05	8,744,225	52.18
1914	5,085,868	30.31	1,248,844	7.44	1,826,805	10.89	8,616,083	51.36
1915	5,125,197	30.55	1,225,924	7.31	1,939,905	11.56	8,486,574	50.58

NORTHERN TERRITORY.—AREA, 335,116,800 ACRES.

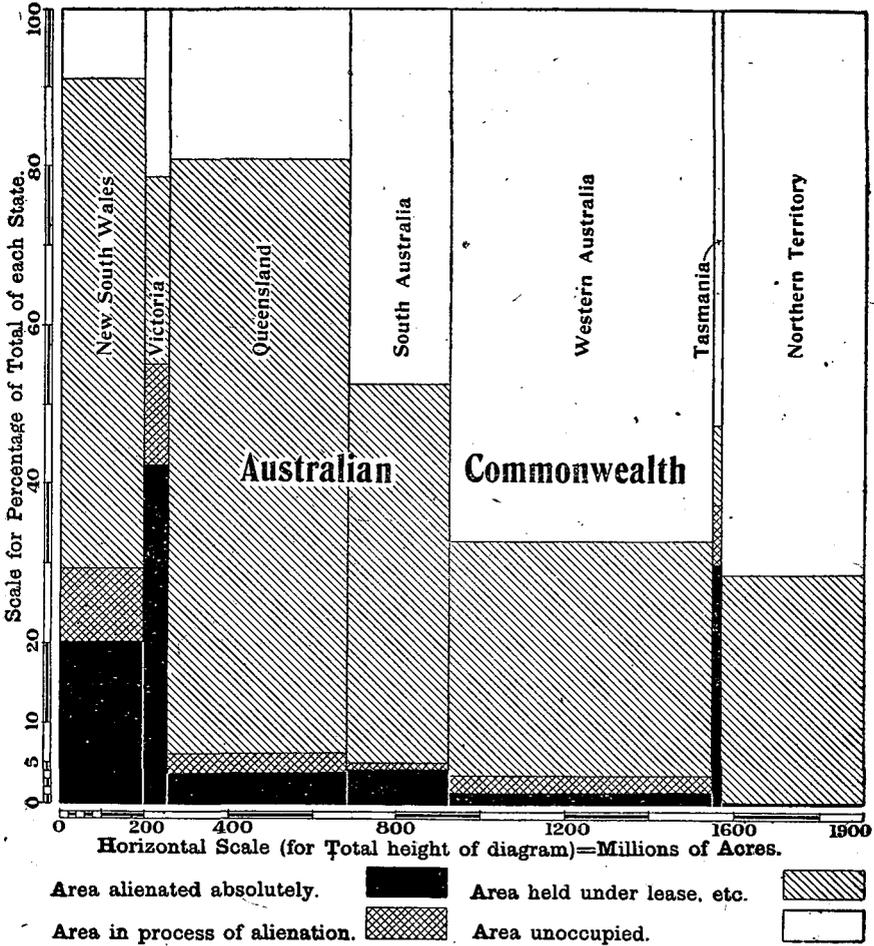
1901	473,278	0.14	...	...	112,654,288	33.62	221,989,234†	66.24
1911	474,195	0.14	...	...	100,908,184	30.11	233,734,421†	69.75
1912	473,990	0.14	...	...	96,026,438	28.66	238,616,372†	71.20
1913	473,990	0.14	...	...	95,511,305	28.60	239,131,505†	71.26
1914	474,470	0.14	...	...	104,459,233	31.17	230,183,097†	68.69
1915	474,590	0.14	...	...	113,926,627	33.99	220,715,583†	65.87

THE COMMONWEALTH. †—AREA, 1,903,731,840 ACRES.

1901	76,142,761	4.00	35,060,119	1.84	721,407,284	37.89	1,071,121,676	56.27
1911	100,713,498	5.29	46,479,854	2.45	822,440,546	43.20	934,097,942	49.06
1912	102,746,699	5.40	51,977,451	2.73	858,932,085	45.11	890,075,605	46.76
1913	104,474,882	5.44	52,717,936	2.76	858,148,026	45.08	889,390,996	46.72
1914	104,612,364	5.50	54,842,786	2.88	878,981,142	46.17	865,295,548	45.45
1915	105,422,053	5.54	56,096,476	2.94	893,054,138	46.91	849,159,173	44.61

* Including roads and reserves. † Including aboriginal reserves and mission stations.
‡ Including Federal Capital Territory.

2. Diagram shewing Condition of Public Estate.—The following diagram shows the condition of the public estate in the Commonwealth at the end of the year 1915. The square itself represents the total area of the Commonwealth, while the relative areas of individual States are shewn by the vertical rectangles. The areas alienated absolutely, in process of alienation under systems of deferred payments, and the areas held under leases or licenses, are designated by the differently-shaded areas as described in the reference given below the diagram, while the areas unoccupied are left unshaded:—



3. Federal Territory. The following particulars relate to the tenures of land within the Federal Capital Territory at the end of the year 1916:—

FEDERAL CAPITAL TERRITORY, TENURES OF LAND, 1916.

Area of acquired lands	...	...	* { Leased 130,103 acres	Acres.
			{ Unoccupied 68,132 "	198,235
Lands alienated	...	...	...	38,961
In process of alienation—				
(Conditional purchases and conditional leases)	...	...	...	80,979
Held under lease issued by the State	...	...	...	162,587
Unoccupied lands (roads, reserves, etc.)	...	...	...	102,898
Total Area of Territory	...	...	...	583,660

* Including land held under agistment or still occupied by late owners.

SECTION VII.

PASTORAL PRODUCTION.

§ 1. Initiation and Growth of Pastoral Industry.

1. **Early Statistics.**—In previous issues of the Year Book will be found a brief review of the history of the pastoral industry in Australia up to the year 1860. (See Year Book No. 6, page 330.)

2. **Subsequent Statistics.**—The statistical records of live stock in Australia prior to the year 1860 are somewhat defective, but from that year onwards fairly complete particulars are available in most of the States. At the present time, statistics of live stock are collected annually in all the States, principally through the agency of the police, but in the years 1885 to 1888 inclusive, and 1893 to 1895 inclusive, no such particulars were collected in South Australia, and similar gaps occur in the Victorian records for the periods 1895 to 1899 inclusive, and 1901 to 1903. In order to obtain totals for the Commonwealth for these years the missing numbers have been supplied by interpolation. The results so obtained probably differ but slightly from the actual numbers for the respective years.

3. **Increase in Numbers.**—Particulars concerning the numbers of each of the principal kinds of live stock in the Commonwealth at quinquennial intervals from 1860 to 1910, and thence onwards in single years, are given in the following table, and are shewn continuously in the graphs as given hereinafter.

During the fifty-five years covered by the table the live stock of the Commonwealth increased considerably, horses by 451 per cent., cattle 151 per cent., sheep 244 per cent., and pigs 115 per cent. The average annual increases which these aggregates represent are as follows:—Horses, 3.15 per cent. per annum; cattle, 1.69 per cent.; sheep, 2.27 per cent.; and pigs, 1.40 per cent.

COMMONWEALTH LIVE STOCK, 1860 to 1915.

Year.	Horses.	Cattle.	Sheep.	Pigs.
1860	431,525	3,957,915	20,135,286	351,096
1865	566,574	3,724,813	29,539,928	345,704
1870	716,772	4,276,326	41,593,612	543,388
1875	835,393	6,389,610	53,124,209	549,808
1880	1,061,078	7,523,000	62,176,027	815,776
1885	1,143,064	7,397,847	67,491,976	748,908
1890	1,521,588	10,299,913	97,881,221	891,138
1895	1,680,419	11,767,488	90,689,727	822,750
1900	1,609,654	8,640,225	70,602,995	950,349
1905	1,674,790	8,528,331	74,540,916	1,014,977
1910	2,165,866	11,744,714	92,047,015	1,025,850
1911	2,279,027	11,828,954	93,003,521	1,110,721
1912	2,408,113	11,577,259	83,263,686	845,255
1913	2,522,776	11,483,882	85,057,402	800,505
1914	2,522,172	11,051,573	78,600,334	862,447
1915	2,377,920	9,931,416	69,257,189	753,693

4. **Fluctuations.**—The increases referred to, however, have not been continuous, marked fluctuations having taken place during the period, mainly on account of the droughts which have from time to time left their impress on the pastoral history of Australia. These were in evidence in 1869, 1877, 1884, 1895 and subsequent years, 1902, to some extent in 1908, and in a severer form during the earlier half of 1912, and again during 1914 and 1915. The falling-off in the number of sheep in 1915 was 9,343,145, of cattle 1,120,157, of horses 144,252, and of pigs 108,754, being 11.91, 10.14, 5.72 and 12.61 respectively. The number of horses during 1913 was the highest ever recorded in the Commonwealth. The winter of 1913 was dry over Southern Australia, though the crops subsequently recovered under the influence of fine spring rains, but in 1914 and 1915, very pronounced drought conditions developed—enveloping the whole of sub-tropical Australia (except the New South Wales coast) during 1914, and all the Central and North-eastern parts of the continent in 1915. Throughout many parts of Western Australia, South Australia, the Riverina, Victoria, and Tasmania, the year 1914 was the driest on record, and similarly throughout a large part of Queensland and North-eastern New South Wales, 1915 was the worst year ever experienced. The result was a general failure of the crops throughout the wheat belt in 1914, heavy stock losses, the failure of the sugar crops of the East Coast and of a large proportion of the cereal crops on the Downs in Queensland.

The extraordinary recuperative power of Australia is reflected in the large increases in the numbers of stock which occurred in the good seasons supervening on the various droughts. Thus, in the nine years from 1902 to 1911, horses increased by 754,426, cattle by 4,766,212, and sheep by 38,335,174, the corresponding increases per cent. per annum being horses 4.57 per cent., cattle 5.90 per cent., and sheep 6.30 per cent.

The years in which the numbers of live stock attained their maxima are as follows:—Horses, 1913, 2,522,776; cattle, 1894, 12,311,617; sheep, 1891, 106,421,068; and pigs, 1911, 1,110,721.

5. **Live Stock in Relation to Population.**—The number of each kind of live stock per head of the population of the Commonwealth has varied during the past fifty-five years in the manner shewn in the succeeding table:—

NUMBER OF LIVE STOCK PER HEAD OF POPULATION, 1860 to 1915.

Year.	Horses.	Cattle.	Sheep.	Pigs.	Year.	Horses.	Cattle.	Sheep.	Pigs.
1860	0.38	3.45	17.58	0.31	1900	0.43	2.29	18.75	0.25
1865	0.41	2.68	21.25	0.25	1905	0.42	2.11	18.48	0.25
1870	0.43	2.60	25.24	0.33	1910	0.49	2.65	20.80	0.23
1875	0.44	3.37	27.99	0.29	1911	0.50	2.59	20.36	0.24
1880	0.48	3.37	27.87	0.37	1912	0.51	2.45	17.59	0.18
1885	0.42	2.75	25.05	0.28	1913	0.52	2.36	17.46	0.16
1890	0.48	3.27	31.06	0.28	1914	0.51	2.24	15.91	0.17
1895	0.48	3.36	25.93	0.24	1915	0.48	2.01	14.04	0.15

Considered in relation to population, the live stock attained its maximum in the period 1890-5, and its minimum in the year 1902. During the period of fifty-five years under review, the number of horses varied but slightly in proportion to population, the range being from 0.38 to 0.52 per head. In the case of cattle, the limits of variation were 1.82 and 3.45; sheep, 13.85 and 31.06; and pigs, 0.15 and 0.37.

6. **Live Stock in Relation to Area.**—The numbers of live stock per square mile in the several States and Territories of the Commonwealth on 31st December, 1915, were as follows:—

O 132
NUMBER OF LIVE STOCK PER SQUARE MILE, 31st DECEMBER, 1915.

States and Territories.	Horses.	Cattle.	Sheep.	Pigs.
New South Wales*	2.32	7.76	105.02	0.91
Victoria	5.62	11.87	119.99	2.18
Queensland	1.02	7.13	23.79	0.18
South Australia	0.67	0.60	9.67	0.17
Western Australia	0.17	0.84	4.92	0.06
Tasmania	1.58	6.47	61.97	1.44
Northern Territory	0.04	0.92	0.11	0.001
Federal Territory*	1.44	6.21	112.59	0.32
Commonwealth	0.80	3.34	23.28	0.25

* 30th June, 1916.

7. **Minor Classes of Live Stock.**—The numbers of minor classes of live stock returned as at 31st December, 1915, were as follows:—Goats, 223,033; camels, 12,389; mules and donkeys, 9663; and ostriches, 1245. Of these, goats were most numerous in Queensland, camels and donkeys in Western Australia, and mules and ostriches in South Australia. In the raising of goats, considerable attention has in recent years been devoted to the angora goat and its product—mohair, and over 20,000 angora goats are included in the total of 223,033 goats shewn above. Of these, 7191 were in New South Wales, and 4931 in Queensland, while the quantity of mohair produced in the latter State in 1915 was set down at 3864 lbs., and the number of skins placed on the market was returned as 691.

8. **Net Exports of Principal Pastoral Products.**—The quantities by which the exports of the principal pastoral products of the Commonwealth exceeded the imports for the years 1911 to 1915-16 are as follows:—

**QUANTITIES OF NET EXPORTS OF PRINCIPAL PASTORAL PRODUCTS
OF THE COMMONWEALTH, 1911 to 1915-16.**

Products.	Unit of Quantity.	1911.	1912.	1913.	1914-15. †	1915-16. †
Animals (living)—						
Cattle	No.	9,861	16,080	14,548	10,121	5,417
Horses	"	4,377	7,055	7,761	23,655	14,589
Sheep	"	18,965	31,210	33,322	10,749	728
Bones	cwt.	17,151	20,885	37,848	33,802	16,378
Glue Pieces and Sinews	"	29,211	33,033	38,297	30,689	23,222
Glycerine	lb.					
Hair	"	287,957	152,369	279,108	206,602	554,971
Hoofs	cwt.	8,617	10,416	12,476	11,012	8,347
Horns	"					
Meats—						
Frozen Beef	lb.	108,774,397	142,186,123	218,911,153	292,056,035	114,654,569
" Mutton and Lamb	"	129,567,812	115,365,547	204,919,042	193,263,877	38,332,651
" Rabbits and Hares	pair	8,362,994	6,494,259	9,366,290	10,290,016	11,367,538
" Other	lb.	4,025,715	4,797,512	7,685,149	13,107,560	3,004,290
Potted and Extract of Preserved in Tins, etc.	"	40,347,183	33,571,112	51,731,741	57,326,285	13,059,238
Other	"	1,062,233	2,957,745	1,154,580	298,019	130,672
Sausage Casings	"					
Skins—						
Hides	No.	452,942	746,088	10,037,882	1,134,483	453,691
Sheep	"	9,748,630	10,650,834	10,397,373	10,396,987	7,254,642
Rabbit and Hare	cwt.	92,587	87,878	86,998	56,437	51,857
Other, including Undressed Furs	No.					
Tallow	cwt.	1,343,046	1,068,341	1,435,156	1,106,023	250,519
Wool—Greasy	lb.	578,622,185	557,633,801	531,248,798	443,812,275	408,461,233
Scoured	"	69,223,301	60,232,936	60,873,478	60,846,240	74,880,215
Tops	"	2,515,106	3,018,050	3,561,722	4,095,966	4,981,975

* Quantity not available. † For year ended 30th June.

The values of the net exports for the same five years are furnished in the next table, and amount to no less a total than £185,399,403 for the period, or an average of £37,079,880 per annum, of which wool represents nearly 69 per cent. Meats, skins, and tallow rank next in order of importance.

**VALUE OF NET EXPORTS OF PRINCIPAL PASTORAL PRODUCTS OF THE
COMMONWEALTH, 1911 to 1915-16.**

Products.	1911.	1912.	1913.	1914-15.*	1915-16.*
Animals (living)—	£	£	£	£	£
Cattle	37,864	64,233	50,229	19,568	10,089
Horses	—128,022	—28,017	63,389	378,505	185,183
Sheep	12,732	61,879	46,565	14,204	—17,507
Bones	9,798	12,310	22,021	20,918	10,009
Glue Pieces and Sinews	13,645	18,139	23,328	17,641	12,815
Glycerine	15,926	13,621	13,769	13,900	16,078
Hair	24,987	29,950	28,160	26,445	26,684
Hoofs	3,169	4,922	6,178	4,156	2,361
Horns	25,673	30,339	30,444	15,300	6,379
Meats—					
Frozen Beef	1,101,914	1,630,306	2,652,144	4,989,810	2,175,343
.. Mutton and Lamb	1,633,597	1,592,302	2,896,292	3,413,843	769,434
.. Rabbits and Hares	407,034	320,887	497,568	531,920	744,624
.. Other	49,390	59,706	99,509	180,841	30,248
Potted and Extract of	57,356	60,779	203,412	347,471	31,467
Preserved in Tins, etc.	756,148	611,288	1,062,618	1,829,601	438,881
Other	13,010	12,944	17,677	4,375	3,195
Sausage Casings	37,129	8,735	32,133	25,872	—21,726
Skins—					
Hides	467,364	871,953	1,418,191	1,234,871	266,674
Sheep	1,603,718	1,988,122	2,480,900	1,743,209	1,242,358
Rabbit and Hare... ..	498,037	576,179	620,487	230,139	261,868
Other, including Undressed Furs	476,872	647,959	746,023	106,319	253,458
Tallow	1,984,009	1,545,033	2,157,610	1,566,907	436,225
Wool—Greasy	21,388,155	22,066,585	21,472,360	17,470,385	20,172,243
Scoured	4,398,126	3,957,792	4,380,184	4,113,951	5,841,054
Tops	275,406	323,299	415,670	511,021	680,656
Total Values	35,112,037	36,481,245	41,436,861	38,811,167	33,558,093

* For year ended 30th June. Note. — signifies net imports.

§ 2. Horses.

1. Suitability of Australia for Horse-breeding.—From the earliest times the suitability of the climate and pastures of Australia for the production of serviceable breeds of horses has been fully recognised. By the importation of high-class sires, and the careful selection of breeding mares, these natural advantages were utilised to the fullest extent, all classes of horses being bred. As a consequence of this combination of advantages, the Australian horse, whether of the heavy draught, medium weight, or light saddle and carriage variety, compares more than favourably with the product of other lands. The Australian horse has been found suitable for the army in India, and large numbers are obtained annually for remount purposes.

2. Distribution throughout the Commonwealth.—As regards numbers, the State of New South Wales, the earliest settled of the group, established a lead, which it retained up to the end of 1913. For some years past Queensland has made rapid progress in this regard, and in 1914 there were 743,059 horses in that State, in the same year there being 731,735 in New South Wales, and 552,053 in Victoria. The 1915 figures shew that New South Wales has regained the lead. The figures for the several States for a series of years are as follows:—

**NUMBER OF HORSES IN STATES, TERRITORIES, AND COMMONWEALTH,
1860 to 1915.**

Year.	N.S.W.	Victoria.	Q'sland.	S. Aust.	W. Aust.	Tas.	N. T.	Fed. Terr.	Commonwealth.
1860...	251,497	76,536	23,504	49,399	9,555	21,034	...	...	431,525
1865...	282,587	121,051	51,091	73,993	15,700	22,152	...	...	566,574
1870...	337,597	167,220	83,358	83,744	22,174	22,679	...	...	716,772
1875...	357,696	196,184	121,497	107,164	29,379	23,473	...	...	835,393
1880...	395,984	275,516	179,152	143,219	34,568	25,267	*2,372	...	1,061,078
1885...	344,697	304,098	260,207	164,753	34,392	38,610	6,307	...	1,143,064
1890...	444,163	436,459	365,812	187,686	44,384	31,165	11,919	...	1,521,588
1895...	499,943	424,995	468,743	181,839	58,506	31,580	14,813	...	1,680,419
1900...	481,417	392,237	456,788	166,790	68,253	31,607	12,562	...	1,609,654
1905...	506,884	385,513	430,565	197,099	97,397	37,101	20,231	...	1,674,790
1910...	650,636	472,080	593,813	249,326	134,114	41,388	24,509	...	2,165,866
1911...	687,242	507,813	618,954	259,719	140,277	41,853	21,407	1,762	2,279,027
1912...	714,952	530,494	674,573	276,539	147,629	44,039	18,382	1,505	2,408,113
1913...	744,458	562,331	707,265	283,641	156,636	43,941	22,792	1,712	2,522,776
1914...	†731,735	552,053	743,059	267,877	161,625	42,232	21,985	1,606	2,522,172
1915	†718,232	493,779	686,871	253,333	163,016	41,422	19,957	1,310	2,377,920

* Statistics not collected prior to 1880.

† 30th June year following.

3. **Proportion in the Several States and Territories.**—The percentages of the numbers of horses in the several States and Territories on the total for the Commonwealth for 1901 and the past five years are as follows:—

**PERCENTAGE OF HORSES IN EACH STATE AND TERRITORY ON THE TOTAL FOR
COMMONWEALTH, 1901 and 1911 to 1915.**

Year.	N.S.W.	Victoria.	Q'sland.	S. Aust.	W. Aust.	Tas.	North'n Terr.	Fed. Terr.	Commonwealth.
	%	%	%	%	%	%	%	%	%
1901...	30.03.	23.90	28.52	10.20	4.55	2.00	0.80	...	100.00
1911...	30.15	22.28	27.16	11.40	6.15	1.84	0.94	0.08	100.00
1912...	29.69	22.03	28.01	11.48	6.13	1.83	0.77	0.06	100.00
1913...	29.52	22.30	28.01	11.25	6.21	1.74	0.90	0.07	100.00
1914...	29.02	21.90	29.44	10.62	6.41	1.68	0.87	0.06	100.00
1915...	30.20	20.77	28.89	10.65	6.86	1.74	0.84	0.05	100.00

During the period under review, the proportion in Western Australia has increased, that in Victoria has diminished, while in the case of the other States the proportion in 1915 was practically identical with that in 1901.

4. **Oversea Export Trade in Horses.**—Australia's export trade in horses is a fairly considerable, though somewhat fluctuating, one. During the past five years it has varied in number between 8,562 for the year 1913 and 24,107 in 1914-15, and in value between £163,730 in the former and £459,978 during the latter year. The total number of horses exported during the five years amounted to 67,194, an average of 13,439 per annum. The total value of the exports for the period was £1,310,314, or £262,063 per annum. The average export value per head for the period was £19 10s. 0d. The numbers exported to the principal countries concerned in this trade are as follows:—

**NUMBER AND DESTINATION OF HORSES EXPORTED FROM THE COMMONWEALTH,
1911 to 1915-16.**

Country to which Exported.	1911.	1912.	1913.	1914-15.	1915-16.	Total for 5 years.
	No.	No.	No.	No.	No.	No.
India	7,416	7,299	6,775	21,162	14,405	57,057
Java	880	584	799	65	280	2,608
Straits Settlements	481	410	436	24	174	1,525
Fiji	180	146	106	117	257	806
Philippine Islands	350	247	88	...	8	693
Ceylon	198	156	3	...	...	357
New Zealand	92	77	90	52	37	348
Mauritius	112	46	95	...	...	253
Japan	45	41	59	16	35	196
Papua	47	56	57	9	2	171
Siam	165	...	...	...	...	165
China	13	25	...	...	...	38
South African Union	12	13	8	3	...	36
Hong Kong	32	...	...	...	...	32
Other Countries	86	107	46	2,659	11	2,909
Total —	10,109	9,207	8,562	*24,107	*15,209	67,194

The corresponding particulars relative to the value of the horses exported are given in the next table:—

VALUE OF HORSES EXPORTED FROM THE COMMONWEALTH, 1911 to 1915-16.

Country to which Exported.	1911.	1912.	1913.	1914-15.	1915-16.	Total for 5 years.
	£	£	£	£	£	£
India	135,840	129,186	107,925	387,046	250,710	1,010,707
Java	19,235	13,459	21,465	1,243	5,352	60,754
Straits Settlements	12,939	11,322	11,614	555	3,755	40,185
Fiji	4,788	3,642	3,215	3,337	6,653	21,635
Philippine Islands	7,795	5,449	2,061	...	1,200	16,505
Ceylon	3,622	3,403	840	...	...	7,865
New Zealand	17,322	11,435	5,319	9,765	7,232	51,073
Mauritius	2,371	1,358	3,229	...	...	6,958
Japan	2,115	2,650	2,836	875	1,900	10,376
Papua	920	899	1,271	171	65	3,326
Siam	7,298	...	...	...	...	7,298
China	390	625	...	...	...	1,015
South African Union	500	695	211	60	...	1,466
Hong Kong	800	...	...	...	...	800
Other Countries	4,016	5,421	3,744	56,926	244	70,351
Total	219,951	189,544	163,730	*459,978	*277,111	1,310,314

* Exclusive of shipment for military purposes.

Consequent on the greater demand for remounts for the Indian Army, a large increase took place in the number of horses exported to that country during 1914-15 and 1915-16. Of the 2659 horses exported to "Other Countries" during 1914-15—2270, valued at £50,075, were shipped to France. In addition to the exports shewn in the above tables, there were 36,816 horses, valued at £734,396, shipped from the Commonwealth for military purposes during the years 1914, 1915 and 1916.

The number of horses imported into the Commonwealth is comparatively small, consisting mainly of valuable animals introduced for breeding purposes, and imported principally from New Zealand and the United Kingdom. The average value per head of the horses imported during the last five years was £86 Os. 4d., as compared with £19 7s. 4d. per head for the exports for the same period. The average number imported per annum was, however, only 1951, and the average annual value £167,855. The following table furnishes a comparison of imports and exports of horses during 1901 and each of the five years 1911 to 1915-16:—

COMMONWEALTH IMPORTS AND EXPORTS OF HORSES, 1901 and 1911 to 1915-16.

Year.	Imports.		Exports.		Net Exports.	
	No.	Value.	No.	Value.	No.	Value.
		£		£		£
1901 ...	246	19,601	32,474	438,248	32,229	418,647
1911 ...	5,732	347,973	10,109	219,951	4,377	128,022
1912 ...	2,152	217,561	9,207	189,544	7,055	28,017
1913 ...	801	100,341	8,562	163,730	7,761	63,389
1914-15...	452	81,473	24,107	459,978	23,655	378,505
1915-16...	620	91,928	15,209	277,111	14,589	185,183

Note. — signifies value of net imports.

5. Comparison with other Countries.—The numbers of horses in some of the leading horse-breeding countries of the world, according to the latest available returns, are as follows:—

NUMBER OF HORSES IN SOME OF THE LEADING HORSE-BREEDING COUNTRIES IN THE WORLD.

Country.	Date.	Number of Horses.	Country.	Date.	Number of Horses.
Russian Empire ³ ...	1914	34,973,000	Cuba ...	1914	673,439
Utd. States America ⁴ ...	1915	21,195,000	Sweden ...	1913	596,136
Argentine Republic ...	1915	9,700,000	Uruguay ...	1908	556,307
Austria-Hungary ¹ ...	1910-1913	4,379,884	Chile ² ...	1912-13	553,869
Germany ⁵ ...	1914	3,441,307	Denmark ...	1915	525,785
France ...	1914	3,230,700	Spain ...	1914	524,671
Canada ...	1914	2,968,784	Bulgaria ...	1910	477,733
Australia...	1915	2,377,920	New Zealand ...	1915	347,345
United Kingdom ...	1915	1,711,858	Netherlands ...	1913	334,445
British India ...	1913-14	1,643,374	Belgium...	1912	262,709
Japan ...	1913	1,582,125	Algeria ...	1912	221,140
Italy ...	1908	955,878	Norway ...	1915	187,048
Rumania ...	1900	864,324	Servia ...	1910	152,523
Mexico ...	1902	859,217	Switzerland ...	1911	144,128
Union of Sth. Africa	1911	719,414	Egypt ...	1913	47,911

1. Austria 1910, Hungary 1913, Croatia-Slavonia 1911, Bosnia-Herzegovina 1911. 2. Including mules and asses. 3. Including Poland, Caucasus, and Siberia. 4. Also 4,479,000 mules. 5. Exclusive of army horses.

6. **Relation to Population.**—In proportion to population, horses are much more numerous in the Northern Territory than in any other of the principal divisions of the Commonwealth. Queensland is next in order, while Tasmania has the smallest number of horses per head. In all cases the number of horses per head of population was somewhat higher in 1915 than in 1901. Particulars for 1901 and the past five years are as follows:—

NUMBER OF HORSES PER HEAD OF POPULATION, 1901 and 1911 to 1915.

Year.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	N.T.	Federal Terr.	C'wth.
1901	0.35	0.32	0.91	0.46	0.38	0.18	2.76	...	0.42
1911	0.41	0.37	0.99	0.62	0.48	0.22	6.59	0.92	0.50
1912	0.40	0.38	1.06	0.64	0.48	0.22	5.29	0.78	0.51
1913	0.41	0.40	1.07	0.64	0.49	0.22	6.21	0.86	0.52
1914	0.39	0.39	1.10	0.61	0.50	0.21	5.53	0.87	0.51
1915	0.39	0.35	1.01	0.58	0.51	0.21	4.37	0.53	0.48

§ 3. Cattle.

1. **Purposes for which Raised.**—In all the States of the Commonwealth, cattle-raising is carried out on a more or less extensive scale, the main object in certain districts being the production of stock suitable for slaughtering purposes, and in others the raising of profitable dairy herds. The great impetus which the development of the export trade in Australian butter gave to the dairying industry in the Commonwealth led to a considerable increase in numbers and improvement in quality of the dairy herds of Victoria, New South Wales, and Southern Queensland in particular, the sub-tropical portion of Australia being apparently the best adapted to this industry. On the other hand, by far the finest specimens of beef-producing cattle are those raised in the tropical districts of the Commonwealth, *i.e.*, in the northern parts of Queensland, in the Northern Territory, and in the Kimberley districts in the north of Western Australia.

2. **Distribution throughout Commonwealth.**—Until 1880 New South Wales occupied the leading position in the Commonwealth group as a cattle-raising State, but in that year Queensland forged ahead and obtained a lead which it has since maintained. The extent of this lead has, however, varied considerably, owing principally to the effects produced by the tick fever and droughts, from both of which causes the Queensland herds suffered more severely than those of the other States. In fact, during the period from 1894, when the number of cattle in Queensland attained its maximum of rather more than 7,000,000, to 1903, when the number recorded was less than 2,500,000, an uninterrupted decline was experienced. During the eleven years ended 1914, however, a rapid improvement took place, and the total reached on 31st December, 1914, was over 5,450,000. Owing to drought conditions the number at end of 1915 had fallen to 4,780,893.

The numbers of cattle in the several States and the Northern Territory at quinquennial intervals from 1860 to 1910 and for each subsequent year are as follows:—

**NUMBER OF CATTLE IN STATES, TERRITORIES, AND COMMONWEALTH,
1860 to 1915.**

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N.T.	Fed. Ter.	C'wealth
1860	2,408,586	722,332	432,890	278,265	32,476	83,866	...	...	3,957,915
1865	1,961,905	621,337	848,346	158,057	45,148	90,020	...	...	3,724,813
1870	2,195,096	721,096	1,076,630	136,832	45,213	101,459	...	...	4,276,326
1875	3,134,086	1,054,598	1,812,576	219,240	50,416	118,694	...	...	6,389,610
1880	2,580,040	1,286,267	3,162,752	283,315	63,719	127,187	*19,720	...	7,523,000
1885	1,317,315	1,290,790	4,162,652	271,478	70,408	138,642	146,562	...	7,397,847
1890	2,091,229	1,782,978	5,558,264	359,938	130,970	162,440	214,094	...	10,299,913
1895	2,150,057	1,795,314	6,822,401	355,867	200,091	162,301	280,957	...	11,767,488
1900	1,983,116	1,602,384	4,078,191	214,761	338,590	165,516	257,667	...	8,640,225
1905	2,337,973	1,737,690	2,963,695	304,027	631,825	206,211	346,910	...	8,528,331
1910	3,140,307	1,647,569	5,131,699	384,862	825,040	201,854	513,388	...	11,744,714
1911	3,185,824	1,647,127	5,073,201	393,566	843,638	217,406	459,780	8,412	11,828,954
1912	3,033,726	1,508,089	5,210,891	383,418	806,294	222,181	405,552	7,108	11,577,259
1913	2,815,113	1,528,553	5,322,033	352,905	834,265	205,743	417,643	7,627	11,483,882
1914	2,472,631†	1,362,542	5,455,943	300,579	863,835	176,524	414,558	4,961	11,051,573
1915	2,400,104†	1,043,604	4,780,893	226,565	821,048	169,575	483,961	5,666	9,931,416

* Statistics not collected prior to 1880. † 30th June year following.

3. **Proportion in each State.**—During the period elapsing between 1901 and 1915 the proportion of cattle in the several States and the Northern Territory has varied considerably, as shewn hereunder :—

**PERCENTAGE OF CATTLE IN EACH STATE AND TERRITORY ON TOTAL FOR
COMMONWEALTH, 1901 and 1911 to 1915.**

Year.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	N.T.	Federal Territory.	C'wealth.
	%	%	%	%	%	%	%	%	%
1901 ...	24.11	19.12	44.43	2.65	4.69	1.99	3.01	...	100.00
1911 ...	26.92	13.92	42.89	3.33	7.14	1.84	3.89	0.07	100.00
1912 ...	26.20	13.03	45.01	3.31	6.97	1.92	3.50	0.06	100.00
1913 ...	24.51	13.31	46.34	3.07	7.27	1.79	3.64	0.07	100.00
1914 ...	22.37	12.33	49.37	2.72	7.82	1.60	3.75	0.04	100.00
1915 ...	24.17	10.51	48.14	2.28	8.27	1.71	4.87	0.05	100.00

A comparison of the positions of the several States in 1901 and 1915 shews that, while Victoria's proportion of the Commonwealth herds suffered considerable diminution, and those for South Australia and Tasmania a falling off to a slight extent, fairly large increases have taken place in the other States, more especially in Western Australia and Queensland. New South Wales and the Northern Territory also shewed an upward tendency.

4. **Imports and Exports of Cattle.**—Although the various products of the cattle-raising industry bulk largely in the export trade of the Commonwealth, the export of live cattle from Australia has never been considerable. The number of cattle imported is also small, consisting, as in the case of horses, mainly of valuable animals for breeding. Details are as follows :—

COMMONWEALTH IMPORTS AND EXPORTS OF CATTLE, 1901 and 1911 to 1915-16.

Year.	Imports.		Exports.		Net Exports.	
	No.	Value.	No.	Value.	No.	Value.
1901 ...	114	£ 3,591	2,413	22,088	2,299	18,497
1911 ...	103	7,806	9,964	45,670	9,861	37,864
1912 ...	33	1,502	16,083	65,735	16,050	64,233
1913 ...	57	5,572	14,605	55,801	14,548	50,229
1914-15 ...	221	21,090	10,342	40,648	10,121	19,558
1915-16 ...	440	19,169	5,857	29,258	5,417	10,089

The average value of the cattle imported into the Commonwealth during the last five years was £64 11s. 4d. per head, while the average value of the cattle exported during the same period was £4 3s. 5d. As stated previously, the imported cattle were principally for stud purposes.

The comparatively large exports for the years 1912 and 1913 were due to shipments to Java and Philippine Islands, valued at £42,290 and £61,766 respectively. The bulk of these cattle were exported from Western Australia.

5. **Cattle Slaughtered.**—Complete returns of the number of cattle slaughtered annually in the Commonwealth are not obtainable, as these particulars were collected in Tasmania prior to 1911 for Hobart and Launceston only, and were collected in South Australia for the first time in 1908 in respect of the year 1907. Estimates for these States have, however, been made, and the results are included in the following table:—

CATTLE (INCLUDING CALVES) SLAUGHTERED IN STATES, TERRITORIES AND COMMONWEALTH, 1901 and 1911 to 1915.

Year.	N. S. W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas. †	N.T.	Fed. Ter.	C'wealth.
1901	335,823	251,477	377,433	*72,000	39,424	34,000	†	...	1,110,157
1911	548,651	347,926	444,264	87,293	58,049	38,000	\$4,061	269	1,528,513
1912	612,773	368,512	580,332	113,344	59,695	41,000	\$4,061	267	1,779,984
1913	679,901	410,694	703,367	116,282	62,613	30,038	\$4,061	276	2,007,232
1914†	635,196	470,011	776,869	112,183	61,387	30,064	*4,000	142	2,089,852
1915‡	384,977	356,174	653,015	82,070	65,121	28,586	*4,000	55	1,573,998

* Estimated. † Partly estimated prior to 1913. ‡ Not available. § 1910 figures, those for 1911, 1912 and 1913 not available. † For year ended 30th June of year following.

6. **Export of Beef Preserved by Cold Process.**—A large export trade in beef preserved by cold process is carried on by the Commonwealth, mainly with the United Kingdom, the Philippine Islands, and the South African Union. The quantities so exported during the five years 1911 to 1915-16 are as follows:—

**QUANTITY OF BEEF PRESERVED BY COLD PROCESS EXPORTED FROM THE
COMMONWEALTH, 1911 to 1915-16.**

Country to which Exported.	1911.	1912.	1913.	1914-15.	1915-16.	Total for 5 years.
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
United Kingdom	81,501,060	108,886,860	169,963,291	253,396,440	108,906,118	722,653,769
Philippine Islands	10,336,535	13,996,124	14,535,447	11,352,425	4,089,865	54,310,396
South African Union	7,337,652	9,228,546	5,656,346	194,583	...	22,417,132
United States ... ..	...	289	5,037,769	15,974,209	...	21,012,287
Egypt	1,905,595	2,084,806	3,990,804	4,281,049	109,969	12,372,223
Italy	2,509,466	2,127,876	6,356,514	170,159	...	11,164,015
Straits Settlements	1,646,590	1,781,817	2,053,514	2,260,587	1,411,876	9,154,384
Hawaiian Islands	272,559	1,198,140	2,356,115	1,538,997	...	5,365,811
Malta	1,526,389	1,090,044	1,142,092	1,338,439	...	5,096,964
Canada	239,653	904,832	3,352,675	60,540	...	4,657,700
Germany ... ..	...	97,491	1,813,799	...	...	1,911,290
Hong Kong... ..	618,688	551,012	423,659	216,350	38,859	1,848,568
Gibraltar	403,626	...	353,582	487,289	...	1,244,497
Ceylon	151,104	150,620	221,521	210,903	1,330	735,478
Japan	77,223	1,098	36,705	...	...	115,026
Other countries	260,277	110,521	1,674,773	584,514	118,087	2,698,172
Total	108,786,417	142,210,076	218,918,606	292,066,489	114,676,104	876,657,692

The value of the beef preserved by cold process exported from the Commonwealth during the same years is as follows:—

**VALUE OF BEEF PRESERVED BY COLD PROCESS EXPORTED FROM THE
COMMONWEALTH, 1911 to 1915-16.**

Country to which Exported.	1911.	1912.	1913.	1914-15.	1915-16.	Total for 5 years.
	£	£	£	£	£	£
United Kingdom	813,393	1,245,536	2,037,978	4,430,370	2,065,045	10,582,322
Philippine Islands	114,989	162,555	183,047	169,327	86,011	715,929
South African Union	67,940	97,601	65,906	2,500	...	233,947
United States ... ..	...	5	66,938	209,938	...	276,781
Egypt	19,308	24,537	49,134	71,040	2,520	166,539
Italy	26,497	23,173	75,130	2,130	...	126,930
Straits Settlements	21,065	20,141	25,576	33,447	28,040	128,269
Hawaiian Islands	4,413	20,325	38,003	24,498	...	87,239
Malta	15,412	11,491	13,214	22,349	...	62,466
Canada	3,707	16,831	44,456	1,272	...	66,266
Germany ... ..	...	1,219	23,388	...	...	24,607
Hong Kong... ..	6,370	4,346	4,392	2,924	764	18,796
Gibraltar	3,751	...	3,595	6,691	...	14,037
Ceylon	1,315	1,367	2,643	3,003	25	8,353
Japan	694	13	350	...	...	1,057
Other countries	3,278	1,591	18,625	10,565	3,489	37,548
Total	1,102,132	1,630,731	2,652,275	4,990,054	2,175,894	12,551,066

During the five years under review, the largest of Australia's customers for beef preserved by cold process has been the United Kingdom, while the most consistent and the second largest customer has been the Philippine Islands; the South African Union and the United States ranked next in order of importance. The exporting States during 1915-16 were:—Queensland, 113,872,655 lbs., valued at £2,156,899; New South Wales, 784,000 lbs., valued at £18,509; and South Australia, 19,449 lbs., valued at £486.

7. Comparison with other Countries.—In the following comparison of the herds of Australia with those of some of the principal cattle-raising countries of the world, the latest available figures have been inserted in each case:—

NUMBER OF CATTLE IN VARIOUS COUNTRIES.

Country.	Date.	No. of Cattle.	Country.	Date.	No. of Cattle.
British India ¹ ...	1913-14	143,276,556	Rumania ¹ ...	1900	2,589,526
U. S. of America ...	1915	58,329,000	Denmark ...	1915	2,417,125
Russian Empire ³ ...	1914	52,052,000	New Zealand ...	1915	2,390,831
Argentine Republic...	1915	29,500,000	Netherlands ...	1913	2,096,599
Germany ...	1914	21,817,375	Chile ...	1912-13	2,083,997
Austria-Hungary ² ...	1910-13	17,648,787	Belgium ...	1912	1,830,747
France ...	1914	13,120,649	Bulgaria ...	1910	1,603,182
United Kingdom ...	1915	12,171,452	Ceylon ...	1914	1,484,453
Australia ...	1914	9,931,416	Switzerland ...	1911	1,443,483
Uruguay ...	1908	8,192,602	Japan ...	1913	1,388,708
Canada ...	1914	7,332,595	Norway ...	1915	1,122,934
Italy ...	1908	6,198,861	Algeria ...	1912	1,106,801
Union of South Africa	1911	5,796,949	Servia ...	1910	957,105
Mexico ...	1902	5,142,457	Portugal ...	1906	703,198
Cuba ...	1914	3,394,934	Egypt ...	1913	637,098
Spain ...	1914	2,742,663	Tunis ...	1913	217,304
Sweden ...	1913	2,720,741			

1. Including buffaloes. 2. Austria 1910, Hungary 1913, Croatia-Slavonia 1911, and Bosnia-Herzegovina 1911. 3. Including Poland, Caucasus and Siberia.

8. **Relation to Population.**—The number of cattle per head of population differs considerably in the several States, and is also subject to marked variation from year to year in the same State. Particulars for 1901 and the past five years are as follows:—

NUMBER OF CATTLE PER HEAD OF POPULATION, 1901 and 1911 to 1915.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W.Aust.	Tas.	Northern Territory.	Fed. Terr.	C'wealth.
1901 ...	1.49	1.34	7.44	0.63	2.06	0.96	54.68	...	2.22
1911 ...	1.88	1.23	8.15	0.94	2.87	1.12	141.56	4.38	2.59
1912 ...	1.71	1.09	8.19	0.89	2.63	1.13	116.71	3.66	2.45
1913 ...	1.54	1.08	8.06	0.82	2.60	1.02	113.74	3.84	2.36
1914 ...	1.33	0.95	8.06	0.68	2.67	0.88	104.34	3.57	2.24
1915 ...	1.29	0.74	7.04	0.52	2.58	0.84	106.06	2.30	2.01

For the Commonwealth as a whole the ratio of cattle to population is nearly 10 per cent. less for 1915 than for 1901. A continuous increase from 1902 to 1910 was exhibited, while the proportion for 1911 is approximately the same as for the previous year; 1912, 1913, 1914 and 1915 shew a slight decline. The excess of the 1915 figures over those for 1901 is in evidence only in the State of Western Australia and the Northern Territory, and is most marked in the case of the latter. In all the other States the ratios for 1915 are the lowest for the period under review.

§ 4. Sheep.

1. **The Founding of the Commonwealth Pastoral Industry.**—Fortunately for Australia, the suitability of its climate and general conditions for the production of a high class of wool was, at an early date in the history of its settlement, surmised and tested by Captain Macarthur, one of the pioneer sheep-breeders of New South Wales. To the energy of this enterprising pastoralist is due in large measure the rapid and extremely satisfactory development of Australia as a producer of fine wool, and though

it would appear that the introduction of the Merino sheep into Australia was not due to Macarthur, a great deal of the credit for having successfully established the pastoral industry in Australia must certainly be his.

2. Distribution throughout Commonwealth.—With the exception of a short period in the early sixties, when the flocks of Victoria outnumbered those of the mother State, New South Wales has maintained amongst the Commonwealth group the lead in sheep production which naturally attached to it as the portion of the Commonwealth in which settlement was first effected. From 1878 onwards, the number of sheep in New South Wales has, in every year except 1902, 1903, and the past six years represented more than half the total for the Commonwealth, and even in these years it fell but little short of that amount.

The number of sheep in the several States and Territories at quinquennial intervals from 1860 to 1910, and for each year onwards to 1915, is as follows:—

**NUMBER OF SHEEP IN STATES, TERRITORIES, AND COMMONWEALTH,
1860 to 1915.**

Year.	New South Wales.	Victoria.	Queens- land.	South Aust.	Western Aust.	Tas- mania.	Northern Territory	Federal Territory.	Total C'wealth.
1860	6,119,163	5,790,896	3,449,350	2,824,811	260,136	1,700,930	...	...	20,135,286
1865	8,132,511	8,835,380	6,594,966	3,779,308	445,044	1,752,719	...	...	29,539,928
1870	16,306,535	10,761,887	8,163,818	6,440,655	608,892	1,349,775	...	...	41,593,612
1875	25,353,924	11,749,532	7,227,774	6,179,305	881,861	1,731,733	...	...	53,174,209
1880	35,398,151	10,360,285	6,035,967	6,443,904	1,231,717	1,796,715	*9,318	...	63,174,027
1885	37,820,906	10,661,337	8,994,322	6,593,648	1,702,719	1,648,627	49,917	...	67,491,976
1890	55,986,431	12,692,843	18,007,234	7,004,642	2,524,913	1,619,256	45,902	...	97,881,921
1895	47,617,637	12,791,084	19,856,959	6,531,006	2,295,832	1,523,846	73,313	...	90,689,727
1900	40,020,506	10,841,790	10,339,185	5,235,220	2,434,311	1,683,956	45,027	...	70,692,995
1905	39,506,764	11,455,115	12,535,231	6,277,812	3,120,703	1,583,561	61,730	...	74,540,916
1910	45,560,969	12,882,665	20,331,833	6,267,477	5,158,516	1,788,310	57,240	...	92,047,015
1911	44,722,523	13,857,804	20,740,981	6,171,907	5,411,542	1,823,017	50,983	224,764	93,003,521
1912	38,855,861	11,892,224	20,310,036	5,481,489	4,596,958	1,862,669	75,808	183,641	83,263,686
1913	39,701,348	12,113,633	21,786,600	5,073,057	4,421,375	1,745,356	67,109	143,875	85,057,402
1914	†32,874,359	12,051,685	23,129,919	4,208,461	4,456,186	1,674,815	70,200	134,679	78,000,334
1915	†32,498,046	10,545,632	15,950,154	3,674,547	4,303,850	1,624,450	57,827	102,683	69,257,189

* Statistics not collected prior to 1880.

† 30th June of year following.

3. Proportion in the Several States and Territories.—Particulars concerning the relative positions of the several States and Territories with respect to the total flocks of Australia during the years 1901 and 1911 to 1915, and the variations in such positions which have taken place during those years are as hereunder:—

**PERCENTAGE OF SHEEP IN EACH STATE AND TERRITORY ON TOTAL FOR
COMMONWEALTH, 1901 and 1911 to 1915.**

Year.	N.S.W.	Vic.	Q'sland.	S. Aust.	W. Aus.	Tas.	N.T.	Fed. Terr.	C'wealth.
	%	%	%	%	%	%	%	%	%
1901	58.10	14.82	13.92	6.95	3.65	2.49	0.07	...	100.00
1911	48.09	14.90	22.30	6.64	5.82	1.96	0.05	0.24	100.00
1912	46.67	14.28	24.39	6.58	5.52	2.24	0.09	0.23	100.00
1913	46.68	14.24	25.61	5.96	5.20	2.05	0.08	0.18	100.00
1914	41.83	15.33	29.43	5.35	5.67	2.13	0.09	0.17	100.00
1915	46.92	15.23	23.03	5.30	6.94	2.35	0.08	0.15	100.00

During the period, the proportion of total Commonwealth flocks declined considerably in the case of New South Wales, and in a less marked degree in South Australia and Tasmania, while in the case of Queensland a marked advance in proportion was experienced, and there were smaller advances in Victoria and Western Australia.

4. **Oversea Imports and Exports of Sheep.**—As in the case of cattle, the oversea exports of live sheep from Australia are of comparatively small importance. The principal countries to which such exports have been consigned during recent years are the South African Union, Straits Settlements, and Papua, Western Australia being the principal exporting State. The following are the particulars of the imports and exports for the years 1901 and 1911 to 1915-16 :—

COMMONWEALTH IMPORTS AND EXPORTS OF SHEEP, 1901 and 1911 to 1915-16.

Year.	Imports.		Exports.		Net Exports.	
	No.	Value.	No.	Value.	No.	Value.
1901	553	£ 12,134	12,094	£ 12,104	11,541	—30
1911.	5,254	25,997	24,219	38,729	18,965	12,732
1912	2,903	10,643	34,113	72,522	31,210	61,879
1913	8,448	28,508	41,770	75,073	33,322	46,565
1914-15... ..	6,140	23,622	16,889	37,826	10,749	14,204
1915-16... ..	6,597	36,511	7,325	19,004	728	—17,507

Note. — signifies net imports.

5. **Sheep Slaughtered.**—The numbers of sheep slaughtered in the several States during 1901 and from 1911 to 1915 are as follows :—

SHEEP (INCLUDING LAMBS) SLAUGHTERED, 1901 and 1911 to 1915.

Year.	N.S.W.	Victoria.	Q'land.	Sth. Aust.	W. Aust.	Tas.†	N.T.	Fed. Terr.	C'wealth.
1901	4,519,133	2,469,797	554,705	*678,000	428,534	322,000	...	...	8,972,169
1911	6,539,559	4,348,363	981,153	1,275,734	622,555	350,000	1516	7,366	14,125,246
1912	5,805,595	4,153,269	1,273,332	1,332,838	610,214	357,000	1516	6,587	13,539,351
1913	6,420,810	4,742,231	1,375,827	1,222,315	602,383	315,726	1516	4,765	14,684,573
1914	6,006,190	4,550,272	1,351,145	1,156,957	588,342	312,275	*500	4,351	13,970,032
1915	4,173,511	2,973,803	1,316,152	918,526	564,535	283,419	*500	3,376	10,238,822

* Estimated. † Partly estimated. ‡ Figures for 1910; those for 1911, 1912, and 1913 not available. § Year ended 30th June year following.

6. **Exports of Mutton and Lamb Preserved by Cold Process.**—Australia's export trade in mutton and lamb preserved by cold process has, in recent years, advanced rapidly. In 1903 the value of exports was £492,114, while seven years afterwards, in 1910, the value amounted to no less a sum than £2,161,513; the average for the two years, 1913 and 1914-15, was £3,155,190, while, consequent on the recent drought and war conditions, the value of the 1915-16 exports fell to £769,752. In all the States considerable attention is now being paid to the breeding of a class of sheep that will best meet the requirements of consumers. Crosses between the Merino and the Lincoln, or between the Merino and the Leicester breeds, have proved exceedingly valuable, as they furnish both a good quality of wool and also an excellent carcase for export purposes. The breeding of Shropshire and Southdown sheep with a view to combining meat production with that of wool is also on the increase. Special attention is being paid to the raising of lambs for the home markets, as it has become widely recognised that, with suitable breeds, the export trade in lambs is a very profitable one.

Australia's principal customer in this trade is the United Kingdom, which has absorbed 94.7 per cent. of the total quantity exported from the Commonwealth during the past

five years. The South African Union and Canada took 1.0 and 0.8 per cent. respectively, while the balance of 3.5 per cent. was principally absorbed by Germany in 1913, the Philippine Islands, Malta, Straits Settlements, and Egypt. The recent revision of the tariff of the United States of America will doubtless have the effect of eventually opening up a vast market in that country for Australian mutton and lamb and other meat products. The quantities exported to various countries are as follow:—

**QUANTITY OF MUTTON AND LAMB PRESERVED BY COLD PROCESS EXPORTED
FROM THE COMMONWEALTH, 1911 to 1915-16.**

Country to which Exported.	1911.	1912.	1913.	1914-15.	1915-16.	Total for 5 years.
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
United Kingdom ...	120,757,079	108,556,172	191,440,138	187,897,976	36,539,660	645,191,025
South African Union ...	2,657,853	1,910,196	1,550,257	387,006	...	6,505,312
Canada ...	2,077,802	1,320,718	1,662,910	413,013	...	5,474,443
Germany ...	...	133,429	5,144,062	...	...	5,277,491
Philippine Islands ...	859,022	677,076	778,693	370,296	132,134	2,817,221
Malta ...	699,514	266,035	1,059,183	798,996	...	2,823,728
Straits Settlements ...	845,079	992,831	928,783	1,068,164	749,883	4,584,740
Egypt ...	447,411	624,506	633,109	902,604	319,156	2,926,786
Hong Kong ...	417,316	328,330	401,380	256,068	194,209	1,597,303
Ceylon ...	332,011	293,523	365,065	304,115	302,839	1,597,553
Hawaiian Islands ...	102,361	83,770	91,085	30,802	...	308,018
United States ...	...	2,051	571,008	195,225	...	763,284
Gibraltar ...	99,501	...	...	463,106	...	562,607
Japan ...	19,885	...	39	...	...	19,924
Other Countries ...	254,461	183,344	306,071	176,506	105,747	1,026,129
Total ...	129,569,295	115,371,981	204,931,783	193,263,877	38,343,628	681,480,564

The corresponding particulars concerning the values of the exports are:—

**VALUES OF FROZEN MUTTON AND LAMB EXPORTED FROM THE COMMONWEALTH,
1911 to 1915-16.**

Country to which Exported.	1911.	1912.	1913.	1914-15.	1915-16.	Total for 5 years.
	£	£	£	£	£	£
United Kingdom ...	1,529,633	1,499,648	2,712,682	3,321,045	725,255	9,788,263
South African Union ...	28,365	23,919	19,936	6,538	...	78,758
Canada ...	28,027	20,336	27,256	7,507	...	83,126
Germany ...	...	1,670	67,396	...	...	69,066
Philippine Islands ...	9,282	9,271	9,649	6,212	3,039	37,453
Malta ...	8,274	3,228	14,142	12,920	...	38,564
Straits Settlements ...	9,781	13,387	11,841	18,553	18,713	72,275
Egypt ...	6,248	8,282	9,435	16,577	7,719	48,261
Hong Kong ...	4,581	4,483	5,571	4,422	4,928	23,985
Ceylon ...	3,910	4,448	5,091	5,346	7,524	26,319
Hawaiian Islands ...	1,549	1,343	1,386	772	...	5,050
United States ...	...	35	7,793	3,066	...	10,894
Gibraltar ...	829	...	...	7,660	...	8,489
Japan ...	202	...	1	...	...	203
Other Countries ...	2,941	2,328	4,353	3,230	2,574	15,426
Total ...	1,633,622	1,592,378	2,896,532	3,413,848	769,752	10,306,132

7. Comparison with other Countries.—As regards the size of its flocks, and the quantity and quality of wool produced, for many years prior to the 1914 drought, Australia occupied the foremost position amongst the sheep-raising countries of the world. The National Association of Wool Manufacturers of America gives approximately the number of sheep in the world as 633,500,000, and of this total Australia contributes nearly a ninth. The following comparison gives the latest available figures relative to the number of sheep in the principal wool-producing countries:—

NUMBER OF SHEEP IN VARIOUS COUNTRIES.

Country.	Date.	No. of Sheep	Country.	Date.	No. of Sheep.
Argentine Republic ...	1915	80,000,000	Bulgaria ...	1910	8,632,380
Russian Empire ^{1, 2} ...	1914	72,273,000	Rumania ...	1900	5,655,444
Australia ...	1915	69,257,189	Germany ...	1914	5,451,570
United States of America	1915	49,956,000	Chile ...	1912 | 1913 |	4,567,194
Union of South Africa.	1913	35,710,843	Servia ...	1910	3,818,997
United Kingdom ...	1915	28,275,970	Mexico ...	1902	3,424,430
Ottoman Empire ...	1912	27,094,678	Portugal ...	1906	3,072,988
Uruguay ...	1908	26,286,296	Canada ...	1914	2,720,421.
New Zealand ...	1915	24,788,150	Norway ...	1915	1,335,870
British India ...	1913	23,091,955	Sweden ...	1913	988,163
	1914		Netherlands ...	1913	842,018
Spain ...	1914	16,128,039	Tunis ...	1913	728,540
France ...	1914	14,559,586	Iceland ...	1910	578,634
Austria-Hungary ³	1910	12,937,542	Denmark ...	1915	533,137
	1913		Belgium ...	1910	185,373
Italy ...	1908	11,162,926	Switzerland ...	1911	161,414
Algeria ...	1912	8,338,023			

1. Including goats. 2. Including Poland, Caucasus, and Siberia. 3. Austria 1910, Hungary 1913; Croatia-Slavonia 1911, Bosnia-Herzegovina 1911.

8. Relation to Population.—The relation of the flocks of the several States and Territories to the populations at the end of the year 1901 and from 1911 to 1915 is as follows:—

NUMBER OF SHEEP PER HEAD OF POPULATION, 1901 and 1911 to 1915.

Year.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	N.T.	Federal Ter.	C'wealth.
1901	30.43	8.82	19.80	13.95	13.56	10.23	10.34	...	18.83
1911	26.74	10.17	33.34	14.76	18.40	9.42	15.70	117.00	20.36
1912	21.86	8.61	31.91	12.74	15.02	9.45	21.82	97.24	17.59
1913	21.67	8.58	33.00	11.53	13.79	8.65	18.28	74.89	17.46
1914	17.66	8.42	34.18	9.53	13.79	8.32	17.66	69.42	15.91
1915	17.42	7.43	23.50	8.38	15.11	8.08	12.67	41.64	14.04

§ 5. Wool.

1. Importance of Wool Production.—The chief contributing factor to the pastoral wealth of Australia is the production of wool, the value of the output for the season ended 30th June, 1916, being about £26,899,000. The bulk of the wool produced in the Commonwealth is exported, but with the increased activity of the local woollen mills there has, in recent years, been an increasing quantity used in Australia, although even now the quantity so used represents less than 4 per cent. of the whole clip:

2. Greasy and Scoured Wool.—For the purpose of comparing the clips of the several States or of the Commonwealth as a whole for a series of years, it is convenient to have the total production expressed in terms of greasy wool.

The quantity of Australian wool scoured and washed before export is, on the average, about 20 per cent. of the total clip. The ratio of loss of weight in scouring varies largely with season, locality, breed, and condition. It seems preferable to express "scoured and washed" wool in terms of "greasy" rather than *vice versa*, since the absolute error arising from uncertainty as to average loss of weight has thus the less effect.

In the following tables, relative to the production of wool, "scoured and washed" has been converted into the estimated equivalent amount of "greasy" on the assumption that two pounds of "greasy" wool are on the average required to produce one pound of "scoured and washed" wool.

3. Total Production.—The estimated production of wool in the several States, formerly based on Customs returns, being no longer available from that source, an effort has been made to arrive at approximate figures from data collected by the State Statisticians from growers and fellmongers, etc. Particulars for years prior to 1910 will be found in former issues (see Year Book No. 6, page 346). The following table gives the estimates obtained in reference to the five seasons ended 30th June, 1912 to 1916:—

ESTIMATED QUANTITY OF WOOL AS IN THE GREASE, SHORN, FELLMONGERED, OR ON SKINS SHIPPED DURING THE SEASONS ENDED 30th JUNE, 1912 to 1916.

State.	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.
	lbs.	lbs.	lbs.	lbs.	lbs.
New South Wales*	371,546,415	326,804,000	357,985,000	318,935,000	262,044,982
Victoria...	110,463,041	88,762,612	106,833,690	95,406,867	82,330,198
Queensland ...	142,382,269	136,878,270	154,183,114	155,478,740	130,783,277
South Australia ...	60,056,470	56,691,036	55,014,048	38,848,978	33,969,975
Western Australia	30,833,837	26,849,981	26,625,787	24,562,110	31,914,040
Tasmania ...	10,726,593	12,416,014	10,092,564	9,103,030	9,212,203
Northern Territory†	400,000	450,000	400,000	400,000	350,000
Commonwealth	726,408,625	648,851,913	711,134,203	642,734,725	550,604,675

* Including Federal Territory. † Approximate figures.

It is to be noted that a shortage has apparently occurred in the collection of these statistics, the estimates falling considerably below the approximate totals obtained from oversea shipments of wool and skins, together with quantity used in local manufactories. The Commonwealth total so obtained represented 785,753,099 lbs. for the season 1911-12, 668,667,078 lbs. for 1912-13, and 754,123,633 lbs. for 1913-14. The abnormal conditions of wool shipments obtaining during the two last seasons do not admit of any similar comparison with the estimated production.

4. Wool Locally Used.—The quantity of wool used in the manufactories of the several States of the Commonwealth during the past five calendar years was approximately as follows:—

LOCALLY USED WOOL, ESTIMATED AS "GREASY," COMMONWEALTH AND STATES, 1911 to 1915.

State.	1911.	1912.	1913.	1914.	1915.
	lbs.	lbs.	lbs.	lbs.	lbs.
New South Wales	2,401,920	2,420,000	2,484,446	*4,173,576	*4,173,576
Victoria	5,774,868	5,535,483	6,978,300	7,215,380	13,042,250
Queensland	536,486	583,892	406,823	356,553	377,535
South Australia	634,238	710,000	645,000	389,700	1,065,130
Western Australia ... ..	...	...	...	...	...
Tasmania	986,000	1,082,000	1,105,000	1,141,200	1,217,780
Commonwealth	10,133,512	10,331,375	11,619,575	13,276,409	19,876,274

* Year ended 30th June, 1915.

5. **Bounties on Combed Wool or Tops Exported.**—Under the Bounties Act 1907, bounties are payable on combed wool or tops exported from the Commonwealth, provided they were produced therein. The maximum amount to be paid may not exceed a total of £10,000 per annum; any unexpended sum may be carried forward and be available for the years following. For the three years commencing 1st January, 1909, the rate of bounty granted was 1½d. per lb., and for the two years commencing 1st January, 1912, 1d. per lb. was payable for all combed wool or tops produced; thenceforward to the end of 1915, 1d. per lb. is payable up to 1,000,000 lbs. to any one manufacturer during a year and ¾d. per lb. in excess of that quantity. During the year 1908-9, an amount of £326 was paid in bounties; in 1909-10, £4,933, in 1910-11, £8,522, in 1911-12, £16,898; in 1912-13, £13,061 in 1913-14, £12,706, in 1914-15, £7,727, and in 1915-16, £5,828. The quantities of wool on which these amounts were paid were 52,085, 789,216, 1,363,555, 3,122,244, 3,134,614, 3,068,170, 3,635,811 and 2,824,436 lbs. respectively.

Figures shewing the exports of wool tops for the years 1909 to 1915-16 inclusive will be found on the next page.

6. **Exports of Wool.**—About forty-six per cent. of the exports of wool from the Commonwealth during the past five years was despatched to the United Kingdom, the other leading consignees being France, the United States of America, Japan, and, prior to the war, Germany and Belgium. The following table shews for the years 1911 to 1915-16 the quantities of "greasy" wool exported from the Commonwealth and the principal countries to which consigned:—

COMMONWEALTH EXPORTS OF WOOL IN THE GREASE, 1911 to 1915-16.

Country to which Exported.	1911.	1912.	1913.	1914-15.	1915-16.	Total for 5 Years.
	lbs.	lbs.	lbs.	lbs.	lbs.*	lbs.
United Kingdom	230,013,473	311,386,638	185,387,090	319,614,694	202,384,381	1,148,786,276
France	155,947,112	151,555,673	159,782,827	12,787,863	13,746,706	493,220,180
Germany	105,674,113	107,523,165	94,068,893	3,036,083	...	310,302,254
United States of America	10,154,171	8,686,125	14,666,551	61,731,511	115,112,628	210,350,986
Belgium	58,469,298	54,679,915	51,881,724	2,984,856	...	168,015,793
Japan	6,583,686	9,339,817	7,199,671	22,670,413	34,725,863	80,519,450
Italy	5,644,235	4,856,997	5,778,424	18,191,774	43,167,206	77,635,636
Austria-Hungary	5,836,922	7,908,480	11,731,333	829,746	...	26,307,151
India	478,353	390,536	501,327	443,451	198,228	2,012,395
Canada	52,299	126,517	83,916	951,452	453,950	1,673,134
New Zealand	154,193	147,794	101,104	541,513	11,059	955,663
Other Countries	415,698	1,231,082	247,918	170,474	1,452,965	3,518,117
Total... ..	578,823,623	557,832,718	531,436,878	443,953,830	411,252,986	2,523,300,03

Similar particulars concerning the exports of "scoured and washed" wool are as follows:—

COMMONWEALTH EXPORTS OF "SCOURED AND WASHED WOOL,"*

1911 to 1915-16.

Country to which Exported.	1911.	1912.	1913.	1914-15.	1915-16.	Total for 5 Years.
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
United Kingdom	35,940,841	28,305,314	26,176,484	48,171,821	37,569,727	176,164,387
France	13,989,442	15,037,742	18,804,399	2,154,275	1,190,494	51,176,352
Germany	12,148,316	10,541,771	10,135,857	1,748,008	...	34,573,952
United States of America ... ..	...	49,849	124,301	4,557,800	27,933,634	32,665,584
Japan	1,602,747	2,750,614	3,564,433	6,141,036	7,499,571	21,568,401
Belgium	7,629,001	5,661,005	5,269,908	920,506	...	19,480,420
Italy	397,004	380,550	168,298	655,302	4,920,545	6,541,699
India	33,321	47,826	100,434	135,408	240,663	557,652
Austria-Hungary	16,734	89,036	62,932	147,864	...	316,566
New Zealand	2,934	42,927	11,042	1,879	104,864	163,646
Other Countries	10,300	347,472	11,998	315,392	426,553	1,111,715
Total... ..	71,770,640	63,254,106	64,450,086	64,949,291	79,886,051	344,310,174

* Including "tops." See next page.

The figures for "scoured and washed wool" for 1909 include for the first time an export of tops, amounting to 496,492 lbs. and valued at £58,638. In 1910 the corresponding export was 1,123,469 lbs., valued at £134,874; in 1911, 2,513,106 lbs., valued at £275,406; in 1912, 3,018,050 lbs., valued at £323,299; in 1913, 3,561,722 lbs., valued at £415,670; in 1914-15, 4,095,966 lbs., valued at £511,021; and in 1915-16, 4,981,975 lbs., valued at £680,656. In 1914-15, Japan took 4,052,965 lbs., valued at £506,161; and in 1915-16, 4,894,577 lbs., valued at £665,442.

The total value of the wool exported from the Commonwealth to the principal countries during the five years under review was:—

TOTAL VALUE OF WOOL EXPORTED FROM THE COMMONWEALTH, 1911 to 1915-16.

Country to which Exported.	1911.	1912.	1913.	1914-15.	1915-16.	Total for 5 Years.
	£	£	£	£	£	£
United Kingdom	11,159,335	10,418,577	9,456,636	15,413,174	12,608,971	59,056,693
France	6,016,293	6,527,854	7,429,856	694,751	952,026	21,620,780
Germany	4,851,785	5,050,974	4,693,157	295,376	...	14,891,292
United States of America	500,015	460,275	745,354	3,110,301	8,381,302	13,197,247
Belgium	2,552,282	2,480,348	2,386,892	187,755	...	7,607,277
Japan	459,000	703,371	735,018	1,502,576	2,567,091	5,987,056
Italy	245,804	230,436	256,718	716,260	2,115,891	3,565,109
Austria-Hungary	242,461	360,125	519,477	50,436	...	1,172,499
India	21,290	18,739	30,586	30,739	32,442	133,796
Canada	2,824	7,155	5,404	50,063	53,316	118,762
New Zealand	6,199	8,844	5,199	19,962	4,931	45,135
Other Countries	13,905	87,865	12,765	30,789	118,121	263,445
Total	26,071,193	26,354,563	26,277,062	22,102,182	26,854,091	127,659,091

7. Care needed in Comparing Clips.—The Customs returns do not furnish a reliable indication of increase or decrease in successive clips, since in each case up to 1913 they relate to the year ended 31st December. Ordinarily, therefore, they include for any year imports and exports of wool belonging to two distinct clips. A further defect in the comparability of successive clips arises as follows:—Owing to climatic or other conditions, the time of shearing may be so far delayed that one clip may include almost thirteen months' growth of wool, while the succeeding one may include little more than eleven months' growth.

8. **Wool-producing Countries in Southern Hemisphere.**—The next table, compiled by one of the leading English wool-broking firms, furnishes interesting evidence of the relative importance of the three great wool-producing countries of the Southern Hemisphere. The figures given represent for the respective years the imports of wool into Europe and North America :—

IMPORTS OF WOOL INTO EUROPE AND NORTH AMERICA, 1901 and 1912 to 1916.

Year.	Commonwealth and New Zealand.	Cape Colony.	River Plate.	Total.	Average Value of Australian and Cape Bales.
	Bales.	Bales.	Bales.	Bales.	£
1901 ...	1,745,000	217,000	532,000	2,494,000	10.5
1912 ...	2,463,000	463,000	497,000	3,423,000	15.0
1913 ...	2,296,000	484,000	437,000	3,217,000	16.5
1914 ...	2,332,000	499,000	406,000	3,237,000	17.0
1915 ...	2,157,000	519,000	378,000	3,054,000	19.0
1916 ...	1,919,000	500,000	344,000	2,763,000	27.0

As the River Plate bale is much larger than the Australian or Cape bale, a comparison of the number of bales would be somewhat misleading. Allowing approximately for the difference in size of the several bales, it may be said that during the last five years the importations from Australia and the Dominion of New Zealand represent about 65 per cent. of the total.

9. **United Kingdom Importation of Wool.**—The quantity and value of wool imported into the United Kingdom during the year 1915 from the principal wool-producing countries, furnish evidence of the important position which the Commonwealth occupies in the supply of wool to the mother country. This is shewn in the following table :—

IMPORTS OF WOOL INTO THE UNITED KINGDOM, 1915.

Country from which Imported.	Quantity.	Value.	Country from which Imported.	Quantity.	Value.
	lbs.	£		lbs.	£
Australia ...	426,163,648	19,477,337	China ...	1,155,549	53,634
New Zealand ...	200,031,839	11,075,927	Turkey ...	877,758	36,719
Union of Sth. Africa ...	136,565,278	5,158,503	Portugal ...	447,348	19,955
Argentine Republic ...	60,968,009	2,703,824	France ...	228,978	13,204
British India ...	65,432,255	2,099,491	Iceland & Greenland	271,161	12,901
Chile ...	15,278,094	560,785	Morocco ...	148,000	6,487
Egypt ...	6,526,462	209,973	Canada ...	1,300	35
U.S. of America ...	2,372,112	164,344	Other Countries ...	1,437,881	52,808
Peru ...	3,002,903	152,697			
Falkland Islands	3,044,924	117,270			
Persia ...	1,303,800	56,538	Total ...	926,380,036	42,027,335
Uruguay ...	1,122,737	54,898			

It will be seen that of the total importations of wool into the United Kingdom, Australian wool represented 46 per cent. of quantity and over 46 per cent. of value, and New Zealand nearly 22 per cent. of quantity and over 26 per cent. of value.

10. **The Wool Market.**—A résumé of Australian wool market conditions for the seasons 1907-8 to 1912-13 will be found in Year Book No. 7 (pages 296 and 297), and for the season 1913-14 in Year Book No. 8 (page 297).

The 1914-15 season opened in the midst of a dislocation of trade, consequent on the European War. The Bank of England rate rose to 10 per cent., Stock Exchanges in Europe and America closed, and moratoria were declared in several parts of the world. The wool market, always highly susceptible to European complications, at once felt the effects, and the outlook in August was unpromising, but the various Governments took immediate measures to preserve credit, and averted a crisis. An extraordinary demand, however, soon arose for crossbred wool, this gathered strength as the army orders became more extensive, and lasted throughout the season. Merino wool, on the other hand, met with small demand at the commencement of the season, the Continental countries, which had absorbed some 60 per cent. in the previous season, were, of course, non-purchasers, while the embargo on the export of wool to America caused a further restriction. Permission to ship merino wool to America early in 1915, together with a revival in the home trade, considerably improved the market, and values rose rapidly, until towards the end of the season prices were considerably above the high levels of November, 1899.

The season closed with values for all good and superior wools on a higher plane than for many years. On the other hand, burr-infested wools met with little or no demand, few carbonising plants being available for their treatment.

The early sales of the 1915-16 season shewed a tendency towards an easier tone in the demand for all kinds of wool except those of the very best description. The Yorkshire buyers especially, owing to comparatively large stocks on hand, shewed a disposition towards less spirited buying, and this, combined with the absence of the normal Continental competition, created a very critical position, which, however, was fortunately saved by the surprising vigor of American and Italian operations, the by no means inconsiderable buying on Japanese account, and the enhanced demand by local manufacturers. As the season advanced the market gained strength, and soon the previous records of prices were left far behind, the season towards its close exhibiting the highest level in the history of the Australian wool market. At the commencement of the season, the congested state of the London warehouses, the fact that users in the United Kingdom were over supplied with wool, combined with the increasing difficulties in securing freights, emphasized the necessity of regulating supplies. A mutual policy was formulated in New South Wales and Victoria whereby catalogues were limited, and such wools only as were in demand were included. Adelaide and Brisbane also brought forward reasonable offerings. Thereafter supplies were automatically increased as the demand widened, but at no time was the position imperilled by excessive offerings, neither was the season unduly protracted.

A brief epitome setting out the salient facts leading up to the inception and ultimate transactions of the Central Wool Committee in connection with the 1916-17 wool clip will be found in the Appendix, section VII.

The average values per lb. of Australian greasy wool according to the export returns for the past ten years have been as follows:—

EXPORT VALUE PER LB. OF AUSTRALIAN GREASY WOOL, 1906 to 1915-16.

Year	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914-15.	1915-16.
Average value per lb. ...	d. 10.14	d. 10.73	d. 9.17	d. 9.35	d. 9.58	d. 8.87	d. 9.50	d. 9.70	d. 9.45	d. 11.86

(i.) *Exports of Wool from each State, and Quantity sold Locally.* Over 89 per cent. of the wool grown in Australia was sold in the local markets prior to export from the Commonwealth during 1915-16. Under normal conditions buyers from the United Kingdom,

France, Germany, and other European countries, also from America, Japan, China, and India, attend the sales conducted in Sydney, Melbourne, Geelong, Brisbane, Adelaide, Fremantle, Hobart, and Launceston.

The following table shews the number of bales of wool exported oversea from each State during the season ended 30th June, 1916, and bales sold at the local sales for shipment, for use in local woollen mills and for scouring, etc. It must be noted that as considerable quantities of wool grown in some States are sold in or shipped from others, these figures therefore do not shew actual local production, but total oversea shipments and sales. The estimated quantity of wool produced in each State is given on page 306.

EXPORTS OF WOOL TO PLACES OUTSIDE THE COMMONWEALTH, AND THE QUANTITY SOLD LOCALLY IN THE SEVERAL STATES, DURING THE SEASON ENDED 30th JUNE, 1916.

State.	Oversea Exports.		Sold at Local Sales prior to Export. (a)		Ratio of Local Sales to total Exports from C'wealth.
	Bales.	%	Bales.	%	%
New South Wales	840,515	51.91	707,969	49.06	43.72
Victoria	342,476	21.15	349,984	24.25	21.61
Queensland	258,122	15.94	246,376	17.07	15.22
South Australia	92,654	5.72	115,314	7.99	7.12
Western Australia	73,564	4.54	1,459	0.10	0.09
Tasmania	11,928	0.74	22,016	1.53	1.36
Commonwealth	1,619,259	100.00	1,443,118	100.00	89.12

(a) Including 136,331 bales sold to Local Woollen Mills, Scourers and Speculators.

(ii.) *Exports of Wool from Commonwealth and Quantity sold Locally.* The number of bales of wool exported from the Commonwealth and sold at local sales prior to shipment, or taken for local use, during 1895, 1900, 1905, 1910, and the past six seasons is shewn in the following table:—

EXPORTS OF WOOL FROM THE COMMONWEALTH, AND THE QUANTITY SOLD LOCALLY. FROM 1895 to 1916.

Year ended 30th June.				Oversea Exports.	Sold prior to Export. (a)	Ratio of Wool sold to Exports.
				Bales.	Bales.	%
1895	...	...	...	1,595,652	817,933	51.22
1900	...	...	...	1,221,163	807,031	66.09
1905	...	...	...	1,218,969	926,940	76.04
1910	...	...	...	1,921,705	1,624,561	84.54
1911	...	...	...	1,975,378	1,642,555	83.15
1912	...	...	...	2,020,547	1,700,494	84.16
1913	...	...	...	1,718,486	1,518,650	88.37
1914	...	...	...	1,966,576	1,703,744	86.64
1915	...	...	...	1,575,688	1,222,872	77.61
1916	...	...	...	1,619,259	1,443,118	89.12

(a) Including wool sold to Local Woollen Mills, Scourers and Speculators.

The steady development of the Australian wool market is clearly shewn in this table. In the nineteen years ended 1914, the quantity sold more than doubled, and the ratio of wool sold to that exported increased from 51 per cent. in 1895 to over 86½ per cent. in the season ended 30th June, 1914. The abnormal conditions obtaining during the 1914-15 and 1915-16 seasons materially affected the ratios, which were 77.61 for the former and 89.12 for the latter season.

During the past season 1,443,118 bales of wool were sold in Australia, and 364,861 bales in New Zealand, representing the total value of £29,903,532. This enormous quantity far exceeds the sales of any other country in the world.

(iii.) *Distribution of Wool sold in Australian Markets.* The estimated approximate distribution of wool sold in the local markets during the season 1915-16 is shewn in the following table, and exhibits the world-wide representation of buyers at the Australian sales :—

ESTIMATED APPROXIMATE DISTRIBUTION OF WOOL SOLD LOCALLY IN THE SEVERAL STATES OF THE COMMONWEALTH, DURING THE SEASON ENDED 30th JUNE, 1916.

Destination.	N.S.W.	Victoria.	Q'land.	S. Aust. (a)	Tas.	C'wealth.
	Bales.	Bales.	Bales.	Bales.	Bales.	Bales.
United Kingdom ...	234,266	140,096	74,565	42,743	3,403	495,073
France ...	29,840	8,216	3,790	1,444	60	43,350
Belgium, and Holland ...	...	...	...	...	...	...
Germany and Austria ...	...	...	...	...	...	...
Italy and Switzerland ...	93,308	24,596	43,963	4,480	569	166,916
Other European Countries ...	380	3,867	590	2,585	...	7,422
America ...	243,587	130,116	58,736	36,326	12,950	481,715
Japan, China, and India ...	70,709	5,420	36,010	88	84	112,311
Local Woollen Mills	35,879	37,673	28,722	29,107	4,950	136,331
Scourers and Speculators ...						
Total Sales ...	707,969	349,984	246,376	116,773	22,016	1,443,118

PERCENTAGE DISTRIBUTION.

	%	%	%	%	%	%
United Kingdom ...	33.09	40.03	30.26	36.60	15.46	34.31
France ...	4.21	2.35	1.54	1.24	0.27	3.00
Belgium, and Holland ...	...	...	...	...	...	...
Germany and Austria ...	...	...	...	...	...	...
Italy and Switzerland ...	13.18	7.02	17.84	3.84	2.59	11.57
Other European Countries ...	0.05	1.11	0.24	2.21	...	0.51
America ...	34.41	37.18	23.84	31.11	58.82	33.38
Japan, China, and India ...	9.99	1.55	14.62	0.08	0.38	7.78
Local Woollen Mills	5.07	10.76	11.66	24.92	22.48	9.45
Scourers and Speculators ...						
Total Sales ...	100.00	100.00	100.00	100.00	100.00	100.00

(a) Including 1459 Bales sold in Western Australia.

Of the total quantity sold, amounting to 1,443,118 bales, 495,073 or 34.31 per cent. were purchased for the United Kingdom, 481,715 or 33.38 per cent. for America, 166,916 or 11.57 per cent. for Italy and Switzerland, 112,311 or 7.78 per cent. for Japan and other Asiatic countries, and 136,331 or 9.45 per cent. by scourers and speculators and for consumption in the local woollen mills.

(iv.) *Quantities of Various Descriptions of Wool Sold in each State.* The quantities and ratios of the various descriptions of wool marketed in each State are shown in the following tables:—

PROPORTIONS OF THE VARIOUS DESCRIPTIONS OF WOOL SOLD LOCALLY IN THE SEVERAL STATES OF THE COMMONWEALTH DURING THE SEASON ENDED 30th JUNE, 1916.

Description of Wool.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	Commonwealth.
	Bales.	Bales.	Bales.	Bales.	Bales.	Bales.	Bales.
Greasy ...	637,172	331,912	176,568	107,025	1,459	22,001	1,276,137
Scoured ...	70,797	18,072	69,808	8,289	...	15	166,981
Total ...	707,969	349,984	246,376	115,314	1,459	22,016	1,443,118
Fleece, etc. ...	679,650	331,940	236,610	111,334	1,459	21,302	1,382,295
Lambs ...	28,319	18,044	9,766	3,980	...	714	60,823
Total ...	707,969	349,984	246,376	115,314	1,459	22,016	1,443,118
Merino ...	608,853	168,860	240,301	104,936	1,459	7,265	1,131,674
Crossbred and all strong breeds ...	99,116	181,124	6,075	10,378	...	14,751	311,444
Total ...	707,969	349,984	246,376	115,314	1,459	22,016	1,443,118
	%	%	%	%	%	%	%
Greasy ...	90.00	94.84	71.67	92.81	100.00	99.93	88.43
Scoured ...	10.00	5.16	28.33	7.19	...	0.07	11.57
Total ...	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Fleece, etc. ...	96.00	94.84	96.04	96.55	100.00	96.76	95.79
Lambs ...	4.00	5.16	3.96	3.45	...	3.24	4.21
Total ...	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Merino ...	86.00	48.25	97.53	91.00	100.00	33.00	78.42
Crossbred and all strong breeds ...	14.00	51.75	2.47	9.00	...	67.00	21.58
Total ...	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Wool in the grease represented over 88 per cent. of total sales during the period under review. Of fleece and lambs wool, the former shows 95.79, and the latter 4.21 per cent. The class of wool produced is principally merino, which is almost exclusively grown in the northern and central parts of the continent, the bulk of the merino wool sold in Victoria coming from Riverina and other parts of New South Wales. Victoria, the southern parts of South Australia and of New South Wales, and Tasmania, produce nearly the whole of the crossbred and other strong bred wools.

(v.) *Percentages in each State of Various Descriptions of Wool Sold.* The following table gives the percentages of each description of wool sold in the several States during the season 1915-16:—

PERCENTAGE OF BALES OF EACH DESCRIPTION OF WOOL SOLD IN THE SEVERAL STATES TO THE TOTAL SOLD IN THE COMMONWEALTH, 1915-16.

Description of Wool.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust. (a)	Tas.	Commonwealth.
	%	%	%	%	%	%	%
Greasy ...	49.93	26.01	13.84	8.39	0.11	1.72	100.00
Scoured ...	42.40	10.82	41.81	4.96	...	0.01	100.00
Fleece, etc. ...	49.17	24.01	17.12	8.05	0.11	1.54	100.00
Lambs ...	46.56	29.67	16.06	6.54	...	1.17	100.00
Merino ...	53.80	14.92	21.24	9.27	0.13	0.64	100.00
Crossbred and all strong breeds ...	31.82	58.16	1.95	3.33	...	4.74	100.00

§ 6. Hides and Sheepskins.

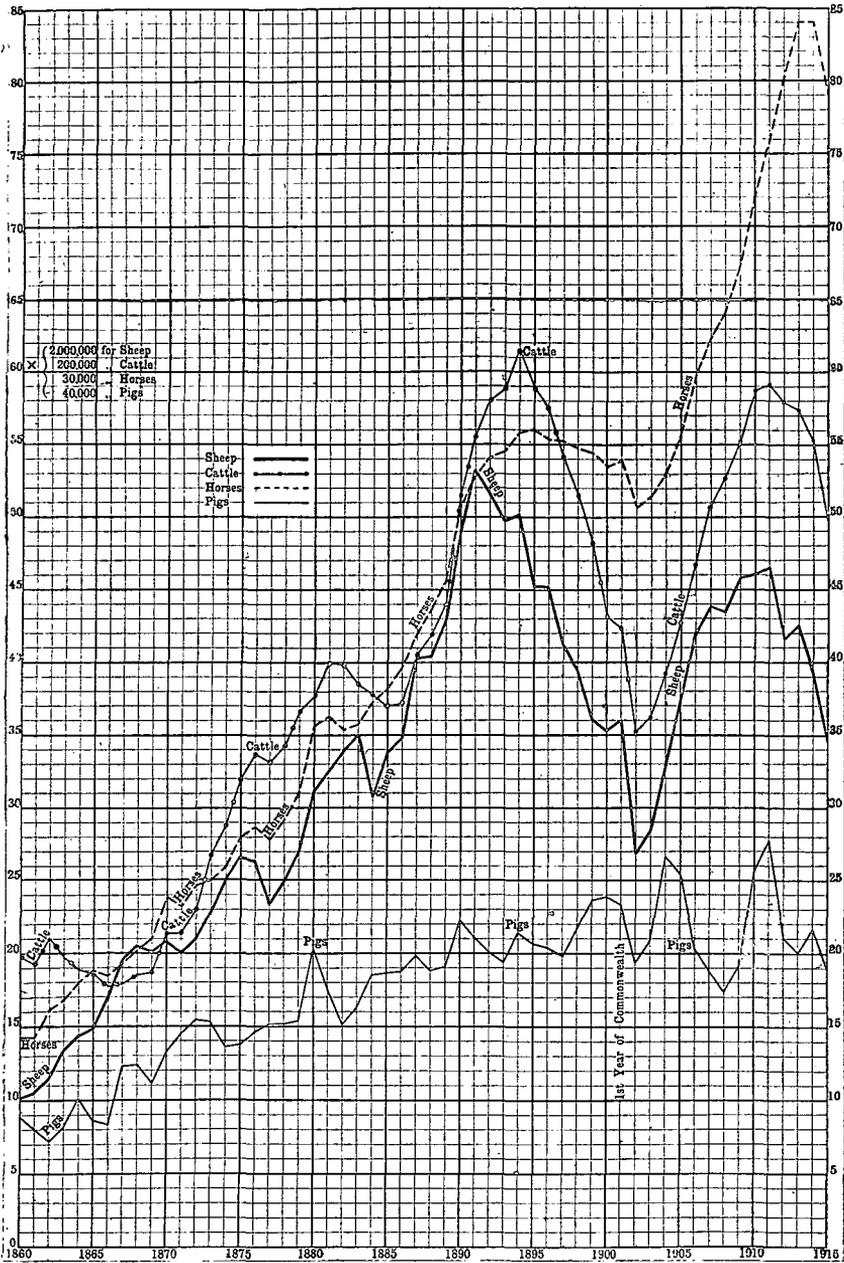
1. Extent of Trade.—In addition to the hides and sheepskins treated in the tanneries of the several States, a very considerable export trade is carried on, the total value of the hides and sheepskins exported from Australia during the five years 1911 to 1915-16 being no less a sum than £14,362,007, or an average of over £2,872,401 per annum.

2. Sheepskins with Wool.—By far the largest item included in the amount mentioned in the preceding paragraph arises from the value of sheepskins with wool exported, which are shipped principally to the United Kingdom and France. Details concerning the number so exported during the five years 1911 to 1915-16 are as follow:—

COMMONWEALTH EXPORT OF SHEEPSKINS WITH WOOL, 1911 to 1915-16.

Country to which Exported.	1911.	1912.	1913.	1914-15.	1915-16.	Total for 5 Years.
	No.	No.	No.	No.	No.	No.
United Kingdom	3,306,567	3,707,050	3,861,161	5,844,442	3,506,365	20,225,585
France ...	4,322,505	5,297,141	5,932,257	2,227,714	1,863,904	19,643,521
Belgium ...	1,020,847	1,277,530	996,821	29,366	...	3,324,564
U.S. of America...	39,811	129,899	99,037	1,016,958	331,706	1,617,411
Canada ...	...	679	...	206,876	61,103	268,658
Germany ...	109,621	63,112	57,735	2,578	...	233,046
New Zealand ...	...	661	...	39,083	25,283	65,027
Italy ...	26,140	...	960	...	9,949	37,049
Other Countries ...	6,869	...	261	1,051	24	8,205
Total ...	8,832,360	10,476,072	10,948,232	9,368,068	5,798,334	45,423,066

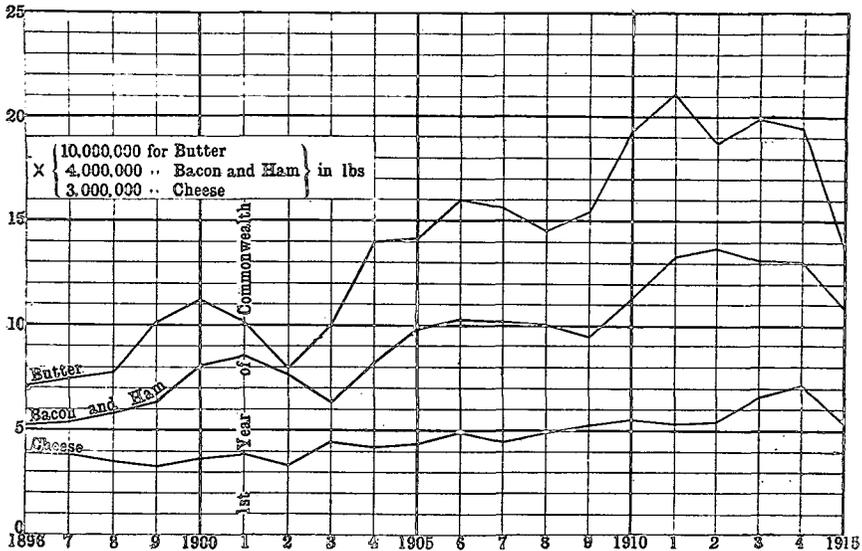
GRAPHS SHEWING NUMBER OF HORSES, CATTLE, SHEEP, AND PIGS IN THE COMMONWEALTH FROM 1860 to 1915.



(See pages 290 et seq.)

EXPLANATION OF GRAPH.—The base of each small square represents an interval of one year. The totals of the sheep, cattle, horses, and pigs for the Commonwealth are indicated by the several curves or graphs, the vertical side of a small square representing 2,000,000 in the case of sheep; 200,000 for cattle; 30,000 for horses; 40,000 for pigs.

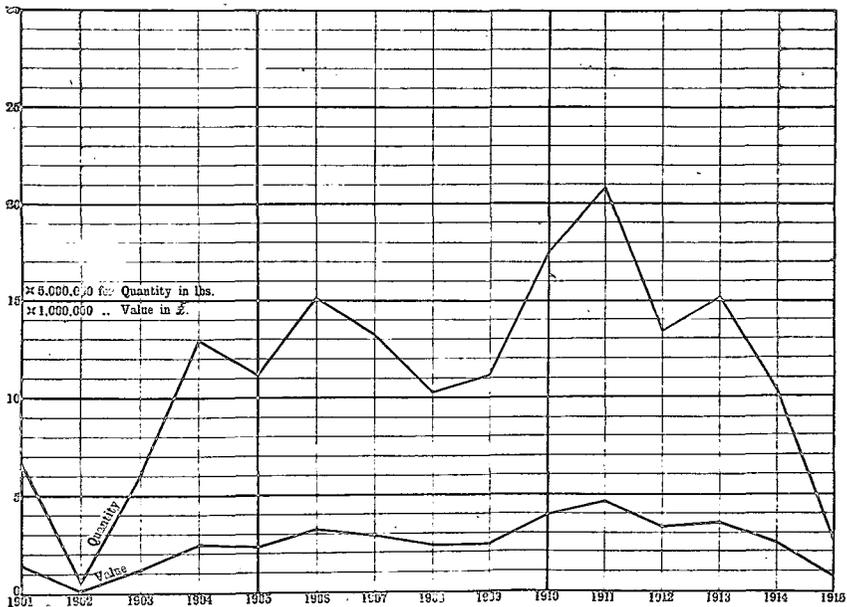
GRAPHS SHEWING THE PRODUCTION OF BUTTER AND CHEESE, AND BACON AND HAM, IN THE COMMONWEALTH, FROM 1896 to 1915.



(See pages 382, 383.)

EXPLANATION OF GRAPH.—The base of each small rectangle represents an interval of one year, and the vertical height of each small rectangle denotes in the case of butter 10,000,000 lbs.; in the case of bacon and ham, 4,000,000 lbs.; and in the case of cheese 3,000,000 lbs.

GRAPHS SHEWING THE QUANTITY AND VALUE OF NET EXPORTS OF BUTTER FROM THE COMMONWEALTH, FROM 1901 to 1915.



(See page 353.)

EXPLANATION OF GRAPH.—The base of each small rectangle represents an interval of one year, and the vertical height of each small rectangle represents 5,000,000 lbs. in weight, or £1,000,000 in value.

The next table furnishes corresponding particulars as to value:—

**VALUE OF SHEEPSKINS WITH WOOL EXPORTED FROM THE COMMONWEALTH,
1911 to 1915-16.**

Country to which Exported.	1911.	1912.	1913.	1914-15.	1915-16.	Total for 5 Years.
	£	£	£	£	£	£
United Kingdom	568,618	666,962	804,432	1,021,432	779,615	3,841,059
France ...	735,259	980,298	1,315,156	387,692	283,293	3,701,698
Belgium ...	253,995	314,301	335,569	10,877	...	914,742
U.S. of America...	3,706	12,713	15,127	213,249	97,890	342,685
Canada...	...	66	...	46,374	12,553	58,993
Germany ...	13,195	10,576	11,620	812	...	36,203
New Zealand ...	...	113	...	9,748	6,268	16,129
Italy ...	4,075	...	100	...	875	5,050
Other Countries ...	697	...	55	468	5	1,225
Total ...	1,579,545	1,985,029	2,482,059	1,690,652	1,180,499	8,917,784

3. **Sheepskins without Wool.**—In the case of sheepskins without wool the principal countries to which export takes place are the United States of America and the United Kingdom. Particulars concerning the quantities exported are as follows:—

COMMONWEALTH EXPORTS OF SHEEPSKINS WITHOUT WOOL, 1911 to 1915-16.

Country to which Exported.	1911.	1912.	1913.	1914-15.	1915-16.	Total for 5 Years.
	No.	No.	No.	No.	No.	No.
United States of America	590,582	271,028	21,760	640,302	1,815,725	3,339,397
United Kingdom ...	459,252	131,103	123,578	720,417	103,497	1,542,847
France ...	21,666	55,845	5,364	...	...	82,875
New Zealand ...	9,484	1,515	...	12	...	11,011
Canada ...	...	...	...	3,096	540	3,636
Japan ...	...	...	...	...	1,047	1,047
Belgium ...	331	167	...	...	...	498
Total ...	1,081,315	459,658	155,702	1,363,827	1,920,809	4,981,311

Corresponding details concerning value are given hereunder:—

**VALUE OF SHEEPSKINS WITHOUT WOOL EXPORTED FROM THE COMMONWEALTH
1911 to 1915-16.**

Country to which Exported.	1911.	1912.	1913.	1914-15.	1915-16.	Total for 5 Years.
	£	£	£	£	£	£
United States of America	16,295	8,730	1,550	35,766	86,908	149,249
United Kingdom ...	17,138	3,854	5,130	37,875	5,243	69,240
France ...	1,225	5,948	382	...	...	7,555
New Zealand ...	196	27	...	2	...	225
Canada ...	...	...	...	233	39	272
Japan ...	...	...	...	...	83	83
Belgium ...	12	4	...	...	...	16
Total ...	34,866	18,563	7,062	73,876	92,273	226,640

4. **Hides.**—The Commonwealth trade in hides has now assumed considerable proportions, and during 1914-15 the total value of hides exported amounted to £1,380,886. The exports were principally to the United Kingdom, the United States of America, and Canada. Large quantities of hides are also imported into the Commonwealth, mainly from New Zealand and the Pacific Islands. The total value of hides imported during 1915-16 was £293,541.

Particulars concerning the export of hides during the past five years are as follows:—

COMMONWEALTH EXPORT OF HIDES, 1911 to 1915-16.

Country to which Exported.	1911.	1912.	1913.	1914-15.	1915-16.	Total for 5 Years.
	No.	No.	No.	No.	No.	No.
United Kingdom	245,993	350,519	360,549	485,500	237,707	1,680,268
U.S. of America...	29,232	82,808	136,687	371,364	...	620,091
Canada	33,519	65,407	11,205	264,785	208,355	583,271
Belgium	80,453	108,455	244,394	40,211	...	473,513
Italy	68,991	117,352	85,984	9,830	131,894	414,051
Germany	64,536	78,059	206,588	18,773	...	367,956
France	15,790	15,151	16,208	8,873	1,129	57,151
Japan	6,436	5,025	155	6,863	4,063	22,542
Austria-Hungary	103	1,275	3,631	203	...	5,212
Sth. African Union	...	...	...	480	2,705	3,185
Other Countries ...	5,815	9,717	7,674	11,600	15,288	50,094
Total ...	550,868	833,768	1,073,075	1,218,482	601,141	4,277,334

In the next table are given particulars relative to the value of hides exported:—

VALUE OF HIDES EXPORTED FROM THE COMMONWEALTH, 1911 to 1915-16.

Country to which Exported.	1911.	1912.	1913.	1914-15.	1915-16.	Total for 5 Years.
	£	£	£	£	£	£
United Kingdom	279,474	430,609	580,195	670,421	271,364	2,232,063
U.S. of America...	28,772	94,783	196,583	375,270	...	695,408
Belgium	91,110	139,188	385,627	52,647	...	668,572
Germany	79,530	103,081	339,605	30,259	...	552,475
Canada	35,320	74,273	16,622	198,421	130,157	454,793
Italy	62,047	125,744	102,834	12,299	128,906	431,830
France	17,988	19,865	20,078	13,933	1,780	73,644
Japan	11,060	8,378	335	13,063	8,524	41,360
Austria-Hungary	161	1,757	5,545	355	...	7,818
Sth. African Union	...	...	...	531	3,038	3,569
Other Countries ...	5,795	9,576	10,547	13,687	16,446	56,051
Total ...	611,257	1,007,254	1,657,971	1,380,886	560,215	5,217,583

The number and value of hides imported into the Commonwealth during the five years 1911 to 1915-16 are as follows:—

HIDES IMPORTED INTO THE COMMONWEALTH, 1911 to 1915-16.

Particulars.	1911.	1912.	1913.	1914-15.	1915-16.	Total for 5 Years.
No.	97,926	87,680	135,193	83,999	147,450	552,248
Value	£ 143,893	135,301	239,780	146,015	293,541	958,530

§ 7. Graphical Representation of Pastoral Production.

1. **General.**—As comparatively complete statistics relative to the number of horses, cattle, sheep and pigs are available from 1860, the graphical representation of the fluctuations in numbers for the Commonwealth as a whole, shewn on page 315, covers the period from 1860 to 1915.

2. **Horses.**—With relatively unimportant fluctuations the number of horses in the Commonwealth increased at a fairly consistent rate until 1895, when a decline set in, culminating in the losses of the drought of 1902. At this latter point the number was practically identical with that for 1890. From 1902 onwards a rapid improvement was experienced, the totals for 1913 and 1914 being the highest recorded. The disastrous drought of 1914-15 was responsible for heavy losses, the number recorded at the close of the latter year being considerably less than in 1912.

3. **Cattle.**—The graph for cattle furnishes evidence of rapid increase in number, interrupted by four marked periods of decline, of which the first extended from 1862 to 1866, the second from 1881 to 1885, the third from 1894 to 1902. So extensive was this last-mentioned decline that the number receded to that of 1879. From 1902 a rapid recovery took place, and the total for 1911 exceeded that existing at the end of the year 1895, though still short of the maximum attained in 1894. The fourth period of decline commenced in 1912, the figures from that year to 1914 shewing a slight decline, while those for 1915 shew a very serious falling off, the difference between the 1911 and 1915 returns amounting to over 16 per cent.

4. **Sheep.**—In the case of sheep the graph furnishes evidence of six periods in which the upward movement in number has been arrested or reversed. The first of these occurred between 1868 and 1871, the second between 1875 and 1877, the third during 1884, the fourth, by far the most serious, between 1891 and 1902, the fifth during 1912, and the sixth during 1914-15. From 1902 to 1907 a rapid increase took place, succeeded by a slight decline in 1908, and a rapid advance in 1909, 1910 and 1911, the point reached in the latter year being the highest since 1894. The return for 1912 shews a considerable decrease; this was followed by an increase in 1913, but there was a heavy falling off in 1914, amounting to $7\frac{1}{2}$ per cent., and a still heavier one in 1915, amounting to over $11\frac{1}{2}$ per cent., the total number of sheep in the latter year being the lowest since 1904.

5. **Pigs.**—The graph for pigs exhibits more numerous fluctuations than that for any of the other classes of live stock represented, and from 1904 to 1908 furnished evidence of a persistent decline. In 1909, however, an upward movement took place; and this was well maintained during the two succeeding years, the 1911 returns exceeding all previous records. There was a considerable decrease in 1912, and a smaller one during 1913. The 1914 returns, however, show an upward tendency, but there was a sharp decline during 1915.

SECTION VIII.

AGRICULTURAL PRODUCTION.

NOTE.—Except where otherwise stated, the "agricultural" years hereinafter mentioned are taken as ending on the 31st March.

§ 1. Introductory.

1. **Early Attempts at Agriculture.**—The instructions issued to Captain Phillip on the 25th April, 1787, directed him, amongst other things, to proceed as soon as possible to the cultivation of the soil "under such regulations as may appear to be necessary and best calculated for securing supplies of grain and provisions." When the settlers landed at Botany Bay, however, it was found that the glowing accounts published in England by members of Captain Cook's expedition of the fertility of the soil in that locality were considerably overdrawn. Even when Phillip and his company moved round to Port Jackson on the 26th January, 1788, matters were for a time in no better case. The ground in the immediate neighbourhood of the settlement was not suitable for the cultivation of cereal crops, and when the time came to cultivate the soil it was found that there were very few who possessed the slightest acquaintance with the art of husbandry.

2. **The First Sowing.**—In his despatch of the 15th May, 1788, Captain Phillip states that it was proposed to sow eight acres with wheat and barley, although, owing to the depredations of field mice and ants, he was doubtful of the success of the crops.

3. **Discovery of Suitable Agricultural Land.**—A branch settlement was formed at Rosehill, on the Parramatta River, towards the close of 1788, and here corn crops were successfully raised. In his despatch of 12th February, 1790, Phillip refers to the harvest at Rosehill at the end of December, 1789, as consisting of 200 bushels of wheat and 60 of barley, in addition to small quantities of oats, Indian corn, and flax. By the year 1791 there were 218 acres under crop in this locality. In 1792 a new settlement was formed at Toongabbie, about three miles westward of Parramatta, where Phillip states "there are several thousand acres of exceeding good ground." The Hawkesbury Valley, which probably contains some of the richest land in the world, was first settled in 1794. For a long time agricultural operations in Australia were restricted to the narrow belt of country between the tableland and the east coast of New South Wales, as it was not until the year 1813 that a passage was discovered across the Blue Mountains to the fertile plains of the west.

§ 2. Progress of Agriculture.

1. **Early Records.**—In an "Account of Live Stock and Ground under Crop in New South Wales, 19th August, 1797," Governor Hunter gives the acreage under crop as follows:—Wheat, 3361 acres; maize, 1527 acres; barley, 26 acres; potatoes, 11 acres; and vines, 8 acres.

At a muster taken in 1808 the following was the return of crops:—Wheat, 6877 acres; maize, 3389 acres; barley, 544 acres; oats, 92 acres; peas and beans, 100 acres; potatoes, 301 acres; turnips, 13 acres; orchards, 546 acres; and flax and hemp, 34 acres.

By the year 1850 the area under crop had increased to 491,000 acres, of which 198,000 acres were cultivated in what is now the State of New South Wales, and 169,000 acres in Tasmania. At the end of 1850 the area under cultivation in Victoria, which was then the Port Phillip District of New South Wales, was 52,190 acres.

The gold discoveries of 1851 and subsequent years had at first a very disturbing effect on agricultural progress, the area under crop declining from 491,000 acres in 1850 to 458,000 acres in 1854; the area under cultivation in New South Wales decreased by nearly 66,000 acres, while in Tasmania a falling-off of over 41,000 acres was experienced. The demand for agricultural products occasioned by the large influx of population was, however, soon reflected in the increased area cultivated, for at the end of 1858 the land under crop in Australia totalled over a million acres. The largest increase took place in Victoria, which returned an area of 299,000 acres. For the same year South Australia had 264,000 acres in cultivation, Tasmania 229,000 acres, and New South Wales 223,000 acres.

2. **Progress of Cultivation since 1860.**—The following table shews the area under crop in each of the Commonwealth States and Territories at quinquennial intervals since 1860 and during each of the last five seasons. The area under permanent artificially-sown grasses is excluded in all the States, except for the years 1860-79 in the case of New South Wales, where the acreage cannot be separated. During those years, however, the area laid down under permanent grasses could not have been very large:—

AREA UNDER CROP IN AUSTRALIA, 1860 to 1915-16.

Season.	New South Wales.	Victoria.	Queensland.	South Australia.	W. Aust.	Tasmania.	N.T.	Fed. Terr.	Commonwealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1860-1	260,798	387,282	3,353	359,284	24,705	152,860	...	...	1,188,282
1865-6	378,255	448,194	14,414	547,124	38,180	159,547	...	...	1,585,714
1870-1	426,976	692,840	52,210	801,571	54,527	157,410	...	...	2,185,534
1875-6	451,139	736,520	77,347	1,111,882	47,571	142,547	...	...	2,567,006
1880-1	629,180	1,548,809	113,978	2,087,237	57,707	140,788	...	...	4,577,699
1885-6	737,701	1,867,496	198,334	2,298,412	60,058	144,761	...	...	5,306,762
1890-1	852,704	2,081,955	224,993	2,093,515	69,678	157,376	...	...	5,430,221
1895-6	1,348,600	2,413,235	285,319	2,092,942	97,821	212,703	...	...	6,450,620
1900-1	2,445,564	3,114,132	457,397	2,369,680	201,338	224,352	...	...	8,812,463
1905-6	2,840,235	3,219,962	522,748	2,255,569	364,704	230,237	...	...	9,433,455
1910-11	3,386,017	3,952,070	667,113	2,746,334	855,024	286,920	360	...	11,893,838
1911-12	3,628,513	3,640,241	526,388	2,965,338	1,072,653	270,000	375	3,509	12,107,017
1912-13	3,737,085	4,079,356	668,483	3,062,998	1,199,991	286,065	330	3,741	13,038,049
1913-14	4,567,592	4,391,321	747,814	3,169,559	1,537,923	264,140	354	4,309	14,683,012
1914-15	4,807,001	4,622,759	792,568	3,232,364	1,867,547	274,474	391	4,870	15,651,974
1915-16	5,796,376	5,711,265	729,588	3,763,570	2,189,456	333,334	274	4,371	18,528,234

The increase in the area under crop during the past ten years has been most marked in the case of New South Wales, Victoria and Western Australia, the respective increases being 2,956,141, 2,491,303, and 1,824,752 acres. During the same period an increase of 1,508,001 acres was experienced in South Australia, 206,840 in Queensland, and 103,097 acres in Tasmania. The total area under crop in the Commonwealth increased during the period by 9,094,779 acres, and the total for 1915-16 was the highest ever attained by the Commonwealth. During these past ten seasons the percentage of increase was particularly high in Western Australia, viz., 500 per cent. New South Wales had an increase of 104 per cent., while Victoria, South Australia, Tasmania, and Queensland added to their areas under crop to the extent of 77½, 67, 45 and 39½ per cent. respectively. The increase for the whole of the Commonwealth during the same period was over 96 per cent.

3. **Relation to Population.**—From the following table it will be seen that for the Commonwealth as a whole the area under crop has, during the seasons under review, with the exception of 1911-12, increased at a rate which is somewhat greater than that

at which the population of the Commonwealth has increased. This relatively greater increase is in evidence in all the States, being most marked in the case of Western Australia, which has now a larger area under crop per head of population than any State except South Australia. Details for 1901-2 and for the past five seasons are as follows:—

TOTAL AREA UNDER CROP PER 1000 OF POPULATION.

Season.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aus.	Tas.	Northern Territory	Federal Terr.	C'wth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1901-2	1,656	2,451	954	6,224	1,123	1,327	...	...	2,200
1911-12	2,169	2,671	846	7,091	3,646	1,396	115	1,827	2,650
1912-13	2,102	2,955	1,050	7,122	3,920	1,451	95	1,928	2,755
1913-14	2,494	3,110	1,133	7,203	4,796	1,310	96	2,168	3,014
1914-15	2,582	3,231	1,171	7,431	5,782	1,363	98	2,486	3,168
1915-16	3,099	4,025	1,075	8,584	6,885	1,658	60	2,390	3,757

4. **Relation to Total Area.**—The next table furnishes a comparison of the area under crop in the Commonwealth and the several States and Territories, with the respective total areas. For the Commonwealth as a whole, the area under crop in 1915-16 represented only about one acre in every 103. In Victoria the proportion was about one acre in every 10, in New South Wales one in 34, in Tasmania one in 50, in South Australia one in 65, in Western Australia one in 285, in Queensland one in 588, in the Federal Territory one in 134, and in the Northern Territory one in 1,223,054.

PERCENTAGE OF AREA UNDER CROP TO TOTAL AREA OF EACH STATE AND OF THE COMMONWEALTH FOR SEASONS 1901-2 and 1911-12 to 1915-16.

Season.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aus.	Tas.	Northern Territory	Federal Terr.	C'wth.
	%	%	%	%	%	%	%	%	%
1901-2	1.147	5.273	0.113	0.919	0.035	1.386	...	...	0.442
1911-12	1.832	6.472	0.123	1.219	0.172	1.609	0.0002	0.609	0.636
1912-13	1.887	7.253	0.156	1.259	0.192	1.705	0.0001	0.641	0.685
1913-14	2.230	7.807	0.174	1.303	0.246	1.574	0.0001	0.738	0.771
1914-15	2.427	8.219	0.185	1.349	0.299	1.636	0.0001	0.834	0.822
1915-16	2.927	10.154	0.170	1.547	0.351	1.937	0.0001	0.749	0.973

5. **Artificially-Sown Grasses.**—In all the States considerable areas are devoted to artificially-sown grasses, frequently sown on uncultivated land after burning off the existing vegetation. Statistics regarding the area under such grasses are as shewn hereunder:—

AREA UNDER SOWN GRASSES, 1901-2 and 1911-12 to 1915-16.

Season.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Fed. Terr.	Commonwealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1901-2	467,839	162,954	34,679	23,510	3,711	314,422	...	1,007,115
1911-12	1,119,738	1,041,772	166,175	30,431	5,760	505,940	50	2,869,866
1912-13	1,152,399	1,085,346	205,363	30,377	5,168	508,714	50	2,987,419
1913-14	1,234,405	1,094,566	236,582	30,277	6,919	605,559	50	3,208,362
1914-15	1,278,883	1,202,130	290,147	24,974	8,025	647,602	70	3,451,831
1915-16	1,247,029	1,182,995	305,186	25,443	9,119	675,335	70	3,445,377

(a) Including 2 acres Northern Territory 1912-13, 4 acres 1913-14, and 200 acres 1915-16.

The considerable increase in the area of the grass lands of the Commonwealth is due in large measure to the great development of the dairying industry which has taken place during the last ten years, and which is referred to in the succeeding section. The areas contained in the above table relate in most cases, to grasses sown for grazing purposes on uncultivated land, generally after "burning off," and are consequently not included with "area under crop."

§ 3. Relative Importance of Crops.

1. **Various Crops.**—In the following table are furnished details concerning the areas in the several States under each of the principal crops for the season 1915-16 :—

DISTRIBUTION OF CROPS IN AUSTRALIA, 1915-16.

Crop.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N.T.	Fed. Terr.	Total for C'wth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Wheat	4,186,493	3,679,971	93,703	2,739,214	1,734,117	48,642	...	2,372	12,484,512
Oats	58,449	353,932	339	126,529	104,086	78,212	...	97	721,644
Maize	154,119	22,258*	146,474	702	28	...	45	11	323,637
Barley—									
Malting	4,373	29,473	945	61,966	4,545	4,915	...	...	106,217
Other	1,996	31,927	422	22,934	5,524	494	...	...	63,297
Beans and Peas	318	8,563	103	4,069	596	12,628	...	...	26,277
Rye	2,864	3,137	26	2,773	570	1,240	...	4	10,614
Other Cereals ...	...	4	1	100	36	...	25	...	166
Hay	1,107,228	1,330,455	55,174	709,831	290,036	108,216	140	1,691	3,597,771
Green Forage ...	162,898	60,426	236,293	32,664	15,622	7,587	24	1,37	515,561
Grass Seed ...	*	2,435	568	...	...	1,848	...	...	4,851
Orchards & other									
Fruit Gardens	57,515	80,120	22,616	27,576	21,805	37,351	...	25	247,008
Vines—									
Productive ...	6,217	17,822	1,225	23,778	2,333	...	...	...	51,375
Unproductive	1,666	4,531	148	3,986	418	...	...	...	10,749
Market Gardens	10,940	11,379	2,330	1,712	2,787	485	...	27	29,610
Sugar Cane—									
Productive ...	6,030	...	94,459	...	...	...	...	...	100,489
Unproductive	5,228	...	58,568	...	...	...	...	...	63,796
Potatoes	19,582	56,910	5,796	4,341	4,866	29,491	...	7	120,993
Onions	190	9,294	105	376	158	66	...	...	10,189
Other root crops	1,676	2,310	2,295	279	278	4,929	15	...	11,782
Tobacco	1,277	160	469	...	...	...	...	...	1,906
Broom Millet ...	2,422	715	438	...	...	...	5	...	3,580
Pumpkins and									
Melons	3,907	2,440	4,359	203	643	...	20	...	11,572
Hops ... ..	...	107	...	3	...	1,405	...	...	1,515
All other crops	1,078	2,896	2,732	534	1,008	875	...	...	9,123
Total Area...	5,796,376	5,711,265	729,588	3,763,570	2,189,456	333,334	274	4,371	18,528,234

* Included with acreage under green forage and hay.

2. **Relative Areas of Crops in States and Territories.**—Taking the principal crops, i.e., those in the case of which the cultivation amounts to more than 50,000 acres in the Commonwealth, the proportion of each in the various States and Territories to the total area under crop for the season 1915-16 is shown in the next table. In four of the States, viz., New South Wales, Victoria, South Australia, and Western Australia, wheat-growing for grain is by far the most extensive form of cultivation, while in the same States the hay crop is second in importance. In Victoria, South Australia, Western Australia, and Tasmania the oat crop occupies third position. In Queensland, on the other hand, the three principal crops in the order of importance are green forage, maize, and sugar cane, while in Tasmania hay, oats, and wheat occupy the leading positions. For the Commonwealth as a whole, the wheat, hay, and oat crops represent over 90½ per cent. of the total area under crop.

PROPORTION OF AREA UNDER CHIEF CROPS, 1915-1916.

Crop.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N.T.	Federal Terr.	C'wealth
	%	%	%	%	%	%	%	%	%
Wheat ...	72.22	64.43	12.84	72.78	79.20	14.59	...	54.27	67.98
Hay ...	19.10	23.30	7.56	18.86	13.25	30.96	51.10	38.69	19.42
Oats ...	1.01	6.20	0.04	3.36	4.75	23.46	...	2.22	3.89
Maize ...	2.66	0.39	20.08	0.02	...	...	16.42	0.25	1.75
Green Forage	2.81	1.06	32.39	0.87	0.71	2.28	8.76	3.13	2.78
Orchards and Fruit Gardens	0.99	1.40	3.10	0.73	1.00	11.21	...	0.57	1.33
Sugar Cane...	0.19	...	20.97	...	...	...	...	...	0.89
Potatoes ...	0.35	1.00	0.79	0.12	0.22	8.85	...	0.16	0.67
Barley ...	0.11	1.08	0.19	2.26	0.46	1.62	...	...	0.91
Vineyards ...	0.14	0.39	0.19	0.73	0.13	...	...	...	0.34
All Other ...	0.42	0.75	1.85	0.27	0.28	7.03	23.72	0.71	0.64
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

3. Relative Positions of States and Territories in regard to Principal Crops.—

The relative proportion of acreage of the several crops and the position regarding them in each State and Territory is shewn in the following table. New South Wales exhibits the largest area under wheat and maize; Victoria the leading position in regard to hay, oats, orchards and fruit gardens, and potatoes; and Queensland is first in sugar cane and green forage and second in maize. South Australia had the largest area under vineyards, and barley; Western Australia third position in oats and barley and fourth in wheat, hay, and vineyards; while Tasmania was second in regard to potatoes, third in orchards and fruit gardens, and fourth in oats.

RELATIVE POSITIONS OF SEVERAL STATES AND TERRITORIES IN REGARD TO AREA UNDER EACH OF THE PRINCIPAL CROPS DURING THE SEASON 1915-16.

Crop.	N.S.W.	Vict.	Q'land.	S. Aust.	W.A.	Tas.	N.T.	Federal Terr.	C'wlth
Wheat ...	33.53	29.48	0.75	21.94	13.89	0.39	...	0.02	100.00
position	1	2	5	3	4	6	...	7	
Hay ...	30.78	36.99	1.53	19.73	8.06	2.87	...	0.04	100.00
position	2	1	6	3	4	5	...	7	
Oats ...	8.10	49.04	0.05	17.54	14.42	10.84	...	0.01	100.00
position	5	1	6	2	3	4	...	7	
Maize ...	47.62	6.80	45.34	0.22	0.01	...	0.01	...	100.00
position	1	3	2	4	6	...	5	...	
Green Forage	31.58	11.72	45.83	6.34	3.03	1.47	...	0.03	100.00
position	2	3	1	4	5	6	...	7	
Orchards and Fruit Gardens...	23.28	32.44	9.16	11.16	8.83	15.12	...	0.01	100.00
position	2	1	5	4	6	3	...	7	
Sugar Cane	6.85	...	93.15	...	...	...	...	...	100.00
position	2	...	1	...	...	...	...	...
Potatoes ...	16.37	46.15	6.08	3.52	3.95	23.93	...	...	100.00
position	3	1	4	6	5	2	...	...
Barley ...	3.76	36.22	0.81	50.08	5.94	3.19	...	...	100.00
position	4	2	6	1	3	5	...	...
Vineyards ...	12.69	35.98	2.21	44.69	4.43	...	...	...	100.00
position	3	2	5	1	4	...	...	...
All other crops	22.30	34.50	9.81	8.45	5.16	19.70	0.05	0.03	100.00
position	2	1	4	5	6	3	7	8	
Total area under crop	31.28	30.82	3.94	20.31	11.82	1.81	...	0.02	100.00
position	1	2	5	3	4	6	...	7	

4. **Acreege of Principal Crops, Commonwealth.**—The acreage devoted to each of the principal crops in the whole Commonwealth during the last five seasons is shewn below :—

ACREAGE OF CHIEF COMMONWEALTH CROPS, 1911-12 to 1915-16.

Crop.	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.
	Acres.	Acres.	Acres.	Acres.	Acres.
Wheat	7,427,834	7,339,651	9,237,398	9,651,081	12,484,512
Hay	2,518,288	3,217,041	2,754,672	2,628,613	3,597,771
Oats	616,857	874,034	859,020	774,734	721,644
Maize	340,065	314,936	331,879	339,781	323,637
Green Forage	424,440	428,006	486,504	1,352,158	515,561
Orchards and Fruit Gardens	194,524	205,174	216,021	232,711	247,008
Sugar Cane	144,283	155,567	160,976	172,616	164,285
Potatoes	130,463	128,889	174,262	151,845	120,993
Barley	116,466	181,387	222,564	153,656	169,514
Vineyards	60,602	62,388	61,197	60,985	62,124
All other Crops	133,195	130,976	128,519	133,794	121,185
Total	12,107,017	13,038,049	14,683,012	15,651,974	18,528,234

During the period under review the area devoted to the several crops has varied considerably, that under wheat attaining a maximum in the season 1915-16, and a minimum in 1912-13, while hay also reached its maximum area in 1915-16 but its minimum in 1911-12. Of the other crops, green forage and sugar cane attained their maximum areas in 1914-15, maize in 1911-12, oats and vineyards in 1912-13, potatoes and barley in 1913-14, and orchards and fruit gardens in 1915-16.

§ 4. Wheat.

1. **Progress of Wheat-Growing.**—(i.) *Acreege.* The area under wheat for grain is given below for each State at various periods since 1860, and is shewn diagrammatically in the graph hereinafter :—

AREA UNDER WHEAT, 1860-1 to 1915-16.

Season.	N.S.W.	Victoria.	Q'land.	Sth. Aust.	W. Aust.	Tas.	N.T.	Fed. Terr.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1860-1	128,829	161,252	196	273,672	13,584	66,450	...	...	643,983
1865-6	131,653	178,628	2,068	410,608	22,249	73,270	...	...	818,476
1870-1	147,997	284,167	2,892	604,761	26,640	57,382	...	...	1,123,839
1875-6	133,609	321,401	4,478	898,820	21,561	42,745	...	...	1,422,614
1880-1	253,138	977,285	12,632	1,733,542	27,686	50,022	...	...	3,054,305
1885-6	264,867	1,020,082	10,093	1,922,555	29,511	30,266	...	...	3,277,374
1890-1	333,233	1,145,163	10,390	1,673,573	33,820	32,452	...	...	3,228,631
1895-6	596,684	1,412,736	27,090	1,649,929	23,241	64,652	...	...	3,774,332
1900-1	1,530,609	2,017,321	79,304	1,913,247	74,308	51,825	...	...	5,666,614
1905-6	1,939,447	2,070,517	119,356	1,757,036	195,071	41,319	...	...	6,122,746
1910-11	2,128,826	2,398,089	106,718	2,104,717	581,862	52,242	2	...	7,372,456
1911-12	2,379,968	2,164,066	42,962	2,190,782	612,104	37,208	2	742	7,427,834
1912-13	2,230,500	2,085,216	124,963	2,079,633	793,096	25,226	3	1014	7,339,651
1913-14	3,203,572	2,565,861	132,655	2,267,851	1,097,193	18,432	9	1825	9,287,398
1914-15	2,756,343	2,363,535	127,015	2,502,630	1,376,012	23,865	...	1681	9,651,081
1915-16	4,186,498	3,679,971	93,703	2,739,214	1,734,117	48,642	...	2372	12,484,512

The area devoted in the Commonwealth to the production of wheat for grain was higher for the season 1915-16 than for any previous season, there being an increase in all the States with the exception of Queensland, which shewed a falling-off. The figures for the previous season shew that the maximum area under wheat for grain was then

attained by all the States with the exception of Queensland and Tasmania, the maximum for those States being for the seasons 1912-13 and 1898-9 respectively. The average area under wheat in the Commonwealth in the past ten seasons was 7,677,774 acres. The past six seasons exceeded this average, while the previous four seasons fell short of it.

Although final figures for 1916-7 for all the States are not yet available, the data to hand indicate the total area under wheat for grain in the Commonwealth as about 11,170,000 acres, representing a decrease of 10½ per cent. on the 1915-16 area. New South Wales returns shew an acreage of 3,521,331; Victoria, 3,125,692; South Australia, 2,765,383; Western Australia, 1,566,533, and Queensland, 168,340, while the approximate total for the Commonwealth is 11,169,936 acres.

(ii.) *Yield.* The production during the same period for each State and for the Commonwealth as a whole is given below:—

PRODUCTION OF WHEAT, 1860-1 to 1916-17.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N. T.	Federal Terr.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1860-1 ...	1,581,598	3,459,914	3,136	3,576,593	208,332	1,415,896	...	...	10,245,469
1865-6 ...	1,013,863	3,514,227	33,068	3,587,800	231,594	1,273,766	...	...	9,654,338
1870-1 ...	999,595	2,870,409	39,787	6,961,164	316,769	896,881	...	...	12,084,605
1875-6 ...	1,958,640	4,978,914	97,400	10,739,834	237,171	700,092	...	...	18,712,051
1880-1 ...	3,717,355	9,727,369	223,243	8,606,510	332,232	750,040	...	...	23,356,749
1885-6 ...	2,733,133	9,170,538	51,598	14,612,876	339,376	524,348	...	...	27,431,869
1890-1 ...	3,649,216	12,751,295	207,990	9,399,389	467,889	642,980	...	...	27,118,259
1895-6 ...	5,195,312	5,669,174	123,630	5,929,300	188,077	1,164,855	...	...	18,270,348
1900-1 ...	16,173,771	17,847,321	1,194,068	11,253,148	774,653	1,110,421	...	...	48,355,402
1905-6 ...	20,737,200	23,417,670	1,137,321	20,143,798	2,308,305	776,478	...	...	68,520,772
1910-11 ...	27,913,547	34,813,019	1,022,373	24,344,740	5,897,540	1,120,744	20	...	95,111,983
1911-12 ...	25,080,111	20,891,877	285,109	20,352,720	4,358,904	659,615	20	7,991	71,636,347
1912-13 ...	32,466,506	26,223,104	1,975,505	21,496,216	9,168,594	630,315	...	20,830	91,981,070
1913-14 ...	37,996,068	32,936,245	1,769,432	16,936,988	13,331,350	349,736	...	24,313	103,344,132
1914-15 ...	12,812,803	3,940,947	1,585,087	3,527,428	2,624,190	384,220	...	17,727	24,892,402
1915-16 ...	66,726,459	58,521,706	414,458	34,134,504	18,236,355	993,790	...	38,451	179,065,703
1916-17* ...	36,743,500	51,162,438	2,463,141	43,830,972	16,107,804	492,110	...	†	150,799,965

* Final figures Victoria and Queensland, those for remaining States approximate.

† Included with New South Wales.

The harvest of 1915-16 was the largest ever reaped in the Commonwealth, and exceeded by over 75,700,000 bushels that of 1913-14, the previous largest harvest; the 1910-11 yield was 95,111,983 bushels, for 1912-13, 91,981,070 bushels, and that for 1909-10 was 90,413,597 bushels, these being the only five occasions, prior to 1916-17, on which a yield exceeding 90,000,000 bushels has been obtained. The harvest for 1914-15 was poor, the prolonged drought having been disastrous to the wheat areas. The yield was 24,892,402 bushels, the lowest since 1902. The approximate estimate for the 1916-17 season gives 150,800,000 bushels which, if obtained, will constitute the second largest yield on record.

(iii.) *Average Yields.* In the next table will be found the average yield of wheat per acre in each of the seasons 1901-2 and 1911-12 to 1915-16 and for the decennium:—

YIELD OF WHEAT PER ACRE, 1901-2 and 1911-12 to 1915-16.

Season.	N.S.W.	Vic.	Q'land.	S. Aus.	W. Aus.	Tasmania.	N.T.	Fed. Terr.	C'wealth.
	Bushels.	B'shls.	B'shfs.	B'shls.	B'shls.	B'shls.	B'shls.	B'shls.	B'shls.
1901-2 ...	10.64	6.91	19.40	4.60	10.10	21.86	...	...	7.54
1911-12 ...	10.54	9.65	6.64	9.29	7.12	17.73	10.00	10.77	9.64
1912-13 ...	14.56	12.58	15.81	10.34	11.56	24.99	...	20.54	12.53
1913-14 ...	11.86	12.84	13.34	7.47	12.15	18.97	...	13.32	11.13
1914-15 ...	4.65	1.38	12.48	1.41	1.91	16.10	...	10.55	2.58
1915-16 ...	15.94	15.90	4.42	12.46	10.52	20.43	...	16.21	14.34
Average for 10 seasons	11.81	11.24	11.37	9.66	9.03	20.66	...	14.32	10.81

As the above figures shew, there were considerable variations in the average yields, chiefly due to the vagaries of the season.

For the Commonwealth as a whole the average yield for 1914-15 of 2.58 bushels per acre was 8.23 below the average yield of 10.81 per acre during the last ten seasons. The highest average yield for any State was in Tasmania with 16.10 bushels per acre, and the lowest in Victoria with 1.38 bushels per acre. The yield per acre for the Commonwealth for 1915-16 was 14.34 bushels, exceeding that of any previous year by over three-fifths of a bushel. The average yield per acre for New South Wales was 15.94, for Victoria 15.90 bushels, while that for South Australia was 12.46 bushels.

(iv.) *Relation to Population.* During the seasons embraced in the following table, the Commonwealth's production of wheat per head of population has varied between $3\frac{1}{2}$ bushels in 1902-3 and $36\frac{1}{2}$ bushels in 1915-16. The State in which wheat-growing occupies the most important position relatively to population is South Australia, which in 1916-17 had a yield averaging over 101 bushels per head. Taking a series of years Queensland is the State in which the average production of wheat per head is least. Particulars for 1901-2 and the past six seasons are as follows:—

AUSTRALIAN WHEAT PRODUCTION PER 1000 OF POPULATION.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N.T.	Fed. Terr.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels	Bush'ls	Bush'ls	Bushels
1901-2	10,766	10,023	3,340	22,299	4,943	5,499	...	...	10,082
1911-12	14,993	15,330	485	48,671	14,817	3,409	6	4,056	15,955
1912-13	18,265	18,995	3,104	49,981	29,950	3,196	...	10,737	19,433
1913-14	20,743	23,324	2,680	38,489	41,572	1,734	...	12,230	21,212
1914-15	6,883	2,755	2,342	7,986	8,124	1,908	...	9,049	5,038
1915-16	35,675	41,241	611	77,854	57,344	4,944	...	21,023	36,307
1916-17	19,746	36,550	3,617	101,481	52,162	2,461	...	†	30,931

* Approximate, except for Victoria, and Queensland. † Included with New South Wales.

2. *Australian and Foreign Wheat Yields.*—In the next table will be found a statement of the average return per acre in the principal wheat-growing countries of the world, ranging from Denmark with a maximum of 47.14 bushels per acre, to Mexico with a minimum of under 3 bushels per acre. Australia with approximately 14.34 occupies a subordinate position. (See table on previous page.)

AVERAGE YIELD OF WHEAT PER ACRE IN VARIOUS COUNTRIES, 1915.

Country.	Average Yield in bushels per acre.	Country.	Average Yield in bushels per acre.
Denmark ...	47.14	United States ...	16.37
Netherlands ...	37.22	Servia* ...	16.03
Belgium* ...	34.94	Chile ...	14.41
United Kingdom* ...	31.70	Australia ...	14.34
Sweden (1912) ...	30.08	Spain ...	13.45
Germany* ...	29.58	Italy ...	13.22
Canada ...	25.10	Russia in Europe ...	13.09
Egypt ...	23.99	India ...	11.53
Bulgaria (1913) ...	23.82	Argentine Republic* ...	11.17
New Zealand ...	21.59	Algeria ...	10.47
Austria (1913) ...	19.89	Portugal (1911) ...	9.78
Japan* ...	18.44	Tunis ...	9.61
Rumania ...	18.39	Russia in Asia ...	8.99
Hungary ...	17.89	Uruguay ...	4.26
France ...	16.97	Mexico* ...	2.97

* 1914.

3. *Wheat Crops of the World.*—The latest available official statistics of the production of wheat in various countries are given in the following table:—

WHEAT YIELD IN VARIOUS COUNTRIES, 1915.

Country.	Yield in Bushels.	Country.	Yield in Bushels.
United States ...	980,552,947	Turkey in Asia ...	33,929,000
Russia in Europe (1913)* ...	812,334,900	Algeria ...	33,593,588
India ...	371,644,694	Japan ...	23,138,609
Canada ...	325,968,505	Chile ...	18,430,539
France ...	230,204,079	Turkey in Europe ...	17,449,200
Australia ...	179,065,703	Persia ...	15,510,400
Argentine Republic ...	172,767,437	Tunisia ...	10,685,696
Italy ...	165,322,445	Servia ...	9,694,000
Germany ...	155,104,000	Sweden ...	8,724,600
Hungary ...	148,254,220	Belgium ...	7,755,200
Spain ...	135,035,481	Denmark ...	7,730,965
Russia in Asia (1913) ...	111,120,380	New Zealand ...	7,103,360
Rumania ...	86,510,225	Portugal ...	6,369,927
Austria ...	75,013,200	Netherlands ...	5,955,024
United Kingdom ...	74,021,445	Union of South Africa ...	5,849,360
Bulgaria ...	44,797,913	Mexico ...	3,877,600
Egypt ...	37,950,071	Uruguay ...	3,312,440

* Including Poland and Northern Caucasia.

Various estimates of the total quantity of wheat produced in the world have been made. That furnished by the International Institute of Agriculture, Rome, gives the following figures for the ten years 1905 to 1914:—

WORLD'S PRODUCTION OF WHEAT.

Year.	1,000 bushels.	Year.	1,000 bushels.	Year.	1,000 bushels.
1905 ...	3,300,502	1909 ...	3,586,977	1913 ...	4,047,819
1906 ...	3,414,945	1910 ...	3,528,098	1914 ...	3,883,779
1907 ...	3,130,403	1911 ...	3,511,966		
1908 ...	3,141,456	1912 ...	3,797,529		

In this estimate the figures given for Australia and New Zealand relate to the agricultural year ending on 31st March in the year specified.

For the ten years referred to, the Australian production of wheat aggregated 749,211,000 bushels, thus representing slightly under 2½ per cent. of the world's production. The total quantity of wheat produced in the British Empire during the same period of ten years was approximately 6,580 million bushels, so that the Australian production of wheat represented 11.4 per cent. of that of the British Empire, while the British Empire production represented 18.6 per cent. of the world's total.

4. **Prices of Wheat.**—(i.) *British Wheat.* Since the United Kingdom is the largest importer of Australian wheat, the price of wheat in the British markets is a matter of prime importance to the local producer. The table below gives the average prices per Imperial quarter realised for British-grown wheat:—

PRICES OF BRITISH WHEAT PER QUARTER, 1861 to 1915.

Year.	Average for Year.		Highest Weekly Average.		Lowest Weekly Average.		Year.	Average for Year.		Highest Weekly Average.		Lowest Weekly Average.	
	s.	d.	s.	d.	s.	d.		s.	d.	s.	d.	s.	d.
1861 ...	55	4	61	6	50	0	1907 ...	30	7	36	3	26	0
1871 ...	56	8	60	0	52	6	1908 ...	32	0	35	6	30	5
1881 ...	45	4	55	2	40	9	1909 ...	36	11	44	9	31	4
1891 ...	37	0	41	8	32	3	1910 ...	31	8	33	9	29	0
1901 ...	26	9	27	8	25	8	1911 ...	31	8	33	4	30	0
1902 ...	28	1	31	8	24	10	1912 ...	34	9	39	2	29	10
1903 ...	26	9	30	3	24	11	1913 ...	31	8	34	3	30	0
1904 ...	28	4	30	6	26	3	1914 ...	34	11	43	3	30	11
1905 ...	29	8	32	3	26	8	1915 ...	52	10	62	0	42	9
1906 ...	28	3	30.	9	25	9							

(ii.) *Australian and other Wheat.* Generally speaking, Australian wheat shews a grain of bright clear texture, rich in gluten, and of fine milling quality. Its excellence is attested by the high price which it realises in the home markets. The statement below shews, for the last five years, the average value per Imperial quarter of the wheat imported into the United Kingdom from the chief producing countries. Owing to the drought during the 1914-15 season the quantity of Australian wheat imported into the United Kingdom in 1915 was negligible:—

**AVERAGE PRICE OF FOREIGN WHEAT IMPORTED INTO THE UNITED KINGDOM,
1911 TO 1915.**

Country.	Average Price per Imperial Quarter.					Country.	Average Price per Imperial Quarter.				
	1911.	1912.	1913.	1914.	1915.		1911.	1912.	1913.	1914.	1915.
	s. d.	s. d.	s. d.	s. d.	s. d.		s. d.	s. d.	s. d.	s. d.	s. d.
Australia ...	34 10	38 5	37 6	36 6	44 9	Germany ...	33 6	36 8	31 0	32 0	...
Russia ...	33 4	37 6	33 11	33 6	50 0	Bulgaria ...	35 1	36 4	...	34 1	...
Rumania ...	34 7	37 3	33 3	33 7	...	United States ...	34 9	35 9	35 1	37 3	54 7
British India ...	33 7	37 0	36 6	39 5	54 4	Argentina ...	33 4	35 6	35 8	34 1	60 8
Chile... ..	33 0	36 9	36 7	35 7	...	Canada ...	34 10	35 2	34 8	37 5	54 10

In the next table will be found a statement of the export values of Australian wheat during each of the last ten years:—

EXPORT VALUES OF AUSTRALIAN WHEAT, 1906 to 1915-16.

Year.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914-15.	1915-16.
Price per bushel	3s. 3d.	3s. 4d.	4s. 1d.	4s. 2d.	4s. 2d.	3s. 6d.	3s. 11d.	3s. 9d.	4s. 1d.	5s. 7d.

The export values here shewn are the average declared values for the successive years at the several ports of shipment in the Commonwealth.

5. *Imports and Exports of Wheat and Flour.*—(i.) *Quantities.* The table hereunder shews the imports, exports, and net exports of wheat and flour during 1901 and from 1911 to 1915-16. For the sake of convenience, flour has been expressed at its equivalent in wheat, one ton of flour being taken as equal to 50 bushels of grain. During 1903 and 1915-16 the Commonwealth imports of wheat and flour were equivalent to 12,607,940 and 5,633,596 bushels of wheat respectively. This importation was necessitated by the failure of the crop in the preceding season. In ordinary seasons the import of wheat and flour is negligible. During the past five years the export has ranged between 6,886,293 bushels in 1914-15 and 63,942,390 bushels in 1911, the net exports for the period averaging 40,362,523 bushels.

**IMPORTS AND EXPORTS OF WHEAT AND FLOUR, COMMONWEALTH,
1901 AND 1911 TO 1915-16.**

Year.	Imports.			Exports.			Net Exports.
	Wheat.	Flour.	Total.	Wheat.	Flour.	Total.	
	Bushels.	Eq. Bshls. ¹	Bushels.	Bushels.	Eq. Bshls. ¹	Bushels.	Bushels.
1901	22,992	302,550	325,542	20,260,058	4,840,700	25,100,758	24,775,216
1911	113	12,150	12,263	55,147,840	8,794,550	63,942,390	63,930,127
1912	1,483	7,300	8,783	32,604,248	8,404,700	41,008,948	41,000,165
1913	60	2,650	2,710	42,922,887	11,082,900	54,005,787	54,003,077
1914-15	1,641,237	5,150	1,646,387	4,210,593	2,675,700	6,886,293	5,239,906
1915-16	5,616,696	16,900	5,633,596	28,621,445	7,347,750	35,969,195	30,335,599

1. Equivalent in bushels of wheat.

(ii.) *Destination of Exported Breadstuffs.* In the next two tables will be found a list of the principal countries to which the Commonwealth exported wheat and flour during each

year of the period 1911 to 1915-16. The countries are as shewn in the Australian Customs returns, but owing to the fact that wheat ships are frequently instructed to call for orders at various ports, the countries to which these ports belong cannot always be considered as the ultimate destination of the whole of the wheat said to be exported to them.

EXPORTS OF WHEAT FROM THE COMMONWEALTH, 1911 to 1915-16.

Country to which Exported.	1911.	1912.	1913.	1914-15.	1915-16.	Total for Five Years.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
U. Kingdom	37,475,188	23,099,670	27,922,717	1,532,693	14,494,243	104,524,516
Sth. African Union ...	2,458,780	1,784,382	4,482,865	1,088,507	2,919,608	12,734,142
Canary Is. ...	4,756,647	3,107,257	1,477,005	...	2,960,553	12,301,467
France ...	5,468,993	53,773	1,943,208	9,482	2,186,567	9,662,023
Peru ...	1,594,610	1,201,682	943,130	290,810	156,302	4,186,534
Belgium ...	1,639,140	1,414,263	1,742,803	...	...	4,796,206
Chile ...	477,573	...	...	650,510	...	1,128,083
Japan ...	99,560	42,550	1,215,778	223,996	...	1,581,884
Germany ...	255,740	556,508	290,553	...	...	1,102,801
India ...	...	...	...	...	...	...
China ...	...	...	...	...	...	...
Italy ...	...	488,697	1,879,923	157,000	3,258,313	5,783,933
Egypt ...	156,485	427,988	92,413	...	267,568	944,454
Philippine I. ...	152	1,667	...	...	2	1,821
New Zealand	12,247	1,695	...	151,042	30,380	195,364
New Caledonia ...	642	1,400	1,129	743	173	4,087
Ceylon ...	1,325	1,487	1,748	853	337	5,750
Other Countries ...	750,758	421,229	929,615	104,957	2,347,385	4,553,944
Total ...	55,147,840	32,604,248	42,922,887	4,210,593	28,621,441	163,507,009

* For orders.

The exports of flour during the same period and the principal countries of destination were as follows:—

EXPORTS OF FLOUR FROM THE COMMONWEALTH, 1911 to 1915-16.

Country to which Exported.	1911.	1912.	1913.	1914-15.	1915-16.	Total for Five Years.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Sth. African Union	35,136	26,230	38,209	14,075	22,019	135,669
United Kingdom	24,616	38,535	18,894	850	43,604	126,499
Java ...	30,964	29,275	38,103	6,003	11,674	116,019
Portuguese East Africa ...	8,421	4,264	15,612	3,163	216	31,676
Philippine Islands	16,634	16,240	14,366	3,313	3,383	53,936
Straits Settlements	22,036	15,177	21,625	3,352	5,023	67,213
Hong Kong ...	5,687	1,952	2,466	140	1,442	11,687
New Zealand	2,818	1,641	3,057	5,064	2,190	14,770
New Caledonia ...	4,174	4,012	4,143	3,791	3,566	19,686
Mauritius ...	1,974	1,240	1,906	1,810	...	6,930
Ceylon ...	3,046	3,901	5,454	2,173	342	14,916
China ...	1,656	1,738	2,188	545	384	6,511
Fiji ...	2,230	2,429	2,619	1,834	1,257	10,369
Japan ...	269	453	610	2	53	1,387
Other Countries ...	16,230	21,007	52,406	7,399	51,802	148,844
Total ...	175,891	168,094	221,658	53,514	146,955	766,112

For the five years under review the export of wheat to the United Kingdom amounted to 104,524,516 bushels, or nearly 64 per cent. of the total export for the period. On the other hand, the export of flour to the United Kingdom aggregated only 126,499 tons, or 16½ per cent. of the total export. During the quinquennium the heaviest exports of flour have been to South Africa, the United Kingdom, Java, Portuguese East Africa, the Philippine Islands, the Straits Settlements, and New Caledonia.

(iii.) *Exports of Wheat and Flour.* From the foregoing returns it will be seen that the quantity of Australian wheat exported in the form of flour during the past five years represents, on the average, slightly under 19 per cent. of the total equivalent in wheat exported as wheat or flour from the Commonwealth. One cause of this, and probably the chief one, is the fact that Australian wheats are in considerable demand with the English millers for mixing purposes, while the Australian flour has not, up to the present, received that consideration from the English bakers which its admitted qualities undoubtedly merit. Steps which have recently been taken to bring these qualities before the British public may possibly have the effect of increasing the proportion of wheat exported in the form of flour.

A point of some interest in connection with the export of wheat, and one which bears also on the proportions of wheat and flour exports just referred to, is that concerning the quantity of phosphoric acid which this export has the effect of removing from the Commonwealth, and the necessity which exists for the return to the soil of this substance in some form.

According to an estimate furnished by the chemist to the New South Wales Department of Agriculture (F. B. Guthrie, Esq., F.C.S., etc.), the proportions of milled product from a bushel (60 lbs.) of wheat are, approximately, 42 lbs. of flour, 9 lbs. of bran, and 9 lbs. of pollard, while the percentage of phosphoric acid contained in these products is as follows:—

Flour	0.32 per cent., or 0.13 lb. per bushel.
Bran	3.00 " 0.27 "
Pollard	0.90 " 0.08 "

The total amount of phosphoric acid contained in a bushel of wheat is, therefore, 0.48 lb., of which 0.13 lb. is in the flour and 0.35 lb. in the offal.

During the past ten years the net exports from the Commonwealth of wheat and its milled products have amounted to 309,630,663 bushels of wheat, 1,480,587 tons of flour, and 3,317,455 bushels of bran, pollard, and sharps. On the basis of the figures quoted above this export would contain no less than 159,000,000 lbs. of phosphoric acid, the value of which as a fertiliser would be over a million pounds sterling.

(iv.) *Local Consumption of Wheat.* The estimated consumption of wheat for food and for seed purposes in the Commonwealth during the past ten years is given in the following tables:—

WHEAT USED FOR HUMAN CONSUMPTION IN THE COMMONWEALTH.

Year.	Flour Milled.	Net Exports of Flour.		Net Quantity Available for Home Consumption.		Net Quantity Available per Head of Population.	
		Flour.	Flour in Biscuits Exp'd.	Flour.	Equivalent in Terms of Wheat.	Flour.	Equivalent in Terms of Wheat.
1906 ...	Tons. 613,923	Tons. 166,005	Tons. 1,570	Tons. 446,348	Bushels. 22,317,400	Tons. .1099	Bushels. 5,496
1907 ...	652,135	163,064	1,840	487,231	24,361,550	.1182	5,908
1908 ...	552,388	116,625	1,810	433,953	21,697,650	.1035	5,173
1909 ...	603,688	129,889	1,980	471,819	23,590,950	.1104	5,519
1910 ...	649,282	139,774	2,340	507,168	25,358,400	.1161	5,803
1911 ...	691,301	175,649	2,570	513,082	25,654,100	.1143	5,713
1912 ...	677,053	167,948	2,820	506,285	25,314,250	.1090	5,450
1913 ...	760,813	221,605	2,600	536,408	26,820,400	.1117	5,583
1914 ...	713,845	174,180	2,400	537,265	26,863,250	.1092	5,461
1915 ...	541,810	7,633	2,160	532,017	26,600,850	.1075	5,374
Aggregate 10 years ...	6,456,038	1,462,372	22,090	4,971,576	248,578,800	.1110	5,548

ESTIMATED QUANTITY OF WHEAT USED FOR SEED PURPOSES IN THE COMMONWEALTH.

Year.	Wheat for Seed Purposes.		
	Quantity.	Per Acre.	Per Head of Population.
	Bushels.		Bushels.
1906	6,664,000	.954	1.641
1907	6,261,000	.960	1.518
1908	6,429,000	.962	1.533
1909	7,322,000	.960	1.713
1910	8,332,000	.966	1.907
1911	8,282,000	.922	1.844
1912	8,484,000	.919	1.827
1913	9,747,000	.908	2.029
1914	10,059,000	.914	2.045
1915	13,041,000	.905	2.634
Aggregate for 10 years	84,621,000	.937	1.869

In addition to the above, there is to be taken into consideration grain fed to poultry and other live stock. This, doubtless, varies in quantity from year to year according to the prices current for wheat, and other causes. No data is available on which to base an estimate of actual quantity so consumed. The flour available for human consumption necessarily fluctuates from year to year coincident with stocks being heavy or light. In 1907 the flour available per head of population, after deducting net exports from quantity milled, shewed a substantial increase over the average for the previous year, this, however, being counterbalanced by a decline in the following year. The average quantity of flour consumed per annum for the ten years under consideration was 0.1110 tons per head of population, this, when expressed in equivalent terms in wheat, representing 5.548 bushels. The estimates of quantity of grain used for seed purposes have been based on data supplied by the Agricultural Departments of the several States giving average quantities of seed used per acre for wheat sown either for grain, hay or green fodder. The average annual quantity thus used during the ten years was 1.869 bushels per head of population, and 0.937 bushels per acre sown.

Reference will be found in a subsequent section to Commonwealth and State legislation for control of trade and prices of commodities during the war. Various State Boards and Commissions and a Federal Royal Commission were appointed to collect information and to report on such matters as the supply of foodstuffs and other necessaries required by, and available for, Australia, and other important matters relating to conditions of trade and industry.

6. **Value of the Wheat Crop.**—The estimated value of the wheat crop in each State and in the Commonwealth during the season 1915-16 is shewn below :—

VALUE OF THE WHEAT CROP,* 1915-16.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	Fed. Terr.	C'w'lth.
Aggregate value	£ 15,013,453	£ 13,167,734	£ 113,970	£ 7,680,263	£ 4,103,180	£ 248,447	£ 8,651	£ 40,335,698
Value per acre	£3/11/9	£3/11/7	£1/4/4	£2/16/1	£2/7/4	£5/2/2	£3/12/11	£3/4/7

* Exclusive of the value of straw.

7. **The Australian Wheat Marketing Scheme.**—(i.) *General Principles.* Owing to the abnormal conditions prevailing, a Wheat Marketing Scheme was entered into by the Governments of the Commonwealth and of the States of New South Wales, Victoria,

South Australia, and Western Australia, for the purpose of realising to the best advantage the 1915-16 wheat harvest of the States named, and of making advances to farmers pending realisation. It was subsequently decided that the 1916-17 harvest should be dealt with on similar lines to those of the 1915-16 harvest.

The general principles of the scheme may be shortly stated thus:—

1. That all growers should participate equitably in the realisation of the harvest and the proceeds thereof.
2. That the limited freights available should be allotted between the States in accordance with the exportable surplus of each.

The securing and general allotment of freights is under the control of the Chartering Agents who are responsible to the Commonwealth Government.

The distribution of freights among the States is in charge of the Australian Wheat Board, which also has the duty of realising the crop. This Board consists of Ministerial representatives of the Governments of the Commonwealth and of the States. It has the assistance of an Advisory Board consisting of well-known wheat shippers. A London Wheat Committee, consisting of the High Commissioner and the Agents-General of the States concerned, acting with the advice of the London representatives of the wheat shippers, arranges overseas sales. Adjustments are to be made between the States so that, having regard to the quantity shipped, each will ultimately receive the average net result of the whole of the overseas realisations.

In certain States the crop is bought by the State Government, and in others the wheat is received from the growers for sale on their behalf.

The Australian Wheat Board fixes all prices at which wheat may be sold, except in the case of poultry feed, which is left to the States to regulate.

Each State has a local Board or Commission to control the operations of the scheme within the State concerned. This Board or Commission effects all local sales, including sales to millers.

(ii.) *Advances and Finance.* Under arrangements made by the Commonwealth and State Governments, advances are made to farmers upon delivery of their wheat at railway stations to representatives of agents appointed by the different State Governments. Upon the 1915-16 crop, advances made (inclusive of one arranged for July, 1917) amount to 4s. 6d. per bushel, less rail freight and handling charges. This will still leave for distribution a small amount, varying in the different States in accordance with differences in local realising, and in interest and other expenses. Upon the 1916-17 crop, advances (inclusive of one arranged for August, 1917) amount to 3s. per bushel.

Proceeds of wheat as realised are applied in reduction of the bank overdrafts caused by payment of advances and expenses. The rate of interest payable to the banks is five per cent. The Government of each State has undertaken to repay all advances made on account of such State, and the Commonwealth Government has guaranteed repayment by the States. Advances to growers were made by means of certificates issued by the agents appointed by the various States. The certificates were payable at banks named by the growers. In Victoria and South Australia inducements are held out to growers to refrain from cashing certificates. In these States growers are allowed five per cent. per annum on their uncashed certificates. In New South Wales and Western Australia interest is not allowed.

(iii.) *Results of the Scheme.* In all the States, certain wheat, particularly seed wheat, has not been brought under the scheme. The quantity of wheat pooled therefore differs from that harvested in each State. In addition, wheat grown in one State may

be pooled in another. A considerable quantity of New South Wales wheat is included in Victorian returns, and the Victorian total includes a small quantity of South Australian wheat.

Deliveries made on account of each harvest are as follows :—

	1915-16.		1916-17.	
	Bushels.		Bushels.	
New South Wales	58,233,000	31,568,000	59,158,000	49,800,000
Victoria	29,893,000	40,000,000	14,967,000	13,400,000
South Australia				
Western Australia				
Total	162,251,000	134,768,000		

On 21st May, 1917, the total overdraft on both pools amounted to £2,445,000.

The quantities of wheat disposed of and on hand on that date were as follows (a bag may roughly be taken as equivalent to three bushels):—

Particulars.	N.S.W.	Vic.	S.A.	W.A.	Total.
1915-16. (In thousands of bags).					
Shipments	8,730	8,977	5,362	3,334	26,403
Local Sales	7,402	4,599	1,446	1,456	14,903
Stocks on hand	3,896	5,833	2,992	277	12,498
Total	19,528	19,409	9,800	5,067	53,804
1916-17. (In thousands of bags),					
Shipments ... ..	...	18	251	1	270
Local Sales	386	696	432	105	1,619
Stocks on hand	11,093	15,758	12,635	4,287	43,773
Total	11,479	16,472	13,318	4,393	45,662

The value realised to 21st May, 1917 (both pools) is as follows :—

Particulars.	N.S.W.	Vic.	S.A.	W.A.	Total.
	£	£	£	£	£
Overseas Sales ... (Wheat shipments)	7,241,000	7,087,000	4,140,000	2,576,000	21,044,000
Local Sales	5,169,000	4,056,000	1,353,000	661,000	11,239,000
Total value of Wheat shipped and deliveries	12,410,000	11,143,000	5,493,000	3,237,000	32,283,000

Since the initiation of the "Pool," several sales of magnitude have been made, including one of 3,000,000 tons to the British Wheat Commission, at a rate of 4s. 9d. per bushel f.o.b., equalling £26,600,000. This is the largest wheat transaction ever recorded.

8. Lucerne Pool.—Early in 1916 the Victorian State Government decided to form a Lucerne Pool, to be operated for the benefit of settlers within the Government Irrigation Settlements, which included Swan Hill, Bamawm, Ballendella, Nanneella and Tongala. The object was to advance £2 per ton on delivery at the sending station, where it was proposed to store the hay, as it was considered that the market value would be very little more than £2 per ton. The pool, however, placed itself in touch with the local market, and a few days after the commencement of the operation a large sale was made to the Defence Department at £3 8s. 6d. per ton, free on rails at sending stations, and other large orders were placed in New South Wales and Victoria at prices ranging from £3 11s. to £3 19s. per ton on rails at sending stations.

In addition to the original advance of £2 per ton, several dividends have been paid, bringing the total net return to growers to between £3 5s. and £3 8s. per ton.

§ 5. Oats.

1. Progress of Cultivation.—Oats comes next in importance to wheat amongst the grain crops cultivated last season, but while wheat grown for grain accounted for over 67 per cent., oats represented less than 4 per cent. of the area under crop in the Commonwealth. The progress of cultivation of oats since 1860 is shewn in the table hereunder, and more fully in the graphs hereinafter:—

CULTIVATION OF OATS, 1860-61 to 1915-16.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Federal Terr.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1860-1	6,535	86,937	7	2,273	507	30,303	...	125,962
1865-6	10,939	102,817	348	2,872	1,232	28,538	...	146,746
1870-1	10,683	149,309	122	6,188	2,095	30,946	...	199,343
1875-6	18,856	124,100	114	3,640	1,256	32,556	...	180,522
1880-1	17,923	134,089	116	4,355	1,319	19,853	...	177,655
1885-6	14,117	215,994	208	7,871	1,596	29,247	...	269,033
1890-1	14,102	221,048	411	12,475	1,934	20,740	...	270,710
1895-6	23,750	255,503	922	34,098	1,880	32,699	...	348,852
1900-1	29,383	362,689	385	27,988	4,790	45,073	...	470,308
1905-6	38,543	312,052	533	56,950	15,713	42,776	...	466,567
1910-11	77,991	392,681	2,537	77,674	61,918	63,887	...	676,688
1911-12	70,880	302,238	557	107,881	77,488	57,593	167	616,794
1912-13	84,979	439,242	4,232	155,545	127,645	62,445	196	874,284
1913-14	103,262	442,060	4,093	116,932	133,625	58,886	154	859,020*
1914-15	43,285	434,815	2,728	140,567	96,085	57,063	191	774,734
1915-16	58,449	353,932	339	126,529	104,086	78,212	97	721,644

* Including 8 acres, Northern Territory.

2. Total Yield.—The total oat crop of the several States for the same period is furnished in the following table:—

COMMONWEALTH OAT CROP, 1860-61 to 1915-16.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Fed. Terr.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bush'ls	Bushels.
1860-1	98,814	2,633,693	91	52,989	11,925	926,418	...	3,723,930
1865-6	116,005	2,279,468	4,524	42,642	19,005	688,740	...	3,150,384
1870-1	119,365	2,237,010	1,586	88,383	39,974	691,250	...	3,177,568
1875-6	352,966	2,719,795	1,482	60,749	18,840	827,043	...	3,980,875
1880-1	356,121	2,362,425	2,081	50,070	21,104	439,446	...	3,231,247
1885-6	279,107	4,692,303	1,006	97,201	97,201	784,325	...	5,877,084
1890-1	256,659	4,919,325	8,967	116,229	38,791	519,395	...	5,859,366
1895-6	374,196	2,880,045	10,887	184,012	19,326	906,934	...	4,375,400
1900-1	593,548	9,582,332	7,855	366,229	86,433	1,406,913	...	12,043,310
1905-6	883,081	7,232,425	5,858	869,146	283,987	1,200,024	...	10,474,521
1910-11	1,702,706	9,699,127	50,469	1,136,618	776,233	2,063,303	...	15,428,456
1911-12	1,152,827	4,585,326	5,783	1,349,480	961,385	1,504,633	2,337	9,561,771
1912-13	1,669,259	8,323,639	82,420	1,673,508	2,105,812	2,257,258	4,816	16,116,712
1913-14	1,832,616	8,890,321	56,236	1,200,740	1,655,681	1,593,664	2,790	15,232,048
1914-15	511,759	1,608,419	43,607	368,425	464,943	1,341,800	2,151	4,341,104
1915-16	1,344,138	9,328,894	2,454	2,134,374	1,533,092	2,189,467	1,560	16,538,979

The principal oat-growing State of the Commonwealth is Victoria. During the past five seasons it has produced about 53 per cent. of the total quantity of oats grown in the Commonwealth; Tasmania, South Australia, Western Australia, and New South Wales come next in order of importance. In New South Wales and Tasmania, the highest production of oats for any season was that of 1909-10, while Victoria and South Australia experienced maximum yields in 1915-16, and Queensland and Western Australia in 1912-13. For the Commonwealth as a whole, the record yield was that of 17,541,210 bushels in the season 1903-4, while the yields of 16,538,979 and 16,248,857 for 1914-15 and 1908-9 respectively, rank second and third.

3. Average Yield.—The average yield per acre of the oat crop of the Commonwealth varies considerably in the different States, being highest in Tasmania and lowest in South Australia. Particulars as to average yield in each of the seasons 1901-2 and 1911-12 to 1915-16, and also for the decennium, are given in the succeeding table:—

AVERAGE YIELD OF OATS PER ACRE.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Fed. Terr.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bush'ls	Bushels.
1901-2 ...	21.31	20.43	27.50	13.54	16.78	31.48	...	21.22
1911-12 ...	16.25	15.17	10.38	12.51	12.41	26.13	13.99	15.50
1912-13 ...	19.64	18.95	19.48	10.76	16.50	36.15	24.57	18.43
1913-14 ...	17.75	20.11	13.74	10.27	12.39	27.06	18.12	17.73
1914-15 ...	11.82	3.70	15.98	2.62	4.84	23.51	11.26	5.60
1915-16 ...	23.00	26.36	7.24	16.87	14.78	27.99	16.08	22.92
Average for 10 Seasons	19.03	19.13	17.53	11.98	13.19	30.29	16.96	18.39

The smallest average yield per acre for the Commonwealth for the past ten-year period was that experienced in the season 1914-15, being 5.60, while the largest was that of the season 1908-9, amounting to 24.03 bushels per acre.

4. **Relation to Population.**—The State in which oat production occupies the most important position in relation to population is Tasmania, the yield for that State representing about 8.9 bushels per head during the last five years under review, as compared with 2.6 bushels per head for the Commonwealth as a whole. Particulars for the seasons 1901-2 and 1911-12 to 1915-16 are furnished in the succeeding table:—

OAT PRODUCTION PER 1000 OF POPULATION.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Federal Territory.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1901-2	500	5,558	83	1,306	845	9,734	...	2,559
1911-12	689	3,365	9	3,227	3,268	7,777	1,217	2,093
1912-13	939	6,029	129	3,891	6,879	11,446	2,482	3,405
1913-14	1,000	6,296	85	2,729	5,163	7,902	1,403	3,126
1914-15	275	1,124	64	834	1,439	6,662	1,098	879
1915-16	719	6,574	4	4,868	4,837	10,892	820	3,353

5. **Value of Oat Crop.**—The estimated value of the oat crop of the several States of the Commonwealth for the season 1915-16 is as follows:—

VALUE OF OAT CROP,* 1915-16.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Fed. Terr.	C'wealth.
Aggregate value	£201,616	£1,010,630	£614	£222,338	£179,444	£510,875	£234	£2,125,751
Value per acre	£3/9/0	£2/17/1	£1/16/3	£1/15/2	£1/16/6	£6/10/8	£2/8/3	£2/18/11

* Exclusive of the value of straw.

6. **Imports and Exports.**—The production of oats in the Commonwealth has not yet reached such a stage as to admit of a regular export trade in this cereal; in fact in certain years the imports have exceeded the exports, notably in 1903, 1906, 1908, and in each of the past four years. The quantities and values of oats imported into and exported from the Commonwealth during the years 1901 and 1911 to 1915-16 are given hereunder:—

COMMONWEALTH IMPORT AND EXPORT OF OATS, 1901 and 1911 to 1915-16.

Year.	Imports.		Exports.		Net Exports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Bushels.	£	Bushels.	£	Bushels.	£
1901	1,526,599	153,674	2,874,334	285,347	1,347,735	131,673
1911	4,522	639	391,465	46,493	386,943	45,854
1912	2,939,325	398,114	106,275	14,688	2,833,050	383,426
1913	146,102	20,282	111,280	14,102	34,822	6,180
1914-15	1,767,490	344,201	38,163	7,904	1,729,327	336,297
1915-16	2,473,412	501,755	582,055	85,119	1,891,357	416,636

Note. — signifies net imports.

The principal countries from which the Commonwealth imports of oats have been obtained are the Dominion of New Zealand, Chili, Japan, and the United States of America, while the principal countries to which oats were exported during the period under review were the South African colonies in the earlier, and the United Kingdom, Ceylon and India in the later years.

7. **Oatmeal, etc.**—Importations of oatmeal, etc., into the Commonwealth take place principally from the United Kingdom, the United States, and Canada. The total importations of oatmeal, wheatmeal, and rolled oats during 1915-16 amounted to 599,133 lbs., and represented a value of £10,077 while the exports amounted to 140,230 lbs., valued at £1,752, principally to New Zealand and the Pacific Islands.

8. **Comparison with other Countries.**—A comparison of the Australian production of oats with that of the leading oat-producing countries of the world, is furnished in the following table:—

PRODUCTION OF OATS IN VARIOUS COUNTRIES, 1915.

Country.	Quantity of Oats produced.	Country.	Quantity of Oats produced	Country.	Quantity of Oats produced.
	Bushels.		Bushels.		Bushels.
United States ...	1,493,226,922	Hungary ...	78,448,695	Netherlands	19,042,898
Russia in Europe	976,169,320	Sweden ...	67,858,000	Australia ...	16,538,979
Germany ...	630,110,000	Argentina ...	61,452,200	Algeria ...	14,620,490
Canada ...	466,315,329	Denmark ...	41,562,055	Union of	
France ...	236,078,950	Belgium ...	38,776,000	South Africa	9,305,373
United Kingdom	189,196,826	Spain ...	35,818,360	Bulgaria ...	9,252,923
Austria ...	149,287,600	Italy ...	30,480,844	Norway ...	9,039,655
Russia in Asia	116,076,925	Rumania ...	28,164,947	New Zealand	7,653,208

9. **Comparison of Yields.**—The average yield per acre of oats in Australia is a somewhat low one compared with the results obtained in other countries, where the cultivation of this cereal is more extensively carried on. Arranging the countries contained in the foregoing table, with the exception of Norway and Union of South Africa, for which particulars are not available, according to the magnitude of the average yield of oats for the years specified the results are as follow:—

YIELD OF OATS PER ACRE, VARIOUS COUNTRIES, 1915.

Country.	Average per Acre.	Country.	Average per Acre.	Country.	Average per Acre.
	Bushels.		Bushels.		Bushels.
Belgium (1914) ...	70.29	Austria (1913) ...	31.35	Algeria ...	24.76
Germany (1914) ...	55.67	Hungary ...	29.45	Australia ...	22.92
Netherlands ...	54.25	Rumania ...	26.45	Russia in Europe	21.80
United Kingdom	45.60	France ...	26.08	Argentina ...	21.42
Canada ...	41.03	Sweden (1914) ...	25.99	Bulgaria (1914) ...	20.90
Denmark ...	40.59	Spain ...	25.53	Russia in Asia	
United States ...	36.62	Italy ...	25.23	(1913) ...	20.50
New Zealand ...	35.98				

10. **Price of Oats.**—The average wholesale prices of oats in the markets of the several capitals for the year 1915 are given in the following table:—

AVERAGE WHOLESALE PRICE OF OATS PER BUSHEL, 1915.

Particulars.	Sydney.	Melbourne.	Brisbane.	Adelaide.	Perth.	Hobart.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Average price per bushel ...	3 6½	4 7	5 6½	4 2	4 6½	4 6

§ 6. Maize.

1. **States Growing Maize.**—The only States in which maize is at all extensively grown for grain are those of New South Wales and Queensland, the area so cropped in these two States during the season 1915-16 being 300,593 acres, or 93 per cent. of the total for the Commonwealth. Of the balance, Victoria contributed 22,258 acres, South Australia 702 acres, Western Australia 28 acres, and the Northern Territory 45 acres. The climate of Tasmania prevents the growing of maize for grain in that State. In South Australia, prior to 1908, particulars concerning maize had not been specially asked for on the form used in the collection of agricultural statistics. In all the States, maize is grown to a greater or less extent as green forage, particularly in connection with the dairying industry.

2. **Area under Maize.**—The area devoted to the growing of maize for grain in each State, from 1875 onwards, is given in the following table, and the actual fluctuations from year to year are shown more fully on the graph hereinafter.

The total area under maize in the Commonwealth exceeded 300,000 acres for the first time in the season 1890-1, and although it fluctuated somewhat during the succeeding seventeen years, it may be considered to have remained at about that figure. The greatest divergence during the period occurred in 1903-4, when a record total of 371,906 acres was harvested. For 1908-9 and the two following seasons a continuous increase in the area devoted to maize was in evidence, and the total of 414,914 acres for 1910-11 is the highest ever attained. The unfavourable weather conditions during 1911-12 resulted in the acreage under maize for that season being reduced by 74,849 acres as compared with the preceding one; the 1912-13 season showed a further slight decline, and the two following seasons a small increase, followed by another slight fall in 1915-16.

AREA UNDER MAIZE, 1875-6 to 1915-16.

Season.	N.S.W.	Victoria.	Queensland.	South Aust.	W. Aust.	N.T.	Fed. Terr.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1875-6	117,582	2,346	38,711	...	60	...	...	158,699
1880-1	127,196	1,769	44,109	...	32	...	...	173,106
1885-6	132,709	4,530	71,741	...	120	...	...	209,100
1890-1	191,152	10,357	99,400	...	81	...	...	300,990
1895-6	211,104	7,186	100,481	...	23	...	...	318,794
1900-1	206,051	9,389	127,974	...	91	...	...	343,505
1905-6	189,353	11,785	113,720	...	43	...	...	314,901
1910-11	213,217	20,151	180,862	*619	46	19	...	414,914
1911-12	167,712	18,223	153,916	97	29	19	69	340,065
1912-13	176,415	19,986	117,993	176	25	35	56	314,686
1913-14	156,793	17,962	156,775	239	38	45	27	331,879
1914-15	143,663	19,433	176,372	189	73	51	...	339,781
1915-16	154,119	22,258	146,474	702	28	45	11	323,637

* Particulars for years prior to 1907-8 not available.

3. **Total Yield.**—The average yield per acre of this cereal for the season 1915-16 was considerably below that obtaining for some of the previous years, being 6.39 bushels under the decennial average. The 1910-11 crop was a record one, and exceeded 13,000,000 bushels. The average annual production of maize during the last decade was 9,249,841 bushels. Particulars concerning the yield from 1875 onwards are as hereunder:—

MAIZE CROP, 1875-6 to 1915-16.

Season.	N.S.W.	Victoria.	Queensland.	S. Aust.	W. Aust.	N.T.	Fed. Terr.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	B'shls.	B'shls.	Bushels.
1875-6	3,410,517	37,177	1,006,486	...	1,200	...	...	4,455,380
1880-1	4,518,897	49,299	1,409,607	...	896	...	...	5,978,699
1885-6	4,336,163	181,240	1,574,294	...	1,417	...	...	6,093,114
1890-1	5,713,205	574,083	2,373,803	...	1,526	...	...	8,662,617
1895-6	5,687,030	351,891	2,391,378	...	600	...	...	8,430,899
1900-1	6,292,745	604,180	2,456,647	...	1,399	...	...	9,354,971
1905-6	5,539,750	641,216	2,164,674	...	428	...	...	8,346,068
1910-11	7,594,130	982,103	4,460,306	*6,375	718	449	...	13,044,081
1911-12	4,506,547	792,660	3,637,562	1,490	401	400	795	8,939,855
1912-13	5,111,056	715,299	2,524,371	2,628	470	1,400	934	8,356,158
1913-14	4,452,989	800,529	3,915,376	2,336	421	1,350	320	9,173,321
1914-15	3,174,825	1,018,419	4,260,673	170	999	475	...	8,455,561
1915-16	3,773,405	999,886	2,003,463	15,837	273	450	195	6,793,509

* Particulars for years prior to 1907-8 not available.

4. **Average Yield.**—In the following table particulars are given of the average yield per acre of the maize crops of the several States for the seasons 1901-2 and 1911-12 to 1915-16, and also for the decennium:—

AVERAGE YIELD OF MAIZE PER ACRE, 1901-2 and 1911-12 to 1915-16.

Season.	N.S.W.	Victoria.	Q'sland.	S. Aust.	W. Aust.	N.T.	Fed. Terr.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	B'shls.	Bushels.
1901-2 ...	22.98	61.42	21.96	*	10.16	...	...	23.86
1911-12 ...	26.87	43.50	23.63	15.36	13.83	21.05	11.52	26.29
1912-13 ...	28.93	35.79	21.39	14.93	18.80	40.00	16.68	26.53
1913-14 ...	28.40	44.57	24.97	9.77	11.08	30.00	11.85	27.64
1914-15 ...	22.10	52.41	24.16	0.90	13.68	9.31	...	24.89
1915-16 ...	24.48	44.92	13.68	22.56	9.75	10.00	17.73	20.99
Average for 10 Seasons	29.43	48.01	22.53	†14.36	12.69	‡21.14	||13.76	27.38

* Particulars not available. † Average for 9 seasons. ‡ Average for 6 seasons. || Average for 4 seasons.

The extraordinarily high average yield obtained in Victoria is due, in large measure, to the fact that the area under maize in that State is comparatively small and is situated in districts that are peculiarly suited to the production of this grain. The average yield in New South Wales is appreciably higher than that obtained in Queensland.

5. **Value of Maize Crop.**—The value of the Commonwealth maize crop for the season 1915-16 has been estimated at £1,558,048, made up as follows:—

VALUE OF MAIZE CROP, 1915-16.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	N.T.	Federal Terr.	C'wealth.
	£	£	£	£	£	£	£	£
Aggregate value	801,846	224,997	525,909	4,949	123	180	44	1,553,048
Value per acre	£5/4/1	£10/2/2	£3/11/10	£7/1/0	£4/7/10	£4/0/0	£4/0/0	£4/16/3

6. **Relation to Population.**—During the past ten seasons the Commonwealth production of maize has ranged between 1.4 bushels per head of population in 1915-16 and 3 bushels per head in 1910-11. The production in Queensland, the State in which the maize yield per head of population is highest, ranged during the same period between 3 bushels per head in 1915-16 and 7½ bushels per head in 1910-11. Details for the several States for the seasons 1901-2 and 1911-12 to 1915-16 are as follow:—

MAIZE PRODUCTION PER 1000 OF POPULATION, 1901-2 and 1911-12 to 1915-16.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	N. T.	Federal Terr.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1901-2	2,795	509	5,070	*	27	...	...	1,839
1911-12	2,786	596	5,921	4	1	121	447	2,013
1912-13	2,875	518	3,967	6	2	403	481	1,765
1913-14	2,431	567	5,931	5	1	368	161	1,883
1914-15	1,705	712	6,216	...	3	120	...	1,711
1915-16	2,017	705	2,952	36	1	99	107	1,377

* Particulars not available.

7. **Australian and Foreign Maize Production.**—The following table gives the production of maize in Australia and in the leading maize-producing countries of the world. The figures shew that of the total production the United States of America was responsible for 71½ per cent.

PRODUCTION OF MAIZE IN VARIOUS COUNTRIES, 1915.

Country.	Production of Maize.	Country.	Production of Maize.
	Bushels.		Bushels.
United States ...	2,901,066,229	Austria (1914) ...	42,053,600
Argentine Republic ...	327,885,009	Bulgaria ...	33,929,000
Hungary ...	175,025,170	Spain ...	24,551,993
Italy ...	114,489,046	Servia (1914) ...	19,388,000
Rumania ...	106,856,962	Canada ...	14,147,423
Egypt (1914) ...	75,858,458	France ...	13,571,600
Russia in Europe ...	72,516,936	Philippine Islands ...	12,927,918
India (British) ...	62,817,120	Russia in Asia (1913) ...	10,765,860
Mexico ...	58,164,000	Australia ...	6,793,509

8. **Comparison of Yields.**—The average yield per acre of maize in the Commonwealth during the last ten years was 27.91 bushels, and may be regarded as highly satisfactory when compared with that of other maize-producing countries. Canada, Bulgaria, Egypt, Hungary, and Argentine Republic are the only countries shewing a higher average. The remaining countries shewn in the following table had average yields per acre ranging from 10 to 27 bushels.

AVERAGE YIELD OF MAIZE PER ACRE IN VARIOUS COUNTRIES, 1915.

Country.	Average yield per acre.	Country.	Average yield per acre.
	Bushels.		Bushels.
Canada ...	55.99	Australia* ...	20.99
Egypt ...	43.03	Rumania ...	20.52
Argentine Republic ...	31.57	Bulgaria (1914) ...	19.07
Italy ...	28.96	Austria (1913) ...	18.61
Hungary ...	28.26	Russia in Europe (1913)†	17.98
United States of America ...	26.78	Servia (1913) ...	15.85
Spain ...	21.54	Russia in Asia (1913) ...	10.09

* Average yield for 10 years, 27.38.

† Exclusive of Poland.

9. **Oversea Imports and Exports.**—Except in the years 1902, 1903, 1912, 1914-15 and 1915-16, when many of the maize crops failed, the Commonwealth oversea trade in maize has been practically insignificant. In the first of the years mentioned, nearly two million, and in the latter year nearly three and a half million bushels were imported. In 1908 and 1909 also, owing to the small harvests of the seasons 1907-8 and 1908-9, the imports of maize were largely in excess of the exports. Details of imports and exports for 1901 and the past five years are as follows:—

COMMONWEALTH IMPORTS AND EXPORTS OF MAIZE, 1901 and 1911 to 1915-16.

Year.	Imports.		Exports.		Net Imports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Bushels.	£	Bushels.	£	Bushels.	£
1901 ...	188,423	24,764	533	75	187,890	24,689
1911 ...	31,764	4,925	19,914	3,438	11,850	1,487
1912 ...	1,133,755	218,233	37,968	8,402	1,095,787	209,831
1913 ...	273,123	53,387	15,261	3,349	257,862	50,038
1914-15 ...	1,457,660	282,461	12,266	2,873	1,445,394	279,588
1915-16 ...	3,432,571	712,650	4,237	1,088	3,428,334	711,562

The principal countries to which maize has been exported from the Commonwealth are New Zealand and China, while the principal countries from which importations have taken place are the United States, the Pacific Islands, South Africa, and Java.

10. **Prepared Maize.**—A fairly large quantity of corn-flour is imported annually into the Commonwealth, the principal countries of supply being the United Kingdom and the United States. During the year 1915-16 these importations amounted to 442,631 lbs., and represented a value of £5,712.

11. **Price of Maize.**—The average wholesale price of maize in the Sydney market is given in the following table for each of the years 1906 to 1915:—

AVERAGE PRICE OF MAIZE PER BUSHEL, 1906 to 1915.

Particulars.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.
Average price per bushel	s. d. 3 0	s. d. 3 2	s. d. 4 7	s. d. 4 2	s. d. 2 11	s. d. 3 0	s. d. 4 8	s. d. 4 1	s. d. 4 6	s. d. 5 2

§ 7. Barley.

1. **Area under Barley.**—The area devoted to barley in the Commonwealth has fluctuated very considerably, though with a tendency to increase during the past few years. Taking a series of years, the principal barley-growing State is Victoria. For the past three seasons South Australia has attained the lead in regard to acreage, and for 1915-16 accounted for 50 per cent. of the Commonwealth area devoted to this crop; Victoria was next in importance with a percentage of 36; the remaining 14 per cent. being represented by Western Australia, New South Wales, Tasmania, and Queensland in the order named. The figures here given relate to the areas harvested for grain; only small areas are cropped for hay, while more considerable quantities are cut for green forage. These, however, are not included in this sub-section. The area under barley for grain in the several States from 1875 onwards is shewn in the following table:—

COMMONWEALTH AREA UNDER BARLEY, 1875-6 to 1915-16.

Season.	N.S.W.	Victoria.	Q'land.	Sth. Aust.	W. Aust.	Tasmania.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1875-6	4,817	31,568	613	13,969	5,014	5,939	61,920
1880-1	8,056	68,630	1,499	13,074	6,363	8,297	105,919
1885-6	5,298	74,112	406	16,493	6,178	6,833	109,320
1890-1	4,937	87,751	584	14,472	5,322	4,376	117,442
1895-6	7,590	78,438	721	14,184	1,932	6,178	109,043
1900-1	9,435	58,853	7,533	15,352	2,536	4,502	98,211
1905-6	9,519	40,998	5,201	26,250	3,665	5,372	90,945
1910-11	7,082	52,687	5,578	34,473	3,369	5,235	108,424
1911-12	10,803	53,541	1,634	40,743	3,664	6,081	116,466
1912-13	16,909	71,631	9,447	68,964	5,626	8,802	*181,387
1913-14	20,601	83,351	8,826	90,552	11,502	7,723	*222,564
1914-15	4,861	62,492	7,166	66,315	6,986	5,836	153,656
1915-16	6,369	61,400	1,367	84,900	10,069	5,409	169,514

* Including 1 acre Northern and 7 acres Federal Territory in 1912-13, and 9 acres Federal Territory 1913-14.

2. Malting and other Barley.—In recent years the statistics of all the States have distinguished between "malting" and "other" barley. Particulars for the Commonwealth for 1915-16 season are as follows:—

AREA UNDER MALTING AND OTHER BARLEY, 1915-16.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	North. Ter.	Fed. Ter.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Malting barley	4,373	29,473	945	61,966	4,545	4,915	...	...	106,217
Other barley	1,996	31,927	422	22,934	5,524	494	...	...	63,297
Total ...	6,369	61,400	1,367	84,900	10,069	5,409	...	...	169,514

It will be seen that, taking the Commonwealth as a whole, about 63 per cent. of the area devoted to this grain in 1915-16 was cropped with malting barley. The proportion varies considerably in the several States.

3. Total Yield.—The total production of barley in the Commonwealth for the season 1915-16 amounted to 3,801,550 bushels, giving an average yield of 22.43 bushels per acre as compared with 18.16 for the decennium. Particulars concerning the yields of the several States from 1875 onwards are as follows:—

COMMONWEALTH BARLEY CROP, 1875-6 to 1915-16.

Season.	N.S.W.	Victoria.	Q'land.	Sth. Aust.	W. Aust.	Tasmania.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1875-6	98,576	700,665	12,260	197,315	70,196	165,357	1,244,369
1880-1	163,395	1,068,830	31,433	151,886	89,082	169,156	1,673,782
1885-6	85,606	1,302,854	9,826	218,334	89,581	176,466	1,882,667
1890-1	81,383	1,571,599	12,673	175,583	85,451	99,842	2,026,531
1895-6	96,119	715,592	7,756	140,391	18,691	138,833	1,117,382
1900-1	114,228	1,215,478	127,144	211,102	29,189	116,911	1,814,052
1905-6	111,266	1,062,139	61,816	505,916	49,497	106,042	1,896,676
1910-11	82,005	1,340,387	83,621	544,471	33,566	142,318	2,226,368
1911-12	129,008	1,024,584	15,369	702,855	37,011	148,009	2,056,836
1912-13	289,562	1,744,527	146,847	1,318,734	93,418	265,908	*3,859,116
1913-14	303,297	1,812,890	115,975	1,332,714	167,915	187,484	*3,920,425
1914-15	46,500	600,599	105,613	447,310	24,090	104,798	1,328,910
1915-16	114,846	1,734,511	8,130	1,697,670	130,870	115,523	3,801,550

* Including 120 bushels, Federal Territory, 1912-13, 150 bushels 1913-14.

4. **Value of Barley Crop.**—The estimated value of the total barley crop of the Commonwealth for the seasons 1913-14, 1914-15, and 1915-16 was £564,871, £343,423, and £655,917 respectively. The extent to which the several States have contributed to the latter total is shewn in the following table:—

VALUE OF BARLEY CROP,* 1915-16.

Particulars.	N.S.W.	Victoria.	Q'land.	Sth. Aust.	W. Aust.	Tas.	Fed. Terr.	C'wealth.
Total value ...	£23,350	£316,279	£1,931	£260,519	£20,625	£33,213	...	£655,917
Value per acre	£3/13/4	£5/3/0	£1/8/3	£3/1/5	£2/1/0	£6/2/10	...	£3/17/5

* Exclusive of the value of straw.

5. **Relation to Population.**—During the seasons embraced in the following table, the quantity of barley produced in the Commonwealth has averaged about half a bushel per head of population. For the season 1915-16 the production ranged from nearly four bushels per head in South Australia to one-eightieth of a bushel in Queensland. Details for the season 1901-2 and for the last quinquennium are as follows:—

BARLEY PRODUCTION PER 1000 OF POPULATION, 1901-2 and 1911-12 to 1915-16.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1901-2 ...	75	573	547	677	179	956	397
1911-12 ...	78	771	25	1,709	129	778	458
1912-13 ...	163	1,264	231	3,066	305	1,348	815
1913-14 ...	166	1,284	176	3,029	524	930	805
1914-15 ...	25	420	156	1,012	75	520	269
1915-16 ...	61	1,222	12	3,872	412	575	771

6. **Commonwealth Imports and Exports.**—The Commonwealth oversea trade in barley is not extensive, and in most years the imports exceed the exports. In 1902, 1903, 1912, and 1914-15 somewhat extensive importations of barley from the United States and New Zealand took place, owing to the shortage in local supply resulting from the severe droughts of those periods. In 1904, the excellent crop of the season furnished the material for a heavy exportation to Japan, the total exported thither during that year being 551,821 bushels. In 1909 also there was a fairly heavy export, mainly to the United Kingdom. Particulars of the Commonwealth oversea imports and exports of barley for the years 1901 and 1911 to 1915-16 are contained in the following table:—

COMMONWEALTH IMPORTS AND EXPORTS OF BARLEY, 1901 and 1911 to 1915-16.

Year.	Imports.		Exports.		Net Exports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Bushels.	£	Bushels.	£	Bushels.	£
1901 ...	55,508	7,208	17,474	1,942	— 38,034	— 5,266
1911 ...	218,316	58,922	9,420	1,256	—208,896	— 57,666
1912 ...	546,177	109,466	1,426	322	—544,751	—109,144
1913 ...	22,810	6,026	7,414	1,069	— 15,396	— 4,957
1914-15 ...	290,226	66,402	103,522	15,245	—186,704	— 51,157
1915-16 ...	147,144	27,387	185,122	36,661	37,978	9,274

Note. — signifies net imports.

Only in four years during the period embraced in the above table have the Commonwealth exports of barley exceeded in value the imports, viz., in 1904, 1905, 1909, and 1915-16. During the last ten years the total importations amounted to 2,205,891 bushels, valued at £484,453, and the total exports to 577,644 bushels, valued at £94,867, giving a net importation of 1,628,247 bushels with a value of £389,586.

In addition to the above, which relates to the unprepared grain, there is a small importation into the Commonwealth of pearl and Scotch barley, mainly from the United Kingdom and Japan. The total imported during 1915-16 amounted to only 3,396 lbs. weight, with a value of £35.

From time to time a considerable export trade in Australian pearl and Scotch barley has been carried on, mainly with the United Kingdom and New Zealand, the total exports for 1909 reaching 1,155,346 lbs., valued at £3,573, and for 1910, 119,337 lbs., valued at £510. During 1911 and 1912, the exports were only 588 lbs., valued at £8, and 712 lbs., valued at £10, respectively; in 1913, they increased to 62,992 lbs., with a value of £406, while during 1914-15 only 7,314 lbs., valued at £52, were exported. During 1915-16, however, the exports amounted to 83,982 lbs., valued at £656, the bulk of which went to New Zealand.

7. **Commonwealth Imports and Exports of Malt.**—The importations of malt into the Commonwealth are fairly extensive, the supply being obtained principally from the United Kingdom. Details of imports and exports for the years 1901 and 1911 to 1915-16 are given hereunder:—

COMMONWEALTH IMPORTS AND EXPORTS OF MALT, 1901 and 1911 to 1915-16.

Year.	Imports.		Exports.		Net Imports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
1901	Bushels. 516,135	£ 140,615	Bushels. ...	£ ...	Bushels. 516,135	£ 140,615
1911	102,760	32,798	82	32	102,678	32,766
1912	128,800	45,226	117	48	128,683	45,178
1913	85,002	31,071	120	55	84,882	31,016
1914-15	68,215	23,743	165	87	68,050	23,656
1915-16	23,910	9,596	30	13	23,880	9,583

8. **Comparison with other Countries.**—In comparison with the barley production of other countries of the world, that of Australia appears very small indeed. Particulars for some of the leading countries for the year 1915 are as follows, the Australian figures being added for the sake of comparison:—

PRODUCTION OF BARLEY IN VARIOUS COUNTRIES, 1915.

Country.	Production of Barley.	Country.	Production of Barley.
	Bushels.		Bushels.
Russia in Europe (1913)	540,530,000	Rumania ...	27,810,147
United States ...	229,756,524	Denmark ...	25,105,521
Germany	145,410,000	Sweden ...	13,571,600
Japan	90,558,439	Tunis	11,130,650
Spain	80,230,452	Italy	10,711,870
Austria	77,552,000	Egypt (1914) ...	10,636,000
Hungary	54,466,708	Belgium ...	3,877,600
Canada	49,311,439	Australia ...	3,801,550
United Kingdom ...	47,192,330	Chili	3,635,250
Russia in Asia (1913)...	40,932,000	Netherlands ...	3,134,070
British India ...	38,776,000	Norway... ..	2,511,715
Algeria	38,646,100	Servia	2,181,150
France	35,138,811	New Zealand ...	820,173

9. **Average Yield.**—The average yield per acre of barley varies considerably in the different States, being as a rule highest in Tasmania and Victoria, and lowest in Western Australia. Details for each State for 1901-2 and the past five seasons, and also for the decennium, are given in the following table:—

AVERAGE YIELD PER ACRE OF BARLEY, 1901-2 and 1911-12 to 1915-16.

Season.	N.S.W.	Victoria.	Q'land.	Sth. Aust.	West Aust.	Tas.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1901-2 ...	17.16	21.40	23.53	15.63	13.01	27.44	20.40
1911-12 ...	11.94	19.14	9.41	17.25	10.10	24.34	17.66
1912-13 ...	17.12	24.35	15.54	19.12	16.60	30.21	21.28
1913-14 ...	14.72	21.75	13.14	14.72	14.60	24.28	17.61
1914-15 ...	9.57	9.61	14.74	6.75	3.45	17.96	8.65
1915-16 ...	18.03	28.25	5.95	20.00	13.00	21.36	22.43
Average for 10 Seasons ...	14.71	21.00	14.70	16.01	11.46	24.87	18.16

10. **Price of Barley.**—The average prices of barley in the Melbourne market during each of the past ten years are given in the following table:—

AVERAGE PRICE OF BARLEY PER BUSHEL, 1906 to 1915.

Particulars.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Malting barley	4 5	4 8	4 10	3 10	4 1	4 10½	5 11½	3 11½	3 9½	5 4½
Cape barley ...	2 4	2 8	3 8	2 7	2 5	2 8	4 11	3 0	2 9½	4 4½

§ 8. Other Grain and Pulse Crops.

In addition to the grain crops already specified, the only grain and pulse crops at all extensively grown in the Commonwealth are beans, peas and rye. The total area under the two former crops for the season 1915-16 was 26,277 acres, giving a yield of 413,814 bushels, or an average of 15.75 bushels per acre, being 1.90 below the average yield for the decennium ended 1915-16, which was 17.65 bushels per acre. The States in which the greatest area is devoted to beans and peas are Tasmania, Victoria and South Australia. The total area under rye in the Commonwealth during the season 1915-16 was 10,614 acres, yielding 126,765 bushels, and giving an average of 11.94, this being above the average for the past ten seasons, which is 10.59 bushels per acre. Nearly 34 per cent. of the rye grown during the season was produced in Victoria, 25 per cent. in New South Wales, and 24 per cent. in South Australia. In addition to these grain crops a small area of rice has for some years been cultivated in Queensland and the Northern Territory. The results obtained, however, have not up to the present been very satisfactory. Should rice-growing ever be seriously taken up in Australia, it is probable that large tracts of country in the northern parts of Western Australia and in the Northern Territory will be found well suited to its cultivation.

§ 9. Potatoes.

1. Area.—The principal potato-growing State of the Commonwealth as regards area is Victoria, Tasmania prior to 1909-10 usually ranking second, and New South Wales third; the relative positions of the two latter States were, however, reversed during the five seasons ended 1913-14, while the position was again reversed in the seasons 1914-15 and 1915-16.

The area under potatoes in each State from 1890 onwards is given hereunder :—

COMMONWEALTH AREA UNDER POTATOES, 1890-1 to 1915-16.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Fed. Terr.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1890-1 ...	19,406	53,818	6,270	6,626	511	20,133	...	106,764
1895-6 ...	24,722	43,895	9,240	6,448	668	19,247	...	104,220
1900-1 ...	29,408	38,477	11,060	6,628	1,794	23,068	...	110,435
1905-6 ...	26,374	44,670	7,170	9,540	2,145	28,634	...	118,593
1910-11 ...	44,452	62,904	8,326	7,812	1,791	26,230	...	151,515
1911-12 ...	43,079	47,692	7,688	7,412	2,705	21,818	69	130,463
1912-13 ...	34,093	47,575	8,822	8,581	5,175	24,612	31	128,889
1913-14 ...	38,695	74,574	10,085	10,809	5,229	30,811	30	170,233
1914-15 ...	30,410	65,495	8,385	7,639	4,778	31,613	8	148,328
1915-16 ...	19,582	56,910	5,796	4,341	4,866	29,491	7	120,993

2. Total Yield.—For the season 1915-16, Victoria's production represented about 52 per cent. of the total for the Commonwealth, Tasmania and New South Wales coming next in order with 24 and 13½ per cent. respectively. The total Commonwealth production for the season 1906-7, viz., 507,153 tons, was the highest ever attained, the yield which most nearly approached it being 449,383 tons in 1903-4. Details as to production in the several States during the period from 1890 onwards are as follows :—

COMMONWEALTH PRODUCTION OF POTATOES, 1890-1 to 1915-16.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Fed. Terr.	C'wealth.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1890-1 ...	52,791	204,155	13,112	23,963	1,900	73,158	...	369,079
1895-6 ...	56,179	117,238	19,027	18,412	2,290	81,423	...	294,569
1900-1 ...	63,253	123,126	20,014	14,566	4,836	93,862	...	319,657
1905-6 ...	50,386	115,352	11,308	20,328	6,297	64,606	...	268,277
1910-11 ...	121,033	163,312	15,632	23,920	5,864	70,090	...	399,851
1911-12 ...	75,040	119,092	13,087	22,668	9,312	62,164	126	301,489
1912-13 ...	91,600	191,112	16,386	33,078	13,558	72,565	42	418,341
1913-14 ...	106,805	176,602	16,548	32,950	17,803	80,389	44	431,141
1914-15 ...	40,694	189,225	16,014	18,035	14,724	78,907	15	357,614
1915-16 ...	44,420	173,821	7,439	12,991	14,118	79,890	25	332,704

3. Average Yield per Acre.—The suitability of the soil, climate, and general conditions of Tasmania for potato growing is evidenced by the high yields per acre which are almost invariably obtained in the island State, the average yield during the past ten seasons being 3½ tons per acre. The lowest average yield is that obtained in Queensland

with an average of a little under two tons for the same period. Particulars for each State for the seasons 1901-2 and 1911-12 to 1915-16, and also for the past decennium, are given hereunder:—

AVERAGE YIELD OF POTATOES, 1901-2 and 1911-12 to 1915-16.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Federal Terr.	C'wealth.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1901-2	1.50	3.13	2.25	2.41	3.14	4.51	...	2.94
1911-12	1.74	2.50	1.70	3.06	3.44	2.85	1.83	2.31
1912-13	2.69	4.02	1.86	3.85	2.62	2.95	1.35	3.25
1913-14	2.76	2.87	1.64	3.05	3.40	2.61	1.47	2.53
1914-15	1.34	2.89	1.91	2.86	3.08	2.50	1.88	2.41
1915-16	2.27	3.05	1.98	2.99	2.90	2.71	3.57	2.75
Average for 10 Seasons	2.41	2.86	1.76	2.77	3.04	3.29	1.74	2.78

4. Value of Potato Crop.—The estimated value of the potato crop of each State for the season 1915-16 is furnished in the following table, together with the value per acre:—

VALUE OF POTATO CROP, 1915-16.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Federal Terr.	C'wealth.
Tot. value	£338,563	£1,112,454	£89,268	£97,265	£129,777	£509,299	£267	£2,276,893
Value per acre ...	£17/5/10	£19/11/0	£15/8/0	£22/8/1	£26/13/5	£17/5/5	£38/2/10	£18/16/4

5. Relation to Population.—The average production of potatoes per annum per head of the population of the Commonwealth for the past ten seasons has been approximately 190 lbs. In Tasmania, where this crop is of far greater importance in relation to population than is the case in any other State, the production per head in 1906-7 was nearly a ton, and in 1911-12 about 6½ cwt. Details for the seasons 1901-2 and 1911-12 to 1915-16 are as follows:—

POTATO PRODUCTION PER 1000 OF POPULATION.

Season.	N.S.W.	Victoria.	Q'land.	Sth. Aust.	W. Aust.	Tas.	Federal Terr.	C'wealth.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1901-2 ...	28	104	44	42	30	655	...	84
1911-12 ...	45	90	21	55	32	327	69	67
1912-13 ...	52	138	26	77	44	368	22	88
1913-14 ...	59	125	25	75	56	398	22	88
1914-15 ...	22	132	24	41	46	392	8	72
1915-16 ...	24	122	11	30	44	397	14	67

6. Commonwealth Imports and Exports.—Under normal conditions there is usually a fairly large export trade in potatoes carried on by the Commonwealth, principally with New Zealand, the Pacific Islands, and the Philippine Islands. Thus, during 1907, out of a total export of 17,842 tons, 13,346 tons went to New Zealand, 2,102 tons to the Pacific

Islands, and 2,112 tons to the Philippine Islands. On the other hand, when the droughts of 1902, 1903, 1912 and 1914, had brought about a shortage in some of the States, importations from New Zealand took place to the extent of 11,471 tons and 2,279 tons in the first two years, 17,732 tons in 1912, and 16,342 tons in 1915-16. The quantities and values of the Commonwealth oversea imports and exports of potatoes for 1901 and the past five years are shown in the following table:—

COMMONWEALTH IMPORTS AND EXPORTS OF POTATOES, 1901 and 1911 to 1915-16.

Year.	Imports.		Exports.		Net Exports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
1901 ...	Tons. 17,655	£ 86,067	Tons. 6,028	£ 45,485	Tons. — 11,627	£ — 40,582
1911 ...	245	1,881	1,834	12,241	— 1,589	— 10,360
1912 ...	18,151	163,249	1,619	15,331	— 16,532	— 147,918
1913 ...	996	5,537	1,689	12,012	— 693	— 6,475
1914-15 ...	2,708	15,406	1,803	12,690	— 905	— 2,716
1915-16 ...	17,596	149,488	1,208	13,110	— 16,388	— 136,378

Note. — signifies net imports.

7. Comparison with Other Countries.—The following table furnishes a comparison of the potato crop of Australia for 1914 with those of some of the leading potato-producing countries of the world for the same year:—

POTATO CROPS OF VARIOUS COUNTRIES, 1914.

Country.	Yield.	Country.	Yield.
	Tons.		Tons.
Germany ...	44,850,162	Sweden* ...	1,699,089
Russia in Europe (1913)*†	34,137,353	Italy ...	1,636,747
France ...	13,778,985	Russia in Asia (1913)	1,190,337
Austria (1913)	11,369,573	Denmark ...	930,734
United States ...	10,873,141	Norway ...	687,927
United Kingdom*	7,473,699	Japan*	669,695
Hungary (1913)	5,364,561	Switzerland ...	590,528
Belgium (1913)	3,150,400	Australia ...	357,614
Netherlands*	2,485,901	Luxemburg*	146,648
Canada ...	2,294,840	New Zealand ...	132,623
Spain ...	2,053,335		

* Provisional. † Exclusive of Poland.

§ 10. Other Root and Tuber Crops.

1. Nature and Extent.—Root crops, other than potatoes, are not extensively grown in Australia, the total area devoted to them for the season 1915-16 being only 21,971 acres. The principal of these crops are onions, mangolds, turnips, and "sweet potatoes" (*Batatas edulis*). Of these, onions are most largely grown in Victoria, mangolds in Tasmania and Victoria, turnips in Tasmania, and sweet potatoes in Queensland. The total area under onions in the Commonwealth during the season 1915-16 was 10,189 acres, giving a yield of 41,550 tons, and averaging 4.1 tons per acre. The area devoted in 1915-16 to root crops other than potatoes and onions, viz., 11,782 acres, yielded 75,310 tons, and gave an average of 6.4 tons per acre. The areas and yields here given are exclusive of the production of "market gardens," a reference to which will be made later.

2. **Commonwealth Imports and Exports.**—The only root crop, other than potatoes, in which any considerable overseas trade is carried on by the Commonwealth is that of onions. During the year 1915-16 overseas imports of onions amounted to 926 tons, obtained principally from the United States and New Zealand, of which total 720 tons went to New South Wales and 124 tons to Queensland. For the same year the exports of onions totalled 3881 tons, the principal countries to which they were exported being New Caledonia and other Pacific Islands. During 1914-15, 2091 tons were imported and 3372 tons exported, of which 752 tons were shipped to the United States and 666 tons to the Philippine Islands.

§ 11. Hay.

1. **Nature and Extent.**—As already stated, the most important crop of the Commonwealth is that of wheat grown for grain. Next to this in importance is the hay crop, which for the five seasons ended 1915-16 averaged nearly 20 per cent. of the area under crop in the Commonwealth, and for 1915-16, 19.4 per cent. In most European countries the hay crop consists almost entirely of meadow and other grasses, whilst in Australia a very large proportion of the area under hay comprises cereal crops, mainly wheat and oats. A considerable quantity of lucerne hay is also made, particularly in New South Wales and Queensland. The area under hay of all kinds in the several States from 1860 onwards is given hereunder:—

AREA UNDER HAY, 1860-1 to 1915-16.

Season.	N.S.W.	Victoria.	Q'land.	Sth. Aust.	W. Aust.	Tas.	N. T.	Fed. Terr.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1860-1	46,884	90,921	276	55,818	6,626	31,837	...	...	232,062
1865-6	61,909	97,902	1,449	101,996	8,824	30,244	...	...	302,324
1870-1	65,404	163,181	3,671	140,316	17,173	33,612	...	...	423,357
1875-6	77,125	155,274	8,531	161,429	17,319	34,758	...	...	454,436
1880-1	131,153	249,656	12,022	272,567	19,563	31,615	...	...	716,576
1885-6	219,886	421,036	28,881	312,672	19,677	41,693	...	...	1,043,845
1890-1	175,242	413,052	31,106	345,150	23,183	45,381	...	...	1,033,114
1895-6	319,296	464,482	28,609	362,972	63,804	54,748	...	...	1,293,911
1900-1	466,236	502,105	42,497	341,330	104,254	61,541	...	...	1,517,963
1905-6	438,036	591,771	37,425	317,924	124,906	64,350	...	...	1,574,412
1910-11	638,577	832,669	98,558	440,177	175,432	72,992	...	...	2,258,405
1911-12	651,866	860,205	61,299	521,182	344,032	77,466	18	2,220	2,518,288
1912-13	944,725	1,203,728	87,643	647,069	231,690	99,839	10	2,337	3,217,041
1913-14	798,978	977,684	76,469	568,550	246,640	84,138	61	2,152	2,754,672
1914-15	783,107	895,755	79,327	445,832	332,037	89,598	120	2,837	2,628,613
1915-16	1,107,228	1,330,455	55,174	709,831	290,036	103,216	140	1,691	3,597,771

It will be seen from this table that in all the States marked fluctuations occur in the area devoted to the hay crop from year to year. These fluctuations are due to various causes, the principal being the variations in the relative prices of grain and hay, and the favourableness or otherwise of the season for a grain crop. Thus, crops originally sown for grain are, frequently cut for hay owing to the improved price of that commodity, or owing to the fact that the outlook for the due development of the grain is not a satisfactory one. On the other hand, improved grain prices or the prospect of a heavy yield will frequently cause crops originally intended for hay to be left for grain. The area under hay in the Commonwealth for the season 1915-16 was the highest on record, and that for 1912-13 the next.

2. **Kinds of Hay.**—Particulars concerning the kind of crop cut for hay are furnished in the returns prepared by five of the States. In the case of Tasmania the bulk consists of oaten hay; full particulars, however, are not available for that State.

Details for the past five seasons are given in the following table:—

KINDS OF HAY GROWN, 1911-12 to 1915-16.

Kind of Hay Crop.	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.
NEW SOUTH WALES—	Acres.	Acres.	Acres.	Acres.	Acres.
Wheaten	439,591	703,509	533,890	568,982	878,881
Oaten	146,162	181,400	209,821	158,949	175,285
Barley	2,309	1,703	1,395	1,179	1,348
Lucerne	63,804	56,403	52,457	52,570	50,528
Other ... ..	...	1,710	1,415	1,427	1,186
Total	651,866	944,725	798,978	783,107	1,107,228
VICTORIA—					
Wheaten	304,388	386,370	220,560	192,562	333,449
Oaten	535,146	790,268	729,678	677,895	964,318
Other	20,671	27,090	27,446	25,298	32,688
Total	860,205	1,203,728	977,684	895,755	1,330,455
QUEENSLAND—					
Wheaten	1,763	12,710	12,648	14,906	14,003
Oaten	5,403	19,539	16,020	12,573	6,377
Lucerne	51,059	50,814	44,270	47,785	32,288
Other	3,074	4,580	3,531	4,063	2,506
Total	61,299	87,643	76,469	79,327	55,174
SOUTH AUSTRALIA—					
Wheaten	401,648	492,980	411,101	318,586	476,423
Oaten	113,011	147,963	151,694	118,505	190,321
Lucerne	2,411	2,414	2,378	3,976	3,380
Other	4,112	3,712	3,377	4,765	39,707
Total	521,182	647,069	568,550	445,832	709,831
WESTERN AUSTRALIA—					
Wheaten	284,073	176,744	195,497	266,113	225,959
Oaten	58,393	52,904	49,801	64,037	62,622
Lucerne	167	205	264	328	258
Other	1,399	1,837	1,078	1,559	1,197
Total	344,032	231,690	246,640	332,037	290,036

It will be seen that wheat is the principal hay crop in New South Wales, South Australia, and Western Australia, oats in Victoria and Tasmania, and lucerne in Queensland.

3. **Total Yield.**—The Commonwealth hay crop for the season 1915-16 was the highest on record, and amounted to 5,633,988 tons, the second largest record being that of 3,955,311 tons for the season 1912-13. For many years past the State of Victoria has been the largest hay producer in the Commonwealth, and in the five seasons, 1911-12 to 1915-16 inclusive, accounted for 39 per cent. of the total production. The total yields of the several States from 1860 onwards are given hereunder:—

COMMONWEALTH HAY CROP, 1860 to 1915-16.

Season.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	N. T.	Fed. Ter.	Commonwealth.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1860-1	50,927	144,211	414	71,241	8,099	62,318	...	...	337,210
1865-6	54,230	96,101	2,173	88,731	7,901	34,751	...	...	283,887
1870-1	69,602	183,708	5,506	197,149	20,833	40,763	...	...	517,561
1875-6	88,968	206,613	12,796	194,794	17,319	49,217	...	...	569,707
1880-1	174,194	300,581	23,441	261,371	19,563	35,883	...	...	815,033
1885-6	191,371	442,118	30,670	307,855	19,677	51,872	...	...	1,043,563
1890-1	213,034	567,779	50,116	310,125	25,014	52,021	...	...	1,218,089
1895-6	229,671	390,861	50,881	225,462	53,758	62,345	...	...	1,012,978
1900-1	526,260	677,757	78,758	353,662	103,813	94,193	...	...	1,834,448
1905-6	459,182	864,177	56,829	435,546	139,380	90,077	...	...	2,045,191
1910-11	843,080	1,292,410	151,252	595,064	178,891	115,190	...	...	3,175,887
1911-12	727,054	1,032,288	94,553	605,239	299,695	107,684	40	1,420	2,867,973
1912-13	1,105,350	1,572,933	119,867	714,766	255,751	183,709	10	2,925	3,955,311
1913-14	952,489	1,350,374	103,935	571,616	278,585	112,958	81	2,558	3,372,596
1914-15	610,559	568,956	102,193	210,437	156,932	81,971	220	2,676	1,733,944
1915-16	1,570,941	2,342,094	53,858	1,100,127	395,172	168,449	350	2,997	5,633,988

4. Value of Hay Crop.—The following table furnishes particulars concerning the total value and the value per acre of the hay crop of the several States of the Commonwealth for the season 1915-16:—

VALUE OF HAY CROP, 1915-16.

Particulars.	New South Wales.	Victoria.	Queensland.	South Aust.	Western Aust.	Tasmania.	N. T.	Fed. Ter.	Commonwealth.
Total value...	£4,734,278	£4,801,293	£419,553	£2,269,012	£1,305,961	£1031,750	£2,500	£11,322	£14,575,669
Value per acre	£4/3/6	£3/12/2	£7/12/1	£3/3/11	£4/10/1	£9/19/11	£17/17/2	£6/13/11	£4/1/0

5. Average Yield per Acre.—The States of the Commonwealth in which the highest average yields per acre have been obtained during the last decennium are those of Tasmania and Queensland, these being also the States in which the smallest areas are devoted to this crop. For the same period the lowest yield for the Commonwealth as a whole was that of 13 cwt. per acre in 1914-15, the next lowest was in 1907-8 when the average yield was 19 cwt., and the highest that of 31 cwt. in 1915-16. The average for the decennium was 25 cwt. Particulars for the several States for the seasons 1901-2 and 1911-12 to 1915-16, and the average for the last ten years, are given hereunder:—

AVERAGE YIELD OF HAY PER ACRE, 1901-2 and 1911-12 to 1915-16.

Season.	N.S.W.	Vic.	Q'land.	S. Aus.	W. Aus.	Tas.	N. T.	Fed. Terr.	Com'wealth.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1901-2	...	1.07	1.34	1.94	0.94	0.97	1.78	...	1.20
1911-12	...	1.12	1.20	1.54	1.16	0.87	1.39	2.22	0.72
1912-13	...	1.17	1.31	1.36	1.10	1.10	1.84	1.00	1.25
1913-14	...	1.19	1.38	1.36	1.01	1.13	1.34	1.33	1.19
1914-15	...	0.78	0.64	1.29	0.47	0.47	0.91	1.83	0.94
1915-16	...	1.42	1.76	0.98	1.55	1.36	1.63	2.50	1.77
Average for 10 seasons	...	1.17	1.34	1.38	1.19	0.98	1.48	*2.01	1.12

* Average for 5 years.

6. **Relation to Population.**—During the past ten seasons the Commonwealth hay production per head of population has varied between 7 cwt. in 1914-15 and 22½ cwt. in 1915-16; averaging about 14½ cwt. per head for the period. The State in which the hay production per head of population is highest is South Australia. Details for the seasons 1901-2 and 1911-12 to 1915-16 are given hereunder:—

HAY PRODUCTION PER 1000 OF POPULATION.

Season.	N.S.W.	Vict.	Q'Ind.	S. Aust.	W. Aust.	Tas.	N. T.	Fed. Ter.	C'with.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1901-2 ...	339	231	241	964	463	624	...	...	529
1911-12 ...	440	777	154	1,472	1,045	566	12	899	639
1912-13 ...	622	1,139	188	1,662	835	932	3	1,508	836
1913-14 ...	520	956	157	1,299	869	560	22	1,287	692
1914-15 ...	328	398	151	476	486	407	55	1,366	351
1915-16 ...	840	1,651	79	2,509	1,243	838	77	1,639	1,142

7. **Oversea Imports and Exports.**—Under normal conditions hay, whether whole or in the form of chaff, is somewhat bulky for oversea trade, and consequently does not in such circumstances figure largely amongst the imports and exports of the Commonwealth. In 1901 and 1902, however, the exceptional demand which was created by the South African war brought about a fairly large export of hay and chaff to Natal and Cape Colony. These colonies also took a considerable quantity of Australian compressed fodder. During the year 1904, when the war between Japan and Russia was being carried on, the exports of compressed fodder to Hong Kong were valued at £42,759 and those to Japan at £23,608. The total value of the hay and chaff exported during 1901 was £406,455, as compared with only £18,815 in 1915-16, while the exports of compressed and other fodder, which amounted in value to £142,472 in 1904, had shrunk to £11,863 in 1915-16.

During 1915-16 the principal purchases of the hay and chaff exported from the Commonwealth were made by India, the Straits Settlements, and Ceylon, while the bulk of the compressed fodder was exported to the Philippine Islands and Ceylon.

Imports of hay and chaff into the Commonwealth are usually unimportant; for the year 1915-16, however, they totalled 36,725 tons, valued at £227,133, obtained principally from New Zealand and the United States.

8. **Hay Production in Other Countries.**—As already noted, the hay crops of most European countries consist of grasses of various kinds, amongst which clover, lucerne, sainfoin and rye grass occupy prominent places. The statistics of hay production in these countries are not prepared on a uniform basis, and consequently any attempt to furnish extensive comparisons would be misleading. It may be noted, however, that in the United Kingdom the production of hay from clover, sainfoin, etc., for the year 1915, amounted to 4,526,192 tons from 2,837,030 acres, while from permanent grasses a yield of 7,922,591 tons of hay was obtained from 6,393,365 acres, giving a total of 12,448,783 tons from 9,230,395 acres, or about 27 cwt. per acre.

§ 12. Green Forage.

1. **Nature and Extent.**—In all the States of the Commonwealth a considerable area is devoted to the production of green forage, mainly in connection with the dairying industry. The total area so cropped during the season 1915-16 was 515,561 acres. Of the total, the Queensland area represented about 46 per cent., that in New South Wales 31½ per cent., while that in Victoria amounted to 11½ per cent. Under normal conditions the principal crops cut for green forage are maize, sorghum, oats, barley, rye, rape, and lucerne, while small quantities of sugar-cane also are so used. Particulars concerning the area under green forage in the several States from 1890 onwards are furnished in the following table:—

AREA UNDER GREEN FORAGE, 1890-1 to 1915-16.

Season.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	N. T.	Fed. Terr.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1890-1	37,473	10,091	9,546	7,349	161	1,497	...	...	66,117
1895-6	66,833	25,939	19,552	7,309	430	1,883	...	...	121,946
1900-1	78,144	18,975	41,445	13,136	1,024	3,749	...	...	156,473
1905-6	95,058	34,041	66,183	23,842	1,873	4,882	...	...	225,879
1910-11	179,382	71,826	89,667	20,728	4,545	8,695	19	...	374,862
1911-12	211,693	75,177	93,049	33,673	5,021	5,627	19	181	424,440
1912-13	154,522	84,460	135,354	39,954	7,339	6,304	60	13	428,006
1913-14	146,093	98,963	171,290	49,948	13,126	7,037	21	26	486,504
1914-15	* 949,539	139,654	184,239	52,656	19,098	6,809	83	80	1,352,158
1915-16	162,808	60,426	236,293	32,664	15,622	7,587	24	137	515,561

* Including area fed off.

2. **Value of Green Forage Crops.**—The value of these crops is variously estimated in the several States, and the Commonwealth total for the season 1913-14 may be taken approximately as £1,594,834, or about £3 5s. 7d. per acre, for 1914-15 as £2,019,365, or £1 9s. 10d. per acre, and for 1915-16 as £2,348,532, or £4 11s. 1d. per acre.

3. **Relation to Population.**—Particulars concerning the area under green forage per 1000 of the population of the Commonwealth and the several States for the seasons 1901-2 and 1911-12 to 1915-16 are given hereunder:—

AREA UNDER GREEN FORAGE PER 1000 OF POPULATION.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N. T.	Fed. Terr.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1901-2	82	27	79	38	8	24	...	...	54
1911-12	128	57	151	82	18	30	6	102	95
1912-13	87	61	213	93	24	32	17	7	90
1913-14	80	70	259	114	41	35	6	13	100
1914-15	* 510	98	272	119	59	34	21	41	274
1915-16	87	43	348	74	49	38	5	75	105

* Including area fed off.

§ 13. Sugar-Cane.

1. **Area.**—Sugar-cane is grown for sugar-making purposes in only two of the States of the Commonwealth, viz., Queensland and New South Wales, and much more extensively in the former than the latter. Thus, of the total area of 164,285 acres under sugar-cane in the Commonwealth for the season 1915-16 there were 153,027 acres, or about 93 per cent., in Queensland. Sugar-cane growing appears to have been started in the Commonwealth in or about 1862, as the earliest statistical record of sugar-cane as a crop is that which credits Queensland with an area of twenty acres for the season 1862-3. In the following season the New South Wales records shew that an area of two acres was devoted to the crop in the mother State. The area under cane in New South Wales reached its maximum in 1895-6 with a total of 32,927 acres. It then fell continuously to 1902-3, when it was lower than for any previous season since 1889-90. From 1902-3 to 1906-7 it remained practically stationary; from that time, with slight variations, it gradually fell to 11,258 acres in 1915-16, the lowest area under sugar-cane since 1882-3. In Queensland, on the other hand, although fluctuations in area are in evidence throughout, the general trend has been one of satisfactory increase, the area under cane for the season 1914-15 being the highest on record, that for 1915-16 being the next

highest and that for 1913-14 only a little short of it. The area under sugar-cane in the Commonwealth from 1865 is given in the following table:—

AREA UNDER SUGAR-CANE, 1865 to 1915-16.

Season.	N.S.W.	Queensland.	C'wealth.	Season.	N.S.W.	Queensland.	C'wealth.
	Acres.	Acres.	Acres.		Acres.	Acres.	Acres.
1865-6	141	450	591	1905-6	21,805	134,107	155,912
1870-1	4,082	6,342	10,424	1910-11	13,763	141,779	155,542
1875-6	6,454	13,459	19,913	1911-12	13,907	130,376	144,283
1880-1	10,971	20,224	31,195	1912-13	13,914	141,652	*155,567
1885-6	16,419	59,186	75,605	1913-14	13,232	147,743	*160,976
1890-1	20,446	50,922	71,368	1914-15	11,421	161,195	172,616
1895-6	32,927	77,247	110,174	1915-16	11,258	153,027	164,285
1900-1	22,114	108,535	130,649				

* Including 1 acre Northern Territory.

2. **Productive and Unproductive Cane.**—The areas given in the preceding table represent the total area on which sugar-cane was grown during the seasons specified for purposes other than green forage. The whole area, however, was not in any case cut for crushing during that season, there being always a considerable amount of "stand over" cane, as well as a small quantity required for plants. In the season 1915-16 the New South Wales total comprised 6,030 acres of productive and 5,228 acres of unproductive cane, while in the case of Queensland the productive cane amounted to 94,459 acres and the unproductive to 58,568 acres.

3. **Yield of Cane.**—Queensland statistics of the production of sugar-cane are not available for dates prior to the season 1897-8. In that season the total for the Commonwealth was 1,073,883 tons, as against 2,271,558 tons for the record season 1913-14. The average yield per acre of productive cane is much higher in New South Wales than in Queensland, the average during the last decade being 25.38 tons for the former and 16.53 for the latter State. During the nine seasons 1901-2 to 1909-10 the yield remained practically constant in New South Wales at about 21 tons per acre, except in 1907-8 when the average reached nearly 28 tons. For the past six years, however, the average yield per acre in this State has shown an upward tendency, reaching over 30 tons during 1913-14 and 1914-15. In Queensland the average yield per acre for 1910-11, viz., 19.45 tons, was by far the highest recorded for that State prior to 1913-14, when the average was over 20 tons to the acre. Particulars relative to the total and average yields of the Commonwealth sugar crops for the seasons 1901-2 and 1910-11 to 1915-16 are as follows:—

YIELD OF SUGAR-CANE, 1901-2 and 1910-11 to 1915-16.

Season.	Total Yield of Cane.			Average Yield per Acre of Productive Cane.		
	N.S.W.	Queensland.	C'wealth.	N.S.W.	Queensland.	C'wealth.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1901-2 ...	187,711	1,180,091	1,367,802	21.36	15.10	15.73
1910-11 ...	160,311	1,840,447	2,000,758	28.65	19.45	19.96
1911-12 ...	147,799	1,534,451	1,682,250	28.18	16.02	16.65
1912-13 ...	140,914	994,212	*1,135,141	22.96	12.72	13.47
1913-14 ...	185,970	2,085,588	2,271,558	30.05	20.29	20.84
1914-15 ...	181,606	1,922,633	2,104,239	30.21	17.80	18.45
1915-16 ...	157,748	1,152,516	1,310,264	26.16	12.20	13.04

* Including 15 tons Northern Territory.

An estimate for Queensland for the season 1916-17 gives the yield as 1,579,514 tons of cane, or an increase of 426,998 tons on the previous year's returns. The sugar production is expected to be about 176,973 tons of raw sugar, as compared with 140,496 tons for 1915-16 and 225,847 tons for 1914-15.

4. **Relation to Population.**—The sugar-cane production of the Commonwealth during the past five seasons has averaged about 7.1 cwt. per head of population. In Queensland, the principal sugar-producing State, the production of cane per head has ranged between $1\frac{1}{2}$ tons in 1912-13 and 3 tons in 1913-14. Details for the period 1911-12 to 1915-16 are as follows:—

SUGAR-CANE PRODUCTION PER 1000 OF POPULATION.

State.	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.
	Tons.	Tons.	Tons.	Tons.	Tons.
New South Wales	89	79	102	98	84
Queensland	2,498	1,562	3,159	2,841	1,698
Commonwealth	375	240	466	426	266

5. **Quality of Cane.**—The quantity of cane required to produce a ton of sugar varies considerably not only with the district in which the cane is grown but also with the season. In Queensland, for instance, during the seasons 1902-3 to 1906-7 the sugar content of the cane crushed continuously diminished, so that while in 1902-3 the quantity of cane used in producing a ton of sugar was 8.38 tons, in the season 1906-7 the quantity required was 9.38 tons, the production in the former case being approximately 12 per cent. and in the latter $10\frac{3}{4}$ per cent. of the weight of cane crushed. For the season 1907-8, the cane was of much better quality, and the quantity required to produce a ton of sugar was only 8.84 tons, the sugar content representing in this case somewhat more than $11\frac{1}{2}$ per cent. of the weight of cane crushed. In 1908-9, owing in large measure to the effect of frosts, the quantity of cane required to produce one ton of sugar was increased to 9.49 tons, the sugar thus representing only about $10\frac{1}{2}$ per cent. of the weight of cane crushed, while in 1909-10 only 8.65 tons of cane were required to each ton of sugar, the sugar representing about $11\frac{1}{2}$ per cent. of the weight of cane crushed. The especially favourable weather existing throughout 1910 resulted in a very high average quantity of cane per acre being obtained, while the moisture which caused this led to a slight diminution in the saccharine density as compared with the previous year. During 1910-11 and the five following seasons the quantity of cane required to produce one ton of sugar was 8.73, 8.85, 8.79, 8.59, 8.51, and 8.20 tons in the order named, the sugar produced representing about $11\frac{1}{2}$ per cent. of the weight of cane crushed in each of those years, while the average quantity of sugar obtained per acre crushed was 2.23 tons in 1910-11, 1.81 in 1911-12, 1.45 in 1912-13, 2.36 in 1913-14, 2.09 in 1914-15, and 1.49 in 1915-16. It should be noted that in 1901-2 no less than 9.76 tons of cane were needed to produce a ton of sugar. It may be remarked in this connection that the systematic study of beet culture in European countries shewed that by suitable methods the sugar content of the root could be greatly increased, and it is believed that a similar improvement can be effected in the yield from sugar-cane.

6. **Sugar Bounties.**—The provision of bounties or similar aids to the sugar-growers of the Commonwealth early occupied the attention of the Commonwealth Parliament, the object in view being that of assisting the industry, and at the same time diminishing the employment of coloured labour in connection therewith. An account of the various Acts in connection with sugar bounties and sugar excise tariffs will be found on pages 394 to 396 of the Year Book No. 6. In 1912 the Sugar Excise Repeal Act and the Sugar Bounty Abolition Act were passed by the Federal Parliament,

conditionally on the Queensland Parliament approving of legislation prohibiting the employment of coloured labour in connection with the industry. The State Sugar Cultivation Act, the Sugar Growers Act, and the Sugar Growers' Employees Act, of 1913, having been approved of, the 1912 Federal Acts, which repeal all previous enactments in regard to excise on sugar and bounty on cane, came into force by proclamation in July 1913.

7. **Beet Sugar.**—During the past few years an effort has been made to revive the sugar-beet industry in Victoria. During 1910-11 £554 was paid as bounty on 1,847 tons of beet, £2,244 on 7,481 tons during 1911-12, £1,667 on 6,207 tons during 1912-13, and £1,001 on 3,330 tons during 1913-14. For the 1913 crop the State Government paid £1 per ton for all topped clean roots delivered at the Maffra factory, for the 1914 crop £1 ls. was paid, and £1 5s. for the 1915 crop.

8. **Acreage and Yield of Sugar Beet.**—The following table shews the acreage under sugar beet, and quantity grown in Victoria during the past five seasons:—

AREA AND PRODUCTION OF SUGAR BEET IN VICTORIA, 1911-12 to 1915-16.

Particulars.			1911-12.	1912-13.	1913-14.	1914-15.	1915-16.
Area	acres		752	934	1,093	990	461
Production	tons		3,974	6,207	7,431	10,343	4,928
Average per acre	„		5.28	6.65	6.80	10.45	10.69

9. **Imports and Exports of Sugar.**—Notwithstanding the increase in the production of sugar in the Commonwealth during recent years, Australia's over-sea import trade in cane sugar remained fairly extensive until 1906, the principal countries engaged in supplying this commodity being Java, Mauritius, and Fiji. In 1907 the exports of sugar exceeded the imports for the first time, the value of the net exports being £166,121. In 1908 and the following five years the imports exceeded the exports, in 1914-15 the exports were again the greater by 5,308 tons, representing a value of £138,474, in 1915-16, however, the imports again exceeded the exports by no less than 115,008 tons, valued at £1,847,310. The principal countries to which sugar is exported are the United Kingdom, the Pacific Islands, and Canada, but the bulk of the sugar exported from the Commonwealth is not of Australian origin, but merely a re-export of sugar produced elsewhere. Thus, of 18,433 tons exported during 1914-15, only 137 tons were of Australian origin. The sugar so re-exported comes mainly from Fiji, Java, and Mauritius. Particulars concerning the imports and exports of cane sugar for 1901 and the past five years are as follows:—

IMPORTS AND EXPORTS OF CANE SUGAR, 1901 and 1911 to 1915-16.

Year.	Oversea Imports.		Oversea Exports.		Net Imports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	tons.	£	tons.	£	tons.	£
1901	98,544	1,239,550	4,738	68,876	93,806	1,170,674
1911	33,276	404,474	7,331	120,956	25,945	283,518
1912	98,481	1,189,763	2,257	39,614	96,224	1,150,149
1913	74,861	864,768	3,419	54,322	71,442	810,446
1914-15	13,125	181,020	18,433	319,494	— 5,308	— 138,474
1915-16	116,111	1,869,768	1,103	22,458	115,008	1,847,310

Note.(—) signifies net exports.

§ 14. Vineyards.

1. **Nature and Extent.**—The introduction of the vine into Australia has been set down by different investigators as at various dates, the years 1815 and 1828 being principally favoured. It would seem, however, that the vine was really brought out with the First Fleet which initiated the colonisation of Australia in 1788, and that consequently the Australian vine is as old as Australian settlement. As already mentioned a report of Governor Hunter's gives the area under vines in 1797 as 8 acres. From New South Wales the vine spread to Victoria and South Australia, and these States have now far outstripped the mother State in the area which they have devoted to its cultivation. In Queensland and Western Australia also, vine-growing has been carried on for many years, but in neither State has the industry progressed with the rapidity attained in Victoria and South Australia. In Tasmania the climate is not favourable to the growth of grapes. The purposes for which grapes are grown in Australia are three in number, viz.—(i.) for wine-making, (ii.) for table use, (iii.) for drying. The total area under vines in the several States from 1860 onwards is given in the following table:—

COMMONWEALTH VINEYARDS, 1860-1 to 1915-16.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.		Acres.
1860-1	1,584	1,198	—	3,180	335	There are no vineyards in Tasmania.	6,237
1865-6	2,126	4,078	110	6,629	634		13,577
1870-1	4,504	5,466	416	6,131	710		17,227
1875-6	4,459	5,081	376	4,972	675		15,563
1880-1	4,800	4,980	789	4,337	659		15,515
1885-6	5,247	9,775	1,483	5,142	624		22,271
1890-1	8,044	20,686	1,981	9,535	1,024		41,270
1895-6	7,519	30,275	2,021	17,604	2,217		59,636
1900-1	8,441	30,634	2,019	20,158	3,325		64,577
1905-6	8,754	26,402	2,044	23,603	3,541		64,344
1910-11	8,321	23,412	1,634	22,952	2,795		59,114
1911-12	8,231	24,193	1,371	23,986	2,321		60,602
1912-13	8,163	24,579	1,428	25,208	3,010		62,388
1913-14	8,153	22,435	1,537	26,208	2,864		61,197
1914-15	7,985	21,801	1,415	26,864	2,920		60,985
1915-16	7,883	22,353	1,373	27,764	2,751	62,124	

The area devoted to vines in the Commonwealth attained its maximum in the season 1904-5, when a total of 65,673 acres was reached. Each of the five following seasons shewed a decrease, the area in 1909-10 being only 58,151 acres. Since that year, however, the total has risen to 62,124 acres, but South Australia is the only State where a steady annual increase was recorded.

The wine-growing industry in Australia, more particularly in Victoria and New South Wales, received a severe check by various outbreaks of phylloxera. With a view to its eradication extensive uprooting of vineyards in the infested areas, was undertaken, while further planting within such areas, except with phylloxera-resistant vines, was prohibited.

2. **Wine Production.**—The production of wine in Australia has not increased as rapidly as the suitability of soil and climate would appear to warrant. The cause of this is probably twofold, being in the first place due to the fact that the Australians are not a wine-drinking people and consequently do not provide a local market for this product, and in the second to the fact that the new and comparatively unknown wines of Australia find it difficult to establish a footing in the markets of the old world, owing to the competition of well-known brands. Active steps are being taken in various ways to bring the Australian wines under notice, and it may be confidently expected that when their qualities are duly recognised the wine production of this country will exhibit a rapid development. Particulars concerning the quantity of wine produced in the several States during 1901-2 and the past five seasons are contained in the table given hereunder:—

AUSTRALIAN WINE PRODUCTION, 1901-2 and 1911-12 to 1915-16.

Season.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Commonwealth.
1901-2 ...	Gallons. 868,479	Gallons. 1,981,475	Gallons. 148,835	Gallons. 2,631,563	Gallons. 185,735	No production of wine in Tasmania.	Gallons. 5,816,087
1911-12 ...	850,210	983,423	57,358	2,921,597	162,559		4,975,147
1912-13 ...	719,100	1,206,111	54,627	3,974,838	149,132		6,103,808
1913-14 ...	561,100	1,121,491	58,897	2,759,665	208,738		4,709,891
1914-15 ...	549,140	605,636	51,164	1,507,196	162,190		2,875,326
1915-16 ...	571,000	1,380,367	59,008	3,709,878	166,820		5,887,073

3. **Relation to Population.**—In relation to population the area of the vineyards of the several States exhibits a well-marked decline from 1901 to 1908, the Commonwealth total having fallen during the period from 17 to 13 acres per 1000 of the population. During the following seven seasons, however, the relation remained stationary; with the exception of a slight decline in the 1914-15 season. Details for the period are furnished in the succeeding table:—

AREA OF VINEYARDS PER 1000 OF POPULATION.

Season.	N.S.W.	Victoria.	Q'land.	Sth. Aust.	W. Aust.	Tas.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1901-2 ...	6	24	4	58	19	...	17
1911-12 ...	5	18	2	57	10	...	13
1912-13 ...	5	18	2	59	10	...	13
1913-14 ...	4	16	2	60	9	...	13
1914-15 ...	4	15	2	61	9	...	12
1915-16 ...	4	16	2	63	9	...	13

4. **Imports and Exports.**—The principal countries of origin of wine imported into Australia are France, Spain, and Portugal, the greater portion of the sparkling wines coming from France and of still wines from Spain and Portugal. Particulars relative to the importations of wine into the Commonwealth during 1901 and the past five years are given hereunder:—

COMMONWEALTH IMPORTS OF WINE, 1901 and 1911 to 1915-16.

Year.	Quantity.			Value.		
	Sparkling.	Other.	Total.	Sparkling.	Other.	Total.
	Gallons.	Gallons.	Gallons.	£	£	£
1901	55,341	165,472	220,813	104,700	57,245	161,945
1911	78,115	75,446	153,561	153,561	31,363	184,924
1912	67,851	85,874	153,725	132,830	36,377	169,207
1913	68,907	81,006	149,913	138,563	34,797	173,360
1914-15	28,179	71,633	99,812	56,998	32,953	89,951
1915-16	26,744	62,357	89,101	55,573	27,494	83,067

The principal countries to which wine is exported from Australia are the United Kingdom and New Zealand, a small but fairly regular export trade being also carried on with India, Ceylon, Fiji, and the South Sea Islands. Details concerning the exports of wine from Australia during 1901 and the past five years are given in the following table:—

COMMONWEALTH EXPORTS OF WINE, 1901 and 1911 to 1915-16.

Year.	Quantity.			Value.		
	Sparkling.	Other.	Total.	Sparkling.	Other.	Total.
	Gallons.	Gallons.	Gallons.	£	£	£
1901	2,936	863,147	866,083	6,972	122,751	129,723
1911	2,343	1,097,624	1,099,967	4,126	147,608	151,734
1912	2,467	784,371	786,838	4,803	116,327	121,130
1913	1,768	701,872	703,640	3,767	102,263	106,030
1914-15	2,325	635,579	637,904	4,106	97,337	101,443
1915-16	3,688	726,113	729,751	7,001	113,593	120,599

The sparkling wine included in the foregoing table consists mainly of foreign wine re-exported.

5. Other Viticultural Products.—In addition to grapes for wine-making purposes, large quantities are grown in all the States for table use, while, particularly in Victoria and South Australia, the drying of raisins and currants is also carried on. The quantities of table grapes grown in the several States during 1901-2 and the past five seasons are as follows:—

TABLE GRAPES, 1901-2 and 1911-12 to 1915-16.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1901-2	3,475	5,110	750*	2,800*	1,100*	...	13,235
1911-12	4,223	3,102	973	2,123	3,506	...	13,927
1912-13	3,893	2,624	1,046	2,194	1,891	...	11,648
1913-14	3,883	2,849	1,306	2,067	2,690	...	12,795
1914-15	2,667	3,083	1,191	1,283	1,348	...	9,572
1915-16	2,940	3,524	932	1,608	2,027	...	11,031

* Estimated.

Statistics of the quantities of raisins and currants dried are available for a series of years for Victoria and South Australia, and are as follows for 1901-2 and the past five seasons :—

RAISINS AND CURRANTS DRIED, 1901-2 and 1911-12 to 1915-16.

Season.	Raisins.		Currants.	
	Victoria.	Sth. Australia.	Victoria.	Sth. Australia.
	lbs.	lbs.	lbs.	lbs.
1901-2	3,083,665	822,080	235,157	382,256
1911-12	11,527,488	3,880,912	5,240,368	5,229,840
1912-13	12,283,824	3,947,776	5,413,744	5,847,296
1913-14	13,473,936	3,981,376	6,954,976	5,507,040
1914-15	12,432,672	3,954,160	3,195,024	2,774,688
1915-16	20,171,648	6,712,048	7,902,272	7,450,016

In New South Wales, Queensland, and Western Australia small quantities of raisins and currants are dried, but until recently no statistics were collected. The quantity so produced in New South Wales amounted to 100,912 lbs. in 1907-8, 160,720 lbs. in 1908-9, 165,984 lbs. in 1909-10, 297,472 lbs. in 1910-11, 429,968 lbs. in 1911-12, 494,704 lbs. in 1912-13, 545,888 lbs. in 1913-14, 403,416 lbs. in 1914-15, and 890,848 lbs. in 1915-16. In Western Australia 176,400 lbs. were dried during 1912-13, 199,024 lbs. during 1913-14, 239,792 lbs. in 1914-15, and 293,888 lbs. in 1915-16. For Queensland there are no particulars available.

§ 15. Orchards and Fruit Gardens.

1. **Nature and Extent.**—Fruit-growing has made rapid progress in the Commonwealth during recent years, the area devoted thereto having increased in the past ten years by no less than 85,864 acres. The States in which the increase is most marked are:—Victoria, 27,846 acres; Tasmania, 20,832 acres; New South Wales, 10,900 acres; and Western Australia, 10,779 acres. During the same period the South Australian fruit-growing area increased 8,256 acres, while that in Queensland exhibited an increase of 7,226 acres. The increased areas in Tasmania and Western Australia are mainly due to extensive plantings of apple trees with a view to the possibilities of the London market for fresh fruit. The total area devoted to orchards and fruit gardens in the several States is given hereunder:—

COMMONWEALTH ORCHARDS AND FRUIT GARDENS, 1901-2 and 1911-12 to 1915-16.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N.T.	Fed. Terr.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1901-2...	48,448	50,055	14,396	16,315	6,076	11,485	...	...	146,775
1911-12	48,385	59,985	16,817	23,214	18,194	27,868	13	48	194,524
1912-13	49,329	63,209	18,556	23,905	19,540	30,575	...	60	205,174
1913-14	51,457	67,183	20,072	24,425	20,575	32,200	50	59	216,021
1914-15	53,905	74,302	22,212	25,811	21,378	35,007	50	46	232,711
1915-16	57,515	80,120	22,616	27,576	21,805	37,351	...	25	247,008

The varieties of fruit grown differ materially in various parts of the several States, and range between such fruits as the pineapple, paw-paw, mango, and guava of the tropics, and the strawberry, the raspberry, and the currant of the colder parts of the

temperate zone. The principal varieties grown in Victoria are the apple, plum, peach, apricot, cherry, and pear. In New South Wales, citrus fruits (orange, lemon, etc.), occupy the leading position, although apples, pears, peaches, plums, and apricots are also extensively grown. In Queensland the banana, the orange, the pineapple, the apple, the peach, the mango, and the plum are the varieties most largely grown. In South Australia, in addition to the apple, pear, peach, apricot, plum, orange, and lemon, the almond and the olive are also largely grown. In Western Australia, the apple, orange, peach, pear, plum, fig, and apricot are the sorts chiefly grown, while in Tasmania, although the apple represents over four-fifths of the area in that State devoted to fruit-growing, small fruits, such as the currant, raspberry, and gooseberry, are very extensively grown, and the balance of the area is mainly occupied with the pear, plum, apricot, peach, and cherry. The following table gives the acreage under the principal kinds of fruit grown, and the quantity and value of fruit produced. The acreages shewn are exclusive of young trees not yet bearing. The acreages for each kind of fruit in Victoria are not available:—

PARTICULARS OF THE PRINCIPAL KINDS OF FRUIT GROWN IN THE SEVERAL STATES OF THE COMMONWEALTH DURING THE SEASON 1915-16.

Fruit.	N.S.W. (a)	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
Apples ... acres	6,797	...	995	7,727	6,410	19,076	...
	bushels 499,087	2,953,968	29,815	832,872	292,530	1,985,767	6,594,039
£ 118,500	430,787	8,572	111,021	147,484	372,331	1,188,695	
Apricots ... acres	1,003	...	88	1,984	391	795	...
	bushels 75,518	256,229	1,550	159,077	23,563	100,405	616,342
£ 30,208	76,869	853	64,709	19,832	28,428	220,899	
Bananas ... acres	668	...	8,166	...	115	...	...
	bunches 681,726	...	1,210,941	...	(c) 1,911	...	...
£ 40,860	...	151,368	...	1,911	...	194,139	
Lemons ... acres	2,510	...	159	394	150	...	...
	bushels 190,548	56,569	10,721	17,859	24,304	...	300,001
£ 71,400	26,870	2,680	8,037	7,899	...	116,886	
Nectarines and peaches { acres	6,035	...	1,559	1,774	1,145	78	...
	bshls. 428,669	310,312	42,638	79,395	38,927	8,620	908,561
£ 150,000	93,173	6,542	31,481	26,520	2,155	309,871	
Oranges ... acres	10,303	...	2,272	2,076	1,625	...	...
	bushels 801,144	63,434	299,701	73,455	148,461	...	1,386,195
£ 280,400	28,545	59,940	34,891	74,231	...	478,007	
Pineapples acres	19	...	3,709	...	...	...	...
	dozen 3,992	...	921,833	...	...	...	925,825
£ 640	...	99,865	...	...	...	100,505	
Pears ... acres	1,685	...	201	1,109	760	1,114	...
	bushels 120,364	601,357	3,022	118,268	53,123	141,773	1,037,907
£ 30,100	112,754	944	23,896	20,585	42,532	230,811	
Other fruits acres	8,242	...	2,676	4,260	1,398	2,584	...
	£ 265,282	197,390	51,920	86,375	44,429	77,335	722,731
Total ... acres	37,262	53,873	19,825	19,324	11,994	23,647	165,925
	£ 987,390	966,388	382,684	360,410	342,891	522,781	3,562,544

(a) Including Federal Territory, 24 acres, value £570. (b) Cases. (c) Bushels.

2. **Relation to Population.**—In relation to population the acreage of orchards and fruit gardens of the Commonwealth has increased during the last ten years, more than compensating for the decline which was experienced in the case of vineyards. Taking the two in conjunction, the relative area under vineyards and orchards has, during the period, considerably increased, averaging 55 acres per 1000 of population in 1901-2, and 63 in 1915-16. Details for orchards and fruit gardens for 1901-2 and the past five seasons are as follows:—

AREA OF ORCHARDS AND FRUIT GARDENS PER 1000 OF POPULATION.

Season.	N.S.W.	Victoria.	Q'land.	Sth. Aust.	W. Aust.	Tas.	N.T.	Fed. Terr.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1901-2...	35	41	28	45	31	66	...	...	38
1911-12	29	44	27	56	62	144	4	25	43
1912-13	28	46	29	56	64	155	...	31	43
1913-14	28	48	30	56	64	160	14	30	44
1914-15	29	52	33	58	66	174	13	23	47
1915-16	31	57	33	63	69	186	...	14	50

3. **Commonwealth Imports and Exports.**—A considerable fruit trade, both import and export, is carried on by the Commonwealth with oversea countries, the major portion of the importations consisting of dried fruits, while the bulk of the exports is made up of fresh fruits. Amongst the imports, the principal dried fruits are currants, dates, sultanas, and raisins, and the principal fresh fruits bananas, oranges, lemons, and apples. The currants imported are mainly from Greece, the dates from Arabia, Asia Minor and Persia, the raisins mainly from Spain. Of the fresh fruits imported during 1915-16, the bananas were chiefly from Fiji, the oranges and lemons from the United States and Italy, and the apples from the United States and Canada. In 1907 a considerable increase in the trade in Australian dried fruits took place, the total export for the year being valued at £76,872, of which £71,506 represented Australian fruits and £5,366 re-exports of foreign fruits. In 1908 the export declined to £35,359, of which £33,111 represented Australian fruits, and £2,248 re-exports of foreign fruits. There was a further decline in 1909, when the total value was only £13,013, made up of £11,826 of Australian produce, and £1,187 of re-exports. There was a small increase in the exports in 1910 and 1911, the total for the latter year amounting to £23,900, in 1912 there was a further and more substantial increase, the value of dried fruits exported being £48,012. In 1913 the export value was £32,099, and in 1914-15 £35,691. In 1915-16 the value of dried fruits exported was the largest on record, viz., £244,069; of this sum £241,632 represented Australian produce, and the balance of £2,437 re-exports of foreign fruits. The principal consignees of Australian dried fruits exported were United Kingdom and New Zealand. The fresh fruits exported during the year were valued at £415,305, and consisted mainly of apples. These were all of Australian origin with the exception of re-exports valued at £580. The principal countries to which these were sent were the United Kingdom, New Zealand and the East Indies.

Particulars concerning the oversea imports and exports of dried fruits for 1901 and the last five years are as follows:—

**COMMONWEALTH OVERSEA IMPORTS AND EXPORTS OF DRIED FRUITS,
1901 AND 1911 TO 1915-16.**

Year.	Oversea Imports.		Oversea Exports.		Net Imports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	lbs.	£	lbs.	£	lbs.	£
1901 ...	14,265,731	179,805	831,996	14,206	13,433,735	165,099
1911 ...	6,526,498	68,942	1,291,795	23,900	5,234,703	45,042
1912 ...	7,484,432	81,913	2,545,779	48,012	4,938,653	33,901
1913 ...	10,551,877	112,439	2,478,585	32,099	8,073,292	80,340
1914-15	4,071,250	58,451	2,313,768	35,691	1,757,482	22,760
1915-16	11,857,787	159,398	8,254,878	244,069	3,602,909	-84,671

Similar information with regard to the Commonwealth oversea trade in fresh fruits for the same period is contained in the table given hereunder :—

**COMMONWEALTH OVERSEA IMPORTS AND EXPORTS OF FRESH FRUITS,
1901 AND 1911 TO 1915-16.**

Year.	Oversea Imports.		Oversea Exports.		Net Exports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Centals.	£	Centals.	£	Centals.	£
1901 ...	*	45,955	*	167,926	*	121,971
1911 ...	338,749	197,924	651,837	420,780	313,088	222,856
1912 ...	306,079	217,796	674,695	468,306	368,616	250,510
1913 ...	472,331	356,060	584,914	399,800	112,583	43,740
1914-15	369,996	344,466	260,314	176,024	109,682	-168,442
1915-16	432,817	374,174	645,548	415,305	212,731	41,131

* Not available. (—) Signifies net imports.

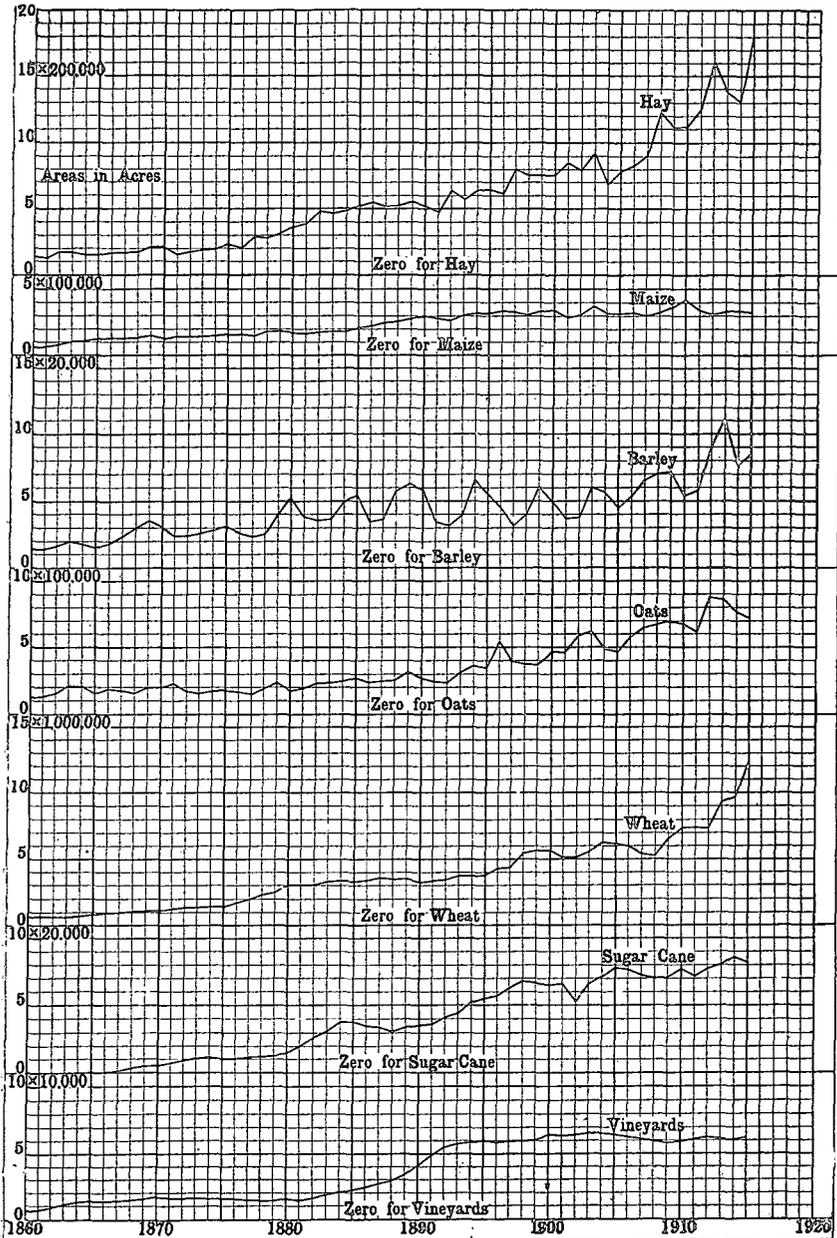
4. Jams and Jellies.—A considerable oversea trade in jams and jellies is now carried on by the Commonwealth, the value of the import for the year 1915-16 amounting to £9,087, and of the exports to £437,144. The country of origin of the bulk of the importations is the United Kingdom, while the destinations of the exports are principally the United Kingdom and Pacific Islands. Particulars relative to imports and exports for 1901 and the last five years are as follow:—

**COMMONWEALTH OVERSEA TRADE IN JAMS AND JELLIES,
1901 AND 1911 TO 1915-16.**

Year.	Oversea Imports.		Oversea Exports.		Net Exports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	lbs.	£	lbs.	£	lbs.	£
1901 ...	1,312,377	23,358	4,140,072	64,389	2,827,695	41,031
1911 ...	322,487	8,304	1,288,729	20,896	966,242	12,592
1912 ...	476,504	13,081	1,429,338	23,089	952,834	-10,008
1913 ...	453,951	12,213	1,858,231	29,402	1,404,280	17,189
1914-15	438,756	11,824	4,770,117	90,909	4,331,361	79,085
1915-16	288,165	9,087	22,849,553	437,144	22,561,388	428,057

5. Preserved Fruit.—Details concerning the quantities and values of preserved fruit imported into and exported from the Commonwealth cannot readily be obtained, owing to the fact that in the Customs returns particulars concerning fruit and vegetables are in certain cases combined. The total value of fruit and vegetables, other than fresh fruits, dried fruits, potatoes, and onions, imported into Australia during 1915-16 was £62,044, and the corresponding value of exports was £31,415.

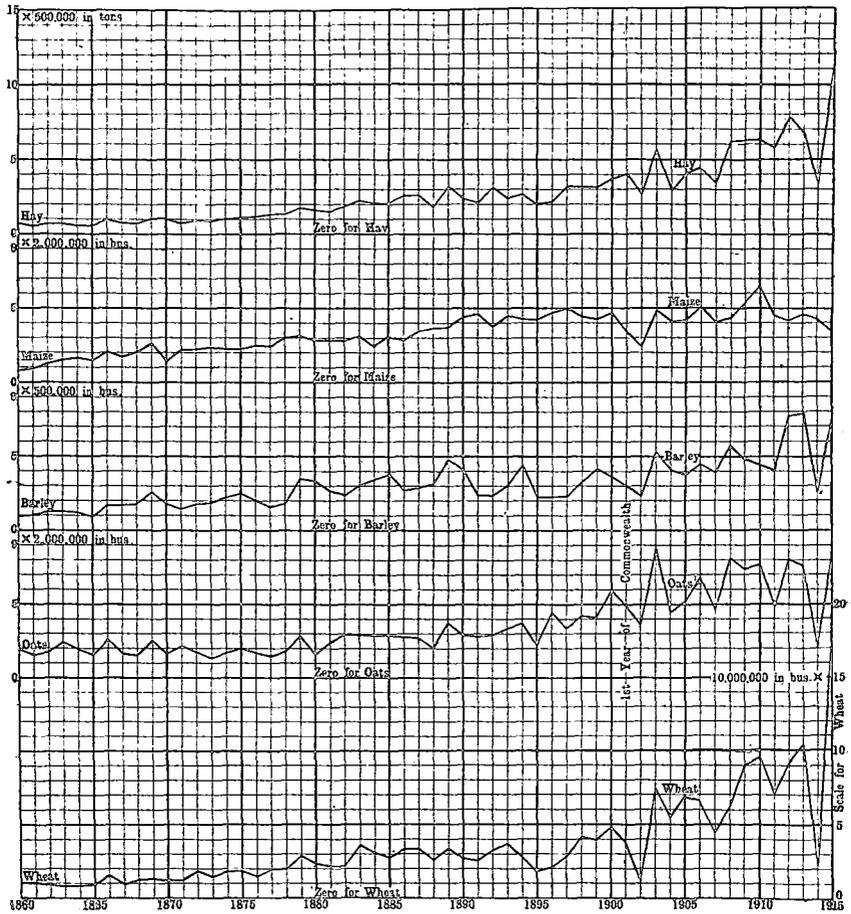
GRAPHS SHEWING THE AREA UNDER THE PRINCIPAL CROPS IN THE COMMONWEALTH FROM 1860-1 TO 1915-16.



(See pages—for wheat, 325; oats, 335; maize, 339; barley, 343; hay, 350; sugar-cane, 355; and vineyards, 358.)

EXPLANATION OF GRAPHS.—The of base each small square represents an interval of one year, while the vertical height represents a number of acres, varying with the nature of the crop in accordance with the scale given on the left-hand of the diagram. The height of each graph above the base line denotes, for the crop to which it relates, the total area under cultivation in the Commonwealth during the successive seasons.

GRAPHS SHEWING THE PRODUCTION OF THE PRINCIPAL CROPS IN THE COMMONWEALTH FROM 1850-1 TO 1915-16.



(See pages—for wheat, 326; oats, 336; maize, 340; barley, 343; and hay, 352.)

EXPLANATION OF GRAPHS.—In this diagram a separate base line is provided for each of the crops dealt with. In each instance the base of a small square represents an interval of one year; the vertical height of such square representing in the case of the wheat graph, 10,000,000 bushels; oats, 2,000,000 bushels; barley, 500,000 bushels; maize, 2,000,000 bushels; and hay, 500,000 tons. The height of each graph above its base line denotes the aggregate yield in the Commonwealth of that particular crop during the successive seasons.

§ 16. Minor Crops.

1. **Nature and Extent.**—In addition to the leading crops which in the foregoing pages have been dealt with in some detail, there are many others which, owing either to their nature, or to the fact that their cultivation has advanced but little beyond the experimental stage, do not occupy so prominent a position. Some of the more important of these are included under the headings—Market Gardens, Pumpkins and Melons, Turnips, Mangolds, Nurseries, Grass Seed, Tobacco, Hops, and Millet. Cotton-growing has in recent years received some attention in the tropical portions of the Commonwealth, although the industry cannot yet be said to be beyond the experimental stage. The total area in the Commonwealth during the season 1915-16 devoted to minor crops was 78,553 acres, of which market gardens accounted for 29,610 acres.

2. **Market Gardens.**—Under this head are included all-areas on which mixed vegetables are grown. Where considerable areas are devoted to the production of one vegetable, such for instance as the potato, the onion, the melon, the tomato, etc., the figures are usually not included with market gardens, but are shewn either under some specific head, or under some general head as "Other Root Crops," or "All other Crops." The area under market gardens in the several States of the Commonwealth during 1901-2 and each of the last five seasons is given in the table hereunder:—

COMMONWEALTH MARKET GARDENS, 1901-2 and 1911-12 to 1915-16.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N.T.	Federal Terr.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1901-2 ...	7,834	8,752	2,328	9,005	2,142	1,746	...	...	31,807
1911-12 ...	9,488	10,331	2,293	2,848	3,120	2,144	*58	10	30,292
1912-13 ...	9,836	10,414	2,386	2,857	3,664	1,458	50	11	30,676
1913-14 ...	10,585	10,777	2,611	2,265	2,851	† 769	60	22	29,940
1914-15 ...	10,475	12,935	2,648	1,830	2,785	628	60	27	31,388
1915-16 ...	10,940	11,379	2,330	1,712	2,787	435	...	27	29,610

* Included with South Australia prior to 1910-11. † Other than Market Gardens included in previous years.

The area for 1911-12 was in excess of that for 1901-2 in New South Wales, Victoria, and Western Australia. In South Australia the falling-off is more apparent than real, being in large part due to a change in the classification of crops introduced in connection with the new system of collection which came into force for 1907-8. It is believed that the figures given for the earlier years are considerably in excess of the reality. During the past five seasons there has been very little variation in the total area of market gardens in the Commonwealth as a whole; New South Wales and Victoria shew the largest increase, viz., 1,452 and 1,048 acres respectively, while South Australia and Western Australia shew a decrease of 1,136 and 333 acres respectively.

3. **Grass Seed.**—The total area under this crop during 1915-16, exclusive of New South Wales, for which State no figures are available, was 4,851 acres, of which 2,434 acres were in Victoria, 1,848 acres in Tasmania, and 568 acres in Queensland. The total yield for 1915-16, excluding New South Wales, was 50,251 bushels.

4. **Tobacco.**—The tobacco-growing industry is one which has experienced marked fluctuations, although it at one time promised to occupy an important place amongst the agricultural industries of the Commonwealth. Thus, as early as the season 1888-9 the area under this crop amounted to as much as 6,641 acres, of which 4,833 were in New South Wales, 1,685 in Victoria, and 123 in Queensland. This promise of importance was, however, not fulfilled, and after numerous fluctuations, in the course of which the Victorian area rose in 1895 to over 2000 acres, and that in Queensland to

over 1,000 acres, the total area for the season 1915-16 had declined to 1906 acres, distributed as follows:—New South Wales, 1277 acres; Victoria, 160 acres; and Queensland, 469 acres. This decline in production appears to have been due to the comparatively small demand which existed in Australia for the locally-produced leaf, and to the fact that the cost of production and preparation in the Commonwealth prevented the Australian leaf from obtaining a footing in the outside markets. Probably under more favourable circumstances, and with greater attention given to the production of leaf of the best quality only, the industry is one which will eventually assume considerable proportions. In all the States in which its cultivation has been tried, the soil and climate appear to be very suitable for the growth of the plant, and the enormous importations of tobacco in its various forms into the Commonwealth furnish an indication of the extensive local market which exists for an article grown and prepared in such a manner as to meet with the requirements of consumers. The value of the net importations of tobacco into the Commonwealth during the year 1915-16 amounted to £736,893, comprising unmanufactured tobacco £685,178, cigars £84,521, cigarettes £23,982, and snuff £1,015. Manufactured tobacco during 1915-16 shewed a balance in favour of exports amounting to £57,803.

5. Pumpkins and Melons.—The total area under this crop in the Commonwealth during 1915-16 was 11,572 acres, of which 3,907 acres were in New South Wales, 2,440 acres in Victoria, 4,539 acres in Queensland, 643 acres in Western Australia, and 203 in South Australia. The production amounted to 12,972, 18,380, 9,800, 1,980, and 1,670 tons respectively.

6. Hops.—Hop-growing in the Commonwealth is practically confined to Tasmania and some of the cooler districts of Victoria, the total area for the season 1915-16 being 1515 acres, of which 1405 acres were in Tasmania, and 107 acres in Victoria; a small area of 3 acres was also grown in South Australia. The Tasmanian area, though still small, has increased rapidly during the past fourteen years, the total for the season 1901-2 being only 599 acres. On the other hand, the Victorian area, which in 1901-2, was 307 acres, had diminished to 107 acres in 1915-16. The cultivation of hops was much more extensive in Victoria some thirty years ago than at present, the area devoted to this crop in 1883-4 being no less than 1758 acres. During the year 1915-16 the net importations of hops into the Commonwealth represented a weight of 958,205 lbs. and a value of £49,678. The total value of the net importations into Australia during the past ten years amounted to £571,844, thus indicating the existence of a regular and extensive local demand.

7. Millet.—Millet appears in the statistical records of three of the Commonwealth States. The total area devoted thereto in 1915-16 was 3,580 acres, of which 2,422 acres were in New South Wales, 715 in Victoria, 438 in Queensland and 5 in the Northern Territory. The particulars here given relate to millet grown for grain and fibre. That grown for green forage is dealt with in the section relating thereto.

8. Nurseries.—In all the States somewhat extensive areas are devoted to nurseries for raising plants, trees, etc., but statistics concerning the area so occupied for flowers, fruit trees, etc., are not available, and so far as they relate to forestry are given elsewhere.

9. Cotton.—Cotton-growing on a small scale has been tried in Queensland, but so far without very marked success; 72 acres were devoted to this crop in 1915-16, giving a yield of 12,238 lbs. of unginced cotton, valued at £306. Hopes are entertained that with the invention of a mechanical device for the picking of the cotton the industry will become firmly established, since the soil and conditions appear eminently suitable for the growth of this crop. Small areas in the Northern Territory have also been planted with

cotton. The tropical portions of Western Australia have also long been regarded as suitable for its cultivation.

10. **Coffee.**—Queensland is the only State of the Commonwealth in which coffee-growing has been at all extensively tried, and here the results have up to the present time been far from satisfactory. The total area devoted to this crop reached its highest point in the season 1901-2, when an area of 547 acres was recorded. Since then the area continuously declined to 1906-7, when it was as low as 256 acres. During the season 1907-8 the area increased to 304 acres, declining to 285 acres in 1908-9, 200 acres in 1910-11, 198 acres in 1911-12, 196 acres in 1912-13, 165 acres in 1913-14, 150 acres in 1914-15, and 91 acres in 1915-16. In the last-mentioned season the yield amounted to 53,470 lbs., valued at £2,006.

11. **Other Crops.**—Miscellaneous small crops are grown in the several States, amongst which may be mentioned tomatoes, rhubarb, artichokes, arrowroot, chicory, and flowers.

§ 17. Bounties on Agricultural Products.

1. **General.**—The Bounties Act of 1907 passed by the Federal Parliament in order to encourage the manufacture and production of certain articles in the Commonwealth, includes among the number of items on which bonuses are payable, several agricultural products. Products of the soil on which these bounties are payable are as follows:—

AGRICULTURAL PRODUCTS ON WHICH BOUNTIES ARE PAYABLE.

Article.	Period dating from 1st July, 1907, during or in respect of which Bounty may be paid.	Rates of Bounty.	Maximum amounts which may be assigned in any one year.
Cotton, ginned... ..	8 years	10 % on market value	£ 6,000
Fibres—			
New Zealand flax	10 "	10 " "	3,000
Flax and hemp	5 "	10 " "	8,000
Jute	5 "	20 " "	9,000
Sisal hemp	10 "	10 " "	3,000
Oil materials supplied to an oil factory for the manufacture of oil—			
Cottonseed	8 "	10 " "	1,000
Linseed (flax seed)	5 "	10 " "	5,000
Rice, uncleaned	5 "	20s. per ton	1,000
Coffee, raw, as prescribed	8 "	1d. per lb.	1,500
Tobacco leaf for the manufacture of cigars, high grade, of a quality to be prescribed	5 "	2d. "	4,000
Fruits—			
Dates (dried)... ..	15 "	1d. "	1,000
Dried (except currants and raisins) or candied, and exported	5 "	10 % on market value	6,000

* Any unexpended amount assigned in any year is available for the years following.

Although the rate of bonus on the several articles, is, as shewn above, fairly liberal, the bounties have not been availed of to any great extent, as will be seen from the following table, which gives particulars as to the quantity of the articles raised and the amounts paid as bounties in respect thereof for the five financial years ended 1915-16:—

PARTICULARS OF BOUNTIES PAID ON AGRICULTURAL PRODUCTS (OTHER THAN SUGAR), 1911-12 to 1915-16.

Article.	Quantity produced on which Bounties were paid.					Amount paid as Bounties.				
	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.
Cotton, ginned ...lbs.	60,443	46,043	9,642	...	13,751	£ 116	£ 95	£ 21	£ ...	£ 22
Fibres—										
Flax and hemp tons	137	101	137	34	238	480	215	313	77	634
Sisal hemp ... "	8	...	...	...	2,250	18	...	...	...	2
Oil materials supplied to an oil factory for the manufacture of oil—										
Cottonseed ... lbs.	99,209	84,479	6,306	...	22,400	21	13	1	...	10
Linseed (flax seed) cwt.	...	100	...	...	...	...	9	...	...	...
Coffee, raw, as prescribed ... lbs.	16,269	30,053	17,540	17,022	732	68	125	73	71	3
Tobacco leaf for the manufacture of cigars, high grade, of a quality to be prescribed. lbs.	9,258	25,820	41,263	41,891	17,423	78	215	344	349	145
Fruits—										
Dried (except currants and raisins) or candied, & exported. lbs.	636,452	196,837	142,928	41,312	6,000	1,734	587	433	98	16

During the year 1915-16 the total amount paid in respect of coffee was claimed by the State of Queensland. Tasmania collected the fruit bonus, while the bounty paid for tobacco leaf was paid to Victoria and Queensland, the amounts being £24 and £71 respectively. Victoria claimed the total amount paid for flax and hemp.

No bounties have yet been paid on New Zealand flax, jute, uncleaned rice or dates.

§ 18. Fertilisers.

1. **General.**—In the early days of settlement and cultivation in the Commonwealth, scientific cultivation was in a much less developed state than it is to-day. The early farmers were neither under the necessity, nor in fact, aware of the necessity, of supplying the constituents to the soil demanded by each class of crop. The widely divergent character of the soils in the Commonwealth, their degeneration by repeated cropping, the limitations of climatic conditions, the difficulties of following any desired order of rotation of crops, all rendered it essential to give attention to artificial manuring. The introduction of the modern seed-drill, acting also as a fertiliser distributor, has greatly facilitated the use of artificial manures, and much land formerly regarded as useless for cultivation has now been made productive. There is reason to believe that this feature will be even more strikingly characteristic of the future.

2. **Fertilisers Acts.**—In order to protect the interests of users of artificial manures legislation has been passed in each of the States, regulating the sale and preventing the adulteration of fertilisers. A list of these Acts and their main features will be found in Year Book No. 6. (pages 406 and 407).

3. **Imports.**—The local production of artificial manures has assumed large proportions during the last few years, though considerable quantities are still imported. The importation of fertilisers has increased over 200 per cent. since 1901. The chief items, as regards both quantity and value, are those relating to phosphates, a fertiliser which has proved itself to be very suitable for the growing of cereals in Australian

soils. With the exception of very small quantities from the United Kingdom and New Zealand, the whole of the manufactured superphosphates imported during 1915-16 was obtained from Japan. Ocean Island, with 50 per cent., was the principal contributor of rock phosphates; Pleasant Island contributed 25 per cent., and the balance, about 25 per cent. was obtained from other South Sea Islands. Guano was imported from the United Kingdom.

The import of artificial manures during the last five years is given in the following table. It will be noticed that the quantity of rock phosphates imported since 1911 shews an increase amounting to 122 per cent. The imports were particularly large during the last three years. The manufactured superphosphates shewed an increase of about 50 per cent. during 1910, for 1911 there was a further increase of some 5 per cent., but during 1912 and the three following years there was a decrease, the falling off in 1915-16 being particularly heavy.

COMMONWEALTH IMPORTS OF FERTILISERS, 1911 to 1915-16.

Fertiliser.		1911.	1912.	1913.	1914-15.	1915-16.
Bonedust	Cwt.	4,164	8,769	15,341	10,901	...
"	£	1,086	2,309	4,378	3,136	...
Guano	Cwt.	484,008	541,873	26,819	2,053	1,800
"	£	52,447	64,833	5,733	814	792
Superphosphates ...	Cwt.	1,254,892	967,480	534,198	509,382	57,790
"	£	183,832	155,643	89,474	79,889	10,308
Rock Phosphates ...	Cwt.	1,721,140	1,963,640	3,200,648	3,464,547	3,813,788
"	£	228,292	259,994	397,634	397,284	440,434
Other	Cwt.	161,121	247,026	279,308	175,795	117,312
"	£	47,479	82,769	90,202	65,703	52,972
Total	{ Cwt.	3,625,320	3,728,788	4,056,314	4,155,682	3,990,690
"	£	513,136	565,548	687,421	546,826	504,506

4. Exports.—The subjoined table shews the exports of artificial manures for the years 1911 to 1915-16. Practically the whole of the fertiliser is manufactured locally, and is shipped mainly to New Zealand, Java, Japan and the Pacific Islands:—

COMMONWEALTH EXPORTS OF FERTILISERS, 1911 to 1915-16.

Fertiliser.		1911.	1912.	1913.	1914-15.	1915-16.
Bonedust	Cwt.	122,456	125,546	86,295	148,229	71,795
"	£	34,787	38,188	26,023	45,707	22,563
Guano	Cwt.	2,719	500	6,242	2,800	...
"	£	603	100	848	470	...
Superphosphates ...	Cwt.	300,925	182,377	257,629	311,067	823,361
"	£	38,007	34,400	47,596	64,224	156,862
Rock Phosphates ...	Cwt.	2,106	...	18,555	22,340	75,839
"	£	353	...	3,050	3,429	10,695
Soda Nitrate	Cwt.	6,107	5,523	10,154	1,500	2,619
"	£	3,098	2,660	5,386	897	1,835
Ammonia Sulphate ...	Cwt.	56,630	73,193	46,067	113,801	129,651
"	£	37,141	51,022	31,577	75,379	102,821
Other	Cwt.	215,382	146,348	237,734	224,309	86,964
"	£	53,510	49,316	63,154	38,972	28,059
Total	{ Cwt.	606,325	533,487	662,676	824,046	1,190,229
"	£	167,499	175,686	177,434	229,078	322,835

5. **Statistics of Use of Fertilisers.**—The statistics available in connection with the use of manures in the Commonwealth for a series of years refer to all the States with the exception of Queensland; those for that State were collected for the first time for 1915-16. Particulars concerning New South Wales are given hereunder:—

FERTILISERS USED IN NEW SOUTH WALES, 1911-12 to 1915-16.

Season.	Total Area of Crops.	Area Manured.		Manure Used.	
		Aggregate.	Percentage to Total Area of Crop.	Natural (Stable-yard, etc.).	Artificial.
	Acres.	Acres.	%	Loads.	Tons.
1911-12 ...	3,628,513	1,407,453	38.80	178,689	33,820
1912-13 ...	3,737,085	1,642,078	43.94	170,312	38,918
1913-14 ...	4,567,592	2,224,623	48.71	166,503	50,476
1914-15 ...	4,807,001	2,329,819	48.47	168,450	55,169
1915-16 ...	5,796,376	2,753,301	47.50	177,788	56,621

Particulars for Victoria for 1901-2 and the past five seasons are as follows:—

FERTILISERS USED IN VICTORIA, 1901-2 and 1911-12 to 1915-16.

Season.	Total Area of Crops.	Farmers Using Manure.	Area Manured.		Manure Used.	
			Aggregate.	Percentage to Total Area of Crop.	Natural (Stable-yard, etc.).	Artificial.
	Acres.	No.	Acres.	%	Tons.	Tons.
1901-2 ...	2,965,681	11,439	556,777	18.77	153,611	23,535
1911-12 ...	3,640,241	26,159	2,676,408	73.52	205,739	82,581
1912-13 ...	4,079,356	29,524	3,029,418	74.26	222,253	94,010
1913-14 ...	4,391,321	30,610	3,401,013	77.45	219,423	105,612
1914-15 ...	4,622,759	31,874	3,728,279	80.65	209,534	117,935
1915-16 ...	5,711,265	33,378	4,336,252	75.92	187,602	128,667

During 1915-16, 23,166 acres were manured in Queensland, 43,483 loads of natural, and 7,608 tons of artificial manure being used.

The figures relating to the use of fertilisers in South Australia are shown in the table below:—

FERTILISERS USED IN SOUTH AUSTRALIA, 1911-12 to 1915-16.

Season.	Total Area of Crops.	Area Manured.		Manure Used.	
		Aggregate.	Percentage to Total Area of Crop.	Natural (Stable-yard, etc.).	Artificial.
	Acres.	Acres.	%	Loads.	Tons.
1911-12 ...	2,965,338	2,511,130	84.68	134,503	87,475
1912-13 ...	3,062,998	2,603,136	84.99	111,434	91,607
1913-14 ...	3,169,559	2,584,814	81.55	100,435	97,023
1914-15 ...	3,282,364	2,722,349	82.94	103,537	96,812
1915-16 ...	3,763,570	3,112,462	82.70	90,142	102,685

Corresponding particulars relative to Western Australia for the seasons 1911-12 to 1915-16 are given in the following table, and furnish interesting evidence of the rapid extension of the use of manures in that State:—

FERTILISERS USED IN WESTERN AUSTRALIA, 1911-12 to 1915-16.

Season.	Total Area of Crops.	Area Manured.		Manure Used.	
		Aggregate.	Percentage to Total Area of Crops.	Natural (Stable-yard, etc.).	Artificial.
	Acres.	Acres.	%	Loads.	Tons.
1911-12...	1,072,653	992,463	92.52	51,600	43,843
1912-13...	1,199,991	1,120,334	93.36	55,085	47,563
1913-14...	1,537,923	1,459,218	94.88	58,390	53,962
1914-15...	1,867,547	1,808,504	96.84	54,245	67,839
1915-16...	2,189,456	2,117,166	96.70	53,257	70,523

Statistics relating to the use of manures in Tasmania for the past five seasons are as follows:—

FERTILISERS USED IN TASMANIA, 1911-12 to 1915-16.

Season.	Total Area of Crops.	Area Manured.		Manure Used.	
		Aggregate.	Percentage to Total Area of Crops.	Natural (Stable-yard, etc.).	Artificial.
	Acres.	Acres.	%	Tons.	Tons.
1911-12...	270,000	129,914	48.12	25,792	8,750
1912-13...	286,065	137,653	48.12	27,328	9,272
1913-14...	264,140	136,764	51.78	30,530	14,398
1914-15...	274,474	144,782	52.73	31,572	13,065
1915-16...	333,334	182,374	54.71	30,486	15,232

A marked increase in the proportion of cropped land treated with manure is in evidence in all of the States for which returns are available. Thus, in New South Wales the area of manured land represented in 1908-9 only 18½ per cent. of the area under crop, as against nearly 47½ per cent. in 1915-16. Similarly, in Victoria the percentage increased from 18½ per cent. in 1901-2 to 59½ per cent. in 1908-9 and to 76 per cent. in 1915-16, in South Australia from 73½ per cent. in 1908-9 to nearly 83 per cent. in 1915-16, and in Western Australia from 64 per cent. in 1904-5 to nearly 97 per cent. in 1915-16. During the past four years the proportion in Tasmania increased from 48 to 54½ per cent.

6. Local Production of Fertilisers.—Statistics relative to the local production of fertilisers are incomplete, and detailed returns for fertiliser factories other than bone mills are not available. The number of firms engaged in the manufacture of artificial manures in the Commonwealth at latest available date was 86, made up as follows:—New South Wales, 18; Victoria, 32; Queensland, 15; South Australia, 13; Western Australia, 6; and Tasmania, 2. Approximately complete returns of the quantities of fertilisers used in the various States being now available, a comparison with the imports and exports gives valuable information, but, as already mentioned, such particulars are only available for five of the States prior to 1915-16, and even then do not furnish the whole of the information necessary.

7. Benefits Derived from the Use of Fertilisers.—There is little doubt that the increasing use throughout the Commonwealth of fertilisers, natural and artificial, combined with the greater attention being devoted to following and to the combination of sheep-farming with agriculture, is having the effect of improving the

prospects of those dependent for a livelihood on the products of the soil. Reference has previously been made to the loss to the soil of phosphoric acid which the Commonwealth export of wheat and its milled products involves, and the necessity which thus arises for returning this ingredient in some form. Similarly, other staple products exported impose their respective tolls upon the soil of the Commonwealth, and the increased use of fertilisers furnishes evidence that producers are alive to the necessity for making good the deficiency so arising.

§ 19. Ensilage.

1. Value to Stockowners.—The use of ensilage as a substitute for green fodder during periods of drought or spells of dry weather, or for winter use, is less extensive in Australia than the circumstances would appear to warrant. There is, however, a growing disposition on the part of dairy farmers to make silos on their holdings, as they find that dairy cattle eat ensilage greedily, and that by its means the output of milk, both in regard to quantity and quality, may be kept up long after the supply of ordinary green food is exhausted. Sheepbreeders are also recognising the fact that during protracted periods of dry weather the silo enables them to keep their stock in good condition, and that lambing can take place satisfactorily. Ensilage thus obviates the expense of travelling or trucking sheep for hundreds of miles to get beyond the drought area, or the equally costly and even ruinous alternative of providing chaff for food at high prices and costly freight. In the rearing of lambs for the London market, ensilage appears to be destined to play an important part, as the lambs thrive upon it much better than upon dry food. By the judicious economising of the surplus growth of green food with the use of the silo, farmers and squatters can carry more stock on their holdings than they otherwise would be justified in doing. Not only is the great waste of superabundant food thus avoided, but it becomes possible to change into a succulent and nutritious food much growth that in any other state would not be eaten by stock. Thus such vegetation as marsh mallows, thistles, weeds of all sorts, and even the swamp reed *Arundo phragmites*, which grows in great quantities in lagoons, billabongs, and swamps, are all eaten with avidity when offered to stock in the form of ensilage. The pit and stack silos are rapidly being superseded by those built of red gum and hardwood or concrete. This is found to a great extent to obviate the loss sustained by mould, at the same time reducing the risk of fire. The silos vary in capacity from 40 to 130 tons. A portable silo made of iron has been devised in sections of such size and weight as to admit of ready handling. These silos can be increased in diameter or height by the addition of further sections.

2. Government Assistance in the Production of Ensilage.—The Government of Victoria, recognising that defective methods of making ensilage have often been adopted, have for some years been making special efforts to educate the farming community, so that mistakes may be avoided, and the conditions essential for the production of good ensilage may be better appreciated. These conditions vary with the climate and with the locality. The Government also undertakes the erection of silos on very liberal terms, repayment extending over a series of years. Experts supervise the erection of the silos, and give practical lessons as to packing them, etc. The New South Wales Government has, by giving advice in the "Agriculture Gazette," and by the issue of special bulletins, taken steps towards the education of the farmers. Silos also have been erected on the various experimental farms with a view to demonstrating the value of ensilage. No financial assistance is, however, given in New South Wales in this connection.

3. Quantity Made.—Particulars concerning the number of silos and the quantity of ensilage made in the several States of the Commonwealth in the seasons 1911-12 to 1915-16, are furnished in the following table:—

COMMONWEALTH ENSILAGE-MAKING, 1911-12 to 1915-16.

State or Territory.	1911-12.		1912-13.		1913-14.		1914-15.		1915-16.	
	*Holdings.	Ensilage Made.	*Holdings.	Ensilage Made.	*Holdings.	Ensilage Made.	*Holdings.	Ensilage Made.	*Holdings.	Ensilage Made.
	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.
New South Wales ...	158	20,477	144	18,509	129	18,358	83	10,963	130	18,511
Victoria ...	371	20,888	287	17,877	270	19,505	161	9,055	269	16,356
Queensland ...	61	4,379	58	4,156	75	4,273	52	3,363	37	9,012
South Australia ...	39	1,250	28	2,200	16	778	6	681	43	1,688
Western Australia ...	9	307	23	479	22	658	11	403	12	518
Tasmania ...	34	280	20	424	17	662	10	231	17	649
Federal Territory ...	...	...	1	10	1	8	...	...	...	...
Commonwealth ...	672	47,581	561	43,655	530	44,242	323	24,696	508	40,934

* No. of holdings on which ensilage was made.

Following the drought of 1902-3 greater attention was paid to ensilage than was previously the case, and during the four seasons ended 1909-10 a continuous and fairly rapid increase was in evidence in all the States, both in the number of holdings on which ensilage was made, and in the quantity produced. The following five seasons, however, shew a falling-off, but the reduction cannot be accepted as an indication of a lessening of appreciation of the benefits of ensilage, but rather of the fact that stocks had not been drawn upon to any great extent during the previous seasons. The accumulated stocks proved of very great value during the recent 1914 drought, though far below what would have been the case if more attention had been paid to ensilage-making during the previous years of surplus green food. A very substantial increase took place in 1915-16 both in the holdings in which ensilage was made and in the quantity produced.

§ 20. Agricultural Colleges and Experimental Farms.

1. Introduction.—In most of the States, agricultural colleges and experimental farms have been established with a view to promoting agriculture and to establishing improved and more scientific systems of stock-breeding and dairying. In these colleges, and on some of the farms, provision is made for the accommodation of pupils, to whom both practical and theoretical instruction is given by experts in various branches of agriculture. Analyses of soils and fertilisers are made, manures are tested, and elementary veterinary science, etc., is taught, while general experimental work is carried on with cereal and other crops, not merely for the purpose of shewing that it is practicable to produce certain crops in a given place, but also to shew how it is possible to make farming pay best in that locality. Opportunities are afforded for practice in general agricultural work, and instruction is given in the conservation of fodder; in cheese and butter making; in the management, breeding, and preparation for the market of live stock; in the eradication of pests and weeds; and in carpenters', blacksmiths', and other trades.

Travelling expert lecturers are sent to the various agricultural and dairying centres, and there is a wide distribution of periodical agricultural gazettes and bulletins on matters of importance at special seasons.

2. Particulars of Agricultural Colleges and Experimental Farms.—In the tables given herewith, particulars of agricultural colleges and experimental farms in the several States of the Commonwealth in 1915-16 are shewn.

**PARTICULARS OF AGRICULTURAL COLLEGES AND EXPERIMENTAL FARMS IN
THE SEVERAL STATES OF THE COMMONWEALTH DURING THE SEASON 1915-16.**

Particulars.	Unit of Quantity.	New South Wales. (a)	Vic.	Q'land.	South Aust.	West. Aust.	Tasmania.	Northern Terr.	C'wth.
No. of agricultural colleges	No.	1	2	1	1	...	...	...	5
" experimental farms ...	"	18	5	6	7	6	1	2	45
" students ...	"	460	177	23	32	10	12	...	790
" hands employed ...	"	317	165	78	87	45	13	5	710
Value of plant & machinery	£	28,839	10,443	11,324	9,720	5,183	1,507	1,200	68,706
" produce for year ...	"	33,691	22,800	4,996	10,425	4,374	1,070	1,850	79,206
Receipts—									
Government grant ...	"	78,554	21,230	16,470	20,140	22,598	1,657	3,065	163,714
Fees ...	"	4,645	9,106	714	1,090	230	...	...	8,785
Sales of produce, &c.	"	24,360	13,945	6,643	6,115	17,315	900	150	73,708
Other ...	"	1,271	140	...	1,351	120	1,353	45	...
Total receipts ...	"	108,830	37,421	23,827	28,696	40,263	3,910	3,260	246,207
Expenditure—									
Salaries, professional ...	"	10,229	5,077	3,683	3,672	305	480	650	24,096
" general ...	"	31,442	10,536	6,206	6,959	6,945	1,347	1,080	64,515
Buildings & maintenance	"	67,159	3,703	13,938	9,319	4,589	159	1,530	167,596
Other ...	"	...	18,105	...	8,674	28,424	1,924	...	...
Total expenditure ...	"	108,830	37,421	23,827	28,696	40,263	3,910	3,260	246,207
Agriculture, &c.—									
Area under cereals for grain	Acre	1,642	2,522	433	1,731	6,492	72	70	12,962
" hay ...	"	1,252	876	674	1,080	515	41	90	4,478
" fruit trees, &c.	"	296	72	17	61	8	38	45	537
" vines ...	"	143	32	7	62	...	...	...	304
" green fodder ...	"	1,541	416	219	254	538	...	40	3,008
" root crops ...	"	53	...	29	...	2	9	8	101
" other crops ...	"	51	170	112	37	10	...	35	415
Total under crop ...	"	4,978	4,148	1,491	3,175	7,565	160	288	21,805
Area of land in fallow	"	520	1,026	160	1,761	1,368	...	150	4,985
" under artificially-sown grasses	"	1,412	59	352	10	...	...	50	1,883
New ground broken up during season	"	1,131	145	111	92	1,120	...	130	2,729
Previously cropped land lying idle	"	1,145	1,957	82	1,857	2,737	...	35	7,813
Total area of arable land	"	9,186	7,335	2,196	6,895	12,780	160	653	39,215
Balance of area ...	"	26,878	5,085	14,271	7,445	114,297	518	5,142	173,636
Total area ...	"	36,064	12,420	16,467	14,340	127,087	678	5,795	212,851
Live stock—									
Horses ...	No.	509	278	223	244	185	11	165	1,615
Dairy cows ...	"	573	192	141	60	95	23	90	1,174
All other cattle	"	344	164	638	60	949	52	210	2,417
Sheep ...	"	5,517	3,382	3,412	2,603	6,936	597	50	22,497
Pigs ...	"	821	205	261	187	307	160	101	2,042
Capacity of tanks or dams	Gal.	17,834,000	485,000	284,500	825,700	620,000	20,000	8,400	23,842,000

(a) Year ended 30th June, 1915.

(b) Incomplete.

3. New South Wales.—In order to meet the demand for agricultural training, and for the purpose of conducting experiments in various branches of agriculture and of disseminating agricultural knowledge, an agricultural college and farm and seventeen experimental farms have been established by the New South Wales Government. Theoretical instruction in agriculture, with practical illustrations, forms part of the

curriculum of the Sydney Technical College. The School of Agriculture in the Sydney University, which has been established for six years, is doing very satisfactory work. At the Hurlstone Continuation College there is a special course in both theoretical and practical agriculture for teachers. Instruction in "nature knowledge" is given in the State primary schools, many of which have their own experimental plots. As a means of further encouraging the study of agriculture, the Department of Public Instruction has a travelling inspector in agriculture, whose duty it is to visit the country and metropolitan schools, lecturing on the value, necessity, and advantages of agricultural knowledge, and giving practical demonstrations wherever practicable.

4. **Victoria.**—In 1884, the Agricultural Colleges Act, passed to make provision for the establishment of agricultural colleges and experimental farms in Victoria, provided for the permanent reservation from sale of 150,000 acres of Crown lands by way of endowment of agricultural colleges and experimental farms, which, together with other lands reserved as sites for such institutions prior to the passing of the Act, are vested in three trustees appointed by the Governor. Provision was made for the appointment of a Council of Agricultural Education, consisting of eleven members, five of whom are elected by the members of the Agricultural Societies of the State, five are nominated by the Governor, whilst the Secretary for Agriculture is also a member of the Council and its Treasurer. Two agricultural colleges and five experimental farms, orchards and vineyards were in existence in different parts of the State during 1915-16. There are five Agricultural High Schools under the control of the Education Department, while elementary experimental agriculture is taught at many of the State primary schools. Instruction in agriculture is also given at the technical schools at Melbourne and Bairnsdale.

5. **Queensland.**—Organised experimental agriculture in Queensland dates from the establishment of the Department of Agriculture and Stock, but such work as has been done in connection with stock-breeding, other than that carried on by private individuals, has been of later birth, and has been confined to dairy stock and draught horses. Agriculture in Queensland in the early nineties was upon the well-defined lines of the other States, so that the knowledge to be gained as to what could be profitably adapted to Queensland, with its varied climate and rainfall, covered a wide field. Instructors were appointed conversant with the different lines of agriculture, of which grain cultivation, dairying, fruit-growing, tobacco cultivation, and tropical agriculture, such as sugar, rubber and spices, are the most important. This has been followed by the establishment of an agricultural college, of farms in the temperate parts of the State, and of nurseries in the tropical parts. With wheaten grain, a system of experiments has been carried out for some years with the distinctive object of evolving a type of wheat adapted for Queensland, and as far as possible resistant to the attacks of rust. In dairying, a commencement was made by despatching to the different farming centres properly equipped travelling dairies with the latest appliances. The export of Queensland dairy produce has arisen through this effort. No travelling dairies are, however, now employed. A fruit farm has been established, at which fruits suitable for or likely to adapt themselves to the Queensland climate and conditions have been experimented with during a series of years. To cope with the insect and fungus pests to which such fruits are peculiarly susceptible, careful inspection is made of fruits in the markets and for export, and every effort is put forth to prevent the introduction of fresh diseases and to exterminate those which are already within the State.

6. **South Australia.**—To this State belongs the honour of starting the first experimental farm in the Commonwealth. As far back as the year 1879 a resolution was passed by the local Parliament in favour of the establishment of a School of Agriculture, with an experimental farm, under the charge of a professor of agriculture. Active operations in this connection were commenced in 1882, when the first series of plots of wheat were sown at Roseworthy. Experimental work, chiefly directed towards improving

the wheat yield, has been developed along three main lines, viz.: (a) the improvement of varieties of wheat, (b) the improvement of methods of cultivation, and (c) the use of manures. The Central Agricultural Bureau, established at Adelaide under the control of an Advisory Board, has an extensive membership distributed throughout the agricultural districts of the State. It assists farmers by the dissemination of knowledge; by helping to introduce new economic plants; by improving the breed of stock; and it acts as a means of keeping the Agricultural Department in touch with the producers. The branches of the bureau hold meetings at regular intervals in their several districts, ideas and methods as regards practical subjects are interchanged, and discussions are held on matters of general interest to agriculturists.

7. **Western Australia.**—A considerable amount of developmental work has been done of late years towards the promulgation of agricultural knowledge on the State farms at Chapman and Narrogin, and, more recently still, on the experimental farms at Brunswick, Merredin, Denmark and Yandanooka.

8. **Tasmania.**—In Tasmania there is a Council of Agriculture consisting of eleven members, whose duties are to collect and publish information of every kind calculated to prove beneficial to agriculturists, such as suitability of various districts for growth or production of animal and vegetable products, information respecting plants, methods of cultivation, breeding and feeding animals, and how best to improve the same: to prevent as far as possible the introduction and spread of diseases and pests, and to publish bulletins, abstracts, and reports containing all such information as may be desirable. Other matters embrace the employment of experts in any branch of agricultural science, distribution of plants and seeds for experiment, and the establishment of local boards of agriculture in different parts of the State. Lectures are given by the experts from time to time, and useful information and knowledge is diffused by means of the monthly gazette published by the Council, and also by means of special bulletins. There are no agricultural colleges, but a State farm consisting of 678 acres commenced operations during 1914. Practically no agricultural teaching is given in the elementary schools.

§ 21. Government Loans to Farmers.

1. **Introduction.**—All the Australian States have established systems under which financial aid is rendered to agriculturists by the Government. The principle upon which such aid is founded was probably first practically applied in Germany, viz., in the year 1770, when the *Landschaften Bank* was created. The establishment of the *Crédit Foncier* nearly a century later in France was a creation of a similar character. This latter institution was designed to enable house and land owners to raise money on mortgage at a low rate of interest, with facility for repayment by an annuity including redemption of the capital. It dates from 1852, but the mortgage bank known as the *Caisse Hypothécaire*, which, after a struggling existence, was finally liquidated in 1864, was based essentially on the same principle. Over the operations of the *Crédit Foncier*, created under governmental patronage and invested with such special privileges as to virtually constitute it a monopoly, the Government exercised a direct control, viz., by appointing its governor and its two deputy-governors. The *Crédit Foncier* was empowered to lend money only on a first mortgage, and to the amount of one-half of the estimated value of houses and farms, and one-third that of vineyards, woods, and other plantations, and the commission charged could not exceed six-tenths per cent. The system developed and adopted in the Commonwealth, with the object of assisting farmers to make improvements or to develop or utilise the agricultural or pastoral resources of the land, is analogous. Particulars of advances made under the Closer Settlement and similar Acts are dealt with in the section on Closer Settlement. (See pages 258 *et seq.*)

2. **Aggregate of Transactions in each State, 1912 to 1916.**—The subjoined table gives aggregates of transactions in reference to advances to farmers in each State during the past five years :—

STATE GOVERNMENT ADVANCES DEPARTMENTS—AGGREGATE OF LOANS TO FARMERS, 1912 to 1916 (a).

State.	TOTAL ADVANCED TO 30TH JUNE.					BALANCE DUE AT 30TH JUNE.				
	1912.	1913.	1914.	1915.	1916.	1912.	1913.	1914.	1915.	1916.
	£	£	£	£	£	£	£	£	£	£
N.S.W.(b)...	1,948,885	2,423,955	3,531,263	3,918,978	4,119,842	1,074,358	1,396,336	2,297,981	2,514,078	2,513,332
Victoria ...	2,954,618	3,208,903	3,491,008	3,714,733	3,866,952	1,343,834	1,511,798	1,676,432	1,783,043	1,833,988
Q'nsland ...	430,403	623,498	851,600	1,147,996	1,517,040	305,652	470,795	636,790	880,204	1,186,895
S. Aust.(d)...	2,064,583	2,370,076	2,601,450	2,769,609	2,831,631	966,670	1,150,020	1,264,417	1,330,026	1,300,877
W. Aust. ...	1,946,184	2,582,937	3,089,575	3,361,158	3,533,493	1,280,732	1,883,957	2,331,959	2,561,679	2,695,550
Tasmania	18,636	23,915	41,004	72,252	97,776	16,592	21,089	36,965	66,572	87,106
C'wealth ...	9,363,309	11,233,284	13,605,900	14,984,726	15,966,734	4,987,838	6,433,995	8,244,544	9,135,602	9,617,748
	PROFITS FOR YEAR ENDED 30TH JUNE.					ACCUMULATED PROFITS AT 30TH JUNE.				
	£	£	£	£	£	£	£	£	£	£
N.S.W.(b)...	9,743	10,335	(c)20,946	15,111	16,633	25,349	35,684	56,630	71,741	88,374
Victoria ...	3,070	5,203	9,100	10,102	14,000	88,006e	93,209e	102,309e	112,411	126,411
Q'nsland ...	3,318	3,354	2,983	4,448	6,674	11,869	15,223	18,206	22,654	29,328
S. Aust.(d)...	6,289	8,218	9,376	10,668	11,670	51,137	59,355	68,731	79,399	91,069
W. Aust. ...	8,061	9,783	9,367	7,706	7,706	45,892	55,675	65,282	74,645	82,351
Tasmania	81	472	295	712	1,278	31	503	798	1,509	2,787
C'wealth ...	30,562	37,365	52,307	50,403	57,961	222,284	259,649	311,956	362,359	420,320

(a) Compiled from figures furnished by the Government Savings Bank of Victoria. (b) Previous to 1914 for years ended 31st December prior. (c) For 18 months ended 30th June, 1914. (d) Includes loans to farmers and other producers and to local bodies on the security of their own rates. (e) Including profits in connection with House and Shop loans.

3. **Legislation in each State.**—An account of the initial legislation in each State in reference to advances to settlers ; subsequent legislation ; security on which, and objects for which, advances were made ; amount of advances and repayments up to the end of 1911-12, etc., will be found in previous issues of the Year Book (see No. 6, pages 417-25).

4. **Particulars Respecting Agricultural and Stock Departments.**—In Year Book No. 7, 1901-1913, on pages 364 to 369, will be found particulars respecting agricultural and stock departments of the several States of the Commonwealth as on 30th June, 1913. The main features of organisation are set out under their respective headings, and will be found to embrace such items as the number on staffs, expenditure, facilities for agricultural education and work undertaken in agricultural colleges, technical schools, experimental farms and orchards and vineyards. The nature of lectures and other forms of agricultural instruction by experts is dealt with, as well as the extent of distribution of plants, and the special steps taken by the departments to disseminate information amongst agriculturists, and also to facilitate placing the products of the State on the market.

§ 22. Graphical Representation of Crops.

1. **Areas of Principal Crops.**—A graphical representation of the areas devoted to each of the principal crops in the Commonwealth for the period 1860-1915 will be found on page 365. The crops so represented are as follows :—Wheat, hay, oats, maize, sugarcane, barley, and vines.

2. **Production.**—On page 366 will be found a graphical representation of the aggregate yields in the Commonwealth since 1860 of wheat, oats, barley, maize, and hay.

SECTION IX.

FARMYARD AND DAIRY PRODUCTION.

§ 1. Introductory.

1. **General.**—The introduction of cattle into Australia, and the early history of the dairying industry are referred to in some detail in previous issues of this work (see Official Year Book No. 6, pp. 430 *et seq.*). It may here be noted that the original stock has been crossed with specially imported stud cattle, while further judicious crossing of strains has resulted in an increased and improved milk supply. In Australia, dairy cattle thrive in the open throughout the year, local climatic conditions demanding no protection other than tree plantations for shelter, and rugging in the coldest weather. Indigenous and imported grasses furnish food during the greater part of the year, and winter fodder, when necessary, is given to the cattle in the fields. With the adoption of scientific methods in the treatment of animals and pasturage and in the processes of manufacture, coupled with effective State supervision, the dairying industry has shewn rapid expansion.

2. **Official Supervision of Industry.**—Dairy experts, under the supervision of the various State Agricultural Departments, give instruction in approved methods of production, and inspect animals, buildings, and marketable produce. A high standard of cleanliness, both of *personnel* and *matériel*, prevails. Financial assistance of a temporary nature is also given, advances made being generally repaid with promptitude.

The export trade is regulated by the terms of the Commonwealth Commerce Act 1905 and regulations thereunder. The provisions of this Act are set out in detail in Official Year Book No. 6, pp. 431-2. It will be sufficient to note here that true trade description, etc., must be marked on all produce intended for export, while official inspection ensures the maintenance of purity and quality. Upon request of the exporter the goods are certificated by the inspector.

3. **Mixed Farming.**—Dairying is not now, as formerly, wholly confined to farmers, since many graziers in a large way of business have lately given it their attention. In non-coastal regions it is generally carried on in conjunction with agriculture and sheep-raising, sufficient fodder being grown to carry the cattle through the winter months. Local wants are thus met, and in many places remote from the metropolis well-equipped factories have been established.

4. **Factory System.**—Cream separation and butter-making are often carried on together under the co-operative system. The creation of large central butter factories, supplied by numerous separating establishments or "creameries," has resulted in a considerable reduction in the cost of manufacture, since improved appliances, such as refrigerators, may be profitably worked at the larger establishments. The product is also of a more uniform quality. The number of farmers who adhere to hand processes is rapidly diminishing. Formerly the average quantity of milk used per pound of hand-made butter was about 3 gallons, but separator butter requires less than 2½ gallons.

5. **Butter and Cheese Factories.**—The establishments in the Commonwealth where the manufacture of butter, cheese, and condensed milk was carried on, numbered 536 in 1915. These were distributed as regards the various States as follows:—New South Wales, 165; Victoria, 190; Queensland, 103; South Australia, 44; Western Australia, 3; Tasmania, 31.

§ 2. Milk, Butter, and Cheese.

1. **Dairy Herds.**—Following the drought year 1902 there was up to 1911 a general increase in the number of dairy cows; the returns for 1912 and the three years following, however, shew a decrease in all the States, with the exception of Western Australia. In New South Wales, Victoria, South Australia, and Tasmania—as will be seen from the table given below—the proportion of dairy cattle to all cattle is high. In Queensland, the Northern Territory, and Western Australia there is a greatly preponderating number of other cattle, dairying not being firmly established in the tropical regions of the Continent. In southern Queensland, however, the industry has developed remarkably during the last decade. Prior to 1913 the figures for the Northern Territory were unreliable, and those for subsequent years are estimates only:—

CATTLE AND DAIRY CATTLE, COMMONWEALTH, 1911 to 1915.

State.		1911.	1912.	1913.	1914.	1915.
New South Wales	All Cattle	3,185,824	3,033,726	2,815,113	2,472,631	2,400,104
	Dairy Cows	855,926	852,040	831,023	649,900	743,058
Victoria	All Cattle	1,647,127	1,508,089	1,523,553	1,362,542	1,043,504
	Dairy Cows	699,555	655,939	656,080	610,517	451,088
Queensland	All Cattle	5,073,201	5,210,691	5,392,033	5,455,943	4,780,893
	Dairy Cows	357,095	375,660	391,439	387,311	335,243
South Australia	All Cattle	393,566	383,418	352,005	300,579	226,565
	Dairy Cows	121,803	114,734	107,879	91,181	78,515
Western Australia	All Cattle	843,638	806,294	834,265	863,835	821,048
	Dairy Cows	27,740	27,310	30,680	28,106	28,342
Tasmania	All Cattle	217,406	222,181	205,743	176,524	169,575
	Dairy Cows	56,858	60,160	59,380	51,229	47,540
Northern Territory	All Cattle	459,780	405,552	417,643	414,558	483,561
	Dairy Cows	300	300	70	70	70
Federal Territory	All Cattle	8,412	7,108	7,627	4,961	5,666
	Dairy Cows	1,192	742	744	1,057	537
Commonwealth	All Cattle	11,828,954	11,577,259	11,483,882	11,051,573	9,931,416
	Dairy Cows	2,120,469	2,086,835	2,068,195	2,019,371	1,684,393

* Included under New South Wales.

2. **Milk.**—The annual quantity of milk produced per dairy cow varies greatly with locality and season, probably reaching as high as 500 gallons, but averaging for the whole of Australia, for all dairy cows and for all seasons, considerably under 300 gallons per annum. The best yields over a series of years appear to be in Victoria, New South Wales, and South Australia, while Western Australia and Tasmania in normal years are below Queensland. In the following table the annual average yields per cow for the last five years are taken from the number of dairy cows which were, during any part of the year, milking. The average given is considerably below that for cows which were yielding during the greater part of the year. It will be seen that the highest averages obtain in those States which have adopted more scientific methods of dairying, such as systematic breeding, culling of herds, milk testing, etc.

PRODUCTION OF MILK, COMMONWEALTH, 1911 to 1915.

Heading.	N.S.W.*	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth. †
1911—							
Dairy Cows ... No.	857,118	699,555	357,095	121,803	27,740	56,858	2,120,169
Production of milk gals.	237,623,000	238,149,700	71,770,148	27,952,612	5,017,004	14,214,500†	594,726,964
Aver. yield per cow gals.	277	340	200	230	181	250	280
1912—							
Dairy Cows ... No.	852,782	655,939	375,660	114,734	27,310	60,160	2,086,585
Production of milk gals.	225,446,209	199,296,920	82,977,730	27,547,870	5,215,779	15,040,000†	555,524,508
Aver. yield per cow gals.	264	304	221	240	191	250	266
1913—							
Dairy Cows ... No.	822,667	656,060	391,439	107,879	30,680	59,390	2,068,125
Production of milk gals.	231,592,000	216,947,170	90,545,516	27,593,023	5,550,197	11,557,309	583,785,215
Aver. yield per cow gals.	282	331	231	256	181	195	282
1914—							
Dairy cows ... No.	850,957	610,517	387,311	91,181	28,106	51,229	2,019,301
Production of milk gals.	237,930,000	193,653,330	100,189,876	22,219,509	5,589,184	11,568,364	571,150,263
Aver. yield per cow gals.	280	317	259	244	199	226	283
1915—							
Dairy cows ... No.	743,595	451,098	335,243	78,515	28,342	47,540	1,684,323
Production of milk gals.	184,014,000	142,115,480	70,093,674	22,185,072	6,058,963	10,300,271	434,767,460
Aver. yield per cow gals.	247	315	209	283	214	217	258

* Including figures for Federal Territory, which in 1911 were 1192 dairy cows; 153,090 gallons of milk, averaging 128 gallons per cow; in 1912, 742 dairy cows; 106,647 gallons of milk, averaging 144 gallons per cow; in 1913, 744 dairy cows; 89,410 gallons of milk, averaging 120 gallons per cow; in 1914, 1057 dairy cows; 73,500 gallons of milk, averaging 70 gallons per cow; and in 1915, 537 dairy cows; 79,420 gallons of milk, averaging 148 gallons per cow. † Estimated.

‡ Exclusive of Northern Territory.

3. **Butter and Cheese.**—The butter output shews, in general, a tolerably steady increase since the drought year 1902, the most marked development being in Queensland. The production of butter reached its highest figures in 1911, the next highest yields being in 1913 and 1914. The year 1914 marks the highest cheese production, the return being over 7½ per cent. advance on that of 1913, the next highest record, which was upwards of 20 per cent. advance on 1910, the previous highest record. In both butter and cheese a decrease took place in some of the States in 1907, 1908, 1914 and 1915, due to the dryness of the season. For the five years from 1911 to 1915 the figures are:—

PRODUCTION OF BUTTER AND CHEESE, COMMONWEALTH, 1911 to 1915.

State.	1911.	1912.	1913.	1914.	1915.
BUTTER.					
	lbs.	lbs.	lbs.	lbs.	lbs.
New South Wales* ...	83,204,568	76,609,528	77,779,197	84,134,280	59,631,543
Victoria ...	86,500,474	67,655,894	73,361,567	62,431,288	42,345,113
Queensland ...	27,858,535	30,307,339	35,199,387	37,230,240	25,456,714
South Australia ...	9,694,666	8,394,557	8,036,274	6,252,961	6,317,613
Western Australia ...	498,047	448,799	518,566	451,112	716,408
Tasmania ...	3,817,455	3,778,104	3,843,247	3,480,531	3,204,922
Commonwealth ...	211,573,745	187,194,161	198,758,238	193,970,412	137,672,313
CHEESE.					
	lbs.	lbs.	lbs.	lbs.	lbs.
New South Wales ...	5,460,652	5,454,685	6,620,648	6,356,627	5,979,636
Victoria ...	4,549,843	4,176,778	4,856,321	4,395,502	3,497,278
Queensland ...	3,718,257	3,947,615	5,395,050	7,931,869	4,383,410
South Australia ...	1,526,930	1,958,027	2,216,985	2,000,547	1,412,692
Western Australia ...	900	...	...	1,875	835
Tasmania ...	630,130	623,386	654,411	554,191	555,375
Commonwealth ...	15,886,712	16,160,491	19,743,415	21,240,411	15,829,226

* Including Federal Territory, where 27,630 lbs. of butter were produced in 1911; 16,561 lbs. in 1912; 12,494 lbs. in 1913; 7387 lbs. in 1914; and 7,658 lbs. in 1915.

4. **Concentrated Milk.**—"Condensed" or "concentrated" milk denotes milk the bulk of which is reduced by evaporation. Small quantities of such milk were made prior to 1911, in which year the output for the Commonwealth was nearly doubled. In 1912 there was a further large increase, which was well maintained during the two following years; during 1915, however, a considerable falling-off was in evidence in each of the three States. There is still a considerable import of milk, as will be seen from the tables hereunder; but in 1912-13 and 1914-15, the balance of trade was in favour of exports. No condensed or concentrated milk is made in South Australia, Western Australia, or Tasmania. In New South Wales, Victoria, and Queensland the following are the returns for the last five years:—

CONDENSED AND CONCENTRATED MILK, 1911 to 1915.

Year.	N.S.W.	Victoria.	Queensland.	Commonwealth.
	lbs.	lbs.	lbs.	lbs.
1911	3,058,497	13,697,691	6,227,519	22,983,707
1912	3,636,519	18,500,011	7,923,381	30,059,911
1913	3,682,812	20,942,620	8,059,051	32,684,483
1914	5,991,458	19,093,750	6,967,486	32,052,694
1915	4,918,064	16,690,426	5,368,510	26,977,000

5. **Oversea Trade in Milk, Butter, and Cheese.**—The following tables give the imports, exports, and net exports or imports of butter, cheese, and milk. In each of the five years, exports of butter exceeded imports, but in 1912 and 1915 the cheese import was greater than the export, while there was a net import of milk in 1911 and 1915.

**IMPORTS, EXPORTS, AND NET EXPORTS OF BUTTER, CHEESE, AND MILK,
COMMONWEALTH, 1911 to 1915-16.**

IMPORTS.

Products.	1911.	1912.	1913.	1914-15.	1915-16.
Butter lbs.	22,607	44,142	13,844	2,378,893	4,577,332
" " " " " £	1,081	1,989	565	180,557	349,110
Cheese lbs.	318,891	443,847	364,699	230,348	1,532,336
" " " " " £	14,461	19,988	17,334	10,554	66,936
Milk—concentrated and preserved* lbs.	4,166,117	1,215,351	1,150,715	2,596,964	4,191,493
" " " " " £	74,278	25,949	26,579	90,146	152,051

EXPORTS.

Butter lbs.	101,722,136	66,685,056	75,802,303	54,105,777	18,036,317
" " " " " £	4,637,362	3,342,642	3,565,282	2,664,975	1,117,629
Cheese lbs.	1,159,363	146,022	1,609,452	2,547,857	159,003
" " " " " £	27,243	5,760	42,421	72,828	9,347
Milk—concentrated and preserved* lbs.	1,260,323	1,821,583	2,875,030	5,066,169	939,680
" " " " " £	21,990	37,876	75,165	126,556	31,340

NET EXPORTS.†

Butter lbs.	101,699,529	66,640,914	75,788,459	51,726,884	13,458,985
" " " " " £	4,636,281	3,340,653	3,564,717	2,484,418	768,519
Cheese lbs.	840,472	297,825	1,244,753	2,317,509	1,373,333
" " " " " £	12,782	14,328	25,087	62,274	57,589
Milk—concentrated and preserved* lbs.	2,905,794	606,232	1,724,315	2,469,205	3,251,933
" " " " " £	52,288	11,927	48,586	36,410	120,711

* See definition above. † i.e., excess of exports over imports. The minus sign — signifies a net import.

6. **Local Consumption of Butter and Cheese.**—The total production of butter and cheese, with the net export or import for the corresponding period subtracted or added, gives approximately the quantity available for consumption in the Commonwealth. In the period considered hereunder, with the exception of the years 1912 and 1915, the local supply of cheese was adequate :—

BUTTER AND CHEESE FOR LOCAL CONSUMPTION, 1911 to 1915.

Product.		1911.	1912.	1913.	1914.	1915.
		lbs.	lbs.	lbs.	lbs.	lbs.
Butter	... Total	109,874,216	120,500,247	122,969,779	137,820,074	124,213,328
..	... Per head of mean population	24.5	25.9	25.6	28.0	25.1
Cheese	... Total	15,046,240	16,458,316	18,498,662	19,194,818	17,202,564
..	... Per head of mean population	3.4	3.5	4.8	3.9	3.5

The quantity available for consumption in 1915 averaged 25 lbs. of butter and 3.5 lbs. of cheese per head of mean population, an amount probably unsurpassed anywhere. The consumption of butter and cheese in the United Kingdom is given as about 20 lbs. per head.

§ 3. Pigs, Bacon, etc.

1. **Pigs.**—Great attention has been paid, both privately and by the various State Governments, to the improvement in the marketable qualities of pigs. The number of pigs in the Commonwealth from 1911 to 1915 is shewn below :—

NUMBER OF PIGS, COMMONWEALTH, 1911 to 1915.

•State.	1911.	1912.	1913.	1914.	1915.
New South Wales ...	370,700	293,450	287,896	*286,478	*280,869
Victoria ...	348,069	240,072	221,277	243,196	192,002
Queensland ...	173,902	143,695	140,045	166,638	117,787
South Australia ...	93,130	69,832	64,119.	69,893	66,237
Western Australia ...	55,635	47,351	47,966	59,816	58,231
Tasmania ...	67,392	49,152	37,990	34,960	37,778
Northern Territory ...	1,500	1,500	1,018	1,240	500
Federal Territory ...	393	203	194	*226	*289
Commonwealth ...	1,110,721	845,255	800,505	862,447	753,693

* As on 30th June of year following.

Prior to 1911 the number of pigs was highest in 1904, when for the first time it was over a million. An examination of the returns shews remarkable fluctuations. There was a general decrease in 1906 and the two following years, followed by an increase in 1909-10-11, a heavy decline in 1912 and 1913, an increase in 1914 and again a heavy falling-off during 1915. With the exception of Tasmania (and the Federal Territory) there was a general decrease in the several States during 1915. The number of pigs per head of population, and the number per square mile, will be found in the tables of live stock, pages 291 and 292.

2. **Bacon and Ham.**—From 1905 to 1908 the production of bacon and ham in the Commonwealth shewed little annual variation. In 1909, however, there was a considerable falling-off, but a large increase took place in subsequent years up to 1912. During the years 1913 and 1914 the production again fell away, and a considerable decline was recorded in 1915.

PRODUCTION OF BACON AND HAM, COMMONWEALTH, 1911 to 1915.

State.	1911.	1912.	1913.	1914.	1915.
	lbs.	lbs.	lbs.	lbs.	lbs.
New South Wales* ...	16,102,827	16,526,376	15,192,263	15,327,048	13,576,641
Victoria ...	19,546,772	20,043,706	19,289,258	18,774,497	13,659,974
Queensland ...	11,667,654	12,437,019	13,709,716	13,339,131	12,363,939
South Australia ...	4,311,497	3,771,064	3,265,773	3,409,372	2,432,485
Western Australia ...	97,136	114,950	100,143	112,421	202,824
Tasmania† ...	1,538,766	1,299,060	1,116,535	1,612,433	895,020
Commonwealth ...	53,264,652	54,192,175	52,673,688	52,574,902	43,130,883

* Including Federal Territory, where 22,670 lbs. of bacon and ham were produced in 1911; 15,196 lbs. in 1912; 11,885 lbs. in 1913; 3520 lbs. in 1914; and 7619 lbs. in 1915. † Estimated prior to 1913.

3. **Oversea Trade in Pig Products.**—The oversea trade in pigs and pig products is shewn in the following tables:—

IMPORTS, EXPORTS, AND NET EXPORTS OF BACON AND HAM, FROZEN PORK, PIGS AND LARD, COMMONWEALTH, 1911 to 1915-16.

Particulars.	1911.	1912.	1913.	1914-15.	1915-16.
BACON AND HAM.					
Imports ...	... lbs. 201,309	294,130	126,692	107,520	425,277
" ...	... £ 8,566	11,962	6,301	5,412	20,643
Exports ...	... lbs. 2,340,612	2,174,114	1,866,894	1,220,426	590,788
" ...	... £ 74,178	68,503	74,718	58,900	35,278
Net Exports ...	... lbs. 2,139,303	1,879,984	1,740,202	1,112,906	165,511
" ...	... £ 65,612	56,541	68,417	53,488	14,635
FROZEN PORK.					
Imports ...	... lbs. ...	79,052	...	74,337	862,768
" ...	... £ ...	2,592	...	2,601	32,249
Exports ...	... lbs. 1,641,013	897,929	215,175	48,791	2,783
" ...	... £ 33,639	16,661	5,259	1,400	108
Net Exports ...	... lbs. 1,641,013	818,877	215,175	* 25,546	— 859,985
" ...	... £ 33,639	14,069	5,259	— 1,201	— 32,141
PIGS.					
Imports ...	... No. 35	14	20	52	12
" ...	... £ 539	198	54	535	63
Exports ...	... No. 385	609	440	168	64
" ...	... £ 748	1,025	1,336	511	582
Net Exports ...	... No. 350	595	420	116	52
" ...	... £ 209	827	1,282	— 24	519

— signifies net imports.

IMPORTS, EXPORTS, AND NET EXPORTS OF BACON AND HAM, FROZEN PORK, PIGS, AND LARD, COMMONWEALTH, 1911 to 1915-16—Continued.

Particulars.	1911.	1912.	1913.	1914-15.	1915-16.
LARD.					
Imports lbs.	387,626	794,961	884,812	268,043	3,873,248
" £.	9,870	22,096	23,900	7,433	108,985
Exports lbs.	3,399,386	2,092,422	4,299,987	1,491,149	342,593
" £.	57,861	37,063	85,194	31,542	13,736
Net Exports* lbs.	3,011,760	1,297,461	3,415,175	1,223,106	3,530,655
" £.	47,991	14,967	61,294	24,109	—95,249

* — signifies net imports.

From 1901 to 1903 there was a considerable net import of bacon and ham, but for the following years, up to 1915-16 when the figure was small, there was a large net export. The local production of frozen pork and lard for each of the years 1911 to 1913 was more than sufficient for the local demand; during 1914-15 and 1915-16, however, the imports of frozen pork exceeded the exports by 25,488 lbs. and 859,985 lbs. respectively. The net export of pig products was considerably greater in 1910 and 1911 than in previous years. There was a decline in 1912, and a further falling off in the three following years.

4. **Local Consumption of Bacon and Ham.**—From 1904 to 1915 the production of bacon and ham was sufficient to meet the local demand, and there was a surplus for export.

BACON AND HAM AVAILABLE FOR LOCAL CONSUMPTION, 1911 to 1915.

Consumption.	1911.	1912.	1913.	1914.	1915.
	lbs.	lbs.	lbs.	lbs.	lbs.
Total	51,125,349	52,312,191	50,933,486	51,181,876	42,965,372
Per head of mean population ...	11.4	11.3	10.6	10.4	8.7

5. **Total Dairy Production.**—The total dairy production of the Commonwealth in 1915 is shown below:—

TOTAL DAIRY PRODUCTION, COMMONWEALTH, 1915.

Where Produced.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
MILK.							
On Dairy & other Farms	gallons. 184,014,000	gallons. 142,115,480	gallons. 70,093,674	gallons. 22,185,072	gallons. 6,058,963	gallons. 10,300,271	gallons. 434,773,360†
BUTTER.							
In Factories	lbs. 55,351,991	lbs. 37,594,247	lbs. 23,742,209	lbs. 2,982,731	lbs. 162,253	lbs. 1,831,128	lbs. 121,664,559
On Dairy & other Farms	4,279,552*	4,750,866	1,714,505	3,334,882	554,155	1,373,794	16,007,754
Total	59,631,543*	42,345,113	25,456,714	6,317,613	716,408	3,204,922	137,672,313

TOTAL DAIRY PRODUCTION, COMMONWEALTH, 1915—Continued.

Where Produced.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
CHEESE.							
In Factories ...	lbs. 3,950,891	lbs. 2,130,035	lbs. 4,262,529	lbs. 1,410,058	lbs. 835	lbs. 355,446	lbs. 12,108,959
On Dairy & other Farms	2,028,745	1,367,243	120,881	2,634		199,929	3,720,267
Total ...	5,979,636	3,497,278	4,383,410	1,412,692	835	555,375	15,829,226
CONDENSED OR CONCENTRATED MILK.							
In Factories ...	lbs. 4,918,064	lbs. 16,690,426	lbs. 5,368,510	...	...	...	lbs. 26,977,000
BACON AND HAM.							
In Factories ...	lbs. 11,637,895	lbs. 11,451,031	lbs. 11,745,795	lbs. 1,736,080	lbs. † 202,824	lbs. 589,039	lbs. 37,159,840
On Dairy & other Farms	1,938,746*	2,208,943	618,144	696,405		305,981	5,971,043
Total ...	13,576,641*	13,659,974	12,363,939	2,432,485	202,824	895,020	43,130,883

* Including Federal Territory, which produced 79,420 gallons of milk, also 7,658 lbs. of butter on farms; and 7,619 lbs. of bacon and hams on farms. † Including 5,900 gallons, Northern Territory. ‡ Not available for publication.

§ 4. Poultry Farming.

1. **Development of the Industry.**—Poultry stocks are largely maintained by farmers, and production therefrom furnishes a considerable addition to the annual agricultural or dairying returns. During recent years, however, poultry-keeping has assumed an independent position among rural industries, while it is also carried on in conjunction with pig farming. Special poultry farms have been instituted for scientific breeding, and poultry experts, engaged by the State Governments give lectures and instruction. Poultry for consumption is extensively reared, and the egg-producing qualities of the birds have also been greatly improved by careful breeding. Co-operative egg-collecting circles have been formed in some districts; eggs are also delivered with the milk and cream to the local butter factories, and thence forwarded to market.

2. **Production of Poultry.**—There is some difficulty in obtaining correct figures for the yield of poultry products. The following values are returned:—

ESTIMATED VALUE OF POULTRY AND EGGS, COMMONWEALTH, 1911-12 to 1915-16.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	£	£	£	£	£	£	£
1911-12 ...	1,200,000	1,618,500	195,000	533,941	175,890	230,000	3,953,331
1912-13 ...	1,434,000	1,825,010	188,000	541,489	183,689	230,000	4,402,188
1913-14 ...	1,579,600	1,706,700	219,400	569,254	223,713	230,000	4,528,667
1914-15 ...	1,598,180	1,743,860	234,994	524,347	204,591	230,000	4,535,972
1915-16 ...	2,146,000	1,747,000	107,370	518,808	184,360	200,000	4,903,538

* Including Federal Territory, where the estimated value was £1800 in 1911-12; £1880 in 1912-13; £1600 in 1913-14; £1180 in 1914-15; and £2,000 in 1915-16. † Estimated.

3. **Oversea Trade in Poultry Products.**—The imports and exports of eggs shew a considerable balance on the side of imports in each of the years 1901 to 1906 and during the last seven years. In 1907 the export greatly exceeded the import, and in 1908 the

imports were greater in quantity, but less in value, than the exports. During 1915-16, 303,300 dozen eggs were imported from Hong Kong, 240,167 dozen from China, and 99,372 dozen from Japan. There is a considerable oversea export of frozen poultry.

**IMPORTS, EXPORTS, AND NET EXPORTS OF EGGS AND LIVE AND FROZEN
POULTRY, COMMONWEALTH, 1911 to 1915-16.**

Particulars.	1911.	1912.	1913.	1914-15.	1915-16.
EGGS.					
Imports doz.	40,969	45,160	53,577	63,065	649,399
" £	1,209	1,464	1,748	2,431	27,791
Exports doz.	5,734	6,211	4,872	12,119	3,541
" £	1,124	518	377	735	262
Net Exports* doz.	-35,235	-38,949	-48,705	-50,946	-645,858
" " £	- 85	- 946	- 1,371	- 1,696	-27,529
EGG CONTENTS.					
Imports lbs.	13,160	13,969	13,712	9,665	37,421
" £	1,301	1,206	1,110	1,138	4,486
Exports lbs.	†	†	†	†	†
" £	681	4	15	31	481
Net Exports lbs.	†	†	†	†	†
" £	- 620	- 1,202	- 1,095	- 1,107	-4,005
LIVE POULTRY.					
Imports No.	2,398	1,720	1,725	1,262	931
" £	964	1,460	913	1,857	1,107
Exports No.	2,218	3,859	2,480	1,164	1,959
" £	1,068	1,231	1,074	603	781
Net Exports* No.	- 180	2,139	755	- 98	1,028
" " £	104	- 229	161	- 1,254	- 326
FROZEN POULTRY.					
Imports lbs.	5,653	2,102	10,328	1,193	6,643
" £	257	64	475	53	293
Exports pair	16,869	23,390	25,520	14,765	2,155
" £	7,470	10,144	10,979	12,496	1,050
Net Exports	†	†	†	†	†
" " £	7,213	10,080	10,504	12,443	757

* — signifies net imports. † Quantity not available.

§ 5. Bee Farming.

1. The Bee-farming Industry.—Bee farming, like poultry farming, is ordinarily an adjunct to agricultural or dairying industries. The annual returns of honey from the hives range between 20 lbs. and 60 lbs. per hive.

The value of the export of honey from Australia was only £4414 in 1911, £1924 in 1912, £4094 in 1913, £2589 in 1914-15, and £1045 in 1915-16. It is believed that this export could be considerably increased. Australian honey exhibited in the Franco-British Exhibition in London in 1908 obtained the highest award.

2. Production of Honey and Beeswax.—The particulars of honey and beeswax production are as given in the following table:—

NUMBER OF HIVES AND PRODUCTION OF HONEY AND BEESWAX, SEASON 1915-16.

State.	Bee Hives.			Honey Produced.		Beeswax Produced.	
	Productive	Un-productive.	Total.	Quantity.	Value.	Quantity.	Value.
	No.	No.	No.	lbs.	£	lbs.	£
New South Wales	31,893	5,794	37,687	1,585,634	31,382	29,874	2,116
Victoria	20,514	10,719	31,233	933,933	16,100	18,707	1,160
Queensland	10,011	3,707	13,718	460,599	6,053	8,890	541
South Australia	9,596	7,166	16,762	358,469	7,841	7,410	494
Western Australia	3,773	1,912	5,685	122,125	1,659	4,584	268
Tasmania	3,073	1,657	4,730	56,468	1,647	1,397	87
Federal Territory	81	9	90	4,750	94	45	3
Commonwealth	78,941	30,964	109,905	3,521,978	64,776	70,907	4,669

QUANTITY OF HONEY AND BEESWAX PRODUCED, 1911-12 to 1915-16.

Season.	N. S. Wales.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania	Fed.Ter.	'O'wealth.
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HONEY.

	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
1911-12	3,394,489	1,635,260	574,973	760,094	416,823	*	38,764	6,820,403†
1912-13	2,390,355	3,277,590	581,228	1,446,364	292,515	*	19,645	8,007,697†
1913-14	1,862,471	1,961,746	754,760	876,395	156,162	180,472	4,364	5,796,370
1914-15	1,138,925	700,672	542,679	1,033,556	344,054	37,858	4,680	3,802,424
1915-16	1,585,634	933,933	460,599	358,469	122,125	56,468	4,750	3,521,978

BEESWAX.

1911-12	66,686	28,405	11,419	9,745	13,730	*	672	130,657†
1912-13	49,267	45,354	11,744	18,054	6,073	*	467	130,959†
1913-14	39,060	37,323	12,059	11,607	3,910	4,630	184	108,773
1914-15	26,483	20,017	10,859	14,365	5,471	1,354	193	78,742
1915-16	29,874	18,707	8,890	7,410	4,584	1,397	45	70,907

* Not available. † Exclusive of Tasmania.

The quantity of honey and beeswax produced from year to year naturally varies considerably according to the conditions of the seasons. During the past five years, New South Wales has been the largest producer, accounting for 37 per cent. of the total honey produced in the Commonwealth, and over 40 per cent. of the beeswax; Victoria, the next in importance, produced about 30½ per cent. of the honey, and 28½ per cent. of the beeswax; South Australia, Queensland, and Western Australia coming next in the order named.

3. **Oversea Trade in Bee Products.**—In normal years both honey and beeswax are produced in the Commonwealth in sufficient quantities to supply all local requirements, and a considerable quantity of each is sent oversea.

**IMPORTS, EXPORTS, AND NET EXPORTS OF HONEY AND BEESWAX,
COMMONWEALTH, 1911 to 1915-16.**

Particulars.	1911.	1912.	1913.	1914-15.	1915-16.
HONEY.					
Imports lbs.	2,477	5,024	636	1,790	59,324
" " " " £	93	89	19	51	692
Exports lbs.	353,367	135,318	284,322	151,405	25,162
" " " " £	4,414	1,924	4,094	2,539	1,045
Net Exports* lbs.	350,890	130,294	283,686	149,615	34,162
" " " " £	4,321	1,835	4,075	2,538	353

BEESWAX.

Imports lbs.	8,335	7,212	6,059	13,048	38,807
" " " " £	564	536	480	1,013	2,868
Exports lbs.	12,691	9,453	10,455	2,173	3,506
" " " " £	751	581	657	154	234
Net Exports* lbs.	4,356	2,241	4,396	10,875	35,301
" " " " £	187	45	177	859	2,634

* — signifies net imports.

§ 6. Summary of Australian Farmyard and Dairy Products.

The value of the principal farmyard and dairy products raised in the Commonwealth in 1915 was:—

**VALUE OF THE PRINCIPAL FARMYARD AND DAIRY PRODUCTS IN THE
COMMONWEALTH DURING THE YEAR 1915.**

Produce.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aus.	Tas.	N. T.	Fed. Ter.	C'wealth.
	£	£	£	£	£	£	£	£	£
Milk, cons'm'd as such ...	1,126,604	1,136,200	248,200	192,000	132,600	54,200	1,200	1,769	2,892,773
Butter ...	3,539,955	2,528,862	1,744,136	448,083	48,825	177,099	(a)	520	8,487,480
Cheese ...	211,524	129,115	168,935	52,326	31	15,633	...	...	577,564
C'condens'd & concen'ted milk	91,704	383,155	122,100	...	...	...	...	...	596,959
Bacon & ham	659,244	846,483	563,359	126,120	31,000	37,122	...	475	2,263,803
Poultry & eggs	2,144,000	1,747,000	107,370	518,808	184,360	200,000	...	2,000	4,903,538
Honey & wax	33,498	17,260	6,594	8,335	1,927	1,734	...	97	69,445

(a) Information not available.

(b) Estimate.

§ 7. Summary of Australian Farmyard and Dairy Products Exported, 1911 to 1915-16.

The quantities and values of Australian farmyard and dairy products exported from the Commonwealth during each of the last five years are shown below:—

QUANTITIES OF AUSTRALIAN FARMYARD AND DAIRY PRODUCTS EXPORTED FROM THE COMMONWEALTH DURING EACH OF THE YEARS 1911 to 1915-16.

Products.	1911.	1912.	1913.	1914-15.	1915-16.
Beeswax lbs.	12,671	9,347	10,455	2,173	3,506
Butter "	101,722,136	66,679,120	75,795,642	54,021,523	16,722,010
Cheese "	1,149,134	136,452	1,602,609	2,542,478	128,229
Egg albumen and yolk "					
Eggs doz.	5,542	6,163	4,872	12,119	3,469
Feathers, undressed "					
Honey lbs.	353,367	135,318	284,322	151,381	25,162
Lard "	3,399,209	2,090,477	4,279,440	1,487,536	342,569
Meats—					
Bacon and ham "	2,338,299	2,172,850	1,846,966	1,219,103	556,251
Frozen poultry pair	16,869	23,390	25,520	14,765	2,131
" " pork lbs.	1,641,013	897,929	215,175	48,791	2,783
Milk, concentrated & preserved "	1,017,072	1,646,414	2,779,963	4,907,365	708,643
Pigs, living No.	385	609	440	168	64
Poultry, living "	2,198	3,849	2,480	1,154	1,939

* Quantity not available.

VALUE OF AUSTRALIAN FARMYARD AND DAIRY PRODUCTS EXPORTED FROM THE COMMONWEALTH DURING THE YEARS 1911 to 1915-16.

Products.	1911.	1912.	1913.	1914-15.	1915-16.
	£	£	£	£	£
Beeswax	749	575	657	154	234
Butter	4,637,362	3,342,320	3,564,925	2,659,030	1,022,742
Cheese	26,754	5,303	42,030	72,527	7,915
Egg albumen and yolk	651		3		4
Eggs	437	516	377	735	259
Feathers, undressed	2,971	2,926	1,576	607	45
Honey	4,414	1,924	4,094	2,588	1,045
Lard	57,854	37,007	84,737	31,433	13,735
Meats—					
Bacon and ham	74,065	68,439	73,982	58,823	33,583
Frozen poultry	7,470	10,144	10,979	12,496	1,033
" " pork	33,639	16,661	5,259	1,400	108
Milk, concentrated and preserved	16,675	34,317	72,950	122,613	24,589
Pigs, living	748	1,025	1,336	511	582
Poultry, living	1,038	1,209	1,074	591	766
Total	4,864,827	3,522,366	3,863,979	2,963,508	1,106,640

§ 8. British Imports of Dairy Products.

1. Value of Britain's Imports of Dairy Products.—From 1911 to 1914 Great Britain paid £24,000,000 annually for imported butter, the value of the imports in 1911, 1912, 1913, and 1914 being £24,600,000, £24,354,000, £24,084,000, and £24,014,000 respectively, while for 1915 the value was £27,023,000. For imported cheese the amounts in the years named were respectively £7,140,000, £7,414,000, £7,035,000, £7,966,000 and £11,107,000; for bacon and ham, £17,391,000, £17,276,000, £20,497,000, £21,289,000 and £30,722,000 respectively; and for pork, £1,413,000, £1,101,000, £1,665,000, £2,663,000 and £1,010,000 respectively.

2. **Butter.**—Australia in 1911 stood second, in 1912, 1913, and 1914 third, and in 1915 fourth, in regard to value of butter imported into the United Kingdom; but the import of other Australian dairy products was inconsiderable.

IMPORT OF BUTTER INTO THE UNITED KINGDOM, 1915.

Country from which Imported.	Quantity.	Value.	Country from which Imported.	Quantity.	Value.
	Cwt.	£		Cwt.	£
Denmark ...	1,327,100	10,221,398	United States ...	77,130	529,200
Russia ...	1,017,507	6,371,012	Norway ...	49,796	338,891
New Zealand ...	374,898	2,693,808	Netherlands ...	44,544	313,868
Australia ...	371,685	2,551,214	Canada ...	24,401	167,442
France ...	352,090	2,275,676	Other Countries ...	3,463	21,646
Sweden ...	128,294	969,538			
Argentine Republic	82,947	569,052	Total ...	3,853,855	27,022,745

In January, 1910, the average price of Australian butter in London was 111s. After a fall in 1911, 134s. was reached in the middle of January, 1912. This high average was followed by a rapid decline. Higher prices were again in evidence as 1913 advanced, 128s. being obtained for best unsalted butter in October and November of that year; from that time till the middle of 1914 prices gradually fell to 108s., when an upward movement commenced, which continued through the latter half of 1914 and, with slight variation, throughout 1915; in December of that year 168s. was obtained for best unsalted. A slight fall in January, 1916, was followed by a gradual rise throughout the year, 210s. being obtained for best unsalted in December, this being the highest recorded price for Australian butter. Prices in London during the last eight years have been considerably higher than the average of any previous year since the Australian export trade was instituted over twenty years ago. A marked approach to Danish values has lately been made in the prices of Australian butter, Danish choice at the close of 1916 being 224s., or only three halfpence per pound over Australian.

3. **Cheese.**—The value of the British cheese import in 1915 was £11,107,000, of which over five and a quarter million pounds' worth was received from Canada. Small experimental shipments from Australia were made in 1908 and following years, fair prices being realised. In 1915, the value of the import from Australia was £91,700.

4. **Bacon and Ham.**—Of a total import of bacon and ham valued in 1915 at £30,722,000, Great Britain received imports to the value of £9,130,000 from Denmark; £17,613,000 from the United States; and £3,743,000 from Canada. The British import from Australia was small, experimental shipments only having been made during recent years.

5. **Pork.**—The total value of British imports of pork (including refrigerated, frozen and salted) was £1,010,000 in 1915. There was no import from Australia, the chief supplying countries being the United States, £458,000; Netherlands, £458,000.

6. **Other Products.**—There is practically no British import from Australia of honey, beeswax, poultry, game, lard, or eggs, but frozen rabbits to the value of £755,000 were received from the Commonwealth in 1915.

§ 9. Graphical Representation of Dairy Production.

Two graphs shewing respectively the increase in dairy production and in the exports of butter will be found on page 316.

SECTION X.

FORESTS, FORESTRY, AND FORESTAL PRODUCTS.

§ 1. The Forests of Australia.

1. **Extent of Forests.**—Although no definite survey of forest lands has been made on a uniform basis for the different States of Australia, the following table gives the results of careful estimates made for each State:—

FOREST RESERVES AND FOREST AREAS, STATE AND COMMONWEALTH, 1915.

State.	Specially Reserved for Timber.	Total Forest Area.	Percentage of State Area.		Percentage of Commonwealth Area.	
			Specially Reserved.	Total Forest.	Specially Reserved.	Total Forest.
	Acres.	Acres.	%	%	%	%
New South Wales	5,764,125	15,000,000	2.90	7.57	0.30	0.79
Victoria ...	4,160,342	11,800,000	7.40	20.98	0.22	0.62
Queensland ...	4,076,335	40,000,000	0.95	9.32	0.21	2.10
South Australia ...	147,380	3,800,000	0.03	1.56	0.01	0.20
Western Australia	1,610,435	20,400,000†	0.26	3.27	0.08	1.07
Tasmania ...	1,019,449	11,000,000	6.08	65.56	0.05	0.58
Commonwealth	16,778,066	102,000,000	—	—	0.87	5.36

* Inclusive of Federal area. † S.W. division only.

The actual area of wooded land is probably in all cases much greater than shewn above. For example, that of Western Australia is estimated at 97,900,000 acres; Queensland has probably 143,000,000 acres; and Victoria has a considerable extent of "Mallee" country not included in the above estimate. The basis of estimation for each State in any case cannot be regarded as quite identical. Considerable areas not included as forest lands possess timber of local value.

In each of the States areas have been set apart as State forests and "timber reserves," in some cases the reservation being made in perpetuity, in others for a definite period; in others again the reservation may be cancelled at any time.

The absolute and relative forest areas of Australia and other countries, to the latest available date, are shewn in the table on the next page.

RELATIVE AREAS OF FOREST LANDS, AUSTRALIA AND OTHER COUNTRIES.

Country.	Total Forest Area.	Percentage of Total Area.	Country.	Total Forest Area.	Percentage of Total Area.
	Sq. Miles.	%		Sq. Miles.	%
Commonwealth ...	159,375	5.32	Rumania ...	10,836	21.36
New Zealand ...	26,562	25.63	Sweden ...	90,241	52.20
United Kingdom ...	4,820	3.84	Norway ...	26,685	21.50
France ...	36,005	17.58	Russia in Europe ...	859,375	39.00
Algeria ...	10,249	2.98	United States ...	860,000	24.08
Germany ...	54,015	25.90	Canada ...	625,000	17.34
Switzerland ...	3,290	20.60	Cape Colony ...	537	0.19
Italy ...	17,613	15.92	British India ...	126,330	11.55
Austria ...	37,700	31.66	Japan ...	60,918	56.04
Hungary ...	34,750	29.30			

2. **Distribution of Timber.**—The characteristics of the forest areas are given in some detail for each State in the Official Year Book No. 6, pp. 446-9. The more conspicuous timber regions of Australia as a whole are the eastern and southern portions, including Tasmania, and, again, the south-western portion northwards and eastwards from Cape Leeuwin. In regard to distribution, on the eastern side of the continent the largest timber is found on the crests and coastal slopes of the mountain ranges, but in the south-west, in addition to the vegetation between mountains and sea, a large area of forest stretches inland from the coastal ranges. The hills encircling Adelaide and Yorke and Eyre Peninsulas also bear good forest. The Kimberley district is timbered, and in the Northern Territory and round the shores of the Gulf of Carpentaria there are considerable forest areas. In the coastal regions of parts of West and North-West Australia, and along the shores of the Great Australian Bight and Encounter Bay, there is little forest. The areas in the centre of the continent are thinly timbered.

See also special article Section III., § 8, "Australian Eucalyptus Timbers."

§ 2. Forestry.

1. **Objects.**—Economic forestry, aiming at the conservation of forestal wealth by safeguarding forests against inconsiderate destruction, and by the suitable re-forestation of denuded areas, is essential to the preservation of industries dependent upon an adequate supply of timber, and to the perpetuation of a necessary form of national wealth. Though in Australia large areas of virgin forests still remain, the inroads made by timber-getters, by agriculturists, and by pastoralists—who have destroyed large areas by "ring-barking"—are considerable; and it is not unlikely that climatological changes are caused thereby. It is stated that beneficial consequences follow on the planting of trees on denuded lands, or along eroding coasts, and that a forest covering beneficially regulates the effects of rainfall.

Successful planting of exotics in various parts of the Commonwealth has demonstrated that the Australian climate is suitable for the cultivation of a large number of the most valuable and beautiful of the world's timber trees.

2. **Forestry Departments.**—Each State of the Commonwealth, has organised a separate forestry department or branch of service specially charged with forestal matters. Forest improvement work is carried on, areas of young forest being cleaned up by the felling and removal of stunted, diseased and suppressed growth, the burning of debris and the making of fire breaks. Provision is made for effective patrols in forest districts, to check the ravages caused by fires, often caused, it is believed, through carelessness.

3. **Sylvicultural Nurseries and Plantations.**—Recognition of the necessity for systematic sylviculture has led to the creation in most of the States of a number of sylvicultural nurseries and plantations. The locality of these establishments, together

with a brief statement of the nature of their activities, is given in previous issues of the Year Book. (Reference may be made to Official Year Book No. 6, pp. 451-3.) Details regarding forest reserves, nurseries, and trial stations are as follows:—

FOREST RESERVES AND NURSERIES, 1915.

Particulars.	New South Wales.*	Victoria.	Q'land.	South Australia.	Western Australia.	Tasmania.	Commonwealth.
State Forest Reserves—							
Number (for area see page 393) ...	1,155	317	346	41	334	.64	2,257
State Forest Nurseries—							
Number ...	3	3	2	7	1	..	16
Area ... (acres) ...	26	54	1	7	17	...	105
Plantation Trial Stations—							
Number ...	6	14	2	...	2	...	24
Area ...	512	19,760	60	...	1,000	...	21,332
Number of persons employed in Forestry Departments—							
Administrative ...	24	12	2	1	6	1	46
Professional ...	6	5	1	1	1	2	16
General ...	162	119	20	138	23	7	469

Included in the 162 employees in the General Division in New South Wales there are 58 Acting Foresters in the ranks of the Mounted Police.

* Including Federal Territory area.

4. Revenue and Expenditure.—The revenue and expenditure of the State Forestry Departments from 1911-12 to 1915-16 are given below:—

REVENUE OF STATE FORESTRY DEPARTMENTS, 1911-12 to 1915-16.

State.	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.
	£	£	£	£	£
New South Wales ...	95,231	96,145	99,333	87,386	68,107
Victoria ...	45,077	51,146	57,746	70,834	59,189
Queensland ...	53,840	63,467	62,973	75,318	70,691
South Australia ...	4,849	5,609	6,868	5,588	5,981
Western Australia ...	23,456	33,805	48,236	53,904	45,726
Tasmania ...	3,800	4,414	4,659	4,224	3,615
Commonwealth ...	226,253	254,586	279,815	297,254	253,309

EXPENDITURE OF STATE FORESTRY DEPARTMENTS, 1911-12 to 1915-16.

State.	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.
	£	£	£	£	£
New South Wales ...	34,408	42,154	44,828	47,207	50,531
Victoria ...	41,686	56,899	58,007	65,219	65,142
Queensland ...	2,954	5,397	7,386	7,654	7,416
South Australia ...	23,296	22,858	22,832	24,217	24,892
Western Australia ...	8,874	10,469	11,463	12,068	8,870
Tasmania ...	220	760	760	1,204	683
Commonwealth ...	111,488	138,537	145,276	157,569	157,534

5. Instruction in Scientific Forestry.—Several schools have been established in which, while general scientific instruction is imparted, special attention is paid to forestry. In the classes, theoretical forestry, botany, geology, physics, land surveying, etc., are taught; while in outside work trainees receive practical instruction in the

preparation of seed-beds, seed-sowing, propagation, planting out, pruning, the general care and improvement of plantations and natural forests, and the employment of timber to the best advantage. The desire is to give the prospective forester a thorough training in all branches of the work. Courses of lectures are also given at various centres, and, at some of the higher technical schools, members of the forest staffs are afforded opportunities of qualifying in special subjects. Methods of training, etc., are not uniform in the various States, and one of the prime objects of the Conference of 1916 was the evolution of a system which, while aiming at uniformity, would be sufficiently elastic to provide for special needs in any State.

6. **Forest Congresses.**—Interstate Conferences on Forestry were held in 1911 and 1912, chiefly with a view of securing uniformity of management. An International Forest Congress was held at Paris in June, 1913, when Professor Percy Groom, of South Kensington Imperial College, represented the Commonwealth Government. The papers and reports dealt chiefly with the threatened shortage of timber, and the measures necessary to avert the danger. In May, 1916, an Interstate Forestry Conference was held at Adelaide under the presidency of the Governor-General.

§ 3. Commercial Uses of Principal Australian Timbers.

1. **General.**—The uses of the more important of Australian timbers are many and various, and are indicated in previous issues of this work (see Official Year Book No. 6, pp. 454-6). See also Section III., § 8 of the present volume.

The Commonwealth Government is experimenting with Australian woods for rifle stocks, telephone switch boards, etc. Queensland maple (*Flindersia chatawaiana*) is at present largely used for rifle stocks, and supplies of coachwood are being accumulated at Lithgow for the same purpose. It has also made available a sum of money for the seasoning and storing of Australian timber, and depôts have been established at Canberra and Newington in New South Wales, and at Maribyrnong in Victoria. Timber seasoning depôts have also been established by States Governments at the principal centres, and from these, contractors may obtain timber at scheduled rates. Other timber seasoning works have been established by private enterprise.

2. **Uniformity in Nomenclature.**—Unfortunately the vernacular names applied to the gums, ironbarks, etc., in the various States, and even in different parts of the same State, do not always refer to identical timbers. The resulting confusion has not only been productive of loss, but it has, to some extent, prejudicially affected the timber trade. This subject is referred to at some length in the special article, "Australian Eucalyptus Timbers," in Section III., § 8. At the 1916 Forestry Conference alluded to above, the matter came up for special consideration, and a resolution was passed affirming the desirability of establishing a uniform nomenclature. It was further resolved that committees should be appointed in each State to take the necessary steps to give practical effect to that resolution.

§ 4. Forestal Industries and Production.

1. **Timber.**—Estimates of the quantity and value of timber cut and sawn have been prepared by the States Forestry Departments, and are as follows:—

QUANTITIES OF LOCAL TIMBER SAWN OR HEWN IN EACH STATE OF THE COMMONWEALTH DURING THE YEARS 1911 to 1915.

State.	1911.	1912.	1913.	1914.	1915.
	sup. feet.	sup. feet.	sup. feet.	sup. feet.	sup. feet.
New South Wales	142,358,000	162,604,000	164,899,000	140,940,000	115,201,000
Victoria	53,000,000	60,000,000	81,770,000	84,374,000	62,589,000
Queensland	138,896,000	163,828,000	156,634,000	168,456,000	144,950,000
South Australia	217,000	183,000	100,000	118,000	111,000
Western Australia	191,114,000	217,696,000	218,908,000	227,297,000	123,494,000
Tasmania	66,061,000	63,243,000	60,780,000	52,182,000	47,890,000
Commonwealth	591,646,000	667,554,000	683,091,000	673,367,000	494,235,000

2. **Other Forest Produce.**—(i.) *General.* No satisfactory estimates of the total value of forest production are available. Large returns are credited to firewood, but these are subject to a wide range of uncertainty.

(ii.) *Eucalyptus Oil.* A considerable quantity of eucalyptus oil is produced each year, chiefly in Victoria, the product being used as a drug and also in connection with ore flotation processes. Complete information regarding local production and consumption is not available. Oversea exports amounted in 1913 to £40,000, in 1914-15 to £21,000, and in 1915-16 to £36,000, the bulk of the product in each year being forwarded to the United Kingdom.

(iii.) *Tan Barks.* In addition to the wattle bark, mentioned at the close of this section, a valuable tan bark is obtained from the mallet (*E. occidentalis*) of Western Australia. Its exploitation has, however, been so rapid that the available supply is now comparatively small.

§ 5. Oversea Trade.

1. **Imports.**—The quantity and value of timber imports during the four years 1912 to 1915-16 inclusive are shewn according to countries of origin in the following tables. The figures in the first table are exclusive of a few items such as veneers, etc.:

IMPORTS OF DRESSED TIMBER, COMMONWEALTH, 1912 to 1915-16.

Country of Origin.	Quantity.				Value.			
	1912.		1913.		1914-15.		1915-16.	
	sup. ft.	sup. ft.	sup. ft.	sup. ft.	£	£	£	£
United Kingdom ...	95,938	3,537	12,834	265	1,070	191	211	23
New Zealand ...	77,821	4,427	25,719	117,929	1,107	32	355	1,653
Other British Poss. ...	951,085	2,344	...	78,622	8,488	26	...	718
Germany ...	7,647	66,737	447,678	...	245	1,106	3,383	...
Norway ...	45,796,037	56,251,225	46,289,602	46,858,100	341,731	399,899	334,459	145,895
Sweden ...	23,827,979	23,571,012	11,699,062	7,690,606	176,677	197,968	95,994	66,729
United States ...	4,299,729	1,938,088	1,438,799	717,003	37,477	19,658	14,628	7,295
Other For. Countries	14,636	634,072	4,530	2,711	172	4,460	132	73
Total ...	75,080,872	82,471,445	59,918,224	25,465,236	566,987	613,360	449,162	222,396

As the table shews, the bulk of the imports of dressed timbers comes from Norway, Sweden and the United States. Practically the whole of this timber consists of soft-woods—deal and pine—used for lining, weatherboards, flooring, shelving, doors, box-making, etc.

IMPORTS OF UNDRESSED TIMBER, INCLUDING LOGS, COMMONWEALTH, 1912 to 1915-16.

Country of Origin.	Quantity.				Value.			
	1912.		1913.		1914-15.		1915-16.	
	sup. ft.	sup. ft.	sup. ft.	sup. ft.	£	£	£	£
United Kingdom ...	311,535	65,342	236,396	91,707	3,409	1,189	2,238	1,336
Canada ...	12,271,444	12,263,586	1,484,840	73,166	54,116	54,369	5,366	532
India ...	740,059	682,724	858,999	831,939	20,847	18,490	26,550	17,924
New Zealand ...	93,524,793	64,489,943	71,000,372	75,138,381	654,093	433,798	469,063	479,454
Straits Settlements	544,190	281,155	194,255	217,450	2,785	1,454	1,18	1,203
Other British Poss.	59,607	2,723	50,273	12,317	550	61	558	207
Japan ...	11,911,714	16,011,418	12,576,157	12,796,031	61,900	72,095	64,713	83,876
Java ...	7,319	45,890	6,239	48,599	147	1,312	41	1,345
Norway ...	4,152,072	6,204,961	2,857,057	1,557,451	29,083	42,162	22,086	12,279
Russia ...	9,258,609	10,516,517	3,301,910	211,931	56,099	66,434	20,795	1,212
Sweden ...	6,986,236	5,905,476	2,276,154	1,653,468	50,072	44,696	19,108	14,119
United States ...	227,112,385	256,331,192	171,222,415	138,033,305	1,209,626	1,418,760	943,834	799,888
Other For. C'tries	2,074,393	317,975	265,236	948,134	18,878	2,771	3,466	6,091
Total ...	368,954,356	373,118,802	266,330,303	231,613,879	2,161,605	2,157,591	1,579,001	1,412,466

By far the larger proportion of the undressed timber imports also consists of soft-woods such as yellow pine, redwood, and oregon from the United States and Canada; kauri, rimu, and white pine from New Zealand; pine from Japan, and red deals from Russia and Norway and Sweden. Amongst the hardwoods imported the principal are oak from the United States and Japan, and teak from India.

2. Exports.—The quantity and value of undressed (sawn) timber exported from 1911 to 1915-16 are given below, the countries of destination being also shewn.

EXPORTS OF UNDRESSED TIMBER (SAWN), COMMONWEALTH, 1911 to 1915-16.

Country to which Exported.	Quantity.*					Value.				
	1911.	1912.	1913.	1914-15.	1915-16.	1911.	1912.	1913.	1914-15.	1915-16.
	1000 sup. ft.	1000 sup. ft.	1000 sup. ft.	1000 sup. ft.	1000 sup. ft.	£	£	£	£	£
United Kingdom...	10,436	11,325	20,222	20,185	5,741	77,070	79,940	140,082	143,698	45,286
Canada ...	546	456	619	67	19	6,640	5,893	8,023	990	321
S. African Union	19,243	39,544	33,793	34,403	23,100	132,094	270,282	233,782	241,139	162,788
Ceylon ...	611	576	1,926	5,307	30	4,110	4,153	12,923	36,142	203
Egypt ...	...	...	...	7	†413	...	...	...	149	†3,638
Fiji ...	1,900	2,359	1,421	1,534	780	12,416	17,342	12,939	17,238	5,830
India ...	52,254	31,477	23,960	13,130	...	353,488	209,312	160,577	87,260	...
Mauritius ...	278	225	235	655	655	2,138	1,501	1,587	4,366	4,368
New Zealand ...	27,137	21,061	38,586	25,517	15,912	199,666	162,518	278,975	202,398	140,507
Ocean Island ...	120	446	347	241	197	768	3,682	3,139	1,690	1,873
Papua ...	435	614	598	192	205	4,223	6,410	6,184	2,026	2,412
Straits Settlements	52	81	88	12	10	380	506	478	118	100
Other British Pos.	103	18	249	504	599	774	184	2,151	4,714	4,987
Argentine Repub.	2,474	667	1,584	...	...	16,492	4,447	10,558	...	...
Belgium ...	2,887	2,727	2,429	203	...	21,665	19,193	17,146	1,378	...
China ...	2,138	1	1	2,582	...	14,250	2	2	17,764	...
Egypt ...	7,289	50	56	...	...	48,594	333	377	49	...
Germany ...	1,829	1,774	1,762	177	...	18,122	17,394	14,293	1,365	...
Japan ...	36	90	86	7	1	354	771	890	73	15
Kaiser Wilhelm L.	79	98	131	23	...	648	891	1,522	297	3
Marshall Islands...	226	140	211	6	5	2,023	1,366	2,227	81	59
Netherlands ...	3	...	...	...	...	26	...	...	...	...
Bismarck Archip.	373	611	...	282	41	3,498	6,231	5,100	3,258	580
New Caledonia ...	355	232	201	96	33	3,096	2,017	2,123	800	417
Philippine Islands	2,941	61	63	...	...	19,608	414	449	...	...
Portg'ese E. Africa	2,639	380	3,106	24	606	17,416	3,890	21,775	239	4,039
U.S. of America ...	4,907	942	1,295	294	469	25,032	11,182	13,979	3,891	6,826
Uruguay ...	1,888	1,754	...	668	...	12,589	11,689	...	4,618	...
Other For. Count.	3,346	1,692	1,836	256	124	22,468	16,814	13,752	2,581	1,398
Total ...	146,524	119,401	134,805	106,376	48,940	1,019,648	858,357	964,938	778,122	385,650

* Exclusive of timber not measured in super. feet. † Previously included with foreign countries.

As the table shews, the bulk of the exports of undressed timber was consigned to South Africa, New Zealand, and the United Kingdom, and consisted of Australian hardwoods, which have earned an excellent reputation for such purposes as railway sleepers, harbour works, wood paving, etc.

The quantities of timber imported and exported during the last five years are given in the next table.

QUANTITIES OF TIMBER IMPORTED INTO AND EXPORTED FROM THE COMMONWEALTH, 1911 to 1915-16.

Description.	1911.	1912.	1913.	1914-15.	1915-16.
IMPORTS.					
Veneers ... Sup. feet	994,575	1,815,917	1,959,436	1,438,272	430,060
Dressed ... "	90,672,708	76,513,670	83,849,002	62,789,849.	28,653,427
Undressed ... "	324,325,658	350,052,617	349,680,896	255,897,777	223,278,433
Logs ... "	29,902,216	18,901,739	23,437,906	10,432,526	8,335,446
Palings ... No.	...	...	...	...	...
Pickets ... "	1,523,849	2,065,145	2,302,748	923,155	808,342
Shingles ... "	937,270	1,242,720	1,526,994	1,067,060	2,677,620
Staves—Dressed, etc. ... "	5,440	920	...	73,609	67,380
Undressed ... "	3,363,457	2,181,121	3,639,969	2,535,831	591,750
Laths for blinds ... "	*	*	*	*	*
" other ... "	30,213,094	29,631,746	46,337,501	18,544,270	17,629,168
Spokes, rims, felloes ... "	1,916,045	*	*	*	*
Doors ... "	234	12,172	1,410	1,611	1,925
Architraves, mouldings, etc. ... Lin. feet	23,601	35,106	80,398	2,313	6,202
Other (Free) ...	*	*	*	*	*

* Quantity not available.

QUANTITIES OF TIMBER IMPORTED AND EXPORTED, ETC.—Continued.

Description.	1911.	1912.	1913.	1914-15.	1915-16.
EXPORTS.					
Veneers ...	...	...	...	...	...
Dressed ... Sup. feet	1,071,683	975,679	716,621	742,844	498,074
Undressed ... "	146,262,683	119,401,434	134,805,222	106,375,692	48,939,938
Logs ...	3,252,115	1,913,973	1,899,474	411,204	226,400
Palings ... No.	942,220	630,670	487,094	462,705	322,240
Pickets ...	6,628	5,335	1,411	1,350	800
Shingles ...	35,790	21,332	31,300	...	...
Staves—Dressed, etc. "	1,300	...	...	...	...
" Undressed "	...	...	...	840	...
Laths for blinds "	*	*	*	*	*
" other "	110,900	406,980	7,190	284,521	111,600
Spokes, rims, felloes "	*	*	*	*	*
Doors ...	*	*	*	*	*
Architraves, mouldings, etc. ... Lin. feet	92,162	125,327	107,664	99,152	41,673
Other ...	...	...	...	...	...

EXCESS OF IMPORTS OVER EXPORTS.

Veneers ...	994,575	1,815,917	1,959,436	1,438,272	430,060
Dressed ... Sup. feet	89,601,025	75,537,991	83,132,381	62,047,005	28,155,353
Undressed ... "	178,062,975	230,651,183	214,875,674	149,522,085	174,338,495
Logs ...	26,650,101	16,987,766	21,538,432	10,021,322	8,109,046
Palings ... No.	—942,220	—630,670	—487,094	—462,705	—232,240
Pickets ...	1,517,221	2,059,810	2,301,337	921,805	807,542
Shingles ...	901,480	1,221,388	1,495,694	1,067,060	2,677,620
Staves—Dressed, etc. "	4,140	920	...	73,609	67,380
" Undressed "	3,363,457	2,181,121	3,639,969	2,534,991	591,750
Laths for blinds "	*	*	*	*	*
" other... "	30,102,194	29,224,766	46,330,311	18,259,749	17,517,568
Spokes, rims, felloes "	*	*	*	*	*
Doors ...	*	*	*	*	*
Architraves, mouldings, etc. ... Lin. feet	—68,561	—90,221	—27,266	—96,839	—35,471
Other ...	*	*	*	*	*

* Quantity not available.

Note. — signifies excess of exports over imports.

The values of the timber imports and exports during the last quinquennium are shewn hereunder.

VALUE OF TIMBER IMPORTED INTO AND EXPORTED FROM THE COMMONWEALTH, 1911 to 1915-16.

Description.	1911.	1912.	1913.	1914-15.	1915-16.
IMPORTS.					
Veneers ...	£ 25,795	£ 42,379	£ 55,374	£ 43,625	£ 20,610
Dressed ...	683,430	578,427	625,032	468,025	243,155
Undressed ...	1,819,832	2,061,666	2,036,330	1,534,188	1,383,140
Logs ...	165,460	99,939	121,261	44,813	29,326
Palings ...	...	...	...	...	...
Pickets ...	5,622	10,270	8,497	3,406	4,030
Shingles ...	1,280	1,892	2,208	1,654	3,487
Staves—Dressed, etc. ...	131	14	...	1,607	1,907
" Undressed ...	20,417	15,744	22,870	16,440	11,164
Laths for blinds ...	38	26	4	...	...
" other ...	23,181	26,436	40,131	24,676	14,809
Spokes, rims, felloes ...	40,047	21,616	13,993	21,228	11,239
Doors ...	137	3,616	445	591	910
Architraves, mouldings, etc. ...	65	145	250	31	22
Other (Free)...	129	1,043	81	156	90
Total value ...	2,785,564	2,863,213	2,926,476	2,160,440	1,723,889

VALUE OF TIMBER IMPORTED AND EXPORTED, ETC.—Continued.

Description.	1911.	1912.	1913.	1914-15.	1915-16.
EXPORTS.					
	£	£	£	£	£
Veneers ... ..	...	...	...	...	...
Dressed	12,599	11,542	8,160	9,327	7,190
Undressed	1,016,510	858,357	964,938	778,073	385,650
Logs	23,024	14,950	25,325	4,020	1,716
Palings	4,931	3,734	2,688	2,403	1,225
Pickets	84	66	40	20	7
Shingles	91	106	42	...	...
Staves—Dressed, etc.	16	...	...	...	...
Undressed ... ..	...	...	...	22	...
Laths for blinds	946	363	297	367	152
" Other	105	495	11	246	245
Spokes, rims, felloes	9,989	12,214	8,039	6,769	6,570
Doors	743	1,053	960	492	554
Architraves, mouldings, etc.	589	723	541	457	152
Other ... ..	...	...	...	...	...
Total value	1,069,627	903,603	1,011,041	802,186	403,461

EXCESS OF IMPORTS OVER EXPORTS.

Veneers	25,795	42,379	55,374	43,625	20,610
Dressed	670,831	566,885	616,872	458,698	235,965
Undressed	803,322	1,203,309	1,071,392	756,115	997,490
Logs	142,436	84,989	95,936	40,793	27,610
Palings	-4,931	-3,734	-2,688	-2,403	-1,225
Pickets	5,538	10,204	8,457	3,386	4,023
Shingles	1,189	1,786	2,166	1,654	3,487
Staves—Dressed, etc.	115	14	...	1,607	1,907
Undressed	20,417	15,744	22,870	16,418	11,164
Laths for blinds	-908	-337	-293	-367	-152
" other	23,076	25,941	40,120	24,430	14,564
Spokes, rims, felloes	30,058	9,402	5,954	5,417	4,669
Doors	-606	2,563	-515	109	356
Architraves, mouldings, etc.	-524	-578	-291	-426	-130
Other	129	1,043	81	156	90
Total value	1,715,937	1,959,610	1,915,435	1,349,212	1,320,428

Note. — signifies excess of exports over imports.

A fair amount of sandalwood is exported each year, principally from Western Australia, and to a much smaller extent from Queensland. The largest proportion of this product is consigned to Hong Kong and China, while small quantities are taken chiefly by the Straits Settlement and India.

EXPORTS OF SANDALWOOD, 1911 TO 1915-16.

Country to which Exported.	Quantity.					Value.				
	1911.	1912.	1913.	1914-5.	1915-6.	1911.	1912.	1913.	1914-5.	1915-6.
	cwt.	cwt.	cwt.	cwt.	cwt.	£	£	£	£	£
Hong Kong	120,432	22,854	91,054	98,600	96,949	62,566	11,567	41,476	48,338	51,087
Straits Settlements	13,783	2,330	17,835	15,985	10,620	5,967	1,034	5,931	9,634	6,410
Other British Possessions... ..	5,687	7,863	10,760	11,333	8,576	2,506	3,455	4,560	6,426	4,602
China	7,140	36,755	13,540	50,845	18,850	2,348	16,619	5,593	27,544	9,316
Other Foreign Countries	6	233	486	386	120	9	225	367	273	78
Total	147,048	70,095	133,675	177,149	135,115	73,396	32,900	57,947	92,435	71,493

Tanning bark figures both as an export and import in the Commonwealth trade returns as the following tables shew:—

EXPORTS OF TANNING BARK, 1911 to 1915-16.

Country to which Exported.	Quantity.					Value.				
	1911.	1912.	1913.	1914-15.	1915-16.	1911.	1912.	1913.	1914-15.	1915-16.
	cwt.	cwt.	cwt.	cwt.	cwt.	£-	£	£	£	£
United Kingdom ...	3,154	605	3,078	218	3,018	1,195	197	1,010	102	1,434
New Zealand ...	66,574	73,667	45,013	57,873	51,138	29,105	34,224	20,559	24,604	23,574
Other British Poss. ...	1,868	1,684	621	1,006	714	921	802	307	382	371
Belgium ...	29,100	40,180	36,250	7,256	...	11,576	15,520	14,281	2,688	...
France ...	...	204	...	...	...	...	101	...	...	...
Germany ...	148,490	49,849	58,011	3,256	...	60,121	20,630	23,653	1,109	...
Other For. Countries ...	4,166	2,060	1,379	8,049	39,598	1,627	752	601	3,140	16,354
Total ...	253,556	168,045	144,352	77,658	94,468	104,646	72,128	60,411	32,025	41,733

Prior to the war there was a fairly considerable export of tan bark to Germany and also to Belgium. The exports westward have naturally dwindled away, and at the present time New Zealand receives the largest share of the available export, while there is an increasing trade with Japan. During the last two years the largest proportion of the exports consisted of wattle bark from Tasmania and Victoria.

A comparison of the imports and exports of tan bark during the last five years is given in the next table.

TANNING BARK IMPORTED INTO AND EXPORTED FROM THE COMMONWEALTH, 1911 to 1915-16.

Particulars.	1911.	1912.	1913.	1914-15.	1915-16.
QUANTITIES—	cwt.	cwt.	cwt.	cwt.	cwt.
Imports ...	72,447	119,253	77,689	66,136	122,188
Exports ...	253,556	168,045	144,352	77,658	94,468
Excess of exports over imports	181,109	48,792	66,663	11,522	-27,720
VALUES—	£	£	£	£	£
Imports ...	31,253	50,920	27,987	24,924	47,698
Exports ...	104,646	72,128	60,411	32,025	41,733
Excess of exports over imports	73,393	21,208	32,424	7,101	-5,965

Note. The minus sign — denotes excess of imports.

The imports consist almost exclusively of wattle bark from the plantations in South Africa. One variety of Australian wattle was found to flourish in the sandy belts near the Coast, but it is the *Acacia decurrens*, var. *mollis*, which is chiefly relied upon for the production of wattle bark in the South African plantations. Seed has been tried from New South Wales, Tasmania, and Victoria, but it is stated that most of the seed is obtained from the best wattle bark areas in eastern Tasmania and western Victoria.

Two reasons have been given to account for the success of the industry in South Africa. (1.) It was found that the treeless, grassy highlands of Natal, were specially suitable for wattle culture, and the trees could therefore be grown in rows and economically attended to, while the necessary bark sheds and other appurtenances could be placed in the most advantageous positions. (2.) There was an abundance of cheap and efficient Hindoo labour available for employment on the plantations.

SECTION XI.

FISHERIES AND PISCICULTURE.

§ 1. Commercial Fisheries.

1. **Fish Stocks.**—Australasia possesses an abundant and varied fish fauna, which embraces both tropical and temperate varieties and includes destructive as well as valuable species. In rivers and lakes both indigenous and imported varieties thrive. The latter have been introduced and acclimatised for industrial and sporting purposes by Governments and angling societies. Exploitation of the fishing areas—for some classes of fish for the whole year, for others during the breeding season only, or until a certain size is attained—is, where necessary, expressly forbidden; proclaimed localities are closed against net-fishing, and a minimum size of mesh for nets is fixed. The sea-fishermen in some districts have made regulations in their own interests for the purpose of controlling the market supply, and these they rigorously observe.

2. **Economic Fisheries.**—Although Australia's food fishes are abundant, the development of the industry has been slow. It has been authoritatively stated that the marine fisheries, properly fostered, will develop into an industry of national importance. Local catches of lake and river fishes furnish, in the aggregate, a not inconsiderable amount of food supply. (See also § 5 and 6 hereinafter).

3. **Distribution of Supplies.**—Present methods of distribution impose serious difficulties on the development of fishing generally, since there is a wide divergence between the price paid by the consumer and the return received by the producer. States and municipalities are interesting themselves in the direction of more economic distribution. Good markets are assured in the chief cities for regular deliveries of fresh fish. (See also § 5 and 6 hereinafter).

4. **Oyster Fisheries.**—Natural oyster beds, whose ample product is of excellent quality, exist on the foreshores in the shallow waters of inlets and estuaries in several parts of Australia. By husbanding the natural crop, and by judicious transplanting, the oyster output has been very materially augmented, and it is believed that there is a great future for the industry. The areas are leased by the Government to private persons, lengths of foreshore being taken up and profitably exploited. In New South Wales and Queensland particularly, the industry has developed; and small yields have been obtained in South Australia and Victoria.

5. **Pearl-shelling, Beche-de-Mer, etc.**—(i.) *General.* Pearl-shelling is carried on in the tropical districts of Queensland, the Northern Territory, and Western Australia. The pearl oyster inhabits the northern and western coastal waters from Cape York to Shark Bay, a length of shore of over 2000 miles. The shells are marketed in considerable quantities, and pearls also are obtained in Queensland and Western Australia. The fishing is generally conducted with the aid of diving apparatus, in water varying from

four to twenty fathoms in depth. In Queensland and the Northern Territory the bêche-de-mer industry is carried on, and tortoiseshell is obtained on the coasts. Experiments have been made in cultivating the pearl oyster on suitable banks. In October 1911, a pearl weighing 178 grains, and valued at £3000, was obtained at Broome. Further details regarding pearl-shelling are given in Official Year Book No. 6, p. 463. During 1915, trochus shell to the value of nearly £12,000 was raised in Queensland.

(ii.) *Royal Commission on Pearl-shelling Industry.* In accordance with the "White Australia" policy, it was originally determined that the employment of Asiatic labour in the pearl-shelling industry should be restricted, and ultimately cease, and it was proposed that after 31st December, 1913, permits to indent Asiatics for the pearling fleet should no longer be issued. In view, however, of the disorganisation of the industry occasioned by the war, the time was extended to the 30th June, 1918, after which date permits to introduce Asiatic labour were to be granted only in cases where the diver and tender of a boat were Europeans. Since the receipt of the Report of the Royal Commission referred to, hereunder, this proviso was, however, revoked. In March, 1912, a Royal Commission to inquire into the pearling industry was appointed by the Commonwealth Government, and after visits to the Queensland and Western Australian waters, various sittings, and the issue of a progress report, presented its final report in 1916. The Commissioners stated that, while it may be practicable, they did not consider it desirable or profitable to attempt by any drastic methods to transfer the industry from Asiatics to Europeans. They further stated that, while the labour now employed is almost entirely Asiatic, they did not consider that the "White Australia" policy would be weakened or imperilled by allowing the industry to continue as at present conducted.

§ 2. Fisheries Statistics.

1. *Estimates for the Commonwealth.*—The returns given below have been furnished by the State departments. Estimates and approximations, where shown, are official. The data do not generally lend themselves to presentation on a uniform scheme, but the principal facts have as far as possible been compiled for the Commonwealth.

The figures for New South Wales are exclusive of the State Trawling operations. In addition to the take of fish and lobster returned for that State, 5,913 cwt. of prawns valued at £9,856 were sold, and 3,000 dozen crabs valued at £1,396.

GENERAL FISHERIES (EXCLUDING EDIBLE OYSTERS, PEARLSHELL AND BÊCHE-DE-MER), COMMONWEALTH, 1915.

State.	No. of Boats Engaged.	Value of Boats and Equip-ment.	No. of Men Em-ployed.	Total Take of—		Value of Take.	
				Fish.	Lobsters.	Fish.	Lobsters.
	No.	£	No.	cwt.	doz.	£	£
New South Wales ...	779	39,565	3,275	163,423	12,355	217,897	7,413
Victoria ...	740	65,257	942	87,777	18,461	101,554	7,875
Queensland...	607	32,454	1,168	53,840	...	64,733	...
South Australia ...	800	30,000	1,000	134,000	10,000	234,500	12,500
Western Australia ...	265	26,307	585	25,090	7,335	45,000	2,934
Tasmania ...	170	20,400	310	...	...	46,500	*
Northern Territory ...	13	350	75	1,910	...	5,492	...
Commonwealth ...	3,374	214,333	7,355	466,040	48,151	715,676	30,722

* Included in value of fish and exclusive of Tasmania.

FISHERIES STATISTICS.

The available returns from the Commonwealth oyster fisheries appear in the next table. Edible oysters are not found in Western Australia. There is no information available in regard to the small consumption of local oysters in Tasmania.

EDIBLE OYSTER FISHERIES, COMMONWEALTH, 1915.

State.	Number of Boats Engaged.	Value of Boats and Equip-ment.	Number of Men Em-ployed.	Number of Leases.	Oysters Taken.	
					Quantity.	Value.
	No.	£	No.	No.	cwt.	£
New South Wales	354	12,521	405	2,692	36,000	41,364
Victoria	40	2,200	58	...	7,500	3,000
Queensland	105	10,728	147	701	26,981	30,514
South Australia	4	360	8	...	641	1,282
Western Australia ... ..	...	...	...	...	...	...
Tasmania ... ..	...	...	...	...	...	...
Northern Territory ... ..	...	...	...	...	...	...
Commonwealth	503	25,809	618	3,393	71,122	76,160

The pearling industry is carried on in the tropical waters of Queensland, Western Australia, and the Northern Territory. During the last few years the return from the pearling industry has been adversely affected by labour conditions, coupled with the restriction in the market, consequent on the war. Some of the pearling fleets have transferred their operations to Dutch waters. Bêche-de-mer is obtained in Queensland and the Northern Territory, the product being exported to China.

PEARL, PEARLSHELL, AND BÊCHE-DE-MER FISHERIES, COMMONWEALTH, 1915.

State.	Number of Boats Engaged.	Value of Boats and Equip-ment.	Number of Men Em-ployed.	Quantity of Pearls-hell obtained.	Value of Pearls-hell obtained.	Value of Pearls ob-tained.	Value of Bêche-de-mer obtained.	Value of Tor-toiseshell obtained.
	No.	£	No.	Tons.	£	£	£	£
New South Wales ... ..	...	...	...	...	...	...	...	...
Victoria ... ..	...	...	...	...	...	...	...	...
Queensland	103	29,540	844	112	18,512	..	39,918	105
South Australia... ..	...	...	...	...	...	...	...	...
West Australia	218	90,737	1,567	1,026	118,760	14,894	...	...
Tasmania ... ..	...	...	...	...	...	...	...	...
N. Territory	25	6,250	150	42	6,135	...	160	50
Commonwealth	346	126,527	2,561	1,180	143,407	14,894	40,078	155

Information in regard to the value of pearls obtained was furnished by Western Australia only, the figures for 1915 being £14,894 as compared with £90,000 in the preceding year. In 1914 the pearls obtained in Queensland waters were valued at £6,120. For obvious reasons the returns can be regarded as rough approximations only. The next table gives the revenue from fisheries in each State.

PUBLIC REVENUE FROM FISHERIES, COMMONWEALTH, 1915.

State.	Licenses.	Leases.	Fines and Forfeitures.	Other Sources.	Total.
	£	£	£	£	£
New South Wales ...	1,390	7,169	225	80	8,864
Victoria ...	331	...	418	7	756
Queensland... ..	2,237	4,033	50	...	6,320
South Australia ...	473	...	9	...	482
Western Australia ...	2,753	1,802	3	48	4,606
Tasmania* ...	479	...	8	83	570
Northern Territory ...	54	...	...	...	54
Commonwealth ...	7,717	13,004	713	218	21,652

* Returns incomplete; refer mainly to Fisheries Board of Hobart.

A summary of the main items of information available in regard to General and Oyster Fisheries in the Commonwealth is given hereunder for the five years 1911-15:—

GENERAL AND OYSTER FISHERIES, COMMONWEALTH, 1911 to 1915.

Particulars.	1911.	1912.	1913.	1914.	1915.
General Fisheries—					
No. of boats engaged ...	2,593	2,898	3,114	3,321	3,374
" men employed ...	4,405	6,114	6,428	7,363	7,355
Fish obtained—					
Quantity ... cwt.	350,828§	391,168‡	388,371‡	563,543	466,040‡
Value... .. £	474,027	497,345	489,236	519,723	709,176
Lobsters obtained—Value, £	27,718	27,840	30,879	33,111	30,722
Edible Oyster Fisheries—					
No. of boats engaged* ...	482	485	428	398	503
" men employed* ...	589	518	487	453	618
Oysters obtained—					
Quantity ... cwt.	64,397	58,113	68,054	60,199	71,122
Value £	77,080	79,933	74,204	62,153	76,160
Public Revenue from Fisheries					
Licenses £	4,833	5,576	7,379	9,664	7,717
Leases £	11,583	11,668	11,081	12,823	13,004
Fines and forfeitures	£ 845	495	480	427	713
Other sources £	386	625	442	662	218
Total revenue	£ 17,147	18,364	19,332	23,576	21,652

* Queensland and South Australia only for year 1910. There are practically no oyster fisheries in Victoria, Western Australia, and Tasmania. † Exclusive of Tasmania. § Exclusive of Western Australia and Tasmania.

The following table gives in summarised form for the years 1911-15 the details available in regard to pearling and bêche-de-mer fishery for the States where these industries are carried on, i.e., Queensland, Western Australia, and the Northern Territory. The low production in 1915 was, of course, due to the loss of market occasioned by the war. For obvious reasons, figures regarding value of pearls obtained can be taken as rough approximations only.

**PEARL, PEARLSHELL AND BÈCHE-DE-MER FISHERIES, COMMONWEALTH,
1911 to 1915.**

Particulars.	1911.	1912.	1913.	1914.	1915.
No. of boats engaged ...	578	607	598	581	346
No. of men employed ...	4,052	4,291	4,277	4,137	2,561
Pearlshell obtained—					
Quantity ... tons	1,717	2,103	2,014	1,823	1,180
Value ... £	327,444	530,298	346,437	297,776	143,407
Pearls obtained †—					
Value ... £	87,713	106,375†	97,730†	97,535	14,894
Bêche-de-mer obtained—					
Quantity ... tons	323	450	625	531	770
Value ... £	17,712	25,142	30,943	27,847	40,078
Tortoiseshell obtained—					
Quantity ... lbs.	1,056	1,302	1,382	870	327
Value ... £	572	785	850	625	155

† As returned. † Exclusive of pearls obtained by Japanese divers, estimated at £25,000.

In addition to the production mentioned above, Queensland during 1915 raised 544 tons of trochus shell, valued at £11,904. The shell is used principally in the manufacture of "pearl" buttons.

§ 3. Oversea Trade in Fish.

That the development of the fishing industry in Australia leaves much to be desired is evident from the fact that the import of preserved fish into the Commonwealth is very large. The figures for the imports for the last five years were as follows:—

IMPORTS OF FISH, COMMONWEALTH, 1911 to 1915-16.

Classification.	1911.	1912.	1913.	1914-15.	1915-16.
Fresh (oysters) ...	{ cwt. 7,152 £ 3,462	8,765	8,912	6,353	4,736
Fresh, or preserved by cold process... ..	{ cwt. 20,455 £ 44,536	25,673	34,172	27,015	25,771
Potted	{ cwt. * £ 26,024	56,396	78,510	65,741	68,676
Preserved in tins ...	{ cwt. 148,846 £ 443,049	35,506	37,644	38,552	54,414
Smoked, dried and n.e.i.	{ cwt. 148,846 £ 443,049	194,092	171,733	194,005	213,347
	{ cwt. 21,605 £ 52,289	606,969	525,996	660,693	755,286
	{ cwt. 21,605 £ 52,289	26,472	24,629	15,477	10,403
	{ cwt. 52,289 £ 198,058	76,327	70,605	37,141	32,868
Total ...	{ cwt. † 198,058 £ 569,360	255,002	239,446	242,850	254,257
	{ cwt. † 569,360 £ 780,477	780,477	718,036	806,314	914,284

* Not available. † Exclusive of potted fish.

Tinned fish constitutes by far the largest proportion of the imports, the bulk of it consisting of salmon from the United States, Canada, Norway, and Alaska. The potted fish comes chiefly from the United Kingdom. New Zealand supplies the largest proportion of the fresh fish, the bulk of the remainder coming from the United Kingdom. The small import of oysters consists entirely of New Zealand produce.

The exports of local fish produce for the five years 1911 to 1915-16 is given hereunder:—

EXPORTS OF FISH (AUSTRALIAN PRODUCE), 1911 to 1915-16.
COMMONWEALTH.

Classification.	1911.	1912.	1913.	1914-15.	1915-16.
Fish, fresh, smoked, or preserved by cold process	{ cwt. 248 £ 1,026	{ 137 436	{ 114 367	{ 1,919 9,532	{ 918 2,806
Preserved in tins, dried, salted, etc.	{ cwt. 6,891 £ 23,185	{ 38,268 35,827	{ 11,334 40,573	{ 10,655 29,337	{ 11,044 40,441
Total ...	{ cwt. 7,139 £ 24,211	{ 38,405 36,263	{ 11,448 40,940	{ 12,574 38,869	{ 11,962 43,247

The quantity of fresh fish exported from the Commonwealth is trifling, and the amount of £2806 shewn in the table above consists chiefly of cured bêche-de-mer exported to Hong Kong from Queensland and the Northern Territory. The bulk of the amount of £40,441 consists of an export of salt fish also to Hong Kong from Queensland.

The exports of pearlshell and tortoiseshell are given hereunder for the five years 1911 to 1915-16:—

EXPORTS OF PEARLSHELL AND TORTOISESHELL, 1911 to 1915-16.
COMMONWEALTH.

Article.	1911.	1912.	1913.	1914-15.	1915-16.
Pearlshell ...	{ cwt. 39,126 £ 330,003	{ 64,976 524,281	{ 41,813 383,193	{ 26,276 179,430	{ 49,759 192,226
Tortoiseshell ...	{ lbs. 1,693 £ 964	{ 5,170 3,454	{ 3,244 2,081	{ 1,244 822	{ 570 333

About 60 per cent. of the pearlshell exported during 1915-16 was consigned to the United States, which took nearly £116,000 worth of the total export. The next largest share went to the United Kingdom, which took £50,000 worth, while shell to the value of £24,000 was exported to Japan.

§ 4. Development of the Fishing Industry.

1. Transport and Marketing.—Up to the present the question of adequate transport and marketing of the proved supplies of fish has not been satisfactorily dealt with in all the States. In New South Wales, as shewn in § 6 hereinafter, the matter of exploiting and marketing trawlable fish has been undertaken by the State Government, which has also taken steps to improve the conditions under which the ordinary coastal fishing is carried on.

2. Experiment and Culture.—*The Existing Fisheries.* In many respects the fishing industry is capable of modification and development. Although some valuable work has been done by the State Governments in the way of experiment and culture, a uniform policy of development for Australia is desirable, and recommendations have been made that the Fisheries Departments of the various States should co-operate with the Federal Government with a view to increasing the productiveness of the Commonwealth waters, and that uniform fisheries laws should be adopted by adjacent States.

All live fish imported into Australia are examined on shipboard in order to prevent the importation of undesirable fish.

With the object of ascertaining something of the movements of oceanic fishes, as well as of those estuarine fishes which make periodical oceanic migrations, reports are furnished regarding the various kinds of fishes, etc., and their movements along the coast.

Fuller details regarding the activities of the States in fish-culture are given in Official Year Book No. 6, pp. 471-2.

By arrangement with the Commonwealth Fisheries Department, members of the staff of the Australian Museum, Sydney, accompanied the F.I.S. "*Endeavour*" on various cruises. Specimens were collected, mounted for scientific purposes, and distributed to other Australian Museums, a considerable number being put aside for the Commonwealth Fishery Museum.

3. Consumption of Fish.—Despite the circumstance that numerous varieties of valuable food fishes abound in the coastal waters of Australia, while the freshwater rivers and lakes yield abundant supplies of natural and acclimatised species, the fishing industry has not developed to the extent that might reasonably be expected. It has been said that the Australians are not an "ichthyophagous race," but the comparatively heavy import of dried and preserved fish would appear to disprove this statement. The natural explanation seems to be that the industry is ill-managed, the price to the consumer is high, while the fisherman's gain is uncertain—and the system of distribution lacks method. Considerable improvement has, however, been effected in recent years, particularly in New South Wales (vide § 6 herein).

§ 5. The Commonwealth Department of Fisheries.

1. The Federal Council of Australasia.—The Federal Council had power to legislate with regard to fisheries in Australasian waters beyond territorial limits. In its second session (opened 16th January, 1888), an Act was passed to regulate pearlshell and bêche-de-mer fisheries in Australasian waters adjacent to Queensland; and in the third session, opened shortly afterwards, the Act was made applicable to Western Australia. Upon the passing of the Commonwealth Constitution Act of 1900, however, the Federal Council ceased to exist.

2. Commonwealth Investigations.—In 1907 the Commonwealth Government decided to demonstrate what might be attained commercially by the application of modern methods. A Federal Investigation Ship, the "*Endeavour*," was constructed specially for the work, and a Director of Fisheries was appointed. Experimental cruises were immediately undertaken. These shewed that the Commonwealth possesses an asset of considerable value in her sea fisheries. The scope and results of the inquiries are set out in the reports issued by the late Director.

3. Scope of the Inquiry.—The immediate scope laid down for the investigation was, shortly, as follows:—

- (i.) By various means of capture to ascertain what marketable food-fishes may be found in ocean waters adjacent to Australia.
- (ii.) In what quantity they may be taken.
- (iii.) To what extent they migrate, and where.
- (iv.) How they may be conveniently and economically captured.
- (v.) By systematic survey to find out and chart suitable fishing grounds.

In addition to the work which was thus carried on in the various recognised methods of capture (including long-line and drift-net fishing, etc.), hydrographic survey work, etc., was carried out for the purpose of ascertaining the nature of the sea bottom, depth of water, currents, and sea temperature.

4. **The F.I.S. "Endeavour."**—The construction of the investigation vessel was undertaken in the Commonwealth, and was upon the lines shown by the most recent European experience to be of greatest advantage, with necessary modifications to suit the Australian climate. A description of the vessel, which was the first Commonwealth-owned sea-going ship, is given in Official Year Book No. 6, p. 473. Up to the end of 1913, 85 cruises had been made in eastern and southern waters. In 1914, 13 more cruises were successfully undertaken; but the vessel with all on board, including the Director, was lost on her 99th cruise, which was commenced on 20th November, 1914.

5. **Trawling Grounds Discovered by the "Endeavour."**—According to information supplied by the Commonwealth Department of Trade and Customs, it would appear from the experiments carried out by the "Endeavour" on the shelf of the east coast of Australia, that the best trawling grounds extend from near Port Stephens, in New South Wales, past Sydney to Gabo Island, continuing across the eastern slope of Bass Strait past Flinders Island to Tasmania. These trawling grounds cover an area of approximately 6000 square miles, and are within easy access to two markets—Sydney and Melbourne. Extensive operations have been carried out on these grounds, and fish in payable quantities have been obtained.

A very rich trawling ground has also been located in the centre of the Great Australian Bight, estimated to cover an area of about 4000 square miles. The depth varies from 80 to 300 fathoms, but the greater portion of the trawlable area is situated between 100 and 200 fathoms. Excellent results were obtained by the "Endeavour" in this locality, fine rock ling and flathead being among the many choice varieties caught. This ground is situated about half-way between Adelaide and Albany, and about two days' steaming from either place.

In both of the trawling areas referred to above, considerable quantities of prime edible fish have been caught by the "Endeavour," thus demonstrating the potential value of Australia's deep-sea fisheries.

6. **The Continental Shelf.**—In addition to the primary duty of locating payable trawling grounds, extensive hydrographic surveys were carried out by the "Endeavour" along the coast from the north of Queensland to the west coast of Western Australia. Soundings, samples of the sea bottom, sea temperatures, etc., were taken, principally within the hundred-fathom line, in order to determine the suitability or otherwise of the localities for trawling. These observations were, in most instances, taken prior to the casting of the trawl net, which was the principal means of capture used by the "Endeavour" for ascertaining the richness of areas so far as the abundance of fish food was concerned. Most of the soundings have been charted and are available for public information.

The late Mr. H. C. Dannevig, formerly Director of Fisheries for the Commonwealth, in his "Report on the Continental Shelf of the East Coast of Australia" (Fisheries—Volume III., Part 6), explained how systematic surveys were carried out by him on the "Endeavour," and information obtained as to the nature of the continental shelf which surrounds the Australian continent.

The shelf consists of a narrow submerged ledge, varying in width from 10 miles to more than 100 miles, covered by a depth of less than 100 fathoms. From the outer edge of this ledge or shelf the bottom slopes away more or less abruptly towards the great ocean depths. It is within the area of the shelf that trawling grounds may be looked for.

On the east coast of Australia, the typical shelf commences at Sandy Cape in Queensland, and continues southwards. For about 360 miles, or south of Smoky Cape in latitude 31° S., the shelf presents peculiarities which gradually disappear further south. One of these peculiarities is that the shallow portion of the shelf continues seawards for a considerable distance, so that, for instance, at Double Island, the depth is only 50 fathoms. At this depth the shelf may here be said to terminate, as, at depths

from 60 to 100 fathoms, apart from being narrow and rocky, the sea floor is frequently so steep as to form part of the general slope downwards to abyssal depths. Another peculiarity is that northwards from Cape Moreton the shallow portion of the ledge is mainly covered with coral sand, which southwards gives way to a somewhat yellow sand, occasionally interspersed, in localities where the currents are strong, with gravelly beds.

Southwards from Smoky Cape the relative proportion between the inner and outer areas becomes reversed. At the Cape itself the shelf is narrow and divides into two equal belts; the shallow area of less than 50 fathoms, and a deeper stratum with an average depth of 70 fathoms. From here southwards the outer stratum becomes gradually wider at the expense of the inshore or secondary ledge, a maximum width of which is found in the Newcastle Bight, where the inshore ledge is seven to eight miles wide, while the outer ledge extends for another twenty-one miles before breaking off into the deep. Simultaneously with the appearance of the outside ledge at Smoky Cape the depth of the "break off" increases quickly to about 100 fathoms, and remains so for the remainder of the coast south to Gabo Island.

Southwards from Gabo Island the shelf widens out considerably, and consists entirely of the outward or deeper stratum, which, between 50 and 300 fathoms, is many miles wide. The edge gradually bends westward parallel with the coast until opposite the mouth of the Snowy River, where at a distance of about thirty miles from land it turns abruptly to the south. On approaching the bend, the shallow area (of less than 50 fathoms) has gradually extended at the expense of the outer ledge, and while the former continues westward through Bass Strait and connects Victoria and Tasmania, the latter extends as a relatively narrow belt along the eastern slope past Flinders Island and along the east coast of Tasmania.

The hundred-fathom line from the south of Tasmania to the western end of the Great Australian Bight was also surveyed by the "Endeavour." On that portion of the coast it was found that the continental shelf was considerably wider than on the east coast, and the slope of the shelf more gradual.

7. Publications of the Commonwealth Fisheries Department.—New and rare species of fish and marine forms secured by the "Endeavour" have been preserved, examined and described by various scientists, recognised as authorities on the subject of marine life. The following monographs have been published by the Department of Trade and Customs, the names of the authors being appended:—

SUBJECT.	AUTHOR.
<i>Mollusca</i> (2 parts)	Charles Hedley, F.L.S. (Assistant Curator and Conchologist, Australian Museum, Sydney).
<i>Fishes</i> (4 parts)	Allan R. McCulloch (Zoologist, Australian Museum).
<i>Sponges</i>	E. F. Hallmann, B.Sc. (Australian Museum).
<i>Assymetron</i>	Miss Janet W. Raff, B.Sc. (Melbourne University).
<i>Globigerina Ooze</i>	F. Chapman, B.A., A.L.S. (Palæontologist, National Museum, Melbourne).
<i>Hydroïda</i> (3 parts)	W. M. Bale, F.R.M.S.
<i>Foraminifera and Ostracoda</i>	F. Chapman, B.A., A.L.S.
<i>Algæ</i>	A. H. Lucas, M.A. (Sydney Grammar School).
<i>Polychæta</i>	William Benham, M.A., D.Sc., F.R.S. (Professor of Biology at the University of Otago, N.Z.)
<i>Gephyrean Priapulæ</i>	Do. do. do.
<i>Sea Lilies, Star Fishes, Brittle Stars and Sea Urchins</i>	Hübert Lyman Clark (Curator of Echinoderms, Museum of Comparative Zoology, Cambridge, Mass., U.S.A.).

The following papers were, in addition, prepared by the Director of Fisheries, the late H. C. Dannevig:—

First and Second Preliminary Reports on the Fishing Experiments carried out by the F.I.S. "Endeavour."

Notes on Australia's Fisheries, with a summary of the results obtained by the F.I.S. "Endeavour"

Paper on the Continental Shelf of the East Coast of Australia.

Paper on the Physiography of Bass Strait.

§ 6. The State Trawling Industry—New South Wales.

As far back as the year 1898, the New South Wales Government equipped a small vessel called "Thetis" for the purpose of investigating the potentialities of the State coastal waters in regard to the supply of edible fish. The knowledge gained from the cruises of this vessel was, of course, considerably augmented by that obtained since 1907 by the more modern methods adopted by the Commonwealth vessel "Endeavour." In view of the favourable outlook, the State Government determined to exploit the fishing industry. The necessary vessels and equipment were ordered, and by the middle of the year 1915, three steam trawlers built of steel and equipped in accordance with the most up-to-date methods had commenced operations in the coastal waters. It was not long before these vessels had proved the existence of highly valuable trawling grounds within a day's steam of Sydney Heads, and what is believed to be one of the most prolific areas in the world has been located within three hours steam of the home wharf. Nearly 3½ million lbs. of fish have been landed and sold to the public at extremely low rates in the State retail depôts as well as at occasional sales in markets and in country districts.

In addition to the three vessels mentioned above, four steam trawlers of the same general design are being built at the Government dockyards at Newcastle, and a wooden fish-carrying vessel and a general fishing vessel which will engage in surface fishing as well as trawling and bottom fishing, are being built under contract in Sydney.

Of the seven State retail fish depôts, six are in the metropolitan district, and one at Newcastle.

Moreover, in connection with the undertaking, arrangements have been made for the collection and distribution of fish taken by coastal and estuarine fishermen. With this end in view, large refrigerating stations have been built at Newcastle, Clarence River and Port Stephens. The scheme has proved a great boon to fishermen by obviating the losses caused by uncertain supply of ice and absence of facilities for marketing.

In 1915, a deputation from the Municipal Council of Sydney urged on the Minister the desirability of the Government or the City Council taking over the entire control of the fishing industry, but in view of the counter representations to the proposal, no action was taken.

§ 7. Fish Preserving.

Bounties have been provided by the Federal Government for fish preserving, the rate payable being ½d. per lb. The amounts paid were £27 in 1907-8; £1727 in 1908-9; £311 in 1909-10; £115 in 1910-11; £168 in 1911-12; £103 in 1912-13; £80 in 1913-14; £156 in 1914-15, and £106 in 1915-16. It is hoped that the bounties, together with the increased yield that may be expected to result from the fisheries investigations now being conducted, will lead to a considerable output and consumption of locally-preserved fish. Up to the present but little development has taken place, the establishments which claimed bounty for fish preserving numbering only two in 1915-16, as compared with five in the preceding year.

SECTION XII.

MINES AND MINING.

§ 1. The Mineral Wealth of Australia.

1. **Place of Mining in Australian Development.**—The value of production from the mineral industry is now considerably less than that returned by the agricultural or the pastoral industry, nevertheless it was the discovery of gold in payable quantities that first attracted population to Australia, and thus laid the foundation of its nationhood. Prior to 1851, the year when Hargraves' memorable discovery was made, coal and copper had both been mined to some extent, and the existence of deposits of other minerals, including gold, had been proved. But it was the news of the sensational finds of the precious metal in 1851 and the year immediately following that brought about a constant stream of immigration, and caused an increase in population from 221,000 at the end of 1841 to upwards of 1,168,000 at the end of 1861.

2. **Extent of Mineral Wealth.**—The large production of gold, silver, copper, and tin, the extent of the coal deposits, the presence of large quantities of iron ore, and the great variety of minerals found in appreciable quantities, suggest that the future history of mining will, in all probability, be even more remarkable than that of the past. For the extent of the total mineral wealth of Australia cannot yet be regarded as well ascertained, since the mineral exploration of the country is, after all, still in its infancy. The presence of considerable deposits of valuable minerals has long been known. Thus, coal was discovered in 1797, and a shipload was exported to Bengal in 1799; silver was discovered by Count Strzelecki as early as 1839, and was worked as early as 1864; copper mining dates back to 1844; lead to about 1848; iron to about 1850; while the discovery of gold in payable quantities dates back to 1851. Cobalt, nickel, manganese, chromium, tungsten, molybdenum, mercury, antimony, bismuth, zinc, radio-active ores, etc., have all been found, some in fairly large quantities.

Among the more valuable non-metalliferous substances may be mentioned coke, kerosene shale, graphite, alunite, asbestos, diatomaceous earth, clays, ochres, etc.; in building stones, sandstones, syenites, granites, basalts, augite-andesite, porphyries, serpentines, slates, limestones, and marbles; in precious stones, diamonds, emeralds, rubies, sapphires, amethysts, precious opal, turquoise, topazes, garnets, chrysolites, cairngorm, agates, etc. In general it may be said that the variety of Australian mineral wealth is very great.

3. **Value of Production during 1915.**—The continuance of the war in 1915 naturally had a very serious effect on the mineral industry in Australia, especially in New South Wales, where the total production for the year shewed a decrease of nearly £437,000 as compared with 1914, and of over two millions sterling in comparison with 1913. Operations on the Broken Hill field, a large proportion of the production from which was usually exported to the now belligerent countries, were, again seriously curtailed, the output of silver, lead, zinc hence shewing a decline of about £1,300,000 compared with 1913, while the export of zinc concentrates dropped by over £400,000. In Victoria, owing to the decline in the gold yield, the returns for 1915 showed a decrease in production of about £349,000. The Queensland production shews an advance of £346,000, due chiefly to increased yield from auriferous copper ores. South Australia shews an increase of over £400,000, contributed to most largely by ironstone flux, copper, and salt. For Western Australia the falling off in 1915 amounted to about £56,000, and was due entirely to the reduced gold yield. The Tasmanian production showed an increase in 1915 of about £219,000 over the return for the previous year, the improvement being due to the heavier yield from blister copper.

The comparative value of the production of minerals raised in each State during 1915 is given in the following table:—

COMMONWEALTH MINERAL PRODUCTION IN 1915.

Minerals.	N.S.W.	Victoria.	Q'land.	S.A.	W.A.	Tas.	N.T.	C'wealth.
	£	£	£	£	£	£	£	£
Alunite ...	5,680	...	...	...	...	...	...	5,680
Antimony ...	12,519	49,320	3,425	...	...	...	...	65,264
Bismuth ...	4,981	...	26,775	...	...	...	...	32,996
Coal ...	3,424,630	275,343	409,342	...	137,859	30,418	...	4,277,592
Coke ...	313,241	...	...	...	...	...	...	313,241
Copper ...	234,437	...	1,428,793	561,247	91,169	709,534	10,710	3,035,890
Diamonds	707	...	...	...	...	...	...	707
Diatomaceous earth	300	1,050	...	...	...	...	...	1,350
Gems (unspecified)...	...	...	600	...	...	...	...	600
Gold ...	562,819	1,397,793	1,060,703	25,830	5,140,228	78,784	4,182	8,270,339
Gypsum ...	...	621	...	17,413	...	...	...	18,034
Iron ...	267,000	...	...	...	...	...	...	267,000
Iron oxide	3,774	...	...	...	...	...	...	3,774
Ironstone flux	...	...	37,436	1264,612	...	...	...	302,048
Kaolin ...	627	547	...	1,934	...	...	...	3,108
Lead (pig, etc.)	689,439	...	10,638	...	39,334	...	...	739,411
Limestone flux	15,631	...	35,852	22,413	...	...	...	73,896
Manganese	535	337	820	563	3	...	...	2,258
Molybdenite	16,337	...	45,060	...	...	...	10	62,007
Opal ...	6,403	...	500	...	...	...	...	6,903
Platinum	476	...	...	...	...	...	...	476
Salt ...	...	...	...	80,000	...	...	...	80,000
Scheelite	4,004	...	117	...	...	...	...	4,121
Shale ...	12,890	...	...	...	...	...	...	12,890
Silver ...	322,244	1,250	23,972	277	24,295	...	...	372,038
Silver-lead ore, concentrates etc.)	2,309,418	...	...	625	...	91,689	1,073	2,402,805
Tin ...	266,780	9,447	183,472	...	41,391	292,306	13,245	806,641
Wolfram...	5,031	883	54,300	35	25	11,115	5,278	76,667
Zinc ...	1,111,569	...	...	...	143	...	...	1,111,712
Unenumerated	6,107	567	556	25,913	3,665	*10,526	...	47,334
Total ...	9,598,179	1,737,158	3,322,361	1,000,862	5,478,149	1,225,575	34,498	22,396,762

* Osmiridium, £1,581; Iron pyrites, £8,945.

† Iron Ore from Iron Knob.

It may be pointed out in connection with the figures given in the above table that the totals are exclusive of returns relating to certain commodities, such as stone for building and industrial uses, sand, gravel, brick clays, lime, cement, and slates, which might rightly be included under the generic term "mineral." Valuations of the production of some of these may be obtained from the reports of the various Mines Departments, but in regard to others it is impossible to obtain adequate information. In some instances, moreover, the published information is of little value. Thus, the New South Wales Mines Report supplies the value of exports only in connection with building stone, and it is obvious that such figures are of little value as regards production, while the Victorian figures are incomplete. It has therefore been considered advisable to discard both totals. By restricting the comparison to items in connection with which properly comparable information can be obtained for each State, it is believed that a satisfactory estimate of the progress of the mineral industry can be more readily obtained. The items excluded from the total for New South Wales in 1915 consist of—lime, £42,756; marble, £4187; Portland cement, £418,583; building stone, £657; and grindstones, £20. The South Australian figures are exclusive of flint pebbles, £1,023. For South Australia the principal items in the unenumerated class were phosphate rock, £5536; fireclay, £5374; while the sulphur contents of the copper ores were valued at £13,490.

4. Total Production to end of 1915.—In the next table will be found the estimated value of the total mineral production in each State up to the end of 1915. The figures given in this table are also exclusive of the same items referred to in connection with the preceding table. Thus the total for New South Wales falls short by £3,545,000 of that published by the State Department of Mines, the principal items excluded being cement, £3,076,000; lime, £409,000; and building stone, £26,000.

COMMONWEALTH MINERAL PRODUCTION TO END OF 1915.

Minerals.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	North'n Territory.	C'wealth.
	£	£	£	£	£	£	£	£
Gold	61,190,370	296,703,957	78,466,975	1,001,021	125,258,153	7,739,417	2,093,877	572,453,770
Silver and lead	71,328,237	224,799	2,453,027	341,665	927,337	6,766,659	78,665	82,120,409
Copper	12,891,943	218,590	15,156,018	29,214,272	1,354,208	11,836,220	345,458	71,048,709
Tin	10,282,811	804,041	8,814,042	...	1,212,467	13,056,191	382,869	34,552,421
Coal	80,020,454	3,301,772	6,606,636	...	1,509,592	656,601	...	92,095,055
Other	22,918,878	535,025	2,561,297	2,093,648	94,489	261,004	56,835	28,521,176
Total	258,632,693	301,788,184	114,057,995	32,650,626	130,386,246	40,318,092	2,957,704	880,791,540

The "other" minerals in New South Wales include antimony, £318,614; bismuth, £137,557; chrome, £102,617; coke, £2,873,966; diamonds, £127,696; iron, £2,821,295; opal, £1,392,637; oil shale, £2,370,433; wolfram, £165,023; and zinc, £11,220,180. In the Victorian returns antimony ore was responsible for £350,983. Included in "other" in the Queensland production were opal, £177,695; gems, other, £285,894; bismuth and wolfram, £964,638; antimony ore, £54,378; manganese, £65,719; limestone flux, £386,033; and ironstone flux, £307,233. The chief item in South Australian "other" minerals was salt, £992,888, but large values must also be apportioned to limestone flux, the yield from the latter amounting to over £500,000 in the last 10 years. Considerable values from gypsum and rock phosphates are also included. In the Tasmanian returns limestone flux was responsible for nearly £100,000, and iron ore for about £26,000.

It will be convenient in the succeeding pages to deal first with gold and the various metals, then with non-metallic minerals and precious stones, and finally to furnish some account of the extent of employment in mining generally.

(A) METALS.

§ 2. Gold.

1. **Discovery of Gold in Various States.**—The discovery of gold in payable quantities was an epoch-making event in Australian history, for, as one writer aptly phrases it, this event "precipitated Australia into nationhood." A more or less detailed account of the finding of gold in the various States appears under this section in Official Year Books Nos. 1 to 4, but considerations of space preclude its repetition in the present issue.

2. **Production of Gold at Various Periods.**—In the following table will be found the value of the gold raised each year in the several States and in the Commonwealth from the dates when payable discoveries were first reported. Owing to defective information in the earlier years the figures fall considerably short of the actual totals, for during the first stages of mining development large quantities of gold were taken out of Australia by successful diggers, who preferred to keep the amount of their wealth secret. For South Australia the records in the earlier years are somewhat irregular, and the remark applies to some extent also to the returns for Western Australia and Tasmania.

In New South Wales the yield for 1915 was about 8000 ozs. higher than in 1914, but with the exception of that year it was the lowest recorded since 1890. In Victoria the yield for 1915 shewed a decrease of 84,150 ozs. fine on that for the preceding year. The falling off was largely due to decreased returns from various quartz mines at Bendigo, where the output diminished by 37,411 ozs. A decrease of 8,000 ozs. resulted from the closing of the Cathcart mine at Ararat. From cyaniding tailings the returns were over 18,000 ozs. less, and from dredging nearly 7,000 ozs. less than in the preceding year. In Queensland the actual yield of gold was slightly higher than in 1914, but the increase was due to larger returns from the auriferous copper ores. There was a slight falling-off in South Australia. For Western Australia the figures shew a decrease of over 23,000 oz. in 1915, as compared with 1914, diminished returns being recorded in the Coolgardie,

Dundas, East Coolgardie, East Murchison, Kimberley, Murchison, North Coolgardie, and Phillips' River fields. For Tasmania there was a decline of about 7700 ozs., chiefly due to the closing of the Tasmania Gold Mine at Beaconsfield.

VALUE OF GOLD RAISED IN AUSTRALIA, 1851 to 1915.

Year.	N.S.W.	Victoria.	Q'sland.	S.A.	W.A.	Tas.	N.T.	C'wealth.
	£	£	£	£	£	£	£	£
1851	468,336	851,596	...	...	...	...	...	1,319,932
1852	2,660,946	9,146,140	...	...	...	...	...	11,807,086
1853	1,781,172	10,976,392	...	...	...	...	...	12,757,564
1854	773,209	8,873,932	...	...	...	...	...	9,647,141
1855	654,594	11,277,152	...	...	...	...	...	11,931,746
1856	689,174	11,214,976	...	8,800	...	...	...	12,912,950
1857	674,477	11,320,852	...	876	...	...	...	11,996,205
1858	1,104,175	10,384,824	...	2,348	...	...	...	11,491,447
1859	1,259,127	9,394,912	...	730	...	...	...	10,654,669
1860	1,465,373	8,896,276	11,631	...	...	...	...	10,373,280
1861	1,806,171	8,140,692	3,137	...	...	...	...	9,950,000
1862	2,467,780	6,920,804	499	12,442	...	...	...	9,401,525
1863	1,796,170	6,779,276	11,820	...	...	...	...	8,587,266
1864	1,304,926	6,489,788	66,513	...	...	...	...	7,861,227
1865	1,231,243	6,446,216	74,216	...	...	...	...	7,751,675
1866	1,116,404	6,187,792	68,325	...	...	...	...	7,372,521
1867	1,053,578	6,005,784	151,125	...	...	4,382	...	7,214,869
1868	994,665	6,739,672	473,956	2,936	...	2,636	...	8,213,765
1869	974,149	6,179,024	417,681	15,593	...	514	...	7,586,961
1870	931,016	5,217,216	390,925	24,217	...	7,475	...	6,570,849
1871	1,250,485	5,475,768	492,635	6,000	...	14,218	...	7,239,106
1872	1,644,177	5,325,508	527,365	6,363	...	16,055	...	7,519,468
1873	1,396,375	4,681,588	572,996	2,293	...	18,390	...	6,669,642
1874	1,041,614	4,390,572	1,052,899	4,175	...	18,491	...	6,537,751
1875	877,694	4,273,668	1,196,583	7,034	...	11,982	...	6,366,961
1876	613,190	3,855,040	1,140,282	9,888	...	44,923	...	5,663,323
1877	471,448	3,238,612	1,043,780	...	...	23,289	...	4,777,129
1878	430,200	3,032,160	1,149,240	1,225	...	100,000	...	4,712,825
1879	407,219	3,035,788	1,034,216	90	...	230,895	...	4,708,208
1880	444,253	3,216,484	944,869	...	...	201,297	...	4,906,903
1881	573,582	3,333,512	957,570	880	...	216,901	111,945	5,194,390
1882	526,522	3,458,440	785,868	3,080	...	187,337	82,274	5,043,521
1883	458,530	3,121,012	736,810	10,534	...	176,442	77,195	4,580,523
1884	396,059	3,114,472	1,062,471	15,469	...	160,404	77,935	4,826,810
1885	378,665	2,940,872	1,062,514	18,295	...	155,309	70,414	4,626,069
1886	366,294	2,660,784	1,187,189	32,535	...	117,550	63,139	4,428,339
1887	394,579	2,471,004	1,481,990	72,003	18,517	158,533	68,774	4,665,400
1888	317,241	2,600,104	1,690,477	34,205	13,273	147,154	34,802	4,737,256
1889	434,784	2,459,352	2,695,629	37,305	58,871	119,708	47,651	5,853,295
1890	460,285	2,354,240	2,182,563	20,808	86,664	75,888	80,769	5,261,217
1891	559,231	2,305,596	2,030,812	27,380	115,182	145,459	98,701	5,281,861
1892	575,299	2,617,824	2,164,391	26,097	226,284	158,917	109,668	5,878,470
1893	651,286	2,684,504	2,167,794	12,561	421,385	141,326	108,130	6,186,986
1894	1,156,717	2,867,316	2,330,282	33,401	787,099	217,024	109,699	7,502,038
1895	1,315,929	2,960,344	2,150,561	26,060	879,748	296,115	102,816	7,641,573
1896	1,073,360	3,220,348	2,132,979	14,350	1,068,608	237,574	81,210	7,828,629
1897	1,104,315	3,251,064	2,552,668	39,020	2,564,977	296,660	81,210	9,889,914
1898	1,201,743	3,349,023	2,750,348	10,676	3,990,698	291,496	84,789	11,678,778
1899	1,623,320	3,418,008	2,838,446	15,582	6,246,732	327,545	63,565	14,533,190
1900	1,070,920	3,229,628	2,871,578	14,494	6,007,610	316,320	67,988	13,578,438
1901	737,164	3,102,753	2,541,764	16,613	7,235,653	295,176	76,609	14,005,732
1902	684,970	3,063,028	2,720,512	24,878	7,947,661	301,573	70,325	14,811,947
1903	1,080,029	3,259,482	2,839,801	28,650	8,770,719	254,403	61,600	16,294,684
1904	1,146,109	3,252,045	2,714,934	76,025	8,424,226	280,015	3,983	15,897,337
1905	1,165,013	3,173,744	2,517,295	45,853	8,305,554	312,380	30,971	15,550,910
1906	1,078,866	3,280,478	2,313,464	27,000	7,622,749	254,963	54,235	14,631,745
1907	1,050,730	2,954,617	1,978,998	20,540	7,210,749	277,607	31,928	13,515,179
1908	954,854	2,849,838	1,975,554	12,300	6,999,882	242,482	23,943	13,058,853
1909	869,546	2,778,956	1,935,178	30,206	6,776,274	190,201	24,148	12,604,509
1910	802,211	2,422,745	1,874,955	28,000	6,246,848	157,370	21,711	11,553,940
1911	769,353	2,148,855	1,640,323	15,000	5,823,075	132,108	30,910	10,551,624
1912	702,129	2,039,464	1,477,979	28,000	5,443,385	161,300	32,671	9,879,928
1913	635,703	1,847,475	1,123,768	27,800	5,581,701	141,876	13,250	9,376,573
1914	528,873	1,755,236	1,059,674	26,581	5,237,353	111,475	10,757	8,739,949
1915	562,819	1,397,793	1,060,703	25,830	5,140,228	78,784	4,182	8,270,339
Total	61,190,370	296,703,957	78,466,975	1,001,021	125,258,153	7,739,417	3,093,877	572,453,770

The amount of gold raised in the Commonwealth in any one year attained its maximum in 1903, in which year Western Australia also reached its highest point. For the other States of the Commonwealth the years in which the greatest yields were obtained were as follows:—New South Wales, 1852; Victoria, 1857; Queensland, 1900; South Australia, 1904; and Tasmania, 1899.

The following table shows the quantity in fine ounces of gold raised in each State and in the Commonwealth during each of the last ten years, the value of one ounce fine being £4 4s. 11 $\frac{1}{2}$ d.:—

QUANTITY OF GOLD PRODUCED IN THE COMMONWEALTH, 1906 to 1915.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Nor. Ter.	C'wealth.
	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.
1906	253,987	772,290	544,636	8,037	1,794,548	60,023	11,085	3,444,606
1907	247,363	695,576	465,882	5,609	1,697,555	65,354	4,389	3,181,728
1908	224,792	670,909	465,085	2,908	1,647,912	57,085	5,624	3,074,315
1909	204,708	654,222	455,579	7,111	1,595,270	44,777	5,685	2,967,352
1910	188,857	570,362	441,402	6,603	1,470,633	37,048	5,100	2,720,005
1911	181,120	504,000	386,165	3,537	1,370,868	31,101	7,277	2,484,068
1912	165,295	480,131	347,946	6,592	1,282,658	37,973	7,811	2,328,406
1913	149,657	434,933	265,735	6,545	1,314,044	33,400	3,119	2,207,433
1914	124,507	413,218	249,468	6,258	1,232,977	26,243	2,532	2,055,203
1915	132,498	329,068	249,711	6,081	1,210,112	18,547	985	1,947,002

3. Changes in Relative Positions of States as Gold Producers.—A glance at the figures in the table shewing the value of gold raised will sufficiently explain the enormous increase in the population of Victoria during the period 1851 to 1861, when an average of over 40,000 persons reached the State each year. With the exception of the year 1889, when its output was surpassed by that of Queensland, Victoria maintained its position as the chief gold-producer for a period of forty-seven years, or up to 1898, when its production was outstripped by that of Western Australia, the latter State from this year onward contributing practically half the entire yield of the Commonwealth. New South Wales occupied the second place on the list until 1874, when Queensland returns exceeded those of the parent State, a condition of things that has been maintained ever since. South Australia has occupied the position of lowest contributor to the total gold yield of the Commonwealth since the year 1871. Taking the average of the last ten years, the relative position of each State in regard to the gold production of the Commonwealth was as follows:—

RELATIVE POSITION OF STATES AS GOLD PRODUCERS, 1906 to 1915.

State.	Annual Average of Gold Production, 1906 to 1915.	Percentage on Commonwealth.	State.	Annual Average of Gold Production, 1906 to 1915.	Percentage on Commonwealth.
Commonwealth ...	£ 11,217,247	100.00	New South Wales	£ 795,508	7.09
Western Australia	6,208,724	55.35	Tasmania ...	174,817	1.56
Victoria ...	2,346,746	20.92	South Australia	24,126	0.22
Queensland ...	1,644,554	14.66	North'n Territ'y	22,772	0.20

4. Methods of Gold Mining adopted in Each State.—(i.) *New South Wales.* In New South Wales the earlier "rushes" were to surface alluvial or shallow-sinking grounds. Many of these were apparently soon worked out, but there is reason to believe that in some instances payable results would be obtained by treating the rejected wash-dirt on more scientific principles. With the exhaustion of the surface deposits discoveries were made by sinking to what are called deep alluvial leads, representing the beds of old drainage channels in Pliocene and Pleistocene times. The first of these deep alluvial leads was discovered at Forbes, in New South Wales, in 1862. The Tertiary deep leads at Gulgong were discovered in 1871. Cretaceous leads occur at Tibobourra, and detrital gold has been found in permo-carboniferous conglomerates at Tallawang. The method of dredging is at present being extensively used for winning gold from

the beds of running streams, and from loose river flats and other wet ground where sinking would be impracticable. The system was introduced from New Zealand, where it was originally applied with great success on the Clutha River, and there are now dredges working on practically all the auriferous rivers of New South Wales. Hydraulic sluicing is employed also in several places, the necessary machinery being fitted to a pontoon for convenience in moving from place to place. The quantity of alluvial gold obtained, other than by dredging, amounted to 4183 ozs. in 1915, the chief yields being—Hill End, 246 ozs.; Windeyer, 386 ozs.; Braidwood, 233 ozs.; Major's Creek, 416 ozs.; Adelong, 283 ozs.; Sofala, 284 ozs. The quantity obtained by dredging was 22,146 ozs.; the largest returns being obtained at Araluen, 8300 ozs.; Adelong, 6900 ozs.; Braidwood, 809 ozs.; Gundagai, 3751 ozs.; Stuart Town, 1681 ozs.; Tumbaramba, 239 ozs. The dredges in operation during 1915 numbered 66, of which 22 were of the bucket type and 44 were suction plants. In the recovery of gold 17 bucket dredges and 5 pumping plants were employed, while 5 bucket dredges and 39 pumping plants were engaged in the winning of stream tin. The value of the plants in operation was estimated at £327,393. The quantity of gold won from quartz amounted to 74,749 ozs. At the present time the Cobar district is the chief centre of the production from quartz, the yields from the Cobar and Canbelego fields included therein being respectively 10,965 ozs. and 28,454 ozs. Next come the Wellington field with 7729 ozs.; Hill End, 4246 ozs.; Wyalong, 3836 ozs.; Peak Hill, 3676 ozs.; and Adelong, 3635 ozs. The Mount Boppy mine in the Cobar district has for some years been the premier gold mine in the State.

The table below shews as far as can be ascertained the yield from alluvial and quartz mining in each of the principal districts during 1915. Owing to the circumstance that it was impossible to obtain complete returns from all the mine and battery owners the total for the State necessarily falls short of that given in preceding pages.

GOLD WON IN NEW SOUTH WALES, ALLUVIAL AND QUARTZ, 1915.

District.	Alluvial.		Quartz.	Total.
	Other than by Dredging.	By Dredging.		
	ozs.	ozs.	ozs.	ozs.
Albert	100	...	845	945
Bathurst	775	...	3,272	4,047
Clarence and Richmond	380	...	71	451
Cobar ... ..	...	...	39,419	39,419
Hunter and Macleay ... ..	...	...	365	365
Lachlan	270	3,751	5,820	9,841
Mudgee	479	44	11,440	11,963
New England	60	...	102	162
Peel and Uralla	292	148	1,807	2,247
Southern	743	9,375	3,031	13,149
Tambaroora and Turon	605	1,681	4,610	6,896
Tumut and Adelong	479	7,147	3,967	11,593
Total	4,183	22,146	74,749	101,078

(ii.) *Victoria.* Lode mining predominates in Victoria, although a considerable amount of gold is obtained from alluvial workings, both surface and deep leads. The deepest mines in Australia are found in the Bendigo district, where the two deepest shafts were at the beginning of 1915, 4614 and 4318 feet deep respectively. Altogether there were in 1915 no less than fifty-three shafts in this district which had reached a depth of over 2000 feet. A considerable amount of attention is given to dredging and hydraulic sluicing, particularly in the Beechworth, Maryborough, Castlemaine, Ararat, Stawell, and Ballarat districts, the number of plants in operation at the end of

1915 being 72, of which 42 were bucket dredges, 21 pump hydraulic sluice, and 9 jet elevator. The total quantity of gold won by dredging and sluicing in 1915 was 50,152 ozs., and the total area treated being 366 acres. Tin to the value of £8640 was also won. The yields from alluvial workings and quartz reefs as returned (in crude ounces) from the chief mining districts of the State during last year were as follows:—

GOLD WON IN VICTORIA, ALLUVIAL AND QUARTZ, 1915.

District.	Alluvial.	Quartz.	Total.
	Ozs.	Ozs.	Ozs.
Ararat and Stawell	26,786	6,006	32,792
Ballarat	10,010	33,436	43,446
Beechworth	3,583	118,966	122,549
Bendigo	39,150	22,261	61,411
Castlemaine	8,944	39,940	48,884
Gippsland	3,902	5,082	8,984
Maryborough	25,091	6,661	31,752
Total	117,466	232,352	349,818

The largest output from lode mines in 1915 was furnished by the A1 Gaffney's Creek, with 11,762 ozs., followed by the Ajax Central at Daylesford, with 11,463 ozs. Of the deep alluvial mines the Cathcart Central Company, at Ararat, produced 14,348 ozs. In dredging, Cook's Pioneer, at Beechworth, was the most successful, with 5535 ozs. of gold, and tin to the value of £7500.

(iii.) *Queensland.* Operations in Queensland are at present chiefly confined to reefing, the yield from alluvial in 1915 being only 1960 ozs., of which 700 ozs. were won at the Batavia River and 330 ozs. at Gympie, while the quantity produced from stone treated was 117,222 ozs.; from copper and other ores 125,301 ozs.; and from old tailings 5,228 ozs.; making a total production of 249,711 ozs., valued at £1,060,703. The yields from the principal fields are given below:—

GOLD WON IN QUEENSLAND, ALLUVIAL AND QUARTZ, 1915.

District.	Alluvial.	From Stone Treated.	From Copper and other Ores and old Tailings.	Total.
	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.
Charters Towers	217	56,414	257	56,888
Gympie	333	40,269	854	41,456
Mount Morgan	13	144	120,567	120,724
Ravenswood ... ..	...	8,980	...	8,980
Croydon ... ..	...	2,155	1,312	3,467
Etheridge, Oaks and Woolgar	146	5,204	1,197	6,547
Cloncurry	73	3	4,519	4,595
Gladstone	71	209	706	986
Rockhampton	11	42	...	53
Chillagoe	9	2,498	742	3,249
Other districts	*1,087	1,304	375	2,766
Total	1,960	117,222	130,529	249,711

* Including 700 ozs. from Batavia River, and 241 ozs. from the Palmer Goldfield.

(iv.) *South Australia.* In South Australia alluvial gold has been worked for many years in the gullies round Adelaide, while a fair amount of gold has been obtained by this method at Teetulpa, in the northern areas. The battery and cyanide returns as published in the "Mining Review" shew that the chief producing centres in 1915 were Tarcoola, Wadnamanga, and Deloraine.

(v.) *Western Australia.* The auriferous deposits of Western Australia may be grouped under three headings—(1) Superficial deposits, (2) Deposits in beds of conglomerate, and (3) Lode and vein deposits. The first class includes a number of deposits of alluvial type, either in the beds of existing watercourses or in deep leads, up to 100 feet or more below present surface level. Associated with these are deposits of crystalline gold in "pug," oxide of iron, and soft weathered portions of underlying bed rock. Considerable areas of auriferous surface soil are also found, and these have apparently originated from the denudation by weathering of the bed rock and its associated veins. The shallow surface deposits have been worked by ground sluicing wherever water was available, but the most of the ground has been worked by "dry-blowing." The pug and clayey bedrock are usually treated in puddling machines or stamp batteries and Huntington mills or by a combination of both methods. In regard to (2) it may be noted that in several localities on the Pilbara goldfield and in one on the Yalgoo, gold has been found in conglomerate of the Nullagine series of rocks, now tentatively accepted as of Cambrian age. The gold is crystalline and is confined to the interstitial cementing material. Occasional occurrences of gold are met with in laterite conglomerate of tertiary and post tertiary age, and at Kintore in conglomerate of the same age. Lode and vein deposits alluded to in (3) are found in great variety in Western Australia. The gold is always found associated with iron pyrites in the un-oxidised portions of the lodes, and often also with copper pyrites, arsenical pyrites and galena. Tellurides of gold occur at times, and scheelite is a common accessory mineral. The principal auriferous rocks are of very great geological age, most probably pre-Cambrian, and possibly Archæan, and have all been subjected to intense metamorphism. It is found that the rich veins are not restricted to any one particular description of rock—granite, quartz, porphyry, quartz dolerite, diorite, etc., and even metamorphic sedimentary country rock have been found to carry them in various parts of the State. The total production of gold from all sources during 1915 was 1,210,112 ounces, of which only about 0.2 per cent. was alluvial. The yields in each district were as shewn below:—

GOLD WON IN WESTERN AUSTRALIA, ALLUVIAL AND QUARTZ, Etc., 1915.

Goldfields.	Alluvial.	Dollied and Specimens.	Crushed.	Total.
	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.
East Coolgardie	18	2,424	668,346	670,788
East Murchison	5	1,568	56,509	58,082
Mount Margaret	143	1,794	104,626	106,563
Murchison	355	3,197	104,497	108,049
North Coolgardie	31	242	59,241	59,514
Coolgardie	216	464	17,635	18,315
Phillips River ... ..	...	...	3,817	3,817
North-east Coolgardie	9	550	10,302	10,861
Yilgarn	12	19	91,092	91,123
Broad Arrow	138	1,045	21,108	22,291
Peak Hill	113	...	2,710	2,823
Pilbara	634	40	7,868	8,542
Dundas ... ..	...	344	23,540	23,884
Yalgoo ... ..	...	138	8,704	8,842
West Pilbara	260	18	1,229	1,507
Kimberley	144	...	...	144
Other goldfields ... ..	...	...	354	354
Total	2,078	11,843	1,181,578	1,195,499

The figures in the previous table are compiled from returns from the individual mines and are somewhat incomplete; the total is therefore less than that shewn on page 416, which represents mint and export returns.

(vi.) *Tasmania.* The yield from Tasmania is chiefly obtained from quartz reefing, although there is a little alluvial mining carried on, as shewn in the table hereunder. The yields as returned from each district in 1915 are given below:—

GOLD WON IN TASMANIA, ALLUVIAL AND QUARTZ, 1915.

District.	Quartz.	Alluvial.	Cyanide.	Blister Copper.	Total.
	Ozs.	Ozs.	Ozs.	Ozs.	Ozs.
Beaconsfield	26	6	4,690	...	4,722
Mathinna	3,647	...	...	...	3,647
Mt. Victoria	502	43	...	...	545
Warrentinna					
Mt. Cameron	8	75	...	...	83
Lefroy					
Lisle... ..					
Golconda	21	205	...	...	226
Lilydale					
West Coast	19	67	...	9,869	9,355
Total	4,223	396	4,690	9,869	19,178

The total production was valued at £78,784, equal to 18,547 ozs. fine, of which about 4,688 ounces were produced by the Tasmania Gold Mine Ltd., at Beaconsfield. During the year 1915, about 10,000 ounces of gold were produced from the ores treated at the reduction works of the Mt. Lyell Mining and Railway Co. Ltd.

(vii.) *Northern Territory.* Pine Creek is the chief mining field in the Northern Territory, but operations have for many years been carried on in a desultory manner, chiefly by Chinese labour. It is stated that the field has been unfairly exploited, the rich pockets only having been scooped out without any systematic prospecting. Confidence in the auriferous prospects of the area has been shaken by the failure of various companies, but in the view of the Mines Department the ground has not been properly tested or systematically mined, and the Department proposes to sink to a depth of 300 feet and prove that with proper methods the area is worthy of renewed exploration. The metal is also worked at Bridge Creek and Tanami fields.

5. Remarkable Masses of Gold.—Allusion has already been made in preceding Year Books to the discovery of "nuggets" and other remarkable masses of gold, but it is not proposed to repeat this information in the present issue. It may be noted, however, that in 1913 nuggets yielding 180 ozs., 50 ozs., and 23 ozs. were obtained at Poseidon in Victoria. In the same State also, and near the spot at Moliagul where the famous "Welcome Stranger," weighing 2284 ozs., was discovered in 1869, a mass of quartz yielding 94 ozs. of gold was obtained in 1913. A small lump of quartz from a mine at Tallangatta furnished 44 ozs. In an alluvial deposit at Corindhap four nuggets weighing respectively 100, 60, 60, and 30 ozs. were obtained at a depth of 13 feet.

6. Modes of Occurrence of Gold in Australia.—This subject has been alluded to at some length in preceding issues of the Year Book, but considerations of space will not permit of repetition in the present issue.

7. Place of Commonwealth in the World's Gold Production.—In the table given below will be found the estimated value of the world's gold production, and the share of the Commonwealth therein during the ten years 1906 to 1915. The figures given in the table have been compiled chiefly from returns obtained directly by the Commonwealth Bureau of Census and Statistics from the gold-producing countries of the world.

WORLD'S GOLD PRODUCTION, 1906 to 1915.

Year	World's Production of Gold.	Gold produced in Commonwealth.	Percentage of C'wealth on Total.
	£	£	%
1906	83,170,000	14,636,000	17.60
1907	84,741,000	13,518,000	15.95
1908	92,157,000	13,062,000	14.17
1909	92,924,000	12,611,000	13.57
1910	93,452,000	11,554,000	12.36
1911	94,938,000	10,552,000	11.11
1912	96,820,000	9,880,000	10.20
1913	92,361,000	9,377,000	10.15
1914	92,008,000	8,730,000	9.49
1915	100,527,000	8,270,000	8.23

While the production of gold in the Commonwealth shows a considerable decrease during the eighteen years from 1897 to 1915, the world's total production more than doubled itself in the same period. The following table will be found interesting as shewing the various foreign countries where the chief increases have taken place during the interval in question:—

INCREASE IN GOLD YIELD, VARIOUS COUNTRIES, 1897 to 1915.

Country.	1897.	1900.	1913.	1914.	1915.
	£	£	£	£	£
United States ...	11,787,000	16,269,000	18,264,000	19,425,000	20,761,000
Canada ...	1,240,000	5,742,000	3,411,000	3,284,000	3,900,000
Mexico ...	2,045,000	1,884,000	3,861,000	3,737,000	3,280,000
Transvaal ...	11,654,000	1,481,000	37,373,000	35,657,000	33,628,000
Rhodesia ...	800	308,000	2,931,000	3,630,000	3,887,000
Gold Coast ...	85,000	38,000	1,649,000	1,744,000	1,720,000
Madagascar ...	8,500	142,000	246,000	222,000	286,000
India ...	1,571,000	1,893,000	2,292,000	2,333,000	2,370,000
Corea ...	208,000	371,000	677,000	680,000	768,000
Japan ...	142,000	290,000	897,000	920,000	1,342,000
Java ...	24,000	112,000	531,000	547,000	547,000
Costa Rica ...	2,000	31,000	88,000	104,000	152,000

The largest increase was recorded in the Transvaal, where the production more than trebled itself in the eighteen years 1897 to 1915.

8. Employment in Gold Mining.—The number of persons engaged in gold mining in each State in 1901 and during each of the last five years is shewn in the following table:—

PERSONS EMPLOYED IN GOLD MINING, 1901 and 1911 to 1915.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Terr.	C'w'lth.
	No.	No.	No.	No.	No.	No.	No.	No.
1901 ...	12,064	27,387	9,438	1,000	19,771	1,112	200	70,972
1911 ...	4,650	14,015	5,227	920	15,428	570	358	41,168
1912 ...	3,898	11,856	3,981	920	13,700	485	263	35,103
1913 ...	3,570	11,931	3,123	800	13,445	481	175	33,525
1914 ...	3,443	10,398	2,793	375	12,110	402	180	29,701
1915 ...	2,888	8,755	2,766	200	11,323	215	99	26,246

§ 3. Platinum and the Platinoid Metals.

1. **Platinum.**—(i.) *New South Wales.*—The existence of platinum was first noted in New South Wales in 1851 by Mr. S. Stutchbury, who found a small quantity near Orange. Since the year 1878 small quantities of the metal have been obtained from beach sands in the northern coastal district. Platiniferous ore was noted in 1889 at Broken Hill. The chief deposits at present worked in the State are situated at Platina in the Fifield division, near Parkes, but the entire production in 1915 was small, amounting to only 56 ozs., valued at £476, while the total production recorded to the end of 1915 amounted to 13,732 ozs., valued at £34,750.

At Platina, gold is found in association with the platinum, and it is estimated that there are 200 acres of metalliferous country sufficiently rich to yield a satisfactory return, provided it were worked on a large scale with an abundant water supply.

(ii.) *Victoria.* In Gippsland, Victoria, the metal has been found in association with copper. The production of platinum in 1913 amounted to 127 ozs., and was contained in matte produced by the Gippsland Copper, Platinum, and Gold Mining and Smelting Company, from ores raised from the old mine at Cooper's Creek. There was no production in 1914 and 1915.

2. **Osmium, Iridium, etc.**—(i.) *New South Wales.* Small quantities of osmium, iridium, and rhodium are found in various localities. As far back as 1860, the Rev. W. B. Clarke states that he found native iridium. Platinum, associated with iridium and osmium, has been found in the washings from the Aberfoil River, about 15 miles from Oban; on the beach sands of the northern coast; in the gem sand at Bingara, Mudgee, Bathurst, and other places. In some cases, as for example in the beach sands of Ballina, the osmiridium and other platinoid metals amount to as much as 40 per cent. of the platinum, or about 28 per cent. of the whole metallic content.

(ii.) *Victoria.* In Victoria, iridosmine has been found near Foster, and at Waratab Range, South Gippsland.

(iii.) *Tasmania.*—For many years osmiridium has been known to exist in the bed of the Savage River, on the West Coast, and in rivulets and creeks in the Serpentine country, but it was not until early in 1911 that efforts were made to work the deposits. During that year the price paid for the mineral was as high as £7 10s. per oz., and about 100 men were engaged in the search for it. The quantity produced amounted to 272 ozs., valued at £1888. In 1912 the production was 779 ozs., valued at £5742, or an average of £7 7s. 9d. per oz. The production in 1913 amounted to 1262 ozs., valued at £12,016, in 1914 to 1019 ozs., valued at £10,076., and in 1915 to 246 ozs., valued at £1,581. A specimen found by a prospector at the Whyte River weighed 2 ozs. 8 dwt. 7 gr. It is stated that the selling price has occasionally reached as high as £11 per oz., but this extraordinary value is dependent on causes which are not too well known. Owing to the war, the market in 1914 was for a time closed, but a parcel of 13 ozs. forwarded to America was sold at an average of £5 13s. 6d. per oz. Besides a steady and increasing use in the manufacture of fountain pens there is at present some demand for iridium and osmiridium in connection with the prevailing fashion in hard platinum jewellery.

§ 4. Silver.

1. **Occurrence in Each State.**—Particulars regarding the occurrence of silver in each State will be found in preceding Year Books, Nos. I. to V., but considerations of space preclude the repetition of this matter in the present volume.

2. **Development of Silver Mining.**—In illustration of the development of silver mining in Australia the following table has been compiled, shewing the production of silver, silver-lead and ore, and lead from each State during the years 1881, 1891, 1901, and the five years ending 1915:—

PRODUCTION OF SILVER AND LEAD, AUSTRALIA, 1881 to 1915.

Year.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tasmania.	North. Terr.	C'wealth.
	£	£	£	£	£	£	£	£
1881	...	5,239	13,494	1,182	11,224	...	...	31,139
1891	3,621,614	6,017	21,879	1,787	250	62,138	4,140	3,717,825
1901	1,954,964	6,550	69,234	3,886	7,718	325,335	...	2,367,687
1911	2,652,548	2,070	79,765	140	33,335	*253,361	...	3,021,219
1912	3,745,796	2,000	121,855	326	41,995	309,098	820	4,221,890
1913	4,173,867	2,074	134,121	1,400	82,422	319,997	2,228	4,716,109
1914	3,611,369	1,540	38,640	529	69,228	96,225	545	3,818,076
1915	3,321,101	1,250	23,972	902	63,629	91,689	1,073	3,503,616

* Exclusive of silver to the estimated value of £42,831 contained in blister copper.

New South Wales. The figures quoted for New South Wales in the above table represent the *net* value of the product (excluding zinc) of the silver-lead mines of the State. In explanation of the values thus given, it must be noted that the metallic contents of the larger portion of the output from the silver-lead mines in the State are extracted outside New South Wales, and the Mines Department considered, therefore, that the State should not take full credit for the finished product. Hence the *net* value referred to above relates to that of the ore, concentrates, and bullion, as declared by the several companies to the Customs Department at date of export. The real importance of the State as a producer of silver, lead, and zinc is thus to some extent lost sight of. The next table, however, which indicates the quantity and value of these metals locally produced, and the quantity and value of concentrates exported during the last five years, will shew the estimated total value of the yield:—

VALUE OF PRODUCTION FROM SILVER-LEAD MINES OF NEW SOUTH WALES, 1911 TO 1915.

Year.	Value of Silver, Lead, and Spelter produced within the C'wealth.	Value of Concentrates Exported.	Total.
	£	£	
1911	1,949,271	3,259,246	5,208,517
1912	2,477,442	3,692,352	6,169,794
1913	2,709,867	3,759,691	6,469,558
1914	2,592,322	3,004,243	5,596,570
1915	1,684,717	3,176,434	4,811,151

As regards silver alone, the following table, which has been prepared on a basis similar to that on which the preceding table was compiled, shews the estimated total quantity and value of that metal yielded by the mines of New South Wales up to the end of 1905 and during the last ten years:—

ESTIMATED QUANTITY AND VALUE OF SILVER YIELDED BY MINES OF NEW SOUTH WALES TO END OF 1915.

Period.	Produced in Australia.		Contained in Concentrates, etc., Exported.		Total Production.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
To the end of 1905 ...	Fine ozs.	£	Fine ozs.	£	Fine ozs.	£
1906	97,504,005	15,580,901	111,085,453	19,116,088	208,589,458	34,696,989
1907	5,575,410	775,409	3,111,013	432,669	8,686,423	1,208,078
1908	5,921,457	795,982	6,228,225	845,845	12,149,682	1,641,827
1909	6,484,288	693,034	5,499,381	587,768	11,983,669	1,280,802
1910	3,717,016	382,605	6,867,775	732,563	10,584,791	1,115,168
1911	5,196,323	561,280	7,608,336	843,257	12,804,659	1,404,537
1912	5,731,468	620,578	8,797,677	973,210	14,529,145	1,593,783
1913	5,220,538	641,707	8,293,711	1,036,715	13,514,249	1,678,422
1914	5,906,638	719,249	8,596,251	1,038,714	14,504,889	1,757,963
1915	5,481,286	630,658	7,879,240	820,754	13,360,526	1,451,412
1915	3,081,952	325,210	5,222,927	544,055	8,304,879	869,265
Total ...	149,822,381	21,726,613	179,189,989	26,971,638	329,012,370	48,698,251

3. Chief Centres of Silver Production.—Broken Hill, in New South Wales, and Zeehan, in Tasmania, are the great centres of silver production in Australasia. The production in Queensland has, however, considerably expanded during the last few years.

(i.) *New South Wales.* (a) *Broken Hill.* A description of the silver-bearing area in this district is given in preceding issues of the Year Book. During 1913 the output of ore from the mines in this division amounted to 1,744,000 tons, the highest recorded in the history of the field, but owing to the dislocation caused by the war the quantity raised in 1914 decreased to 1,442,000 tons. For 1915 the production was returned as 1,505,000 tons, but the British Junction, North Junction Lead and Block 10 mines were closed throughout the year. The value of the output in 1915 was £3,342,000 as compared with £4,968,000 in 1913.

Although the returns are not complete in all cases, the following table relating to the mines at Broken Hill will give some idea of the richness of the field:—

RETURNS OF BROKEN HILL SILVER MINES TO END OF 1915.

Mine.	Authorised Capital.	Value of Output to end of 1915.	Dividends and Bonuses Paid to end of 1915.
	£	£	£
Broken Hill Proprietary Co. Ltd. ...	600,000	*42,772,000	10,874,302
Broken Hill Proprietary Block 14 Co. Ltd. ...	155,000	3,611,296	575,660
British Broken Hill Proprietary Co. Ltd. ...	339,000	3,379,149	633,800
Broken Hill Proprietary Block 10 Co. Ltd. ...	1,000,000	4,302,433	1,352,500
Sulphide Corporation Ltd. (Central Mine) ...	1,100,000	†16,941,010	1,711,875
Broken Hill South Silver Mining Co. ...	200,000	6,764,462	1,755,000
North Broken Hill Mining Co. Ltd. ...	600,000	†4,435,237	1,198,940
Broken Hill Junction Lead Mining Co. ...	150,000	†975,176	85,000
Junction North Broken Hill Mine ...	250,000	†1,929,412	79,793
The Zinc Corporation Ltd. ...	||	1,594,174	10,000
Barrier South Ltd. ...	168,000	151,157	50,000
Totals	4,562,000	86,855,506	18,326,870

* The value of the ores purchased during the years 1908 to 1914 is not included. † Output understated owing to incomplete returns. ‡ Not available.

(b) *Yerranderie.* The mines on the Yerranderie field in the Southern Mining District produced 475,180 ozs. of silver in 1915, besides 735 ozs. of gold, and 1302 tons of lead, the total production being valued at £81,066. Mining operations in this locality are carried on under considerable difficulties owing to the heavy cost of transport, the cost of cartage to and from Camden railway station—£2 5s. per ton—preventing successful exploitation of the lower grade ores.

(c) *Cobar.* A considerable quantity of silver is obtained from the Great Cobar Ltd. Mine and attached properties, the production in 1914 amounting to 24,305 ozs. Owing to the dislocation of the industry caused by the war the yields in 1915 fell to 1838 ozs.

(ii.) *Tasmania, West Coast.* The production of silver-lead ore in 1915 was 10,383 tons, valued at £91,689, to which the Zeehan Mines contributed £31,686. In the Mt. Farrell District the North Mt. Farrell contributed £23,582, while the Magnet Mines returned a yield of £31,352, and the Round Hill, Mt. Claude, £5069. The silver contents of the copper ores treated at the Mt. Lyell works amounted in 1915 to 452,645 ozs.

(iii.) *Queensland.* The yield for the chief silver-producing centres in 1915 was as follows:—Chillagoe, silver £3377, lead £397; Charters Towers, silver £2588, lead £1060; Cloncurry, silver £7025; Mt. Morgan, silver £3078; Herberton, silver £2250; lead £2580; Burketown, lead £4186.

(iv.) *South Australia.* Rich specimens of silver ore have been discovered at Miltalie and Poonana, in the Franklin Harbour district, also at Mount Malvern, near Rapid Bay, and in the vicinity of Blinman and Farina. The surrounding district is highly mineralized, but, so far, has not been thoroughly prospected.

(v.) *Northern Territory.* Silver-lead ores are worked near Pine Creek, and at Mount Shoobridge near Brook's Creek railway station.

4. **World's Production of Silver.**—The world's production of silver during the last ten years for which particulars are available is estimated to have been as follows:—

WORLD'S PRODUCTION OF SILVER, 1905 to 1914.

Year	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.
World's production in 1000 fine ozs.*	181,338	184,552	183,386	213,570	227,291	240,223	254,214	250,979	214,391	211,103

* Add 000 to figures for fine ounces.

Australasia's share in the world's silver production in 1914 was estimated at 3,520,000 ounces, or about 1.7 per cent. on the total production.

5. **Prices of Silver.**—As the production of silver is dependent to a very large extent on the price realised, a statement of the average price per standard ounce in the London market at various periods and during the last five years is given below:—

PRICE OF SILVER, 1881 to 1915.

Year	1881.	1891.	1901.	1908.	1909.	1911.	1912.	1913.	1914.	1915.
Pence per standard oz.	51½	45 $\frac{1}{8}$	27 $\frac{3}{8}$	24 $\frac{3}{8}$	23 $\frac{11}{16}$	24 $\frac{9}{16}$	28 $\frac{1}{8}$	27 $\frac{9}{16}$	25 $\frac{5}{16}$	23 $\frac{11}{16}$

During the month of November, 1906, owing to the small sales in New York, and also to the fact that the Indian, American, and Mexican Governments were all buying silver, the price rose to 33½d., the highest realised since 1893, when the average stood at 36 $\frac{5}{16}$ d.

6. **Employment in Silver Mining.**—The number of persons employed in silver mining in 1901 and during each of the last five years is given below:—

NUMBER OF PERSONS EMPLOYED IN SILVER MINING, 1901 and 1911 to 1915.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	N. Terr.	C'wealth.
	No.	No.	No.	No.	No.	No.	No.	No.
1901...	6,298	...	40	150	...	2,414*	...	8,902†
1911...	8,495	...	433	30	43	1,125	†	10,173
1912...	9,062	...	208	30	60	1,681	...	11,041
1913...	9,357	...	204	30	132	1,272	16	11,011
1914...	8,242	...	130	25	100	491	10	8,998
1915...	5,564	...	49	25	70	519	86	6,313

* Including copper miners. † Included in South Australia. ‡ Including copper miners in Tasmania.

As the table shews, the bulk of the employment was in New South Wales and Tasmania, the quantity of silver raised in the other States, excepting Queensland, being unimportant.

§ 5. Copper.

1. **Production of Copper.**—The production of copper in the various States of the Commonwealth has been influenced considerably by the ruling prices, which have undergone extraordinary fluctuations. The quantity and value of the production in earlier years and for 1911 to 1915 is shewn in the following tables :—

PRODUCTION OF COPPER, AUSTRALIA, 1881 to 1915.

State.	1881.	1891.	1901.	1908.	1911.	1912.	1913.	1914.	1915.
QUANTITY.									
N.S.W. ... { Copper	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
{ Ore	*	*	6,087	8,679	10,618	8,990	9,153	5,081	2,463
Victoria... { Copper	*	*	645	392	1,482	2,044	308	1,526	4,510
{ & Ore	*	*	...	983	36	...	36	...	...
Q'land ... { Copper	330	85	3,061	14,961	20,384	23,120	23,655	18,436	19,704
S. Aust ... { Copper	3,824	3,551	6,736	6,152	5,922	6,295	7,161	6,861	7,725
{ Ore	21,638	13,239	2,353	...	...	...	...	...	...
W. Aust. ... { Copper	...	...	479	10,654	...	28	82	183	946
{ Ore	...	*	10,157	2,503	...	9,536	4,359	3,913	737
Tasmania { Copper	...	...	9,790	8,833	8,308	6,528	6,535	7,509	7,901
{ Ore	...	...	10,029	1,185	...	...	...	3,288	66
Northern Territory	...	...	...	...	163	377	41	405	1,272
C'wealth { Copper	...	...	25,614	44,167	57,567	56,918	51,310	47,222	45,324
{ Ore	...	...	23,184	...	...	...	...	...	...

* Not available.

VALUE.

	£	£	£	£	£	£	£	£	£
New South Wales...	227,667	119,195	412,292	502,812	590,102	579,791	598,735	274,671	234,437
Victoria ...	8,185	216	...	3,928	2,088	...	2,829	...	...
Queensland ...	19,637	3,554	194,227	893,535	1,151,351	1,698,280	1,660,178	1,118,648	1,428,793
South Australia ...	418,296	235,317	500,077	345,968	332,500	461,500	488,986	417,487	561,247
Western Australia ...	...	4,463	75,246	57,091	78,118	59,824	142,513	38,174	91,169
Tasmania ...	...	...	1,026,748	609,651	408,649	440,444	375,664	496,041	709,534
Northern Territory	...	...	...	...	1,470	3,998	482	4,460	10,710
Commonwealth ...	673,786	362,745	2,208,590	2,412,985	2,564,278	3,243,837	3,269,355	2,349,881	3,035,890

A short account of the discovery of copper in the different States is given in the earlier Year Books.

2. **Sources of Production.**—(i.) *New South Wales.* The principal seat of the copper-mining industry at the present date is in the Cobar district, the value of the deposits there being first recognised in 1869. The value of the output from this district in 1915 was £134,212, out of a total for the State of £234,437. At the Great Cobar Mine the Company's smelters closed down on the 9th April, 1914, and operations in 1915 were confined to raising ore, unwatering and repairs. As the smelters re-opened in January, 1916, it is hoped that the production will again reach the record of previous years.

The Cadia Copper mine, at Cadia, in the Orange division, produced 500 tons of copper matte valued at £16,011. The Cobar Gladstone mine returned a total of £47,000. A yield of 161 tons of matte valued at £6,488 was obtained from the Grafton Mine at Cangai, and the Mouramba Copper Mines at Nymagee produced 663 tons of copper valued at £37,780.

The Electrolytic Refining and Smelting Company of Australia Limited, established at Port Kembla, produced 20,733 tons of copper valued at £1,745,000, chiefly from matte and ore imported from other States, especially from Queensland. The English and Australian Copper Co. Ltd., at Waratah, obtained 60 tons valued at £4415 from local ores.

(ii.) *Queensland.* The yield in this State amounted in 1915 to 19,704 tons, valued at £1,428,793, to which the Cloncurry field contributed 9880 tons, valued at £716,796. Next in order were Mount Morgan with 8018 tons, valued at £581,739; Gladstone 680 tons, £48,960; Chillagoe, 593 tons, £42,678; Mount Perry, 254 tons, £18,396; Herberton, 192 tons, £13,929, and Etheridge, 184 tons, £1324.

The Cloncurry district—reckoned the richest and most extensive cupriferous area in Australia—produces more than half the copper output of the State, and its importance as a producer will be still further enhanced by the present and prospective extension of railway facilities.

(iii.) *South Australia.* Taking the entire period over which production extended, the yield of copper in South Australia easily outstrips that of any other State in the Commonwealth. In recent years, however, Queensland, Tasmania, and New South Wales have come to the front as copper producers, as the table on the preceding page will shew. Deposits of copper ore are found over a large portion of South Australia. A short account of the discovery, etc., of some of the principal mining areas, such as Kapunda, Burra Burra, Wallaroo, and Moonta, is given in preceding issues of the Official Year Book. During 1915, copper mining, in a small way, was carried on at Kanyaka, East of Boorthana, Paull's, West Burra, Mount Coffin, Nichol's Nob, and Warra Warra in the Northern district; at Cutava and near Olary in the North East; at Monalena in the North West, and at Tumby Bay in Eyre Peninsula. In the same period the well-known Wallaroo and Moonta mines raised over 187,000 tons of ore, and treated 176,000 tons of 3.07 to 3.30 per cent. ore. The concentration plant at the mines, in addition to copper, produces sulphuric acid and bluestone. Very little was done at the once famous Kapunda mine. Government operations at the Yelta mine, which were discontinued on the 30th June, 1913, have not been resumed, and the mine is now let to tributers.

(iv.) *Western Australia.* The value of copper exported from this State in 1915 was £91,169. According to the returns, the production in the West Pilbara field was 315 tons, valued at £3546, while the Phillips River field shewed a production of 3681 tons, valued at £24,093. The Peak Hill district shewed a production of 237 tons, valued at £7618, and the Ashburton field returned 146 tons, valued at £3744. Small quantities also were produced on the Murchison and Yalgoo fields.

(v.) *Tasmania.* The quantity of blister copper produced in Tasmania during 1915 was 7901 tons, valued at £709,167, and of copper and copper ore, 66 tons, valued at £367, the bulk of the production being due to the Mount Lyell Mining and Railway Co. Ltd. This Company treated 340,855 tons of ore in 1915, and produced 7901 tons of blister copper, containing copper, 7814 tons; silver, 452,645 ozs.; and gold, 9870 ozs., the whole being valued at £742,312. The employes in 1915 numbered 1721, of whom 892 were miners, 684 were engaged in the reduction works, and 145 in the railway department.

(vi.) *Northern Territory.* Copper has been found at various places, including Copperfield, 5 miles south-east of Pine Creek, and Mount Diamond and Burns Wolfram, 45 miles east of Pine Creek.

3. **Price of Copper.**—The great variation in price that the metal has undergone is shewn in the following table, which gives the average price in London and New York during 1901 and in each of the last five years. The figures are given on the authority of "The Mineral Industry." No quotations were recorded for the months August, September and October, in the London price for 1914, and the average for that year is based on the returns for the remaining nine months.

FLUCTUATION IN VALUE OF COPPER, 1901 and 1910 to 1915.

Year.	London Price per Ton Standard Copper.		New York. Price in Cents per lb.	
			* Lake Copper.	Electrolytic Copper.
	£	Cents.	Cents.	
1901	66.79	16.55	16.11	
1910	57.05	13.04	12.74	
1911	55.97	12.63	12.38	
1912	72.94	16.56	16.34	
1913	68.35	15.69	15.27	
1914	61.52	...	13.50	
1915	72.53	...	17.28	

* The term "Lake" copper is used to designate all copper sold in the trade as such, regardless of the process by which it is refined. During the last five months of 1913 sales by the Lake Superior Companies were scattered and irregular.

4. **World's Production of Copper.**—The world's production of copper in 1901 and during the five years 1910-14 is estimated to have been as follows:—

WORLD'S PRODUCTION OF COPPER, 1901 and 1910 to 1914.

Year	...	...	...	1901.	1910.	1911.	1912.	1913.	1914.
World's production— (short tons)	...	...	...	583,517	966,998	969,750	1,114,769	1,104,517	1,018,395

On account of the war it is not possible to give a satisfactory estimate for the year 1915, but the total has been computed at about 1,200,000 tons.

5. **Employment in Copper Mining.**—The number of persons employed in copper mining during 1901 and in each of the last five years was as follows:—

PERSONS ENGAGED IN COPPER MINING, 1901 and 1911 to 1915.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Nor. Ter.	C'wealth.
	No.	No.	No.	No.	No.	No.	No.	No.
1901	2,964	4	814	4,000	321	*	†	8,103‡
1911	2,151	57	2,458	4,030	317	1,565	29	10,607
1912	2,384	6	3,457	4,500	223	1,681	52	12,303
1913	2,629	12	3,687	4,000	213	2,162	53	12,756
1914	1,357	...	2,578	3,000	192	2,099	88	9,314
1915	914	...	2,149	2,000	144	1,758	97	7,062

* Included with silver miners. † No returns. ‡ Excluding Tasmania.

§ 6. Tin.

1. **Production of Tin.**—The development of tin mining is, of course, largely dependent on the price realised for the metal, and, as in the case of copper, the production has been subjected to somewhat violent fluctuations. The table below shows the production in each of the Commonwealth States during the years 1881, 1891, 1901, and 1911 to 1915:—

TIN PRODUCED IN AUSTRALIA, 1881 to 1915.

State.	1881.	1891.	1901.	1911.	1912.	1913.	1914.	1915.
QUANTITY.								
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
New South Wales { Ingots Ore	5,824 609	1,454 203	648 11	958 970	900 1,175	903 2,118	650 1,667	857 1,331
Victoria ... Ore	†	†	77	33	48	57	53	95
Queensland* ... Ore	†	†	1,661	3,091	3,230	3,197	2,085	2,125
West Australia (Ore & Ingots)	...	...	734	495	651	484	363†	429
Tasmania ... Ore	†	†	1,790	3,953	3,714	4,010	2,573	2,599
Northern Territory Ore	...	...	81	239	271	258	160	140
Commonwealth { Ingots, ore, etc.	†	†	5,002	9,739	9,989	11,027	7,551	7,576
VALUE.								
	£	£	£	£	£	£	£	£
New South Wales.. { Ingots Ore	531,303 37,492	124,320 9,643	76,080 464	191,000 116,089	183,000 155,074	182,800 238,492	101,400 165,730	135,350 131,430
Victoria ... Ore	7,334	5,092	4,181	3,417	5,793	6,959	4,955	9,447
Queensland ... Ore	193,699	116,387	93,723	307,847	364,503	343,666	176,197	183,472
West Australia (Ore & Ingots)	...	10,200	40,000	55,220	79,738	73,142	35,649	41,391
Tasmania ... Ore	375,775	293,170	212,542	513,500	543,103	531,933	259,300	292,906
Northern Territory Ore	...	1,938	5,586	22,900	27,001	25,526	15,200	13,245
Commonwealth ...	1,145,603	560,750	432,576	1,209,973	1,358,152	1,401,571	758,431	806,641

* Dressed tin ore, about 70% tin. † Tin ingot and ore. ‡ Not available.

2. **Sources of Production.**—(i.) *New South Wales.* A large proportion of the output in New South Wales was obtained by dredging, the quantity so won in 1915 being 1164 tons, valued at £116,549. In the Tingha division the yield amounted to 662 tons, valued at £64,076, the yield from dredging being estimated at £41,563. The Emmaville division in the New England district shewed a yield of 1045 tons, valued at £105,104, of which dredging produced 513 tons, valued at £51,954. In the Wilson's Downfall division, 139 tons, valued at £13,303, were raised. The Glen Innes division, also in the New England district, returned a yield of 103 tons, valued at £10,043. The Ardlethan field, in the Lachlan division, produced ore and concentrates to the value of £53,771.

(ii.) *Victoria.* In Victoria lode tin has been discovered at Mt. Wills, Beechworth, Eldorado, Chiltern, Stanley, and other places in the north-eastern district; and stream tin has been found in a large number of places, including those just mentioned in the north-eastern district. The bulk of the production in 1915 was obtained in the Eldorado district. About £1300 worth was obtained at Beechworth, £570 worth at Toora, and a small quantity at Digger's Creek.

(iii.) *Queensland.* The chief producing districts in Queensland during 1915 were Herberton, 1164 tons valued at £94,759; Chillagoe, 320 tons, £26,181; Cooktown, 296 tons, £30,170; Stanthorpe, 181 tons, £17,847; and Kangaroo Hills, 129 tons, £11,100. The increased price of the metal more than counterbalanced the effects of the dry season, so that the total production in 1915 was over £7000 in excess of that for 1914.

(iv.) *Western Australia.* The production of tin ore and ingot for the State during 1915 amounted to 429 tons, valued at £41,391, to which the Greenbushes field contributed 247 tons, valued at £21,431, and the Pilbara field 79 tons, valued at £7633. There was no production from the other fields in 1915.

(v.) *Tasmania.* The tin ore raised in 1915 amounted to 2599 tons, valued at £292,306, a considerable falling-off as compared with the year 1913, when the production was returned as 4010 tons, valued at £531,983. The heavy decline was of course due to the paralysis of the tin market occasioned by the war, coupled to some extent with unfavourable weather conditions. The bulk of the production in 1915 came from the North-Eastern Division with 1254 tons of ore, valued at £152,786. Of the total yield in this division, 727 tons were contributed by the Pioneer and Gladstone districts, 314 tons by Derby, and 145 tons by Branhholm. The next highest output was returned from the North Western Division with 674 tons, to which the celebrated Mt. Bischoff contributed 446 tons, and the Mt. Bischoff Extended, 166 tons.

(vi.) *Northern Territory.* Mount Wells, in the Burrundie district, has yielded a fair output of tin since 1886, and recent developments have proved that the lodes are increasing in size and quality. Copper, silver-lead and tin shows occur abundantly in the district, but little work has been done on them. The recently discovered tin field at Maranboy Springs, about 40 miles east of the Katherine telegraph station, promises to yield good returns. A fairly extensive deposit has been located at Hayes Creek, about 12 miles from Brook's Creek and only 6 miles from the railway line. Efficient prospecting would probably reveal the existence of other deposits. Small yields of tin were also obtained at Crest of the Wave, 35 miles east of Pine Creek.

3. *World's Production of Tin.*—According to "The Mineral Industry" the world's production of tin during each of the last five years was as follows:—

THE WORLD'S TIN PRODUCTION, 1911 to 1915.

1911.	1912.	1913.	1914	1915.
Tons. 117,040	Tons. 122,538	Tons. 124,890	Tons. 111,226	Tons. 112,281

The yields from the chief producing countries in each of the last two years were as follows:—

	1914.	1915.
Malaya	49,000	47,000
Bolivia	22,000	22,000
Banka	14,000	13,800
Siam	6,800	7,800 (a)
Cornwall	5,000	5,000 (a)
Billiton	4,000 (a)	4,000 (a)
Nigeria	4,500	4,000
China	1,900 (b)	3,000 (b)
Australia	1,500 (b)	2,300
South Africa	2,100	2,100

(a) Estimate. (b) Shipments to Europe and U.S.A.

4. *Prices of Tin.*—The average price of the metal in the London market for the year 1897 and from 1905 to 1915 was as follows:—

PRICE PER TON OF TIN, 1897 to 1915.

Year.			Price per Ton.			Year.			Price per Ton.		
			£ s. d.						£ s. d.		
1897	...	...	61	8	0	1910	...	...	155	6	2
1905	...	...	143	1	8	1911	...	...	192	7	0
1906	...	...	180	12	11	1912	...	...	209	8	5
1907	...	...	172	12	9	1913	...	...	206	5	7
1908	...	...	133	2	6	1914	...	...	156	12	7*
1909	...	...	134	15	6	1915	...	...	163	19	2

* Quotations incomplete.

According to "The Mineral Industry" the maximum price obtained for tin during the period 1897-1915 was reached in April, 1914, when the metal was quoted at £231 per ton.

5. **Employment in Tin Mining.**—The number of persons employed in tin mining in 1901 and during the last five years is shown below:—

PERSONS ENGAGED IN TIN MINING, COMMONWEALTH, 1901 and 1911 to 1915.

Year.	N.S.W.	Victoria.	Qld.	W. Aust.	Tas.	Nor. Ter.	C'wealth.
	No.	No.	No.	No.	No.	No.	No.
1901	1,428	...	1,148	413	1,065	...	4,054
1911	2,225	34	1,860	321	1,755	280	6,475
1912	2,646	57	2,153	409	1,762	287	7,314
1913	2,362	116	2,102	403	1,947	267	7,197
1914	2,168	65	1,570	217	1,523	186	5,729
1915	1,648	27	1,218	188	1,221	154	4,456

§ 7. Zinc.

1. **Production of Zinc.**—The production of spelter is practically confined to the Broken Hill district of New South Wales, where zinblend forms one of the chief constituents in the enormous deposits of sulphide ores.

Gratifying results have been achieved in the work of the profitable extraction of the zinc contents of the large heaps of accumulated tailings and from the ore raised on the Broken Hill field. The year 1909 witnessed the passing of this problem out of the experimental stage, and the practical solution of the difficulty which had confronted the mining companies for many years. At present not only is the zinc being obtained in a marketable form, but the silver and lead contents are being turned to profitable account. In 1899 the exports of zinc (spelter and concentrates) amounted to 49,879 tons; in 1909 they totalled 373,906 tons, valued at £1,041,280; and in 1915, 190,916 tons, valued at £1,111,569, the great bulk of the production being obtained from tailings. The following table shews the production of zinc in New South Wales from 1889 to 1915:—

NEW SOUTH WALES.—PRODUCTION OF ZINC, 1889 to 1915.

Year.	Quantity of Zinc (Spelter and Concentrates) Produced.	Value.	Year.	Quantity of Zinc (Spelter and Concentrates) Produced.	Value.
	Tons.	£		Tons.	£
1889	97	988	1912	520,518	1,766,242
1891	219	2,622	1913	506,661	1,547,987
1899	49,879	49,207	1914	359,310	1,020,711
1911	516,378	1,414,980	1915	190,916	1,111,569

The total quantity of zinc (spelter and concentrates) produced in New South Wales to the end of the year 1915 was 3,876,604 tons, valued at £11,220,180.

At the Silver Spur mine at Texas, in the Stanthorpe division in Queensland, part of the ore is high in zinc and lead, but low in silver. Profitable extraction of the zinc and lead depends, however, on railway connection with the mine. Zinc sulphide is produced by the Mount Garnet mine in the Herberton district, and during 1915, several hundred tons of good quality ore were raised.

During the year 1915, a small quantity of zinc, valued at £143, was produced in Western Australia.

2. **Prices of Zinc.**—During the four years 1911 to 1914, the price of zinc averaged £23 15s. per ton, ranging from £21 in 1914 to £26 3s. 4d. in 1912. Owing to the heavy demand and other circumstances arising out of the war, the price in 1915 reached the very high average of £68 19s. 7d. per ton.

§ 8. Iron.

1. **General.**—The fact that iron-ore is widely distributed in the Commonwealth has long been known, and extensive deposits have been discovered from time to time at various places throughout the States. It will appear, however, from what is stated below, that until quite recently, little has been done in the way of converting these deposits into a marketable commodity.

(i.) *The Manufactures Encouragement Act 1908-12.* It was hoped that the passing by the Commonwealth Parliament of the Manufactures Encouragement Act, which came into force on the 1st January, 1909, would assist in firmly establishing the iron industry in Australia on a remunerative basis, both in the smelting of pig iron and in the production of bar iron and steel from Australian ore. The Act referred to, together with its amendment in 1912, provided for the payment of bounties on iron in accordance with the terms set out hereunder:—

BOUNTIES PAYABLE ON AUSTRALIAN PIG IRON, BAR IRON, STEEL, Etc.

Description of Goods.	Rate of Bounty.	Total Amount which may be authorised.	Date of Expiry of Bounty.
CLASS 1.			
Pig iron made from Australian ore	12s. per ton	£150,000	30th June, 1914
Puddled bar iron made from Australian pig iron	„		
Steel made from Australian pig iron	„		
CLASS 2.			
Galvanised sheet or plate iron or steel (whether corrugated or not) made from Australian ore	10 per cent. on value	£30,000	30th June, 1914
Wire netting, not being prison made and being made from Australian ore or from wire manufactured in the United Kingdom	10 per cent. on value		
Wire made from Australian ore	10 per cent. on value		
Iron and steel tubes or pipes (except riveted or cast), not more than six inches internal diameter, made from Australian pig iron or steel	10 per cent. on value		

Particulars of the bounties paid under the above Act during the half-year ended the 30th June, 1909, and during the financial years 1909-10 to 1914-15, are shewn in the following statement:—

**PARTICULARS OF BOUNTIES PAID ON PIG IRON, BAR IRON, STEEL, Etc.,
1909 to 1915.**

Period.	Steel made from Australian Pig Iron.	Puddled Bar Iron made from Australian Pig Iron.	Pig Iron made from Australian Ore.	Galvanised Sheet Iron made from Australian Ore.	Wire netting made from wire manufactured in the United Kingdom	Total.
	£	£	£	£	£	£
Half-year ended 30th June, 1909	575	568	2,314	192	...	3,649
1909-10	1,491	1,254	23,510	287	6,036	32,578
1910-11	1,940	2,080	20,462	121	4,824	29,427
1911-12	723	671	15,611	74	5,968	23,047
1912-13 ... ..	...	38	16,949	...	1,110	18,097
1913-14	7,136	...	40,121	...	4,554	51,811
1914-15	2,474	...	31,813*	...	593	34,880
Total	14,339	4,611	150,780	674	23,085	193,489

* Including £19,808 under Iron Bounty Act, see (ii.) infra.

(ii.) *The Iron Bounty Act 1914.* This Act repealed the Manufactures Encouragement Act 1908-14, and provides for a bounty on Australian pig iron up to the end of 1915. The rate of bounty is 8s. per ton, and the total amount authorised is £30,000. Provision is made for transfer, if required, to the State, of lands, buildings, etc., used in the manufacture of pig iron. During the financial year 1915-16, bounty amounting to £24,465 was paid on 61,162 tons. So far New South Wales is the only State where bounty has been claimed.

2. *Production of Iron.*—(i.) *New South Wales.* Reference to the extent of the deposits of iron ore in the State, and the events leading up to the establishment of ironworks at Lithgow, will be found in earlier issues of the Year Book (see No. III., p. 508). During 1915 the following materials were received at the blast furnace at the Eskbank Iron Works, Lithgow:—Iron ore, 134,684 tons; limestone, 42,379 tons; and coke, 96,316 tons. The output was 76,318 tons of pig iron, and the quantity of steel ingots made 25,040 tons. The iron ore was raised from quarries at Tallawang and Coombing Park.

The Broken Hill Proprietary Company has established works for the manufacture of iron and steel on a large scale at Newcastle, and operations were started early in 1915. The Company is utilising the immense deposit of iron ore at the Iron Knob quarries in South Australia, abundant stores of first quality coal can be obtained from the various coalfields in the vicinity of Newcastle, and arrangements have been made for the local supply of the necessary quantities of limestone. The works have been planned so as to allow of ready extension as the business develops. During the year ended 31st May, 1916, the production of steel ingots amounted to over 86,000 tons. The quantity of commercial steel rolled was returned at 63,000 tons, of which 43,000 tons consisted of rails, over 5000 tons of shell steel, and over 4000 tons of joists and channels. In addition to the blast furnace four open hearth furnaces were in operation, and it is proposed to increase the number to seven. Plans provide for a duplication of the blast furnace and coke oven plants, as well as for new steel furnaces, in addition to the seven alluded to.

The following table shews the quantity and value of finished iron, pig iron, etc., made in New South Wales during the last seven years from locally-raised ores.

NEW SOUTH WALES.—PRODUCTION OF IRON, 1909 to 1915.

Particulars.	1909.	1910.	1911.	1912.	1913.	1914.	1915.
Quantity Tons	29,762	40,497	36,354	32,677	46,563	75,150	76,318
Value ... £	106,357	161,948	145,416	130,708	186,252	254,257	267,000

The bounty paid in 1913, 1914 and 1915 on iron and steel made from ores mined in New South Wales was as follows:—

BOUNTY PAID ON IRON AND STEEL, NEW SOUTH WALES, 1913, 1914 and 1915.

Description.	1913.		1914.		1915.	
	Tonnage.	Bounty.	Tonnage.	Bounty.	Tonnage.	Bounty.
Pig iron ...	40,490	£ 24,294	58,528	£ 35,117	75,000	£ 30,000
Steel ...	1,088	653	14,929	8,957	...	...
Total ...	41,578	24,947	73,457	44,074	75,000	30,000

A quantity of iron oxide is purchased by the various gasworks for use in purifying gas, the output in New South Wales being drawn chiefly from the deposits at Port Macquarie, while smaller quantities are obtained from Mittagong and Narrabri. At Turrawan, in the Narrabri division, a deposit of ore said to contain from 55 to 65 per cent. of pure iron oxide has been found, and about 70 tons were raised and sent to Newcastle for the manufacture of paint. During 1915 the iron oxide raised amounted to 2,294 tons, valued at £3,774, while the total output to the end of that year was 22,000 tons, valued £43,669. Up to the end of 1912 a certain amount of ironstone was raised each year for fluxing purposes, but as the smelting companies obtained suitable ores for treatment there was no subsequent production. The total raised for the period 1899-1912 amounted to 107,000 tons, valued at £81,618.

(ii.) *Victoria.* Iron ore has been located at various places in Victoria, particularly at Nowa Nowa, in the Gippsland district, and at Dookie. A blast furnace was erected in 1881 near Lal Lal, on the Moorabool River, and some very fair quality iron was produced, which was used for truck wheels and stamper shoes in the Ballarat mines. The fall in the price of the metal, however, led to the closing of the works. In his report for 1905 the Secretary for Mines states that without special assistance to the industry there does not seem to be any prospect of the deposits being profitably worked.

(iii.) *Queensland.* Queensland possesses some extensive deposits of iron ore, which is mined chiefly for fluxing purposes in connection with the reduction of gold and copper ores. During the year 1915, 45,686 tons of ironstone, valued at £37,436, were raised, of which 41,000 tons, valued at £36,000, came from the Rockhampton district, and about 4000 tons, valued at about £1600, from the Cloncurry field.

(iv.) *South Australia.* In South Australia iron ore is raised for fluxing purposes only, although the State possesses some rich deposits capable of being mined for an indefinite period. The best known deposit is the Iron Knob, a veritable hill of iron of high percentage, situated about forty miles W.S.W. from Port Augusta. The estimated quantity of iron ore in sight at the Iron Knob and Iron Monarch has been set down at 21,000,000 tons. The Broken Hill Company utilises ore from this quarry at its iron-works at Newcastle, New South Wales, and the amount raised in 1915 was over 236,000 tons.

(v.) *Western Australia.* This State has some very rich deposits of iron ore, but owing to their geographical position, the most extensive fields at the present time are practically unexploited, the production in the State being confined chiefly to that needed for fluxing purposes. The Murchison field possesses the most extensive deposits of high-grade ore. There are also deposits on Koolan Island at Yampi Sound.

(vi.) *Tasmania.* The existence of large quantities of iron ore in Tasmania was noted as far back as 1822, when Surveyor-General Evans alluded to the "surprising abundance of iron within a few miles of Launceston." A company known as the Tasmanian Charcoal Iron Company was formed to work these deposits, and commenced operations in June, 1876. Unfortunately, however, the presence of chromium rendered the pig iron so hard and brittle that the works had to be abandoned. Extensive deposits of specular iron ore are also found in the neighbourhood of the Blythe and Gawler Rivers. The total production of iron ore in 1908 was 3600 tons, valued at £1600, and was all raised by the Tasmanian iron mine at Penguin, but owing to the closing down of that mine in 1909, there has been no further production. Iron pyrites for the manufacture of sulphuric acid and of manures, is produced on the West Coast, the quantity raised in 1915 being 12,836 tons, valued at £8945.

(vii.) *Northern Territory.* Large bodies of rich ironstone have been discovered in various parts of the Territory, particularly between the Adelaide River and Rum Jungle. Owing to the lack of coal deposits, however, the deposits possess no immediate value.

(viii.) *World's Production of Iron, 1915.* The quantity of iron produced in Australia is but a very small proportion of the world's production, which in 1915 amounted to 64,516,000 metric tons (pig iron). The leading position for magnitude of production is held by the United States, which in 1915 produced 30,000,000 tons, compared with Germany's 11,790,000 tons, and the United Kingdom 8,793,000 tons. The position of the three countries named is similar to what it has been for several years past. Unfortunately, complete returns for a later year than 1911 are not available in regard to steel, but the production for that year is given as 58,276,000 metric tons.

§ 9. Other Metals.

1. **Antimony.**—This metal is widely distributed in the north-eastern portion of New South Wales, between the 148° meridian and the coast, and has been found native at Lucknow, near Orange. Dyscrasite, a silver antimonide, has been found in massive blocks in the Broken Hill lodes. The export of antimony (metal and ore) in 1914 amounted to 637 tons, valued at £12,519. The ore was raised mainly in the Hillgrove division, where it is found in association with scheelite and gold. The total quantity of antimony ore raised in New South Wales up to the end of 1915 was 17,345 tons, valued at £318,614. The production of antimony ore in Victoria during 1915 amounted to 11,113 tons, valued at £49,320. The whole of this ore was raised by a company operating at Costerfield. In Queensland extensive deposits were discovered at Neerdie, in the Wide Bay district, during 1872, also at Wolfram Camp on the Hodgkinson field, on the Palmer River, in the Ravenswood district, and on the Mitchell River in the Herberton district. The principal district at present being exploited for antimony extends from Northcote to Mount Mulligan. Ore has also been obtained in the Dividing Range near Herberton, and adjacent to some of the central tributaries of Emu Creek. Production in 1915 amounted to 193 tons, valued at £3425. In Western Australia lodes of stibnite carrying gold have been found in the Roeburne district.

2. **Arsenic.**—In the form of arsenopyrite, arsenic is of wide distribution in Victoria, but the deposits are worked to a limited extent only. At Ballarat a small quantity of the oxide is obtained from the flues of roasting furnaces.

3. **Barium.**—A valuable lode of barium sulphate has been discovered near Dalwin, on the North Lyell railway, in Tasmania, and it is proposed to develop the deposit. It is stated that the lode is from 2½ to 7 feet wide over a length of over 40 chains.

4. **Bismuth.**—This metal has been found in New South Wales, near Glen Innes, in the Deepwater division, and also at Whipstick, in the Pambula division, its discovery dating from 1877. About 18 tons of metal and ore, valued at £4981, were exported from New South Wales during 1915; the total quantity exported to the end of that year was

583 tons, valued at £137,557. In Queensland wolfram and bismuth have been found in various districts, but the chief centres of production in 1915 were the Herberton and Chillagoe fields. The total production in 1915 was valued at £81,075, of which £54,300 was returned as wolfram, £772 as bismuth, and £26,003 as bismuth and wolfram. In South Australia deposits are found at Balhannah, at Mount Macdonald, and at Murninnie, on the shores of Spencer's Gulf. In Tasmania 5 tons, valued at £1203, were raised in 1915 principally from the Shepherd and Murphy mine at Middlesex.

5. **Chromium.**—In New South Wales chromium is found at Bowling Alley Point, on the Peel River, at Barraba, at Gordon Brook, in the Clarence River district, at Bingara, Wallendbeen, and near Gundagai. The production during recent years has been trifling, the quantity raised in 1915 being 638 tons, from an area at Wood's Reef, Barraba. The total exports to the end of 1915 amounted to 31,084 tons, valued at £102,617. Chrome iron ore is found in Queensland in the Rockhampton district, where the Elgalla mine, at Cawarral, produced a small quantity in 1911. There was also some production from the mine near Broadmount.

6. **Carnotite.**—A discovery of carnotite ore was made in 1906 twenty miles E.S.E. from the Olray railway station in South Australia. (See also "Radium.")

7. **Cobalt.**—This metal was found at Carcoar in New South Wales in 1889, and subsequently at Bungonia, Port Macquarie, and various other places. There was no export of cobalt in 1915, and the total produced since 1860 amounted in value to only a little over £8000. Deposits have been noted in South Australia near Bimbourie, and South Blinman; in Western Australia at Norseman and Kanowna; and at various places in Victoria.

8. **Lead.**—This metal was first noted in New South Wales in 1849, when small specimens of native metal were found by the Rev. W. B. Clarke. At present lead mining *per se* is not practised to any extent in the Commonwealth, the supply of the metal being chiefly obtained in conjunction with silver. In New South Wales, lead in the form of pig, carbonate, and chloride, exported in 1915, amounted to 30,305 tons, valued at £689,439. The total lead exported to the end of 1915 was 218,039 tons, valued at £3,426,000. In Victoria oxides, sulphides, and carbonates of lead are found in the reefs of most of the goldfields. The deposits are not, however, of sufficient extent to repay the cost of working. In Queensland the deposits are worked chiefly for the silver, copper or gold contents of the ore, the lead produced in 1915 amounting to 486 tons, valued at £10,638, of which 17 tons, valued at £397, were produced from mines in the Chillagoe district, 129 tons, valued at £2580, from Herberton, 98 tons, valued at £2212, from the Etheridge district, and 182 tons, valued at £4186, from the Burketown district. Pig lead to the value of £302 was exported from Western Australia in 1915. Complete information is not available as to the lead contents of Tasmanian silver-lead ores. At one time South Australia produced a fair amount of lead, £22,303 worth being raised in 1902, but the production rapidly decreased, and no output has been recorded since 1910.

9. **Mercury.**—In New South Wales mercury was first recorded by the Rev. W. B. Clarke in 1841. Cinnabar has been found in lodes and impregnations at various places, such as Bingara, Clarence River, etc. Up to the present the production of quicksilver has been small, the total being only about 3000 lbs. Pulganbar, in the Copmanhurst division, and Ewengar in the Drake division, were the only districts raising ore in 1915. In Victoria native mercury and cinnabar have been found at Silver Creek, a tributary of the Jamieson River. Lodes of cinnabar have been found in Queensland at Kilkivan, and at Black Snake, in the Wide Bay district; about four tons were produced between 1824 and 1891. Between O.K. and Mungana several shows have been prospected with encouraging results. Small quantities have been found disseminated over a large area near Willunga in South Australia, and it is also found in New Guinea.

10. **Manganese.**—Ores of this metal occur in widely separated districts in New South Wales, but the low price of the metal precludes mining to any great extent, and the production to date has been trifling. During 1915, 713 tons, valued at £535, were

raised at Grenfell. In Queensland there are extensive deposits at Mount Miller, at Gladstone, and Mount Nansen, near Gympie, the product being utilised chiefly by the Mount Morgan mine. Small quantities of manganese ore were raised in Victoria during 1915 from mines in the vicinity of Heathcote. Extensive deposits of the ore were mined at Boolcunda in South Australia some years ago. Deposits have also been noted at Kangaroo Island, Quorn, Tumby, and various other parts of the State. The production in 1915 was valued at £563. In Western Australia ores of the metal are found widely scattered, the black oxide being especially plentiful in the Kimberley district.

11. **Molybdenum.**—In New South Wales molybdenite (associated with bismuth) is obtained at Kingsgate, near Glen Innes, at Deepwater, at Rocky River in the Tenterfield division, in the Bathurst division, and at Whipstick in the Pambula division, the export in 1915 being 32 tons, valued at £16,937, as compared with 61 tons, valued at £11,451, in the previous year. The production at Kingsgate was valued at about £7300. In the Deepwater division £3000 worth was obtained. A small quantity was also obtained at Wunglebong in the Tenterfield division. The Whipstick mines yielded 12 tons of molybdenite, valued at £6000. There was a small production from Yetholme in the Bathurst division, and prospecting operations were carried on in the Kempsey, Armidale, Bega, Tamworth, Wilson's Downfall, and Goulburn divisions. The production in Queensland for 1915 was 97 tons, valued at £45,060, practically the whole of which was contributed by the mines in the Chillagoe field. A small quantity was produced in 1914 from mines in the Moonta district in South Australia, and the occurrence of the metal is reported from various other localities. The existence of molybdenite in the Darling Range in Western Australia has been known for many years, and the high price for the metal is causing renewed attention to be devoted to the deposit.

12. **Radium.**—(i.) It is reported that there have been several definite discoveries in Australia of the occurrence of minerals containing radium. The discovery at Olary, in South Australia, of carnotite, which is an alteration product of pitchblende, the compound from which radium is obtained, has already been referred to. In 1910 pitchblende was identified in portion of the workings at Olary, and a specimen, exhibiting a high degree of radio-activity was obtained. This is the first authentic discovery of the mineral pitchblende in Australia. The deposits of radio-active uranium ores found at Radium Hill are now being mined, and the concentrates forwarded to Sydney for treatment at the company's works at Woolwich. Monazite from Pilbara, Western Australia, has been shewn to give off radium emanations. The mineral has been called "pilbarite." Lastly, it is stated that the ores obtained at the Moonta mines, South Australia, contain from one-tenth to one-fifteenth of the amount of radium found in high-grade pitchblende, and that a product having a fairly high degree of radio-activity can be extracted therefrom with comparative ease.

(ii.) *Production of Radium Bromide.* At the end of November, 1912, a small quantity of radium bromide was produced at the Radium Hill Co.'s works at Woolwich, Sydney, this being the first occasion on which a marketable amount of this salt has been obtained outside of Europe. It is estimated by the chemist in charge that the present plant at the works is capable of providing £600 worth of radium weekly. From the 30th June, 1913, to the end of May, 1914, the works produced 239 milligrams of high grade radium preparation. The industry, however, is at present inactive in consequence of the war.

13. **Tungsten.**—Wolfram and scheelite, the principal ores of tungsten, are both mined to a small extent in New South Wales. During 1915 the export of wolfram was 50 tons, valued at £5031, and of scheelite 33 tons, valued at £4004. Wolfram was mined chiefly at Torrington, in the Deepwater division, and scheelite at Hillgrove. In Victoria small quantities of ore were raised during 1915 at Mount Murphy, Bendoc, and Koetong. In Queensland, tungsten ores are found in several districts, the chief centres of production in 1915 being Chillagoe and Herberton. (See also Bismuth.) A deposit of wolfram was discovered near Yankalilla, in South Australia, as far back as 1893, but the production up to date has been small. It is believed that careful examination will lead to

increased production from the deposits at Callawonga Creek. About 95 tons of wolfram, valued at £11,115, were produced in Tasmania during 1915, of which 50 tons, valued at £6068 were raised at the Storey's Creek tin mine at Avoca, and 35 tons, valued at £3692, at the Shepherd and Murphy mine at Middlesex. In the Northern Territory small yields of wolfram were obtained at Burns Wolfram mine, 40 miles east of Pine Creek, and at Yenberrie in the same district. Numerous samples of good wolfram ore have been obtained at the Frew River in Central Australia.

In Western Australia a deposit of wolfram was discovered in the West Kimberley district about 70 miles to the north-east of Derby. The export in 1915 was, however, trifling. Wolfram is mined at various points in Tasmania, the production for 1915 being 95 tons, valued at £11,115, obtained chiefly at Avoca and from the Shepherd and Murphy mine at Middlesex. Scheelite has been discovered on King Island in Bass Strait.

14. **Tantalum.**—Tantalite in small quantities has been found in the Greenbushes mineral field of Western Australia for some time past, but recently a lode of fairly extensive proportions was located at the Wodgina tinfield. Up to the end of 1905 the production of this mineral in Western Australia amounted to 73 tons, valued at about £10,000, but early in 1906 it was found that the supply exceeded the demand and production was temporarily stopped; in 1908 a small quantity valued at £400 was exported. About £327 worth was reported as having been raised in the Greenbushes and Pilbara fields during 1909, but none was exported owing to the entire absence of any market. No production was recorded subsequently. Small quantities of the mineral are also found in the Northern Territory.

15. **Uranium.**—This mineral has been discovered in South Australia in the country between Mount Painter and Mount Pitts, about 80 miles east from Farina. The uranium ores occur most frequently in the form of torbernite and autunite, and are found over a considerable area. The discovery is therefore of considerable importance, since ores of this mineral are found to a very limited extent in other parts of the world, and radium is regarded as one of the products of disintegration of uranium.

In addition to the metals enumerated above there is a large number of others occurring in greater or less degree, while fresh discoveries are being constantly reported.

(B). NON-METALLIC MINERALS.

§ 10. Coal.

1. **Production in each State.**—(i.) *Historical.* A historical account of the discovery of coal in each State will be found in preceding issues of the Year Book. (See No. III., pp. 515-6.)

(ii.) *New South Wales.* The production in 1915 amounted to 9,449,008 tons, valued at £3,424,630, or a decrease of about 942,000 tons in quantity, and £313,000 in value, as compared with the output in 1914. The decreased return in 1915 is accounted for largely by the lessened production from the Northern District Collieries consequent on the restriction of the export trade owing to the war.

(iii.) *Victoria.* During 1915, 590,968 tons of coal were raised, valued at £275,343. Of this total 528,922 tons, valued at £238,015, were raised by the State coal mine at Wonthaggi. The total production for 1915 was about 29,000 tons lower than in the preceding year.

(iv.) *Queensland.* The quantity of coal raised in 1915 was 1,024,273 tons, valued at £409,342, this production being only slightly less than in 1913 and 1914. Twenty-seven collieries were working in the Ipswich district, seven on the Darling Downs, five in the Maryborough district, one in the Central district, and four at Blair Athol. The industry is at present in a very satisfactory position in the northern State, and owing to the wide area over which the deposits stretch, practically no limit can be set to its possibilities of extension.

(v.) *Western Australia.* Six collieries were in operation on the Collie field during 1915, and the output for the year was 286,666 tons, or about 32,000 tons less than in 1914.

(vi.) *Tasmania.* The principal collieries in Tasmania are the Cornwall and Mount Nicholas, the former producing 25,000 and the latter 37,000 tons out of a total yield in 1915 of 65,000 tons.

The quantity and value of coal produced in each State and in the Commonwealth at various periods since 1881, are shewn in the following table:—

PRODUCTION OF COAL, AUSTRALIA, 1881 to 1915.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wth.
QUANTITY.							
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1881	1,769,597	22,634	65,612	...	...	11,163	1,646,372
1891	4,037,929	22,634	271,603	...	...	49,256	4,375,622
1901	5,989,426	209,329	539,472	...	117,836	45,438	6,880,501
1911	8,691,604	659,398	891,568	...	249,890	57,067	10,550,127
1912	9,895,815	593,155	902,166	...	295,079	53,560	11,729,775
1913	10,414,165	596,896	1,037,944	...	313,818	55,043	12,417,866
1914	10,390,622	620,251	1,053,990	...	319,210	60,794	12,444,667
1915	9,449,008	590,968	1,024,273	...	286,666	64,536	11,415,451
VALUE.							
	£	£	£	£	£	£	£
1881	609,248	...	29,033	...	...	4,465	636,746
1891	1,742,706	19,731	128,198	...	...	17,303	1,908,028
1901	3,178,929	147,928	189,877	...	68,561	18,175	2,602,770
1911	3,167,165	301,141	323,968	...	111,154	26,214	3,928,672
1912	3,660,015	259,321	338,264	...	135,857	24,568	4,418,025
1913	3,770,365	274,340	403,767	...	153,614	25,367	4,628,053
1914	3,737,761	289,099	416,292	...	148,684	27,853	4,619,689
1915	3,424,630	275,343	409,342	...	137,859	30,418	4,277,592

The Victorian figures for 1915 include about 2900 tons of brown coal, the bulk of which was raised at Altona.

2. Distribution and Quantity of Coal in each State.—(i.) New South Wales.

Estimates have from time to time been made as to the total quantity of coal available for working in the deposits in New South Wales, and while these naturally differ to some extent, they agree in placing the amount at well over a thousand million tons, without taking into consideration the deposits existing below a depth of 4000 feet. According to Mr. E. F. Pittman, the coal-bearing rocks of New South Wales may be classified as follows:—

COAL-BEARING ROCKS OF NEW SOUTH WALES.

Geological Age.	Maximum Thickness of Coal-bearing Strata.	Locality.	Character of Coal.
I. Tertiary—Eocene to Pliocene	Approx. 100 ft.	Kiandra, Gulgong, and Chouta Bay	Brown coal or lignite.
II. Mesozoic—Triassic or Trias-Jura	2,500 ..	Clarence and Richmond Rivers	Coal suitable for local use only.
III. Palæozoic—Permo-Carboniferous	13,000 ..	Northern, Southern and Western Coalfields	Good coal, suitable for gas, household and steaming.
IV. Palæozoic—Carboniferous	10,000 ..	Stroud, Bullah Dellah.	Very inferior coal with bands; of no value.

In regard to the Tertiary deposits, it may be noted that no serious attempt has been made to use the coal as fuel in New South Wales. At Kiandra a deposit of lignite was found to possess a maximum thickness of 30 feet, but as a general rule the seams vary

from 3 to 4 feet in thickness. The Triassic or Trias-Jura deposits in the Clarence and Richmond districts contain numerous seams, but the coal is largely intersected by bands, while its large percentage of ash renders it unfit for use as fuel for industrial purposes. These beds extend under the great western plains, but the presence of artesian water precludes the possibility of their being worked. The Clarence basin extends into Queensland, and at Ipswich thick and valuable seams of coal are worked. It is in the Permo-Carboniferous division that the great productive coal seams of the State are found, the area which they cover being estimated at about 16,550 square miles. The deepest part of the basin is somewhere in the vicinity of Sydney, where the "Sydney Harbour Colliery" is working the top seam at a depth of 2884 feet. Towards the north, south and west the seams rise towards the surface, and outcrop in the neighbourhood of Newcastle, Bulli and Lithgow. The coal from the various districts embraced in this division differs considerably in quality—that from the Newcastle district being especially suitable for gas-making and household purposes, while the product of the Southern (Illawarra) and Western (Lithgow) is an excellent steaming coal. At the present time the Greta coal seams are being extensively worked between West Maitland and Cessnock, and this stretch of country, covering a distance of fifteen miles, is now the most important coal mining district in Australasia. The Permo-Carboniferous measures have in various places been disturbed by intrusions of volcanic rocks, which in some instances have completely cindered the seams in close proximity to the intrusive masses, while in other instances the coal has been turned into a natural coke, some of which has realised good prices as fuel.

The table hereunder gives the yields from the various divisions at intervals from 1881 to 1915:—

COAL RAISED IN NEW SOUTH WALES, 1881 to 1915.

District.	1881.		1901.		1911.		1915.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Tons.	£	Tons.	£	Tons.	£	Tons.	£
Northern ...	1,352,479	437,270	3,999,252	1,669,519	5,793,646	2,320,673	6,307,015	2,397,833
Southern ...	253,283	115,505	1,544,454	407,196	2,066,621	636,163	2,261,398	784,316
Western ...	163,842	50,473	424,720	102,214	831,337	210,329	880,595	242,481
Total ...	1,769,597	603,248	5,968,426	2,178,929	8,691,604	3,167,165	9,449,008	3,424,630

Sydney Harbour Colliery. This colliery possesses considerable interest from the circumstance that its workings are amongst the deepest in the world. Extended reference to the history of its opening will be found in preceding Year Books. (See No. VI., page 504.)

(ii.) *Victoria.* The deposits of black coal in Victoria occur in the Jurassic system, the workable seams, of a thickness ranging from two feet three inches to six feet, being all in the Southern Gippsland district. Deposits of brown coal and lignite of immense extent occur in gravels, sands, and clays of the Cainozoic period throughout Gippsland, Mornington Peninsula, Werribee Plains, Gellibrand, and Barwon and Moorabool basins. In the Latrobe Valley the beds reach a thickness of over 800 feet. When dried, the material makes good fuel, but owing to its excessive combustibility and friability requires to be consumed in specially constructed grates. Attempts have been made to manufacture briquettes from the brown coal, but so far without any great measure of success. At the Melbourne and Altona Colliery Company's mine at Altona, 2864 tons of brown coal, valued at £573, were raised in 1915.

The output of coal from the chief Victorian collieries during the last ten years was as follows:—

PRODUCTION OF COAL IN VICTORIA, 1906 to 1915.

Year.	State Coal Mine.	Outtrim Howitt Company	Jumbunna Coal Company	Coal Creek.	Silkstone Co-operative Company	Austral Coal.	Other Companies.	Total Production.	Value.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	£
1906	...	74,812	64,222	13,214	3,977	...	4,406	160,631	80,283
1907	...	64,083	61,755	3,762	7,565	...	1,470	138,635	79,706
1908	...	47,633	58,552	...	6,967	...	810	113,962	64,778
1909	2,946	44,156	65,945	3,265	...	10,631	1,730	128,673	76,945
1910	201,053	46,832	61,954	10,968	...	36,052	13,050	369,909	189,254
1911	506,059	28,359	57,397	4,589	...	34,607	28,987	659,998	301,141
1912	455,659	24,326	53,306	4,829	...	31,506	23,529	593,155	259,321
1913	486,238	22,460	38,795	6,218	...	33,462	9,723	596,896	274,940
1914	550,107	16,597	24,236	5,887	...	20,034	3,390	620,251	289,099
1915	528,922	7,500	28,160	6,338	...	16,229	3,819	590,968	275,343

Included in the total "for other companies" is an amount of 655 tons raised by the Powlett North Woolamai, at Powlett, and 300 tons by the Victorian Coal and Coke Co., at Kilcunda. The figures also include 2864 tons of brown coal raised at Altona.

(iii.) *South Australia.* The coal from Leigh's Creek in South Australia is subject to similar disabilities to the Victorian brown coal, and until some means are devised of overcoming these, production will probably languish. Arrangements have been made for opening up a deposit of brown coal at Bowen, on the Morgan Railway Line, about 87 miles from Adelaide.

(iv.) *Queensland.* In Queensland the coal-bearing strata are of vast extent and wide distribution, being noted under the greater portion of the south-eastern districts, within 200 miles of the sea, as far north as Cooktown, and under portions of the far western interior. The Ipswich beds are estimated to occupy about 12,000 square miles of country, while the Burrum fields occupy a considerably larger area. At Callide, fifty miles west of Gladstone, a seam of coal free from bands has been struck in a shaft only sixty feet deep, and borings have proved the deposit to be of considerable magnitude. The beds in the Cook-district are estimated to comprise rather more than 1000 square miles, but coal measures extend to the south-west far beyond Laura and to the north of the railway. Extensive beds occur in the basin of the Fitzroy River, in the Broadsound district, and at the Bowen River. Amongst other places where the mineral is found may be enumerated Clermont, the Palmer River, Tambo, Winton, Mount Mulligan, and the Flinders River. Boring operations have proved the existence of seams of workable coal for some distance on both sides of the Dawson River. A bituminous coal is yielded by the Ipswich seams, those of the Darling Downs yield a cannel, while anthracite of good quality is furnished by the Dawson River beds.

The quantity and value of coal raised in Queensland at various periods since 1861 were as shewn below:—

PRODUCTION OF COAL IN QUEENSLAND, 1861 to 1915.

Year	...	...	1861.	1871.	1881.	1891.	1901.	1915.
Quantity	...	Tons	14,212	17,000	65,612	271,603	539,472	1,024,273
Value	...	£	9,922	9,407	29,033	128,198	189,877	409,342

The distribution of production during the last three years was as follows:—

QUEENSLAND COLLIERIES, 1913, 1914 and 1915.

Collieries.	1913.		1914.		1915.	
	Tons Raised.	Average Value at Pit's Mouth.	Tons Raised.	Average Value at Pit's Mouth.	Tons Raised.	Average Value at Pit's Mouth.
Ipswich ...	695,422	s. d. 7 1	718,205	s. d. 7 1	682,491	s. d. 7 3
Darling Downs ...	103,538	8 6	105,645	8 9	97,411	8 11
Nundah (Brisbane)	...	...	625	5 3	...	...
Wide Bay and Maryborough ...	129,611	10 11	118,120	11 4	104,358	11 10
Rockhampton (central) ...	13,574	10 4	7,818	8 9	6,741	8 6
Clermont ...	95,799	7 7	102,980	8 5	123,731	7 8
Mount Mulligan (Chillagoe) ...	...	...	597	17 2	9,541	12 7
Total... ..	1,037,944	7 9	1,053,990	7 11	1,024,273	8 0

It is estimated that more than one-third of the production from Ipswich was shipped as bunker coal, while the total amount shipped at the South Brisbane railway wharf for bunkers, cargo, and other purposes was returned at 296,000 tons. The average value of Queensland coal in 1915 was the highest recorded for the last sixteen years.

(v.) *Western Australia.* The coal seams in Western Australia belong to the Carboniferous, Mesozoic, and Post-tertiary ages. Most of the coal contains a large proportion of moisture, and belongs partly to the hydrous bituminous and partly to the lignite class. The only coalfield at present worked is at Collie, in the Mesozoic beds of the south-west. The coal produced is bright and clean, but very fragile when free from moisture. The increased output up to 1914 is partly due to the establishment of a bunkering trade at Bunbury and Fremantle, and partly to the employment of improved machinery. Difficulties with an inflow of water on the Scottish Collieries and a falling-off in the bunkering trade were responsible for the diminished returns in 1915. The production from this field since 1901 was as follows:—

PRODUCTION OF COAL IN WESTERN AUSTRALIA, 1901 to 1915.

Year	1901.	1909.	1910.	1911.	1912.	1913.	1914.	1915.
Quantity Tons	117,836	214,302	262,166	249,890	295,079	313,818	319,210	286,666
Value £	68,561	90,965	113,699	111,154	135,857	153,614	148,684	137,859

(vi.) *Tasmania.* In Tasmania coal occurs in the following geological periods:—
 (1) Permo-Carboniferous: Lower Coal Measures. (2) Mesozoic: Upper Coal Measures.
 (3) Tertiary: Brown Coal and Lignite deposits. Permo-Carboniferous coal is found at Avoca, Mt. Nicholas and Fingal, Thomson's Marshes, Langloh, Seymour, York Plains, Mike Howe's Marsh, Longford, Colebrook, Schouten Island, Spring Bay and Prosser's Plains, Compton and Old Beach, Lawrenny, Longhole, Sandfly, Ida Bay, Hastings and Southport, Recherché and South Coast, Tasman's Peninsula. Deposits of lignite and brown coal are plentiful in beds of Tertiary age, but they have not been exploited to any extent. An estimate gives the approximate quantity of coal available as sixty-five million tons, of which eleven millions are in the Lower Coal Measures and fifty-four millions in the Upper Measures, exclusive of an unknown quantity in strata fringing the Central Tiers.

PRODUCTION OF COAL IN TASMANIA, 1901 to 1915.

District.	1901.	1909.	1910.	1911.	1912.	1913.	1914.	1915.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
North-western ...	2,952	1,543	1,720	1,496	956	1,167	1,074	270
Eastern ...	37,239	57,227	71,115	54,296	51,205	52,759	58,743	63,507
Midland ...	1,536	560	721	635	679	847	847	691
South-eastern ...	...	6,832	8,899	640	720	270	130	68
South-western ...	3,711							
Total ...	45,438	66,162	82,455	57,067	53,560	55,043	60,794	64,536

• The bulk of the output in 1915 was raised from the Cornwall and Mt. Nicholas mines, which produced 25,470 and 37,431 tons respectively.

3. **Production of Coal in Various Countries.**—The total known coal production of the world in 1912 amounted to about 1100 million tons (exclusive of brown coal or lignite), towards which the Commonwealth contributed 11 million tons, or about 1 per cent. The following table shews the production of the British Empire and the chief foreign countries in units of 1000 tons in 1901 and during each of the years from 1908 to 1914 where the returns are available:—

COAL PRODUCTION, BRITISH EMPIRE, 1901 and 1908 to 1914.

Year.	United Kingdom.	British India.	Canada.	Australian C'wealth.	New Zealand.	Union of S. Africa.
	1000 tons.	1000 tons.	1000 tons.	1000 tons.	1000 tons.	1000 tons.
1901 ...	219,047	6,636	5,791	6,881	1,228	712
1908 ...	261,529	12,770	9,720	10,194	1,861	5,137
1909 ...	263,774	11,870	9,376	8,186	1,911	5,534
1910 ...	264,433	12,047	11,526	9,759	2,197	6,351
1911 ...	271,892	12,716	11,908	10,550	2,066	6,933
1912 ...	260,416	14,706	15,237	11,730	2,178	7,248
1913 ...	287,430	14,708	13,404	12,418	1,888	8,660
1914 ...	270,070	16,214	12,133	12,445	2,276	8,313

COAL PRODUCTION, FOREIGN COUNTRIES, 1901 and 1908 to 1914.

Year.	Russian Empire.	Sweden.	German Empire.	Belgium.	France.	Spain.	Japan.	United States.
	1000 tons.	1000 tons.	1000 tons.	1000 tons.	1000 tons.	1000 tons.	1000 tons.	1000 tons.
1901 ...	16,215	268	106,795	21,856	31,126	2,609	8,885	240,789
1908 ...	25,888	243	144,602	23,140	36,519	3,799	14,806	428,895
1909 ...	26,736	298	148,645	23,532	37,030	3,751	15,429	371,288
1910 ...	25,914	307	156,033	22,683	37,902	3,605	17,349	403,677
1911 ...	28,414	355	172,065	22,603	38,602	3,853	17,632	447,854
1912 ...	30,640	360	174,875	22,372	40,648	3,626	19,640	443,188
1913 ...	32,206	364	190,109	22,858	39,410	4,293	21,415	477,202
1914 ...	33,113	367	161,535	..	..	3,600	19,372	508,893.

The United States returns include a large proportion of anthracite, the quantity averaging for the last five years about 75 million tons.

Including New Zealand the production from Australasia takes second place amongst the possessions of the British Empire, British India coming first in order.

4. **Export of Coal.**—The exports of coal from the Commonwealth are practically confined to New South Wales.

The total quantity of coal of Australian production (exclusive of bunker coal) exported from the Commonwealth to other countries in 1915 was 929,998 tons, valued at £508,446, of which amount 927,225 tons, valued at £506,361, were exported from New South Wales. Owing to the war the figures are, of course, considerably below those of normal years.

In the following table will be found the quantity and value of the exports from New South Wales, at decennial intervals since 1881 and during the last five years. The figures are given on the authority of the Mines Department of that State, and include both bunker coal and coal exported from New South Wales to other States of the Commonwealth :—

EXPORTS OF NEW SOUTH WALES COAL, 1881 to 1915.

Year.	1881.	1891.	1901.	1911.	1912.	1913.	1914.	1915.
Quantity, 1000 tons	1,030	2,514	3,471	5,024	6,053	6,232	5,868	4,668
Value ... £1000	417	1,307	1,682	2,664	3,233	3,342	3,159	2,485

The principal oversea countries to which coal was exported from New South Wales during the year 1915-16 were as shewn hereunder. The quantity and value refer strictly to exports, and exclude bunker coal :—

DESTINATION OF NEW SOUTH WALES OVERSEA EXPORTS OF COAL, 1915-16.

Country.	Quantity.	Value.	Country.	Quantity.	Value.
	Tons.	£		Tons.	£
Chile	205,383	111,178	United States ...	40,456	22,567
Philippine Islands ...	10,243	5,361	India	50,075	27,611
Straits Settlements	47,272	25,206	Java	98,625	50,727
Fiji	34,255	18,241	Mauritius	2,351	1,312
New Zealand	314,202	171,912	Ecuador	8,174	4,490
Peru	23,414	13,785	New Caledonia ...	21,018	11,938
Hawaii	38,291	20,799			

The quantity of bunker coal taken from New South Wales by oversea vessels was about 696,000 tons, valued at £415,000.

The distribution of the total output from New South Wales collieries during the last five years was as follows; the particulars given of quantity exported include coal shipped as bunker coal :—

DISTRIBUTION OF TOTAL OUTPUT OF NEW SOUTH WALES COAL, 1911 to 1915.

Year.	Exports to Australasian Ports.	Exports to other Ports.	Local Consumption.	Total.
	Tons.	Tons.	Tons.	Tons.
1911	2,525,776	2,498,304	3,667,524	8,691,604
1912	3,096,179	2,956,939	3,832,697	9,885,815
1913	3,465,787	2,765,937	4,182,441	10,414,165
1914	2,581,810	3,286,223	4,522,589	10,390,622
1915	2,601,070	2,067,324	4,780,614	9,449,008

The figures quoted above are given on the authority of the New South Wales Mines Department. Owing to the abolition of the record of interstate trade it is impossible to give the quantities forwarded to each of the States of the Commonwealth.

5. Consumption of Coal in Australia.—An estimate of the consumption of coal in the Commonwealth may be arrived at by adding the imports to the home production, and deducting the exports (including bunker coal taken by oversea vessels). The following table shews the consumption of coal in Australia, computed in the manner specified, for the last five years:—

CONSUMPTION OF COAL IN AUSTRALIA, 1911 to 1915.

Year.	Quantity of Coal Consumed.			
	Home Produce.	Produce of the United Kingdom.	Produce of Other Countries.	Total.
	Tons.	Tons.	Tons.	Tons.
1911	7,407,000	7,000	4,000	7,418,000
1912	7,907,000	1,500	14,000	7,922,500
1913	8,671,491	872	3,577	8,675,940
1914	8,944,867	23,066		8,967,933
1915	9,250,592	6,580		9,257,172

The bunker coal taken away in 1915 is estimated to have been a million tons.

6. **Price of Coal.**—(i.) *New South Wales.* The price of coal in New South Wales has been subject to considerable fluctuation since the date of first production. Up to the end of 1857 the average value of the total output was 11s. 10d. per ton. Next year the value had risen to nearly 15s., declining thereafter until in 1871 the price realised was 7s. From 1872 to 1879 there was a rise in value to 12s. Between 1882 and 1891 the price ranged between 8s. and 10s. From 1891 onwards there was a steady decline until 1898, when the average was 5s. 4d. Henceforward prices rose again until 1902, when 7s. 5d. was the average. A decline then set in until 1905, when the price stood at a little over 6s., followed by a rise of one penny in 1906, and a further rise of eightpence in 1907. In 1908 the average was 7s. 4d., and in 1915, 7s. 3d. per ton. The price of New South Wales coal depends on the district from which it is obtained, the northern (Newcastle) coal always realising a much higher rate than the southern or western product. The average rate in each district during the last five years was as follows:—

PRICE OF COAL IN NEW SOUTH WALES (PER TON), 1911 to 1915.

Year.	Northern District.	Southern District.	Western District.
	s. d.	s. d.	s. d.
1911	8 0.13	6 1.88	5 0.72
1912	8 1.15	6 1.06	4 11.98
1913	7 9.91	6 1.13	5 1.85
1914	7 8.26	6 4.12	5 6.33
1915	7 7.24	6 11.23	5 6.08

(ii.) *Victoria.* In Victoria the average price of coal up to the 31st December, 1890, was 19s. 3d. per ton. In 1895 the price was still as high as 12s. 2d., but in the following five years there was a serious decline, the value in 1900 being quoted at 9s. 7d. per ton. In 1901, however, there was an astonishing rise, the figure being as high as 14s. 7d. Since that year, however, the price again declined, the average for 1905 being 10s. 2d.; for 1909, 12s.; for 1912, 8s. 9d.; for 1913, 9s. 3d., and for 1914 and 1915, 9s. 4d. These averages are exclusive of brown coal, the production of which in 1915, was valued at about 4s. per ton.

(iii.) *Queensland.* Prices in the principal coal-producing districts during the last five years were as follows:—

PRICE OF COAL, QUEENSLAND, 1911 to 1915.

District.	Value at Pit's Mouth.				
	1911.	1912.	1913.	1914.	1915.
	Per-ton. s. d.	Per ton. s. d.	Per ton. s. d.	Per ton. s. d.	Per ton. s. d.
Ipswich	6 5	6 7	7 0½	7 1	7 3
Darling Downs	8 5	8 6½	8 6	8 9	8 11
Nundah (Brisbane) ... ..	..	..	..	5 3	..
Wide Bay and Maryborough	10 10	10 10½	10 11	11 4	11 10
Rockhampton	10 4½	10 6	10 4	8 9	8 6
Clermont	7 6	7 6	7 7	8 5	7 8
Mount Mulligan (Chillagoe) ... ..	..	..	..	17 2	12 7

(iv.) *Western Australia.* The average price of the Collie (Western Australia) coal up to the end of 1901 was 9s. 4d. per ton, the price in 1901 being 11s. 7d. In 1902 the average stood at 12s. 3d., and from that time the price fell steadily until 1906, when it was 7s. 7½d. per ton. In 1907, the average price was 7s. 8½d.; in 1908, 8s. 7½d.; in 1909, 8s. 5½d.; in 1910, 8s. 8d.; in 1911, 8s. 10d.; in 1912, 9s. 2d.; in 1913, 9s. 9d., in 1914, 9s. 4d., and in 1915, 9s. 8d. per ton.

(v.) *Tasmania.* The average price per ton of coal at the pit's mouth in Tasmania was 8s. in 1901. In 1902 it was 8s. 7d.; in 1903, 8s. 9d.; in 1904 and 1905, 9s. 8d.; in 1906, 9s. 9d.; in 1907, 1908, and 1909, 8s.; in 1910, 11s. 9d.; in 1911 and 1912, 9s. 2d.; in 1913, 9s. 3d., in 1914, 9s. 2d., and in 1915, 9s. 5d. per ton.

7. *Price of Coal in other Countries.*—According to a report published by the Board of Trade the average value of coal at the pit's mouth in the five principal coal-producing countries of the world, excluding Russia, for which no information is available, for the five years ended 1912, was as follows:—

PRICE OF FOREIGN COAL, 1908 to 1912.

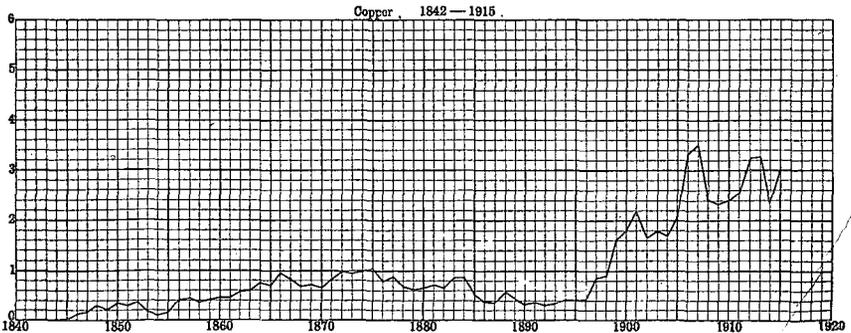
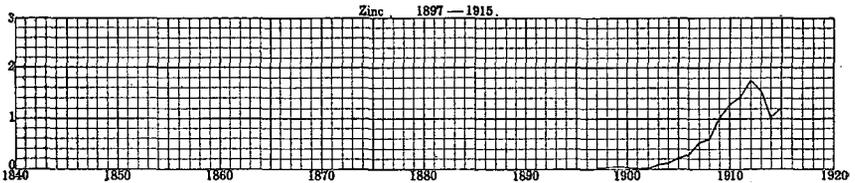
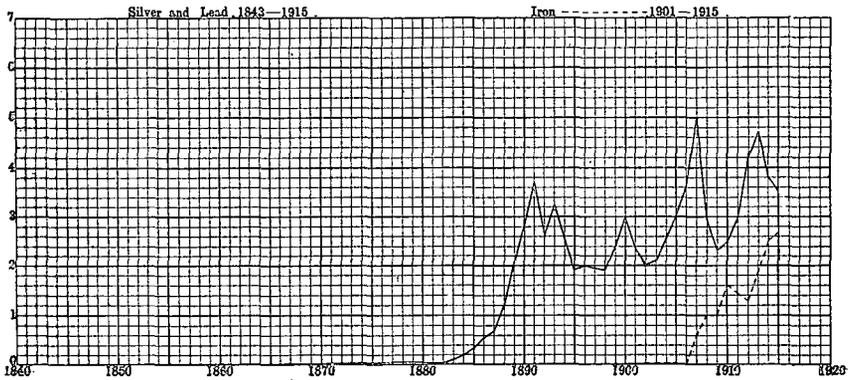
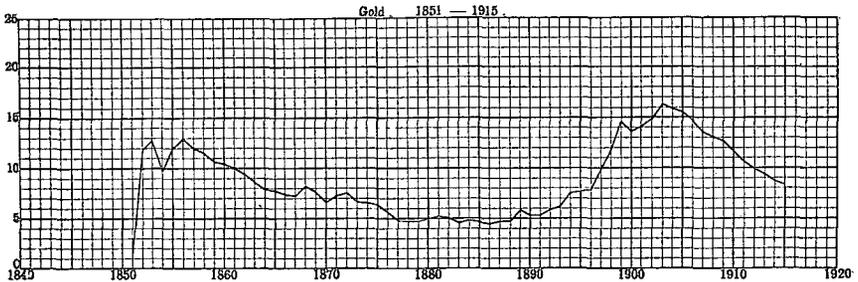
Year.	United Kingdom.	Germany.	France.	Belgium.	United States.
	Per ton. s. d.	Per ton. s. d.	Per ton. s. d.	Per ton. s. d.	Per ton. s. d.
1908	8 11	10 3½	12 11½	13 1½	5 11½
1909	8 0½	10 2½	12 5½	11 8½	5 7½
1910	8 2½	9 11½	12 3½	11 10½	5 10½
1911	8 1½	9 9½	12 5½	12 0	5 10½
1912	9 0½	10 6½	12 8½	13 5½	6 1

The price of coal at the pit's mouth in the principal British possessions is averaged by the same authority as follows:—

PRICE OF COAL, BRITISH POSSESSIONS, 1908 to 1912.

Year.	British India.	C'wealth of Australia.	New Zealand.	Canada.	Union of Sth. Africa.
	Per ton. s. d.	Per ton. s. d.	Per ton. s. d.	Per ton. s. d.	Per ton. s. d.
1908	5 3	7 4½	10 4½	10 8	6 9½
1909	4 8½	7 6½	10 10½	10 10½	6 3½
1910	4 1	7 6½	11 1½	11 0½	5 10½
1911	3 11½	7 5½	10 10½	10 9½	5 8½
1912	4 6	7 6½	10 11½	11 5½	5 6½

GRAPHS SHEWING VALUES OF THE PRINCIPAL MINERALS PRODUCED IN THE COMMONWEALTH, 1840 to 1915.

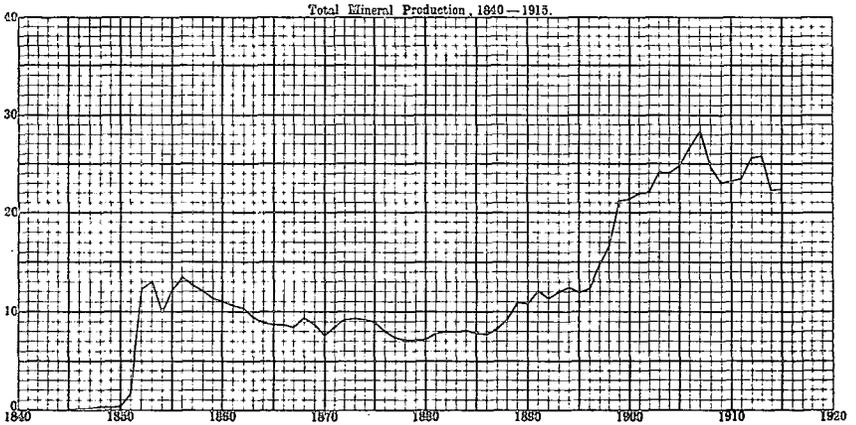
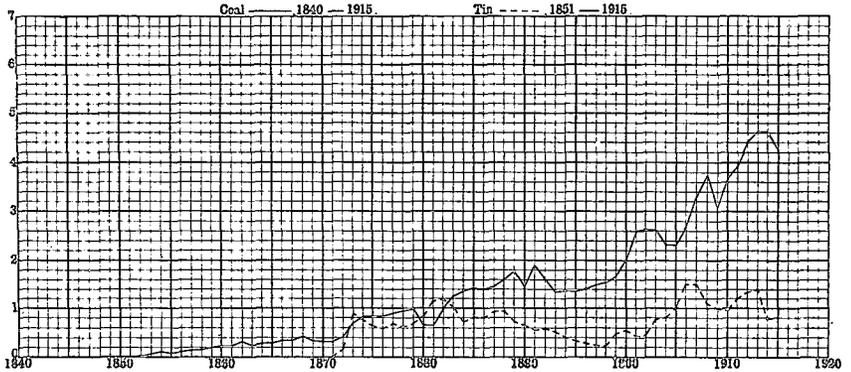


(See pages—for gold, 415; silver, 423; iron, 433; zinc, 431; copper, 426.)

EXPLANATION OF GRAPHS—The values shown in the above diagrams are those of the total Commonwealth production of certain of the most important minerals in successive years from 1842 to 1915.

The base of each small square represents an interval of one year, and the vertical height represents in the case of gold £1,000,000, in the case of silver, zinc and copper £200,000, and in the case of iron £20,000.

GRAPHS SHEWING VALUES OF THE PRINCIPAL MINERALS PRODUCED IN THE COMMONWEALTH, 1840 to 1915.



(See pages 439 for coal ; 439, tin ; and 413 total mineral production.)

EXPLANATION OF GRAPHS—The values shewn in the above diagrams are those of the total Commonwealth production of certain of the most important minerals in successive years from 1840 to 1915.

The base of each small square represents an interval of one year, and the vertical height represents in the case of coal and tin £200,000, and in the case of total mineral production £1,000,000.

8. **Employment and Accidents in Coal Mining.**—The number of persons employed in coal mining in each of the States during the year 1915 is shewn below. The table also shews the number of persons killed and injured, with the proportion per 1000 employed, while further columns are added shewing the quantity of coal raised for each person killed and injured, this being a factor which must be reckoned with in any consideration of the degree of risk attending mining operations.

Returns published by the Board of Trade, England, some years ago, gave the total known number of persons engaged in coal mining in the principal countries of the world as 3½ millions, the number in the United Kingdom being 1,068,000; the United States, 723,000; Germany, 628,000; France, 199,000; Russia, 169,000; Belgium, 146,000; Austria, 75,000; India, 133,000; and Japan, 145,000.

The latest available returns shew the rate in the United Kingdom in respect of deaths through accidents in coal mines as 1.17, and for the British Empire 1.48 per 1000 persons employed in coal mines. For France the rate is given as 1.17, for Germany 2.30, and the United States 3.35. For foreign countries generally the rate is stated at 2.48 per 1000.

EMPLOYMENT AND ACCIDENTS IN COAL MINING, 1915.

State.	Persons Employed in Coal Mining.	No. of Persons.		Proportion per 1000 Employed.		Tons of Coal Raised for Each Person.	
		Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
New South Wales ...	18,221	23	49	1.26	2.69	411,000	193,000
Victoria ...	1,312	3	20	2.28	15.24	197,000	30,000
Queensland ...	2,518	5	47	1.99	18.67	205,000	22,000
Western Australia ...	498	2	81	4.02	162.47	143,000	3,600
Tasmania ...	161	...	2	...	12.42	...	32,000
Commonwealth	22,710	33	199	1.45	8.77	346,000	57,000

§ 11. Coke.

1. **Production of Coke.**—Notwithstanding the large deposits of excellent coal in Australia, there was, prior to the war, a fairly considerable amount of coke imported from abroad. In 1915-16, the import amounted to 1707 tons, valued at £3714, of which 1603 tons, valued at £3542, came from the United Kingdom. The table hereunder gives the production in New South Wales during the last five years:—

COKE MADE IN NEW SOUTH WALES, 1911 to 1915.

Year.	1911.	1912.	1913.	1914.	1915.
Quantity ... Tons	264,687	241,159	298,612	304,800	417,753
Value, total ... £	184,337	162,454	208,989	213,069	313,241
Value per ton ...	13s. 11d.	13s. 5d.	14s. 0d.	13s. 11d.	14s. 11d.

The output for 1915 is the largest yet recorded, and was participated in by the ovens in each of the coal-mining districts.

A small quantity of coke is made in Queensland, the quantity returned in 1915 being 17,085 tons, but the bulk of that used in ore reduction is imported, mainly from New South Wales. The following table shows the amount manufactured locally during the last five years:—

QUEENSLAND.—COKE MANUFACTURED, 1911 to 1915.

Year.	1911.	1912.	1913.	1914.	1915.
Manufactured locally tons	35,025	38,136	14,942	16,685	17,085

The Queensland State Mining Engineer pointed out that from 50,000 to 60,000 tons of coke were obtained yearly from New South Wales, but owing to the abolition of records of interstate freetrade, particulars for the last five years are not available.

§ 12. Oil Shale and Mineral Oils.

1. **Production of Shale.**—(i.) *New South Wales.* As pointed out by Mr. E. F. Pittman, the name kerosene shale has been rather inaptly applied to a variety of torbanite, cannel, or boghead mineral found at various geological horizons in New South Wales. The mineral does not, as a rule, split in parallel layers, the fracture being rather of a conchoidal type. Pure samples have been found to contain over 89 per cent. of volatile hydro-carbons. The discovery of the mineral in New South Wales dates probably as early as 1802. Its occurrence in the Hartley Vale district was noted by Count Strzelecki in 1845. The mineral has been found at several places in the Upper Coal Measures, and in at least two in the Lower Carboniferous. Production on anything like a large scale commenced in 1868, when about 17,000 tons, valued at £48,000, were raised. The production in 1915 amounted to 15,474 tons, valued at £12,890, as compared with 50,049 tons, valued at £27,372, in 1914. The falling off in 1915 was due to the closing of the British-Australian Oil Company's mine at Temi, near Murrurundi. It is hoped that the yield in 1916 will be improved by increased production from the Western district, where it is stated that the new retorts at Wolgan are giving satisfactory returns.

(ii.) *Victoria.* Up to the present no extensive deposit of oil shale has been located in Victoria.

(iii.) *Queensland.* The discovery of natural gas and traces of oil in a deep bore at Roma has fostered the hope that energetic prospecting will lead to the discovery of mineral oil in quantity in this locality. Oil-bearing shales are common in many parts of the State. The deposit at Daringa on the Central railway line shewed a thickness of 6 feet, and contained about 30 gallons of oil to the ton. Inflammable gas and a little oil have been noted in bores put down for coal on the Dawson River. There are shale deposits at Munduran Creek, near Gladstone, Casuarina Island, Redbank plains in the Ipswich District and Murphy's Creek, near Toowoomba. It is stated that the borings have not so far penetrated to a sufficient depth to properly test the strata.

(iv.) *South Australia.* In this State large areas of bituminous shale, of which the boundaries are only approximately known, occur at Leigh's Creek and Lake Phillipson. Reference to the mineral known as coorongite is made in sub-section 13. Specimens of bitumen have been discovered on Kangaroo Island, and it was supposed that they were the product of a petroleum-bearing area. The Government Geologist states, however, that the island strata are not of such nature as to support this supposition. In regard to

the mainland area it is argued by some investigators that the bores so far put down have not been carried to sufficient depth to fairly test the strata. A bonus of £5000 for the discovery of oil has been offered by the South Australian Government. An oil expert engaged by the Government reported adversely on the prospects, but his conclusions have been challenged by other investigators. A large number of licenses to search for oil have been taken out, and boring operations are being carried on near Kingston and near Robe, the bore at the latter having reached a depth of 2,000 feet.

(v.) *Western Australia.* A deposit of carbonaceous shale of considerable thickness is known to exist at Coolgardie, but the mineral has not yet been raised in any quantity.

(vi.) *Tasmania.* Tasmanite shale has been discovered in the basins of the Mersey, Don, and Minnow Rivers, and the Government geologist estimates the probable capacity of the beds at 12,000,000 tons. The crude oil content of average quality shale has been estimated at 40 gallons to the ton. In July, 1912, the Railton-Latrobe Shale Oil Company acquired the leases and plant of the Tasmanian Shale and Oil Company, at Latrobe, and it is intended to develop the deposits on a large scale. The production in 1914 was, however, small, amounting to 75 tons, valued at £75, while no returns from this source were included in the production records for 1915. Large pieces of asphaltum have been discovered in places along the sea coast and in several of the bays of Port Davey Harbour, but it is believed that the material originates in submarine beds.

(vii.) *Northern Territory.* The existence of oil shale has been reported for many years in the Boroloola district, while several oil licenses have been applied for in the Victoria River district. Results so far, however, have been negative, and experts have pronounced unfavourably on the prospects.

(viii.) *Papua.* An expert has reported that the deposits of oil-bearing shale can be worked at a profit, and oil of a satisfactory quality has been obtained from two comparatively shallow bores. It is proposed to test the deeper deposits where indications warrant expectation of a copious supply.

2. **Export of Shale.**—In 1915 New South Wales exported 20 tons of shale, valued at £79.

3. **Shale Oils Bounties.**—The Shale Oils Bounties Act 1910 provided for the payment of bounties on certain goods manufactured in Australia from Australian shale on or after the 1st July, 1910, and before the 1st July, 1913. The total amount made available for bounties under this Act was £50,000.

During the year 1913, the bounties paid in New South Wales amounted to £985 on 118,000 gallons of kerosene, and £809 on 324 tons of refined paraffin wax. As the bounty expired on the 30th June, 1913, the articles mentioned were produced prior to that date.

§ 13. Other Non-Metallic Minerals.

1. **Alunite.**—Probably the most remarkable deposit of alunite in the world occurs at Bullahdelah, in the county of Gloucester, New South Wales, a large proportion of a low bluff ridge in the district being composed of this mineral. The deposits are worked by quarrying, and from 1890 up to the end of 1915, 45,730 tons had been exported, valued at £146,323 the exports for the year 1915 being 1420 tons, valued at £5680.

Deposits of a high-class alunite are reported to have been discovered near Sunbury, in Victoria.

In South Australia an extensive deposit of the mineral was located in 1913 at Carrickalinga Head, on the coast north of Normanville, and within a short distance of Adelaide. It is stated that the specimens so far analysed have proved richer in valuable constituents than any similar find yet recorded. A trial shipment was forwarded to England, and satisfactorily disposed of, but owing to the war the industry is temporarily in abeyance. Another deposit has been located near Warnertown.

2. **Asbestos.**—This substance has been found in various parts of Australia, but up to the present has not been produced in any considerable quantity. In New South Wales the deposits at Jones' Creek, in the Gundagai division, were opened up during the year 1909 and a trial parcel of 15 tons shipped to Germany. There was, however, no record of production in 1915. In Western Australia what may prove to be a valuable deposit of the fibrous chrysotile variety has been located at Tambourah, on the West Pilbara gold-field, and in 1909 £154 worth of this mineral was raised. In 1899 Tasmania raised 200 tons, valued at £363, but there has been no production during the last ten years. Deposits of asbestos of the mountain leather and mountain cork varieties have been discovered at Oodlawirra, while deposits of a good blue variety have been discovered near Hawker and about 23 miles from Eudunda, in South Australia.

3. **Barytes.**—In New South Wales during 1915 about 78 tons of barytes, valued at £136, were obtained in the Mudgee division.

4. **Clays and Pigments.**—Valuable deposits of clays and pigments of various sorts are found throughout the Commonwealth. There is a considerable local production of earthenware, bricks, and tiles, but the finer clays have not as yet been extensively used. In New South Wales the production of kaolin in 1915 amounted to 1514 tons, valued at £1,204, raised in the Murrumburrah, Molong, Gulgong, and Goulburn divisions, and at Wallendbeen, Boxer's Creek and Home Rule. Fireclay to the amount of 80 tons was raised in the Bathurst division, and 1,500 tons, valued at £1,800 were raised by the Lithgow Colliery Co. Deposits of steatite near Wallendbeen were worked during 1915, the quality raised during the year amounting to 60 tons. Near Morangaroo 4500 tons of silica were raised by the Silica Fire Brick Company. In Victoria 142 tons of kaolin were obtained at Axedale, 10 tons at Pyalong, and 250 tons at Egerton, the total value given, as £547. In Queensland 4963 tons of fireclay, valued at £556, were mined during the year 1915, in the Mount Morgan district. On Kangaroo Island, South Australia, where, it is stated, the first pottery mill in the Commonwealth was erected, there are vast deposits of felspar, china, stone, silica, and firebrick clay. There are also very extensive deposits of fireclay near Ardrossan on the Yorke Peninsula. Porcelain and other clays of good quality have been found in the Kingston district in Tasmania. A small parcel of kaolin from the Zeehan district yielded about 50 per cent. after treatment, but it is stated that the product could not be profitably exported to Europe. Deposits of ochre have been opened up at Dubbo, Wellington, and Marulan, in New South Wales, and ochres and pigments of excellent quality have been produced therefrom. Extensive deposits of iron oxide, giving a return of 80 per cent. ochre, have been discovered near Oodlawirra in South Australia.

5. **Coorongite.**—This peculiar india-rubber like material was first noted many years ago near Salt Creek and in the vicinity of Coorong Inlet, in South Australia, as well as at various localities on Kangaroo Island. It was thought that the substance owed its origin to subterranean oil-bearing strata, but so far the search for petroleum has not been attended with success. (See also § 12., iv.). While the origin of coorongite is still in doubt, it is held by some observers that it is not a petroleum product.

6. **Fuller's Earth.**—Small quantities of this material were produced in 1912, from leases near Narrabri, in New South Wales, the total sold amounting to 50 tons, valued at £287.

7. **Graphite.**—Graphite is found in New South Wales near Undercliff Station, in the county of Buller, but the deposit is not sufficiently pure to prove remunerative. A small quantity was raised during 1915 from a site on the Bookookoorara in the Wilson's Downfall division. In Victoria the mineral occurs in Ordovician slates in several of the goldfields, but is not worked. In Queensland graphite was raised some years ago by the Graphite Plumbago Company at Mt. Bopple, near Netherby, on the Maryborough-Gympie line. A deposit has been located in the hundred of Roberts, about 9 miles N.W. of Arno Bay in South Australia. In Western Australia deposits occur on the Donnelly River, and at Kendenup, about 40 miles from Albany.

8. **Gypsum.**—This mineral is found in various places in the Commonwealth. It occurs in two forms, large crystals, and a floury earth consisting of minute crystals and known as "copi." Both forms are exceedingly pure. It is used largely as a natural manure and to some extent in the manufacture of Portland cement. Gypsum, or hydrous sulphate of lime, when burnt forms plaster of Paris, but in spite of the abundant supply of suitable material it has not yet been used for this purpose. In Victoria during 1915 there was a production of 690 tons, valued at £621, of which 580 tons were obtained at Boort, 60 tons at Lake Boga, and 48 tons at Fairley. Numerous deposits of gypsum are found in Southern Yorke's Peninsula in South Australia. A deposit of gypsum sand containing practically an inexhaustible supply is found on the edge of Lake Austin in Western Australia.

9. **Magnesite.**—Deposits of this mineral have been discovered at Fifield and at Piedmont in New South Wales, and in 1915 about 830 tons, valued at £1660, were raised in the former locality. The mineral is found at Heathcote in Victoria, and a deposit of exceptional purity has been located in the vicinity of Tumby Bay in South Australia, about five miles from the township of Tumby. The Broken Hill Co. is working a small deposit near the Beetaloo Waterworks. During 1915, 688 tons of magnesite, valued at £1196, were exported from Western Australia. A large area of magnesite-bearing country has been located at Bulong, about 20 miles east of Kalgoorlie.

10. **Tripolite, or Diatomaceous Earth.**—Although tripolite has been found at Barraba, Cooma, Wyrallah, and in the Warrumbungle Mountains in New South Wales, the deposits have not been worked commercially on any considerable scale. From the deposits at Bunyan, in the Cooma division, 126 tons of diatomaceous earth, valued at £220, were produced in 1915. In Victoria there is a remarkably pure deposit at Lillieur, near Talbot, while beds of the mineral are also met with at other places in the Loddon Valley, near Ballarat, at various places close to Melbourne, at Craigieburn, Lancefield, Portland, Swan Hill, Bacchus Marsh, etc. From the deposit at Lillieur, 274 tons, valued at £1050, were obtained in 1915. A fairly extensive deposit of tripolite exists in Queensland, between Nerang and Beaudesert, but the various outcrops have as yet been only partially examined. In Tasmania a deposit of diatomaceous earth has been located at Oatlands, but its use for the manufacture of explosives is apparently prejudiced by the circumstance that the diatoms are pulverised and contaminated with clay.

11. **Salt.**—Salt is obtained from salt lakes in the Western and North-western Districts of Victoria, and from salterns in the neighbourhood of Geelong. Large quantities are also obtained from the shallow salt lakes of South Australia, chiefly on Yorke Peninsula. Lake Hart, about 60 square miles in area, situated about 120 miles N.W. from Port Augusta, contains immense supplies of salt of good quality, which at present, however, owing to distance from market, possess no economic value. The salt is simply scraped from the beds of the lakes in summer time and carted to the refinery. It is stated that care must be taken not to leave too thin a crust of salt over the underlying mud, as the resultant "crop" after the winter rains will in that case be smaller than usual. A bore recently put down near Kingscote, on Kangaroo Island, revealed brine from which salt can be profitably obtained by evaporation. In Western Australia supplies are obtained from dried-up shallow lakes and consumed locally or exported. The chief centres of production were formerly Rottnest Island, near Fremantle, and Middle Island, near Esperance, but the greater part of that now produced is obtained at Port Gregory.

12. **Natural Manures.**—Gypsum has already been referred to. (See 8 *ante*.) South Australia possesses deposits of rock phosphate near Port Clinton and Ardrossan on Yorke Peninsula, at Belvedere near Kapunda, and at Kooringa, and also at many other places which have only been prospected to a small extent. Phosphate of lime has been found in small quantities in the limestone caves of New South Wales. In the Wellington division, from the area situated near the caves, about 1100 tons of phosphate rock

valued at £3,000, were raised during 1915. In addition to use as a flux at the Lithgow Iron Works, part of the rock is ground up for manures. Although it can hardly be considered a mineral product, mention may be made here of the large accumulations of guano on the Abrolhos Islands, off the coast of Western Australia, in the neighbourhood of Geraldton. The deposits vary in thickness from four to twenty-seven inches. During the years 1876-80 over 36,000 tons were raised; no figures are available shewing the quantity raised in recent years.

§ 14. Gems and Gemstones.

1. **Diamonds.**—Diamonds were first noted in New South Wales by H. J. Hargraves in 1851, and in October of the same year by Geological Surveyor Stutchbury. The Cudgegong field was discovered in 1867, and shortly afterwards the Bingara diamantiferous deposits were located. Stones of small size are also found at Cope's Creek and other places in the Inverell district. The largest diamond won in New South Wales was reported to have been obtained in 1905 at Mt. Werong, near Oberon, and weighed 28 $\frac{5}{16}$ carats. It is difficult to secure accurate returns in connection with the production of precious stones, but the yield of diamonds in 1915 was estimated at 839 carats, valued at £707, while the total production to the end of 1915 is given at 186,963 carats, valued at £127,696. The yield in 1915 was contributed by miners working in the vicinity of Copeton, in the Tingha division. Owing to the absence of a market consequent on the war the production in 1915 shewed a great reduction on that for 1913, when 5573 carats, valued at £5,141 were won. Small quantities of diamonds are found in Victoria in the gravels of streams running through granite country in the Beechworth district; at Kongbool in the Western District; and near Benalla. The stones are generally small and the production up to date has been trifling. In 1912, eleven small diamonds, valued at £20, were picked out of the sluice boxes of the Great Southern alluvial mine at Rutherglen. A few small diamonds have been found in the Pilbara district in Western Australia. In South Australia diamonds have been found on the Echunga goldfield, the most notable gem being Glover's diamond, which was sold for £70.

2. **Sapphires.**—These gems were discovered in New South Wales in 1851, near Burrandong. They have also been found in small quantities near Inverell, and at a few other localities in the State. There is no record of production. Specimens of sapphire have been found in Victoria, but the stones of commercial size are generally of little value owing to flaws.

In Queensland sapphires are found in the gravel of creek beds, between Withersfield and Anakie on the Rockhampton-Winton railway line. The gems show excellent fire and lustre, but the colour is darker blue than the Oriental sapphire. Hyacinths are occasionally found in association with the gems. The production of sapphires in Queensland in 1915 was valued at £600, as compared with £43,292 in 1913, the decrease being due to the absence of a market consequent on the outbreak of the war. The estimated return for 1915 has been distributed thus:—Purchases by gem buyers, £400; stones sold privately, £100; machine stones, £100. The gem mining industry practically collapsed on the outbreak of war, as the German buyers ceased business. It is hoped that gem-cutting on a large scale will shortly be established in England.

Sapphires are plentifully found in the tin drifts of the Ringarooma and Portland districts in Tasmania, but the stones are, as a rule, small and not worth saving.

3. **Precious Opal.**—This stone was first discovered in New South Wales at Rocky Bridge Creek on the Abercrombie River, in the year 1877, and later a most important discovery was made at White Cliffs in the Wilcannia district, which, until recently, contributed the bulk of the production. In 1914, however, out of a total production, valued at £26,534, the yield from the Lightning Ridge field, near Walgett, amounted to

£21,636, while the output from the White Cliffs field was returned at £4,898. The war has had a very depressing effect on the industry, and the production in 1915 fell to £6403. Some very fine stones are at times obtained, one weighing 5 ozs. and valued at £300 being recovered in 1911. Occasionally, black opals of very fine quality are found, one specimen from the Wallangulla field, weighing $6\frac{1}{2}$ carats, being sold in 1910 for £102. It is stated that this locality is the only place in the world where the "black" variety of the gem has been found. The total value of opal won in New South Wales since the year 1890 is estimated at £1,392,000.

Small quantities of precious opal are also found in the Beechworth district in Victoria.

In Queensland, the first recorded discovery of the gem dates from about 1875. The opaliferous district stretches over a considerable area of the western interior of the State; from Kynuna and Opalton as far down as Cunnamulla. The yield in 1915 was estimated at £500, and up to the end of that year at £177,695. These figures are, however, merely approximations, as large quantities of opal are disposed of privately to buyers on the fields, no record of which is obtained. At present, the industry suffers from the peculiar disability that in good seasons there is plenty of work available on the pastoral stations, and most men prefer this to the uncertain results obtainable by fossicking, while in dry seasons when constant work is not obtainable, the search for opal is limited by the difficulty in obtaining sufficient water. The small return in 1915 was also due to the lack of a market consequent on the outbreak of war.

Precious opal has been discovered in South Australia in a locality 116 miles N. by E. of Tarcoola. The specimens show similar characteristics to those obtained at White Cliffs in New South Wales.

4. Other Gems.—Emeralds were found in New South Wales in the year 1890, near the township of Emmaville, the largest specimen found in the district weighing 23 carats in the rough. Altogether 2225 carats were sent to London during that year, some of the gems bringing £4 a carat, but the production has since dwindled. The mine at the Glen in the Emmaville division was re-opened and worked for a short period during 1908, when about 1000 carats of emeralds, valued at about £1650, were obtained. The largest stone in the rough weighed 60 carats. Small emeralds of fine quality have been found at Poona, in Western Australia, and it is stated that prospecting at greater depths would possibly reveal the existence of larger specimens. Amongst other gems found in New South Wales at various times may be mentioned *turquoises*, discovered in 1894, near Bodalla; *topazes*, fine specimens of which have been obtained in the New England district, and *zircons* and *garnets*. Zircons of small size are plentifully found in the vicinity of Table Cape in Tasmania. Topazes are common in the tin drifts of Tasmania, and some fine specimens have been found. Turquoises are also found in thin veins in Victoria. In Gascoigne's mine, situated near the King River, in the parish of Edi, samples of the gem have been found equal in colour to the best Persian stone, and a considerable quantity of turquoises from this mine has been sold in England and Germany. Fine *agates* are found in many places in Victoria, but have not been made use of to any extent. The gems also occur plentifully in the bed of Agate Creek, about 4 miles south of Forsayth, on the Etheridge field in Queensland. Garnets are found in Western Australia, and beautiful specimens of *crocidolite* have been obtained at Yarra Creek in the Murchison district. *Rubies* have been found at various places in New South Wales and Queensland. *Tourmaline* has been found on Kangaroo Island, in South Australia, and *beryls* near Williamstown, Victoria, and at Poona in Western Australia. Very large but impure beryl crystals have been found at Ben Lomond in Tasmania. Some fine samples of *chiastolite* or luck stone have been found at Mt. Howden, near Bimbourie, in South Australia.

(C.) GENERAL.

§ 15. Numbers Engaged, Wages Paid, and Accidents in Mining.

1. **Total Employment in Mining.**—The number of persons engaged in the mining industry in each State and in the Commonwealth fluctuates according to the season, the price of industrial metals, the state of the labour markets, and according also to the permanence of new finds, and the development of the established mines. During the year 1915 the number so employed was as follows:—

NUMBER OF PERSONS ENGAGED IN MINING, 1915.

State.	Number of Persons Engaged in Mining for						Total.
	Gold.	Silver, Lead, and Zinc.	Copper.	Tin.	Coal and Shale.	Other.	
New South Wales ...	2,888	5,564	914	1,648	18,221	2,176	31,411
Victoria	8,755	..	...	27	1,312	299	10,393
Queensland	2,766	49	2,149	1,218	2,518	931	9,631
South Australia ...	200	25	2,000	...	...	1,075	3,300
Western Australia ...	11,323	70	144	188	498	30	12,253
Tasmania	215	519	1,758	1,221	161	34	3,908
Northern Territory ...	99	86	97	154	...	40	476
Commonwealth ...	26,246	6,313	7,062	4,456	22,710	4,585	71,372

The following table shews the number of persons engaged in mining in the Commonwealth during each of the years 1891, 1901, and 1915, together with the proportion of the total population so engaged. The general falling-off since 1901 is due to the stagnation caused by the war, and largely also to the decline in the gold-mining industry:—

PROPORTION OF PERSONS ENGAGED IN MINING, 1891, 1901 and 1915.

State.	1891.		1901.		1915.	
	Miners Employed.	No. per 100,000 of Popu- lation.	Miners Employed.	No. per 100,000 of Popu- lation.	Miners Employed.	No. per 100,000 of Popu- lation.
New South Wales ...	30,604	2,700	36,615	2,685	31,411	1,679
Victoria	24,649	2,151	28,670	2,381	10,393	729
Queensland	11,627	2,934	13,352	2,664	9,631	1,402
South Australia ...	2,683	834	7,007	1,931	3,300	750
Western Australia ...	1,269	2,496	20,895	11,087	12,253	3,801
Tasmania	3,988	2,695	6,923	4,017	3,908	1,960
Northern Territory ...	...	...	...	...	476	...
Commonwealth ...	74,820	2,341	113,462	2,992	71,372	1,442

2. **Wages Paid in Mining.**—Particulars regarding wages paid in the mining industry, which in earlier issues of the Year Book were given in this section, have now been transferred to the section dealing with Labour and Industrial Statistics.

3. **Accidents in Mining, 1915.**—The following table gives particulars of the number of men killed and injured in mining accidents during the year 1915:—

NUMBERS KILLED AND INJURED IN MINING ACCIDENTS, 1915.

Mining for—	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N. T.	Cwlth.
KILLED.								
Coal and shale	23	3	4	...	2	...	...	32
Copper	3	...	7	3	...	5	...	18
Gold...	...	10	1	...	31	...	...	42
Silver, lead and zinc	9	...	...	...	1	...	...	10
Tin	2	...	1	...	...	...	...	3
Other minerals	...	...	1	...	...	1	1	3
Total	37	13	14	3	34	6	1	108
INJURED.								
Coal and shale	49	20	37	...	81	2	...	189
Copper	...	...	44	...	...	46	...	90
Gold...	1	34	16	...	840	2	...	893
Silver, lead and zinc	29	...	...	...	...	7	1	37
Tin	3	...	5	...	...	10	...	18
Other minerals	2	...	3	...	2	...	...	7
Total	84	54	105	...	923	67	1	1,234

§ 16. State Aid to Mining.

1. **Introduction.**—The terms and conditions under which the States granted aid in mining were alluded to at some length in previous issues (see Year Books IV. and V.), but owing to considerations of space they have been omitted from this issue. A résumé of what is being done in this direction at the present time is given hereunder.

2. **New South Wales.**—The chief aid given in this State is in the direction of assistance to prospectors. Up to the end of 1915 the total sum expended in this manner amounted to £465,189, of which £10,009 was advanced in 1915. During the year the Government subsidy to the Miners' Accident Relief Fund amounted to £11,497.

3. **Victoria.**—Under the Mining Development and Surplus Revenue Acts the sum of £450,097 was expended from revenue, and £262,832 was provided out of votes during the period 1897 to 1915 as follows:—

	£
Advances to mining companies	201,163
Advances to prospectors	85,847
Boring for gold and coal	233,221
Construction of roads and tracks	62,777
Erection of testing plants, batteries, etc.	79,632
Miscellaneous, cyanide patents, Schools of Mines, etc.	50,289
Total	712,929

The expenditure in 1915 was £55,620, of which £21,489 was advanced to companies; £12,128 was loaned to miners; £432 was spent on constructing roads, etc.; £13,310 on boring for gold, coal, etc., and £8,261 on testing plants and miscellaneous. The Government batteries number 28, several of which are managed by local trusts without expense to the Department so far as cost of working is concerned. For the year 1915 the net cost to the Department of the Government batteries was returned as £2,608. The repayment by companies of loans amounted to £21,244, by miners £2,489, and for cost of boring £9,016. The State's contribution to the Coal Miners' Accident Relief Fund amounted to £3,794.

4. **Queensland.**—State assistance to the mining industry in 1915 amounted to £30,294, of which £13,382 consisted of loans in aid of deep sinking; £2,169 grants in aid of prospecting; £3,349 in aid of roads and bridges to gold and mineral fields; £817 advance under Mining Machinery Advances Act 1906; £10,167 purchase of boring plant and boring for oil at Roma, and £410 purchase of Assay Office at Cloncurry.

5. **South Australia.**—Aid is given to the mining industry under the terms of the Mining Act of 1893, and previous measures. Up to the end of 1915 the total amount of subsidy paid was £62,555, of which £7,660 has been repaid, leaving a debit of £54,895. Portion of this amount is represented by machinery that has fallen into the hands of the Government. Repayments are made from profits, but in only two instances have the profits enabled a full return to be made.

6. **Western Australia.**—Under the Mining Development Act of 1902 assistance was granted in 1915 in accordance with the subjoined statement.—Advances in aid of mining work and equipment of mines with machinery, £5,091; advances in aid of erection and equipment of crushing plants, including subsidies on stone crushed for the public, £2,228; advances in aid of boring, £224; providing means of transport, £755. In addition, amounts totalling in all £4,001 were expended from the Mining Development vote on various matters such as water supply, roads, cartage, and subsidies for development below the 100 feet level in small mines. Included in the amount of £2,228 is a sum of £591 paid to owners of plants crushing for the public. The receipts under the Act came to £2,322, of which £1,811 consisted of refunds of advances.

In 1915 there were 34 State batteries in operation. The amount expended thereon up to the end of 1915 was £91,981 from revenue and £265,958 from loan, giving a total of £357,939. During the year receipts amounted to £41,665, and working expenditure to £47,006.

The total value of gold and tin recovered to the end of 1915 at the State plants was £4,572,000, resulting from the treatment of 1,067,155 tons of gold ore and 70,027 tons of tin ore.

7. **Tasmania.**—Under the terms of the Aid to Mining Act 1912 the expenditure for the year 1915 amounted to £78¹/₂, and the total up to the end of that year to £18,655. The bulk of this was expended in mining, prospecting, and development work undertaken by or under the direction of the Department of Mines. Under the Mining and Public Works Appropriation Act 1913, a sum of £23,750 was expended during 1915, while the outlay to the end of that year was £50,810. Of the latter sum, £21,273 consisted of advances on the security of ore produced from any mine in the State, and £11,210 was absorbed by expenses in connection with the State Argent Flat Mine, Zeehan. Under the Public Works Appropriation Act 1913, a sum of £1,581 was expended in 1915, the total expenditure under this Act being £6,990. Further, a sum of £6,608 was expended under the Mining Appropriation Act of 1915 in respect to the State Mine at Zeehan. The practice of granting £5 per month to an approved prospector has resulted in the efficient investigation of mining possibilities over a wide area.

8. **Northern Territory.**—Prior to 1912, prospectors were helped by grants of rations and some monetary assistance, but it was found that these privileges were occasionally abused, and steps have now been taken to ensure the bona fides of all seeking aid. Provision is made for generous grants to discoverers of metalliferous ores. The total aid granted to prospectors and others in 1915 amounted to £9,223.

§ 17. Commonwealth Government Control of Industrial Metals.

1. **General.**—Prior to the declaration of war by Great Britain, the Australian base metal production was controlled by the German metal organisation. The outbreak of hostilities threw the industry into chaos, and steps were immediately taken to free it from enemy control, and to establish the industry on a sound and permanent foundation, consistent with British interests.

The following legislative and administrative acts may be cited:—

- (i.) Cancellation of all mineral and metal contracts with enemy companies and firms.
- (ii.) Dissolution of the Lead Convention controlled by Germans which determined output and price to consumer and producer of all Australian lead.
- (iii.) Dissolution of the Zinc Combine—a purely German combine which controlled the world's spelter market, determining price, output, and manipulating the market as it pleased in the interests of Germany.
- (iv.) Elimination of the German interests which dominated the copper industry in Australia.
- (v.) Elimination of all enemy agencies controlling tin, molybdenite, wolfram, and other metals.

The policy of the Government is to have all metallic ores, as far as possible, treated within the Commonwealth, so that the resultant metals can be marketed in a refined state.

2. **Lead.**—Steps taken by the Commonwealth Government resulted in the formation and extension of the Broken Hill Associated Smelters Proprietary Limited, which has taken over the Broken Hill Proprietary Works at Port Pirie, South Australia. The new company is a co-operative institution for the smelting of silver-lead ores and concentrates, and the refining of the silver-lead bullion. It has one of the largest silver-lead smelting works in the world, with a capacity for an output of 160,000 tons of pig lead, and 5,000,000 to 6,000,000 ounces of silver per annum.

The Sulphide Corporation Limited continues to improve and enlarge its lead smelting works at Cockle Creek, near Newcastle, New South Wales. The refinery plant is nearly completed, and when it is in operation the output of some 60,000 tons of lead per annum will be refined, and silver and gold contents made available locally. The works cater for all the smaller mines of New South Wales, Victoria, Queensland and Tasmania, in addition to two of the Broken Hill mines.

The Fremantle Smelters, Fremantle, Western Australia, are owned by the Fremantle Trading Company Limited. The plant running at its full capacity is capable of an annual output of 15,000 tons of pig lead or silver-lead bullion from usual grade lead concentrates. The Company is at present smelting only the Northampton lead ores, which contain little or no silver, and the present output is at the rate of 5,000 tons soft pig lead per annum. The plant in operation has a capacity for an annual output of about 7,000 tons of pig lead.

3. **Zinc.** A new company, the Zinc Producers' Association Proprietary Limited, has been formed to control and dispose of the output of zinc concentrates produced within the Commonwealth. All the principal zinc-producing companies are members, and the Association is founded on a co-operative basis. One of the fundamental principles is "equality of treatment" to all members, irrespective of tonnage of output. The Commonwealth Government is represented on the Board, thus safeguarding the interests of the general community.

The output of zinc concentrates within the Commonwealth for the twelve months ended 30th June, 1917, was 295,000 tons, and arrangements have been made whereby 40 per cent. of the normal output may be reserved for local treatment. The Electrolytic Zinc Company of Australasia Proprietary Limited has been formed, and the first unit of the refinery is in the course of erection. A contract for electrical power has been arranged with the Tasmanian Government, and technical experts have been engaged to install the plant and work the process. In order to facilitate the early establishment of Australian zinc industries, the Imperial Government has undertaken to advance £500,000, if required, to finance Australian zinc works, interest on such advances to be at the same rate as is paid by the Imperial Government. The Mount Lyell Mining and Railway Company Limited, having acquired mines on the West Coast of Tasmania containing large bodies of complex sulphide ores, has formed a new company (The Mount Read and Roseberry Mines Limited) to take over these properties. The new company promises to be a substantial producer of electrolytic zinc. The enlargement of the Broken Hill Associated Smelters' zinc distillery at Port Pirie is also receiving attention.

4. **Copper.**—The policy of encouraging the treatment in Australia of all copper ores produced within the Commonwealth has been pursued, and considerable extensions of the treatment and refining works at Port Kembla, New South Wales, and Wallaroo, South Australia, have been made. Practically all copper ores and products are now refined within the Commonwealth. A new company, called the "Metal Manufactures Limited" has been formed for the production of copper wire, tubes, sheets, etc., and when the works are completed, will be in a position to meet all Australian requirements.

5. **Tin.**—Encouragement is also given to the refining of tin ore and tin concentrates within the Commonwealth. The principal tin smelters are the Mount Bischoff Company, Tasmania, The Sydney Smelting Company (Pymont Works), New South Wales, and the Irvinebank Company, Queensland.

6. **Molybdenite, Wolfram and Scheelite.**—The Commonwealth Government entered into an agreement with the Imperial Government for the acquisition of all wolframite, molybdenite, etc., produced in Australia. Under this agreement practically the whole of these minerals produced in Australia are being acquired for the Imperial Government, the prices fixed from the 1st July, 1917, being—

Wolfram and Scheelite	... 65 % WO_3	50s. per unit at producing centres.
Molybdenite	... 85 % MoS_2	100s. per unit at producing centres.

7. **Formation of Metal Exchange.**—Another action of the Government towards the elimination of German influence was the creation of an Australian Metal Exchange at Melbourne and Sydney. No metals or minerals can be exported from Australia unless first registered through the Exchange by an active member, and, during the war, with the consent of the Minister for Trade and Customs. The members of the Exchange must be natural-born British subjects, and the Attorney-General has the right of veto with regard to membership during the war and twelve months after.

SECTION XIII. MANUFACTURING INDUSTRIES.

§ 1. General.

1. **Industrial Progress.**—The statistics of manufactures in the Commonwealth shew that many industries have now been permanently established on a secure basis, and also indicate a consistent progress both in regard to the extension of existing industries and the establishment of new ones. As will be seen from the following pages, this growth has been particularly rapid since the abolition of inter-colonial tariffs consequent upon the creation of the Commonwealth of Australia in 1901.

(i.) *The Gold Discoveries, 1851.* Prior to the gold discoveries (1851) there was little development in the manufacturing industries of Australia. Reference to that period will be found in previous issues of the Year Book (see No. 6, page 524).

(ii.) *Later Progress.* Soon after the discovery of gold, the construction of the first railways (1854) and the re-establishment of regular steamship communication with Europe (1856) helped to encourage the nascent industrial activity. The Colonies of New South Wales and Victoria, which had recently (1855) received the benefits of responsible government, soon turned their attention to the settlement of an agricultural population on the land. The Acts which were passed had a beneficial effect on the workers, giving them opportunities for employment not previously open to them, and fostering the manufacturing industries by increasing the measure of primary production. During the following years the various manufacturing industries prospered. The statistics of the States are not sufficiently complete or uniform to enable a statement of the progress of these industries to be given. The following table, however, shewing, so far as returns are available, the number of factories and the number of employees in each State at decennial periods from 1861 to 1911, and for each of the four years 1912 to 1915, will serve to indicate generally the progress which has been made:—

NUMBER OF FACTORIES AND EMPLOYEES IN EACH STATE, 1861 to 1915.

Year.	N.S.W.	Victoria.	Queensland.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
NUMBER OF FACTORIES.							
1861	601	531	...	...	...	...	...
1871	1,813	1,740	...	...	...	...	...
1881	2,961	2,488	571†	823†	...	...	...
1891	3,056	3,141	1,328†	996†	175	...	...
1901	3,867	3,249	2,110†	1,335†	662	420*	11,143†
1911	5,039	5,126	1,657	1,314	710	609	14,455
1912	5,162	5,263	1,790	1,341	711	611	14,878
1913	5,346	5,613	1,838	1,353	763	623	15,536
1914	||5,269	5,650	1,796	1,323	787	603	15,428
1915	||5,269	5,413	1,775	1,266	780	589	15,092

NUMBER OF EMPLOYEES.

1861	...	4,395	...	...	...	...	...
1871	13,583	19,569	...	5,629†	...	...	...
1881	31,191	43,209	...	10,995†	...	...	...
1891	50,879	53,525	...	14,099†	...	...	...
1901	66,135	66,529	26,172†	19,283†	12,198	7,466*	197,783†
1911	108,624	111,948	37,156	27,885	15,799	10,298	311,710
1912	115,561	116,108	40,948	28,500	16,382	9,957	327,456
1913	120,400	118,744	42,363	28,511	17,299	9,784	337,101
1914	||116,611	118,399	43,282	26,874	17,640	8,922	331,728
1915	||116,611	113,834	42,079	25,496	14,631	8,420	321,071

* For 1902. † Not on same basis as other States. ‡ Not on same basis for some of States as in 1911.
 § For year ended 30th June, 1915.

NOTE.—In this and all subsequent tables, except where specially mentioned, "Number of Employees" includes working proprietors.

Since the inauguration of the Commonwealth, the throwing open of the whole of the Australian markets to the industrial products of each State has facilitated the internal distribution of the products of Australian industry.

2. Defects in Industrial Statistics.—A complete statistical account of the growth of the manufacturing industries in Australia unfortunately cannot be given for any lengthy period, owing to the fact that the necessary statistics have not been collected in past years by the several States upon a definite and identical basis. Even in respect of either the definition of a "factory" or (so far as they might be included in related returns) the statistics of persons employed therein, there was formerly no common agreement. The relatively minor place that manufacturing industry held in relation to the total activity of Australia was, perhaps, responsible for the fact that the necessity for uniform method was not earlier recognised.

In 1896 it was agreed, as between Victoria and New South Wales, to adopt a common definition of the term "factory," viz., "any factory, workshop, or mill where four or more persons are employed or power is used." This agreement was adopted for the States generally at the Conference of State Statisticians in 1902, when it was decided, however, that the term "factory" should include also "all establishments, whether making for the trade, wholesale or retail, or for export." It was further agreed that industries should be arranged, as far as possible, under a uniform classification. As a result of the conference of 1902 a higher degree of uniformity in the collection and presentation of industrial statistics was attained in the several States, so that returns upon which anything like a proper comparative study of the development and progress of various manufacturing industries in the Commonwealth may be based, date back only as far as the year 1903, when the resolution of the conference first came to be put into force. All the States did not, however, fall completely into line, and, as may be seen in the succeeding parts of this section, the comparisons afforded by the returns for the years 1903 to 1906 inclusive, are in some cases subject to various limitations. At the Conference of Statisticians held in Melbourne in 1906 special consideration was given to the methods to be adopted for the collection of statistical information regarding primary and secondary production and industry. A definite classification of industries was adopted, and a set of forms for the collection and compilation of industrial statistics on a definite and uniform basis in each State was agreed upon. The States have not, even yet, fallen entirely into line in collecting and classifying the returns. The particulars for the past seven years are, however, in more complete co-ordination than formerly, and it is now possible to give particulars for the several States in greater detail and with greater uniformity throughout.

3. Classification of Manufacturing Industries.—Under the classification adopted at the Conference of Statisticians held in 1906, factories were placed under nineteen different categories, according to the nature of the industry carried on therein; many of the categories were also subdivided. Where two or more industries are carried on by one proprietor in one building, each industry is, when possible, treated as a separate establishment. The statement given hereafter shews the classification which has been adopted; it must be understood, however, that this classification does not pretend to be exhaustive, but merely serves as a guide for the collection and presentation of statistics in the several States on a definite and uniform basis:—

CLASSIFICATION OF MANUFACTURING INDUSTRIES.

<p>CLASS I.—TREATING RAW MATERIALS, ETC. Boiling-down, Tallow Refining, etc. Tanneries Woolscouring & Fellmongering Chaff-cutting, etc.</p>	<p>Corn-flour, Oatmeal, etc. Flour Mills Jam and Fruit Canning Pickles, Sauces, and Vinegar Sugar Mills Sugar Refining Aerated Waters, Cordials, etc. Breweries Condiments, Coffee, Spices, etc. Distilleries Ice and Refrigerating Malting Tobacco, Cigars, etc.</p>	<p>CLASS XII.—SHIP AND BOAT BUILDING AND REPAIRING. Docks and Slips Sailmaking Ship and Boat Building and Repairing</p> <p>CLASS XIII.—FURNITURE, BEDDING, ETC. Bedding, Flock, & Upholstery Billiard Tables Furniture and Cabinet Making Picture Frames Window Blinds</p>
<p>CLASS II.—OILS AND FAT, ETC. Oil and Grease Soap and Candles</p>	<p>CLASS VII.—CLOTHING AND TEXTILE FABRICS. Woolen and Tweed Mills Boots and Shoes Slop Clothing Clothing (Tailoring) Dressmaking and Millinery— Makers' material Customers' material Dyeworks and Cleaning Furriers Hats and Caps Waterproof and Oilskin Shirts, Ties, and Scarfs Rope and Cordage Tents and Tarpaulins</p>	<p>CLASS XIV.—DRUGS AND CHEMICALS, ETC. Chemicals, Drugs, and Medicines Fertilisers Paints, Varnishes, and By-products</p>
<p>CLASS III.—STONE, CLAY, GLASS, ETC. Bricks and Tiles Glass (including Bottles) Glass (Ornamental) Lime, Plaster, Cement and Asphalt Marble, Slate, etc. Modelling, etc. Pottery and Earthenware</p>	<p>CLASS VIII.—BOOKS, PAPER, PRINTING, ETC. Electrotyping & Stereotyping Paper-making, Paper Boxes, Bags, etc. Photo-engraving Printing and Binding</p>	<p>CLASS XV.—SURGICAL AND OTHER SCIENTIFIC INSTRUMENTS. Surgical, Optical, and other Scientific Instruments</p>
<p>CLASS IV.—WORKING IN WOOD. Boxes and Cases Cooperage Joinery Saw Mills Wood-turning, etc.</p>	<p>CLASS IX.—MUSICAL INSTRUMENTS, ETC. Musical Instruments and Sewing Machines</p>	<p>CLASS XVI.—TIMEPIECES, JEWELLERY, & PLATED WARE. Electro-plating Manufacturing Jewellery, etc.</p>
<p>CLASS V.—METAL WORKS, MACHINERY, ETC. Agricultural Implements Brass and Copper Cutlery Engineering Galvanised Iron-working Ironworks and Foundries Lead Mills Railway Carriages Railway and Tramway Workshops Smelting Stoves and Ovens Tinsmithing Wireworking Other Metal Works</p>	<p>CLASS X.—ARMS & EXPLOSIVES Arms and Explosives</p>	<p>CLASS XVII.—HEAT, LIGHT, AND POWER. Coke Works Electric Apparatus Electric Light and Power Gas Works and Kerosene Lamps and Fittings, etc. Hydraulic Power</p>
<p>CLASS VI.—FOOD AND DRINK, ETC.</p>	<p>CLASS XI.—VEHICLES, SADDLERY, HARNESS, ETC. Coach and Wagon Building Cycles Perambulators Saddlery, Harness, etc. Spokes, etc.</p>	<p>CLASS XVIII.—LEATHERWARE (N.E.I.) Leather Belting, Fancy Leather, Portmanteaux & Bags</p>
<p>Bacon Curing Butter Factories Butterine and Margarine Cheese Factories Condensed Milk Meat and Fish Preserving Biscuits Confectionery</p>		<p>CLASS XIX.—MINOR WARES. Basket and Wickerware, Matting, etc. Brooms and Brushware Rubber Goods Toys Umbrellas Other Industries</p>

§ 2. Number of Manufactories.

1. **General.**—In stating the number of factories in the States of the Commonwealth, it is to be remembered that in the collection of statistics for years prior to 1907 the same basis has not been adopted in each State. In Queensland, for example, prior to 1906, the statistics included all establishments where two or more hands were employed, except Government railway workshops, which were not included till 1907. The difference in other respects is not material.

In the following table, shewing the total number of manufactories in the Commonwealth during the years 1903 and 1910 to 1915, it should be noted that not only are the results affected by differences of classification prior to 1907, but also that the number of

factories from year to year does not unequivocally indicate a change in the position of the industry, since amalgamations may account for part of the reduction of the numbers. (See § 3, 5.)

MANUFACTORIES OF THE COMMONWEALTH, 1903, and 1910 to 1915.

Year.	N.S.W.	Victoria.	Queensland.	South Aust.	West. Aust.	Tasmania.	C'wealth.
1903 ...	3,476	4,151	2,001*	906*†	586	431	11,551
1910 ...	4,821	4,873	1,563	1,278	680	635	13,850
1911 ...	5,039	5,126	1,657	1,314	710	609	14,455
1912 ...	5,162	5,263	1,790	1,341	711	611	14,878
1913 ...	5,346	5,613	1,838	1,353	763	623	15,536
1914 ...	5,269	5,650	1,796	1,323	787	603	15,428
1915 ...	5,269	5,413	1,775	1,266	780	589	15,092

* Not on same basis as other States. † 1904 results, those for 1903 not available.

† For year ended 30th June, 1915.

(i.) *Classification of Factories in Commonwealth, 1910 to 1915.* The following table shows the total number of factories in the Commonwealth at the end of each year from 1910 to 1915, classified on the basis indicated in § 1, 3 hereof:—

CLASSIFICATION OF FACTORIES IN THE COMMONWEALTH, 1910 to 1915.

Class of Industry.	1910.	1911.	1912.	1913.	1914.	1915.
	No.	No.	No.	No.	No.	No.
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ...	855	857	871	907	870	839
II. Treating oils and fats, animal, vegetable, etc. ...	100	105	102	100	101	99
III. Processes in stone, clay, glass, etc. ...	703	719	709	732	706	654
IV. Working in wood ...	1,474	1,625	1,752	1,812	1,764	1,702
V. Metal works, machinery, etc. ...	1,620	1,697	1,779	1,814	1,824	1,814
VI. Connected with food and drink, etc. ...	2,286	2,310	2,331	2,366	2,353	2,328
VII. Clothing and textile fabrics, etc. ...	2,982	3,093	3,115	3,266	3,254	3,117
VIII. Books, paper, printing and engraving ...	1,062	1,144	1,158	1,206	1,229	1,225
IX. Musical instruments, etc. ...	20	19	21	21	19	19
X. Arms and explosives ...	13	14	16	20	19	20
XI. Vehicles and fittings, saddlery & harness, etc. ...	1,195	1,208	1,249	1,396	1,365	1,337
XII. Ship and boat building and repairing ...	85	87	87	96	93	68
XIII. Furniture, bedding, and upholstery ...	560	613	670	719	703	693
XIV. Drugs, chemicals, and by-products ...	176	189	202	206	213	206
XV. Surgical and other scientific instruments ...	35	41	44	48	52	51
XVI. Jewellery, timepieces, and platedware ...	155	169	177	190	200	199
XVII. Heat, light, and power ...	326	351	372	420	454	474
XVIII. Leatherware, n.e.i. ...	60	62	66	67	65	67
XIX. Minor wares, n.e.i. ...	143	152	147	150	164	160
Total ...	13,850	14,455	14,878	15,536	15,428	15,092

For the purpose of the returns in the above table the definition of a factory adopted at the Conference of Statisticians in 1902 (see § 1, 2 hereof) is used, viz., "Any factory, workshop or mill where four or more persons are employed or power is used." The total increase in the number of factories according to this table from 1910 to 1915 was 1,242, or an average of 248 a year. The state of the manufacturing industries throughout Australia cannot, however, be gauged from a mere enumeration of the number of factories. Some of the factories concerned were practically in their infancy, employing but few hands, while others were developed on a large scale. Also, as pointed out previously, amalgamations may in some instances account for a reduction in the numbers.

(ii.) *Classification of Factories in each State, 1915.* The following table shows the number of factories in each State of the Commonwealth at the end of the year 1915, classified according to the nature of the industry. (See classification given in § 1, 3 hereof):—

CLASSIFICATION OF FACTORIES IN EACH STATE, 1915.

Class of Industry.	N.S.W.	Vic.	Q'land.	S. Aus.	W. Aus.	Tas.	Cwith.
	No.	No.	No.	No.	No.	No.	No.
I. Treating raw material, product of agricul. and pastoral pursuits, etc.	281	322	44	105	41	46	839
II. Treating oils and fats, animal, vegetable, etc.	42	25	14	10	6	2	99
III. Processes in stone, clay, glass, etc.	293	410	320	94	71	139	1,702
IV. Working in wood	668	410	217	177	80	41	1,814
V. Metal works, machinery, etc.	568	731	439	248	139	114	2,328
VI. Connected with food and drink, etc.	757	631	251	226	144	80	3,117
VII. Clothing and textile fabrics, etc.	1,001	1,415	251	226	144	24	3,117
VIII. Books, paper, printing & engraving	458	443	144	85	71	80	1,225
IX. Musical instruments, etc.	13	5	...	1	...	...	19
X. Arms and explosives	7	12	...	1	...	...	20
XI. Vehicles and fittings, saddlery and harness, etc.	397	529	153	133	72	53	1,337
XII. Ship and boat building & repairing	43	12	13	8	6	6	88
XIII. Furniture, bedding, and upholstery	243	265	73	48	41	23	633
XIV. Drugs, chemicals, and by-products	93	79	3	11	13	7	206
XV. Surgical and other scientific instruments	15	23	6	2	5	...	51
XVI. Jewellery, timepieces, & platedware	59	94	16	14	8	8	199
XVII. Heat, light, and power	238	142	28	17	31	18	474
XVIII. Leatherware, n.e.i.	24	33	4	3	3	...	67
XIX. Minor wares, n.e.i.	69	53	10	12	9	7	160
Total ...	5,269	5,413	1,775	1,266	780	589	15,092

* Year ended 30th June, 1915.

2. Use of Mechanical Power.—The principal motive power is steam, but the chief towns possess electric power stations owned either by the Government, or by public bodies or private companies. From these many factories find it convenient to derive their motive power.

The following table shows the number of factories in which machinery was worked by steam, gas, oil, or electricity, and the horse-power of engines or motors used, in each State and in the Commonwealth, during the year 1915 :—

UTILISATION OF MECHANICAL POWER IN FACTORIES IN EACH STATE; 1915.

State.	Number of Establishments.			Actual Horse-power of Engines Used.				
	Using Machinery worked by Steam, Gas, Oil, or Electricity	Others.	Total.	Steam.	Gas.	Oil.	Electricity.	Total.
	No.	No.	No.	H.P.	H.P.	H.P.	H.P.	H.P.
New South Wales*	3,987	1,282	5,269	158,718	14,552	1,885	50,179	225,334
Victoria ...	4,030	1,383	5,413	71,223	17,935	2,272	26,385	117,815
Queensland ...	1,352	423	1,775	39,494	10,470	1,337	10,630	62,131
South Australia ...	971	295	1,266	26,698	6,888	1,859	6,485	41,930
Western Australia ...	619	161	780	30,031	4,923	979	4,826	40,759
Tasmania ...	479	110	589	7,330	226	226	9,083	16,865
Commonwealth	11,438	3,654	15,092	333,494	54,994	8,556	107,788	504,834

* Year ended 30th June, 1915.

A comparison of the above table with that immediately preceding will explain the preponderance of horse-power employed in the New South Wales factories, this State possessing by far the largest number of industries demanding a considerable amount of power; Victoria, on the other hand, has the largest number of establishments, such as those connected with clothing and textile fabrics, wherein much less mechanical power is utilised.

The number of establishments in the Commonwealth using machinery worked by steam, gas, oil, or electricity during 1915 was 11,438, or 75.79 per cent. of the total; 3,654 establishments, representing 24.21 per cent., used no mechanical power. The total average horse-power in use was 504,834, of which engines in which the motive power was steam formed 66.06 per cent.; gas, 10.89 per cent.; oil, 1.70 per cent.; and electricity, 21.35 per

cent. During 1915 there were 42 more establishments using power than in 1914, the increase in horse-power employed being 13,297, or 2.7 per cent.

The following table shows the horse-power of engines used in connection with factories in the Commonwealth during each of the last six years:—

**UTILISATION OF MECHANICAL POWER IN FACTORIES IN COMMONWEALTH,
1910 to 1915.**

Year.	Number of Establishments.			Actual Horse-power of Engines used.				
	Using Machinery worked by Steam, Gas, Oil, or Electricity.	Others.	Total.	Steam.	Gas.	Oil.	Electricity.	Total.
	No.	No.	No.	H.P.	H.P.	H.P.	H.P.	H.P.
1910 ...	9,264	4,586	13,850	228,902	28,323	4,939	36,437	298,601
1911 ...	9,972	4,483	14,455	255,061	35,889	6,024	46,576	343,550
1912 ...	10,558	4,320	14,878	284,228	43,905	6,829	56,797	391,759
1913 ...	11,239	4,297	15,536	313,085	48,677	8,142	72,250	442,154
1914 ...	11,396	4,032	15,428	336,766	50,976	8,542	95,253	491,537
1915 ...	11,438	3,654	15,092	333,494	54,994	8,558	107,788	504,834

During the last five years the number of establishments using mechanical power has increased over 23½ per cent., the actual horse-power of engines used increasing over 69 per cent. during the same period.

§ 3. Numbers Employed in Australian Factories.

1. **Total Number Employed.**—Each person employed in and about a factory, in whatever capacity, is now included as a factory employee, consequently every proprietor who works in his business is counted as an employee, and all "outworkers" (see paragraph 6 hereinafter) are also included. The individuals embraced may be classed under the following heads, viz.:—(i.) Working proprietors; (ii.) managers and overseers; (iii.) accountants and clerks; (iv.) enginedrivers and firemen; (v.) skilled and unskilled workers in the factories, mills, or workshops; (vi.) carters and messengers; and (vii.) others.

(i.) *Average Numbers Employed, 1910 to 1915.* The following table shows, for each year from 1910 to 1915 inclusive, (a) the average numbers of persons (including both sexes and all ages) employed in manufacturing industries in each State; (b) the percentage of the numbers employed in each State on the total numbers employed in the Commonwealth; and (c) the numbers employed per ten thousand of the mean population in each State and the Commonwealth:—

**AVERAGE NUMBER OF PERSONS EMPLOYED IN MANUFACTURING INDUSTRIES,
1910 to 1915.**

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
AVERAGE NUMBER.							
1910 ...	99,711	102,176	33,944	27,010	14,107	9,980	286,928
1911 ...	108,624	111,948	37,156	27,885	15,799	10,298	311,710
1912 ...	115,561	116,108	40,948	28,500	16,382	9,957	327,456
1913 ...	120,400	118,744	42,363	28,511	17,299	9,784	337,101
1914 ...	116,611*	118,399	43,232	26,874	17,640	8,922	331,728
1915 ...	116,611*	113,834	42,079	25,496	14,631	8,420	321,071
PERCENTAGE ON COMMONWEALTH TOTAL.							
1910 ...	34.76	35.61	11.83	9.41	4.91	3.48	100.00
1911 ...	34.85	35.91	11.92	8.95	5.07	3.30	100.00
1912 ...	35.29	35.46	12.51	8.70	5.00	3.04	100.00
1913 ...	35.72	35.22	12.57	8.46	5.13	2.90	100.00
1914 ...	35.15	35.69	13.05	8.10	5.32	2.69	100.00
1915 ...	36.32	35.45	13.11	7.94	4.56	2.62	100.00

AVERAGE NUMBER OF PERSONS EMPLOYED IN MANUFACTURING INDUSTRIES, 1910 TO 1915—Continued.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
PER 10,000 OF MEAN POPULATION.							
1910 ...	611	797	574	673	521	522	657
1911 ...	654	843	605	679	551	541	694
1912 ...	665	856	648	676	543	519	705
1913 ...	665	852	649	658	551	499	702
1914 ...	626*	832	641	611	545	450	674
1915 ...	626*	798	612	637	454	422	650

* Year ended 30th June, 1915.

(ii.) *Rates of Increase, 1910 to 1915.* From the preceding table it may be seen that except during the last two years there has been a general increase in the average number of persons employed in manufacturing industries during the period referred to. The following table shows the percentage of increase on the average number for the preceding year from 1911 to 1915:—

PERCENTAGE OF INCREASE IN AVERAGE NUMBER EMPLOYED, 1911 to 1915.

Years.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
1910-11 ...	8.94	9.56	9.46	3.32	11.99	3.19	8.65
1911-12 ...	6.35	3.72	10.20	2.12	3.69	-3.31	5.03
1912-13 ...	4.19	2.27	3.46	0.04	5.60	-1.74	2.95
1913-14 ...	-3.27*	-0.29	2.17	-5.74	1.97	-8.81	-1.64
1914-15 ...	-3.27*	-3.86	-2.78	-5.13	-17.06	-5.63	-3.21

Note. — signifies a decrease. * See note (*) to preceding table.

2. **Classification of Numbers Employed in Factories in the Commonwealth, 1910 to 1915.**—The following table gives a classification of the average numbers of persons employed in factories of different descriptions in the Commonwealth during the years 1910 to 1915 inclusive:—

AVERAGE NUMBER OF PERSONS EMPLOYED IN VARIOUS FACTORIES IN THE COMMONWEALTH, 1910 to 1915.

Class of Industry.	1910.	1911.	1912.	1913.	1914.	1915.
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ...	9,655	9,805	9,624	9,495	9,221	9,306
II. Treating oils and fats, animal, vegetable, etc. ...	1,872	2,019	2,091	2,091	2,259	2,523
III. Processes in stone, clay, glass, etc. ...	10,737	12,093	12,909	13,794	13,570	12,616
IV. Working in wood ...	24,520	27,948	30,660	31,646	30,137	26,030
V. Metal works, machinery, etc. ...	54,238	60,538	66,472	68,839	66,112	65,368
VI. Connected with food and drink, etc. ...	42,921	45,623	46,812	49,882	51,980	49,266
VII. Clothing and textile fabrics, etc. ...	78,983	83,845	84,661	84,237	81,076	78,952
VIII. Books, paper, printing and engraving ...	23,064	24,292	25,077	26,013	25,213	24,928
IX. Musical instruments, etc. ...	553	607	628	616	542	515
X. Arms and explosives ...	431	508	899	1,240	1,674	2,028
XI. Vehicles and fittings, saddlery and harness, etc. ...	12,484	13,294	13,400	13,913	13,125	12,350
XII. Ship and boat building and repairing ...	2,508	2,920	3,821	4,216	5,633	6,097
XIII. Furniture, bedding and upholstery ...	8,434	9,480	10,405	10,462	9,534	8,961
XIV. Drugs, chemicals and by-products ...	3,827	4,165	4,381	4,328	4,490	4,601
XV. Surgical & other scientific instruments ...	190	233	238	264	282	301
XVI. Jewellery, timepieces, and plated ware ...	1,896	2,142	2,302	2,170	2,026	1,878
XVII. Heat, light, and power ...	6,735	7,651	8,550	9,394	9,942	9,939
XVIII. Leatherware, n.e.i. ...	1,097	1,226	1,231	1,204	1,217	1,292
XIX. Minor wares, n.e.i. ...	2,783	3,321	3,295	3,297	3,695	4,120
Total ...	286,928	311,710	327,456	337,101	331,728	321,071

The total increase in the average number of hands employed from 1910 to 1915 was 34,143, or an annual average of 6,828. The increase was general throughout all the various classes of industry. The greatest development took place in Classes V. and VI., the increases being 11,130 and 6,345 respectively.

3. Classification of Numbers Employed in each State, according to Class of Industry, 1915.—The following table shews a similar classification of employees in manufacturing industries in each State for the year 1915:—

**AVERAGE NUMBER OF PERSONS EMPLOYED IN VARIOUS FACTORIES
IN EACH STATE, 1915.**

Class of Industry.	N.S.W.	Vic.	Q'land.	S. Aus.	W. Aus.	Tas.	C'wth.
I. Treating raw material, product of agricul. and pastoral pursuits, etc.	3,818	3,345	623	844	305	371	9,306
II. Treating oils and fats, animal, vegetable, etc.	1,008	740	168	221	353	33	2,523
III. Processes in stone, clay, glass, etc.	6,256	3,822	636	1,202	491	209	12,616
IV. Working in wood	8,254	6,345	5,097	1,269	3,472	1,593	26,030
V. Metal works, machinery, etc.	26,407	19,217	7,204	8,096	3,077	1,367	65,368
VI. Connected with food and drink, etc.	15,380	13,778	13,783	3,274	1,523	1,518	49,266
VII. Clothing and textile fabrics, etc.	24,693	38,041	7,660	4,654	2,327	1,377	78,952
VIII. Books, paper, printing & engraving	9,279	8,881	3,038	1,835	1,175	720	24,928
IX. Musical instruments, etc.	354	145	...	16	...	...	515
X. Arms and explosives	700	1,324	...	4	...	...	2,028
XI. Vehicles and fittings, saddlery, and harness, etc.	4,080	4,589	1,408	1,275	562	436	12,350
XII. Ship and boat building & repairing	4,710	1,085	118	125	19	40	6,097
XIII. Furniture, bedding, and upholstery	3,642	2,689	1,129	905	396	300	8,961
XIV. Drugs, chemicals, and by-products	1,559	1,860	76	694	394	18	4,601
XV. Surgical and other scientific instruments	112	115	46	6	22	...	301
XVI. Jewellery, tinnepieces, & platedware	714	825	123	116	66	34	1,878
XVII. Heat, light, and power	3,721	4,012	696	844	311	355	9,339
XVIII. Leatherware, n.e.i.	532	604	106	24	26	...	1,292
XIX. Minor wares, n.e.i....	1,182	2,417	168	192	112	49	4,120
Total	116,611	113,834	42,079	25,496	14,631	8,420	321,071

* Year ended 30th June, 1915.

The largest number employed in any particular class in the Commonwealth was in Class VII., in which there were 78,952 employees, or 24.53 per cent. of the whole number. The class affording employment to the smallest number of hands was Class XV., in which there were 301 hands, or 0.09 per cent. of the total number of employees. Classes VI., VII., and VIII. comprise those industries in which female labour is largely employed. (See § 4, 5 hereof.)

4. Classification of Numbers Employed in each State according to Nature of Employment, 1915.—In the following table the average numbers of persons employed in each State during the year 1915 are classified according to the nature of their employment:—

**AVERAGE NUMBER OF PERSONS EMPLOYED IN EACH STATE, CLASSIFIED
ACCORDING TO NATURE OF EMPLOYMENT, 1915.**

State.	Average Number of Persons Employed.						Total.
	Working Proprietors.	Managers and Overseers	Accountants and Clerks.	Engine-drivers and Firemen.	Workers, Skilled & Unskilled in Factory Mill or Workshop	Carters, Messengers and Others.	
New South Wales*	4,452	3,756	4,615	2,812	97,938	3,038	116,611
Victoria ...	5,366	3,347	4,062	1,685	95,811	3,563	113,834
Queensland ...	1,522	1,429	1,760	1,524	33,502	2,342	42,079
South Australia ...	1,243	852	1,098	542	21,209	552	25,496
Western Australia ...	561	558	609	444	11,190	1,269	14,631
Tasmania ...	410	370	429	314	6,530	367	8,420
Commonwealth ...	13,554	10,312	12,573	7,321	266,180	11,131	321,071

* Year ended 30th June, 1915.

† Including out-workers.

5. Classification of Factories according to Number of Hands Employed, 1915.—

(i.) The number of factories in each State, classified according to the number of hands employed and the total number of hands employed therein, is shewn in the following table:—

CLASSIFICATION OF FACTORIES IN EACH STATE ACCORDING TO NUMBER OF HANDS EMPLOYED, 1915.

No. of Persons Employed in each Factory.	N.S.W.*	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
NUMBER OF FACTORIES.							
Under 4 ...	962	1,148	243	199	171	130	2,853
4 ...	530	623	172	177	70	71	1,643
5 to 10 ...	1,778	1,805	597	468	267	218	5,133
11 to 20 ...	927	827	328	187	125	83	2,477
21 to 50 ...	646	608	262	139	94	60	1,809
51 to 100 ...	232	214	92	52	29	17	636
Over 100 ...	194	188	81	44	24	10	541
Total ...	5,269	5,413	1,775	1,266	780	589	15,092

AVERAGE NUMBER OF HANDS EMPLOYED.

Under 4 ...	2,234	2,635	547	477	366	283	6,542
4 ...	2,120	2,492	688	708	280	284	6,572
5 to 10 ...	12,338	12,390	4,144	3,262	1,865	1,487	35,486
11 to 20 ...	13,462	12,011	4,785	2,647	1,822	1,218	35,945
21 to 50 ...	20,194	19,621	8,229	4,369	3,006	1,922	57,341
51 to 100 ...	16,314	14,693	6,737	3,548	1,999	1,090	44,381
Over 100 ...	49,949	49,992	16,949	10,485	5,293	2,136	134,804
Total ...	116,611	113,834	42,079	25,496	14,631	8,420	321,071

* Year ended 30th June, 1915.

(ii.) Reference to the following table will shew the tendency of the ratio of the number of hands employed in the larger establishments to still further increase and that of the smaller factories to diminish. During the quinquennial period under discussion, the ratio of hands in factories employing under 21 hands to total number of employees in all factories shews a decline from 28.43 per cent. in 1910 to 26.33 in 1915. A slightly heavier falling off appears in establishments employing from 21 to 100 hands, viz., 34.24 to 31.68 per cent. The larger establishments with 101 hands and upwards during the same period exhibit an increase from 37.33 to 41.99 per cent. of total employed. The average number employed in all establishments in 1910 was 20.72, and in 1915, 21.27.

**CLASSIFICATION OF FACTORIES IN THE COMMONWEALTH ACCORDING TO
NUMBER OF HANDS EMPLOYED DURING THE YEARS 1910 to 1915.**

Year.	Establishments Employing on the Average—							
	20 hands and under.		21 to 100 hands.		101 hands and upwards.		Total.	
	Es- tablish- ments.	Hands.	Es- tablish- ments.	Hands.	Es- tablish- ments.	Hands.	Es- tablish- ments.	Hands.
1910—								
Number	10,985	81,561	2,381	98,243	484	107,124	13,850	286,928
Average per establishment ...	...	7.42	...	41.26	...	221.33	...	20.72
Percentage on total ...	79.31	28.43	17.20	34.24	3.49	37.33	100.00	100.00
1911—								
Number	11,362	85,562	2,567	106,624	526	119,524	14,455	311,710
Average per establishment ...	...	7.53	...	41.54	...	227.23	...	21.56
Percentage on total ...	78.60	27.45	17.76	34.21	3.64	38.34	100.00	100.00
1912—								
Number	11,660	87,231	2,673	111,126	545	129,099	14,878	327,456
Average per establishment ...	...	7.48	...	41.57	...	236.88	...	22.01
Percentage on total ...	78.37	26.63	17.97	33.94	3.66	39.43	100.00	100.00
1913—								
Number	12,280	90,005	2,676	109,704	580	137,392	15,536	337,101
Average per establishment ...	...	7.33	...	41.00	...	236.88	...	21.70
Percentage on total ...	79.04	26.70	17.23	32.54	3.73	40.76	100.00	100.00
1914—								
Number	12,284	88,071	2,589	106,584	554	136,924	15,427	331,579
Average per establishment ...	...	7.17	...	41.16	...	247.15	...	21.49
Percentage on total ...	79.62	26.56	16.79	32.14	3.59	41.30	100.00	100.00
1915—								
Number	12,106	84,545	2,445	101,722	541	134,804	15,092	321,071
Average per establishment ...	...	6.99	...	41.60	...	249.18	...	21.27
Percentage on total ...	80.22	26.33	16.20	31.63	3.58	41.99	100.00	100.00

6. **Outworkers.**—The term “outworker” or “homeworker” has acquired a special meaning in connection with manufacturing industries, and technically embraces only those to whom work is given out by factory owners to be wrought upon in the employees' own homes. Individuals working for themselves are not included. The following table gives particulars of the average number of outworkers connected with factories in each State during each year from 1910 to 1915 inclusive :—

NUMBER OF OUTWORKERS* CONNECTED WITH FACTORIES, 1910 to 1915.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
1910	720	1,584	224	68	20	76	2,692
1911	784	1,906	158	88	15	96	3,047
1912	895	1,959	140	71	14	86	3,165
1913	724	1,910	522	54	7	72	3,289
1914	582†	1,737	117	58	8	58	2,560
1915	582†	1,473	92	44	6	70	2,267

* In all tables relating to number of hands employed in factories, outworkers are included.
† Year ended 30th June, 1915.

The Factories Acts in each State contain provisions regulating the employment of outworkers. Generally records of out-work must be kept by factory proprietors, specifying the names and remuneration of workers, and stating the places where the work is done. Further particulars are given in a later part of this book. (See Section XXVII. *Industrial Unionism and Industrial Legislation.*)

§ 4. Sex Distribution in Factories.

1. **Employment of Females in Factories.**—In all the States the employment of female labour in factories is now regulated by Act of Parliament. In Victoria the first Act dealing with the subject was passed in the year 1873, and provided that no female should be employed for more than eight hours a day without the permission of the Chief Secretary. The number of working hours for women is now limited to forty-eight per week in all the States, overtime being allowed only with the permission of the Departments, and then to a limited extent. The maximum periods of continuous labour, and the intervals of cessation therefrom, are also prescribed by the several Acts. Further reference is made to the restrictions regarding the employment of females in a later part of this book. (See Section XXVII. *Industrial Unionism and Industrial Legislation.*)

2. **Distribution of Employees according to Sex, 1910 to 1915.**—In New South Wales the ratio of the number of females employed in factories to the number of males during 1886 was about one to seven; in 1891 one to six; in 1903 it became about one to four; and is now lower than one to three. In Victoria the ratio of females to males during the year 1886 was about one to five. Five years later (1891) it was somewhat less, but in 1896 had increased to about one woman to three men, and at present is slightly under one to two. In the remaining States the ratios during 1915 were—Queensland and South Australia, less than one female employed to every four males, Western Australia less than one to five, and Tasmania slightly more than one to six. The proportion for the whole of the Commonwealth was just below one to three. The employment of women is, however, largely confined to a few trades.

The great prosperity in clothing and textile industries is one of the main causes of increase in female employment. Certain trades are specifically known as women's trades, such as clothing and textile trades, preparation of food, book-binding, and lighter work connected with the drug trade, as, for example, wrapping. In common with commercial establishments, a considerable number of women are also employed as clerks and typists in factories.

(i.) *Average Number of Males and Females Employed, 1910 to 1915.* The following table shows the average number of male and female employees in factories in each State from 1910 to 1915:—

AVERAGE NUMBER OF MALES AND FEMALES EMPLOYED IN MANUFACTURING INDUSTRIES, 1910 to 1915.

State.	1910.	1911.	1912.	1913.	1914.	1915.
MALES.						
New South Wales ...	75,384	82,083	88,178	93,036	*90,394	*90,394
Victoria ...	66,309	73,573	77,565	80,054	79,772	75,971
Queensland ...	27,165	29,832	33,254	34,715	35,717	34,887
South Australia ...	21,864	22,629	23,083	23,323	22,111	20,772
Western Australia ...	11,654	13,212	13,805	14,625	14,996	12,290
Tasmania...	8,277	8,737	8,391	8,354	7,613	7,161
Commonwealth ...	210,653	230,066	244,276	254,107	250,603	240,975

SEX DISTRIBUTION IN FACTORIES:

AVERAGE NUMBER OF MALES AND FEMALES EMPLOYED IN
MANUFACTURING INDUSTRIES, 1910 to 1915—Continued.

State.	1910.	1911.	1912.	1913.	1914.	1915.
FEMALES.						
New South Wales ...	24,327	26,541	27,383	27,364	*26,217	*26,217
Victoria ...	35,867	38,375	38,543	38,690	38,627	37,863
Queensland ...	6,779	7,324	7,694	7,648	7,565	7,692
South Australia ...	5,146	5,256	5,417	5,188	4,763	4,724
Western Australia ...	2,453	2,587	2,577	2,674	2,644	2,341
Tasmania ...	1,703	1,561	1,566	1,430	1,309	1,259
Commonwealth ...	76,275	81,644	83,180	82,994	81,125	80,096

* Year ended 30th June, 1915.

It will be seen that during the years specified there has been for the whole Commonwealth a total increase in the number of male employees of 30,322, or an annual average of 6,064, and in the number of female employees a total increase of 3,821, or an annual average of 764.

(ii.) *Average Number of Males and Females Employed per 10,000 of Mean Population, 1910 to 1915.* The following table shews the average number of male and female employees per 10,000 of the mean male and female population respectively in each State from 1910 to 1915:—

AVERAGE NUMBER OF MALE AND FEMALE FACTORY EMPLOYEES PER 10,000
OF MEAN MALE AND FEMALE POPULATION RESPECTIVELY, 1910 to 1915.

State.	1910.	1911.	1912.	1913.	1914. *	1915.
MALES.						
New South Wales ...	883	947	967	979	*935	*935
Victoria ...	1,045	1,118	1,145	1,151	1,119	1,078
Queensland ...	843	892	970	982	978	932
South Australia ...	1,071	1,084	1,077	1,062	1,002	958
Western Australia ...	754	805	802	823	826	696
Tasmania ...	848	900	854	823	741	702
Commonwealth ...	929	986	1,009	1,015	981	948
FEMALES.						
New South Wales ...	312	334	332	319	*293	*293
Victoria ...	554	579	567	555	543	525
Queensland ...	252	262	266	256	244	242
South Australia ...	261	260	261	242	217	212
Western Australia ...	210	211	199	196	186	161
Tasmania ...	182	167	168	151	137	129
Commonwealth ...	363	379	374	361	342	333

* Year ended 30th June, 1915.

3. **Rate of Increase for each Sex.**—The percentages of annual increase during the years 1911 to 1915 in the average number of males and females employed in manufacturing industries in the several States and the Commonwealth are shewn below:—

PERCENTAGES OF ANNUAL INCREASE IN NUMBERS OF MALE AND FEMALE EMPLOYEES, 1911 to 1915.

State.	1910-11.	1911-12.	1912-13.	1913-14.	1914-15.
MALES.					
	%	%	%	%	%
New South Wales ...	8.89	7.37	5.51	-2.84*	...*
Victoria ...	10.95	5.43	3.21	-0.35	-4.76
Queensland ...	9.82	11.47	4.39	2.89	-3.72
South Australia ...	3.60	1.91	1.04	-5.20	-6.06
Western Australia ...	13.37	4.49	5.94	2.54	-18.04
Tasmania ...	5.56	-3.96	-0.44	-8.87	-5.94
Commonwealth ...	9.23	6.15	4.02	-1.38	-6.01†

FEMALES.

New South Wales ...	9.10	3.17	-0.07	-4.19'	...*
Victoria ...	6.99	0.44	0.38	-0.16	-1.98
Queensland ...	8.04	4.99	-0.60	-1.08	1.68
South Australia ...	2.14	3.06	-4.23	-8.19	-0.82
Western Australia ...	5.46	-0.39	3.76	-1.12	-11.46
Tasmania ...	-8.34	0.32	-8.68	-8.46	-3.82
Commonwealth ...	7.04	1.88	-0.22	-2.25	-1.87†

Note.—The minus (—) sign indicates decrease. * See note (*) to § 4. 2 (i).

† Exclusive of New South Wales.

The above table shews that for the first three years of the quinquennial period under discussion, taking the Commonwealth as a whole, there has been relatively a larger increase in the number of male than in the number of female employees. This position existed in every State with the exception of New South Wales in 1911 and South Australia in 1912. During 1914 and 1915 the Commonwealth totals shew a decrease of 1.38 and 6.01 respectively for male and of 2.25 and 1.87 for female employees. The only States with an increased percentage during these two years were Queensland and Western Australia for males in 1914, and Queensland for females during 1915. This matter is referred to further in the following paragraph.

4. **Ratio of Female Employment in Factories.**—The extent to which females are employed in the factories of the Commonwealth may perhaps be best shewn by giving the masculinity of employees for each State for a series of years. The following table furnishes particulars for each of the years 1910 to 1915 inclusive:—

**EXCESS OF MALES OVER FEMALES PER 100 OF BOTH SEXES COMBINED,
1910 to 1915.**

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
1910	51.2	29.6	60.1	61.9	65.2	65.9	46.8
1911	51.1	31.5	60.6	62.3	67.3	69.7	47.6
1912	52.6	33.6	62.4	62.0	68.6	68.6	49.2
1913	54.5	34.8	63.9	63.6	69.1	70.8	50.8
1914	*55.0	34.8	65.0	64.6	70.0	70.7	51.1
1915	*55.0	33.5	63.4	62.9	68.0	70.1	50.1

* Year ended 30th June, 1915.

The proportion of the sexes has not materially changed during the past ten years, the 1915 figures for the whole of the Commonwealth, 50.1, being almost identical with those of 1905, 50.3. The tables given in the succeeding paragraph shew that the comparatively high ratios for females have been due not so much to the incursion of female labour into what may be termed men's trades, as to the activity in those trades in which women are ordinarily engaged, more especially in dressmaking, millinery, etc.

5. Employment of Females in Particular Industries, 1915.—The employment of women in manufacturing industries in Australia is largely confined to a few trades, of which the more important are comprised in Classes VI., VII., and VIII., viz., in connection with food, drink, etc., clothing and textile fabrics, and books, paper, printing, etc. The following table shews the average number of females employed in each of these classes during the year 1915 in each State, and also shews the percentages of the average number so employed on the total average number of females employed in all classes of factories:—

**AVERAGE NUMBER OF FEMALES EMPLOYED IN PARTICULAR INDUSTRIES, AND
PERCENTAGES ON AVERAGE TOTAL EMPLOYED, 1915.**

Class.	N.S.W.	Vict.	Q'land.	S. Aust.	W. Aust.	Tas.	Cwltth.
AVERAGE NUMBER.							
VI. Food, drink, etc. ...	3,705	3,603	853	442	176	215	8,994
VII. Clothing and textile fabrics ...	17,517	28,262	5,784	3,434	1,775	874	57,646
VIII. Books, paper, printing, etc. ...	2,419	2,378	642	525	259	84	6,287
All other classes ...	2,576	3,620	413	323	151	86	7,169
Total ...	26,217	37,863	7,692	4,724	2,341	1,259	80,096

PERCENTAGES ON TOTAL AVERAGE FEMALE EMPLOYEES.

VI. Food, drink, etc. ...	14.13	9.52	11.09	9.36	7.52	17.08	11.23
VII. Clothing and textile fabrics ...	66.82	74.64	75.19	72.69	75.82	69.42	71.97
VIII. Books, paper, printing, etc. ...	9.23	6.28	8.35	11.11	10.21	6.67	7.85
All other classes ...	9.82	9.56	5.37	6.84	6.45	6.83	8.95
Total ...	100.00	100.00	100.00	100.00	100.00	100.00	100.00

It will be seen that by far the greater part of the total number of females employed in factories work in one or other of the three classes of industry indicated, Class VII. being the most important. The classification of the employment of females in the several industries in that class, and the ratio they bore to males so employed, are shewn in the following table:—

FEMALE EMPLOYMENT IN EACH INDUSTRY IN CLASS VII. DURING 1915.

Industry.	New South Wales.*			Victoria.			Other States.		
	Males.	Femls.	Femini- nity. †	Males.	Femls.	Femini- nity. †	Males.	Femls.	Femini- nity. †
Woolen & tweed mills	379	576	20.63	960	1,103	6.93	268	334	10.96
Boots and shoes ...	2,634	1,471	-28.33	4,317	2,530	-26.10	1,440	783	-29.55
Slop clothing	2,904	7,586	44.63	2,278	7,969	55.54	1,959	5,920	50.27
Clothing (tailoring)									
Dressmaking & millin'y	108	4,394	95.20	256	7,851	93.68	29	2,978	99.08
Dyeworks and cleaning	58	46	-11.54	79	86	4.24	24	14	-26.32
Furriers ...	35	39	5.41	65	147	38.68	1	3	50.00
Hats and caps ...	511	918	20.48	667	984	19.20	85	140	24.44
Waterproof and oilskin	21	68	52.80	52	170	53.15	...	...	...
Shirts, ties, and scarfs	239	2,168	80.14	423	6,795	88.28	91	1,544	88.87
Rope and cordage ...	275	7	-95.04	526	371	-17.28	155	73	-35.96
Tents and tarpaulins...	212	244	7.02	143	132	-4.00	99	71	-16.47
Other ...	...	...	...	13	124	81.02	...	7	100.00
Total Class VII....	7,376	17,517	40.74	9,779	28,262	48.59	4,151	11,867	48.17

* Year ended 30th June, 1915. † Excess of females over males per 100 of both sexes combined.
NOTE.—Minus sign (-) denotes excess of males over females.

§ 5. Child Labour in Factories.

1. **Conditions of Child Labour.**—The employment of young persons in factories in each State of the Commonwealth is regulated by Acts of Parliament in a similar manner to the employment of female labour. Excepting under special circumstances, children under a certain age may not be employed in factories. The minimum age in all the States is 14, with the exception of South Australia, where it is 13 years, and Victoria, where the minimum for females is 15 years. Other restrictions on the employment of young persons in factories are more particularly referred to in a later part of this book. (See Section XXVII. *Industrial Unionism and Industrial Legislation.*) The general object of the restrictions imposed is to assure that a proper period shall be devoted to primary education, and that the early years of toil shall not exhaust the worker before the attainment of full growth.

2. **Average Number of Children Employed in Factories, 1910 to 1915.**—In the statistical compilations of the various States the term "child" may be taken to denote any person under sixteen years of age. The following table shews the average number of children of each sex employed in manufacturing industries in each State during the years 1910 to 1915:—

AVERAGE NUMBER OF CHILDREN EMPLOYED IN FACTORIES, 1910 to 1915.

State.	1910.	1911.	1912.	1913.	1914.	1915.
MALES.						
New South Wales	2,452	2,474	2,225	2,385	*2,437	*2,437
Victoria ...	2,753	2,623	2,652	2,743	2,898	3,355
Queensland ...	1,031	1,176	1,114	1,122	1,148	1,247
South Australia ...	1,082	999	1,078	1,122	1,064	1,068
Western Australia	340	368	356	346	381	414
Tasmania ...	282	280	322	283	213	262
Commonwealth ...	7,940	7,920	7,747	8,001	8,141	8,783

AVERAGE NUMBER OF CHILDREN EMPLOYED IN FACTORIES,
1910 TO 1915.—Continued.

State.	1910.	1911.	1912.	1913.	1914.	1915.
FEMALES.						
New South Wales ...	2,025	2,267	2,093	2,086	*2,326	*2,326
Victoria ...	2,174	1,937	1,740	1,840	1,816	2,197
Queensland ...	733	818	764	701	713	835
South Australia ...	702	555	704	611	522	591
Western Australia ...	266	293	334	360	361	311
Tasmania ...	96	131	121	141	77	97
Commonwealth ...	5,996	6,001	5,756	5,739	5,815	6,357
TOTAL.						
New South Wales ...	4,477	4,741	4,318	4,471	*4,763	*4,763
Victoria ...	4,927	4,560	4,392	4,583	4,714	5,552
Queensland ...	1,764	1,994	1,878	1,823	1,861	2,082
South Australia ...	1,784	1,554	1,782	1,733	1,586	1,659
Western Australia ...	606	661	690	706	742	725
Tasmania ...	378	411	443	424	290	359
Commonwealth ...	13,936	13,921	13,503	13,740	13,956	15,140

* Year ended 30th June, 1915.

3. Percentage of Children to Total Persons Employed.—The foregoing table shows a general increase in several of the States in the number of children employed in factories during the past quinquennial period. These increases for the first three years, however, when examined in conjunction with the total number of persons employed, shew a fairly regular decrease in the percentage of child labour. This decrease is particularly noticeable in Victoria, the percentage falling from 4.82 in 1910 to 3.86 in 1913. In 1914 there was both an actual and percentage increase in several of the States, and in all of them during 1915.

**PERCENTAGE OF CHILDREN IN FACTORIES TO TOTAL NUMBER OF EMPLOYEES,
1910 TO 1915.**

State.	1910.	1911.	1912.	1913.	1914.	1915.
	%	%	%	%	%	%
New South Wales ...	4.49	4.36	3.74	3.71	*4.08	*4.08
Victoria ...	4.82	4.07	3.78	3.86	3.98	4.88
Queensland ...	5.20	5.37	4.59	4.30	4.30	4.95
South Australia ...	6.60	5.57	6.25	6.08	5.90	6.51
Western Australia ...	4.30	4.18	4.21	4.08	4.21	4.96
Tasmania ...	3.79	3.99	4.45	4.33	3.25	4.26
Commonwealth ...	4.86	4.47	4.12	4.08	4.21	4.72

* Year ended 30th June, 1915.

4. Industries Employing Child Labour, 1915.—The employment of children is largely confined to a limited number of industries, the most important of which are specified in the table below, which shews the average number of children of each sex employed in the several industries indicated, in each State during the year 1915:—

NUMBER OF CHILDREN ENGAGED IN VARIOUS INDUSTRIES, 1915.

Class.	Industry.	N.S.W.*		Victoria.		Q'land.		S. Aust.		W.A.		Tas.		C'w'lth.	
		M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
III.	Bricks, tiles, pottery and earthenware ...	43	...	68	4	15	...	22	...	6	...	6	...	160	4
IV.	Joinery; boxes, cases, etc. ...	59	...	65	4	24	...	24	...	15	1	7	...	194	5
V.	Agricultural implement's	6	...	75	...	9	...	35	...	5	...	1	...	131	...
..	Engin'ring, ironworks, and foundries ...	261	4	353	1	91	1	92	...	61	...	8	...	866	6
..	Brass and copper ...	12	1	93	...	7	1	33	...	...	...	...	...	145	2
..	Galvanised iron-work- ing and tinsmithing	99	15	124	53	73	1	87	...	...	...	5	...	388	69
..	Railway carriages, rail- way & tramway work- shops ...	46	...	221	...	13	1	99	...	29	...	...	...	408	1
VI.	Biscuits, cakes, etc. ...	143	115	55	55	13	6	16	9	25	12	22	4	274	201
..	Confectionery ...	46	57	24	52	20	27	28	30	4	3	1	...	123	169
..	Meat & fish preserving	11	6	24	...	142	...	7	...	...	...	4	...	188	6
..	Jams, pickles, sauces, etc. ...	19	18	26	22	21	22	22	29	7	1	11	4	106	96
..	Aerated waters, cor- dials, etc. ...	16	1	53	2	82	16	11	1	8	...	7	...	177	20
..	Tobacco, cigars, etc. ...	83	100	33	8	3	4	2	1	2	8	...	...	123	121
VII.	Woollen, tweed, and cotton mills...	49	79	155	122	12	37	16	16	...	...	4	10	236	264
..	Boots and shoes ...	144	148	208	236	42	51	39	40	18	18	8	11	459	504
..	Clothing (tailoring and slop)...	79	550	103	310	44	294	23	135	14	52	9	16	272	1,357
..	Dressmaking and mil- linery ...	5	407	13	446	1	122	...	133	...	137	1	37	20	1,282
..	Hats and caps ...	34	99	54	30	1	8	6	5	...	1	...	...	95	143
..	Shirts, ties, scarfs, etc.	9	196	14	436	6	117	3	77	1	33	...	2	33	861
VIII.	Electrotyping, printing and binding...	318	152	432	120	224	83	81	21	62	27	50	5	1,167	408
..	Paper making, paper boxes, etc. ...	60	136	25	46	2	17	26	76	4	8	...	...	117	283
XI.	Coach & wagon build- ing, etc. ...	51	...	96	...	36	...	36	...	5	...	11	...	235	...
..	Cycles and motors ...	26	...	79	...	16	...	42	...	13	...	11	1	187	1
XIII.	Billiard tables, cabinet making and furniture	81	1	70	2	49	3	24	1	15	...	20	...	259	7

* Year ended 30th June, 1915.

5. **Apprenticeship.**—It is obvious that the age of apprenticeship in each State must be limited by the conditions governing the employment of child labour in factories. The early Apprentices Acts in some of the States are apparently in conflict on this point with the Factories Acts. The statutes limiting the age at which children may begin to work may be regarded as applicable by way of preventing too early apprenticeship, as may also those directing that education be continued up to a certain age or standard.

Indentures must be entered into specifying the conditions of the employment. Apprenticeships may not exceed seven years in duration, and become inoperative at twenty-one years of age, or in the case of women, on marriage.

The Arbitration Courts and Wages Boards have power to limit the number of apprentices which may be taken into a factory and specify the term of apprenticeship. No general statistics of the number of apprentices in Australia have been collected up to the present time. Other enactments relating to child labour are referred to in Section XXVII. of this book, *Industrial Unionism and Industrial Legislation.*

§ 6. Amount of Wages Paid and Value of Production.

1. **Introduction.**—The importance of the manufacturing industries of the Common- wealth is indicated by the fact that the total value of the output for 1915 was £169,086,700, of which amount the sum of £102,776,082 represents the value of the raw materials used. The difference between these two amounts, viz., £66,310,618, represents the amount by which the value of the raw materials was enhanced in the process of manufacture. The total amount of salaries and wages paid in factories during 1915 was £33,210,654.

2. **Amount of Salaries and Wages Paid, 1915.**—The total amount of salaries and wages paid during the year 1915 in various classes of factories in the Commonwealth (excluding all sums drawn by working proprietors) is shewn in the following table.

It has been found impracticable to shew satisfactorily herein the rates of wages paid to employees in various classes of manufacturing industries in Australia, owing to the facts—firstly, that the rates in many industries vary very considerably in different parts of the country; and secondly, that the necessary particulars are not collected by the several States on a uniform basis; while for some of the States the information given is lacking in essential details.

**AMOUNT OF SALARIES AND WAGES PAID IN FACTORIES IN
COMMONWEALTH, 1915.***

Class of Industry.	N.S.W. †	Vict.	Q'land.	S. Aust.	W. Aust.	Tas.	C'with.
	£	£	£	£	£	£	£
I. Treating raw material, product of agriculture and pastoral pursuits, etc. ...	385,039	354,008	68,359	67,682	17,896	19,644	912,628
II. Treating oils and fats, animal, vegetable, etc. ...	101,859	82,628	16,341	26,088	33,500	3,093	263,509
III. Processes in stone, clay, glass, etc. ...	776,997	464,874	64,647	131,752	55,111	18,553	1,511,934
IV. Working in wood ...	895,202	710,957	537,833	140,698	476,605	147,061	2,908,356
V. Metal works, machinery, etc. ...	3,391,462	2,399,009	916,498	1,094,901	452,930	175,484	8,430,284
VI. Connected with food and drink, etc. ...	1,709,597	1,454,381	1,419,756	319,685	189,941	122,469	5,215,849
VII. Clothing and textile fabrics, etc. ...	1,786,584	2,449,548	463,723	277,858	155,550	84,860	5,218,123
VIII. Books, paper, printing and engraving ...	1,080,923	994,229	340,085	184,162	167,649	89,218	2,856,266
IX. Musical instruments, etc. ...	44,653	15,692	...	1,652	...	...	62,037
X. Arms and explosives ...	81,499	136,660	...	366	...	...	219,525
XI. Vehicles and fittings, saddlery and harness, etc. ...	433,016	443,661	126,721	121,839	56,577	37,174	1,218,988
XII. Ship and boat building and repairing... ..	669,916	143,261	12,528	18,100	2,134	4,084	850,023
XIII. Furniture, bedding and upholstery ...	389,634	254,626	108,256	76,656	49,272	24,964	903,408
XIV. Drugs, chemicals, and by-products ...	147,435	190,617	5,215	76,429	52,716	1,351	473,763
XV. Surgical and other scientific instruments ...	11,198	10,394	3,515	917	1,661	...	27,685
XVI. Jewellery, timepieces, and platedware ...	89,769	83,194	10,911	13,648	6,743	3,053	207,318
XVII. Heat, light, and power ...	523,234	553,368	111,610	134,427	61,071	50,231	1,433,941
XVIII. Leatherware, n.e.i. ...	46,886	46,091	10,425	2,126	1,713	...	107,241
XIX. Minor wares, n.e.i. ...	102,518	249,147	10,212	16,104	10,207	2,288	390,776
Total	12,667,721	11,036,345	4,226,635	2,705,130	1,791,276	783,547	33,210,654

* Excluding all amounts drawn by working proprietors. † Year ended 30th June, 1915.

The maximum amount of salaries and wages paid in any particular class was in Class V., the amount being £8,430,284, or 25.38 per cent. on the total amount; the minimum amount was in Class XV., £27,685, or 0.08 per cent. on the total amount. The State in which the largest amount was paid was New South Wales. The following statement shews the total amount of salaries and wages paid, and the average amount paid per employee in each State, during each of the years 1910 to 1915; the figures are exclusive of the amounts drawn from the business by working proprietors:—

**AMOUNT OF SALARIES AND WAGES PAID AND AVERAGE AMOUNT PER ANNUM
PAID PER EMPLOYEE, 1910 to 1915.**

Year.	Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	C'with.
		£	£	£	£	£	£	£
1910	Total amount paid ...	3,687,007	7,600,932	2,830,704	2,323,398	1,683,657	740,463	23,866,161
	Average per employee ...	90.78	78.18	86.79	90.44	123.93	78.81	87.04
1911	Total amount paid ...	10,047,656	8,911,019	3,113,835	2,645,386	1,982,883	827,592	27,528,371
	Average per employee ...	96.35	83.48	87.15	99.64	123.80	84.47	92.26
1912	Total amount paid ...	11,592,062	10,102,244	3,699,065	2,869,653	2,169,144	855,334	31,287,492
	Average per employee ...	104.44	91.19	93.88	105.62	136.67	90.41	99.74
1913	Total amount paid ...	12,688,384	10,714,336	4,075,191	3,034,537	2,215,187	883,452	33,606,067
	Average per employee ...	109.66	94.74	100.05	111.66	132.31	95.18	104.14
1914*	Total amount paid ...	12,667,721	11,099,940	4,211,489	2,945,296	2,342,428	835,829	34,103,703
	Average per employee ...	112.94	98.50	100.91	115.31	137.30	98.82	107.36
1915*	Total amount paid ...	12,667,721	11,036,345	4,226,635	2,705,130	1,791,276	783,547	33,210,654
	Average per employee ...	112.94	101.75	104.21	111.53	127.31	97.82	108.00

* New South Wales figures for year ended 30th June, 1915.

In comparing the figures in the preceding table, regard should be paid to the nature of certain industries which are carried on to a greater extent in some States than in others (see § 2 hereof). In Victoria, for instance, there are a large number of hands employed in Class VII., of whom a large percentage are women and children. The position occupied by Western Australia is principally due to the high ratio of male to female employees in that State.

It will be noted that there has been a persistent increase in the average wage paid per employee in each of the States during the period under review, despite the tendency of the number of females employed in certain industries to increase at a higher ratio than males. Taking the Commonwealth as a whole, during the period 1910-15 there has been an increase of 39.15 per cent. on the total amount of wages paid, and 24.08 per cent. on the average paid per employee.

The following tables show the approximate amount paid in salaries and wages to males and females in each class of industry in each State during 1915, and the total amounts paid to each sex in New South Wales and Victorian factories during the last six years, in South Australia and Tasmania during the last five years, and in Queensland and Western Australia during the last four years :—

AMOUNT* OF SALARIES AND WAGES PAID TO MALE AND FEMALE HANDS EMPLOYED IN EACH CLASS OF INDUSTRY IN THE SEVERAL STATES OF THE COMMONWEALTH DURING 1915.

Class of Industry.	N.S.W.	Vic.	Q'land.	S. Aust.	W. A.	Tas.	C'wealth.
MALES.							
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ...	380,368	353,137	68,140	66,834	17,896	19,605	905,980
II. Treating oils and fats, animal, vegetable, etc. ...	91,614	78,171	15,899	25,321	33,440	2,882	247,327
III. Processes in stone, clay, glass, etc. ...	774,099	460,568	64,409	131,461	54,510	18,523	1,503,570
IV. Working in wood ...	890,375	706,349	534,063	139,507	476,361	146,011	2,892,566
V. Metal works, machinery, etc. ...	3,371,877	2,382,244	913,085	1,091,705	451,216	174,986	8,385,113
VI. Connected with food and drink, etc. ...	1,521,275	1,269,686	1,382,247	304,182	180,936	113,806	4,772,132
VII. Clothing and textile fabrics, etc. ...	864,219	1,081,185	212,705	129,311	61,481	47,011	2,395,912
VIII. Books, paper, printing and engraving ...	956,762	874,728	309,498	165,073	155,398	79,629	2,541,088
IX. Musical instruments, etc. ...	42,934	15,397	...	1,692	...	...	60,023
X. Arms and explosives ...	81,281	83,599	...	366	...	...	165,246
XI. Vehicles and fittings, saddlery and harness, etc. ...	425,867	434,312	134,105	120,296	55,118	36,047	1,195,745
XII. Ship and boat building and repairing ...	669,773	143,261	12,528	18,100	2,134	4,084	849,880
XIII. Furniture, bedding and upholstery ...	365,692	239,247	103,542	75,522	47,868	23,993	855,864
XIV. Drugs, chemicals and by-products ...	118,466	171,964	3,812	73,461	50,902	1,329	419,934
XV. Surgical and other scientific instruments ...	10,055	9,863	3,416	917	1,566	...	25,817
XVI. Jewellery, timepieces and plated ware ...	84,409	79,178	10,135	13,255	6,743	3,053	196,773
XVII. Heat, light and power ...	520,855	524,570	110,537	133,050	61,040	49,995	1,400,047
XVIII. Leatherware, n.e.i. ...	40,190	35,242	8,862	1,656	1,483	...	87,433
XIX. Minor wares, n.e.i. ...	86,561	219,151	9,182	14,870	9,385	2,056	341,205
Total ...	11,296,572	9,161,852	3,886,165	2,506,579	1,667,477	723,010	29,241,655

* Exclusive of amount drawn by working proprietors.

† Year ended 30th June, 1915.

AMOUNT* OF SALARIES AND WAGES PAID TO MALE AND FEMALE HANDS EMPLOYED IN EACH CLASS OF INDUSTRY. Etc.—Continued.

Class of Industry.	N.S.W. †	Vic.	Q'land.	S. Aust.	W. A.	Tas.	C'wealth.
FEMALES.							
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural & pastoral pursuits, etc.	4,671	871	219	846	...	39	6,648
II. Treating oils and fats, animal, vegetable, etc.	10,245	4,457	442	767	60	211	16,182
III. Processes in stone, clay, glass, etc.	2,898	4,306	238	291	601	30	8,364
IV. Working in wood	4,927	4,608	3,770	1,191	244	1,050	15,790
V. Metal works, machinery, etc.	19,585	16,765	3,413	3,196	1,714	498	45,171
VI. Connected with food and drink, etc.	188,322	184,695	37,509	15,503	9,005	8,683	443,717
VII. Clothing and textile fabrics, etc.	922,365	1,368,363	251,018	148,547	94,069	37,849	2,822,211
VIII. Books, paper, printing and engraving	124,161	119,501	30,587	19,089	12,251	9,589	315,178
IX. Musical instruments, etc.	1,719	295	...	...	...	...	2,014
X. Arms and explosives	218	53,061	...	...	...	...	53,276
XI. Vehicles and fittings, saddlery & harness, etc.	7,149	9,349	2,616	1,543	1,459	1,127	23,243
XII. Ship and boat building and repairing	143	...	...	...	...	...	143
XIII. Furniture, bedding, and upholstery	23,942	15,379	4,714	1,134	1,404	971	47,544
XIV. Drugs, chemicals, and by-products	28,969	18,653	1,403	2,968	1,814	22	53,829
XV. Surgical and other scientific instruments	1,143	531	99	...	95	...	1,868
XVI. Jewellery, timepieces and platedware	5,360	4,016	776	393	...	...	10,545
XVII. Heat, light, and power	2,372	28,798	1,073	1,377	31	236	33,894
XVIII. Leatherware, n.e.i.	6,696	10,849	1,563	470	230	...	19,808
XIX. Minor wares, n.e.i.	16,257	29,996	1,030	1,234	822	232	49,571
Total	1,371,149	1,874,493	340,470	198,551	123,799	60,537	3,968,999

* Exclusive of amount drawn by working proprietors. † Year ended 30th June, 1915.

AMOUNT* OF SALARIES AND WAGES PAID TO MALES AND FEMALES IN FACTORIES IN CERTAIN STATES, 1911 to 1915.

Particulars.	N.S.W. †	Victoria.	Q'land.	S.A.	W.A.	Tas.	C'with.
MALES.							
1910. Amount paid	£ 7,724,310	6,273,921	...	...	...	...	...
Per cent. on total	88.92	82.54	...	...	...	...	...
Average per employee	£ 107.84	101.20	...	...	...	...	...
1911. Amount paid	£ 8,917,577	7,357,735	...	2,430,263	...	773,900	...
Per cent. on total	88.76	82.57	...	91.87	...	93.51	...
Average per employee	£ 114.22	106.62	...	113.66	...	93.67	...
1912. Amount paid	£ 10,283,733	8,368,613	3,366,191	2,647,842	2,024,318	798,098	27,528,795
Per cent. on total	88.71	83.04	91.54	92.25	93.34	93.31	87.99
Average per employee	£ 123.50	115.18	106.57	121.41	152.02	100.85	118.86
1913. Amount paid	£ 11,323,791	8,925,814	3,744,050	2,809,066	2,068,212	826,358	29,697,291
Per cent. on total	89.28	83.30	91.87	92.57	93.37	93.54	88.37
Average per employee	£ 127.76	118.94	113.95	127.43	146.79	105.09	123.32
1914. Amount paid	£ 11,296,572	9,252,336	3,880,472	2,734,603	2,199,961	782,300	30,146,244
Per cent. on total	89.18	83.35	92.14	92.81	93.92	93.60	88.40
Average per employee	£ 130.98	123.84	113.39	131.21	152.31	109.24	126.86
1915. Amount paid	£ 11,296,572	9,161,852	3,886,165	2,506,579	1,667,477	723,010	29,241,655
Per cent. on total	89.18	83.02	91.94	92.66	93.09	92.27	88.05
Average per employee	£ 130.98	123.76	118.03	128.03	141.93	106.97	128.02
FEMALES.							
1910. Amount paid	£ 962,697	1,327,011	...	...	...	...	...
Per cent. on total	11.08	17.46	...	...	...	...	...
Average per employee	£ 40.08	37.67	...	...	...	...	...
1911. Amount paid	£ 1,130,079	1,553,284	...	215,123	...	53,692	...
Per cent. on total	11.24	17.43	...	8.13	...	6.49	...
Average per employee	£ 43.10	41.16	...	41.44	...	34.98	...
1912. Amount paid	£ 1,308,319	1,713,631	312,974	222,123	144,514	57,236	3,758,697
Per cent. on total	11.29	16.96	8.46	7.75	6.66	6.69	12.10
Average per employee	£ 48.39	45.15	41.00	41.43	56.56	37.00	45.79
1913. Amount paid	£ 1,359,593	1,788,522	331,141	225,471	146,975	57,094	3,908,796
Per cent. on total	10.72	16.70	8.13	7.43	6.63	6.46	11.63
Average per employee	£ 50.29	47.01	43.66	43.94	55.42	40.24	47.74
1914. Amount paid	£ 1,371,149	1,847,604	331,017	211,693	142,467	53,529	3,957,459
Per cent. on total	10.82	16.65	7.86	7.19	6.08	6.40	11.60
Average per employee	£ 52.91	48.65	44.06	44.95	54.44	41.27	49.46
1915. Amount paid	£ 1,371,149	1,874,493	340,470	198,551	123,799	60,537	3,968,999
Per cent. on total	10.82	16.98	8.06	7.34	6.91	7.73	11.95
Average per employee	£ 52.91	50.24	44.62	42.47	53.34	48.39	50.18

* Exclusive of amounts drawn by working proprietors. † Year ended 30th June, 1915.

A further analysis of salaries and wages paid during 1915 is given in the following table, the amounts paid to managers, overseers, etc., being differentiated from those paid to other employees. As previously mentioned, amounts drawn by working proprietors are excluded in all cases.

**DETAILS OF SALARIES AND WAGES PAID TO MANAGERS, OVERSEERS, Etc.,
AND OTHER EMPLOYEES IN FACTORIES DURING 1915.**

Class of Industry.	Salaries and Wages Paid to—						
	Managers, Overseers, Accountants, and Clerks.		All Other Employees.		All Employees.		
	Males.	Females.	Males.	Females.	Males.	Females.	Total.
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc.	103,440	1,505	802,540	5,143	905,980	6,648	912,628
II. Treating oils and fats, animal, vegetable, etc.	51,544	3,634	195,783	12,548	247,327	16,182	263,509
III. Processes in stone, clay, glass, etc.	151,235	3,899	1,352,335	4,465	1,503,570	8,364	1,511,934
IV. Working in wood	324,796	13,558	2,567,770	2,332	2,892,566	15,790	2,908,356
V. Metal works, machinery, etc.	768,172	24,862	7,616,941	20,309	8,395,113	45,171	8,430,284
VI. Connected with food and drink, etc.	912,559	45,859	3,859,573	397,958	4,772,132	443,717	5,215,849
VII. Clothing and textile fabrics, etc.	382,173	162,844	2,013,739	2,659,367	2,395,912	2,822,211	5,218,123
VIII. Books, paper, printing and engraving	492,238	53,108	2,048,850	262,070	2,541,088	315,178	2,856,266
IX. Musical instruments, etc.	8,702	1,084	51,321	930	60,023	2,014	62,037
X. Arms and explosives	17,908	2,678	147,338	50,601	165,246	53,279	218,525
XI. Vehicles and fittings, saddlery and harness, etc.	116,183	10,332	1,079,562	12,911	1,195,745	23,243	1,218,988
XII. Ship and boat building and repairing	73,080	143	776,800	...	849,880	143	850,023
XIII. Furniture, bedding, & upholstery	68,448	8,059	787,416	39,485	855,864	47,544	903,408
XIV. Drugs, chemicals, and by-products	87,923	7,442	332,011	46,387	419,934	53,829	473,763
XV. Surgical & other scientific instruments	3,815	279	22,002	1,589	25,817	1,868	27,685
XVI. Jewellery, timepieces, and platedware	20,102	3,524	176,671	7,021	196,773	10,545	207,318
XVII. Heat, light, and power	243,849	6,961	1,158,198	26,933	1,400,047	33,894	1,433,941
XVIII. Leatherware, n.e.i.	11,866	1,102	75,567	18,706	87,433	19,808	107,241
XIX. Minor wares, n.e.i.	36,812	3,336	304,393	46,235	341,205	49,571	390,776
Total ...	3,874,845	354,209	25,366,810	3,614,790	29,241,655	3,968,999	33,210,654
Average paid per employee ...	204.52	89.92	121.09	48.10	128.01	50.13	108.00

3. Value of Fuel and Light used in Factories, 1915.—The amount expended in factories on fuel and light is of considerable importance; in 1915 it amounted to £3,197,523, being a decrease on the previous year's figures of £112,398. The classes of industry in which fuel was most extensively used were Class V., Metal Works, Machinery, etc., £943,917; Class VI., Connected with Food, Drink, etc., £660,021; Class XVII., Heat, Light, Power, etc., £554,164, of which amount £452,730 was expended on generating

electric light and power; and Class III., £403,539, of which £291,143 was represented in brick and pottery works, etc., and glass factories. The following tables shew the value of fuel and light used in the different classes of industry in the several States of the Commonwealth during 1915, and of the total used for each of the last six years:—

VALUE OF FUEL AND LIGHT USED IN FACTORIES IN COMMONWEALTH, 1915.

Class of Industry.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'wlth.
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ...	47,530	36,104	12,701	7,873	1,881	2,215	108,304
II. Treating oils and fats, animal, vegetable, etc. ...	21,239	14,945	2,606	6,596	1,151	330	46,867
III. Processes in stone, clay, glass, etc. ...	206,343	125,886	6,223	42,213	16,654	6,220	403,539
IV. Working in wood ...	22,744	17,161	8,780	3,893	2,635	2,133	57,346
V. Metal wks., machinery, etc. ...	410,267	173,972	47,881	217,212	31,308	63,277	943,917
VI. Connected with food and drink, etc. ...	216,154	186,341	166,701	51,297	25,432	14,096	660,021
VII. Clothing and textile fabrics, etc. ...	39,903	76,820	6,999	9,128	3,386	1,919	138,155
VIII. Books, paper, printing, and engraving ...	35,450	42,441	14,098	6,959	5,657	1,731	106,336
IX. Musical instruments, etc. ...	1,486	233	...	32	...	...	1,751
X. Arms and explosives ...	3,206	6,188	...	3	...	...	9,397
XI. Vehicles and fittings, saddlery and harness, etc. ...	16,367	14,414	2,009	5,365	2,536	1,128	41,819
XII. Ship and boat building and repairing ...	18,203	3,289	279	342	25	40	22,178
XIII. Furniture, bedding, and upholstery ...	8,511	7,569	2,780	2,025	1,498	870	23,273
XIV. Drugs, chemicals, and by-products ...	13,878	16,619	376	9,411	5,796	230	46,310
XV. Surgical and other scientific instruments ...	276	426	114	27	64	...	907
XVI. Jewellery, timepieces, and plated ware ...	1,812	2,751	448	506	156	68	5,741
XVII. Heat, light, and power ...	295,911	87,958	28,465	36,633	68,705	16,492	554,164
XVIII. Leatherware, n.e.l. ...	723	1,509	159	40	38	...	2,469
XIX. Minor wares, n.e.l. ...	4,183	20,320	97	176	199	54	25,029
Total ...	1,364,186	834,966	300,716	399,731	187,121	110,803	3,197,523

* Year ended 30th June, 1915.

VALUE OF FUEL AND LIGHT USED IN FACTORIES IN COMMONWEALTH DURING THE YEARS 1910 to 1915.

Year.	N.S.W.	Victoria.	Q'land.	S.A.	W.A.	Tas.	C'wealth.
	£	£	£	£	£	£	£
1910 ...	1,184,282	639,135	216,890	313,731	150,311	130,962	2,635,311
1911 ...	1,242,613	637,497	222,560	338,565	176,659	140,816	2,758,710
1912 ...	1,360,141	683,376	261,978	363,403	191,025	187,461	3,047,384
1913 ...	1,371,425	739,835	328,519	417,280	193,161	185,631	3,240,901
1914 ...	1,364,186*	804,325	335,219	406,987	210,192	189,012	3,309,921
1915 ...	1,364,186*	834,966	300,716	399,731	187,121	110,803	3,197,523

* Year ended 30th June, 1915.

4. Value of Raw Materials used in Factories, 1915.—The total value of raw materials worked up (i.e., exclusive of fuel, lubricants, etc.) in factories in the Commonwealth during 1915 was £102,776,082, which represents 60.78 per cent. of the total value of the finished products. (See next paragraph hereof.) The following table shews the value of the raw materials worked up in various classes of industry in each State during the year 1915:—

VALUE OF RAW MATERIALS WORKED UP IN FACTORIES IN COMMONWEALTH, 1915.

Class of Industry.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'wlth.
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc.	4,846,704	3,606,032	1,808,539	668,712	198,547	320,505	11,449,339
II. Treating oils and fats, animal, vegetable, etc.	861,539	559,419	77,115	131,746	178,715	9,841	1,818,375
III. Processes in stone, clay, glass, etc.	361,286	200,961	17,880	64,019	19,032	7,737	670,915
IV. Working in wood	2,121,979	1,105,174	842,283	519,249	82,431	129,082	4,800,198
V. Metal works, machinery, etc.	7,339,887	3,135,179	1,436,284	3,452,227	393,343	534,166	16,291,086
VI. Connected with food and drink, etc.	19,674,332	11,657,985	10,205,392	2,539,843	923,355	893,198	45,834,105
VII. Clothing and textile fabrics, etc.	3,196,161	5,710,117	965,501	480,030	311,125	128,065	10,790,999
VIII. Books, paper, printing, and engraving	983,370	1,026,496	203,824	198,859	111,629	60,343	2,584,531
IX. Musical instruments, etc.	58,722	10,343	...	659	...	...	69,723
X. Arms and explosives	23,813	338,875	...	701	...	...	363,369
XI. Vehicles and fittings, saddlery and harness, etc.	411,066	519,207	121,658	125,971	80,710	43,265	1,301,877
XII. Ship and boat building and repairing	247,469	98,730	8,509	9,591	1,664	3,014	368,977
XIII. Furniture, bedding, and upholstery	554,181	419,782	122,601	77,257	69,194	30,132	1,273,147
XIV. Drugs, chemicals, and by-products	737,464	789,583	13,186	341,455	213,359	11,896	2,106,943
XV. Surgical and other scientific instruments	...	5,878	9,796	2,591	590	783	19,638
XVI. Jewellery, timepieces, and platedware	112,097	156,433	12,359	16,601	8,997	1,785	308,272
XVII. Heat, light, and power	662,719	474,147	68,573	62,840	23,686	18,115	1,314,980
XVIII. Leatherware, n.e.i.	151,539	179,785	17,944	5,283	1,870	...	356,421
XIX. Minor wares, n.e.i.	209,164	730,699	15,044	24,804	11,360	2,106	993,177
Total	42,559,370	30,728,743	15,939,583	8,720,436	2,634,700	2,193,250	102,776,082

* Year ended 30th June, 1915.

The class in which the maximum value of raw materials was used was Class VI., "Connected with Food and Drink, etc.," the value being £45,894,105. The next important class in order of value was Class V., "Metal Works, Machinery, etc.," in which raw materials to the value of £16,291,086 were used. The class in which the minimum value appears is Class XV., "Surgical and other Scientific Instruments," the value being only £19,638. The year 1910 was the first for which reliable and complete returns were collected in every State relating to the value of raw materials worked up in factories. The following table gives particulars for the six years ended 1915:—

VALUE OF RAW MATERIALS WORKED UP IN FACTORIES IN COMMONWEALTH DURING THE YEARS 1910 to 1915.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
	£	£	£	£	£	£	£
1910 ...	31,379,604	21,941,255	9,476,819	6,695,255	1,809,959	1,456,369	72,759,261
1911 ...	33,670,951	25,029,525	8,788,335	7,503,979	2,059,346	1,952,240	79,004,376
1912 ...	37,122,441	27,002,392	11,078,954	8,199,110	2,586,195	2,286,618	88,275,620
1913 ...	40,537,476	28,465,699	14,183,539	8,354,258	2,782,839	2,083,666	96,407,477
1914 ...	42,559,370*	28,986,694	15,710,794	7,931,175	2,608,312	1,992,719	99,789,064
1915 ...	42,559,370*	30,728,743	15,939,583	8,720,436	2,634,700	2,193,250	102,776,082

* Year ended 30th June, 1915.

5. Total Value of Output of Manufacturing Industries, 1915.—The value of the output of new goods manufactured and repairs effected in factories of various classes in each State during the year 1915 is shewn in the following table. The figures given represent not only the increased value due to the process of manufacture, but also include the value of the raw materials used. The difference between the value of the materials used and the total output (see paragraph 6 hereof) is the real value of production from manufactures:—

TOTAL VALUE OF OUTPUT OF FACTORIES IN COMMONWEALTH, 1915.

Class of Industry.	N.S.W.	Victoria.	Q'land.	S.A.	W.A.	Tas.	C'w'lth.
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural & pastoral pursuits, etc.	5,642,150	4,503,751	2,405,919	838,118	244,434	371,192	13,705,564
II. Treating oils and fats, animal, vegetable, etc.	1,176,404	858,554	135,880	182,235	246,712	14,311	2,614,096
III. Processes in stone, clay, glass, etc.	1,891,733	1,060,652	132,855	301,247	108,736	45,878	3,541,101
IV. Working in wood	3,461,373	2,204,757	1,783,868	757,427	742,548	354,761	9,304,734
V. Metal works, mach'y, etc.	13,908,681	6,705,272	2,919,850	5,618,230	905,440	1,301,587	31,359,060
VI. Connected with food and drink, etc.	24,922,078	15,514,965	14,233,695	3,342,683	1,474,314	1,283,451	60,771,186
VII. Clothing and textile fabrics, etc.	6,049,263	9,906,499	1,848,038	911,646	544,048	276,412	19,535,906
VIII. Books, paper, printing, and engraving...	2,561,274	2,829,505	881,723	502,450	407,597	192,235	7,374,784
IX. Musical instruments, etc.	135,524	27,310	...	2,753	...	...	165,587
X. Arms and explosives	135,341	537,170	...	948	...	...	673,459
XI. Vehicles and fittings, saddlery and harness, etc.	1,061,414	1,188,035	342,256	313,293	165,153	102,379	3,172,530
XII. Ship and boat building and repairing...	1,034,070	296,995	27,559	35,218	5,331	8,227	1,407,400
XIII. Furniture, bedding, and upholstery	1,120,888	825,541	304,046	185,464	140,271	75,248	2,651,458
XIV. Drugs, chemicals, and by-products	1,239,934	1,333,729	42,396	546,145	346,126	15,230	3,523,560
XV. Surgical and other scientific instruments	24,730	29,498	9,371	2,240	3,299	...	69,138
XVI. Jewellery, timepieces, and platedware	241,561	313,990	31,202	40,794	18,619	6,952	656,118
XVII. Heat, light, and power	3,017,617	1,922,353	576,012	358,275	330,054	161,603	6,365,914
XVIII. Leatherware, n.e.i.	250,900	286,920	36,594	8,609	5,005	...	587,628
XIX. Minor wares, n.e.i.	375,797	1,120,597	33,548	46,448	25,106	5,981	1,607,477
Total	68,253,332	51,466,093	25,444,812	13,994,223	5,712,793	4,215,447	169,086,700

* Year ended 30th June, 1915.

It will be seen that the State of New South Wales far outstrips the other States in the total value of the output of her factories, the value being £68,253,332, or 40.37 per cent. on the total for the Commonwealth. The next State in order of value is Victoria, which produced 30.44 per cent.; the value of the output of Queensland was 15.05 per cent.; of South Australia 8.27 per cent.; of Western Australia 3.38 per cent.; and of Tasmania 2.49 per cent. The two most important classes in order of value of output (Classes VI. and V.) are the same as in order of value of raw materials used. The following statement shews the value of output of factories, value per employee, and value per head of mean population in each State during the six years ended 1915:—

TOTAL VALUE OF OUTPUT OF FACTORIES IN COMMONWEALTH DURING THE YEARS 1910 to 1915.

Year.	N.S.W.	Victoria.	Q'land.	S.A.	W.A.	Tas.	C'wealth.
	£	£	£	£	£	£	£
1910 ...	49,615,643	36,660,854	15,792,109	11,184,695	4,533,611	3,073,246	120,860,158
1911 ...	54,346,011	41,747,863	15,675,662	12,416,381	5,311,086	3,525,087	133,022,090
1912 ...	61,163,328	45,410,773	13,798,904	13,438,218	6,092,268	3,871,916	148,775,407
1913 ...	65,672,495	47,936,647	23,688,789	13,998,670	6,481,331	3,782,851	161,560,763
1914 ...	68,253,332*	49,439,985	25,491,955	13,215,970	6,381,512	3,667,754	166,450,508
1915 ...	68,253,332*	51,466,093	25,444,812	13,994,223	5,712,793	4,215,447	169,086,700

PER EMPLOYEE.†

	£	£	£	£	£	£	£
1910 ...	496	359	465	414	321	308	421
1911 ...	500	373	422	445	336	342	427
1912 ...	529	391	459	472	372	389	454
1913 ...	545	404	559	491	375	367	479
1914 ...	585*	418	589	492	362	411	502
1915 ...	585*	452	605	549	390	501	527

PER HEAD OF MEAN POPULATION.

1910 ...	30.36	28.59	26.69	27.88	16.73	16.09	27.66
1911 ...	32.70	31.62	25.52	30.19	18.52	18.52	29.62
1912 ...	35.22	33.48	29.77	31.87	20.21	20.20	32.03
1913 ...	36.32	34.41	36.30	32.29	20.64	19.30	33.67
1914 ...	36.67*	34.73	37.77	30.04	19.73	18.49	33.78
1915 ...	33.67*	36.09	37.04	31.80	17.72	21.15	34.21

* Year ended 30th June, 1915.

† Including working proprietors.

6. Value of Production of Manufacturing Industries, 1915.—The difference between the figures given in paragraph 5 and the corresponding figures in paragraph 4 hereof represents the amount added to the value of the raw materials by the process of manufacture. This is the real measure of the value of production of manufacturing industries. The following table shows the value added in this manner in each State during the year 1915 for the various classes of factories:—

VALUE OF PRODUCTION OF MANUFACTURING INDUSTRIES IN COMMONWEALTH, 1915.

Class of Industry.	N S.W.	Victoria.	Q'land.	S.A.	W.A.	Tas.	Cwealth.
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc.	795,446	897,719	297,030	169,406	45,897	50,687	2,256,225
II. Treating oils and fats, animal, vegetable, etc.	314,865	239,135	58,765	50,489	67,997	4,470	795,721
III. Processes in stone, clay, glass, etc.	1,530,447	859,691	114,975	237,228	89,704	38,141	2,870,166
IV. Working in wood.	1,339,394	1,099,583	941,585	238,178	660,117	225,679	4,504,536
V. Metal works, machinery, etc.	6,568,794	3,570,093	1,483,566	2,166,003	512,097	767,421	15,067,974
VI. Connected with food and drink, etc.	5,247,746	3,856,980	4,028,303	802,840	550,959	390,253	14,877,031
VII. Clothing and textile fabrics, etc.	2,853,102	4,196,382	882,537	431,616	232,923	148,347	8,744,907
VIII. Books, paper, printing, and engraving	1,577,904	1,803,009	677,899	303,591	295,968	131,892	4,790,263
IX. Musical instruments, etc.	76,802	16,987	...	2,095	...	...	95,864
X. Arms and explosives	111,528	198,295	...	247	...	...	310,070
XI. Vehicles and fittings, saddlery and harness, etc.	650,348	668,828	220,598	187,322	84,443	59,114	1,870,653
XII. Ship and boat building and repairing	786,601	198,265	19,050	25,627	3,667	5,213	1,038,423
XIII. Furniture, bedding, and upholstery	566,707	405,759	181,445	108,207	71,077	45,116	1,378,311
XIV. Drugs, chemicals, and by-products	502,470	544,146	29,210	204,690	132,767	3,334	1,416,617
XV. Surgical and other scientific instruments	18,852	19,702	6,780	1,650	2,516	...	49,500
XVI. Jewellery, timepieces, and plated ware	132,464	157,557	18,843	24,193	9,622	5,167	347,846
XVII. Heat, light, and power	2,354,898	1,448,206	507,439	295,435	301,463	143,488	5,050,934
XVIII. Leatherware, n.e.i.	98,961	107,135	18,650	3,326	3,135	...	231,207
XIX. Minor wares, n.e.i.	166,633	389,898	18,504	21,644	13,746	3,875	614,300
Total ...	25,693,962	20,737,350	9,505,229	5,273,787	3,078,093	2,022,197	66,310,618

* Year ended 30th June, 1915.

The amount of the value added in each State is not in the same order as in the case of value of output, the four most important classes being V., VI., VII., and XVII., in the order named. The value added to raw material by process of manufacture and amount per employee and, per head of mean population are shown in the following statement for the years 1910 to 1915:—

VALUE OF PRODUCTION OF MANUFACTURING INDUSTRIES IN COMMONWEALTH, 1910 to 1915.

Year.	N.S.W.	Victoria.	Queensland.	S. Aust.	W. Aust.	Tas.	C'wealth.
VALUE.							
1910	£ 18,236,039	£ 14,719,599	£ 6,315,290	£ 4,469,440	£ 2,723,652	£ 1,616,877	£ 48,100,897
1911	20,675,060	16,718,338	6,887,327	4,912,402	3,251,740	1,572,847	54,017,714
1912	24,040,887	18,408,471	7,719,960	5,239,108	3,506,073	1,585,298	60,499,787
1913	25,135,019	19,470,948	9,505,250	5,644,412	3,698,492	1,699,165	65,153,286
1914	25,693,962*	20,453,291	9,781,161	5,284,795	3,773,203	1,675,035	66,661,444
1915	25,693,962*	20,737,350	9,505,229	5,273,787	3,078,093	2,022,197	66,310,618
PER EMPLOYEE.							
1910	£ 183	£ 144	£ 186	£ 166	£ 193	£ 169	£ 168
1911	190	149	185	176	206	153	173
1912	208	159	189	184	214	159	185
1913	209	164	224	198	214	174	193
1914	220*	173	226	197	214	188	201
1915	220*	182	226	207	210	240	207

* Year ended 30th June, 1915.

VALUE OF PRODUCTION OF MANUFACTURING INDUSTRIES IN
COMMONWEALTH, 1910 TO 1915—Continued.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
PER HEAD OF MEAN POPULATION.							
	£	£	£	£	£	£	£
1910 ...	11.17	11.48	10.68	11.19	10.05	8.47	11.01
1911 ...	12.44	12.66	11.21	11.95	11.34	8.26	12.03
1912 ...	13.84	13.57	12.22	12.43	11.63	8.27	13.03
1913 ...	13.90	13.98	14.57	13.02	11.78	8.67	13.56
1914 ...	13.80	14.37	14.49	12.01	11.67	8.44	13.53
1915 ...	13.80	14.54	13.84	11.98	9.55	10.14	13.41

As the total value of the output for the Commonwealth was estimated at £169,086,700, there remained, after payment of £102,776,082, the value of the raw materials used, of £33,210,654 for salaries and wages, and of £3,197,523 for fuel, the sum of £29,902,441 to provide for all other expenditure and profits. The following table gives corresponding particulars for each State, expressed absolutely, and as percentages of the total value of the output:—

VALUE OF OUTPUT AND COST OF PRODUCTION IN COMMONWEALTH
FACTORIES, 1915.

State.	Raw Materials Used.	Fuel and Light.	Salaries and Wages.	All other Expenditure, Interest, and Profits.	Total Value of Output.
VALUE AND COST, ETC.					
	£	£	£	£	£
New South Wales* ...	42,559,370	1,364,186	12,667,721	11,662,055	68,253,332
Victoria ...	30,728,743	834,966	11,036,345	8,866,039	51,466,093
Queensland ...	15,939,583	300,716	4,226,635	4,977,878	25,444,812
South Australia ...	8,720,436	399,731	2,705,130	2,168,926	13,994,223
Western Australia ...	2,634,700	187,121	1,791,276	1,099,696	5,712,793
Tasmania ...	2,193,250	110,803	783,547	1,127,847	4,215,447
Commonwealth ...	102,776,082	3,197,523	33,210,654	29,902,441	169,086,700
PERCENTAGE OF COSTS, ETC., ON TOTAL VALUE.					
	%	%	%	%	%
New South Wales* ...	62.35	2.00	18.56	17.09	100.00
Victoria ...	59.71	1.62	21.44	17.23	100.00
Queensland ...	62.65	1.18	16.61	19.56	100.00
South Australia ...	62.31	2.86	19.33	15.50	100.00
Western Australia ...	46.12	3.28	31.35	19.25	100.00
Tasmania ...	52.03	2.63	18.59	26.75	100.00
Commonwealth ...	60.78	1.89	19.64	17.69	100.00

* Year ended 30th June, 1915.

§ 7. Land, Buildings, Plant and Machinery.

1. **General.**—As an indication of the permanent character and stability of the industries which have been established in the Commonwealth, it may be noted that the values of land and buildings and of plant and machinery used in the factories are rapidly increasing. Thus, for the whole Commonwealth the total value of land and buildings and plant and machinery has increased from 1910 to 1915 by £23,112,909, i.e., from £58,482,789 to £81,595,698, or at the rate of £4,622,582 per annum.

The following statement shews for the year 1915 the values of land and buildings and of plant and machinery used in connection with manufacturing industries in each State:—

VALUE OF LAND, BUILDINGS, PLANT AND MACHINERY IN CONNECTION WITH MANUFACTURING INDUSTRIES, 1915.

Value of—	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wth.
	£	£	£	£	£	£	£
Land and buildings ...	16,843,698	11,460,123	4,446,405	3,072,784	2,363,262	1,132,424	39,318,696
Plant and machinery ...	16,866,982	11,068,949	7,051,113	3,421,538	2,640,168	1,228,252	42,277,002
Total ...	33,710,680	22,529,072	11,497,518	6,494,322	5,003,430	2,360,676	81,595,698

* Year ended 30th June, 1915.

The total capital invested in land, buildings, plant and machinery in manufacturing industries in the Commonwealth during the year 1915 was approximately £81,595,698 (or £16 10s. 11d. per head of population); of that sum £39,318,696 was invested in land and buildings occupied as manufactories, the remaining £42,277,002 being the value of the plant and machinery used in connection therewith.

2. Value of Land and Buildings.—The value of the land and buildings occupied in connection with manufacturing industries may be conveniently classified according to the nature of the industry conducted therein.

(i.) Total Value in Commonwealth, 1910 to 1915. The following table shews for the whole Commonwealth the approximate values of land and buildings occupied in connection with manufacturing industries of various classes during each year from 1910 to 1915 inclusive:—

VALUE OF LAND AND BUILDINGS OCCUPIED AS FACTORIES IN COMMONWEALTH, 1910 to 1915.

Class of Industry.	1910.	1911.	1912.	1913.	1914.	1915.
	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ...	921,785	978,978	1,004,221	1,014,783	1,063,549	1,069,890
II. Treating oils and fats, animal, vegetable, etc. ...	394,079	445,499	449,453	452,415	466,373	465,757
III. Processes in stone, clay, glass, etc. ...	1,073,612	1,223,889	1,382,062	1,593,769	1,679,050	1,666,037
IV. Working in wood ...	1,492,673	1,668,045	1,923,963	2,184,257	2,244,995	2,146,909
V. Metal works, machinery, etc. ...	4,554,693	5,000,274	5,437,718	5,846,225	6,242,968	6,370,355
VI. Connected with food & drink, etc. ...	7,399,625	8,167,496	8,259,066	8,656,547	9,800,457	9,852,479
VII. Clothing and textile fabrics, etc. ...	4,191,488	4,601,924	4,928,474	5,188,631	5,270,374	5,244,627
VIII. Books, paper, printing, and engraving ...	2,779,754	2,964,466	3,150,049	3,388,072	3,521,164	3,546,017
IX. Musical instruments, etc. ...	75,632	82,168	85,731	88,136	83,375	83,430
X. Arms and explosives ...	38,763	41,462	112,300	184,772	179,723	194,149
XI. Vehicles and fittings; saddlery and harness, etc. ...	1,325,152	1,453,077	1,654,488	1,835,221	1,824,018	1,825,999
XII. Ship & boat building & repairing ...	1,052,868	1,163,299	1,261,647	1,113,243	1,127,521	1,134,530
XIII. Furniture, bedding & upholstery ...	757,485	993,408	1,043,680	1,149,120	1,117,699	1,094,646
XIV. Drugs, chemicals & by-products ...	687,162	760,441	823,429	831,892	929,933	955,995
XV. Surgical and other scientific instruments ...	56,149	61,703	59,308	70,968	64,263	67,021
XVI. Jewellery, timepieces, & plated-ware ...	271,834	300,717	344,306	353,900	345,018	344,452
XVII. Heat, light, and power ...	2,112,220	2,320,348	2,511,317	2,517,179	2,717,502	2,775,148
XVIII. Leatherware, n.e.i. ...	100,066	111,506	120,646	133,283	132,777	137,666
XIX. Minor wares, n.e.i. ...	220,984	250,550	257,298	270,307	317,417	343,529
Total ...	29,506,054	32,494,250	34,809,156	36,872,720	39,128,176	39,318,696

As shewn in the above table, the total net increase during the five years was £9,812,642, or an annual average of £1,962,528. The largest increases were in Classes VI., V., and VII., and amounted to £2,452,854, £1,815,662, and £1,053,139 respectively.

(ii.) *Value in each State, 1915.* The following table gives similar information for each State up to the 31st December, 1915:—

VALUE OF LAND AND BUILDINGS OCCUPIED AS FACTORIES IN EACH STATE, 1915.

Class of Industry.	N.S.W.	Victoria.	Q'land.	S.A.	W.A.	Tas.	C'w'ith.
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ...	465,505	400,018	60,815	92,180	38,570	12,802	1,069,890.
II. Treating oils and fats, animal, vegetable, etc. ...	237,991	112,714	28,434	66,629	15,674	4,315	465,757
III. Processes in stone, clay, glass, etc. ...	950,702	459,673	52,581	113,171	62,642	27,328	1,666,097
IV. Working in wood ...	973,465	394,487	211,978	153,019	336,230	77,730	2,146,909.
V. Metal works, machinery, etc. ...	2,941,258	1,536,579	663,894	567,849	603,625	57,150	6,370,355.
VI. Connected with food and drink, etc. ...	3,381,299	2,720,587	1,966,126	747,649	437,529	599,289	9,852,479.
VII. Clothing and textile fabrics, etc. ...	2,204,549	2,012,234	414,093	286,294	196,412	131,045	5,244,627
VIII. Books, paper, printing and engraving ...	1,454,142	975,545	484,607	334,840	248,316	48,557	3,546,017
IX. Musical instruments, etc. ...	57,335	24,395	...	1,700	...	...	83,430
X. Arms and explosives ...	70,926	119,723	...	3,500	...	...	194,149.
XI. Vehicles and fittings, saddlery and harness, etc. ...	706,151	559,343	176,897	200,886	118,064	64,658	1,825,999.
XII. Ship and boat building and repairing ...	833,804	220,383	10,913	60,705	3,490	5,235	1,194,530.
XIII. Furniture, bedding and upholstery ...	482,656	327,387	106,959	75,494	72,643	30,507	1,094,646.
XIV. Drugs, chemicals, and by-products ...	340,489	342,723	10,860	160,755	94,818	6,350	955,995.
XV. Surgical and other scientific instruments ...	32,040	20,151	8,214	2,416	4,200	...	67,021
XVI. Jewellery, timepieces, and plated ware ...	143,786	130,935	28,081	21,045	10,725	14,880	344,452.
XVII. Heat, light, and power ...	1,360,061	902,572	202,893	164,147	96,347	49,128	2,775,148.
XVIII. Leatherware, n.e.i. ...	62,921	58,115	10,600	2,190	3,840	...	137,666
XIX. Minor wares, n.e.i. ...	144,618	142,559	14,460	18,315	20,137	3,440	343,529
Total ...	16,843,698	11,460,123	4,446,405	3,072,784	2,363,252	1,132,424	39,318,696.

* Year ended 30th June, 1915.

The maximum value for the Commonwealth of land and buildings in any particular class was in Class VI., amounting to £9,852,479, or 25.06 per cent. on the total value. The next in order of importance were Classes V., VII., VIII., and XVII., in which the values were £6,370,355, £5,244,627, £3,546,017, and £2,775,148 respectively. The sum of the values for the five classes mentioned amounted to £27,788,626, or 70.68 per cent. on the total value for all classes.

(iii.) *Total Value in each State, 1910 to 1915.* The following table shews the total value of land and buildings occupied as manufactories in each State at the end of each year from 1910 to 1915 inclusive:—

TOTAL VALUE OF LAND AND BUILDINGS OCCUPIED AS FACTORIES IN EACH STATE, 1910 to 1915.

Year.	N.S.W.	Victoria.	Queensland.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	£	£	£	£	£	£	£
1910...	12,108,776	9,012,263	3,045,974	2,641,973	1,674,953	1,022,115	29,506,054
1911...	13,474,455	9,921,520	3,277,776	2,950,170	1,819,342	1,050,987	32,494,250
1912...	14,765,810	10,362,661	3,524,991	3,150,834	1,910,372	1,094,488	34,809,156
1913...	15,792,105	10,753,309	3,923,584	3,261,242	2,036,769	1,105,711	36,872,720
1914...	16,843,698*	11,248,120	4,434,336	3,047,791	2,409,517	1,144,714	39,128,176
1915...	16,843,698*	11,460,123	4,446,405	3,072,784	2,363,262	1,132,424	39,318,696

* Year ended 30th June, 1915.

It will be seen that since 1910 there has been a general increase throughout the Commonwealth. The States shewing the largest growth were New South Wales, £4,734,922, or 30.10 per cent., and Victoria £2,447,860, or 27.16 per cent. The highest percentage increases were in Queensland 45.98, and Western Australia 41.09.

3. Value of Plant and Machinery.—(i.) The following table shews for the whole Commonwealth the approximate value of plant and machinery used in factories at the end of each year from 1910 to 1915 inclusive:—

VALUE OF PLANT AND MACHINERY USED IN FACTORIES IN COMMONWEALTH, 1910 to 1915.

Class of Industry.	1910.	1911.	1912.	1913.	1914.	1915.
I. Treating raw material, product of agricultural and pastoral pursuits, etc.	£ 829,255	£ 877,820	£ 926,966	£ 985,619	£ 974,556	£ 971,841
II. Treating oils and fats, animal, vegetable, etc.	360,660	435,315	417,231	444,502	469,680	545,796
III. Processes in stone, clay, glass, etc.	1,109,139	1,299,774	1,491,383	1,717,544	1,869,446	1,900,086
IV. Working in wood	1,852,296	2,207,703	2,455,436	2,664,508	2,737,527	2,611,407
V. Metal works, machinery, etc.	5,255,575	5,722,956	6,308,856	6,879,461	7,630,150	7,651,160
VI. Connected with food and drink, etc.	8,212,440	8,570,565	9,029,735	9,650,298	10,782,825	10,914,862
VII. Clothing and textile fabrics, etc.	1,403,135	1,538,062	1,620,437	1,746,713	1,774,910	1,798,554
VIII. Books, paper, printing, and engraving	2,362,268	2,481,999	2,628,039	2,814,226	2,974,120	2,987,190
IX. Musical instruments, etc.	16,443	17,924	20,960	22,630	19,030	19,119
X. Arms and explosives	47,012	56,255	158,823	190,060	216,581	228,031
XI. Vehicles and fittings, saddlery and harness, etc.	249,973	283,470	329,933	374,371	395,463	411,295
XII. Ship and boat building, and repairing	443,429	478,012	597,783	725,934	764,782	768,159
XIII. Furniture, bedding, and upholstery	150,774	177,924	207,211	235,068	238,547	244,796
XIV. Drugs, chemicals, & by-products	517,781	602,276	629,402	650,185	832,686	916,136
XV. Surgical and other scientific instruments	9,929	11,158	11,615	13,121	13,758	13,955
XVI. Jewellery, timepieces, and platedware	49,490	61,765	61,791	68,186	69,724	72,988
XVII. Heat, light, and power	5,961,816	6,611,770	7,392,958	7,880,325	9,451,227	9,963,636
XVIII. Leatherware, n.e.i.	24,651	25,565	27,695	28,035	30,576	31,706
XIX. Minor wares, n.e.i.	120,669	138,896	145,141	166,172	199,343	226,285
Total	28,976,735	31,599,209	34,460,895	37,256,958	41,444,931	42,277,002

It will be seen that during the period in question there has been a steady and substantial net increase amounting in all to £13,300,267, or an annual average of £2,660,053. Development has occurred in all classes of industry, the largest increase being in Class XVII. "Heat, Light, and Power," where it amounted to £4,001,820, while the two next largest were in Class VI. "Connected with Food and Drink, etc.," with an increase of £2,702,422, and Class V., "Metal Works, Machinery, etc.," £2,395,585.

(ii.) Total Value in each State, 1910 to 1915. The figures which were given in the above table referred to the Commonwealth as a whole. In the following table they are shewn for each State, and it will be seen that the increase referred to above is general throughout the States. New South Wales shews by far the largest increase, viz., £5,288,362; while Victoria comes next with £3,467,864.

VALUE OF PLANT AND MACHINERY IN FACTORIES, 1910 to 1915.

Year.	N.S.W.	Victoria.	Queensland.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	£	£	£	£	£	£	£
1910	11,578,620	7,601,085	4,631,519	2,225,718	1,893,602	1,046,191	28,976,735
1911	12,510,600	8,336,373	4,947,259	2,506,600	2,082,777	1,216,200	31,599,209
1912	13,795,195	9,095,134	5,442,471	2,725,540	2,241,536	1,161,019	34,460,895
1913	14,861,676	10,022,429	5,877,387	2,982,323	2,264,455	1,248,688	37,256,958
1914	16,866,982*	10,727,526	6,898,673	3,275,579	2,484,793	1,191,378	41,444,931
1915	16,866,982	11,068,949	7,051,113	3,421,538	2,640,168	1,228,252	42,277,002

* Year ended 30th June, 1915.

(iii.) Classified Value in each State, 1915. The following table shews the value of plant and machinery used in factories in each State during the year 1915, classified according to the nature of the industry in which used:—

VALUE OF PLANT AND MACHINERY USED IN FACTORIES IN EACH STATE, 1915.

Class of Industry.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'with.
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ...	394,005	318,759	129,539	63,646	24,843	41,049	971,841
II. Treating oils and fats, animal, vegetable, etc. ...	250,789	138,662	41,576	27,105	86,619	1,045	545,796
III. Processes in stone, clay, glass, etc. ...	1,114,406	439,356	91,600	163,853	69,489	21,382	1,900,086
IV. Working in wood ...	838,096	510,831	465,725	84,223	546,891	165,701	2,611,407
V. Metal wks., machinery, etc. ...	3,983,195	1,560,541	781,501	561,090	597,738	177,095	7,651,160
VI. Connected with food and drink, etc. ...	3,466,183	2,263,565	4,007,320	604,388	412,932	160,474	10,914,862
VII. Clothing and textile fabrics, etc. ...	588,448	890,009	131,498	100,690	36,477	51,432	1,798,554
VIII. Books, paper, printing, and engraving ...	1,217,331	1,010,984	312,043	225,598	167,654	53,580	2,987,190
IX. Musical instruments, etc. ...	11,794	6,725	...	600	...	...	19,119
X. Arms and explosives ...	100,372	127,259	...	400	...	...	228,031
XI. Vehicles and fittings, saddlery and harness, etc. ...	144,008	140,286	37,508	54,485	21,364	13,644	411,295
XII. Ship and boat building and repairing ...	659,228	84,765	8,883	11,240	1,510	2,533	768,159
XIII. Furniture, bedding, and upholstery ...	72,902	77,545	40,402	30,973	13,699	9,275	244,796
XIV. Drugs, chemicals, and by-products ...	283,967	272,545	5,085	177,253	176,676	660	916,136
XV. Surgical and other scientific instruments ...	4,894	4,731	2,228	650	1,252	...	13,955
XVI. Jewellery, timepieces, and plated ware ...	28,853	31,461	4,152	5,230	1,552	1,740	72,988
XVII. Heat, light, and power ...	3,612,157	3,041,942	986,809	1,306,976	487,592	528,160	9,963,636
XVIII. Leatherware, n.e.i. ...	12,485	14,672	3,370	317	862	...	31,706
XIX. Minor wares, n.e.i. ...	83,929	134,311	1,924	2,621	3,018	492	226,285
Total ...	16,866,982	11,068,949	7,051,113	3,421,538	2,640,168	1,228,252	42,277,002

The greatest value for any particular class of industry is for Class VI., "Connected with Food and Drink, etc.," and amounts to £10,914,862, or 25.82 per cent. on the total for all classes. The next in order of importance is Class XVII., "Heat, Light, and Power," which amounts to £9,963,636, or 23.57 per cent. on the total; followed by Class V., "Metal Works, Machinery, etc.," amounting to £7,651,160, or 18.09 per cent. on the total value. The total for these three classes amounts to £28,529,658, or 67.48 per cent. on the total value for all classes.

§ 8. Individual Industries.

1. **General.**—The preceding remarks and tables furnish a general view of the recent development of particular classes of industries in Australia treated under the nineteen categories referred to in § 1, 3 hereof. In order to make the information complete, it is necessary to furnish details of the development of individual industries. While it is not possible, within the limits of this article, to give a full and detailed account of all the manufacturing industries of the Commonwealth, it is proposed to deal herein with such particular industries as are of special importance by reason of the number of persons employed, the number of factories, the amount of capital invested therein, the value of the production, or other features of special interest. In cases where there are only one or two establishments of a particular class in any State, returns relative to output are not published, in order to avoid disclosing information as to the operations of individual factories.

2. **Tanning Industry.**—(i.) In Class I. (see § 1, 3 hereof) the most important industry is tanning. Until recent years, the production of tanneries in Australia was confined to the coarser class of leathers, but lately the tanning of the finer skins has been undertaken with satisfactory results. The position of the industry in the several States in 1915 was as follows:—

TANNERIES, 1915.

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'wth.
Number of factories	77	52	18	12	3	3	165
" employees	1,109	1,720	213	206	62	66	3,376
Actual horse-power of engines employed...	1,269	1,883	518	275	93	61	3,899
Approx. value of lands and buildings £	142,608	185,753	12,463	26,233	15,535	7,332	389,924
Approx. value of plant and machinery £	92,910	138,043	22,600	14,163	11,750	8,390	287,856
Total amount of wages paid during year £	139,053	219,596	25,672	25,533	8,770	8,734	418,363
Value of fuel used	7,553	13,701	1,056	1,894	834	1,130	26,140
Value of raw material worked up £	1,054,887	1,606,586	228,232	150,811	78,409	65,892	3,188,817
Total value of output	£ 1,314,631	2,106,358	287,013	204,617	93,836	81,685	4,088,140
Value added in process of manufacture £	255,744	499,772	58,781	53,806	15,427	15,793	899,323

* Year ended 30th June, 1915.

(ii.) *Raw Materials used in Tanneries, 1915.* The quantity of raw materials used in tanneries in each State during the year 1915 is shewn in the following table:—

RAW MATERIALS USED IN TANNERIES, 1915.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
RAW MATERIALS USED.							
Hides & calf skins ... No.	535,641	931,285	114,376	89,045	35,754	29,677	1,735,778
Sheep pelts	4,068,137	907,653	62,308	68,476	...	36,288	5,142,862
Other skins	166,700	242,795	104,925	17,751	8,953	...	541,125
Bark Tons	11,810	14,600	2,254	1,489	777	510	31,440

* Year ended 30th June, 1915.

(iii.) *Progress of Tanning Industries, 1910 to 1915.* The development of the tanning industry during the period 1910 to 1915 is shewn in the following table:—

DEVELOPMENT OF TANNING INDUSTRY IN THE COMMONWEALTH, 1910 to 1915.

Items.	1910.	1911.	1912.	1913.	1914.*	1915.
Number of factories	176	176	174	164	166	165
Number of employees	3,110	3,247	3,071	2,892	3,091	3,376
Actual horse-power of engines used ...	3,125	3,168	3,274	3,748	3,803	3,899
Approx. value of land and buildings £	301,500	313,914	366,898	366,696	392,420	389,924
Approx. value of plant and machinery £	212,253	241,245	250,495	276,610	283,499	287,856
Total amount of wages paid	£ 303,012	332,206	328,050	322,747	366,494	418,363
Value of fuel used	£ 23,644	21,711	21,341	19,642	22,573	26,140
Value of raw materials worked up £	1,998,512	2,099,034	2,216,705	2,428,003	2,732,525	3,188,817
Value of final output	£ 2,570,858	2,698,250	2,834,007	3,030,785	3,468,475	4,088,140
Value added in process of manufacture £	572,346	599,216	617,302	602,782	735,950	899,323

* Including three bone milling establishments in Western Australia.

It will be seen from the above table that as regards the number of factories and of hands employed, the figures during the last five years have been almost stationary. The approximate amount of permanently invested capital, however, shews a very substantial increase, amounting to 29.3 per cent. in the value of land and buildings, and 35.6 per cent. in that of plant and machinery. The amount of wages paid, value of materials used, and of final output, shew the large increases of 38.1, 60.4 and 59.0 per cent. respectively during the same period.

3. *Fellmongering and Wool-scouring.*—(i.) The next industry in importance in Class I. is that of fellmongering and wool-scouring, one of the earliest industries established in Australia. The following table gives particulars of the industry in each State for the year 1915:—

FELLMONGERING AND WOOL-SCOURING, 1915.

Items.	N.S.W.	Vic.	Qld.	S.A.	W.A.	Tas.	C'with.
Number of factories	54	30	19	3	...	...	106
Number of employees	1,451	445	370	71	...	...	2,337
Actual horse-power of engines used	2,398	627	636	93	...	...	3,754
Approx. value of land and buildings	£ 151,195	69,225	41,530	4,490	...	...	266,440
Approx. value of plant and machinery	£ 174,598	55,307	95,025	4,850	...	...	329,780
Total amount of wages paid	£ 149,830	49,268	39,056	7,218	...	...	245,362
Value of fuel used	£ 21,930	8,115	9,979	810	...	...	40,834
Value of raw material worked up	£ 2,552,400	939,524	1,573,254	158,053	...	...	5,223,231
Value of final output	£ 2,823,057	1,095,097	1,802,363	194,173	...	...	5,919,690
Value added in process of manufacture	£ 275,657	155,573	229,109	36,120	...	...	696,459

* Year ended 30th June, 1915.

(ii.) *Development of Fellmongering and Wool-scouring, 1910 to 1915.*—The following return furnishes particulars of fellmongering and wool-scouring establishments in the Commonwealth for the last six years:—

DEVELOPMENT OF FELLMONGERING AND WOOL-SCOURING IN THE COMMONWEALTH, 1910 to 1915.

Items.	1910.	1911.	1912.	1913.	1914.	1915.
Number of factories	122	112	120	119	108	106
Number of employees	2,674	2,590	2,544	2,375	2,298	2,337
Actual horse-power of engines used	2,696	3,230	3,831	3,966	3,772	3,754
Approx. value of land and buildings	£ 274,122	273,281	267,188	269,895	256,330	266,440
Approx. value of plant and machinery	£ 298,548	308,211	348,970	346,381	330,047	329,780
Total amount of wages paid	£ 217,919	208,627	209,352	230,445	226,509	245,362
Value of fuel used	£ 31,250	21,581	31,445	33,404	36,658	40,834
Value of raw materials worked up	£ 3,965,303	3,757,750	3,859,200	4,365,413	4,238,705	5,223,231
Value of final output	£ 4,655,517	4,343,690	4,444,938	4,940,410	4,742,531	5,919,690
Value added in process of manufacture	£ 690,214	585,940	585,738	574,997	503,626	696,459

A slight decline has taken place in this industry during the last five years as regards the number of establishments and of employees. On the other hand, the amount paid in wages, the value of plant and machinery, of materials used, and of the final output, all show substantial increases amounting to 12.6 per cent., 10.5 per cent., 31.7 per cent., and 27.2 per cent. respectively.

4. *Soap and Candle Factories.*—(i.) In Class II. (see § 1. 3 hereof) the manufactures of soap and candles are the most important industries. These two manufactures are frequently carried on in the same establishments, so that separate returns cannot be obtained; it may, however, be said generally that the manufacture of soap is the more important of the two. The following table gives particulars of soap and candle factories in each State during the year 1915:—

SOAP AND CANDLE FACTORIES, 1915.

Items.	N.S.W.	Vic.	Qld.	S.A.	W.A.	Tas.	Cwith.
Number of factories	32	17	14	5	6	1	75
Number of employees	753	639	168	200	353	28	2,141
Actual horse-power of engines employed	548	464	145	177	84	2	1,420
Approximate value of land and buildings	£ 174,161	96,770	28,434	55,682	15,674	4,165	374,886
Approximate value of plant and machinery	£ 187,617	121,946	41,576	22,166	86,619	595	460,519
Total amount of wages paid during year	£ 71,350	71,282	16,341	24,715	33,500	2,677	219,665
Value of fuel used	£ 13,094	12,587	2,606	6,343	1,151	320	36,101
Value of raw material worked up	£ 432,508	457,900	77,115	130,021	178,715	9,691	1,285,950
Total value of output	£ 675,893	721,845	135,880	177,472	245,712	13,711	1,971,513
Value added in process of manufacture	£ 243,385	263,945	58,765	47,451	67,997	4,020	685,563

* Year ended 30th June, 1915. † Including three oil establishments in order to avoid disclosing particulars of individual factories.

(ii.) *Development of Soap and Candle Factories, 1910 to 1915.* The following table gives similar particulars for the last six years as regards the Commonwealth as a whole:—

**DEVELOPMENT OF SOAP AND CANDLE FACTORIES IN THE COMMONWEALTH,
1910 to 1915.**

Items.	1910.	1911.	1912.	1913.	1914.	1915.
Number of factories...	78	81	77	74	75	76
" " employees	1,606	1,668	1,776	1,755	1,801	2,141
Actual horse-power of engines used...	1,002	1,266	1,274	1,314	1,434	1,420
Approximate value of land and buildings	£ 311,333	347,824	360,572	360,783	374,418	374,886
" " plant and machinery	£ 305,693	326,273	348,365	364,357	385,744	460,519
Total amount of wages paid...	£ 140,423	148,592	162,551	172,247	190,349	219,865
Value of fuel used	£ 33,222	31,701	30,896	31,692	33,949	36,101
" of raw material worked up	£ 952,770	1,018,757	1,030,770	1,067,001	1,117,140	1,285,950
" of final output	£ 1,440,176	1,588,416	1,614,898	1,644,188	1,756,938	1,971,513
" added in process of manufacture	£ 497,406	569,659	584,128	577,187	639,798	685,563

* Including three bark milling establishments in Western Australia 1914, three oil establishments 1915.

(iii.) *Production of Soap and Candles, 1910 to 1915.* The subjoined statement shows that, taking the Commonwealth as a whole, there has been a considerable increase in the output of soap during the past five years.

PRODUCTION OF SOAP AND CANDLES IN THE COMMONWEALTH, 1910 to 1915.

Particulars.	1910.	1911.	1912.	1913.	1914.	1915.
Soap cwt.	617,458	639,458	688,722	700,878	697,807	729,984
Candles "	144,621	130,122	130,785	129,877	110,734	104,986

* Exclusive of Western Australia, for which State particulars are not available for publication.

(iv.) *Raw Materials Used, 1910 to 1915.* The following statement shows the quantity of certain raw materials used in soap and candle factories in the Commonwealth during the years 1910 to 1915:—

RAW MATERIALS USED IN SOAP AND CANDLE FACTORIES, 1910 to 1915.

Particulars.	1910.	1911.	1912.	1913.	1914.	1915.
Tallow cwt	349,035	356,471	411,701	391,133	410,235	439,402
Alkali "	134,010	133,675	135,643	135,231	153,824	159,344
Cocoanut oil gal.	355,802	505,612	489,329	457,693	460,561	485,851

* Exclusive of Western Australia, for which State figures are not available for publication.

5. *Saw Mills, etc.*—The most important industry in Class IV. is that of saw-milling. As separate particulars of forest saw mills are not available for some of the States, both forest and other saw mills, as well as joinery, moulding, and box factories have been combined in the following table:—

SAW MILLS, FOREST AND OTHER, JOINERY, Etc., 1915.

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'w'lth.
Number of factories	610	360	306	87	71	133	1,567
" " employees	7,736	5,828	5,022	1,213	3,472	1,576	24,847
Actual horse-power of engines employed	17,157	5,610	9,033	1,600	7,931	2,068	46,479
Approx. value of land and buildings	£ 872,636	341,623	200,589	143,800	336,230	74,880	1,969,758
" " plant and machinery	£ 774,294	480,843	458,923	77,445	546,891	163,929	2,502,325
Total amount of wages paid during year	£ 838,642	658,931	527,097	133,195	476,605	146,520	2,780,990
Value of fuel used	£ 20,295	14,496	8,224	3,636	2,635	1,990	51,276
Value of raw material worked up	£ 2,024,512	1,045,278	820,477	501,992	82,431	128,173	4,602,863
Total value of output	£ 3,264,614	2,061,595	1,744,260	726,734	742,548	352,331	8,892,082
Value added in process of manufacture	£ 1,240,102	1,016,317	923,783	224,742	660,117	224,158	4,289,219

* Year ended 30th June, 1915.

The development of forest and other saw mills, etc., since 1910, is shewn in the following table :—

**DEVELOPMENT OF SAW MILLS, FOREST AND OTHER, Etc., IN THE
COMMONWEALTH, FROM 1910 to 1915.**

Items.	1910.	1911.	1912.	1913.	1914.	1915.
Number of establishments	1,350	1,494	1,609	1,670	1,623	1,567
employees	23,424	26,785	29,358	30,371	28,864	24,847
Actual horse-power of engines used... ..	30,520	34,540	40,256	45,684	47,341	46,479
Approximate value of land and buildings of plant and machinery	£ 1,363,927	1,532,620	1,754,241	2,006,035	2,063,437	1,969,758
Total amount of wages paid... ..	£ 2,290,059	2,749,209	3,211,625	3,383,907	3,401,045	2,780,990
Value of fuel used	£ 29,656	37,308	43,913	51,436	50,650	51,276
of raw material worked up	£ 3,372,421	4,203,333	4,900,612	5,273,688	5,012,211	4,602,663
of final output	£ 6,928,310	6,535,800	9,832,810	10,411,923	10,100,686	8,892,032
added in process of manufacture	£ 3,555,869	4,327,467	4,982,198	5,168,235	5,088,475	4,289,219

The great development in the building and other trades in Australia during the years immediately preceding the war is reflected in the very satisfactory progress of the timber industries, in which there were large increases in wages paid, value of materials used, and final output, as well as in capital invested in land and buildings, and plant and machinery. For the years 1914 and 1915, however, there was, as might have been expected, a fairly considerable decline on the returns for 1913.

6. Agricultural Implement Factories.—The manufacture of agricultural implements is an important industry in Australia, and is of particular interest owing to the fact that it is 'one of the first industries to which the so-called "New Protection" system was sought to be applied (see Section XXVII. hereof). The nature of the articles manufactured may be gathered from the machines scheduled in the Customs tariff, 1906-7, which includes stripper harvesters, strippers, stump-jump ploughs, disc cultivators, winnowers, corn-shellers and baggers, drills, and other implements usually employed in agriculture. The stripper-harvester, which combines the stripper with a mechanism for winnowing and bagging grain, is an Australian invention, and is exported to many countries.

The following table gives particulars of the agricultural implement works of Australia for the year 1915 :—

AGRICULTURAL IMPLEMENT WORKS, 1915.

Items.	N.S.W.	Victoria	Q'land.	S.Aust.	W.A.	Tas.	C'w'lth.
Number of factories	24	64	6	54	4	1	153
employees	599	1,678	96	912	317	4	3,606
Actual horse-power of engines employed	313	1,372	97	881	239	3	2,905
Approx. value of land and buildings	£ 100,235	159,942	6,172	67,093	29,624	100	363,166
plant and machinery	£ 36,494	188,492	7,530	79,585	25,088	270	337,459
Total amount of wages paid during year	£ 70,028	206,764	9,272	97,852	44,270	184	428,370
Value of fuel used	£ 2,812	15,337	638	6,142	4,218	20	29,167
Value of raw material worked up	£ 275,630	213,257	16,627	109,276	49,401	221	664,412
Total value of output	£ 387,974	526,756	33,812	258,911	91,218	637	1,299,308
Value added in process of manufacture	£ 112,344	313,499	17,165	149,635	41,817	416	634,896

* Year ended 30th June, 1915.

Development of Agricultural Implement Works. The following table shews the progress of this industry during the years 1910 to 1915 to have been very satisfactory. A general decline has taken place during the latter part of the period, attributable to various causes, the recent drought and a reduction in the exports to other countries being the principal contributing factors:—

**DEVELOPMENT OF AGRICULTURAL IMPLEMENT WORKS IN THE COMMONWEALTH
FROM 1910 to 1915.**

Items.	1910.	1911.	1912.	1913.	1914.	1915.
Number of factories	150	155	159	154	154	153
Number of employees	4,868	5,156	4,733	4,444	3,865	3,606
Actual horse-power of engines used	2,228	2,347	2,419	2,698	2,665	2,905
Approx. value of land and buildings	£ 227,936	284,469	331,348	348,666	360,916	363,166
Approx. value of plant and machinery	£ 208,185	245,025	281,923	309,015	324,292	337,459
Total amount of wages paid	£ 470,931	550,922	527,406	503,244	466,686	428,370
Value of fuel used	£ 35,070	32,342	30,961	30,408	29,592	29,167
Value of raw material worked up	£ 743,032	811,322	751,596	824,556	749,153	664,412
Value of final output	£ 1,560,880	1,656,364	1,539,421	1,536,378	1,413,789	1,299,308
Value added in process of manufacture	£ 817,848	845,042	786,825	711,822	664,636	634,896

7. Engineering, Ironworks, and Foundries.—The classification in these industries is not very satisfactory. Generally, engineering shops, ironworks, and foundries are included, as also are factories for making nails, safes, patterns, meters, and springs. Railway workshops, agricultural implement factories, cyanide, smelting, pyrites, and metallurgical works, galvanised iron, stoves and ovens, and wire working establishments are not included. The combination of industries is rendered necessary owing to the limited classification still adopted by some of the States.

ENGINEERING, IRONWORKS, AND FOUNDRIES, 1915.

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'w'lth.
Number of factories	312	397	91	64	65	21	950
Number of employees	10,059	8,999	2,883	1,739	1,100	439	25,219
Actual horse-power of engines employed	20,239	8,744	2,034	1,406	1,334	293	34,049
Approx. value of land and buildings	£ 1,183,283	655,613	191,406	119,614	130,613	35,455	2,315,984
Approx. value of plant and machinery	£ 1,627,923	846,337	214,421	140,215	114,981	44,770	2,988,650
Total amount of wages paid during year	£ 1,258,032	1,105,931	360,004	207,132	151,744	52,031	3,134,873
Value of fuel used	£ 205,905	110,353	18,125	17,854	13,858	3,075	389,170
Value of raw materials worked up	£ 1,717,110	1,447,517	323,526	294,285	180,556	42,890	4,005,914
Total value of output	£ 3,671,429	3,221,994	943,255	598,853	388,204	120,861	8,944,601
Value added in process of manufacture	£ 1,954,319	1,774,447	619,729	304,573	207,648	77,971	4,938,687

In addition to engineering works which supply ordinary requirements, there are now a number of large and important establishments which engage in the manufacture of special classes of machinery and implements. The manufacture of mining and smelting machinery and apparatus forms an important section of this industry.

The development of engineering, ironworks, and foundries in the Commonwealth since 1910 is shewn in the following table:—

**DEVELOPMENT OF ENGINEERING, IRONWORKS, AND FOUNDRIES
FROM 1910 to 1915.**

Items.	1910.	1911.	1912.	1913.	1914.	1915.
Number of factories	781	890	877	919	950	950
Number of employees	20,109	22,539	25,151	26,014	25,766	25,219
Actual horse-power of engines used	13,493	16,015	18,744	20,630	33,630	34,049
Approx. value of land and buildings	£ 1,382,872	1,579,925	1,792,169	1,980,453	2,264,869	2,315,984
Approx. value of plant and machinery	£ 1,541,107	1,706,405	1,953,478	2,188,935	2,946,347	2,988,650
Total amount of wages paid	£ 1,948,326	2,342,603	2,846,180	3,044,263	3,143,920	3,134,873
Value of fuel used	£ 166,449	178,546	195,789	217,173	357,071	369,170
Value of raw material worked up	£ 2,414,210	2,832,181	3,536,179	3,719,643	3,960,252	4,005,914
Value of final output	£ 5,636,046	6,614,535	7,930,060	8,315,320	8,881,777	8,944,601
Value added in process of manufacture	£ 3,221,838	3,782,354	4,393,681	4,595,677	4,921,525	4,938,687

The progress in these industries during late years has been very rapid. Since 1910 the number of establishments has increased over 21 per cent., the number of hands employed 25 per cent., the amount of wages paid 61 per cent., the amount of capital invested in land, buildings, plant and machinery, 81 per cent., and the output 59 per cent.

8. **Railway and Tramway Workshops.**—(i.) The railway workshops of Australia form an important item in the metal and machinery class, and are chiefly State institutions. The following table gives the details concerning them, but includes also private establishments manufacturing rolling stock:—

RAILWAY AND TRAMWAY WORKSHOPS, 1915.

Items.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	C'w'lth.
Number of factories ...	26	17	10	9	8	7	77
" employees ...	9,577	5,491	2,509	2,721	1,628	298	22,224
Actual h.p. of engines employed ...	5,493	1,503	2,660	596	2,164	155	12,571
Approx. value of land and buildings ...	£ 1,057,558	384,379	314,384	269,137	439,198	7,075	2,471,731
Approx. value of plant and mach'ny ...	£ 965,664	308,167	233,651	196,075	446,319	86,702	2,236,578
Total amt. of wages paid during year ...	£ 1,366,091	793,114	343,041	375,996	253,199	43,505	3,174,946
Value of fuel used ...	£ 31,503	28,621	6,734	8,701	13,100	1,831	90,490
Value of raw material worked up ...	£ 854,595	869,498	202,717	256,243	158,820	21,912	2,363,785
Total value of output ...	£ 2,426,094	1,828,874	589,742	710,737	415,126	75,948	6,046,521
Value added in process of manuf'ct're ...	£ 1,571,499	959,376	387,025	454,494	256,306	54,036	3,682,732

(ii.) *Northern Territory Railway Workshops.* In addition to the above, a railway workshop is in operation in the Northern Territory. The work is confined almost exclusively to repairs to rolling stock, etc., no new goods being manufactured. For the sake of convenience this establishment is not included in any of the tables in this publication.

(iii.) *Development of Railway and Tramway Workshops, 1910 to 1915.* The following table shews the development of railway and tramway workshops in the Commonwealth since 1910:—

DEVELOPMENT OF RAILWAY AND TRAMWAY WORKSHOPS, Etc., FROM 1910 to 1915.

Items.	1910.	1911.	1912.	1913.	1914.	1915.
Number of factories... ..	68	72	73	73	75	77
" employees	14,915	17,425	19,662	26,014	21,745	22,224
Actual horse-power of engines used ...	7,384	8,373	9,637	9,581	11,025	12,571
Approx. value of land and buildings ...	£ 1,939,092	2,036,178	2,128,273	2,213,697	2,378,764	2,471,731
" plant and machinery ...	£ 1,394,657	1,433,093	1,563,710	1,685,050	2,141,654	2,236,578
Total amount of wages paid... ..	£ 1,842,142	2,163,460	2,702,711	3,018,988	3,096,734	3,174,946
Value of fuel used	£ 57,777	69,919	75,476	77,155	90,332	90,490
" of raw material worked up ...	£ 1,558,698	1,939,477	2,574,737	2,874,535	2,492,217	2,363,785
" of final output	£ 3,648,168	4,468,096	5,695,221	6,435,823	6,134,588	6,046,521
" added in process of manufacture ...	£ 2,089,270	2,528,619	3,120,484	3,561,288	3,642,371	3,682,732

The growth of the railway and tramway systems conjointly with heavy increases in passenger and goods traffic throughout the Commonwealth during the past few years (see Section XVII., § 2 and 3) has resulted in corresponding activity in workshops engaged in the manufacture or repair of rolling stock, etc. The above table shews that the number of employees increased 49 per cent. during the last five years, the

amount of wages paid 72 per cent., the final output nearly 66 per cent., while the value added in process of manufacture shews an increase of over 76 per cent.

9. **Smelting Works, etc.**—The subjoined table gives particulars of metal smelting, cyanide, pyrites, and metallurgical works. The classification of these works does not appear to be carried out on a uniform basis in the several States, and the combination of industries is, therefore, somewhat unsatisfactory. The returns do not include particulars of plants used on mines.

SMELTING, CYANIDE, PYRITES, Etc., WORKS, 1915.

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A. †	Tas.	C'w'lth.
Number of factories	26	52	12	6	...	2	98
" employees	2,909	272	408	1,730	...	521	5,840
Actual horse-power of engines employed	13,402	356	2,767	3,816	...	3,256	23,597
Approx. value of land and buildings	£ 212,398	10,076	36,935	19,748	...	7,000	286,157
" plant and machinery	£ 1,087,273	34,584	253,460	69,240	...	42,992	1,487,549
Total am't of wages paid during year	£ 342,958	24,322	78,788	320,437	...	69,562	836,067
Value of fuel used	£ 156,149	4,529	20,251	180,950	...	58,090	419,969
Value of raw material worked up	£ 3,624,155	79,674	626,537	2,600,977	...	458,522	7,389,865
Total value of output	£ 5,884,456	138,241	854,955	1,707,286	...	1,077,257	11,662,195
Value added in process of manufacture	£ 2,260,301	58,567	228,418	1,106,309	...	618,735	4,272,350

* Year ended 30th June, 1915.

† See third* paragraph below.

In New South Wales and Queensland the above figures represent smelting works; those for Victoria include forty-four cyanide works, two metallurgical, four pyrites, and two smelting works; South Australia four cyanide and two smelting; and Tasmania two smelting works.

The largest output for the year under review was in New South Wales, viz., £5,884,456, or 50.46 per cent. on the total output for the Commonwealth. South Australia came next with £3,707,286, or 31.79 per cent.; this amount is made up of £3,701,688 smelting and £5598 cyanide. For Tasmania, the output of smelting was £1,077,257. The output in Victoria was £53,828, £42,850, £40,595, and £968 from pyrites, smelting, cyanide, and metallurgical works in the order named.

In Western Australia all the plants are worked on the mines and are therefore not included.

10. **Bacon-curing Factories.**—(i.) The following table gives particulars of factories engaged in bacon-curing in each State during the year 1915 :—

BACON-CURING FACTORIES, 1915.

Items.	N.S.W.	Vic.	Q'land.	S.A. †	W.A. ‡	Tas.	C'w'lth.
Number of factories	21	25	8	12	3	4	73
" employees	202	394	351	68	14	21	1,050
Actual horse-power of engines employed	315	933	682	81	44	43	2,098
Approx. value of land and buildings	£ 72,277	92,312	93,726	11,304	4,390	5,405	279,414
" plant and machinery	£ 27,314	60,567	54,842	5,350	1,100	2,451	151,624
Total amount of salaries and wages paid	£ 30,927	49,672	45,992	16,163	2,182	3,076	148,012
Value of fuel used	£ 4,174	5,488	4,179	2,195	282	351	16,669
Value of raw material worked up	£ 536,416	666,534	400,965	116,325	88,885	19,078	1,828,203
Total value of output	£ 617,406	767,778	674,820	149,035	96,241	26,675	2,331,955
Value added in process of manufacture	£ 80,990	101,244	273,855	32,710	7,356	7,597	503,752

* Year ended 30th June, 1915. † Including two meat preserving establishments employing 110 hands. ‡ Two establishments, particulars not available for publication. || Not including meat preserving.

(ii.) *Quantity and Value of Production, 1915.* The following table shews the number of pigs killed and the quantity and value of the production of bacon-curing factories in each State during the year 1915 :—

PRODUCTION OF BACON-CURING FACTORIES, 1915.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.†	Tasmania.	C'wealth.
QUANTITY (,000 omitted).							
Bacon & ham lbs.	13,565	11,451	11,746	1,736	1,836	589	40,933
Lard ... lbs.	634	570	699	78	9	31	2,021
VALUE.							
Bacon & ham £	554,692	709,699	535,193	90,013	95,541	24,431	2,009,469
Lard ... £	18,999	21,367	26,043	3,034	300	984	70,727
Other products £	25,460	36,812	113,584	3,154	400	1,260	180,670
PIGS KILLED.							
Number ...	172,876	129,259	159,200	19,185	†	7,952	488,482

* Year ended 30th June, 1915.

† In Western Australia, all bacon and hams treated in factories with the exception of one establishment, are imported and subsequently smoked in that State.

Bacon and ham and other pig products are dealt with more fully in Section IX., *Farmyard and Dairy Production.*

11. **Butter, Cheese, and Condensed Milk Factories.**—(i.) The subjoined table gives particulars of butter, cheese, and condensed milk factories in each State during the year 1915. The returns are exclusive of nine butterine and margarine factories, employing 121 hands, the value of the output being £267,043.

BUTTER, CHEESE, AND CONDENSED MILK FACTORIES, 1915.

Items.	N.S.W. *	Vic.	Q'land.	S.A.	W.A. †	Tas.	C'w'lth.
Number of factories ...	165	190	103	44	3	31	536
" employees ...	1,087	1,194	763	152	9	95	3,300
Actual horse-power of engines employed ...	2,892	2,921	1,504	387	28	216	7,948
Approximate value of land and buildings £	200,553	310,412	115,378	36,187	2,680	18,203	683,413
" plant & machinery £	286,323	334,548	183,156	27,049	2,435	13,745	852,260
Total amount of wages paid ...	£ 152,354	£ 139,543	£ 94,730	£ 12,153	£ 1,190	£ 7,611	£ 403,181
Value of fuel used ...	£ 32,109	£ 23,841	£ 12,603	£ 2,328	£ 35	£ 830	£ 71,796
Value of raw material worked up ...	£ 3,815,028	£ 3,361,314	£ 1,525,410	£ 275,209	£ 9,694	£ 90,671	£ 8,040,316
Total value of output ...	£ 4,187,034	£ 3,715,784	£ 1,913,045	£ 264,930	£ 11,033	£ 111,190	£ 9,203,041
Value added in process of manufacture £	£ 372,006	£ 351,470	£ 387,635	£ 29,721	£ 1,374	£ 20,519	£ 1,162,725

* Year ended 30th June, 1915. † Including two bacon-curing establishments, in order to avoid disclosing particulars of individual establishments.

(ii.) *Development of Factories, 1910 to 1915.* The following table shows the progress of the factories in this industry during the past five years:—

**DEVELOPMENT OF BUTTER, CHEESE, AND CONDENSED MILK FACTORIES
IN THE COMMONWEALTH, 1910 to 1915.**

Items.	1910.	1911.	1912.	1913.	1914.	1915.
Number of factories ...	548	540	530	531	528	536
" employees ...	3,479	3,730	3,518	3,507	3,568	3,300
Actual horse power of engines used ...	6,182	6,818	8,156	7,726	7,895	7,948
Approx. value of land and buildings £	576,644	677,139	659,673	664,735	664,999	683,413
" plant and machinery £	708,239	775,792	788,922	828,986	850,770	832,260
Total amount of wages paid ...	£ 324,505	£ 375,221	£ 385,793	£ 411,491	£ 439,121	£ 406,181
Value of fuel used ...	£ 59,616	£ 67,555	£ 70,155	£ 72,214	£ 81,809	£ 71,796
" raw material worked up ...	£ 7,378,146	£ 8,341,125	£ 8,676,946	£ 8,146,178	£ 8,709,372	£ 8,040,316
" final output ...	£ 8,230,782	£ 9,432,122	£ 9,760,205	£ 9,284,747	£ 9,898,398	£ 9,203,041
Value added in process of manufacture £	£ 852,636	£ 1,090,997	£ 1,083,859	£ 1,138,569	£ 1,169,126	£ 1,162,725

(iii.) *Quantity and Value of Production, 1915.* The following table shows the quantity and value of butter, cheese, and condensed milk produced, and the quantity of milk used in butter, cheese, and condensed milk factories in each State during 1915:—

PRODUCTION OF BUTTER, CHEESE, AND CONDENSED MILK FACTORIES, 1915.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'w'lth.
QUANTITY (,000 OMITTED).							
Butter lbs.	80,302	37,594	23,742	2,983	163	1,831	146,615
Cheese "	3,770	2,130	4,263	1,410	...	355	11,928
Condensed and concentrated milk ... lbs.	6,003	16,690	5,369	...	...	...	28,062
VALUE (,000 OMITTED).							
Butter £	3,594	2,245	1,627	212	11	101	8,090
Cheese £	105	79	164	52	...	10	410
Condensed and concentrated milk ... £	100	383	122	...	...	...	605
MILK USED (,000 OMITTED).							
Butter factories ... gals.	181,121	85,570	51,916	6,075	406	4,550	329,638
Cheese "	3,882	2,185	4,556	1,377	...	380	12,380
Condensed milk factories ... "	1,601	5,455	1,234	...	...	...	8,340

* Year ended 30th June, 1915.

The butter, cheese and condensed milk industries are dealt with more fully in Section IX., *Farmyard and Dairy Production*.

12. **Meat and Fish Preserving, Ice and Refrigerating Works.**—These industries are now of considerable importance in Australia. The freezing of various kinds of produce for export has long been an established industry. Large freezing works have been installed at many ports in the Commonwealth for the purpose of freezing produce chiefly for export, while insulated space for the carriage of frozen produce is provided by a number of steamship companies trading between Australia and other parts of the world. Extensive meat freezing and canning works are being erected in the Northern Territory at Darwin at a cost which will reach, when completed, about £600,000. The Government have entered into an agreement with the proprietors in regard to full train-loads of cattle at special rates coincident with an arrangement that private owners of cattle may have their stock treated under reasonable terms and conditions. When the works are in full operation it is expected that from 400 to 500 head of stock will be treated daily. Particulars regarding the export of frozen beef and mutton may be found on pages 300 and 304 hereof respectively. Special terms have been made by the Commonwealth Government in its English mail contract for the provision by the contractors of ample cold-storage facilities.

The particulars given in the subjoined table include ice-making and freezing works, and also meat-canning factories, separate particulars for each item for all the States not being available.

MEAT AND FISH-PRESERVING, ICE AND REFRIGERATING WORKS, 1915.

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'w'lth.
Number of factories	102	34	53	18	15	7	229
" employees	2,610	1,008	4,925	310	116	63	9,032
Actual horse-power of engines employed	5,621	5,736	11,440	877	966	276	24,916
Approx. value of land and buildings	£ 611,458	416,499	919,386	158,851	50,974	11,200	2,168,367
" " plant and machinery	£ 516,434	240,878	980,170	86,198	58,437	6,036	1,888,153
Total amount of wages paid during year	£ 337,433	134,472	558,957	26,066	16,023	5,879	1,078,330
Value of fuel used	£ 55,973	27,222	62,254	7,368	5,713	1,192	159,722
Value of raw material worked up	£ 3,815,122	886,953	4,561,835	39,892	2,836	13,195	11,319,633
Total value of output	£ 3,805,729	1,136,622	5,855,598	71,207	34,992	24,118	13,928,266
Value added in process of manufacture	£ 990,607	249,669	1,293,763	31,315	32,156	10,923	2,608,433

* Year ended 30th June, 1915.

† Excluding two-meat preserving establishments employing 110 hands.

The following table gives particulars, so far as available, of various classes of meat preserved during the year 1915:—

MEAT-PRESERVING WORKS—OUTPUT, 1915.

Output.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	C'w'lt'h.
Tinned Meat Cwt.	243,585	40,927	255,298†	1,488	...	8,240	549,538

* Year ended 30th June, 1915. † Also 2,266 cwt. salted meat.

Large quantities of rabbits, hares, and poultry, for which, however, complete returns are not available, were treated in freezing works. During 1915, over 3,300,000 rabbits and hares were treated in Victoria alone. Exclusive of Victoria, for which State particulars are not available, the returns shew that 93,172 tons of ice, valued at £178,287, were manufactured in the Commonwealth in 1915.

Full particulars of quantities and value of beef, mutton, and lamb preserved by cold process, exported from the Commonwealth during a series of years, will be found in Section VII., *Pastoral Production*.

13. **Biscuit Manufactories.**—The following table gives particulars regarding establishments at which the manufacture of biscuits, cakes, etc., was carried on in each State during the year 1915:—

BISCUIT, Etc., MANUFACTORIES, 1915.

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'w'lt'h.
Number of factories	7	7	20	3	5	4	46
" employees	1,410	1,361	575	127	139	125	3,737
Actual horse-power of engines employed	672	362	334	76	112	49	1,605
Approx. value of land and buildings	£ 117,291	72,750	58,309	18,350	14,000	23,200	303,900
Total amount of plant and machinery	£ 105,970	61,068	44,924	11,102	17,370	11,000	251,434
Value of raw material worked up	£ 78,010	111,794	56,897	9,860	10,604	8,643	274,808
Value of fuel used	£ 9,616	9,925	2,833	1,617	1,132	1,240	26,413
Total value of output	£ 428,520	424,234	163,973	33,665	34,496	33,250	1,118,138
Value added in process of manufacture	£ 681,142	669,841	302,709	61,114	59,947	50,815	1,625,568
Value added in process of manufacture	£ 252,622	245,607	138,736	27,449	25,451	17,565	707,430

* Year ended 30th June, 1915.

14. **Jam and Fruit Preserving, Pickles, Sauces, and Vinegar Manufactories.**—The jam and fruit preserving industry has increased in importance of late years, consequent on the extension of fruit-growing. As an exporting industry it is comparatively recent, but is of increasing value, and is stated to be capable of considerable expansion. During the year ended 30th June, 1915, 4,770,017 lbs. of jams and jellies, valued at £90,909, were exported from the Commonwealth. The subjoined table gives particulars of factories at which these industries were carried on in each State during the year 1915. Separate returns for the individual industries are not available for most of the States.

JAM AND FRUIT PRESERVING, PICKLES, SAUCES, AND VINEGAR MANUFACTORIES, 1915.

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'w'lt'h.
Number of factories	36	30	11	26	8	17	128
" employees	1,074	1,689	325	422	70	813	4,393
Actual horse-power of engines employed	366	393	69	132	31	526	1,567
Approx. value of land and buildings	£ 114,333	126,875	18,326	34,160	5,550	58,900	358,144
" plant and machinery	£ 55,794	57,621	12,218	17,048	2,406	33,095	178,182
Total amount of wages paid during year	£ 88,512	135,768	20,061	25,441	3,907	52,753	326,442
Value of fuel used	£ 4,893	8,918	1,066	2,129	350	4,602	21,965
Value of raw material worked up	£ 464,530	666,122	56,985	131,845	10,422	272,561	1,602,465
Total value of output	£ 656,308	1,009,533	98,364	193,511	17,557	441,838	2,417,111
Value added in process of manufacture	£ 191,778	343,411	41,379	61,666	7,135	169,277	511,646

* Year ended 30th June, 1915.

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Quantity and Value of Production, 1915. The following table shews the quantity and value of jams, pickles, and sauces manufactured in each State during the year 1915:—

QUANTITY AND VALUE OF JAMS, PICKLES, AND SAUCE MANUFACTURED, 1915.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
QUANTITY (,000 OMITTED).							
Jam lbs.	29,799	34,210	2,177	8,211	†	21,490	\$95,887
Fruit, preserved lbs.	2,136	5,929	3,381	1,852	...	†2,231	15,529
Pickles pints	2,626	1,286	*100	238	101	25	4,376
Sauce pints	2,952	5,827	286	928	317	62	10,372
VALUE.							
Jam £	429,896	697,854	38,939	128,679	†	337,650	\$1,633,018
Fruit, preserved £	33,049	95,925	45,794	29,140	...	39,000	242,708
Pickles £	49,778	38,009	2,377	4,571	2,162	520	97,417
Sauce £	63,885	177,745	7,961	17,691	5,919	1,329	274,530

* Approximate. † Exclusive of 51,709 cwt. fruit pulped, value £61,905. ‡ Information not available for publication. § Exclusive of Western Australia.

15. Confectionery.—The following table shews the position of the confectionery industry in 1915, and its growth will be apparent when it is stated that at the close of 1900 there were in New South Wales only 16 establishments, with 706 employees, and in Victoria 16 establishments, employing 731 persons, the plant and machinery in the former State being valued at £2815, and in the latter at £19,070.

CONFECTIONERY FACTORIES, 1915.

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'w'lh.
Number of factories	53	36	9	9	4	4	115
employees	1,534	1,987	458	285	123	24	4,411
Actual horse-power of engines employed	714	699	136	244	244	31	2,266
Approx. value of land and buildings	£ 249,878	112,041	29,712	31,339	23,752	11,360	457,882
" plant and machinery	£ 95,512	113,320	22,405	33,228	16,918	3,533	294,916
Total amount of wages paid during year	£ 130,222	149,384	32,877	19,166	12,736	1,533	345,938
Value of fuel used	£ 8,650	12,638	1,740	2,351	974	190	26,543
Value of raw material worked up	£ 522,514	542,849	51,344	63,676	32,361	11,720	1,224,464
Total value of output	£ 816,389	851,817	117,390	104,560	54,736	18,407	1,963,299
Value added in process of manufacture	£ 293,875	308,968	66,046	40,884	22,375	6,687	738,835

* Year ended 30th June, 1915.

16. Flour Mills.—(i.) The following table shews the position of the flour-milling industry in the year 1915:—

FLOUR MILLS, 1915.

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'w'lh.
Number of factories	63	51	11	42	14	17	198
employees	931	651	182	469	246	130	2,579
Actual horse-power of engines employed	4,781	3,887	894	2,614	1,685	526	14,387
Approx. value of land and buildings	£ 363,641	211,615	70,986	117,077	86,737	52,575	902,631
" plant and machinery	£ 334,602	250,186	72,816	141,861	75,692	27,845	903,002
Total am't of wages paid during year	£ 139,702	70,982	28,693	48,043	27,356	15,619	330,395
Value of fuel used	£ 22,687	15,029	2,941	8,469	3,926	2,623	55,675
Value of raw material worked up	£ 2,827,968	2,368,489	747,264	857,046	587,877	407,088	7,795,732
Total value of output	£ 3,311,289	2,739,730	863,046	969,937	676,058	464,502	9,064,562
Value added in process of manufacture	£ 523,321	371,241	115,782	112,891	88,181	37,414	1,268,830

* Year ended 30th June, 1915. † The manufacture of cornflour, oatmeal, etc., was also carried on in these establishments.

(ii.) *Production of Flour Mills, 1910 to 1915.* The production of flour by the mills in each State of the Commonwealth in the years 1910 to 1915 was as follows:—

FLOUR MILLS—PRODUCTION, 1910 to 1915.

Year.	N.S.W.	Victoria.	Q'land.	Sth. Aust.	West. Aust.	Tasmania.	C'wealth.
	Tons.*	Tons.*	Tons.*	Tons.*	Tons.*	Tons.*	Tons.*
1910	242,813	225,282	27,559	95,885	36,818	20,925	649,282
1911	253,556	247,434	27,960	100,374	40,642	21,335	691,301
1912	255,359	225,376	25,855	103,100	49,319	18,044	677,053
1913	285,425	252,763	33,889	107,994	61,997	18,545	760,613
1914	266,302†	246,136	35,402	84,701	61,922	19,382	713,845
1915	266,302†	134,401	39,734	49,404	32,396	19,573	541,810

* Tons of 2000 lbs. † Year ended 30th June, 1915.

The total production of flour for the Commonwealth for 1915, viz., 541,810 tons, was valued at £7,117,002; in addition 241,830 tons of bran and pollard, valued at £1,781,479, were made. The total quantity of wheat ground in 1915 was 26,513,959 bushels.

17. Sugar Mills.—The following table shews the position of the cane-crushing branch of the sugar-making industry in 1915. This industry is carried on in Queensland and New South Wales, the only States of the Commonwealth in which the sugar-cane is grown.

SUGAR MILLS, 1915.

Items.	N.S.W.	Queensland.	Total.
Number of factories	3	44	47
„ employees	437	4,220	4,657
Actual horse-power of engines employed	2,750	12,183	14,933
Approximate value of land and buildings	£ 54,000	319,448	373,448
„ „ plant and machinery	£ 478,927	2,167,128	2,646,055
Total amount of wages paid during year	£ 54,708	386,846	441,554
Value of fuel used	£ 5,507	45,588	51,095
Value of raw material worked up	£ 200,009	1,524,057	1,724,066
Total value of output	£ 332,290	2,477,233	2,809,523
Value added in course of manufacture	£ 132,281	953,176	1,085,457

* Year ended 30th June, 1915.

The product of the sugar mill is raw sugar and molasses, the former being sent to the refineries in different parts of Australia for further treatment. Part of the molasses produced is used in distillation, part is turned into food cake for cattle, and part is used for manuring land, but a considerable quantity is run to waste. The following tables shew the progress of this industry in each State from the dates at which information is first obtainable:—

SUGAR MILLS, NEW SOUTH WALES, 1870 to 1915.

Items.	1870.	1877.	1886.	1896.	1901.	1910.	1911.	1912.	1913.	1914-15. †
No. of factories	27	50	64	23	12	4	4	3	3	3
„ employees	...	1,065	2,259	1,475	695	506	469	469	486	437
Cane crushed tns	*	*	*	*	*	160,311	167,799	141,274	185,910	181,606
Sugar produced tons	677	7,537	13,750	28,557	19,519	20,115	17,299	16,817	22,192	20,029
Molasses pro- duced ...gals.	...	345,543	507,000	2,520,580	1,300,909	918,900	796,440	667,100	966,000	1,104,000

* Not available. † Year ended 30th June, 1915.

The reduction in the number of New South Wales mills is due chiefly to the tendency towards concentration of cane-crushing in mills fitted with modern machinery, and the consequent closing of the small home mill. On the north coast of New South Wales some land formerly devoted to sugar-growing has been turned into pastures in connection with the dairying industry.

SUGAR MILLS, QUEENSLAND, 1868 to 1915.

Items.	1868.	1876.	1886.	1896.	1901.	1911.	1912.	1913.	1914.	1915.
No. of factories	10	70	118	63	52	49	47	48	47	44
" employees	...	*	*	3,796	*	4,295	3,891	4,524	4,835	4,220
Cane crushed	...	...	...	...	...	...	...	...	...	...
" tons	...	77,245	140,756	166,640	178,160	1,534,451	994,212	2,085,588†	1,922,633	1,152,516
Sugar produced	619	8,214	59,225	100,774	120,858	173,296	113,060	242,837	225,847	140,496
Molasses.—										
Sold to distillers	...	...	...	...	...	2,393,669	1,957,139	3,330,000	2,374,501‡	1,063,298
Used as fodder	...	...	...	...	...	789,564	768,187	1,000,000	898,693	1,847,112
Used as Manure	*	*	*	*	*	223,000	...	500,000	476,556	64,400
Run to waste or burnt	...	...	...	...	...	1,847,333	900,963	...	3,278,841	1,892,201
In stock	...	...	...	...	...	1,197,626	1,362,699	4,248,358	977,629	869,914
Total Molasses † gals	68,622	416,415	1,784,266	2,195,470	3,679,952	6,451,192	4,988,988	9,078,358	8,006,220	5,736,925

* No record. † Acres crushed. ‡ Quantity recorded; large quantities run to waste for which no record is kept. § Including 135,390 gallons syrup.

Information regarding the cultivation of sugar-cane and the bounties at one time payable on cane grown by white labour may be found in the section of this book dealing with *Agricultural Production*. (See pages 354 to 357.)

18. **Sugar Refineries.**—The establishment of the sugar-refining industry considerably antedates the establishment of the sugar-milling industry, the raw material operated upon being originally brought chiefly from Mauritius and the East. In 1915 there were two sugar refineries in each of the States of Victoria and Queensland, and one in each of the States of New South Wales and South Australia. The returns for the individual States cannot be disclosed.

In the six refineries in the Commonwealth, an average number of 1749 hands was employed during the year 1915. The approximate value of land and buildings was £450,071; of plant and machinery, £1,039,462; and the total amount of wages paid during the year was £225,305. The value of all materials used in sugar refineries during 1915 was £4,582,908, while the total output reached £5,150,106. The amount of crude sugar used was 267,487 tons, and of refined sugar produced 254,542 tons, valued at £5,126,536.

19. **Breweries.**—(i.) The following table gives particulars of breweries in each State during the year 1915:—

BREWERIES, 1915.

Items.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'w'lh.
Number of factories	27	22	10	11	15	5	90
" employees	1,045	903	424	348	450	125	3,295
Actual horse-power of engines employed	2,208	3,199	508	990	1,426	99	8,430
Approx. value of land and buildings	£ 620,102	434,295	132,865	99,985	188,838	396,450	1,872,535
Approx. value of plant and machinery	£ 564,327	419,896	116,243	106,561	201,887	43,725	1,452,639
Total amount of wages paid during year	£ 168,997	159,870	61,886	53,573	86,178	18,128	548,632
Value of fuel used	£ 23,096	23,692	7,597	8,198	11,255	2,414	81,262
Value of raw material worked up	£ 630,314	481,327	130,569	107,304	119,092	26,368	1,494,974
Total value of output	£ 1,533,435	1,061,196	442,048	309,526	421,587	101,394	3,869,766
Value added by process of manufacture	£ 903,121	579,869	311,479	202,222	302,495	75,626	2,374,812

* Year ended 30th June, 1915.

(ii.) *Production and Materials Used, 1915.* The following table shews the quantity and value of ale and stout brewed and the quantity of raw materials used in each State during the year 1915:—

PRODUCTION AND MATERIALS USED IN BREWERIES, 1915.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
ALE AND STOUT BREWED.							
Quantity gallons	23,516,877	20,339,924	5,718,526	5,030,354	5,348,532	1,596,278	61,550,491
Value* ... £	1,148,945	1,061,196	442,048	304,398	409,870	101,634	3,468,091
RAW MATERIALS USED.							
Malt ... bush.	838,148	600,333	177,704	118,086	156,395	57,951	1,948,617
Hops ... lbs.	893,050	661,299	244,737	160,593	203,274	87,083	2,250,036
Sugar ... cwt.	103,848	111,363	38,446	31,774	26,665	6,780	318,876
RAW MATERIALS USED PER 1000 GALLONS OF ALE AND STOUT PRODUCED.							
Malt ... bush.	35.64	29.52	31.08	23.47	29.24	36.30	31.66
Hops ... lbs.	37.97	33.51	42.80	31.92	38.01	54.55	36.56
Sugar ... cwt.	4.42	5.48	6.72	6.32	4.99	4.25	5.18

* Exclusive of excise duty.

† Year ended 30th June, 1915.

(iii.) *Development of Breweries, 1910 to 1915.* The following table shews the progress of this industry during the past six years:—

DEVELOPMENT OF BREWERIES FROM 1910 to 1915.

Items.	1910.	1911.	1912.	1913.	1914.	1915.
Number of factories ...	124	121	110	101	95	90
" employees ...	3,333	3,450	3,532	3,551	3,535	3,295
Actual horse-power of engines used ...	4,663	5,008	5,678	6,930	8,313	8,430
Approx. value of land and buildings ...	£ 1,453,696	1,469,449	1,526,629	1,554,187	1,860,584	1,872,535
" plant and machinery ...	£ 903,521	970,618	1,078,724	1,171,595	1,433,616	1,452,639
Total amount of wages paid ...	£ 445,342	483,393	523,812	552,843	575,446	548,632
Value of fuel used ...	£ 77,101	69,284	76,906	75,824	86,175	81,252
" raw material worked up ...	£ 1,138,145	1,273,522	1,494,070	1,568,620	1,534,656	1,494,974
" final output ...	£ 3,076,736	3,318,937	3,647,850	3,817,396	4,107,498	3,869,786
Value added in process of manufacture ...	£ 1,938,591	2,045,415	2,153,780	2,248,776	2,572,842	2,374,512

The main feature in the history of the brewing industry, which was established at an early date in Australia, has been the change from the small local brewery in every township of moderate size to the large centralised city brewery. This, however, has not been so much in evidence during the period embraced in the above table, the reduction of the number of establishments during recent years being mainly due to several large amalgamations. The total value of output of breweries in the Commonwealth increased from £3,076,736 in 1910 to £4,107,498 in 1914, and fell to £3,869,786 in 1915.

20. *Distilleries.*—The subjoined table gives particulars of distilleries in each State during the year 1915. There are no distilleries in either of the States of Western Australia or Tasmania.

DISTILLERIES, 1915.

Items.	N.S.W.	Vic.	Qld.	S.A.	W.A.	Tas.	C'wealth.
Number of factories ...	3	9	3	19	...	...	34
" employees ...	22	92	34	83	...	...	231
Actual horse-power of engines employed ...	124	217	47	222	...	...	610
Approximate value of land and buildings ...	£ 19,330	103,985	13,117	29,023	...	...	165,455
Approx. value of plant and machinery ...	£ 58,006	76,549	18,011	26,135	...	...	178,693
Total amount of wages paid during year ...	£ 5,513	10,853	4,950	6,690	...	...	28,036
Value of fuel used ...	£ 1,409	2,947	2,708	1,960	...	...	9,024
Value of raw materials worked up ...	£ 34,180	32,209	10,620	38,108	...	...	115,117
Total value of output ...	£ 53,079	61,604	48,674	57,657	...	...	221,014
Value added in process of manufacture ...	£ 18,899	29,395	38,054	19,549	...	...	105,897

* Year ended 30th June, 1915.

Production of Spirits and Materials Used, 1915. The total quantity of rum distilled in 1915 was 537,196, of whisky 120,157, of brandy 111,213, and of other spirits 2,000,028 proof gallons. The materials used comprised 494,936 cwt. of molasses and sugar, and 2,123,836 gallons of wine. Particulars for the separate States are not available for publication.

21. **Tobacco, Cigars, and Cigarettes.**—(i.) During the year 1915 there were thirty-four establishments in which the manufacture of tobacco, cigars, and cigarettes was carried on. There were no factories engaged in this industry in Tasmania.

TOBACCO, CIGAR AND CIGARETTE FACTORIES, 1915.

Items.	N.S.W. *	Vic.	Qld.	S.A.	W.A. ||	Tas.	C'w'lth.
Number of factories	11	13	2	2	6	...	34
" employees	1,763	1,601	113	31	39	...	3,547
Actual horse-power of engines employed	413	375	20	...	18	...	826
Approx. value of land and buildings	£ 212,726	177,365	5,114	5,319	4,069	...	404,593
" plant and machinery	£ 118,606	111,410	8,491	2,535	909	...	241,951
Total amount of wages paid during year	£ 173,440	185,889	9,148	†	1,750	...	1370,227
Value of fuel used	£ 4,451	2,916	208	†	32	...	17,607
Value of raw material worked up	£ 1,187,756	731,948	34,402	†	5,419	...	1,959,525
Total value of output	£ 1,767,898	1,199,660	64,366	†	9,126	...	13,041,050
Value added in process of manufacture	£ 580,142	467,712	29,964	†	3,707	...	1,081,525

* Year ended 30th June, 1915. † Not available for publication. ‡ Exclusive of South Australia. || Including four condiment establishments.

(ii.) *Quantity of Goods Produced, and Tobacco Leaf Used, 1915.* The following table shews the quantity of goods produced in tobacco factories in each State, and the quantities of imported and Australian-grown leaf used during the year 1915 :—

PRODUCTION OF TOBACCO FACTORIES AND QUANTITY OF LEAF USED, 1915:

Particulars.	N.S.W. *	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'w'lth.
QUANTITY (,000 OMITTED).							
Manufact'ed tobacco lbs.	4,524	5,023	223	...	7	...	9,776
Cigars	102	263	...	†	†	...	365
" No.	8,966	22,677	...	†	†	...	31,643
Cigarettes	2,866	308	...	...	1	...	3,175
" No.	1,256,542	138,111	...	...	322	...	1,394,975
TOBACCO LEAF USED (,000 OMITTED).							
Australian leaf ... lbs.	925	516	235	†	...	...	1,676
Imported leaf ... lbs.	5,756	4,415	5	†	16	...	10,182

* Year ended 30th June, 1915. † Not available for publication. ‡ For tobacco and cigarettes only. § Incomplete.

(iii.) *Development of Industry.* This industry was among the first to be established in Australia. In 1861 New South Wales had eleven factories, producing 177,744 lbs. of manufactured tobacco; in the same year there was one factory in Victoria, but the quantity of tobacco manufactured is not available. The Australian market has for many years been largely supplied with local manufactures. The quantities imported into Australia during 1915-16 were—manufactured tobacco 1,507,278 lbs., cigars 191,630 lbs., and cigarettes 160,880 lbs., while the quantities manufactured in Australian factories were respectively 9,774,779 lbs., 365,226 lbs., and 3,174,618 lbs. The following tables shew the development of the tobacco industry in the Commonwealth during recent years :—

**DEVELOPMENT OF TOBACCO, CIGAR, AND CIGARETTE FACTORIES IN THE
COMMONWEALTH, 1910 to 1915.**

Items.	1910.	1911.	1912.	1913.	1914.	1915.
Number of factories	35	33	35	36	36	34
Number of employees	3,923	3,730	3,484	3,566	3,658	3,547
Actual horse-power of engines used	830	1,045	917	1,119	808	826
Approx. value of land and buildings	£ 379,866	373,895	349,022	353,447	402,462	404,593
Approx. value of plant and machinery	£ 250,351	214,576	227,294	231,547	248,532	241,591
Total amount of wages paid	£ 322,171	346,258	358,081	373,963	380,821	370,227
Value of fuel used	£ 4,535	4,488	4,267	4,053	7,365	7,607
Value of raw material worked up	£ 1,385,863	1,468,212	1,622,713	1,651,226	1,905,489	1,959,525
Value of final output	£ 2,332,986	2,518,946	2,596,157	2,713,363	3,006,482	3,041,050
Value added in process of manufacture	£ 947,123	1,050,734	1,073,444	1,062,137	1,100,993	1,081,525

PRODUCTION.

Items	1000 lbs.	1910.	1911.	1912.	1913.	1914.	1915.
Tobacco made	1000 lbs.	9,933	10,048	10,268	9,956	9,964	9,776
Cigars	"	320	356	389	406	401	1365
Cigarettes	"	1,862	2,164	2,606	2,768	3,197	3,175
Leaf used	"	10,951	10,993	11,827	11,677	12,091	11,858

* Exclusive of two factories in South Australia. † See note (†) table prior.

22 Woollen, Cotton, and Tweed Mills.—(i.) The manufacture of woollens and tweeds was established in Australia at an early period in its history, and was under Government control, the first record in New South Wales dating back to 1801, when a few blankets were made by the convicts; the first record in Victoria was in 1867. The following table, which gives particulars of the mills in each State during the year 1915, shews that the industry is now well established:—

WOOLLEN, COTTON, AND TWEED MILLS, 1915.

Items.	N.S.W.	Vic.	Q'ld.	S.A.	W.A.	Tas.	C'wlth.
Number of factories	5	10	1	2	...	4	22
employees	955	2,063	153	216	...	233	3,620
Actual horse-power of engines employed	2,171	2,679	135	261	...	118	5,364
Approx. value of land and buildings	£ 127,040	136,395	7,879	16,900	...	21,900	310,114
plant and machinery	£ 185,767	265,267	18,192	29,523	...	39,100	537,849
Total amount of wages paid during year	£ 90,877	170,888	11,733	24,798	...	15,530	313,826
Value of fuel used	£ 9,424	21,962	†	†	...	1,275	36,275
Value of raw material worked up	£ 246,425	487,140	†	†	...	30,437	836,298
Total value of output	£ 459,150	931,774	†	†	...	75,727	1,615,223
Value added in process of manufacture	£ 212,725	444,634	†	†	...	45,290	778,925

* Year ended 30th June, 1915.

† As there is only one factory in Queensland and two in South Australia, particulars of output, etc., are not disclosed; the amounts, however, are included in the totals for the Commonwealth.

(ii.) *Progress of Industry, 1910 to 1915.* The progress of woollen and tweed manufactures in the Commonwealth during the last five years is shewn in the following table:—

**DEVELOPMENT OF WOOLLEN, COTTON AND TWEED MILLS IN THE
COMMONWEALTH, FROM 1910 to 1915.**

Items.	1910.	1911.	1912.	1913.	1914.	1915.
Number of factories	25	32	32	22	22	22
employees	3,030	3,200	3,379	3,090	3,290	3,620
Actual horse-power of engines used	3,243	3,444	3,692	4,358	5,072	5,364
Approx. value of land and buildings	£ 249,787	293,115	307,049	299,306	311,391	310,114
plant and machinery	£ 436,921	478,859	497,837	516,659	532,084	537,849
Total amount of wages paid	£ 172,394	203,194	232,561	231,018	257,590	313,826
Value of fuel used	£ 90,033	20,863	22,709	21,778	27,306	36,275
Value of raw material worked up	£ 347,226	447,829	468,728	475,637	603,387	836,298
Value of final output	£ 693,297	860,789	930,485	925,602	1,152,657	1,615,223
Value added in process of manufacture	£ 346,071	412,960	461,757	449,965	549,270	778,925

* Excluding the manufacture of hosiery and knitted goods, numbering 13 establishments in 1912, included in New South Wales returns previous to 1913.

(iii.) *Quantity and Value of Production, 1915.* The production of the woollen mills of Australia consists chiefly of tweed cloths, flannels, and blankets, all of which have acquired a reputation for purity and durability. Detailed particulars for the several States are not available for publication. The total length of tweed and cloth manufactured in the Commonwealth during 1915 was 3,753,848 yards. In New South Wales 1,718,903 yards of tweed and cloth, in Victoria* 1,331,137 yards, and in Tasmania 15,000 yards were manufactured. The production of flannel in the Commonwealth in 1915—amounted to over 5,800,000 yards, while blankets, shawls, and rugs to the number of about 1,334,000 were manufactured.

No cotton spinning, or weaving, or linen weaving is carried on in Australia. Cotton ginning has been carried on intermittently in the northern States, and a mill was lately reopened at Ipswich in Queensland. For particulars of the quantity ginned on which bounties were paid, see page 369.

23. *Boots and Shoes.*—(i.) Among the manufactories of Australia the boot and shoe industry holds an important place both in respect to the employment afforded and the extent of its output. The following table shews particulars of this industry for each State during the year 1915:—

BOOT AND SHOE FACTORIES, 1915.

Items.	N.S.W. *	Vic.	Q'land.	S.A.	W.A.	Tas.	C'w'ith.
Number of factories	108	174	26	26	13	11	358
" employees	4,105	6,847	1,070	719	228	206	13,175
Actual horse-power of engines employed	1,114	1,362	291	167	44	51	3,029
Approx. value of land and buildings £	282,397	278,145	36,023	46,785	19,467	14,490	677,307
" plant and machinery £	143,619	205,538	26,617	25,969	9,461	7,325	418,529
Total amt. of wages paid during year £	398,404	625,886	97,682	62,907	20,781	15,327	1,220,987
Value of fuel used	6,046	11,742	965	1,356	498	106	20,713
Value of raw material worked up £	783,880	1,502,285	170,208	129,083	54,794	32,716	2,673,016
Total value of output	£1,355,896	2,436,673	336,883	213,398	86,641	57,394	4,486,885
Value added in process of manufacture £	572,016	934,368	166,675	84,315	31,847	24,628	1,813,869

* Year ended 30th June, 1915.

(ii.) *Progress of Industry, 1910 to 1915.* The progress of the industry in the last five years is shewn in the following table:—

*DEVELOPMENT OF BOOT AND SHOE FACTORIES IN THE COMMONWEALTH, 1910 to 1915.

Items.	1910.	1911.	1912.	1913.	1914.	1915.
Number of factories	337	341	332	346	357	358
Number of employees	13,810	13,772	13,341	13,456	13,192	13,175
Actual horse-power of engines used	2,248	2,405	2,646	2,823	3,091	3,029
Approx. value of land and buildings £	527,805	565,735	598,659	629,787	656,576	677,307
Approx. value of plant and machinery £	360,818	389,879	398,014	429,994	415,695	418,529
Total amount of wages paid	£ 968,375	1,096,575	1,144,465	1,154,658	1,193,900	1,220,987
Value of fuel used	£ 14,699	16,792	17,244	18,073	18,902	20,713
Value of raw material worked up	£ 2,000,704	2,151,101	2,184,750	2,308,194	2,437,169	2,673,016
Value of final output	£ 3,396,172	3,713,948	3,819,371	4,004,486	4,156,590	4,486,885
Value added in process of manufacture £	1,395,468	1,562,847	1,634,621	1,696,292	1,719,421	1,813,869

Although the average number of employees in boot and shoe factories shews a slight decline during the past five years, a substantial and consistent advance in the value of output is in evidence during the same period. This is doubtless partly attributable to the increase in mechanical power employed, and the introduction of improved plant and machinery, the value of which was £418,529 in 1915, as compared with £360,818 in 1910.

(iii.) *Value and Quantity of Production, 1915.* The number and value of boots, shoes and slippers made at factories in each State during the year 1915 are shewn in the following table:—

PRODUCTION OF BOOT AND SHOE FACTORIES, 1915.

Particulars.	N.S.W. †	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wth.
QUANTITY (,000 OMITTED).							
Boots and shoes ... pairs	3,528	5,257	750	619	193	136	10,483
Slippers ... pairs	312	191	3	23	3	...	532
Uppers* ... pairs	55	14	51	16	...	6	142
VALUE.							
Boots and shoes ... £	1,263,771	2,414,123	301,837	197,116	79,196	54,655	4,310,700
Slippers ... £	31,802	19,000	583	4,019	801	20	56,225
Uppers* ... £	14,501	3,550	20,029	4,122	...	1,158	43,360

* Made for other than factory use. † Year ended 30th June, 1915.

24. Clothing (Tailoring and Slop) Factories.—The importance of this industry in the several States and in the Commonwealth as a whole is shewn in the following table:—

CLOTHING (TAILORING AND SLOP) FACTORIES, 1915.

Items.	N.S.W. *	Vic.	Q'land.	S.A.	W.A.	Tas.	C'wth.
Number of factories ...	461	466	136	127	65	42	1,297
... employees ...	10,490	10,247	3,972	2,254	1,058	595	28,616
Actual horse-power of engines employed	432	467	259	103	54	8	1,323
Approx. value of land and buildings	£1,018,718	£602,230	£250,197	£145,384	£105,335	£73,555	£2,195,419
... plant and machinery	£63,852	£83,539	£40,679	£14,199	£9,178	£3,520	£214,967
Total amount of wages paid during year	£776,766	£633,545	£237,106	£129,068	£79,600	£39,061	£1,895,146
Value of fuel used...	£11,575	£13,398	£3,047	£3,139	£1,750	£403	£33,312
Value of raw material worked up	£1,034,936	£1,279,276	£427,206	£174,702	£134,676	£45,336	£3,096,134
Total value of output	£2,195,381	£2,315,842	£881,402	£367,223	£259,832	£105,592	£6,125,272
Value added in process of manufacture	£1,160,445	£1,036,564	£454,196	£192,521	£125,156	£60,256	£3,029,138

* Year ended 30th June, 1915.

Progress of Industry, 1910 to 1915. The substantial development that has taken place in the tailoring and slop branch of this industry may be accepted as an indication of the general prosperity of the community. The amount of wages paid increased from £1,589,636 in 1910 to £1,895,146 in 1915, or nearly 20 per cent., while the output increased approximately 27½ per cent. during the same period.

DEVELOPMENT OF CLOTHING (TAILORING AND SLOP) FACTORIES IN THE COMMONWEALTH, FROM 1910 TO 1915.

Items.	1910.	1911.	1912.	1913.	1914.	1915.
Number of factories ...	1,111	1,182	1,238	1,342	1,340	1,297
... employees ...	27,451	30,549	31,088	30,965	29,774	28,616
Actual horse-power of engines used	851	1,020	1,206	1,201	1,257	1,323
Approx. value of land and buildings	£1,778,985	£1,931,274	£2,155,643	£2,212,346	£2,219,346	£2,195,419
... plant and machinery	£143,793	£160,935	£173,706	£191,752	£209,167	£214,967
Total amount of wages paid	£1,589,636	£1,854,135	£2,010,779	£2,075,916	£1,979,088	£1,895,146
Value of fuel used ...	£24,965	£26,561	£29,550	£31,219	£31,825	£33,312
... raw material worked up	£2,304,362	£2,610,348	£2,696,987	£2,732,241	£2,864,893	£3,096,134
... final output	£4,805,629	£5,486,368	£5,807,431	£5,878,119	£5,953,001	£6,125,272
Value added in process of manufacture	£2,501,267	£2,876,040	£3,110,444	£3,145,878	£3,088,108	£3,029,138

25. **Dressmaking and Millinery.**—Particulars of dressmaking and millinery establishments for the year 1915 are given in the following table :—

DRESSMAKING AND MILLINERY ESTABLISHMENTS, 1915.

Items.	N.S.W.	Vic.	Q'land.	S. Aust.	W. A.	Tas.	C'w'lth.
Number of factories	279	446	57	46	47	17	892
" employees	4,502	8,107	1,267	763	679	298	15,616
Actual horse-power of engines employed	93	291	12	13	12	7	428
Approx. value of land and buildings	£ 336,950	446,201	43,045	30,714	42,485	18,500	917,895
" plant and machinery	£ 19,250	45,829	5,596	3,575	4,131	976	79,357
Total amount of wages paid during year	£ 206,604	373,607	54,766	30,403	35,501	13,250	714,131
Value of fuel used	£ 1,429	6,879	169	409	437	117	9,440
Value of raw material worked up	£ 288,476	736,727	88,203	40,260	53,293	17,728	1,224,687
Total value of output	£ 605,913	1,348,923	191,140	91,888	94,435	32,563	2,364,562
Value added by process of manufacture	£ 317,437	612,196	102,937	51,628	41,142	14,835	1,140,175

* Year ended 30th June, 1915.

Progress of Industry, 1910 to 1915. The development of dressmaking and millinery establishments in the Commonwealth during the past five years is shown in the following table :—

DEVELOPMENT OF DRESSMAKING AND MILLINERY ESTABLISHMENTS IN THE COMMONWEALTH, FROM 1910 to 1915.

Items.	1910.	1911.	1912.	1913.	1914.	1915.
Number of factories	1,056	1,050	994	995	991	892
" employees	18,040	18,803	18,476	18,217	17,318	15,616
Actual horse-power of engines used	264	319	371	376	410	428
Approx. value of land and buildings	£ 811,464	879,098	878,231	939,072	956,416	917,895
" plant and machinery	£ 60,937	67,307	74,466	72,257	79,182	79,357
Total amount of wages paid	£ 600,484	695,319	748,222	772,748	759,221	714,131
Value of fuel used	£ 8,185	8,722	9,143	9,238	9,164	9,440
Value of raw material worked up	£ 1,065,979	1,161,260	1,249,930	1,287,050	1,272,420	1,224,687
Value of final output	£ 2,046,931	2,280,553	2,429,315	2,492,105	2,429,133	2,364,862
Value added in process of manufacture	£ 980,952	1,119,293	1,179,385	1,205,055	1,156,713	1,140,175

The above table shews the amount of wages paid to have increased over 19 per cent. during the last five years, and the final output 15½ per cent. during the same period.

26. **Coach and Wagon Building Works.**—This industry forms the principal branch of manufacture in Class XI. (see § 1, 3 above). The subjoined table gives particulars of factories in this branch of industry in each State during the year 1915. The returns include establishments for the manufacture of wheels, spokes, etc.

COACH AND WAGON BUILDING WORKS, 1915.

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'wlth.
Number of factories	233	310	84	89	38	22	776
" employees	2,436	2,381	682	697	260	177	6,633
Actual horse-power of engines employed	1,143	704	266	435	141	57	2,746
Approx. value of land and buildings	£ 333,585	258,883	66,694	96,831	43,644	20,850	820,487
" plant and machinery	£ 92,653	65,788	21,489	28,292	10,556	4,471	223,249
Total amount of wages paid during year	£ 251,304	207,276	59,423	58,994	24,659	13,742	615,398
Value of fuel used	£ 13,086	7,994	1,145	3,314	1,701	604	27,844
Value of raw material worked up	£ 235,480	228,739	57,570	57,755	31,224	16,428	627,196
Total value of output	£ 614,500	558,267	166,981	149,304	69,815	40,204	1,599,071
Value added in process of manufacture	£ 379,020	329,528	109,411	91,549	38,591	23,776	971,875

* Year ended 30th June, 1915.

27. Furniture and Cabinet Making and Billiard Table Making.—These industries constitute the principal manufactures in Class XIII. (see § 1, 3 above). The following table gives particulars for 1915:—

FACTORIES FOR FURNITURE AND CABINET MAKING AND BILLIARD TABLE MAKING, 1915.

Items.	N.S.W. [*]	Vic.	Q'land.	S.A.	W.A.	Tas.	C'with.
Number of factories	173	187	62	31	29	13	495
" employees	2,502	1,755	1,026	692	334	230	6,539
Actual horse-power of engines employed	1,477	916	740	788	300	176	4,397
Approx. value of land and buildings	£ 346,120	221,820	92,709	59,729	57,917	23,750	802,045
" plant and machinery	£ 55,546	46,697	36,618	28,101	12,315	6,368	185,645
Total amount of wages paid during year	£ 286,698	168,399	101,165	66,918	43,660	19,374	686,214
Value of fuel used	£ 6,061	3,585	2,306	1,595	1,373	485	15,405
Value of raw material used ...	£ 287,119	217,306	107,009	57,453	56,855	19,728	745,470
Total value of output	£ 680,505	479,520	273,777	147,676	117,428	54,299	1,752,205
Value added in process of manufacture	£ 393,386	262,214	165,768	90,223	60,573	34,571	1,006,736

* Year ended 30th June, 1915.

28. Electric Light and Power Works.—Particulars of the electric light and power works of the Commonwealth in the year 1915 are given in the subjoined table. In 1910 there were 151 establishments employing 2080 hands, whose salaries and wages amounted to £251,217; in 1915 these had increased to 247 establishments, 3131 hands, salaries and wages £484,799, while the value of output had increased during the five years from £1,409,152 to £2,746,374.

ELECTRIC LIGHT AND POWER WORKS, 1915.

Items.	N.S.W. [*]	Vic.	Q'land.	S.A.	W.A.	Tas. [†]	C'with.
Number of factories	129	63	10	7	23	15	247
" employees	1,161	957	194	388	245	186	3,131
Actual horse-power of engines employed	91,135	33,127	9,224	15,510	19,835	7,609	176,499
Approx. value of land and buildings	£ 593,514	319,472	35,593	143,850	76,903	18,328	1,193,660
" plant and machinery	£ 1,537,624	1,569,559	156,851	849,596	444,256	364,617	4,982,497
Total amount of wages paid during year	£ 173,248	135,045	32,878	61,569	48,122	37,937	454,799
Value of fuel used	£ 217,238	77,149	23,647	34,433	85,108	13,240	450,815
Total value of output	£ 1,367,742	536,251	90,628	155,766	277,619	104,368	2,746,374

* Year ended 30th June, 1915. † Including manufacture of electric apparatus.

29. Gas and Coke Works.—There are gas works in operation in nearly all the chief towns in the Commonwealth. In New South Wales there are thirteen and in Queensland two coke factories which are worked as separate industries. The subjoined table gives particulars of gas and coke works in each State:—

GAS AND COKE WORKS, 1915.

Items.	N.S.W. [*]	Vic.	Q'land.	S.A.	W.A.	Tas.	C'with.
Number of factories	66	47	18	5	4	3	143
" employees	1,957	2,175	502	397	58	169	5,248
Actual horse-power of engines employed	4,461	1,686	191	562	39	32	6,971
Approx. value of land and buildings	£ 628,541	476,265	167,300	11,612	18,024	30,800	1,332,542
" plant and machinery	£ 191,337	1,343,392	829,958	455,036	42,659	163,543	4,775,925
Total amount of wages paid during year	£ 275,852	347,434	78,732	†	†	22,294	803,858†
Value of fuel used	£ 74,880	4,610	4,818	†	†	3,252	93,035†
Value of raw material used ...	£ 538,670	306,043	63,573	†	†	6,956	993,850†
Total value of output	£ 1,454,490	1,035,941	271,384	†	†	57,235	3,057,568†
Value added in process of manufacture	£ 915,820	729,898	202,811	†	†	50,279	2,063,718†

* Year ended 30th June, 1915.

† Not available for publication.

‡ Including South Australia and Western Australia.

The following table gives particulars regarding the quantity and value of the production of gas and coke works in each State during the year 1915 :—

PRODUCTION OF GAS AND COKE WORKS, 1915.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wth.
QUANTITY.							
Gas made ... 1000 cub. ft.	6,080,270	4,107,578	860,170	*	*	194,480	12,017,970†
Coke tons	543,769	204,957	56,930	*	*	8,284	845,398†

VALUE.							
Gas £	953,602	776,000	218,573	*	*	46,510	2,167,733†
Coke £	359,364	180,000	38,953	*	*	7,093	621,609†

COAL USED.							
Coal tons	854,339	307,902	102,759	*	*	15,581	1,341,888†

* Not available for publication.

† Including South Australia and Western Australia.

SECTION XIV.

WATER CONSERVATION AND IRRIGATION.

§ 1. Artesian Water.

1. **General.**—In every country in which droughts are recurrent, there are few problems the solution of which is of greater importance than that of an adequate system of water conservation. Much has been done in the Commonwealth so far as the supply of water to centres of population is concerned, and a description of several of the metropolitan water works will be found herein, viz., in the section dealing with "Local Government." In May 1912 an Interstate Conference on artesian water was held in Sydney, at which it was agreed that combined Governmental action should be taken with reference to delimitation of the artesian basin, hydrographic survey, analyses and utilisation of artesian water, etc. (See map on page 529.)

(i.) *The Great Australian Artesian Basin.* In speaking of the "Great Australian Artesian Basin," the area is understood which includes (a) considerably more than one-half of Queensland, taking in practically all that State lying west of the Great Dividing Range, with the exception of an area in the north-west contiguous to the Northern Territory; (b) a considerable strip of New South Wales along its northern boundary and west of the Great Dividing Range; and (c) the north-eastern part of South Australia proper, together with the extreme south-eastern corner of the Northern Territory. This basin (shewn approximately by the map on page 529) is said to be the largest yet discovered, and measures about 569,000 square miles, of which 376,000 square miles are in Queensland, 90,000 square miles in South Australia, 83,000 square miles in New South Wales, and 20,000 square miles in the Northern Territory. The area of the intake beds is estimated at 60,010 square miles, viz., 50,000 square miles in Queensland and 10,010 square miles in New South Wales. A description of the basin and its geological formation will be found in previous issues of the Year Book (see No. 6, p. 569).

(ii.) *The Western Australian Basins.* The Western Australian Basins fall naturally within five distinct groups, viz., the Eucla Basin, in the extreme south-east of the State, and extending well into South Australia along the shores of the Great Australian Bight; the Coastal Plain Basin, west of the Darling Range; the North-West Basin, between the Murchison and Ashburton Rivers; the Gulf Basin, between Cambridge Gulf and Queen's Channel; and the Desert Basin, between the De Grey and Fitzroy Rivers. The boring operations in these basins are referred to hereafter (see page 518).

The Recent and Tertiary strata which enter Western Australia at its eastern border, and which have a prevailing dip towards the Great Australian Bight, form the Eucla artesian water area. But where boring operations have been undertaken, the water has been found to be salt or brackish, and there are other conditions affecting the supply, such as local variations in the thickness of the beds, their relative porosity, and the unevenness of the floor upon which they rest, which, so far, have not been examined with sufficient thoroughness to enable many particulars to be given in regard to this basin.

In the Coastal Plain Basin to the west of the Darling Ranges artesian boring has, on the other hand, been carried on successfully for many years.

(iii.) *The Murray River Basin.* In August 1910 a report was issued by the Government Geologist of South Australia on the geology of the country south and east of the Murray River, with special reference to subterranean water supply in wells and bores along the Pinnaroo and Bordertown railways. The tertiary formation in the district under consideration occupies the western portion of a vast basin or depression, of which the greater part extends eastward into Victoria and northward into New South Wales. This basin is bounded on the west by the azoic and palæozoic rocks of the Mount Lofty and other ranges, extending northwards from near the mouth of the Murray to the Barrier Ranges, and on the east and north-east by the ranges of Victoria and New South Wales. This tertiary water-basin is occupied by a succession of sedimentary formations, both porous and impervious. It is of interest to note that the waters of the Murray River are partly supplied by influx from the water-bearing beds of this basin; this is proved by the fact that, at low water, springs are observed at certain places flowing into it from beneath the limestone cliffs from Pyap Bend downwards. Similar springs must exist along the courses of other branches of the River Murray system, where they cut through the tertiary formation.

(iv.) *Plutonic or Meteoric Waters.* In previous Year Books will be found the theory of Professor Gregory¹ as to the origin of the water in the Australian artesian basin, together with the objections held thereto by the Government Geologist of New South Wales.² (See Year Book No. 6, p. 570.)

(v.) *Particulars of Artesian and Sub-artesian Bores, 1916.* The following table gives particulars of artesian and sub-artesian bores in each State and in the Northern Territory up to the end of the year 1916:—

**COMMONWEALTH AND STATES.*—PARTICULARS OF ARTESIAN AND
SUB-ARTESIAN BORES, 1916.**

Particulars.	N.S.W.	Vict. ‡	Q'land. ‡	S. Aust.	W. Aust.	N. Ter. ‡	Total.
Bores existing ... No.	489	237	2,816	137	114	128	3,921
Total depth bored ... feet	871,080	69,783	2,791,471	96,380	119,804	52,294	4,000,812
Daily flow ... ,000 gals.	135,782	†	433,371	†	30,991	†	†
Depth at which artesian water was struck—							
Maximum ... feet	4,338	1,400	5,045	4,850	4,016	502	5,045
Minimum ... feet	89	150	10	233	175	110	10
Temperature of flow—							
Maximum ... ° Fahr.	148	†	210	208	140	†	211
Minimum ... ° Fahr.	70	†	81	82	60	†	60

* There are no artesian bores in Tasmania. † Not available. ‡ To 31st Dec., 1914.
§ To 31st Dec., 1915.

2. *New South Wales.*—(i.) *Artesian Water Supply.* The New South Wales portion of the great Australian basin, comprising approximately 70,000 square miles, is situated in the north-western portion of the State. Artesian boring in New South Wales dates from 1879, when a private bore was put down on the Kallara pastoral holding, between Bourke and Wilcannia. The first Government bore was that at Goonery, on the Bourke-Wanaaring road, completed in 1884.

1. See *J. W. Gregory, F.R.S., D.Sc.*: "The Dead Heart of Australia," London, John Murray, 1906; "The Flowing Wells of Central Australia," *Geogr. Journ.*, July and August, 1911.

2. *E. F. Pittman, A.R.S.M., formerly Government Geologist of New South Wales*: "Problems of the Artesian Water Supply of Australia, with special reference to Professor Gregory's Theory," (Clarke Memorial Lecture, delivered before the Royal Society of New South Wales, 31st October, 1907); "The Great Australian Artesian Basin," Sydney, 1914; "The Composition and Porosity of the Intake Beds of the Great Australian Artesian Basin," Sydney, 1915.

The following statement shows the extent of the work which has been successfully effected by the Government and by private owners up to 30th June, 1916 :—

Bores.	Flowing.	Pumping.	Total.	Total Depth.
For Public Watering-places, Artesian Wells, etc. ... / ...	124	31	155	318,261
For Country Towns Water Supply ...	3	—	3	4,354
For Improvement Leases ...	39	3	42	66,287
Total Government Bores ...	166	34	200	388,902
Private Bores ...	221	68	289	420,024

The average depth is 1,945 feet in the case of Government bores, and of private bores 1453 feet, and they range from 89 to 4338 feet. The two deepest wells in New South Wales are those at Boronga, in the County of Stapylton, with a depth of 4338 feet and a present outflow of 992,943 gallons; and at Dolgelly, in the Parish of Carcenga, in County Stapylton, with a depth of 4086 feet, and a present discharge of 577,930 gallons per day. The largest flow at the present time is that at the New Yarrawa bore, in the County of Benarba, which yields 1,062,133 gallons a day, and has a depth of 3590 feet.

Of the 539 bores which have been sunk, 387 are flowing, and give an aggregate discharge of 97,657,272 gallons per day; 102 bores give a pumping supply, the balance of 50 being failures; the total depth bored represents 871,080 feet.

The flow from seventy-two bores is utilised for supplying water for stock on holdings served in connection with Bore Water Trusts or Artesian Districts under the Water Act of 1912. The total flow from these bores amounts to 38,124,836 gallons per day, watering an area of 4,421,461 acres by means of 2702 miles of distributing drains. The average rating by the Bore Trusts to repay the capital cost, with four per cent. interest, in twenty-eight years, is 1.627d. per acre, including the cost of maintenance and administration.

In the majority of cases the remaining bores are used by pastoralists for stock watering purposes only, but in a few instances the supply is utilised in connection with country towns.

The watering of the north-western country by means of bore water has largely increased the carrying capacity of the land; and, what is of perhaps greater importance, it has made comparatively small pastoral settlement practicable in country previously confined almost entirely to the operations of companies holding immense areas.

It having been determined that multiplicity of bores is the chief factor governing the annual decrease in bore flows, and also that limiting the discharge from a bore will prolong its flowing life, action has been taken to prevent any waste by controlling the bore flow to actual requirements. It is confidently anticipated that this action will materially reduce the rate of decrease in the future.

(ii.) *Shallow Boring.* The scheme described fully in last year's report for assisting settlers by sinking shallow bores has met with considerable success.

Operations commenced with one plant only. The number has been increased gradually until twelve plants were at work, and steps have been taken to purchase additional plants.

A large number of applications from settlers wishing to take advantage of the liberal conditions offered under the regulations has been received, and further applications are coming to hand daily, so that even when the whole of the plants referred to are at work, they will probably be insufficient to cope with the demand. Out of sixty bores put in hand up to 30th June, 1916, one was abandoned owing to it being found impossible to recover lost tools, and seven others have proved failures. Of the remaining fifty-two bores completed, the cost to the settler has averaged about half the cost charged by private contractors, while in all the latter bores a small profit has been made after charging the settler the minimum cost.

There can be no question that the added value of the holdings represented by the bores already put down is considerably in excess of their cost, and as fairly conclusive evidence of this, it might be stated that in several instances the Government Savings Bank has, on completion of a bore, made the settler a sufficient advance to enable him to pay the total cost in cash.

In addition to the work carried out under the Shallow Boring Regulations outlined above, three plants are at present engaged in sinking bores on Crown lands in the Pilliga scrub for the Lands and Forestry Departments. The primary object of these bores is to supply water for sleeper-getters, but later on, when the required timber has been taken out of the scrub, it is proposed to throw open lands for settlement, when the bores referred to will be taken over by the incoming settlers. Under this scheme twelve bores have been completed, and three are in progress, making in all seventy-two sunk by the Commission, of which eight were failures.

The fact that of the bores put down in the Pilliga scrub, twelve are giving a flowing supply, adds much to their value, and is of special interest as indicating the possibility of tapping a small and hitherto unknown artesian basin.

Experiments at the State farms at Moree and Pera bores, in the use of artesian water for cultivation, have proved that the bore water can produce satisfactory crops for a considerable number of years. With a view to further demonstrating this in respect of large areas, a bore lined with wood-casing to resist corrosion, which is prevalent in this district, has been sunk at the Coonamble Experimental Farm, on a site where there is available a considerable quantity of soil typical of that occurring in the districts within the artesian area.

3. Victoria.—Victoria lies altogether outside the Great Australian Artesian Basin, and as water is generally available from surface or shallow underground supplies, there has not been much occasion for artesian boring. As early as 1880, however, an artesian well was bored at Sale, which gave a large supply of water of fair quality before it failed through corrosion of the casing. In 1905 a new bore was put down, which at a depth of 277 feet yielded sufficient water to fill Lake Guthridge, a local depression. But as the water was impure, and contained too much sulphuretted hydrogen, boring operations were continued to 520 feet, when the lowering of the casing shut off the supply of water. A further bore was then put down at some distance from the first, and this, at a depth of 238 feet, yielded a fresh and clear water supply of about 145,000 gallons per day. Corrosion troubles occurred here also, and at the end of 1912 a third bore was put down to a depth of 235 feet, artesian flows being struck at 187 feet and 235 feet. Towards the end of 1915 a flow of 200,000 gallons per day was struck at a depth of 125 feet on the Powerscourt Estate, near Maffra. Other bores are being put down in the locality.

Largely due to the failure of surface supplies in the drought of 1878 to 1886, not less than 499 bores were, before the end of 1888, put down by shire councils aided by the Government. The total depth bored was 40,000 feet; fresh water was struck in 78 instances; 47 yielded brackish but usable water; 229 were salt, while the balance were dry. The bores covered practically the whole of the settled portions of Northern and North-western Victoria and parts of Gippsland.

In the late eighties a number of bores were put down in the north-western part of the State, varying from 200 to over 2000 feet in depth, but without any notable success. In 1897 a Board reported on boring for artesian water supply in the Mallee country, but this report was adverse, except as regards the extreme northern portion thereof. In 1906 eight bores were put down on the Overnewton Estate, Maribyrnong, to depths varying from 147 to 272 feet; small supplies of good and medium water for stock purposes were obtained, but only one of the wells yielded water fit for domestic purposes. In 1908 boring was commenced in the Mallee country near the Border east of Pinnaroo in South Australia, and a line of bores from the Border to Kow Plains has proved the existence of a large sheet of underground water. Altogether, 87 bores have been successful in striking fresh water, and their depths vary from 155 to 752 feet, the water rising to within from 207 to 6 feet of the surface. In three instances the bores flow, the water rising from four to seventeen feet above the surface. The fresh water extends nearly as far east as the 142nd meridian, and its northern limit is approximately the 35th parallel. Information as to the geological formation of this district is given on page 513 preceding.

At the end of 1915 the number of existing Government bores in use in Victoria was 83, from which supplies are obtained by pumping. The total depth bored amounted to 39,783 feet, while the maximum and minimum depths at which water was struck were 1400 and 150 feet respectively. There are also about 140 existing private bores, with a total depth of about 30,000 feet.

4. **Queensland.**—A return relating to the 30th June, 1916, classifies the Queensland artesian bores under the following headings:—

QUEENSLAND ARTESIAN BORES, 30th JUNE, 1916.

Sunk by—	Artesian Flows.	Sub-Artesian or Pumped Supplies.	In Progress, Abandoned, or Uncertain.	Total.
Government	51	78	100	229
Local governing authorities	14	16	14	44
Private owners	1,047	808	688	2,543
Total ...	1,112	902	802	2,816

Of the 1112 flowing bores, 111 were of less than 10,000 gallons per day; 235 from 10,001 to 100,000 gallons; 459 from 100,001 to 500,000 gallons; 282 from 500,001 to 1,500,000 gallons; 20 from 1,500,001 to 2,000,000 gallons; and 5 from 2,000,001 gallons upwards. The deepest well was one known as Bimerah Run No. 3, White-wood, lying between the Barcoo and Thomson Rivers; this had a depth of 5045 feet, and was stated to yield 70,000 gallons daily. This flow is, of course, a comparatively small one, many wells yielding, when uncontrolled, from one to three million gallons a day. The waters of many of the wells have been analysed, and some found suitable for wool-scouring only, others are suitable for watering stock but not for irrigation, owing to the presence of alkali; others again serve for both stock and irrigation, while some, such as those containing sulphuretted hydrogen, are not of any use. Water fit for stock may generally be said to be "safe" for domestic purposes in spite of its slightly mineral taste. The wells yielding the mineral waters known as "Helidon Spa," "Boonah Spa," and "Junot Spa," which are much in use in Queensland and New South Wales, are shallow wells from 60 to 200 feet in depth.

The following table shews particulars as to Queensland bores at the end of June, 1916:—

QUEENSLAND ARTESIAN AND SUB-ARTESIAN BORES, 30th JUNE, 1916.

Particulars.	State and Local Authorities.	Private.	Total.
Bores existing No.	273	2,543	2,816
Total depth bored feet	224,520	2,566,951	2,791,471
Daily flow gallons	29,436,270	404,435,190	433,871,460
Depth at which artesian water was struck—			
Maximum feet	4,256	5,045	...
Minimum "	354	10	...
Temperature of flow—			
Maximum °Fahr.	198	210	...
Minimum °Fahr.	85	81	...

5. **South Australia.**—There were in South Australia 137 bores existing at 31st December, 1916, of which 33 were artesian and 104 sub-artesian. There are 107 under 1000 feet in depth, 19 from 1000 to 2000 feet; five from 2000 to 3000 feet; four from 3000 to 4000 feet, and two over 4000 feet. The deepest flowing bore was at Goyder's Lagoon, on the Hergott to Birdsville route, measuring 4850 feet, and yielding 600,000 gallons per day. A bore at Patchawarra, 35 miles north of Innamincka, has been sunk to a depth of 5458 feet, where operations have been stopped for the present. Water was struck in this bore at various depths down to 4000 feet. At that depth the water rose and ran over the surface at the rate of 400 gallons daily. Further sinking was carried on in the hope of getting a better supply, but, so far, without success. The maximum flow, viz., 1,250,000 gallons, is obtained at Coonie Creek, east of Lake Frome.

The following table shews particulars as to South Australian bores at the end of December 1916:—

SOUTH AUSTRALIAN BORES, 1916.

Particulars.	Artesian and Sub-artesian.
Bores existing	137
Total depth bored feet	96,380
Daily flow gals.	*
Depth at which water was struck—	
Maximum feet	4,850
Minimum feet	233
Temperature of flow—	
Maximum °Fahr.	208
Minimum °Fahr.	82
Total cost of construction of bores up to end of year ...	£250,065
Expenditure during year on boring operations ...	£18,704

* Not available.

(i.) *Bores between the Murray and the Eastern boundary of the State.* The sinking of bores across the Ninety-mile Desert between the Murray and the Victorian boundary was commenced in 1886 at Coonalpyn; with the exception, however, of salt water at 55 ft., none was reported to have been struck. Ki Ki bore was sunk in 1887, and at 361 ft. a good supply of water fit for stock was struck. Tintinnarra bore was sunk in 1887; it was artesian when first tapped. The water was found to be fit for locomotive engines and is still used for that purpose. The bore at Emu Flat was also sunk in 1887. In 1904 a bore was sunk at Cotton, and numerous successful bores have since been put down by the Public Works Department, and subsequently by residents of the district.

The water rises to a distance from the surface of from 15 to 320 feet, and the maximum quantity obtained per diem is 48,000 gallons at the Gosden bore. Several wells, ranging in depth from 55 to 221 feet, have also been sunk in this district. The latest Government bores are Kumara in the Hundred of Kingsford, and Perponda in the Hundred of Vincent. The former has a depth of 240 feet, and the water, which is in large supply, rises to within about 96 feet of the surface. The latter is 300 feet in depth, and the water rises to within 56 feet of the surface. The water is fresh, containing about $\frac{3}{4}$ oz. salts and other solid matter per gallon.

(ii.) *Bores West of Oodnadatta.* A series of bores has been sunk, beginning with Breden bore, 20 miles west of Oodnadatta, which was put down in 1911. The others since put down in this district are Gypsum, Imbitcha, Mirackina, Raspberry Creek, Appreetinna and Wintinna. Of these the only artesian supply is Raspberry Creek, where 1,000,000 gallons per day of good water is obtained. The depths of these bores range from 280 feet at Mirackina to 1122 feet at Breden, and the water from all of them is good.

(iii.) *Other New Bores.* A new bore was sunk at Cannuwankaninna in the Hergott to Birdsville route. A large supply of good water was obtained, flowing over the surface at the rate of 570,000 gallons per day. Another bore was sunk east of Lake Frome, which has been named Dewdney. A supply was struck at 972 feet. The water, which is of good quality, is rather poor in supply.

(iv.) *Eyre Peninsula.* From time to time bores have been sunk on Eyre Peninsula, but with little success. In some instances, stock water ($1\frac{1}{2}$ ozs. salts to the gallon) was obtained, but this only occurred on the Nullabor plains. In all other cases the water struck was far too salt to be used. Consequently the supply of water is now principally from catchments. A number of reservoirs have been constructed to hold from 1,000,000 to 9,000,000 gallons each. Many underground tanks have been built to contain from 40,000 up to 500,000 gallons each.

6. *Western Australia.*—The work by which the Government of Western Australia provides a permanent supply of water to Kalgoorlie, Boulder and adjacent districts on the eastern goldfields comes properly under the heading of "Water Supply Works." A description of the undertaking is fully given in previous issues of the Year Book. (See No. 6, p. 576.)

In August 1912 the administration of the Goldfields Water Supply and of the Mines Water Supply was transferred to a newly established Water Supply, Sewerage and Drainage Department. The statistics in connection with this department will be found in the section of this book dealing with *Local Government*.

The following table shews particulars as to Western Australian artesian bores at 30th June, 1916:—

WESTERN AUSTRALIAN ARTESIAN BORES, 30th JUNE, 1916.

Particulars.	State.	Private.	Total.
Bores existing	65	49	114
Total depth feet	79,860	39,944	119,804
Daily flow gals.	22,784,700	8,206,700	30,991,400
Depth at which artesian water was struck—			
Maximum feet	4,016	*	...
Minimum feet	175	*	...
Temperature of flow—			
Maximum °Fahr.	140	*	...
Minimum °Fahr.	60	*	...

* Not available.

To 30th June, 1915, the total number of Government bores was 65, and there were approximately 49 private bores recorded in addition. The total cost of construction of State bores to 30th June, 1916, was about £137,874, of which amount £146 was expended during the twelve months ended 30th June, 1916. The maximum outflow, 4,000,000 gallons per day, was obtained at Leederville in connection with the Metropolitan Water Supply at 2097 feet.

The boring operations which have been carried out in the artesian basins along the West Australian Coast, are as follows:—

(i.) *The Coastal Plain Basin or Perth Area*, which, generally speaking, extends from Cape Leeuwin to Dongarra, and from which the Metropolitan Water Supply is largely drawn, yields a supply of water mostly fresh and suitable for domestic purposes, though towards the north it becomes brackish and is only suitable for stock.

There are fifty-seven bores in the Metropolitan District, several of which have been put down to augment the hills supply, and the domestic supply of the suburbs and of Fremantle is largely dependent upon this source.

(ii.) *The North-west Basin or Carnarvon Area* may be said to extend from Gantheaume Bay in the south to Onslow in the north, and embraces a very large tract of ideal sheep country.

Many private bores have been put down on sites which permit of the gravitation of the water for miles, and, by this means, a very considerable area has been put under stock. Some remarkable flows have been obtained and, in one case, at a depth of 300 feet a flow reputed to be 3,000,000 gallons per day was struck, the water being suitable for stock.

In all, some 27 bores have been put down.

(iii.) *The Gulf Basin or Broome Area*. So far very little development work has been done. Artesian bores have been put down in the town site, and the domestic requirements of the town are entirely supplied from this source.

The area extends from Condon in the south-west to the Meda River beyond Derby in the north, and for a considerable distance inland.

So far only five bores have been sunk, two being at Broome and two at Derby, and the other on the telegraph line on the road between Derby and Hall's Creek, about 67 miles inland.

(iv.) *Eucla Area*. This area extends from Eucla on the South Australian border, west of Israelite Bay. So far, beyond the bores put down on the survey line of the Trans-Australian Railway, very little has been done in proving the resources of this area.

In 1902 the first bore was sunk, about 35 miles north of Madura, and sub-artesian water struck at 430 feet, at an elevation of 400 feet above sea level.

Following upon this, a deep bore was put down at Madura, below the cliffs and nearer the coast, when an artesian supply of stock water was obtained at a depth of 2101 feet, yielding 31,000 gallons per day.

This was followed later with about 20 bores along the survey line of the proposed railway, which runs east and west about 90 miles inland. These bores were put in at intervals between the 205 mile peg and the South Australian border, and ranged in depth between 323 and 1344 feet. In most instances only stock water was struck in these bores, at depths varying between 300 and 1300 feet, and the largest estimated supply was about 10,000 gallons per day.

7. Northern Territory.—In the Northern Territory, bores to the number of 128 have been put down, 25 belonging to the Commonwealth Government. The cost of construction of the Government bores to 31st December, 1914, was £6254.

The following table gives further particulars of the Northern Territory bores at 31st December, 1914, the latest date for which information is available:—

NORTHERN TERRITORY BORES, 1914.

Particulars.	State.	Private.	Total.
Bores existing	25	103	128
Total depth bored feet	17,600	34,694	52,294
Daily flow	*	*	*
Depth at which water was struck—			
Maximum feet	213	502	...
Minimum feet	110	128	...
Temperature of flow—			
Maximum	*	*	...
Minimum	*	*	...

* Not available.

§ 2. Irrigation Plants.

1. **General.**—Australia's first experiments in irrigation were made with the object of bringing under cultivation areas in which an inadequate rainfall rendered agricultural and even pastoral occupations precarious and intermittent, and, although these original settlements have for the most part proved fairly successful, most of the States, instead of promoting new settlements in unoccupied regions, are adopting the policy of making existing settlement closer, by repurchasing big estates and large farms, subdividing them into holdings of suitable sizes for cultivation, and selling the land upon easy terms of payment. It is in connection with this Closer Settlement policy that the special value of irrigation is recognised.

2. **New South Wales.**—(i.) *Water Conservation and Irrigation.* The provision of an adequate water supply for other than domestic purposes is essential to the well-being of all primary industries, and particularly in a country which is liable to dry seasons which affect extensive areas. Much of the area of the State receives an adequate and regular rainfall, but there is a considerable extent of country where all the factors exist which are requisite to success in agricultural pursuits except a constant water supply. The recognition of the fact that the area suitable for cultivation might be extended largely by a comprehensive system of water conservation and irrigation has led the State to undertake various detached works and schemes, which will constitute portion of the ultimate irrigation system necessary to serve the whole State.

Water conservation and irrigation works within the State of New South Wales are under the control of the Water Conservation and Irrigation Commission, which consists of the Minister for Agriculture for the time being as Chairman, and two other Commissioners. The works controlled by the Commission include the great Murrumbidgee Irrigation Scheme, small irrigation settlements at Hay and Wentworth, natural works of water conservation, shallow boring for settlers, water trusts and artesian bore trusts operating under the Water Act, and also the control of storages and diversions of water by private persons for the purposes of water conservation and irrigation.

(ii.) *Murrumbidgee Irrigation Scheme.* The main features of the scheme include a storage dam across the Murrumbidgee to retain the floodwaters, which will be released for use lower down the river during the dry summer months; a movable diversion weir, about 240 miles below the dam, to turn the required amount of water from the river into

the main canal; a main canal, leaving the river near the weir; two main branch canals; and a series of subsidiary canals and distributing channels through the area to be irrigated; bridges, checks, regulators and other structures throughout the entire system, and meters for measuring the volume allowed to each farm; townships and roadways to serve each farm, and a general surface drainage system are also included in this scheme.

The site of the storage dam is at Burrinjuck, three miles below the confluence of the Murrumbidgee and Goodradigbee Rivers. The dam wall is being constructed of cyclopean masonry and concrete, and when completed will have a maximum height of 240 feet, and will impound the waters in a lake covering 12,740 acres. Ample water is being stored to meet the requirements of the farms already occupied, and to allow of water being drained off during the summer months to augment the natural flow of the river for the benefit of riparian holders down stream. The reservoir will have a capacity of 33,612 million cubic feet, or 771,641 acre feet, the catchment area being about 5000 square miles, drained by three principal streams—the Murrumbidgee, Goodradigbee, and Yass Rivers—up which the water will be backed, when the dam is full, to distances of 41 miles, 15 miles, and 22 miles respectively. Direct communication between Burrinjuck and the Main Southern railway has been provided by the construction of a 2-foot gauge line from Goondah, a distance of 26 miles.

The diversion weir is situated at Berembé, about 40 miles by river and 19 miles in a direct line above the town of Narrandera. It is founded on a solid granite bar extending across the river, and has a length over all of 270 feet between abutments, divided into a sluiceway 40 feet wide in the clear; a lock chamber, 40 feet wide, capable of taking barges up to 100 feet in length; and 55 channoiné wickets, manipulated from a punt moored up-stream. During the winter freshets the wickets are lowered, thus affording a clear water-way in the river channel.

The main canal branches from the river just above the weir, and, after passing through Narrandera, continues in a north-westerly direction, skirting the hills abutting on the plains. A scheme for enlarging the main canal to double its present capacity (1000 cubic feet per second) has been recommended by the Public Works Committee. There are two main branch canals, viz., the Gogeldrie canal, which offtakes at 47 miles from Berembé, and runs approximately parallel to the Narrandera-Hay railway through the Yanco area, and the Mirrool branch canal, which offtakes at 78 miles from Berembé and supplies portion of the Mirrool area.

The scheme, as described above, applies only to the land on the northern side of the Murrumbidgee River. It was originally intended to provide a canal to supply the land on the southern side, but subsequently it was decided to apply all the water available from the Burrinjuck Dam to the northern areas, sufficient land suitable for irrigation being there available, which, it is anticipated, will be worked profitably in small blocks devoted to mixed farming, dairying, and stock raising, or fruit and vegetable growing, etc. When the areas are fully settled it is estimated that there will be nearly 6000 farms and 100,000 people. With the aid of irrigation the soil and climate of these areas are suitable for the production of apricots, peaches, nectarines, prunes, pears, plums, almonds, melons, cantaloups, and citrus fruits, also wine and table grapes, raisins, sultanas, figs, olives, and most varieties of vegetables and fodder crops. Dairying, and pig-raising are already being successfully undertaken by settlers in the areas.

The first area made available for settlement was in the vicinity of Yanco Siding on the Hay railway line. The second, which is situated on the northern side of the Mirrool Creek, is served by an extension of the railway from Barellan to Griffith.

Further areas are being thrown open for settlement as the construction works are completed. Farms varying in size from 2 acres to 200 acres have been made available. The "water right" or number of "acre feet" of water allotted to each holding is specified when the holding is notified as available for application. An "acre foot" of water means such a quantity, 12 inches deep, as would cover an area of one acre. The cost of water is five shillings per acre foot. The charge for water is reduced during the early years. For the first year the charge is 2s. 6d. per acre foot, thereafter increased annually by sixpence per acre foot until in the sixth and following years the full rate of five shillings becomes payable. The 50 acre farm is the largest "all-irrigable" unit, but to suit the requirements of dairymen and other stock farmers, blocks of larger areas are being made available. These comprise non-irrigable or "dry" areas, in addition to the irrigable portion. Some of these mixed farms are 200 acres or upwards in extent, but the maximum water right allowed in respect of any of these larger farms is 80 acre feet.

The conditions for the disposal of irrigation blocks are contained in the Crown Lands Consolidation Act of 1913, and Amending Acts. Any person of or over the age of 16 years, if a male, or 18 years if a female (other than a married woman not living apart from her husband under decree of judicial separation), or two or more such persons jointly, may apply for a farm or block. A married woman, not judicially separated from her husband, may, however, if she be not subject to any other statutory disqualification: (a) acquire by way of transfer, with the consent of the Minister, out of her own moneys, a lease within an irrigation area; (b) continue to hold a lease which she held before her marriage; (c) hold a lease which may devolve on her by will or intestacy of a deceased person. The tenure is perpetual leasehold.

The improvement conditions attached to the farm holdings include fencing, planting of trees for windbreaks, construction of dwellings, destruction of noxious plants, and the cultivation of a specified area in each year.

The special reservation of a number of farms for application by returned soldiers is in contemplation. As a preliminary measure a camp has been established on the Mirrool Subdivision, at which it is proposed to employ returned soldiers in the first instance, and thus afford the men an opportunity of gaining an insight into the climatic and other conditions connected with irrigation farming. It is proposed that accepted applicants for this camp shall receive a weekly payment exclusive of their keep, and while in camp they will clear, fence and grade the land, which will ultimately be made available to them for application as irrigation farms. Barracks have been provided, and a Camp Manager will have direct control thereof.

Subject to such conditions as to security and terms of repayment as the Commission may think fit to impose, settlers may obtain an advance, or have payment of rent or water rate suspended. Such advances are limited to the total amount of funds made available by Parliament for this purpose.

The Government Savings Bank Commissioners have statutory power to make loans upon mortgage of irrigation farm leases, and many settlers have already obtained help from the Bank. Concessions in railway fares and freights are made on New South Wales railways to *bona fide* applicants for land. The annual charge for water (5s. per acre foot), is reduced to one-half for the first year, and is then increased yearly by sixpence per acre foot, so that a settler is not required to pay the full charge until he is in the sixth year of occupation.

Towns and villages have been established at centres of the Yanco and Mirrool irrigation areas; the Commissioner is empowered to construct streets, and to provide water supply, sanitary and other services.

A thoroughly up-to-date butter factory is in operation at Leeton; the output at the end of 1916 reached $3\frac{1}{2}$ tons per week. The factory also supplies ice to town residents and settlers. A vegetable and fruit canning factory has also been provided, at which vegetables and fruits grown by the settlers are purchased from them. The output is increasing rapidly. A bacon factory and abattoirs have also been erected, at which pigs from the settlement and a considerable number from districts in the Riverina outside the irrigation areas are treated, and where all stock for butchers is slaughtered for local consumption.

To assist settlers on the Mirrool area, which is situated over 30 miles from Leeton, a small cheese factory has been opened at Griffith. A good marketable cheese is being produced. As an adjunct to the canning factory, a pulping plant has also been installed at Griffith.

One of the most important departmental undertakings on the irrigation areas is undoubtedly the State Nursery. For some years past the Leeton Nursery has been supplying trees to settlers, and this year a second nursery is being established at Griffith. Every effort is made to supply only the very best trees, free from disease, and to ensure this, as much use as possible is being made of budding wood from proven trees in the Leeton Nursery, and at the Yanco Experiment Farm.

The Department of Agriculture which controls the Yanco Experiment Farm has also established at Griffith (Mirrool irrigation area), a Viticultural Nursery for the propagation of vines on phylloxera resistant stocks. These stocks are intended not only for the supply of settlers on the areas, but for vigneron in all parts of the State.

An electric power station has been erected near Yanco Siding; electric light and power are supplied to the various factories, business people, and residents of Leeton and Yanco, and the supply is also available for settlers when the number of applicants in any centre warrants the connections being made.

On the 31st December, 1916, 890 farms were held, representing a total area of 40,174 acres.

In addition, 113 township and village blocks are held under lease. In the matter of cultivation, the following particulars indicate the extent of the work performed by the settlers:—1883 acres under stone fruits, 564 under vines, 694 under citrus fruits, and 16,347 under other fodder crops. The estimated population of the irrigation area is about 5000 persons.

(iii.) *Other Irrigation Settlements.* Irrigation settlements have been established at Hay and at Curlwaa near Wentworth, and these were in 1913 placed under the control of the Water Conservation and Irrigation Commission.

(a) *Curlwaa Irrigation Area.* The Curlwaa irrigation area embraces 10,600 acres, of which 1364 acres have been subdivided into irrigable blocks, 1356 acres being held under lease by 67 settlers. The total number of non-irrigated blocks is seventy-four, comprising 6879 acres. Of these, thirty-three blocks, representing 3846 acres, were in occupation on the 30th June, 1916. An area of 1290 acres has been reserved as a common. During 1915-16 approximately 1200 acres were under cultivation, the greater part being devoted to fruit, including oranges, peaches, nectarines, pears, grapes, sultanas and currants. It has been proved beyond doubt that the Curlwaa soil is eminently suited to the growth of citrus fruit, and some of the finest oranges grown in New South Wales are produced on this area.

The estimated weight of dried fruits produced on the Curlwaa Area is as follows:—

Dried Fruits.	1912-13.	1913-14.	1914-15.	1915-16.
	cwt.	cwt.	cwt.	cwt.
Apricots	127½	260	130	188½
Nectarines	11½	16	3½	8½
Pears	8	43	138½	72½
Peaches	517½	768	653½	505
Lexias	520	568½	313	620½
Currants	1,454	1,539½	532½	1,455½
Sultanas	1,462½	1,772½	1,406½	2,323
Elemes	146	150	...	780½
Total	4,247	5,117½	3,178	5,954½

The value of the dried fruit production for the twelve months ending 30th June, 1916, is estimated at not less than £18,000.

The pumping machinery consists of a suction-gas plant, supplying two engines of about 55 brake horse-power each, working two centrifugal pumps, with an average combined capacity of about 4600 gallons per minute. With eight pumpings during the 1915-16 season, 122,140,500 cubic feet of water were supplied. The length of the main channels is about 4 miles 24 chains, and of subsidiary channels 4 miles 31 chains; total length, 8 miles 55 chains. The land may be leased for periods not exceeding thirty years, the annual rent at present varying from 1s. to 10s. per acre. The rate for water is fixed from time to time by the Commission, and is at present, except in a few special cases, 20s. per acre per annum. Each lessee is entitled to receive a quantity of water equivalent to a depth of 30 inches per annum, limited to 4 inches in any one month.

(b) *Hay Irrigation Area.* The Hay irrigation area consists of about 3842 acres, and previous to 1913 was controlled by a Trust appointed in 1897. The area held and used for irrigation purposes is 989 acres by 81 holders. The lands may be leased for periods not exceeding ninety-nine years, at rentals varying from 5s. to 10s. per acre; the water rate is fixed from time to time, and at present it is £1 per acre per annum. The pumping machinery is similar to that at Wentworth, the capacity of the pumps being 4000 gallons per minute. During 1915-16 season 121,830,992 cubic feet of water were supplied. Dairying is the principal industry; the cultivation of fruit is very limited.

(iv.) *Water Rights.* The Water Act 1912 consolidates the Acts relating to Water Rights, Water and Drainage, Drainage Promotion and Artesian Wells. Part II. of the Act vests in the Crown the right to the use, flow and control of the water in all rivers and lakes which flow through or past, or are situate within the land of two or more occupiers. It abolishes "riparian rights," and establishes a system of licenses for works of water conservation, irrigation, and drainage. Prior to the passing of the Act relating to Water Rights, such works on creeks and rivers, constructed by private individuals, were liable to destruction by any person who considered their existence opposed to his interests. It is now illegal to interfere with any work for which a license has been granted. The security provided is stimulating the construction of irrigation works of a better class throughout the State, and during the year ended 31st December, 1916, 219 applications were made for new licenses, and 93 for the renewal of existing licenses. At the date mentioned, 1090 licenses were in force.

(v.) *Water Trusts and Bore Trusts.* Part III. of the Water Act 1912 provides for the supply of water either for irrigation, stock, or domestic purposes, and for drainage, the liabilities on which are repaid to the Crown, with interest spread over a period of years, and the works are administered by trustees appointed from among the beneficiaries under the Act. For the supply of water, trusts have been constituted in connection with (a) seventy-six artesian wells; (b) seven schemes for the improvement of natural off-takes of effluent channels, for the purpose of diverting supplies from the main rivers; (c) in four instances for the construction of weirs across stream channels; and (d) two pumping schemes, one from natural watercourses, and one from a well. The total area included within these trusts amounts to 5,812,216 acres.

(vi.) *Projected Irrigation Schemes.* The Water Conservation and Irrigation Commission are investigating schemes for storing water for the purpose of irrigation on the Darling, Lachlan, Macquarie, Hunter, Namoi, Peel and Warragamba Rivers, and descriptions of these proposed schemes have been furnished in the last issue of this book (Year Book No. 9, p. 532).

3. *Victoria.*—(i.) *Classification of Works.* The Water Conservation Works in Victoria divide themselves into irrigation works proper, and those providing mainly a domestic supply, such as the works for the supply of Melbourne, controlled by the Melbourne and Metropolitan Board of Works; the Coliban, Wonthaggi, Broken River, Kerang Lakes, and Mallee Supply Works, administered by the State Rivers and Water Supply Commission, and other works for domestic supply controlled by Water Works Trusts or Municipal Corporations. With the exception of the works administered by the Commission, particulars as to these works will be found in the section on "Local Government" of this book.

(ii.) *Works Controlled by the Commission.* With the exception of the First Mildura Irrigation and Water Supply Trust, all the irrigation schemes and the more important domestic and stock water-supply works in rural districts are vested in and controlled by the State Rivers and Water Supply Commission, a body composed of three members, which was created by the Water Act 1905, now incorporated in the Water Act 1915.

(a) *Irrigation Schemes.* This division comprises the schemes constructed and under construction for the supply of water to some seventeen irrigation districts. Up to 1906 these schemes were controlled by local Trusts, which had obtained the moneys for their construction on loans from the State. By the Water Act 1905 all local control was abolished except in the case of Mildura, and the districts were transferred to the State Rivers and Water Supply Commission. Since that date the Government has adopted a vigorous irrigation policy, and the capital expenditure at 30th June, 1915, on water supply in the irrigation and water supply districts under the control of the Commission, and at Mildura, was £3,800,000. The irrigation works draw their supplies mainly from headworks constructed on the Murray, Goulburn, and Loddon rivers. The cost of these headworks, which now stands at £1,122,000, is not debited to any particular districts, but is borne by the State. The extent of land under irrigated culture, for all kinds of crop, is 288,000 acres, an increase of 33,000 acres over the average area irrigated in the previous five years. Within the last seven years the State has adopted the policy of purchasing large areas of land commanded by these schemes and subdividing them for intensive culture. Settlement of this kind largely increases the population of the State. The management and supervision of these areas were formerly vested in two bodies—the Closer Settlement Board and the Water Supply Commission, but in order to do away with this dual control, the Amending Closer Settlement Act of 1912 (now incorporated in the Closer Settlement Act 1915) was passed, transferring to the Water Supply Commission the entire management, leasing, and general supervision of all such areas within irrigation districts.

(b) *Domestic and Stock Schemes.* The second division takes into account the schemes constructed and under construction for the supply of water for domestic and stock purposes, the capital expenditure on which at 30th June, 1916, was £4,822,000. The area of country lands artificially supplied with water for these purposes is nearly 21,000 square miles. The number of towns supplied, exclusive of the City of Melbourne and its suburbs, is 154, serving an estimated population of 292,000. The principal works of this division are situated in the Wimmera and Mallee districts, and cover an area of over 12,000 square miles. In addition to the Commission's districts, some large areas are still administered by local authorities.

Mildura. The creation of an irrigation Colony at Mildura was the outcome of a visit by Mr. Deakin to California in 1885, when Messrs. Chaffey Bros. were invited to visit Victoria, with the object of founding a similar settlement to those which they had been largely instrumental in establishing in California.

Active operations were commenced in 1887, since which date marvellous progress has been made, instanced in the fact that, originally used as a sheep run and carrying one sheep to every three acres, the dried fruit harvested from 12,000 acres in 1916 was valued at £683,000 gross.

Water is pumped and supplied under Act of Parliament by the first Mildura Irrigation Trust from the river Murray by two pumping stations, viz. :—(1) into a billabong, and thence to pumps lifting to various levels, and (2) to a comparatively small area adjacent to the town.

The length of the Trust's main and subsidiary channels is 280 miles. For the year ending 30th June, 1916, the Trust's receipts aggregated £32,944, and its expenditure £30,648. For the same period the number of water acres supplied was 41,405.

Loans (balance) advanced to the Trust by the Government for the purpose of improving the plants and channels, etc., amounted at 30th June, 1916, to £71,738, exclusive of the sum of £11,382 (balance) arrears of interest.

The area of the settlement is 45,000 acres, of which 12,000 acres are under intense culture, vines predominating.

4. *Queensland.*—The main irrigation works in Queensland are as follow :—(a) those at Ayr, which utilise the waters of the Burdekin River, and shallow wells on its banks; (b) those at Bingera, near Bundaberg, which utilise water pumped from the Burnett River just above the point of meeting of the salt and fresh waters, and (c) those at Fairymead, which utilise water pumped from a number of shallow spear wells sunk on the alluvial flats on the north side of the Burnett River and about six miles from Bundaberg. There were 741 irrigators in the State in 1916, chiefly farmers and graziers, and the area irrigated was 10,886 acres.

5. *South Australia.*—(i.) *The Renmark Irrigation Trust.* The Renmark Irrigation Trust was established in 1893 on similar lines to Mildura, but on a smaller scale. The area of settlement is 21,000 acres, and the area under irrigation 5270 acres. The dried fruit pack for 1916 was 2650 tons, green fruit 1300 tons, and the gross value of the production for that year was £153,000. The population of the town and settlement is 3000. The chief products are sultanas, currants, raisins, oranges, apricots, peaches, pears and olive oil.

(ii.) *Other Waterworks.* A number of country water works are under the control of the Public Works Department. As, however, they are not irrigation works properly so called, but are used for supplying water for domestic purposes, etc., to several towns, no further reference will be made to them in this chapter. (See Section XXVI., *Local Government.*)

(iii.) *Area under Irrigation.* Until 1910, irrigation in South Australia, with the exception of the schemes already mentioned, made little, if any, progress; but in that year an Irrigation and Reclamation Works Department was created, since when the preparation of land for irrigation settlements has been vigorously pursued.

The functions of the Department cover (a) the reclamation of the swamp lands along the lower reaches of the Murray, which are watered by gravitation, and (b) the preparation of the sandy loam highlands for intense culture, the water, after being pumped from the river, being distributed by concrete channels. A number of the small settlements along the river originally established as Village settlements, were taken over by the Department, and the areas available for reticulation extended and offered for occupation. These include Waikerie, with an irrigable area of 2515 acres, in addition to 4372 acres of "dry" land; Kingston with 415 acres of irrigable and 3096 of "dry" land; and Moorook, now in course of extension; 2950 acres are available at this settlement, of which 1200 acres will be irrigated. The new areas commenced by the Department are Berri, where 3043 acres of irrigable land and 2364 acres of "dry" land have been allotted to 160 settlers. Further pumping plants have been installed, which will enable this settlement to be extended to 9000 acres of irrigable land and 11,000 acres of "dry" land. The adjoining area of Cobdogla, the preparatory survey of which has been completed, contains approximately 30,000 acres of first-class land suitable for intense culture, in addition to 11,000 acres of "dry" land. The first section of this area, comprising about 2000 acres, which can be watered from a lift of about 20 feet, will soon be available for allotment. When completed, this settlement will be supplied from four distinct pumping plants, two on the River Murray at different points, and two on Lake Bonney at the north and south ends respectively. This lake is fed from the river by means of Chambers' Creek, and comprised an area of 4000 acres. At Cadell an area 2700 acres has been acquired, 1200 acres of which is first-class irrigable land; this will be prepared and offered for settlement by the Department. The reclaimed swamps, which have already been completed and allotted, comprise 1930 acres, while other swamp lands of about 1200 acres are in course of reclamation.

A recent innovation has been the preparation of joint schemes of reclaimed and irrigable land, the swamps being reclaimed and the adjoining sandy loam highlands channelled, thus enabling the adoption of dairying, fodder growing, and stock raising in conjunction with horticulture. The areas comprise, Mypolonga, 1700 acres of reclaimed land, 1254 acres of irrigable, and 1481 acres of "dry" land; Wall, 619 acres of reclaimed land, 160 acres of irrigable and 208 acres of "dry" land; Pompoota, 560 acres reclaimed land, 250 acres irrigable land, and 3277 acres of "dry" land; Jervois, 990 acres of reclaimed land, 290 acres of irrigable land, and 260 acres of "dry" land; Swanport, 116 acres of reclaimed and a similar area of irrigable land; Neeta, 560 acres reclaimed, 1320 acres irrigable, and 2348 acres of "dry" land. Mypolonga and Wall have been allotted, the latter to returned soldiers, and Pompoota is being utilised as a training farm for returned soldiers. The other areas have yet to be allotted for settlement. The reclaimed lands consist of peaty soils composed of rich river silt, and are eminently suited for the growth of lucerne and other fodders, onions, potatoes, etc. The soils of the irrigable lands have already proved their suitability for the production of peaches, apricots, nectarines, oranges, lemons, figs, and grapes.

All lands are allotted under perpetual lease, and blocks are surveyed into areas varying up to 50 acres of irrigable or reclaimed land. No lessee is permitted to hold more than 50 acres of irrigable or reclaimed land or of both irrigable and reclaimed;

except that in the case of a partnership 50 acres may be allotted for each member of the partnership up to a maximum of 150 acres. In addition, areas of non-irrigable land are allotted to lessees of irrigation and reclaimed blocks for dry farming. The rentals of the blocks are fixed by the Land Board immediately prior to the land being offered for application. For the reclaimed land an amount is charged sufficient to cover interest on cost of land and reclamation, while for the irrigable land the rent is based on the unimproved value of Crown lands, or to cover interest on cost of repurchased lands.

On the irrigable land, the water rate has been fixed at 30s. per acre per annum for the first four years, after which an amount will be charged sufficient to cover actual cost of supplying water, and interest on pumping plant, channels, etc. On the reclaimed lands an amount is charged to meet annual management, drainage, and maintenance expenses. A sliding scale covers the rent on all land, and water rates on the irrigable land for the first four years, *i.e.*—first year, one quarter of the rent and water rate; second year, one-half; third, three-quarters; fourth and afterwards, full amount per acre. On the irrigable lands, each lessee is entitled for the water rate to 24 acre-inches per annum, supplied in six irrigations; special irrigations and domestic supplies are supplied at times other than during the general irrigations, at a nominal cost. On the reclaimed lands, water is supplied regularly by reticulation from the river.

The Department assists settlers by fencing, clearing, grading and constructing irrigation channels and tanks. Such improvements are undertaken up to a value not exceeding £15 per acre of the irrigable area in each lessee's block, but before the work is commenced a deposit must be paid equal to 15% of the Department's estimated value of such improvements. The total cost of the work, less deposit, is treated as a loan to the lessee, and is repayable in twenty equal annual instalments after the expiration of five years, or at any shorter period if desired by the lessee; current rate of interest being charged. Any lessee is permitted to accept the contract for carrying out his own improvements according to the specifications and estimates of the Department, up to the maximum amount per acre, as mentioned above. Advances can be obtained from the Advances to Settlers Board for the purchase of stock, discharging mortgages, erecting permanent buildings, and other improvements, the first £400 being advanced on the fair estimated aggregate value of the settler's lease, and any improvements already made on the holding, and those in course of being made thereon. Any loan beyond £400 would not exceed 15s. in the £ of the fair estimated value of the improvements already made.

In the section dealing with Closer Settlement (page 265) the subject of irrigation areas in South Australia has already been referred to.

6. Western Australia.—An Irrigation Act has been brought into force providing for the constitution of irrigation districts. At Harvey the works for irrigating about 4000 acres devoted to fruit growing, principally oranges, were completed, and formally opened on the 21st June, 1916. A scheme is now in preparation for irrigating a further area of about 4600 acres in the same district.

Numerous small private irrigation schemes are in full operation on many of the south-west rivers in connection with fruit, fodder, and potato growing.

7. Murray Waters.—The negotiations which took place prior to the passing of the River Murray Waters Act as to the relative State rights of New South Wales, Victoria and South Australia to the waters, are given in detail in previous issues of this book. (Year Book No. 9, page 537.)

On the 31st January, 1917, the River Murray Waters Act was brought into operation. The principal provisions of this Act are that a storage of one million acre feet is to be created by the construction of a dam on the Upper Murray above Albury. This work is to be constructed by New South Wales and Victoria conjointly. A joint investigation has been in progress by the two States interested for some years past, with a view to determining the most suitable site for the construction of this large work, but although a number of sites have been tested, no determination has yet been arrived at.

MAP SHEWING THE POSITION AND EXTENT OF THE "AUSTRALIAN
ARTESIAN BASINS."



This map was prepared by the Interstate Conference on Artesian Water, held in Sydney during May, 1912. It contains the latest facts relative to the various artesian basins of the Australian continent. Of these basins the most important is the Great Australian Basin, which is about 569,000 square miles in extent, viz.:—About 376,000 square miles in Queensland, 90,000 square miles in South Australia, 85,000 square miles in New South Wales, and 20,000 square miles in the Northern Territory. The Murray River Basin extends over South-Western New South Wales, North-Western Victoria, and South-Eastern South Australia. The Western Australian Basins fall naturally within five groups, viz.:—The Flinders Basin, the Coastal Plains Basin, the North-West Basin, the Desert Basin, and the Gulf Basin. (See also pages 512 to 520.)

From the storage dam to Echuca, the river will not be locked, but from Echuca to Blanchetown in South Australia, 26 weirs and locks will be constructed, affording a navigable depth at all times for vessels drawing 5 feet of water. The weirs and locks above Wentworth will be constructed by Victoria and New South Wales jointly, and below Wentworth by South Australia. The Act also provides for the construction of locks and weirs in the Murrumbidgee River from its junction with the Murray River to Hay, or alternatively, for an equivalent expenditure of £540,000 upon locking the Darling River from its junction with the Murray upwards.

A system of storage is to be provided in Lake Victoria, to be controlled by South Australia.

The total expenditure involved by the construction of the works covered by the Act is estimated at £4,663,000, of which the Commonwealth Government will contribute £1,000,000, and the three States interested the balance, in equal shares.

The effect of constructing the River Murray storage would be to insure at all times sufficient flow below Albury to permit of diversions for irrigation, and stock and domestic supplies, and also to make good the losses in the river due to seepage, evaporation, and lockages. The Act provides that, subject to certain conditions, New South Wales and Victoria shall share the regulated flow of the river at Albury, and shall each have the full use of all the tributaries of the River Murray within its territory below Albury, with the right to divert, store and use the flows thereof. It is estimated that the New South Wales regulated river flow after the construction of the Upper Murray Storage will amount to at least 120,000 acre feet per month at Albury during the irrigation season, except in a period of phenomenal drought, such as 1902 and 1903. An investigation is now being made of the manner in which the New South Wales share of the Murray River waters can most profitably be used, but no conclusion has yet been arrived at.

SECTION XV.

COMMERCE.

§ 1. Introductory.

NOTE.—From the 1st July, 1914, the Trade Year, which was formerly the Calendar Year, was altered to coincide with the Fiscal Year (July to June).

1. **Constitutional Powers of the Commonwealth in regard to Commerce.**—The powers vested in the Commonwealth Parliament by the Commonwealth Constitution Act with respect to oversea trade and commerce will be found on page 25 (section 51 (i.) and pp. 31 to 33 (sections 86-95) of this volume.

§ 2. Commonwealth Legislation affecting Foreign Trade.

1. **Customs Act 1901 (No. 6 of 1901).**—“An Act relating to the Customs,” assented to on the 3rd October, 1901, came into operation by proclamation on the 4th October, 1901. This provided for the establishment of the necessary administrative machinery for all matters pertaining to the customs, and prescribed, *inter alia*, the manner in which customs duties shall be computed and paid. It does not, however, determine the rates thereof.

During the interval between the inception of the Commonwealth, viz., on 1st January, 1901, and the coming into operation of the Customs Act 1901, the Customs Acts of the several States were administered by the Executive Government of the Commonwealth, under section 86 of the Constitution.

2. **Customs Tariff Act 1902 (No. 14 of 1902).**—The first Commonwealth Customs Tariff imposing uniform rates of customs duty in all the States was introduced in the House of Representatives on the 8th October, 1901. “An Act relating to Duties of Customs,” assented to on the 16th September, 1902, made provision that uniform duties of customs specified in the tariff schedule should be imposed from the 8th October, 1901. From this date trade between the States became free, with, however, the exception, under section 95 of the Constitution Act, of the right of Western Australia to levy duty on the goods from other States for five years. [Repealed by the Customs Tariff Act 1908 (No. 7 of 1908).]

3. **Sea Carriage of Goods Act (No. 14 of 1904).**—“An Act relating to the Sea Carriage of Goods,” assented to on the 15th December, 1904, to commence on the 1st January, 1905, defines the responsibility of shipowners, charterers, masters, or agents in regard to goods carried.

4. **Secret Commission Act 1905 (No. 10 of 1905).**—“An Act relating to Secret Commissions, Rebates, and Profits,” assented to on the 16th November, 1905, provides that—“Any person who, without the full knowledge and consent of the principals directly or indirectly (a) being an agent of the principal, accepts or obtains, or agrees or offers to accept or obtain, from any person, for himself, or for any person other than the principal; or (b) gives or agrees to give or offers to the agent of a principal, or to any person at the request of an agent of the principal, any gift or consideration as an inducement or reward for any act done or to be done, or any forbearance observed or to be observed, or

any favour or disfavour shewn or to be shewn in relation to the principal's affairs or business or on the principal's behalf, or for obtaining or having obtained, or aiding or having aided to obtain for any person an agency or contract for or with the principal, shall be guilty of an indictable offence."

5. Commerce (Trade Descriptions) Act 1905 (No. 16 of 1905).—"An Act relating to Commerce with other Countries," assented to on the 8th December, 1905, and brought into operation by proclamation on the 8th June, 1906, gives power to compel the placing of a proper description on certain prescribed goods, or on packages containing the same, being imports or exports of the Commonwealth.

6. Australian Industries Preservation Act 1906 (No. 9 of 1906).—"An Act for the Preservation of Australian Industries and for the Repression of Destructive Monopolies," assented to 24th September, 1906, provides that any person or any corporation making or engaging or continuing in any combination "with intent to restrain trade or commerce to the detriment of the public or with intent to destroy or injure by means of unfair competition any Australian industry the preservation of which is advantageous to the Commonwealth, having due regard to the interests of the producers, workers, or consumers," or any person or corporation monopolising or attempting or conspiring to monopolise any part of the trade of the Commonwealth with intent to control, to the detriment of the public, the supply or price of any service, merchandise, or commodity, is guilty of an offence. (Amended, see Acts No. 5 of 1908 and No. 26 of 1909-1910.)

7. Customs Tariff 1906 (No. 14 of 1906).—"An Act relating to Duties of Customs" amends the Customs Tariff of 1902 in relation to the duties on harvesters and agricultural implements and machinery and prescribes the prices to be the maximum prices of Australian harvesters and drills delivered to the purchaser at the railway station or port nearest to the factory where they are made. [Repealed by Customs Tariff Act 1908 (No. 7 of 1908).]

8. Customs Tariff (South African Preference) 1906 (No. 17 of 1906).—"An Act relating to Preferential Duties of Customs on certain goods the produce or manufacture of the British Colonies or Protectorates in South Africa which are included within the South African Customs Union," assented to 12th October, 1906, to operate from 1st October, 1906, provides for special preferential rates of duty on certain goods imported from and being the produce of any of the Colonies or Protectorates included within the South African Customs Union.

9. Australian Industries Preservation Act 1907 (No. 5 of 1908).—"An Act to amend the Australian Industries Preservation Act 1907," assented to 14th April, 1908, provides additional machinery for procuring evidence of offences against the principal Act.

10. Customs Tariff 1908 (No. 7 of 1908).—"An Act relating to Duties of Customs," assented to 3rd June, 1908, repeals Section 5 of the Customs Tariff 1902 (No. 14 of 1902) and the schedule of that Act and the whole of the Customs Tariff 1906 (No. 14 of 1906) as from 8th August, 1907, and imposes new rates of Customs Duties. This Act provides preference rates of customs duties on certain "goods the produce or manufacture of the United Kingdom."

11. Customs Tariff Amendment Act 1908 (No. 13 of 1908).—"An Act to amend the Tariff Act of 1908," assented to 10th June, 1908. The purpose of this Act is merely to remove possible doubt as to the intention of the original Acts.

12. Australian Industries Preservation Act 1909 (No. 26 of 1909).—"An Act to amend the Australian Industries Preservation Acts 1906-1907" formally repeals Sections 5 and 8 of the parent Act, which were declared by the High Court to be *ultra vires*; also provides that, in relation to trade and commerce with other countries or among the States, the payment of rebates, or the refusal to sell, "either absolutely or except upon disadvantageous conditions," with the purpose of promoting exclusive dealing, shall be an offence.

13. **Customs (Interstate Accounts) Act 1910 (No. 9 of 1910).**—Repeals Sections 272 and 273 of the Customs Act 1901. These sections relate to the passing of dutiable goods from one State to another State of the Commonwealth, and their repeal was consequent on the termination of the book-keeping system of accounts between the Commonwealth Government and the Governments of the States, in favour of a system of payments based on population.

14. **Australian Industries Preservation Act 1910 (No. 29 of 1910).**—“An Act to amend the Australian Industries Preservation Act 1906-1909.” This Act removes from the principal Act the obligation to prove *intent* to restrain trade and detriment to the public.

15. **Customs Act 1910 (No. 36 of 1910).**—“An Act to amend the Customs Act 1901” gives the Customs control of all goods for export, the exportation of which is subject to compliance with any condition or restriction under any Act or regulation, extends the machinery provisions for the prevention of the importation or exportation of goods which are prohibited imports or exports respectively, amends the provisions for the payment of duty under protest, gives the Governor-General power to prescribe the nature, size, and material of the coverings for packages, and the maximum or minimum weight or quantity to be contained in any one package of goods imported or exported, or transported coastwise from one State to another; the condition of preparation or manufacture for export of any articles used for, or in the manufacture of, food or drink by man; the conditions as to purity, soundness, and freedom from disease to be conformed to by the goods for export.

16. **Customs Tariff 1910 (No. 39 of 1910).**—“An Act relating to Duties of Customs,” amends the Customs Tariff of 1908 by more explicit definition of certain tariff items, and by alteration of some rates of duty.

17. **Customs Tariff 1911 (No. 19 of 1911).**—“An Act relating to Duties of Customs,” amends the Customs Tariff 1908-10 by alteration of some rates of duty.

18. **Interstate Commission Act 1912 (No. 33 of 1912).**—In accordance with the provisions of the Commonwealth Constitution Act—Sections 101 to 104 (see page 33 *ante*)—an Act relating to the Interstate Commission was assented to on the 24th December, 1912. This Act provides for the appointment of the Commission, and cognate matters.

19. **Trading with the Enemy Act 1914 (No. 9 of 1914).**—“An Act relating to the control of trade during the war with Germany and Austria-Hungary.” This Act was amended by Act No. 17 of 1914.

20. **Customs Act 1914 (No. 19 of 1914).**—Amends the Customs Act 1901-10 by extending the powers of the Governor-General to prohibit the exportation of goods in time of war.

21. **The Income Tax Assessment Act 1915 (No. 34 of 1915) and Amendment thereto (No. 47 of 1915).**—Provide that “In the case of a person selling goods in Australia on account of a person not resident in Australia, or on account of a company not registered in Australia, the principal shall be deemed to have derived from such sale a taxable income equal to five pounds per cent. upon the price at which the goods were sold. The person selling the goods shall be assessable on the taxable income as the agent for the principal, and shall be personally liable for the payment of the tax to the extent of the tax payable on goods sold by him after the 30th June, 1915. Goods shall be deemed to be sold in Australia on account of a person not resident in Australia, if any person in Australia receives a commission in respect of the sale of the goods or is paid a salary for obtaining orders for or for influencing the sale of the goods.”

22. **Customs Tariff Validation Act (No. 6 of 1917).**—“An Act to provide for the validation of—(1) Collections of Customs duties under tariff proposals introduced into the House of Representatives on the 3rd December, 1914; (2) the remission of Customs duty on wheat as from the 12th December, 1914; (3) the remission of Customs duty on oats as from the 27th February, 1915; and (4) the restoration of the Customs duties on wheat and oats from the 12th November, 1915.”

§ 3. Regulation of Trade during the War.

1. **Authority for.**—By the Customs Act 1901-1910 it is enacted that the Governor-General may, by proclamation, prohibit the exportation or transfer from any State to any other State of the Commonwealth of any goods, being arms, explosives, military stores or naval stores, or being goods which, in his opinion, are capable of being used as or in the manufacture of arms, explosives, military stores, or for any purpose of war; and, by the Defence Act 1903-1912, it is enacted that the Governor-General may, subject to the provisions of that Act, do all things deemed by him to be desirable for the efficient defence and protection of the Commonwealth or of any State.

By virtue of the above, proclamations prohibiting or controlling exports from the Commonwealth have been issued from time to time as circumstances appeared to warrant.

§ 4. Method of Recording Imports and Exports.

1. **Value of Imports.**—The recorded value of goods imported from countries beyond the Commonwealth represents the amount on which duty is payable or would be payable if the duty were charged *ad valorem*. The value of goods is taken to be 10 per cent.* in advance of the fair market value in the principal markets of the country whence the goods were exported, the increase being intended to represent roughly the insurance, freight and other charges to the place of landing.

2. **Value of Exports.**—The recorded value of goods exported is taken to represent the value in the principal markets of the Commonwealth in the ordinary commercial acceptance of the term. Some modification of this practice has, however, been necessary in respect of products affected by the policy of price-fixing arising from the war.

3. **Records of Past Years.**—In the years preceding federation each State independently recorded its trade, and in so doing did not distinguish other Australian States from foreign countries. As the aggregation of the records of the several States is, necessarily, the only available means of ascertaining the trade of Australia for comparison with later years, it is unfortunate that past records of values and the direction of imports were not on uniform lines admitting of the preparation of a record for Australia as a whole. On the introduction of the Customs Act 1901, the methods of recording values were made uniform throughout the States, but it was not until September 1903 that a fundamental defect in the system of recording transhipped goods was remedied. Up to this date goods arriving in any Australian port for transshipment to a port in another Australian State were recorded at the latter port only, where they were ordinarily recorded as from the transshipping State, and not as an import from the oversea country.

In recording exports an analogous defect also existed in most of the States, since goods despatched from one Australian State for transshipment in another State to an oversea country were simply recorded in the former as an export to the transshipping State; thus no proper record of the export oversea was made. Owing to this defect the oversea trade prior to September 1903 is understated by an amount which it is impossible to estimate accurately, since it varies with the development of the shipping facilities of the States concerned. To discover the direction of the transhipped trade is not possible. The figures presented in the tables hereinafter are therefore the values as recorded, and must be taken as subject to the defects explained.

4. **Vessels (Ships) Imported and Exported.**—The imports or exports of vessels were not recorded prior to the year 1905. The value of vessels imported during each of the years 1905 to 1914-15 were as follows:—1905, £265,957; 1906, £366,300; 1907, £680,700; 1908,

* Although cost of freight and insurance has risen materially in consequence of the war, no further addition has been made to the value of imports, and cognisance should be taken of this fact in regard to imports during 1914-15 and 1915-16 referred to throughout this section.

£700,500; 1909, £757,100; 1910, £711,850; 1911, £340,045; 1912, £1,257,655; 1913, £1,662,300; 1914-15, £340,530; 1915-16, £485,141. The exports during the same years were:—1905, £79,975; 1906, £51,365; 1907, £90,201; 1908, £82,355; 1909, £38,600; 1910, £72,000; 1911, £17,605; 1912, £66,300; 1913, £418,220; 1914-15, £129,950; 1915-16, £289,000.

5. **Ships' Stores.**—Prior to 1906 goods shipped in Australian ports on board oversea ships as ships' stores were included in the general exports. From 1906, ships' stores have been specially recorded as such, and omitted from the return of exports. The value of ships' stores during 1906 amounted to £375,966 (of which bunker coal represented £575,471, or 65.7 per cent.), during 1907 to £998,897 (bunker coal representing £663,724, or 66.45 per cent.), during 1908 to £1,196,106 (bunker coal £367,707, or 72.55 per cent.), during 1909 to £1,071,677 (bunker coal £781,113, or 72.90 per cent.), during 1910 to £1,030,133 (bunker coal £740,567, or 68.57 per cent.), during 1911 to £1,238,446 (bunker coal £858,783, or 69.35 per cent.), during 1912 to £1,431,985 (bunker coal £1,008,259, or 70.41 per cent.), during 1913 to £1,458,702 (bunker coal £1,018,595, or 69.82 per cent.) during 1914-15 to £1,587,757 (bunker coal £829,875, or 52.26 per cent.), and during 1915-16, to £1,544,872 (bunker coal £719,510, or 46.57 per cent.)

§ 5. Oversea Trade.

1. **Total Oversea Trade.**—The following table shews the total trade of the Commonwealth with oversea countries from the earliest date for which records are available. In consequence of the defects of record, referred to in the preceding section, the results can be only approximate to the actual figures. The very marked rise and sudden fall in the value of imports during the period 1837 to 1842 were contemporaneous with heavy land speculation and a subsequent severe financial crisis. The great increase of trade in the early fifties is due to the discovery of gold. In the State of Victoria the value of imports from oversea countries increased from £500,000 in 1851 to nearly £11,000,000 in 1853, and to £13,000,000 in 1854; while in New South Wales similar imports rose from £1,390,000 in 1851 to £5,500,000 in 1854, when the total imports into the Commonwealth reached the sum of £34 13s. 10d. per head, and the total trade £56 3s. 10d. per head of the population. The rapid influx of persons anxious to share the good fortunes of these times, however, soon reduced the value of the trade per head, till, in 1858, it had declined to £31 19s. 6d. per head. The period 1867-1872 shews a marked reduction in the value of trade per head. For some years prior to this period New South Wales had experienced a succession of indifferent seasons, and Victoria was suffering from a congested labour market consequent on the decline of alluvial gold-mining in that State. This congestion of the labour market during the years 1862 to 1866 gave rise to the agitation for a protective tariff to provide employment in manufactures, and in April 1866, the Tariff Act, which expressed the protective policy thenceforward adhered to in Victoria, was assented to.

OVERSEA TRADE OF COMMONWEALTH, 1826 to 1915-16.

Period.	Recorded Value.			Value per Inhabitant. ¹			Percentage of Exports on Imports.
	Imports.	Exports.	Total.	Imports.	Exports.	Total.	
	£1,000.	£1,000.	£1,000.	£ s. d.	£ s. d.	£ s. d.	%
1826-30	638	153	791	10 12 5	2 10 11	13 3 4	23.9
1831-35	1,144	613	1,757	11 19 10	6 8 6	18 8 4	53.6
1836-40	2,283	1,112	3,395	14 15 9	7 4 1	21 19 10	48.7
1841-45	1,906	1,378	3,284	9 0 5	6 10 5	15 10 10	72.3
1846-50	2,379	2,264	4,643	6 18 10	6 12 2	13 11 0	95.2
1851-55	11,931	11,414	23,345	19 12 5	18 15 4	38 7 9	95.7
1856-60	18,816	16,019	34,835	18 6 1	15 11 8	33 17 9	85.1

1. Reckoned on mean population of the year. ✓

OVERSEA TRADE OF COMMONWEALTH, 1826 TO 1915-16.—Continued.

Year.	Recorded Value.			Value per Inhabitant. ¹			Percentage of Exports on Imports.
	Imports.	Exports.	Total.	Imports.	Exports.	Total.	
	£,1000.	£1,000-	£1,000.	£ s. d.	£ s. d.	£ s. d.	%
1861	17,651	17,413	35,064	15 5 2	15 1 1	30 6 3	98.7
1862	20,599	18,065	38,664	17 7 1	15 4 5	32 11 6	87.7
1863	21,248	19,336	40,584	17 4 7	15 13 7	32 18 2	91.0
1864	20,503	18,977	39,480	15 17 4	14 13 6	30 10 10	92.6
1865	20,660	19,706	40,366	15 4 4	14 10 4	29 14 8	95.4
1866	21,311	18,972	40,283	15 0 10	13 7 10	28 8 8	89.0
1867	15,964	18,384	34,348	10 18 1	12 11 2	23 9 3	115.2
1868	18,436	21,650	40,086	12 3 11	14 6 6	26 10 5	117.4
1869	19,910	20,066	39,976	12 14 4	12 16 4	25 10 8	103.8
1870	17,833	18,012	35,845	11 0 2	11 2 5	22 2 7	101.0
1871	17,017	21,725	38,742	10 3 3	12 19 6	23 2 9	127.7
1872	18,833	22,518	41,351	10 18 9	13 1 7	24 0 4	119.6
1873	24,567	26,370	50,937	13 17 10	14 18 2	28 16 0	107.4
1874	24,554	25,646	50,200	13 9 9	14 1 8	27 11 5	104.5
1875	24,939	24,978	49,917	13 6 2	13 6 2	26 12 9	100.1
1876	23,963	23,540	47,503	12 8 7	12 4 2	24 12 9	98.2
1877	25,797	23,107	48,904	12 18 8	11 11 8	24 10 4	89.6
1878	26,181	23,773	49,954	12 14 0	11 10 8	24 4 8	90.8
1879	24,233	21,184	45,417	11 7 10	9 19 2	21 7 0	87.4
1880	22,939	27,255	50,194	10 8 10	12 8 1	22 16 11	118.8
1881	29,067	27,528	56,595	12 16 2	12 2 8	24 18 10	94.7
1882	36,103	27,313	63,416	15 7 7	11 12 9	27 0 4	75.6
1883	35,454	30,058	65,512	14 9 9	12 5 8	26 15 5	84.8
1884	36,988	28,708	65,696	14 9 6	11 4 8	25 14 2	77.6
1885	36,862	26,667	63,529	13 18 2	10 1 3	23 19 5	72.3
1886	34,179	21,700	55,879	12 9 4	7 18 4	20 7 8	63.5
1887	29,572	23,421	52,993	10 8 8	8 5 3	18 13 11	79.2
1888	36,881	28,900	65,781	12 11 7	9 17 2	22 8 9	78.4
1889	37,577	29,553	67,130	12 8 8	9 15 7	22 4 3	78.6
1890	35,168	29,321	64,489	11 6 4	9 8 9	20 15 1	83.4
1891	37,711	36,043	73,754	11 16 0	11 5 6	23 1 6	95.6
1892	30,107	33,370	63,477	9 4 0	10 3 10	19 7 10	110.8
1893	23,765	33,225	56,990	7 2 7	9 19 4	17 1 11	139.8
1894	21,897	32,131	54,028	6 9 0	9 9 4	15 18 4	146.7
1895	23,195	33,644	56,839	6 14 1	9 14 6	16 8 7	145.0
1896	29,658	32,964	62,622	8 8 5	9 7 2	17 15 7	111.1
1897	31,958	37,783	69,741	8 18 3	10 10 9	19 9 0	118.2
1898	31,481	40,165	71,646	8 12 11	11 0 7	19 13 6	127.6
1899	34,330	48,599	82,929	9 6 0	13 3 5	22 9 5	141.6
1900	41,388	45,957	87,345	11 1 3	12 5 9	23 7 0	111.0
1901	42,434	49,696	92,130	11 3 11	13 2 2	24 6 1	117.1
1902	40,676	43,915	84,591	10 11 4	11 8 3	21 19 7	108.0
1903	37,811	48,250	86,061	9 14 3	12 7 10	22 2 1	127.6
1904	37,021	57,486	94,507	9 7 9	14 11 7	23 19 4	155.3
1905	38,347	56,841	95,188	9 11 9	14 4 1	23 15 10	148.2
1906	44,745	69,738	114,483	11 0 4	17 3 6	28 3 10	155.9
1907	51,809	72,824	124,633	12 11 3	17 13 2	30 4 5	140.6
1908	49,799	64,311	114,110	11 17 5	15 6 8	27 4 1	129.1
1909	51,172	65,319	116,491	11 19 5	15 5 7	27 5 0	127.6
1910	60,014	74,491	134,505	13 14 8	17 0 10	30 15 6	124.1
1911	66,968	79,482	146,450	14 18 3	17 14 0	32 12 3	118.7
1912	78,159	79,096	157,255	16 16 7	17 0 7	33 17 2	101.2
1913	79,749	78,572	158,321	16 12 0	16 7 2	32 19 2	98.5
First Six Mths 1914	39,777	37,930	77,707	8 2 7	7 15 0	15 17 7	95.4
1914-15	64,432	60,593	125,025	13 0 10	12 5 3	25 6 1	94.0
1915-16	77,521	74,778	152,299	15 14 5	15 3 3	30 17 8	96.4

1. Reckoned on mean population of the year

The graphs illustrating the movement of the oversea trade of Australia (see pages 547 and 548) shew that periods of depressed trade have been recurrent at more or less regular intervals of from seven to nine years, and, measured by population, each succeeding depression since 1855 carried the trade per head lower than the preceding one, until the lowest point was reached in 1894.

The year 1892 marked the beginning of a period of acute financial stress, culminating in the commercial crisis of 1893. The collapse of these years is plainly reflected in the trade records of that period, the trade of 1894 falling to £54,028,227, a decline of no less than 26.75 per cent. in three years. In 1895 there was a slight recovery, and a continuous upward movement until 1901, when the trade reached £92,130,183, or £24 6s. 1d. per head. A decline, due to drought, in the exports of agricultural, pastoral, and dairy produce, reduced the trade of 1902 to £84,591,037, but although in the next year there was a further shrinkage in the exports of agricultural produce, the increase in the value of the exports of metals, specie, butter, and wool was so large as to effect an increase in the total trade. From 1902 the increase in the value of trade continued, till in 1907 it reached the amount of £124,633,280, equal to £30 4s. 5d. per inhabitant.

The imports during 1907 were, doubtless, to some extent inflated by the importation of goods in anticipation of the tariff revision of that year. The trade of 1908 shews a decline of £10,523,000 as compared with 1907, of which £8,513,000 was in the value of exports, notwithstanding an increase of £3,447,767 in the export of gold and specie. This decline in the value of exports was largely due to reduced prices ruling for wool and metals in consequence of the financial crisis in the United States during the previous year, and in lesser degree to the smaller exports of agricultural and pastoral produce, due to the unfavourable season experienced in some of the States.

The trade of 1909 per head of population was slightly more than in 1903, notwithstanding that the gold exports were less by £5,193,587. In 1910 the value of imports per head was higher than in any year since 1885, and the value of exports was—excepting the years 1906 and 1907—the highest since 1857. The high value of exports is particularly striking when considered in conjunction with the exceptionally small exports of gold. The exports of gold, already much reduced in 1909 as compared with 1908, were in 1910 still further reduced by £4,264,368 to £4,103,783, the smallest recorded since 1892. During 1911 the exports of gold bullion and specie again increased to £11,540,782. The continued increase in the value of imports during 1912 and 1913, while the value of exports remained stationary, is referred to in paragraph 4 of this section.

The trade of 1914-15, was, of course, materially affected by the war. Of the £18,000,000 decrease in the value of exports during 1914-15 as compared with 1913, about £13,500,000 was mainly due to the dry season throughout the Commonwealth. From this cause the exports of wheat and flour were reduced by about £8,500,000, and of butter by £1,000,000. The reduction by £4,000,000 of the exports of wool was the joint result of the war and the drought, for although the clip was much reduced by the latter cause, the dislocation of the sales by the war was responsible for a considerable quantity being held over for shipment till the next year. The influence of the war in restricting exports was most pronounced with regard to metals and coal, which, together, were nearly £6,000,000 below 1913, while skins and tallow declined by £2,500,000. On the other hand, the war was responsible for *increased* exports of meats, leather, and horses, amounting to over £4,500,000.

The increased value of the trade of 1915-16 over that of the previous year was due mainly to deferred shipments and to increased prices. The vagaries of the seasons, too, led to a large increase in both imports and exports during this year, inasmuch as the failure of the 1914-15 crops necessitated large imports of grain in the earlier part of the trade year, whereas in the latter part of the same year large exports were provided from the bountiful harvest of 1915-16. Although the trade of 1915-16 was to some extent loaded by transactions which would, but for the war, have been dealt with in the previous year, and was also affected by increased prices, it did not reach, either with regard to imports or exports, the value recorded for 1913.

The variations in the composition of the trade will be seen from the tables in § 8 following.

2. **Alteration of Trade Year.**—The desirability had long been felt of bringing the trade year into conformity with the seasons for the export of agricultural and pastoral products, but a disinclination to break the continuity of records had, hitherto, prevented the change. As it was obvious that trade itself, and not merely the records, would be seriously disturbed by the war, the time appeared to be peculiarly opportune for making the alteration. The trade returns were, therefore, closed as on the 30th June, 1914, and the new year started from the 1st July. The year 1914-15 thus includes nearly eleven months under war conditions.

3. **Ratio between Exports and Imports.**—The foregoing table shews the percentage of exports on imports for each year.† From this it will be seen that, with few exceptions, due to temporary dislocations of trade, prior to 1892 the balance of trade has been on the side of imports, but from 1891 to 1912 the reverse has been the case. The excess of imports in the earlier years represents the introduction of capital in the form of Government loans and for investment in private undertakings, and the excess of exports represents mainly the interest and profit on the earlier investments, repayment of loans to foreign bondholders, and also freight on trade, which is carried mainly by ships of the United Kingdom and foreign countries. As the introduction of new capital, and the payments for interest on existing investments, and for shipping and other services are continually operating in opposite directions at the same time in the statistics of trade, it follows that it is the balance, only, of these transactions which is reflected in the excess of imports or exports.

The marked change in the balance of trade, which is in the direction of that of twenty years ago, is a striking feature of the trade returns for 1912. The decline in the ratio of exports to imports has been due, mainly, to loans raised in London by the Governments of the various States of the Commonwealth. The proceeds of these loans, of course, swell the import returns, but, as no immediate payment beyond an instalment of interest has to be made in return, the export figures are affected to a very minor degree, until such time as the principal of the debt is repaid. The larger number of immigrants had, also, to some extent affected the balance of trade by the introduction of capital. The following table presents the balance of trade of the Commonwealth as shewn by the records of imports and exports for each year from 1902, and, also, the modification of these figures as affected by loans raised in London by the Governments of the States and the Commonwealth:—

EFFECT OF LOANS ON THE RECORDED BALANCE OF TRADE, 1902-16.

Year.	Excess of Exports as Recorded.		Net Amount of Debt Raised or Redeemed (—) in London.	Excess of Exports Modified by Elimination of Loans to Commonwealth and States' Governments.	
	Amount.	Per cent.	Amount.	Amount.	Per cent.
	£1,000.		£1,000.	£1,000.	
1902	3,239	100	5,014	8,253	100
1903	10,439	322	1,658	12,097	146
1904	20,465	632	753	21,218	257
1905	18,494	571	1,968	20,462	248
1906	24,993	771	5,308	19,685	238
1907	21,015	649	2,259	18,756	227
1908	14,512	448	6,088	20,600	249
1909	14,147	436	2,562	16,709	202
1910	14,477	447	2,904	11,573	140
1911	12,514	386	3,123	15,637	189
1912	937	29	12,205	13,142	159
1913	1,178	36	19,666	18,488	225
1914 (Jan. to June)	1,847	*	*	1,847	*
1914-15	3,839	119	19,301	15,462	187
1915-16	2,743	85	24,912	22,169	269

* Prior to June, 1914, the figures relating to Debt were six months in advance of the Trade figures; the periods to which the figures relate are now identical.

† For individual years 1826 to 1860 see Official Year Book, No. 7, and previous issues.

The trade balances would be further modified by the loans of local governing bodies, by the imports of capital for private enterprises, and by the addition to or absorption of bank balances held in London on Australian account. Particulars of such transactions are, however, not available. In regard to the importation of private capital, it may not be without significance that the tariff of 1908 was followed by a pronounced diminution in the excess of exports, the suggestion being that industrial enterprise had been augmented by imported capital in consequence of the increased protection to local industries.

The general relationship between the balance of trade of the Commonwealth and the borrowing of money abroad is demonstrated by the following figures:—

BALANCE OF TRADE AND PUBLIC DEBT, 1867-1916.

Period.	Annual Average.					
	Imports.	Exports.	Recorded Excess of		New Debt.	Excess of Exports modified by elimination of Loans.
			Imports.	Exports.		
	Mill. £.	Mill. £.	Mill. £.	Mill. £.	Mill. £.	Mill. £.
1867-1871	17.8	20.0	...	2.2	1.7	3.9
1872-1876	23.4	24.6	...	1.2	2.6	3.8
1877-1881	25.6	24.6	1.0	...	5.2	4.2
1882-1886	35.8	26.8	9.0	...	10.6	1.6
1887-1891	35.4	29.4	6.0	...	7.4	1.4
1892-1896	25.6	33.0	...	7.4	3.8	11.2
1897-1901	36.2	44.4	...	8.2	3.2	11.4
1902-1906	39.6	55.2	...	15.6	0.8	16.4
1907-1911	56.0	71.2	...	15.2	1.3	16.6
1912-1915-16 (4½ years)	75.5	73.5	2.0	...	19.0	17.0

* Subsequent to 1897 these figures relate to moneys raised outside of Australia only. Prior to 1893 the amounts raised locally were insignificant, but it is probable that the amount of new debt raised during 1892-6 is somewhat overstated. Loans raised by Local Government Bodies are not included.

The maintenance of military forces abroad and the financial arrangements in connection with the war generally, have obscured the balance of trade for the last period shown in the table.

It would appear, however, that immediately prior to the war, a sum of about 16 million pounds was required annually to meet the "invisible" obligations of the Commonwealth.

§ 6. Direction of Trade.

1. Country of Shipment and Country of Origin.—The following table shews, for the years 1908 and 1915-16, the value of imports recorded as direct from the principal countries, and also the disposition of the value of imports against the countries where they were produced or manufactured. A similar comparison for the years 1905 to 1914-15 will be found in previous issues of this work.

COMMONWEALTH IMPORTS FROM COUNTRIES OF SHIPMENT AND COUNTRIES OF ORIGIN, 1908 and 1915-16.

Country.	Imports according to—							
	Country of Shipment.				Country of Origin.			
	1908.		1915-16.		1908.		1915-16.	
	Value.	Per cent.	Value.	Per cent.	Value.	Per cent.	Value.	Per cent.
£		£		£		£		
United Kingdom	29,930,157	60.10	39,730,320	51.25	25,274,661	50.75	35,145,043	45.34
BRITISH POSSESSIONS—								
Canada	321,041	0.64	1,656,158	2.14	532,752	1.07	1,527,023	1.97
Ceylon	683,813	1.37	1,255,798	1.62	681,950	1.37	1,244,787	1.61
Hong Kong	247,689	0.50	392,860	0.51	7,321	0.01	22,449	0.03
India	1,630,246	3.28	3,629,975	4.68	1,658,140	3.33	3,679,825	4.74
New Zealand	2,276,597	4.57	2,841,163	3.66	2,196,433	4.41	2,701,036	3.43
Straits Settlements	384,567	0.77	965,352	1.24	158,603	0.32	265,657	0.34
Other British Possessions	845,671	1.70	1,967,321	2.53	994,755	2.00	2,315,860	2.99
Total British Possessions	6,389,624	12.83	12,708,627	16.38	6,229,954	12.51	11,756,637	15.16
Total British Countries	36,319,781	72.93	52,438,947	67.63	31,504,615	63.26	46,901,680	60.50
FOREIGN COUNTRIES—								
Austria-Hungary*	16,947	0.03	*270	0.00	265,345	0.53	*8,403	0.01
Belgium	970,187	1.95	7,394	0.01	636,450	1.28	81,056	0.03
China	69,362	0.14	240,210	0.31	315,887	0.63	676,550	0.86
France	479,642	0.97	305,760	0.39	1,775,389	3.56	1,792,525	2.31
Germany*	3,509,120	7.05	*41,200	0.06	4,482,394	9.00	*117,470	0.14
Japan	543,789	1.09	2,906,022	3.75	574,906	1.15	2,909,696	3.74
Netherlands	173,528	0.35	80,081	0.09	311,832	0.63	409,274	0.43
Norway	314,685	0.63	649,893	0.84	420,470	0.85	723,905	0.82
Spain	12,131	0.02	21,574	0.03	108,104	0.22	142,971	0.17
Sweden	206,614	0.41	610,945	0.79	348,666	0.70	617,893	0.78
Switzerland	38,498	0.08	89,824	0.13	754,110	1.51	1,458,646	1.87
United States	6,039,753	12.13	15,360,690	19.82	6,581,846	13.22	15,864,516	20.45
Other Foreign Countries	1,105,236	2.22	4,763,327	6.15	1,719,259	3.46	5,816,617	7.84
Total Foreign Countries	13,479,492	27.07	25,082,195	32.37	18,294,658	36.74	30,619,462	39.50
Total Imports from all Countries	49,799,273	100	77,521,142	100	49,799,273	100	77,521,142	100

* The imports shown as from enemy countries during 1915-16 were on the sea at the time of the declaration of war. Goods on board German ships interned in South Africa and elsewhere were subsequently forwarded to Australia. (See also page 575.)

The only country from which the value of direct imports exceeds by any large amount the value of the imports of goods which were manufactured or produced therein, that is to say, the only country which shows a balance of any magnitude as a distributor of the goods of other countries to Australia, is the United Kingdom. The records of imports therefrom during the year 1915-16 show that while the total direct imports from that country amounted to £39,730,320, the value of the manufactures or produce of the United Kingdom itself, imported from all countries whatsoever during the same year, was £35,145,043. From the foregoing figures it appears that goods to the value of at least £4,585,277 were received from other countries through the United Kingdom.

Other countries which prior to the war showed balances as distributors to Australia, though absolutely of much less amount, were Belgium, Canada, Hong Kong, New Zealand, Straits Settlements, and Ceylon. The countries mentioned were, of course, not the only countries through which goods were indirectly imported into Australia, for the direct imports from other countries included considerable values which were not the produce of those countries. Prior to the war large quantities of goods not manufactured in France or Germany were shipped to Australia from those countries. Such transactions, were, however, more than balanced by French and German goods received through the United Kingdom and other countries.

2. Direct Imports according to Country of Shipment.—The following table shews the average yearly value of imports from each of the principal countries during each succeeding quinquennial period from 1894 to 1913, and for the year 1915-16. The countries mentioned in this table are those where the goods were shipped or whence they were directly consigned to Australia.

IMPORTS INTO THE COMMONWEALTH FROM VARIOUS COUNTRIES, 1894 to 1915-16.

Country.	Yearly Average of Quinquennial Periods.				Year 1915-16.
	1894-8.	1899-1903.	1904-8.	1909-13.	
	£	£	£	£	
United Kingdom ...	18,957,688	23,107,178	26,789,801	40,171,599	39,730,320
British Possessions—					
Canada ...	145,655	285,312	292,801	857,133	1,656,158
Ceylon ...	292,653	481,627	679,572	816,220	1,255,798
Fiji ...	110,167	91,918	89,425	389,276	742,397
Hong Kong ...	374,974	299,872	279,030	297,127	392,860
India ...	655,090	998,326	1,563,604	2,350,599	3,629,975
Mauritius ...	225,459	156,485	51,239	69,533	14,486
New Zealand ...	1,030,079	2,096,004	2,441,722	2,647,942	2,841,163
Papua ...	25,010	67,655	63,746	80,179	76,322
South African Union ...	3,944	5,626	50,232	137,911	684,918
Straits Settlements ...	184,628	234,001	270,550	625,079	965,352
Other British Possessions	8,548	49,334	168,318	298,640	449,198
Total British Possessions ...	3,056,207	4,766,160	5,950,239	8,569,639	12,708,627
Total British Countries ...	22,013,895	27,873,338	32,740,040	48,741,238	52,438,947
Foreign Countries—					
Belgium ...	264,743	423,305	815,228	1,724,846	7,394
Bismarck Archipelago, Hawaiian Islands, New Caledonia, New Hebrides and other South Sea Islands ...	114,816	149,889	167,665	230,838	404,444
Chile and Peru ...	3,894	32,956	22,611	47,818	619,102
China ...	271,799	249,940	70,387	83,628	240,210
France ...	324,368	504,558	455,301	545,071	305,760
Germany ...	1,423,498	2,521,486	3,112,897	4,329,681	41,200
Italy ...	93,774	157,502	197,464	343,894	646,267
Japan ...	116,716	290,835	460,514	804,346	2,906,022
Java ...	310,423	648,729	314,745	843,213	1,497,980
Netherlands ...	18,548	59,576	133,191	234,650	80,081
Norway ...	*207,296	*425,664	312,357	599,801	649,898
Philippine Islands ...	22,807	84,660	79,056	113,156	178,077
Sweden ...	*	*	105,828	489,113	610,945
United States of America	2,368,737	5,342,307	5,124,191	7,643,641	15,360,690
Other Foreign Countries	84,253	553,542	232,183	432,463	†1,534,125
Total Foreign Countries ...	5,625,672	11,449,949	11,604,118	18,471,159	25,082,195
Total ...	27,639,567	39,323,287	44,344,158	67,212,397	77,521,142

* Norway and Sweden combined in these years. † Includes Argentine Republic, £1,127,463.

Expressing each item as percentage on the total of the imports, the following results are obtained :—

COMMONWEALTH IMPORTS.—PERCENTAGES OF IMPORTS FROM EACH COUNTRY ON THE TOTAL IMPORTS, 1894 to 1915-16.

Country.	1894-8.	1899-1903.	1904-8.	1909-13.	1915-16.
	per cent.	per cent.	per cent.	per cent.	per cent.
United Kingdom	68.59	58.76	60.41	59.77	51.25
BRITISH POSSESSIONS—					
Canada	0.53	0.73	0.66	1.28	2.13
Ceylon	1.06	1.22	1.53	1.21	1.62
Fiji	0.40	0.23	0.20	0.58	0.95
Hong Kong	1.36	0.76	0.63	0.44	0.50
India	2.37	2.54	3.53	3.50	4.68
Mauritius	0.81	0.40	0.12	0.10	0.01
New Zealand	3.73	5.33	5.51	3.94	3.66
Papua	0.09	0.17	0.14	0.12	0.09
South African Union	0.01	0.01	0.11	0.21	0.88
Straits Settlements	0.67	0.60	0.61	0.93	1.30
Other British Possessions	0.03	0.13	0.38	0.44	0.57
Total British Possessions	11.06	12.12	13.42	12.75	16.39
Total British Countries	79.65	70.88	73.83	72.52	67.64
FOREIGN COUNTRIES—					
Belgium	0.96	1.09	1.84	2.57	0.01
Bismarck Archipelago, Hawaiian Islands, New Caledonia, New Hebrides and other South Sea Islands	0.42	0.38	0.38	0.34	0.52
Chile and Peru	0.01	0.08	0.05	0.07	0.79
China	0.98	0.64	0.16	0.12	0.30
France	1.18	1.28	1.02	0.81	0.39
Germany	5.15	6.41	7.02	6.44	†0.05
Italy	0.34	0.40	0.45	0.52	0.83
Japan	0.42	0.74	1.04	1.20	3.75
Java	1.12	1.65	0.71	1.26	1.93
Netherlands	0.07	0.15	0.30	0.35	0.10
Norway	0.75*	1.08*	0.70	0.89	0.87
Philippine Islands	0.08	0.22	0.18	0.17	0.23
Sweden	*	*	0.25	0.73	0.79
United States of America	8.57	13.59	11.55	11.37	19.82
Other Foreign Countries	0.30	1.41	0.52	0.64	†1.98
Total Foreign Countries... ..	20.35	29.12	26.17	27.48	32.36
Total	100	100	100	100	100

* Norway and Sweden combined in these years.

† See note on page 541.

‡ Includes Argentine Republic 1.45.

3. Imports from the United Kingdom.—The foregoing tables shew that notwithstanding the smaller imports from the United Kingdom during 1915-16 as compared with the average of the quinquennial period immediately preceding the war, the figures were

more than double the average of the period 1894-8. It will be noticed, however, that the development of the import trade from the United Kingdom has not kept pace with the total trade, inasmuch as the *proportion* of imports shipped from the United Kingdom has, during the period under review, declined from 68.59 per cent. during the years 1894-8 to 51.25 per cent. for the year 1915-16. The apparent diversion of Australian trade from Great Britain is more fully dealt with in sub-section 12 of this chapter. The values of the principal imports of United Kingdom origin during the year 1915-16 are as follows:—

Ale and beer, £238,768; apparel and textiles—apparel, £2,781,621, textiles, £10,780,144; arms, ammunition and explosives, £423,275; books and periodicals, £530,002; brushware, £72,597; earthenware, etc., £313,525; clocks and watches, £26,640; cocoa and chocolate, £139,773; confectionery, £292,241; cordage, metal, £120,852; cordage, other, £98,772; cutlery, £259,069; drugs and chemicals—alkalies (soda), £139,383, fertilizers, £1749, medicines, £194,909, other drugs and chemicals, £814,998; electrical and gas appliances, £275,383; electrical materials, £618,881; fancy goods, £164,547; fish, fresh and preserved, £154,948; furniture, £31,293; glass and glassware, £178,298; indiarubber and manufactures, £356,549; instruments, musical, £138,094; instruments, surgical and dental, £63,600; iron and steel—pig iron, £38,076, bar, hoop, ingot, etc., £644,470, scrap, £6401, girders, beams, etc., £117,502, plate and sheet, galvanized or corrugated, £1,644,504, not galvanized or corrugated, £263,825, pipes and tubes, £642,551, rails, fishplates, etc., £478,964, tinned plates, plain, £783,902; wire, £55,988; wire netting, £70,069; jewellery and precious stones, £142,345; kinematographs and films, £91,329; leather and leather manufactures, £140,198; machines and machinery, £1,485,584; metals, manufactures of, £2,105,436; milk, preserved, £12,011; oils (not essential), £231,481; paints and colours, £408,075; paper, £877,062; pickles, sauces, etc., £101,342; soap, £32,074; specie, £229,421; spirits, £865,059; stationery, £257,830; tobacco, £100,609; tools of trade, £241,924; varnishes, £51,295; vehicles—bicycles, etc., £140,762, motors, £217,648, other vehicles, £206,407; vessels (ships), £436,115; yarns, £701,597.

4. Imports Shipped from British Possessions.—The growth of the value of imports from other British possessions during the past twenty years has been such as to increase the proportion to total imports from 11.06 per cent. in the years 1894-8 to 16.39 per cent. in 1915-16, the actual values being respectively £3,056,207 in the earlier period and £12,708,627 in 1915-16. Of the total imports from British possessions during 1915-16, 22.36 per cent., or 3.66 per cent. of all imports, was from New Zealand; 28.56 per cent., or 4.68 per cent. of all imports, from India; 13.03 per cent., or 2.13 per cent. of all imports, from Canada; and 9.88 per cent., or 1.62 per cent. of all imports, from Ceylon. The imports from Canada shew an increase of £497,325, or 42.92 per cent. over those of 1913, and an increase of £799,025, or 93.23 per cent. over the average of the period 1909-13. A small part of this is due to larger shipments from Canadian ports of goods from the United States of America.

5. Principal Imports, the Produce of British Possessions, 1915-16.—These are as follows:—

(i.) *Canada.* Apparel and textiles—corsets, £33,990, other, £26,414, boots and shoes, £7321; carbide of calcium, £16,865; fish, £135,185; fruit—apples, £1987; furniture, £985; indiarubber and manufactures, £67,006; agricultural implements and machinery, £204,139; other machines and machinery, £15,703; railway material, £26,903, other metal manufactures, £149,280; paper, £297,786; timber, £4363; motor chassis, £309,179, motor bodies, £63,256, other vehicles, £39,138.

(ii.) *Ceylon.* Coir fibre, £4638; nuts, £36,142; rubber and manufactures, £129,324; tea, £1,042,568. The large increase in the imports from Ceylon—from an average of £292,653 per year during the years 1894-8, to £1,255,798 in 1915-16—is due to the displacement of China teas in the Australian markets by those of India and Ceylon. Of

the total imports of tea during the year 1915-16, 51.37 per cent. was the produce of Ceylon.

(iii.) *Fiji*. Bananas, £237,952; copra, £46,724; sugar—produce of cane, £425,973; molasses, £7924.

(iv.) *India*. Bags and sacks, £1,977,566; hessians, £331,883; cameos, precious stones, unset, £3547; carpets, mats, etc., £25,221; coffee and chicory, £37,390; cotton, raw, £2457; other unmanufactured fibres, £18,039; dyes, £1155; grain—beans and peas, £21,408; iron, pig, £56,977; linseed, £104,072; oils—castor, £16,478; linseed, £9366; rice, £296,755; shellac, £7382; skins and hides, £47,020; spices, £20,232; tea, £442,171; timber, £17,924; wax, paraffin, £39,917; yarns, £19,857.

(v.) *Mauritius*. Sugar, £14,476.

(vi.) *New Zealand*. Apparel and textiles, £24,095; animals—horses, £28,372, sheep, £34,597; beans and peas, £24,368; butter, £141,816; cement, £22,846; cheese, £60,625; coal, £5042; flax and hemp, fibre, £192,026; fish, £53,778; fodder—hay and chaff, £140,266, bran and pollard, £13,992, oats, £15,889; gold, bullion and ore, £538,330; implements and machinery (agricultural), £5147; machines and machinery, £4065; meats, £89,923; milk and cream, £64,530; potatoes, £136,453; seeds, £18,964; skins and hides, £316,909; timber, £483,055; twine, reaper and binder, £19,275; wool, £154,724.

(vii.) *Papua*. Copra, £8290; fibres, flax and hemp, £11,793; gold bullion and ore, £36,489; ores, other than gold, £8462; india rubber, £4513.

(viii.) *South African Union*. Bark, tanning, £47,176; explosives, £114,036; feathers, £10,308; grain—maize, £475,313; precious stones, £136,621; skins, £8356; sugar, £5219; tobacco, etc., £6552.

(ix.) *Straits Settlements*. Canes and rattans, etc., unmanufactured, £11,563; fodder—oil cake, £7663; oils, benzine, £22,116; rubber and rubber manufactures, £55,816; spices, £61,857; sago and tapioca, £77,170.

6. Imports Shipped from Foreign Countries.—The imports direct from foreign countries during the year 1915-16 represented 32.36 per cent. of the total imports, as compared with 20.35 per cent. during the years 1894-8. Of the total imports into Australia shipped from foreign countries during 1915-16, 61.24 per cent.—19.82 per cent. of all imports—was from the United States. The small imports from Germany were, of course, due to the war.

7. Principal Imports the Produce of Foreign Countries, 1915-16.—(i.) *Argentine Republic*. Grain—wheat, £1,123,310.

(ii.) *Austria-Hungary*. Apparel and textiles, £2397; furniture, £820; chinaware, £354; glassware, £463; fancy goods, £231; jewellery and precious stones, £54; manufactures of metals, including machinery, £591; paper and stationery, £593; pipes, smoking, etc., £189.

(iii.) *Belgium*. Apparel, £21,048; textiles, £15,472; cement, £21; drugs, chemicals, and fertilizers, £1585; glass and glassware, £18,673; iron and steel—partly manufactured, £2077; girders, beams, etc., £26; plate and sheet, £14; machines and machinery, £644; metal manufactures, £5662; motors and parts, £902; paper, £10,277; zinc manufactures, £442.

(iv.) *Brazil*. Coffee, £5926; india-rubber, £182,001.

(v.) *Chile*. Soda nitrate, £49,463; oats, £183,151.

(vi.) *China*. Apparel and textiles, £243,301; cotton, raw, £1263; fish, £15,460; fruit, £10,349; ginger, £17,825; grain—bran and pollard, £134; rice, £50,326; nuts, £26,999; oils, £17,789; tea, £148,628.

The decline of the value of imports from China during the past twenty years is due to the loss of the tea trade, which now draws its supplies mainly from India and Ceylon.

(vii.) *Denmark*.—Ale and beer, £12,772; cement, portland, £37,593; matches, £5993.

(viii.) *France*. Apparel and textiles, £850,973; cream of tartar, £208,328; tartaric acid, £11,612; other drugs and chemicals, £65,736; fruits, £5851; fancy goods, £47,039; gelatine, £9426; jewellery, £11,596; kinematographs, films, etc., £14,762; pipes, smoking, etc., £33,978; motor vehicles and parts, £42,916; paper and stationery, £30,313; perfumery, £40,731; resin, £39,011; rubber manufactures, £48,003; leather, £4269; machinery and manufactures of metal, £31,801; spirits, £109,612; tiles, £4329; wine, £56,765.

(ix.) *Germany*. Ale and beer, £343; apparel and textiles, £28,177; arms, ammunition, and explosives, £39; brushware, £451; cement, £1374; chinaware, etc., £1773; copper wire and cable, covered, £68; earthenware, £1281; coke, £150; dyes, £1132; fertilizers, £1372; other drugs, etc., £9053; fancy goods, £3954; furniture, £106; glass and glassware, £2106; india-rubber manufactures, £581; metals and manufactures of metals—iron and steel: bar, hoop, ingot, etc., £582; plate and sheet, £430; pipes and tubes, £135; railway iron, £129; tools of trade, £596; wire, £4157; wire netting, £989; machines and machinery, £6000; lamps and lamp-ware, £2376; electrical and gas appliances, £1157; other manufactures of metals, £12,172; jewellery, cameos, etc., £112; leather and leather manufactures (excluding boots and shoes), £1911; musical instruments, £11,272; paper, £1307; spirits, £432; stationery, £3398; tobacco, £298; paints and varnishes, £612; yarns, £188.

(x.) *Italy*. Apparel and textiles, £291,709; flax and hemp, £30,652; fruits, £17,574; hides, £1608; matches and vestas, £14,822; marble and stone, £48,124; oils—olive, £23,617, essential, £22,545; nuts, £23,538; sulphur, £70,349; motors and parts, £95,830; rubber manufactures, £20,818; cream of tartar, £91,904; tartaric acid, £26,790.

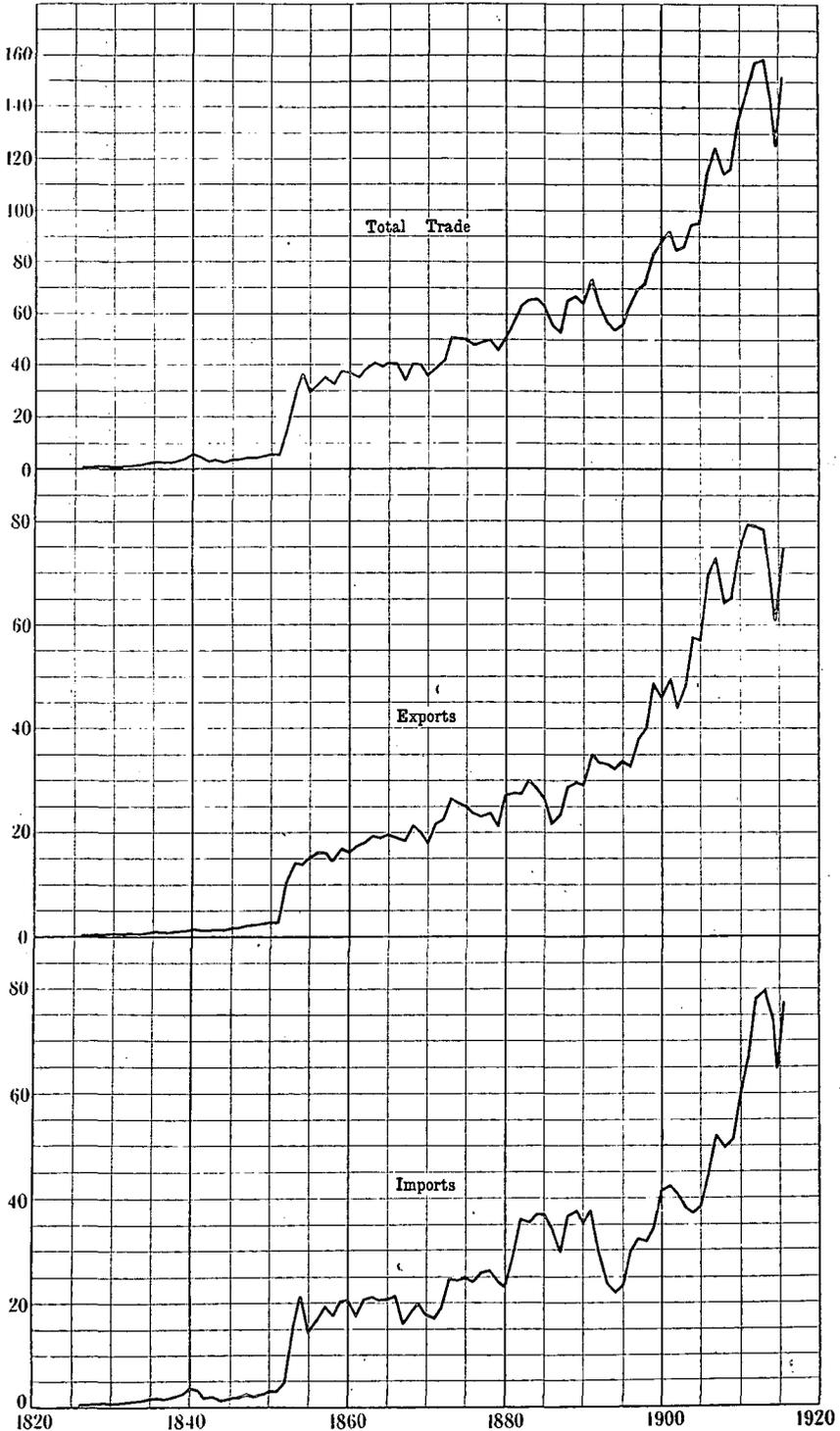
(xi.) *Japan*. Apparel and textiles, £1,129,015; bags, baskets, etc., £47,811; brushware, £45,202; cement, £42,435; chinaware, £57,069; earthenware, £29,524; fancy goods, £74,018; fertilizers, £23,386; fibres—cotton waste, £25,809; furniture, £10,399; glass and glassware, £99,317; grain—bran and pollard, £68,591; oats, £77,666; grass straw for hats, £27,070; machinery and metal manufactures, £75,292; matches, £57,362; oils and waxes, £94,589; paper and stationery, £20,852; rice, £15,963; spices, £5667; sugar, £462,528; sulphur, £133,303; tea, £8584; timber, £88,872.

(xii.) *Java*. Cotton, raw, £265; hats and caps, £836; rice, £4273; kapok, £124,896; rubber, £13,798; sugar, £612,139; tobacco, £3230; tea, £297,544; maize, £201,236.

(xiii.) *Netherlands*. Apparel and textiles, £87,174; cocoa and chocolate, £59,568; cameos and precious stones, £6543; metal manufactures, £52,014; paper, £15,923; spirits, £94,898; timber, £7911; vessels (ships), £19,866.

(xiv.) *Norway*. Calcium carbide, £92,381; cement, £10,075; fish, £113,960; machinery and manufactures of metals, £23,027; matches, £7377; milk, preserved, £41,982; paper, £211,459; timber, etc., £185,758.

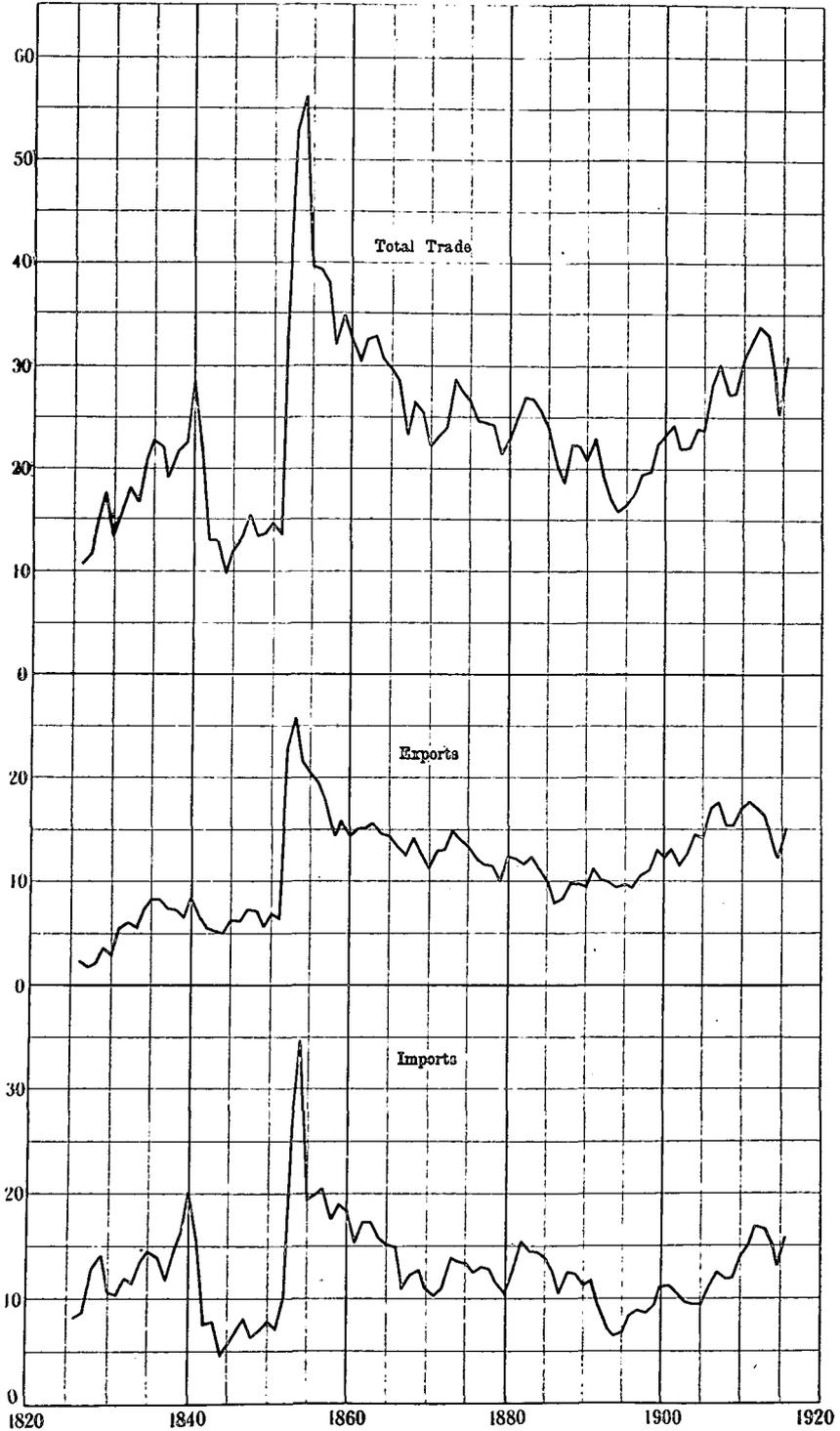
GRAPHS SHEWING VALUES OF TOTAL TRADE, EXPORTS, AND IMPORTS OF THE COMMONWEALTH, 1826 to 1916.



(See pages 536 and 537.)

EXPLANATION OF GRAPHS.—The base of each square represents an interval of five years, and the vertical height five million pounds sterling for Imports and Exports, and ten million pounds sterling for Total Trade.

GRAPHS SHEWING THE VALUES PER HEAD OF POPULATION OF TOTAL TRADE,
EXPORTS, AND IMPORTS OF COMMONWEALTH, 1826 to 1915.



(See pages 536 and 537.)

EXPLANATION OF GRAPHS.—The base of each square represents an interval of five years, and the vertical height five pounds per head of the population.

(xv.) *Peru.* Rubber, £20,833; sugar, £348,984.

(xvi.) *Philippine Islands.* Flax and hemp, £155,993; cigars, £13,030.

(xvii.) *Russia.* Flax, £561; furs, £5,825; oils, £720; timber, £5,900.

(xviii.) *Spain.* Corks, etc., £61,455; cream of tartar, £4,723; liquorice, £678; nuts, £17,094; ores, £6,570; wine, £6,492.

(xix.) *Sweden.* Calcium carbide, £9,170; earthenware, glassware, etc., £15,202; electrical machinery and fittings, £8,358; cream separators, £48,614; other machinery, £31,464; manufactures of metals, £48,786; matches and vestas, £29,250; paper, £278,016; telephones, £8,645; timber, £81,280.

(xx.) *Switzerland.* Apparel and textiles, £1,017,059; chassis for motor cars, £5,740; cigars, £7,337; cocoa and chocolate, manufactured, £117,789; confectionery, £5,853; drugs and chemicals, £21,055; fibro-cement, £9,256; grass straw for hats, £15,106; machinery and metal manufactures, £39,587; milk, £12,455; watches, £174,372.

(xxi.) *United States of America.* Ale and beer, £1,717; apparel and textiles—boots, shoes, etc., £63,116, corsets, £115,916, gloves, £17,313, hats and caps, £16,162, socks and stockings, £286,704, other apparel, £222,183, textiles, £526,779; arms, £63,540; ammunition and explosives, £171,373; bags, baskets, etc., £44,515; brushware, £31,064; butter, £190,622; cameras, magic lanterns, phonographs, etc., £183,968; clocks and watches, £107,284; confectionery, £36,755; drugs and chemicals—cream of tartar, £59,972, medicines, £113,704, other, £240,612; electrical articles and materials, £64,407; fancy goods, etc., £48,663; fish, £370,669; fodders—hay and chaff, £86,833; fruit, £194,104; furniture, £56,109; glass and glassware, £180,681; glucose, £9,573; grain—barley, £10,467, oats, £196,128, wheat, £954,441; hops, £26,476; indiarubber manufactures, £489,262; leather, £293,010; meats, £85,600; metal manufactures—iron and steel: bars, ingots, hoops, etc., £386,167, girders, beams, etc., £57,029, pipes and tubes, £234,591, plate and sheet, £283,678, railway iron, £167,470; tools of trade, £238,384; wire, £425,926; machines and machinery, agricultural, £200,301; other machines and machinery, £1,238,306; other metal manufactures, £885,335; milk, £19,841; musical instruments, £157,599; oils, fats, and waxes—benzine and gasoline, £439,502, cotton seed, £22,069, kerosene, £619,514, lubricating oils and greases, £340,658, paraffin wax, £51,770; turpentine, £98,642; paints and varnishes, £120,580; paper, £271,006; perfume, £64,110; resin, £73,721; soap, £63,352; soda—acetate, £9,348, caustic, £24,186, salicylate, £7,480; stationery, £130,384; surgical and dental instruments, £65,178; timber, £858,771; tobacco, cigars, etc., £743,233; vehicles, motors and parts, £1,091,432; other vehicles and parts, £245,380; wood and wicker manufactures, £101,488.

8. *Direction of Exports.*—The following tables shew that, prior to the war, a constantly decreasing proportion of Australian exports was being consigned to the United Kingdom. This was not entirely due to the relatively smaller purchases of Australian produce by the United Kingdom, but was in some measure the effect of an increasing tendency towards direct shipment of wool, skins, etc., to the consuming countries—notably to Belgium, France, and Germany—instead of distributing the trade through London as formerly. The figures given below, however, do not, even for the later pre-war years, denote the total purchases by European countries of Australian produce, as large quantities were still distributed from London. It should be noted, too, that the exports to India and Ceylon consisted largely of gold shipped on London account, and which was, therefore, virtually an export to the United Kingdom. The very striking increase in the value of exports to the United States was due to large shipments of gold (£7,504,512) and wool. The larger trade with Italy was in wool, skins and wheat, while wool, gold and metals were responsible for the larger exports to Japan.

TRADE OF THE COMMONWEALTH WITH VARIOUS COUNTRIES, 1894 to 1915-16.

EXPORTS (INCLUDING BULLION AND SPECIE):

Country.	Yearly Average of Quinquennial Periods.				Year 1915-16.
	1894-8.	1899-1903.	1904-8.	1909-13.	
	£	£	£	£	£
United Kingdom ...	23,610,267	23,432,513	30,114,565	34,028,258	33,528,398
British Possessions—					
Canada ...	32,362	67,776	201,832	125,942	721,448
Ceylon ...	635,626	2,223,487	4,050,826	3,194,757	337,203
Fiji ...	124,453	205,731	284,636	402,877	326,565
Hong Kong ...	414,326	403,776	747,025	741,365	391,525
India ...	440,062	2,348,420	2,828,280	2,231,306	1,746,312
Mauritius ...	43,158	40,425	46,378	32,424	6,600
New Zealand ...	961,817	1,432,227	2,060,900	2,385,078	3,653,502
Papua ...	27,609	48,720	50,174	120,401	133,282
South African Union ...	217,047	4,276,976	2,065,014	1,799,435	1,678,587
Straits Settlements ...	92,663	105,824	391,409	834,156	536,340
Other British Possessions ...	11,841	41,941	70,843	75,913	582,400
Total British Possessions	3,000,964	11,195,303	12,797,317	11,943,654	10,113,764
Total British Countries ...	26,611,231	34,627,816	42,911,882	45,971,912	43,642,162
Foreign Countries—					
Argentine Republic ...	609	25,398	40,094	126,142	4,850
Belgium ...	1,289,242	1,667,396	3,930,612	6,172,958	420
Bismarck Archipelago, Hawaiian Islands, New Caledonia, New Hebrides and other South Sea Isl'ds	383,179	789,966	442,050	631,465	578,062
Chile and Peru ...	159,501	299,097	624,168	616,704	178,945
China ...	25,030	237,376	340,726	161,527	138,637
France ...	2,289,284	2,754,889	5,686,867	8,183,825	2,468,729
Germany ...	1,678,313	2,549,266	5,140,556	6,938,358	...
Italy ...	102,495	159,017	207,218	525,903	3,381,353
Japan ...	91,630	198,434	869,350	1,194,271	3,432,979
Java ...	72,204	153,439	209,310	480,984	505,486
Netherlands ...	24,718	107,914	299,231	298,879	375
Norway ...	*2,765	*1,192	4,624	2,039	2,556
Philippine Islands	40,422	229,414	463,283	525,443	189,480
Spain ...	1,698	15,383	59,264	23,540	436,755
Sweden ...	*	*	4,219	4,888	36
United States of America ...	2,511,255	3,270,940	2,483,637	2,067,313	17,646,904
Other Foreign Countries ...	52,912	194,127	522,911	1,456,269	2,180,592
Total Foreign Countries	8,725,257	12,653,248	21,328,120	29,410,508	31,136,159
Total ...	35,336,488	47,281,064	64,240,002	75,382,420	74,778,321

* Norway and Sweden combined for these years.

If each item be expressed as a percentage on the total export, the results will be as follows:—

COMMONWEALTH EXPORTS.—PERCENTAGES OF THE EXPORTS TO EACH COUNTRY ON THE TOTAL EXPORTS, 1894 to 1915-16.

Country.	1894-8.	1899-1903.	1904-8.	1909-13.	—1915-16.
United Kingdom	per cent. 66.82	per cent. 49.56	per cent. 46.88	per cent. 45.14	per cent. 44.84
British Possessions—					
Canada	0.09	0.14	0.31	0.17	0.96
Ceylon	1.80	4.70	6.32	4.24	0.45
Fiji	0.35	0.44	0.44	0.53	0.44
Hong Kong	1.17	0.85	1.16	0.98	0.52
India	1.25	4.97	4.40	2.96	2.34
Mauritius	0.12	0.09	0.07	0.04	0.01
New Zealand	2.72	3.03	3.21	3.16	4.87
Papua	0.08	0.10	0.08	0.16	0.18
South African Union	0.62	9.05	3.21	2.39	2.25
Straits Settlements	0.26	0.22	0.61	1.11	0.72
Other British Possessions	0.03	0.09	0.11	0.10	0.78
Total British Possessions	8.49	23.68	19.92	15.84	13.52
Total British Countries ...	75.31	73.24	66.80	60.98	58.36
Foreign Countries—					
Argentine Republic	0.00	0.05	0.06	0.17	0.01
Belgium	3.65	3.53	6.12	8.19	0.00
Bismarck Archipelago, Hawaiian Islands, New Caledonia, New Hebrides and other South Sea Isl'ds	1.08	1.67	0.69	0.84	0.77
Chile and Peru	0.45	0.63	0.97	0.82	0.24
China	0.07	0.50	0.53	0.20	0.17
France	6.49	5.83	8.85	10.86	3.31
Germany	4.75	5.39	8.00	9.21	0.00
Italy	0.29	0.34	0.32	0.70	4.52
Japan	0.26	0.42	1.35	1.58	4.59
Java	0.20	0.32	0.33	0.64	0.68
Netherlands	0.07	0.23	0.47	0.40	0.00
Norway	0.01*	0.00*	0.01	0.00	0.00
Philippine Islands	0.11	0.49	0.72	0.70	0.25
Spain	0.00	0.03	0.09	0.03	0.58
Sweden	*	*	0.01	0.01	0.00
United States of America	7.11	6.92	3.87	2.74	23.60
Other Foreign Countries	0.15	0.41	0.81	1.93	2.92
Total Foreign Countries...	24.69	26.76	33.20	39.02	41.64
Total	100	100	100	100	100

* Norway and Sweden combined for these years.

9. Exports to the United Kingdom.—The principal exports to the United Kingdom during the year 1915-16 were as follows:—Butter, £843,162; cheese, £132; copra, £27,122; fibres—rags, £29,976; fruit—apples, £363,901, other, including pulp, £184,836; grain and pulse—barley, £15,887, oats, £45,849, wheat, £4,039,573, flour, £512,847, other, £5515; hair, £19,953; jams and jellies, £413,905; jewellery and precious stones, £21,726; leather, £379,971; meat—frozen beef, £2,055,045, mutton, £410,032, lamb, £315,223,

rabbits and hares, £723,338, other frozen meat, £60,469, potted meat, £98,768, meat preserved in tins, £333,094; minerals and metals—copper—concentrates, £618, ingots, £2,275,841, in matte, £487,737, ore, £58,052; gold—bullion, £12,301, in matte, £195,653, ore, £25,718; silver—bullion, £38,888, in matte, £336,220; silver and silver-lead—concentrates, £707, ore, £2855; lead—pig, £1,426,753, in matte, £922,563; tin—ingots and ore, £496,261; zinc, concentrates, £240,321; ores, other, £369,876; metals scrap—exclusive of iron and steel, £34,670; zinc, bars, blocks, etc., £103,293; oil—cocoanut, £148,625, whale, £110,748; pearlshell, £51,633; skins—hides, £271,364, rabbit and hare, £33,008, sheep, £784,858, other skins, £120,047; specie, gold, £4422; tallow, £266,136; timber, £45,345; vessels transferred, £190,000; wine, £76,121; wool—greasy, £9,761,841; scoured, £2,847,130.

10. **Principal Exports to British Possessions, 1915-16.**—(i.) *Canada.* Meats, £2983; oil—cocoanut, £2601; specie—gold, £486,000; skins, £143,230; vegetables—onions, £3620; wool, £53,316; zinc concentrates, £24,408.

(ii.) *Ceylon.* Butter, £10,955; coal, £13,092; fodder, £3038; grain, flour, £4181; lard, £5316; lead, pig, £25,850; meats, £9197; silver, bullion, £230,312; soap, £10,368; sugat, £4394; timber, £203.

(iii.) *Egypt.* Apparel and attire, £67,118; butter, £31,234; grain and pulse—wheat, £72,464; flour, £17,083; meats—beef, £2520, mutton and lamb, £7719, other meats, £6641; tobacco, cigars, etc., £29,234.

(iv.) *Fiji.* Apparel and textiles—apparel, including boots and shoes, £17,533, textiles, £14,823; bags, sacks, and cordage, £7639; biscuits, £27,121; coal, £18,241; drugs and chemicals—fertilizers, £7067, other, £7374; grain, prepared—bran, pollard, and sharps, £23,804, flour, £16,261, rice, cleaned, £15,221; machines and machinery, £9828; metal manufactures, £36,619; oils, £8305; specie, £7390; timber, undressed, £5830; vehicles, £3736.

(v.) *Hong Kong.* Butter, £13,632; copper ingots, £14,794; fish, £41,961; flour, £17,162; lead, pig, £165,643; leather, £17,937; sandalwood, £51,087; soap, £4284; specie, gold, £16,797; meats, £7761.

(vi.) *India.* Biscuits, £31,075; bran, pollard, etc., £2052; coal, £27,611; copper, ingots, £216,085; gold, bullion, £828,757; horses, £250,710; hay and chaff, £13,638; jams and jellies, £12,392; lead, pig, £30,808; leather, £32,434; meats, £99,806; sandalwood, £4602; silver, bullion, £96,930; soap, £5605; tallow, £6736; tobacco, etc., £10,481; wool, £32,442.

(vii.) *New Zealand.* Apparel and textiles, etc.:—apparel—boots and shoes, £14,879, other apparel, £31,981, textiles, £79,808; bags and sacks, £11,583; bark, tanning, £23,574; books and periodicals, £58,945; cameras, magic lanterns, phonographs, etc., £50,400; coal, £171,917; copper, ingots, £12,196; drugs and chemicals—fertilizers, £210,857, medicines, £54,698, other drugs, etc., £73,539; electrical materials, £26,184; fodders, £904; fruit—fresh, £28,487, dried, £67,324; glass and glassware, £33,598; grain—barley, £20,707, flour, £24,525, oats, £32,540, rice, £50,210; wheat, £38143; hides and skins, £23,179; horses, £7232; indiarubber manufactures, £117,518; iron, pig, £12,888; jewellery and precious stones, £16,414; lead, pig, £13,468; leather and leather manufactures, £74,231; metals, manufactures of—agricultural implements and machinery, £13,657, other machines and machinery, £70,413, other manufactures of metals, £171,126; motor vehicles and parts, £12,022; oils, etc., £46,702; onions, £9954; plants, trees and bulbs, £11,428; paper, £13,525; salt, £29,709; seeds, £17,777; soap, £48,831; specie—gold, £1,090,000; spirits, £53,916; stationery, £11,594; sugar, £7483; tea, £89,101; timber, £145,093; tin, ingots, £28,506; tobacco, £128,404; wine, £35,857; wool, £4931; vessels transferred, £14,000.

(viii.) *Papua.* Ale and beer, £2123; apparel and textiles, £14,502; biscuits, £6007; butter, £2485; coal, £2064; fish, £4128; flour, £2627; machinery and manufactures of metal, £15,935; meats, £12,399; oils, etc., £10,337; rice, £6149; timber, £3869; tobacco, £10,146.

(ix.) *South African Union.* Animals, living—sheep, £11,808; butter, £10,647; fruits—fresh, £637, other, £7672; grain—wheat, £802,004; flour £249,003; jams and jellies, £200; leather, £48,663; limejuice, £6607; machinery and manufactures of metal, £12,161; meats, preserved, in tins, £17,341; oils, etc., £14,772; seeds, £330; soap, £13,276; specie, £250,000; tallow, unrefined, £26,644; timber, £163,031; zinc concentrates, £7000.

(x.) *Straits Settlements.* Butter, £26,234; coal, £25,206; grain, flour, £63,780; horses, £3755; leather, £17,465; machines and machinery, £52,183; meats, £58,352; tin ore, £239,457; sandalwood, £6410; soap, £7892.

11. **Exports to Foreign Countries.**—The foregoing table shews that an increasingly large proportion of the exports from the Commonwealth was shipped to foreign countries. Owing to the restriction of exports for war purposes, the exports to foreign countries during 1914-15 were much contracted, representing only 21.05 per cent. Large shipments of gold to the United States of America were chiefly responsible for the increased exports to foreign countries in 1915-16, while increased exports of wool to the same country and to Italy and Japan, together with larger exports of grain and skins to Italy, and of gold and metals to Japan, also contributed to the same result.

12. Principal Exports to Foreign Countries, 1915-16.—These are as follow:—

(i.) *Argentine Republic.* Agricultural implements and machinery, £4732; timber, £25.

(ii.) *Belgium.* Apparel; £420.

(iii.) *Chile.* Coal, £111,178; coke, £2799.

(iv.) *China.* Butter, £25,594; flour, £5142; lead, £18,564; leather, £7346; sandalwood, £9316; specie, gold, £4300; stearine, £7623; vessels transferred, £34,000.

(v.) *Dutch East Indies: Java.* Butter, £129,384; biscuits, £9541; cattle, £20,735; coal, £50,727; fertilizers, £49,807; flour, £146,617; fruits, fresh, £6298; horses, £5352; meats, £8738; leather and manufactures, £39,147; soap, £933.

(vi.) *Other East Indies.* Butter, £3995; biscuits, £7002; flour, £36,341; meats, £543; soap, £5086.

(vii.) *France.* Concentrates—zinc, £95,022, other, £9200; copper—ingots, £123,446, copper in matte, £66,792; flour, £165,008; hides and skins, £285,812; ores, £17,442; tallow, £78,435; wheat, £628,147; wool, £948,911; zinc—bars, £26,018.

(viii.) *Italy.* Flour, £165,854; skins, £120,169; tallow, £34,982; wheat, £931,927; wool, £2,115,891.

(ix.) *Japan.* Bones, £10,428; Butter, £2076; concentrates—zinc, £186,593; other, £82,774; glue pieces and sinews, £5638; hides, £8524; lead, pig, £206,261; manures, £31,070; oils, £8433; specie, £145,000; tallow, £29,559; wool, £2,587,091; zinc-bar, blocks, etc., £9200.

(x.) *Netherlands.* Precious stones, £375.

(xi.) *Peru.* Coal, £13,785; wheat, £50,904.

(xii.) *Philippine Islands.* Butter, £6998; cattle, £4920; coal, £5361; flour, £42,169; fodder, £8251; machines and machinery, £1583; meats—bacon and hams, £10,540, beef, £86,011, mutton and lamb, £3039, other meats, £408; milk, concentrated, £254; onions, £4619.

(xiii.) *Portugal.* Wheat, £161,627.

(xiv.) *Spain.* Wheat, £436,610.

(xv.) *United States of America.* Coal, £22,567; concentrates—zinc, £757,867; copper, in matte, £16,805; copra, £30,166; gold, in matte, £1200; hair, £5063; leather, £14,078; sausage casings, £44,173; oils—cocoanut, £9803, eucalyptus, £9551; pearlshell, £115,938; skins, £625,708; specie—gold, £7,504,512; timber, £6826; tin—ingots, £37,890; wool, £8,381,302.

§ 7. Development of Export Trade to Eastern Countries.

1. Trade with Eastern Countries.—The following tables shew the value of exports from the Commonwealth to Eastern countries during the last five years in comparison with the year 1901. The principal countries concerned in this trade are China, India, Ceylon, Japan, East Indies, Philippine Islands, Straits Settlements, and Hong Kong, and the particulars given in the tables apply to these countries only :—

VALUE OF PRINCIPAL ITEMS OF MERCHANDISE EXPORTED FROM THE COMMONWEALTH TO EASTERN COUNTRIES, 1901 and 1911 to 1915-16.

Article.	1901.	1911.	1912.	1913.	1914-15.	1915-16.
	£	£	£	£	£	£
Butter	64,838	185,379	242,561	230,640	198,782	219,058
Coal	155,120	241,366	291,182	285,853	225,221	121,997
Copper	39,375	26,286	91,580	84,758	127,959	230,879
Grain and Pulse—						
Wheat	46,685	17,502	8,605	226,641	43,169	1,373
Flour	135,092	704,070	690,403	825,112	162,262	316,931
Other (prepd. & unprepd.)	4,806	21,790	13,973	15,927	16,531	10,202
Hay, chaff, and comp. fodder	13,081	50,855	50,210	45,679	56,556	28,678
Horses	101,866	162,736	166,134	146,741	389,719	262,917
Lead	10,454	343,917	407,475	445,294	440,939	448,892
Meats	194,071	263,098	308,935	354,557	368,208	236,265
Sandalwood	77,237	73,386	32,675	57,560	92,400	71,493
Skins, hoofs, horns, bones, sinews, tallow	16,419	85,732	126,289	108,479	134,443	64,912
Tin ore	4,096	277,961	387,524	447,875	179,962	239,561
Timber, undressed	79,915	398,313	231,144	180,329	142,157	427
Wool	56,618	480,850	722,133	765,604	1,533,525	2,619,533
Other merchandise	226,540	434,645	549,114	641,910	617,145	1,085,125*
Total merchandise	1,226,213	3,787,896	4,309,937	4,862,959	4,729,038	6,008,243
Specie & gold & silver bullion	3,339,963	8,951,059	10,678,501	2,425,024	1,217,174	1,322,086
Total exports	4,566,166	12,738,955	14,988,438	7,287,983	5,946,212	7,330,339

* Includes zinc concentrates, £186,703; silver and silver-lead concentrates, £22,544; leather, £112,093; sulphate of ammonia, £80,059; antimony, £25,161; pearl shell, £25,064.

It may be mentioned that exports of gold from Australia to eastern countries, chiefly to India and Ceylon, have no bearing upon the business connections of the Commonwealth with those countries, as the destination of these gold shipments, which are merely a contribution towards the liquidation of the international obligations of the Commonwealth, is determined almost entirely by London bankers.

The following tables shew the value of the principal articles exported to each of the undermentioned eastern countries during each of the years 1901 and 1911 to 1915-16 :—

VALUE OF COMMONWEALTH EXPORTS OF MERCHANDISE TO PRINCIPAL EASTERN COUNTRIES, 1901 and 1911 to 1915-16.

Country.	1901.	1911.	1912.	1913.	1914-15.	1915-16.
	£	£	£	£	£	£
China	33,906	133,634	163,691	147,056	117,098	124,337
East Indies	204,315	568,732	658,430	817,987	433,481	567,863
Hong Kong	31,853	263,867	239,686	277,941	251,842	374,728
India and Ceylon	417,291	773,359	723,007	686,924	1,042,412	927,515
Japan	123,355	832,958	1,169,335	1,429,310	1,966,944	3,287,979
Philippine Islands	302,086	512,085	565,345	545,080	375,547	189,480
Straits Settlements	113,407	703,261	790,043	958,661	541,714	536,340
Total	1,226,213	3,787,896	4,309,937	4,862,959	4,729,038	6,008,243

BUTTER.

Country.	1901.	1911.	1912.	1913.	1914-15.	1915-16.
	£	£	£	£	£	£
China ...	1,987	12,345	35,789	30,993	21,227	25,532
East Indies ...	12,172	80,579	87,439	91,365	102,894	133,596
Hong Kong ...	8,555	21,303	25,570	21,711	19,489	13,632
India and Ceylon ...	9,696	8,942	12,381	13,830	10,730	10,990
Japan ...	1,504	8,067	5,713	4,864	1,986	2,076
Philippine Islands ...	21,061	25,252	40,296	34,091	17,319	6,998
Straits Settlements...	9,863	28,891	35,863	33,786	25,137	26,234
Total...	64,838	185,379	243,051	230,640	198,782	219,058

The exports of butter given above for the year 1915-16 were shipped from the several States as follows:—New South Wales, £42,390; Victoria, £165,470; Queensland, £11,193.

COAL.

Country.	1901.	1911.	1912.	1913.	1914-15.	1915-16.
	£	£	£	£	£	£
China ...	...	2,700	510	940	...	...
East Indies ...	43,280	67,173	106,844	144,185	90,453	50,727
Hong Kong ...	7,653	...	192	...	635	...
India and Ceylon ...	17,639	18,924	66,699	33,018	40,446	40,703
Japan ...	1	...	...	...	...	...
Philippine Islands...	59,936	82,914	54,932	25,939	48,936	5,361
Straits Settlements...	26,611	69,655	62,005	81,771	44,751	25,206
Total ...	155,120	241,366	291,182	285,853	225,221	121,997

These exports of coal are chiefly from New South Wales.

COPPER.

Country.	1901.	1911.	1912.	1913.	1914-15.	1915-16.
	£	£	£	£	£	£
China ...	...	13,050	23,406	8,275	...	...
Hong Kong ...	...	5,426	12,293	1,638	...	14,794
India and Ceylon ...	39,375	300	45,403	71,097	127,959	216,085
Japan ...	...	2,520	5,478	3,748	...	...
Total ...	39,375	26,296	91,580	84,758	127,959	230,879

Of the copper exported to the East during 1915-16, £211,879 was shipped from New South Wales and £19,000 from South Australia.

GRAIN AND PULSE—WHEAT.

Country.	1901.	1911.	1912.	1913.	1914-15.	1915-16.
	£	£	£	£	£	£
East Indies ...	9	11	22	6	14	7
India and Ceylon ...	35,660	228	316	316	201	91
Japan ...	11,016	17,211	7,844	226,287	42,993	...
Philippine Islands ...	...	29	418	28	12	1
Straits Settlements...	...	23	5	4	9	1,274
Total ...	46,685	17,502	8,605	226,641	43,169	1,373

The exports of wheat given above for the year 1915-16 were shipped from the following States:—New South Wales, £7; Victoria, £1365; Queensland, £1.

GRAIN AND PULSE—FLOUR.

Country.	1901.	1911.	1912.	1913.	1914-15.	1915-16.
	£	£	£	£	£	£
China ...	1,147.	12,615	15,918	19,780	5,244	5,142
East Indies ...	82,566	291,681	326,093	416,302	67,560	183,466
Hong Kong ...	4,489	44,784	17,133	20,440	1,283	17,162
India and Ceylon ...	22,275	32,319	44,715	47,534	21,632	4,579
Japan ...	7,206	2,172	3,990	5,246	17	633
Philippine Islands ...	4,046	141,498	149,500	128,311	33,528	42,169
Straits Settlements...	13,363	179,001	133,054	187,499	32,998	63,780
Total ...	135,092	704,070	690,403	825,112	162,262	316,931

The flour exported during 1915-16, as above, was shipped from the several States as follows:—New South Wales, £156,870; Victoria, £102,485; Queensland, £119; South Australia, £4302; Western Australia, £53,155.

GRAIN AND PULSE, OTHER THAN WHEAT AND FLOUR.

Country.	1901.	1911.	1912.	1913.	1914-15.	1915-16.
	£	£	£	£	£	£
China ...	43	861	66	677	3	...
East Indies ...	...	1,532	1,617	1,623	1,117	1,319
Hong Kong ...	777	5	129	3	20	3
India and Ceylon ...	3,033	9,894	6,061	10,448	14,010	7,128
Japan ...	7	133	61	67	18	130
Philippine Islands ...	946	7,881	4,942	2,167	573	1,211
Straits Settlements...	...	1,484	1,097	942	790	411
Total ...	4,806	21,790	13,973	15,927	16,531	10,202

The exports given above for 1915-16 were shipped from the following States:—New South Wales, £775; Victoria, £8671; South Australia, £649; Western Australia, £107.

HAY AND CHAFF, AND COMPRESSED FODDER.

Country.	1901.	1911.	1912.	1913.	1914-15.	1915-16.
	£	£	£	£	£	£
China ...	2,934	21	33	69	...	...
East Indies ...	14	1,688	1,634	920	920	702
Hong Kong ...	28	989	230	1,350	373	642
India and Ceylon ...	5,848	14,094	18,621	15,077	44,277	17,267
Japan ...	57	591	58	79	24	87
Philippine Islands ...	2,562	27,332	23,695	24,254	7,644	8,251
Straits Settlements	1,618	6,140	5,939	3,930	3,318	1,729
Total ...	13,081	50,855	50,210	45,679	56,556	28,678

The exports given above for the year 1915-16 were shipped from the several States as follows:—New South Wales, £647; Victoria, £27,469; Queensland, £7; South Australia, £463; Western Australia, £92.

HORSES.

Country.	1901.	1911.	1912.	1913.	1914-15.	1915-16.
	£	£	£	£	£	£
China ...	4,460	390	625	...	...	...
East Indies ...	2,105	19,235	13,459	21,465	1,243	5,352
Hong Kong ...	775	800	40	...	...	...
India and Ceylon ...	78,723	139,462	132,589	108,765	387,046	250,710
Japan ...	100	2,115	2,650	2,836	875	1,900
Philippine Islands ...	190	7,795	5,449	2,061	...	1,200
Straits Settlements...	15,513	12,939	11,322	11,614	555	3,755
Total ...	101,866	182,736	166,134	146,741	389,719	262,917

The horses exported to the above countries during 1915-16 were shipped from the following States:—New South Wales, £108,435; Victoria, £23,340; Queensland, £100,742; South Australia, £30,400.

LEAD, PIG.

Country.	1901.	1911.	1912.	1913.	1914-15.	1915-16.
	£	£	£	£	£	£
China ...	6,102	48,586	38,481	50,902	30,695	18,564
East Indies ...	18	2	232	1,381	...	...
Hong Kong ...	1,257	63,257	92,199	101,280	105,140	165,643
India and Ceylon ...	315	43,190	41,408	39,156	72,317	56,658
Japan ...	2,750	187,778	233,154	250,978	232,637	206,261
Philippine Islands ...	12	1,104	1,212	547	77	61
Straits Settlements...	...	...	789	1,050	133	1,705
Total...	10,454	343,917	407,475	445,294	440,999	448,892

The above lead is almost entirely from the Broken Hill mines of New South Wales.

MEATS—PRESERVED BY COLD PROCESS.

Country.	1901.	1911.	1912.	1913.	1914-15.	1915-16.
	£	£	£	£	£	£
China ...	...	...	...	...	354	6
East Indies ...	98	3,556	950	6,118	8,875	18
Hong Kong ...	3,195	11,273	9,109	10,347	7,502	5,715
India and Ceylon ...	5,907	6,029	6,864	9,072	9,570	8,102
Japan ...	119	935	15	433	4	1
Philippine Islands ...	153,250	135,249	182,724	199,199	177,696	89,408
Straits Settlements...	...	37,593	43,453	45,845	58,753	52,123
Total...	162,469	194,635	243,115	271,014	262,754	155,373

The exports to the above-mentioned Eastern countries during 1915-16 of meats preserved by cold process were shipped from the following States:—New South Wales, £36,092; Queensland, £119,281.

MEATS—OTHER THAN MEATS PRESERVED BY COLD PROCESS.

Country.	1901.	1911.	1912.	1913.	1914-15.	1915-16.
	£	£	£	£	£	£
China	491	6,531	5,902	7,138	2,885	1,075
East Indies	15,035	12,495	16,449	20,272	16,679	9,263
Hong Kong	571	4,238	3,220	4,633	5,665	1,859
India and Ceylon	11,464	14,415	3,143	8,279	50,159	100,901
Japan	893	1,659	1,778	1,292	656	975
Philippine Islands	2,617	22,336	29,043	28,758	18,395	10,590
Straits Settlements	531	6,789	6,285	13,171	11,015	6,229
Total	31,602	68,463	65,820	83,543	105,454	130,892

The exports given above for the year 1915-16 were shipped from the following States:—New South Wales, £34,583; Victoria, £3365; Queensland, £78,878; South Australia, £14,065; Northern Territory, £1.

SANDALWOOD.

Country.	1901.	1911.	1912.	1913.	1914-15.	1915-16.
	£	£	£	£	£	£
China	7,905	2,348	16,619	5,593	27,544	9,316
Hong Kong	53,991	62,566	11,567	41,476	48,338	51,037
India and Ceylon ... ..	...	2,505	3,455	4,560	6,424	4,602
Japan ... ..	...	...	...	...	240	78
Straits Settlements	15,341	5,967	1,034	5,931	9,854	6,410
Total	77,237	73,386	32,675	57,560	92,400	71,433

The exports of sandalwood in 1915-16 were shipped from Queensland, £10,112; and Western Australia, £61,381.

SKINS, HOOFS, HORNS, BONES, SINEWS, AND TALLOW.

Country.	1901.	1911.	1912.	1913.	1914-15.	1915-16.
	£	£	£	£	£	£
China ... ..	...	977	661	6	...	128
East Indies ... ..	...	1,327	920	1,149	2,048	318
Hong Kong	1,234	129	403	333	150	8
India and Ceylon	2,761	9,880	13,538	17,523	17,369	6,736
Japan	11,829	72,509	109,562	88,193	113,169	57,015
Philippine Islands	165	577	397	562	987	312
Straits Settlements	430	333	808	713	720	395
Total	16,419	85,732	126,289	108,479	134,443	64,912

The above exports of skins, etc., in 1915-16 were shipped from the several States as follows:—New South Wales, £21,024; Victoria, £10,026; Queensland, £33,862.

TIN ORE.

Country.	1901.	1911.	1912.	1913.	1914-15.	1915-16.
	£	£	£	£	£	£
Japan ...	...	...	...	...	...	104
Straits Settlements	4,096	277,961	387,524	447,875	179,962	239,457
Total ...	4,096	277,961	387,524	447,875	179,962	239,561

The export of tin ore to the Straits Settlements—the centre of the world's tin production—is for the purpose of treatment, and was shipped from the several States during 1915-16 as follows:—New South Wales, £151,382; Queensland, £75,863; Northern Territory, £12,316.

TIMBER, UNDRESSED.

Country.	1901.	1911.	1912.	1913.	1914-15.	1915-16.
	£	£	£	£	£	£
China ...	4,090	14,250	2	2	17,869	...
East Indies ...	22	279	1,691	554	252	31
Hong Kong ...	...	763	3	2,155	142	...
India and Ceylon ...	61,246	362,549	217,556	175,757	123,692	233
Japan ...	418	476	972	959	73	63
Philippine Islands ...	9,278	19,616	414	449	...	...
Straits Settlements...	4,861	380	506	453	129	100
Total ...	79,915	398,313	221,144	180,329	142,157	427

The above exports of timber during 1915-16 from the several States were shipped as follows:—New South Wales, £143; Victoria, £76; Queensland, £5; Western Australia, £203.

WOOL.

Country.	1901.	1911.	1912.	1913.	1914-15.	1915-16.
	£	£	£	£	£	£
China ...	...	560	...	...	...	...
East Indies ...	112	...	...	...	...	...
Hong Kong ...	...	...	23	...	...	...
India and Ceylon ...	7,853	21,290	18,739	30,586	30,739	32,442
Japan ...	48,653	459,000	703,371	735,018	1,502,576	2,587,091
Philippine Islands...	...	...	...	...	210	...
Total...	56,618	480,850	722,133	765,604	1,533,525	2,619,533

The wool exported to the East by the several States during 1915-16 was shipped as follows:—New South Wales, £1,885,868; Victoria, £109,863; Queensland, £623,802.

§ 8. Trade of Commonwealth since Federation.

1. Classified Summary of Australian Trade.—The following tables present the trade of the Commonwealth during each of the years 1901 and 1911 to 1915-16, arranged in classes according to the nature of the goods:—

a small proportion of the total exports is made up by re-exports, and that the latter consist largely of specie minted from imported gold.

COMMONWEALTH EXPORTS ARRANGED IN CLASSES, AND DISTINGUISHING AUSTRALIAN PRODUCE AND THE PRODUCE OF OTHER COUNTRIES, 1901 and 1911 to 1915-16.

Classes.	1901.	1911.	1912.	1913.	1914-15.	1915-16.
AUSTRALIAN PRODUCE.						
I. Animal foodstuffs, etc.	£ 4,104,196	£ 9,015,595	£ 7,991,038	£ 11,459,049	£ 14,491,163	£ 5,531,331
II. Vegetable foodstuffs, etc.	4,633,926	11,910,303	8,741,065	10,648,506	2,023,397	11,247,704
III. Beverages (non-alcoholic), etc.	2,598	5,534	4,895	5,742	16,635	17,415
IV. Alcoholic liquors, etc.	134,630	167,137	131,850	114,973	125,988	152,460
V. Tobacco, etc.	5,030	69,035	78,901	72,374	79,796	162,140
VI. Live animals	473,601	298,691	327,524	297,812	536,613	326,251
VII. Animal substances, etc.	16,754,006	29,714,471	31,283,280	32,332,945	25,903,510	29,358,579
VIII. Vegetable substances, etc.	142,060	245,771	173,685	104,982	193,457	183,819
IX. Apparel, etc.	42,142	72,852	76,912	72,307	104,260	194,578
X. Oils, etc.	843,755	2,234,884	1,845,916	2,512,265	2,052,692	835,015
XI. Paints, etc.	620	6,577	6,799	6,188	2,735	3,069
XII. Stones, etc.	1,041,974	926,655	1,160,962	1,133,528	741,996	541,855
XIII. Specie	8,884,816	8,210,595	9,057,444	710,180	1,485,736	8,938,742
XIV. Metals, unmanufactd., ores, etc.	8,916,269	10,674,748	12,364,321	12,689,990	7,238,886	11,251,174
XV. Metals, partly manufactured	3,802	10,270	18,907	43,262	142,657	218,878
XVI. Metals, manufactured	117,662	252,756	303,219	380,299	176,344	287,135
XVII. Leather, etc.	660,692	583,556	715,961	688,373	1,267,985	1,244,062
XVIII. Wood, etc.	666,024	1,061,582	908,049	1,014,973	808,816	395,754
XIX. Earthenware, etc.	6,600	13,967	18,915	12,481	15,539	47,639
XX. Paper, etc.	22,171	68,957	71,905	66,806	55,597	60,178
XXI. Jewellery, etc.	67,978	161,553	170,962	170,147	34,708	31,247
XXII. Instruments, etc.	507	5,623	6,347	5,929	9,179	15,257
XXIII. Drugs, etc.	86,299	255,716	267,946	269,387	313,860	477,832
XXIV. Miscellaneous	130,418	218,382	234,760	235,649	302,074	270,221
Total	47,741,776	76,205,210	75,961,563	75,138,147	58,122,573	71,792,525

OTHER PRODUCE.

I. Animal foodstuffs, etc.	£ 35,291	£ 25,369	£ 23,486	£ 19,642	£ 27,675	£ 159,112
II. Vegetable foodstuffs, etc.	80,371	210,515	170,060	161,886	476,367	217,415
III. Beverages (non-alcoholic), etc.	43,308	85,661	78,329	65,090	104,393	117,493
IV. Alcoholic liquors, etc.	55,732	40,744	42,407	39,086	71,256	83,905
V. Tobacco, etc.	61,753	52,697	52,501	55,155	61,822	70,010
VI. Live animals	105	12,017	5,493	2,806	4,687	1,749
VII. Animal substances, etc.	10,070	8,392	5,709	6,892	1,515	191,228
VIII. Vegetable substances, etc.	17,625	26,755	65,955	28,262	17,733	85,200
IX. Apparel, etc.	171,014	185,412	204,565	197,971	240,351	283,323
X. Oils, etc.	42,292	45,960	52,019	62,687	57,914	75,017
XI. Paints, etc.	15,188	7,408	8,263	7,818	6,222	7,897
XII. Stones, etc.	2,043	1,646	1,846	1,296	1,125	1,316
XIII. Specie	846,921	1,639,951	1,420,151	1,481,765	508,664	611,219
XIV. Metals, ores, etc.	9,744	17,820	23,414	34,136	40,481	5,941
XV. Metals, partly manufactured	13,806	24,952	25,404	7,748	10,831	22,694
XVI. Metals, manufactured	196,334	266,681	268,603	269,001	248,497	260,743
XVII. Leather, etc.	13,074	65,321	55,210	71,532	42,146	45,863
XVIII. Wood, etc.	23,135	34,966	33,627	34,305	23,266	38,891
XIX. Earthenware, etc.	23,337	15,237	15,702	16,846	16,172	19,946
XX. Paper, etc.	52,171	77,951	111,817	79,512	71,276	70,555
XXI. Jewellery, etc.	54,431	148,854	87,186	89,845	30,331	39,073
XXII. Instruments, etc.	13,555	66,171	93,072	65,944	67,941	72,791
XXIII. Drugs, etc.	42,976	49,658	55,367	60,026	66,014	101,269
XXIV. Miscellaneous	121,122	166,910	234,401	574,431	272,922	428,146
Total	1,954,396	3,277,048	3,134,527	3,433,622	2,470,003	2,985,796

EXPORTS ARRANGED IN CLASSES, AND DISTINGUISHING AUSTRALIAN PRODUCE
AND THE PRODUCE OF OTHER COUNTRIES, 1901 and 1911 to 1915-16.—Continued.

Classes.	1901.	1911.	1912.	1913.	1914-15.	1915-16.
TOTAL EXPORTS.						
	£	£	£	£	£	£
I. Animal foodstuffs, etc.	4,139,487	9,040,964	8,014,524	11,478,691	14,518,838	5,660,443
II. Vegetable foodstuffs, etc.	4,714,297	12,120,818	8,911,125	10,810,392	2,496,764	11,465,119
III. Beverages (non-alcoholic), etc.	45,906	91,195	83,224	70,772	121,628	134,908
IV. Alcoholic liquors, etc.	190,362	207,881	174,257	154,059	197,193	236,355
V. Tobacco, etc.	66,783	121,732	131,402	127,529	141,621	232,150
VI. Live animals	473,706	310,708	332,957	300,618	541,300	328,000
VII. Animal substances, etc.	16,764,076	29,722,863	31,288,969	32,339,837	25,904,825	29,549,807
VIII. Vegetable substances, etc.	159,685	272,526	239,640	223,244	211,190	269,019
IX. Apparel, etc.	213,156	258,264	281,477	270,278	344,611	462,801
X. Oils, etc.	886,047	2,290,844	1,897,935	2,574,952	2,110,606	910,032
XI. Paints, etc.	15,806	13,985	15,062	14,006	8,957	10,966
XII. Stones, etc.	1,044,017	928,301	1,162,808	1,134,824	743,121	543,171
XIII. Specie	9,731,737	9,850,546	10,477,595	2,181,945	1,994,400	9,549,961
XIV. Metals, unmanufact., ores, etc.	8,926,013	10,692,568	12,387,735	12,724,126	7,279,367	11,257,115
XV. Metals, partly manufactured	17,603	35,222	44,311	51,010	153,488	241,672
XVI. Metals, manufactured	315,996	519,437	571,622	649,300	424,841	547,678
XVII. Leather, etc.	673,766	648,377	771,171	759,905	1,310,131	1,269,925
XVIII. Wood, etc.	698,153	1,116,543	941,676	1,049,278	832,082	434,645
XIX. Earthenware, etc.	29,937	29,204	34,617	29,327	31,711	67,785
XX. Paper, etc.	74,342	146,908	183,722	146,318	126,873	130,733
XXI. Jewellery, etc.	123,409	310,407	258,148	259,932	65,039	70,320
XXII. Instruments, etc.	14,062	71,794	99,419	71,673	77,120	88,048
XXIII. Drugs, etc.	129,275	305,374	323,313	323,413	379,874	579,101
XXIV. Miscellaneous	251,540	385,292	469,161	810,030	574,996	698,367
Total	49,696,172	79,482,258	79,096,090	78,571,769	60,592,576	74,778,321

§ 9. Movement of Specie and Bullion.

1. **Specie and Bullion.**—The following tables shew the value of gold and silver bullion and specie, including bronze specie, imported and exported during the years 1901 and 1911 to 1915-16:—

COMMONWEALTH IMPORTS AND EXPORTS OF SPECIE AND BULLION, 1901 and 1911 to 1915-16.

Items.	1901.	1911.	1912.	1913.	1914-15.	1915-16.
IMPORTS.						
	£	£	£	£	£	£
Gold—Specie	3,710	25,534	244,737	187,025	3,447	6,613
Bullion	762,415	1,584,036	1,125,807	1,171,382	432,680	544,338
Total	766,125	1,609,570	1,370,544	1,358,407	436,127	550,951
Silver—Specie	158,656	338,765	277,614	177,045	423,836	217,630
Bullion	54	4,063	6,496	4,942	2,075	661
Total	158,710	342,828	284,110	181,987	425,911	218,291
Bronze—Specie	10,029	17,183	20,586	13,150	6,018	11,001
Grand total	934,864	1,969,581	1,675,240	1,553,544	868,056	780,243

COMMONWEALTH IMPORTS AND EXPORTS OF SPECIE AND BULLION, 1901 AND 1911 TO 1915-16.—Continued.

Items.	1901.	1911.	1912.	1913.	1914-15.	1915-16.
EXPORTS.						
Gold—Specie	£ 9,708,037	£ 9,829,689	£ 10,440,058	£ 2,092,891	£ 1,941,447	£ 9,516,731
Bullion	4,616,039*	1,711,093	1,403,621	972,160	479,797	841,058
Total	14,324,076	11,540,782	11,843,679	3,065,051	2,421,244	10,357,789
Silver—Specie	23,370	20,823	37,537	99,034	52,238	32,935
Bullion	922,443†	485,447	580,384	634,630	433,469	367,069
Total	945,813	506,270	617,921	733,664	485,707	400,004
Bronze—Specie	330	34	...	20	715	295
Total { Australian produce	14,423,298	10,403,795	11,039,919	2,300,955	2,366,346	10,146,869
{ Other produce	846,921	1,643,290	1,421,651	1,497,780	541,320	611,219
Grand total	15,270,219	12,047,086	12,461,600	3,798,735	2,907,666	10,758,088

* Includes gold contained in matte. The value of gold contained in matte exported during 1911 was £437,761; 1912, £473,791; 1913, £403,869, 1914-15, £203,606, and 1915-16, £197,469. † Includes silver contained in matte. The value of silver contained in matte exported during 1911 was £219,971; 1912, £255,728; 1913, £266,444, 1914-15, £247,012; and 1915-16, £336,220.

COMMONWEALTH IMPORTS AND EXPORTS OF SPECIE AND GOLD AND SILVER BULLION FROM AND TO PRINCIPAL COUNTRIES, 1915-16.

Country.	Imports.			Exports.		
	Specie.	Bullion.	Total.	Specie.	Bullion.	Total.
United Kingdom	£ 220,552	£ 936	£ 221,488	£ 5,222	£ 51,189	£ 56,411
Canada	...	3	3	486,000	...	486,000
Ceylon	3,085	...	3,085	...	230,312	230,312
Egypt	...	...	...	7,390	351	7,741
Fiji	...	...	...	2,000	...	2,000
Hong Kong	...	...	...	16,797	...	16,797
India	...	...	...	...	925,687	925,687
New Zealand	8,238	512,349	520,587	1,095,000	138	1,095,138
Norfolk Island	...	...	...	50	...	50
Ocean Island	...	...	...	4,515	...	4,515
Papua	2,277	28,319	30,596	540	...	540
Solomon Islands	...	96	96	3,060	...	3,060
South African Union	...	...	...	250,000	...	250,000
Tonga	...	...	...	500	...	500
Total British Countries	234,152	541,703	775,855	1,871,074	1,207,677	3,078,751
China	...	...	...	4,300	...	4,300
Bismarck Archipelago	...	1,039	1,039	18,710	...	18,710
France	...	...	...	...	450	450
Japan	...	...	...	145,000	...	145,000
Pacific Islands	1,092	...	1,092	6,180	...	6,180
United States of America	...	2,257	2,257	7,504,697	...	7,504,697
Total Foreign Countries	1,092	3,296	4,388	7,678,887	450	7,679,337
Grand total	235,244	544,999	780,243	9,549,961	1,208,127	10,758,088

2. Imports of Bullion and Specie.—Of the total imports of bullion and specie into the Commonwealth during 1915-16, 69.76 per cent. was in the form of gold bullion, and was received almost entirely from New Zealand for the purpose of minting.

3. Exports of Bullion and Specie.—Of the total exports of bullion and specie during 1915-16, gold represented 96.28 per cent., 88.46 per cent. being in the form of specie, and 7.82 per cent. bullion.

The exports of gold during the period from 1st January, 1913, to 30th June, 1915, were exceptionally small. In 1915-16, however, it became necessary to export gold in much larger quantities, the exports during this year amounting to £10,758,088. After the 14th July, 1915, gold specie and bullion could be exported only with the consent of the Commonwealth Treasurer. Notwithstanding a gradual diminution during the last ten years of gold production in Australia, the stocks of gold held in the country have, by reason of the small exports, been materially augmented during recent years.

The countries which have appeared as the largest recipients of gold from Australia in normal times are New Zealand, India, South African Union, Hong Kong, Ceylon and United Kingdom, but as large amounts of gold recorded as exported to Ceylon, are shipped *under option*, and may be despatched thence to any other country, the actual amount received by each country cannot be stated. Moreover, the dimensions of the gold shipments from Australia to particular countries are without any significance regarding the business transactions between Australia and those countries. Shipments of gold merely represent a contribution towards the liquidation of liabilities or the establishment of credit abroad; and Great Britain being the principal creditor and banker, shipments of gold from the Commonwealth are for the most part directed by London bankers to suit their requirements.

§ 10. Effects of Prices on the Values of Exports.

1. Significance of Price in Totals.—In comparing the value of exports from, and also imports into, any country for a series of years, the question naturally arises as to how much any variation in the aggregate value is due to fluctuations in prices, and how much to increase or decrease of actual quantities, for, in aggregates expressed only in value—the only possible method when the commodities differ—the two sources of variation are confused.

The scheme of comparison followed is to select all such articles of export as are recorded by units of quantity, and to apply to the quantities exported during each year the average price per unit ruling in some year, arbitrarily taken for the purposes of comparison as the basic year. The ratio which the total actually recorded for the year under review bears to the total obtained by applying to the quantities of the year under review the average prices ruling during the basic year, may be called the "price-level" of the latter—as compared with the former—for the group of commodities considered, and may be taken as a measure of the effect of the change of price in the intervening period. Since the value of the articles used in the calculations represents as much as 84 per cent. of all exports during 1915-16—after excluding specie and gold bullion, which are not subject to price changes—a fairly extensive basis is afforded on which to found an estimate of the effect of prices over the full range of exports.

2. Effect of Prices.—The following table shews the values of exports as actually recorded in each year, together with the values computed on the assumption that the prices of 1901 were maintained. The table also shews the yearly "price-levels," based upon the results so ascertained.

This table obviously furnishes a measure of the influence of prices on the value of exports of each year since 1901. Column IV.—values computed on 1901 prices—represents the volume of exports (less specie and gold bullion), expressed in the common

denomination of value, and from the figures therein it will be seen that, had the prices of 1901 remained constant, the value of the exports of merchandise during the year 1915-16 for example, would have been £40,056,884 only, instead of £64,387,302—the value actually recorded. The difference between these amounts (£24,330,418) results from a rise of 60.7 per cent. (i.e., from 1000 to 1607) in the price of commodities for the period intervening between 1901 and 1915-16.

It will be seen from the column of "Price-Levels" that prices as indicated by the Commonwealth exports rose steadily from the beginning of the decade to the year 1907. The financial crisis in the United States of America caused a pronounced fall in the prices of 1908. Owing to the large proportion of the aggregate value of exports represented by wool and wheat, any change in the price of these commodities has a marked effect on the index-numbers for the total group of exports, and it is to their influence that the fall of prices in 1911 is mainly due.

EFFECT OF PRICES ON THE VALUE OF COMMONWEALTH EXPORTS, AND EXPORT PRICE-LEVELS FOR THE PERIOD 1901 to 1915-16.

(BASIC YEAR, 1901.)

Year.	Exports of Specie and Gold Bullion.	Other Exports.		Total Exports (including Specie and Gold Bullion).		Price-Levels. ¹ Year 1901 = 1000.
		Values as Recorded.	Values Computed on 1901 Prices.	Values as Recorded.	Values Computed on 1901 Prices.	
I.	II. £	III. £	IV. £	V. £	VI. £	VII.
1901 ...	14,347,776	35,348,396	35,348,396	49,696,172	49,696,172	1000
1902 ...	14,568,640	29,346,447	27,375,976	43,915,087	41,944,616	1072
1903 ...	18,408,702	29,841,410	26,697,120	48,250,112	45,105,822	1118
1904 ...	16,914,691	40,571,224	36,139,840	57,485,915	53,054,531	1123
1905 ...	10,977,111	45,863,924	38,465,210	56,841,035	49,442,321	1192
1906 ...	16,895,059	52,842,704	42,295,310	69,737,763	59,190,369	1249
1907 ...	10,571,263	62,252,984	47,557,141	72,824,247	58,128,404	1309
1908 ...	13,608,531	50,702,527	43,072,809	64,311,058	56,681,340	1177
1909 ...	8,390,376	56,928,460	46,973,200	65,318,836	55,363,576	1212
1910 ...	4,178,097	70,313,053	56,571,308	74,491,150	60,749,405	1243
1911 ...	11,561,639	67,920,619	58,104,744	79,482,258	69,666,383	1169
1912 ...	11,881,216	67,214,874	53,175,536	79,096,090	65,056,752	1264
1913 ...	3,164,105	75,407,664	58,683,007	78,571,769	61,847,112	1285
1914-15 ...	2,474,197	58,118,379	44,678,912	60,592,576	47,153,109	1301
1915-16 ...	10,391,019	64,387,302	40,056,884	74,778,321	50,447,903	1607

1. These are index-numbers for the total group of exports, excluding specie and gold bullion.

3. **Influence of Quantity and Price on Total Increased Value of Exports.**—The estimated actual and relative effects of the influence of—(i.) increase or decrease in the exports of specie and gold bullion, (ii.) increase or decrease of quantities of other exports, (iii.) variation of prices on the value of the exports of each year since 1903 compared with 1901, are shewn on the next page.

From the following figures it will be seen that exports of 1915-16, for example, of specie and gold bullion compared with 1901, shew a decrease of 27.58 per cent., other exports (merchandise) shew an increase of 13.32 per cent. in quantities, and an increase of 60.74 per cent. in the group-prices. These several influences effect an aggregate increase of £25,082,149, or 50.47 per cent., over 1901 as follows:—By increased quantities of merchandise, £4,708,488 (13.77 per cent.); by increased prices, £24,330,418 (97.00 per cent.) accompanied by a decrease of £3,956,757 (15.77 per cent.) in the exports of specie and

gold. Of the greater value of merchandise exported during 1915-16 as compared with 1901, 16.22 per cent. represented increased production, and 83.78 per cent. was due to higher prices.

ANALYSIS OF INFLUENCE OF QUANTITY AND PRICE ON INCREASE OR DECREASE
IN COMMONWEALTH EXPORTS, 1904 TO 1915-16, COMPARED WITH 1901.

Year.	Particulars.	Variation above (+) or below (-) 1901 Exports due to change in :-			Total Variation above (+) or below (-) Value of 1901 Exports.
		Export of Specie and Gold.	Quantity of Export other than Specie and Gold.	Prices of Export other than Specie and Gold.	
1904.	Variation, actual £	+2,566,915	+791,444	+4,431,384	+7,789,743
	Relative magnitude of variation. Total				
	variation taken as 100	+32.95	+10.16	+56.89	+100
	Variation, per cent.	+17.90	+2.24	+12.26	+15.67
1905.	Variation, actual £	-3,370,665	+3,116,814	+7,398,714	+7,144,863
	Relative magnitude of variation. Total				
	variation taken as 100	-47.18	+43.62	+103.56	+100
	Variation, per cent.	-23.48	+8.82	+19.24	+14.37
1906.	Variation, actual £	+2,547,283	+6,946,914	+10,547,394	+20,041,591
	Relative magnitude of variation. Total				
	variation taken as 100	+12.71	+34.66	+52.63	+100
	Variation, per cent.	+17.76	+19.65	+24.94	+40.32
1907.	Variation, actual £	-3,776,513	+12,208,745	+14,695,843	+23,128,075
	Relative magnitude of variation. Total				
	variation taken as 100	-16.32	+52.78	+63.54	+100
	Variation, per cent.	-26.32	+34.55	+30.90	+46.56
1908.	Variation, actual £	-739,245	+7,724,413	+7,629,718	+14,614,886
	Relative magnitude of variation. Total				
	variation taken as 100	-5.06	+52.85	+52.21	+100
	Variation, per cent.	-5.15	+21.85	+17.73	+29.43
1909.	Variation, actual £	-5,957,400	+11,624,804	+9,955,260	+15,622,664
	Relative magnitude of variation. Total				
	variation taken as 100	-38.13	+74.40	+63.73	+100
	Variation, per cent.	-41.52	+32.89	+21.19	+31.43
1910.	Variation, actual £	-10,169,679	+21,222,912	+13,741,745	+24,794,978
	Relative magnitude of variation. Total				
	variation taken as 100	-41.01	+85.59	+55.42	+100
	Variation, per cent.	-70.88	+60.04	+24.32	+49.90
1911.	Variation, actual £	-2,786,137	+22,756,348	+9,815,875	+29,786,086
	Relative magnitude of variation. Total				
	variation taken as 100	-9.35	+76.40	+32.95	+100
	Variation, per cent.	-19.42	+64.37	+16.89	+59.95
1912.	Variation, actual £	-2,466,560	+17,827,140	+14,089,338	+29,399,918
	Relative magnitude of variation. Total				
	variation taken as 100	-8.39	+60.64	+47.75	+100
	Variation, per cent.	-17.19	+50.43	+26.40	+59.16
1913.	Variation, actual £	-11,183,671	+23,334,611	+16,724,657	+28,875,597
	Relative magnitude of variation. Total				
	variation taken as 100	-38.73	+80.81	+57.92	+100
	Variation, per cent.	-77.95	+66.01	+28.50	+58.10
1914	Variation, actual £	-11,873,579	+9,330,516	+13,439,467	+10,896,404
-15.	Relative magnitude of variation. Total				
	variation taken as 100	-108.98	+85.63	+123.35	+100
	Variation, per cent.	-82.76	+26.40	+30.06	+21.92
1915	Variation, actual £	-3,956,757	+4,708,468	+24,330,416	+25,082,149
-16.	Relative magnitude of variation. Total				
	variation taken as 100	-15.77	+18.77	+97.00	+100
	Variation, per cent.	-27.59	+13.32	+60.74	+50.47

The following table of index-numbers shews the variations in price of the different classes of goods exported grouped according to their industrial origin:—

PRICE-LEVELS OF EXPORTS, 1901-16.

(BASIC YEAR, 1901.)

Year.	Agricultural Produce.	Pastoral Produce.	Dairy Produce.	Mineral Produce.	Miscellaneous.
1901	1,000	1,000	1,000	1,000	1,000
1902	1,127	1,115	1,155	844	1,114
1903	1,118	1,223	943	818	1,196
1904	1,109	1,243	906	863	946
1905	1,186	1,302	994	924	920
1906	1,161	1,356	1,020	1,115	976
1907	1,174	1,426	1,042	1,149	1,022
1908	1,414	1,231	1,113	910	995
1909	1,490	1,234	1,030	895	1,040
1910	1,472	1,270	1,071	894	907
1911	1,260	1,196	1,085	930	1,220
1912	1,415	1,271	1,196	1,123	1,237
1913	1,347	1,324	1,126	1,109	1,203
1914-15	1,410	1,340	1,183	1,114	1,179
1915-16	1,929	1,572	1,493	1,543	1,079

The fall in prices in the miscellaneous group during the last two years, as opposed to the general rise throughout the other classes, was due to the adverse effect of the war on the market for pearl-shell, which was one of the most important items in the miscellaneous group.

The high index-numbers for mineral produce during 1906 and 1907 reflect the world's prices for that period, when prices registered for all the principal industrial metals touched a point higher than any previously recorded for many years.

§ 11. External Trade of Australia and other Countries.

1. **Essentials of Comparisons.**—Direct comparisons of the external trade of any two countries are possible only when the general conditions prevailing therein, and the scheme of record, are sensibly identical. For example, in regard to the mere matter of record, it may be observed that in one country the value of imports may be the value at the port of shipment, while in another the cost of freight, insurance, and charges may be added thereto. Or again, the values of imports and exports in the one may be declared by merchants, whereas in the other they may be the official prices, fixed from time to time by a commission constituted for the purpose. The figures relating to the external trade of any country are also affected in varying degree by the extent to which they include transit or re-export trade. Including bullion and specie, the transit trade of Belgium, for example, represented, prior to the war, approximately 40 per cent. of the gross trade recorded; of Switzerland, 45 per cent.; of France, 20 per cent.; and of the United Kingdom, 15 per cent.; whereas in Australia the same element represents only 4 per cent., and in New Zealand even less.

2. "Special Trade" of Various Countries.—Special trade may be defined, agreeably to the practice of the British Board of Trade, as (a) imports entered for consumption in the country (as distinguished from imports for transshipment or re-export) and (b) exports of domestic products.

TRADE OF VARIOUS COUNTRIES (IMPORTS FOR HOME CONSUMPTION AND EXPORTS OF DOMESTIC PRODUCTS, INCLUDING BULLION AND SPECIE) FOR LATEST AVAILABLE YEAR.

Country.	Year ended.	Trade.			Trade per Inhabitant.		
		Imports.	Exports.	Total.	Im-ports.	Ex-ports.	Total.
		£	£	£	£ s. d.	£ s. d.	£ s. d.
C'WEALTH OF AUSTRALIA	30/6/16	75,784,000	71,793,000	147,577,000	15 7 5	14 11 3	29 18 8
	30/6/15	63,261,000	58,123,000	121,384,000	12 16 6	11 15 8	24 12 2
United Kingdom	31/12/16	851,544,000	506,546,000	1,358,090,000	19 2 10	11 7 10	30 10 8
Canada	31/12/15	752,831,000	384,868,000	1,137,699,000	16 18 7	8 13 0	25 11 7
New Zealand	31/12/15	105,795,000	154,502,000	260,297,000	12 3 5	17 15 3	29 18 8
United States of America	31/12/15	21,023,000	31,043,000	52,066,000	19 2 5	28 4 10	47 7 3
Argentina Republic	30/6/15	344,146,000	605,289,000	949,435,000	3 8 7	6 0 7	9 9 2
Austria-Hungary	31/12/12	84,187,000	96,195,000	180,382,000	11 9 2	13 1 8	24 10 10
Belgium	"	149,026,000	121,345,000	270,371,000	2 19 4	2 8 4	5 7 8
Brazil	"	210,211,000	160,054,000	370,265,000	27 15 3	21 2 10	48 18 1
Denmark	"	63,425,000	74,649,000	138,074,000	2 12 1	3 1 2	5 13 3
France	"	41,954,000	33,940,000	75,894,000	14 19 8	12 2 5	27 2 1
German Empire	"	350,482,000	281,495,000	631,977,000	8 16 9	7 1 11	15 18 8
Italy	"	541,675,000	447,392,000	989,067,000	8 3 9	6 15 3	14 19 0
Japan	"	149,113,000	97,536,000	246,649,000	4 5 2	2 15 8	7 0 10
Norway	"	66,007,000	57,972,000	123,979,000	1 5 3	1 2 2	2 7 5
Portugal	"	28,756,000	18,147,000	46,903,000	11 15 9	7 8 10	19 4 7
Spain	"	17,035,000	7,867,000	24,902,000	3 0 10	1 8 2	4 9 0
Sweden	"	42,089,000	41,826,000	83,915,000	2 2 9	2 2 6	4 5 3
Switzerland	"	44,095,000	42,257,000	86,352,000	7 17 4	7 10 10	15 8 2
Uruguay	31/12/11	81,577,000	55,629,000	137,206,000	21 6 7	14 10 11	35 17 6
		9,333,000	8,840,000	18,173,000	7 18 6	7 10 1	15 8 7

In the above table the figures relate, as nearly as is possible, to imports entered for consumption in the various countries quoted, and to exports of their domestic products. It is to be noted, however, that these figures do not unequivocally denote the same thing throughout, since, in the United Kingdom and other manufacturing countries, raw or partly manufactured materials are imported as for home consumption, and, after undergoing some process of manufacture or further modification, are re-exported as domestic production, and further, the statistical records of many countries do not distinguish between bullion and specie imported for the use of the particular country (home consumption) and the amount in transit, nor between the exports of that produced within the country and that re-exported. Nevertheless, a comparison of this character reveals approximately the extent of the external trade which otherwise would not be manifest.

3. External Trade as a Measure of Prosperity.—External trade is not necessarily a measure of the prosperity of a country. It is, for example, obvious that the external trade of a community depends not only upon the aggregate of its requirements, but also upon the extent to which it fails to supply requirements from its own resources. A community largely self-contained, for example, may have but a small external trade per head, and yet, by virtue of its capacity to produce and manufacture its own raw material, may actually enjoy greater prosperity and a higher standard of living than another country whose external trade per head is much greater. The same observation applies equally

to comparisons of the trade of the same country at different periods. A young country, the industries and export trade of which are mainly connected with raw or natural products, may, for example, through internal development, find the growth of its external trade diminishing per head of population without necessarily suffering any real diminution in the well-being of its people. In this regard it is interesting to contrast the trade per head of say, Belgium, New Zealand, and the United States of America. Of all the countries mentioned in the foregoing table, the trade per unit of population was greatest in Belgium (£48 18s. 1d. in 1912), with New Zealand next (£47 7s. 3d.), whereas for the United States the trade was only £9 9s. 2d. per inhabitant. Belgium and New Zealand represent conditions almost directly opposite to one another in the scheme of industrial development, yet the trade per head of each is abnormally high in comparison with that of most other countries. The large trade of Belgium was attained by the export of the products of highly organised manufacturing industries, based on the supplies of coal and iron within the country, in exchange for the raw materials for those industries and for food. In New Zealand the circumstances are reversed, inasmuch as in that country the energies of the people are mainly applied to primary industries, the produce of which, being largely in excess of local requirements, is exported in exchange for manufactured goods. The relatively small trade per head of population of the United States, as compared with Belgium or New Zealand, does not indicate that the people of the United States are in an inferior condition, but rather that their industries are more nearly balanced, with the result that a large proportion of the requirements of the nation is supplied from within its own territory, and consequently a smaller foreign trade is sufficient to supply the fewer remaining wants of the people, or, in other words, it indicates that as a nation the United States is more nearly self-contained.

The small foreign trade per inhabitant of Japan, Spain, and Portugal is, undoubtedly, due in some measure to a lower standard of living, but to what extent this factor is responsible, and how much is due to the capacity to supply all kinds of material wants from its own resources, could be ascertained only from a consideration of the general social and industrial conditions prevailing in each country. It is further obvious that circumstances may arise when enlargement of both imports and exports is actually a consequence of temporary economic difficulties. For example, in 1903, owing to shortage in the local supply, it became necessary to import wheat and flour into Australia to the value of £2,556,968, and to meet the charges for this by equivalent exports, the effect, considered *per se*, being to enlarge both. In this case the increase is not an evidence of prosperity, nor can the increase of imports into the United Kingdom during 1915, due to purchases of war material, be considered as an advantage to that country.

§ 12. Trade of the United Kingdom with Australia, compared with Competing Countries.

1. **Proportion of Trade from United Kingdom and Competing Countries.**—The failure of the United Kingdom to maintain the position formerly held in the import trade of Australia has been a matter of more than ordinary interest for some years. Since 1908, a permanent resident Commissioner, appointed by the British Board of Trade, has been established in Australia for the purpose of advising manufacturers and merchants in the United Kingdom with regard to Australian trade affairs. From the 8th August, 1907, the Commonwealth Customs Tariffs have provided special rates in

favour of goods from the United Kingdom, with the object of assisting the British manufacturer to retain or improve his position in this market. The percentages given in the following table shew the proportions of the imports into Australia from the United Kingdom, and from other countries mentioned, during each of the years 1886 to 1915-16:—

**PROPORTION OF COMMONWEALTH IMPORT TRADE FROM VARIOUS COUNTRIES,
1886 to 1915-16.**

Year.	Percentage Proportions from—					Year.	Percentage Proportions from—				
	United K'dom.	British Poss'ns.	Germ'y.	United States.	Total Foreign C'tries.		United K'dom.	British Poss'ns.	Germ'y.	United States.	Total Foreign C'tries.
1886	73.37	11.23	2.05	6.11	15.40	1901	59.47	11.22	6.59	13.80	29.31
1887	72.26	12.50	2.23	5.37	15.24	1902	58.64	13.22	6.53	12.27	28.14
1888	71.62	12.03	2.71	6.43	16.35	1903	52.51	13.17	6.24	16.84	34.32
1889	68.98	13.45	3.65	6.67	17.57	1904	60.68	12.22	7.17	12.40	27.10
1890	68.08	12.66	4.77	6.54	19.26	1905	60.17	14.04	6.42	11.70	25.79
1891	70.15	11.40	4.53	6.79	18.45	1906	59.39	15.09	7.16	10.36	25.52
1892	70.74	11.37	4.32	6.04	17.89	1907	61.59	12.93	6.85	11.33	25.48
1893	72.78	12.14	3.40	4.98	15.08	1908	60.10	12.63	7.05	12.13	27.07
1894	71.92	11.96	3.78	5.39	16.12	1909	60.92	13.45	6.51	9.78	25.63
1895	71.62	11.46	4.42	5.95	16.92	1910	61.06	13.11	6.30	10.32	25.93
1896	68.28	10.74	5.31	8.59	20.98	1911	58.98	12.86	6.63	11.57	28.16
1897	66.22	10.72	5.75	10.10	23.06	1912	58.76	12.26	6.58	13.09	28.98
1898	66.62	10.88	5.86	10.16	22.50	1913	59.70	12.42	6.22	11.94	27.88
1899	61.85	11.75	6.07	13.00	26.40	1914-15	58.82	14.64	2.02	14.89	26.54
1900	61.28	11.28	6.54	12.16	27.44	1915-16	61.26	16.39	0.05	19.81	32.35

In order to draw accurate conclusions from the above table, however, special attention must be given to the nature of imports from the United States, since the imports from that country have in some years been increased by imports of breadstuffs, a trade in which the United Kingdom could not participate. The years affected by the imports of breadstuffs were 1886, 1889, 1896, 1897, 1903 and 1914-15. Increased imports of such items as kerosene oil and timber also tend to increase the proportion of imports from the United States without any prejudicial effect on the trade of the United Kingdom. Similar modification is not necessary in regard to Germany, as the nature of the imports from that country was substantially the same as from the United Kingdom.

It has already been pointed out in this chapter that, prior to the year 1905, imports into the Commonwealth were recorded only against the country whence they were directly imported. Although the values of direct imports do not afford satisfactory data, it is necessary for any comparison extending further back than 1905 to use such figures. These figures are unsatisfactory on account of the varying proportions of indirect trade.

In order to furnish a comparison free from such trade as, from its nature, is not open to the United Kingdom, the following table, shewing the direct imports during the years 1886, 1906, 1913, and 1914-15 of the principal classes of goods which enter largely into the trade of the countries named, has been prepared. It may be mentioned that the imports for the year 1886 were extracted from the "Statistical Registers" of the several States for a comparison—published in a previous issue—with the year 1906, and as their compilation involved a large amount of labour they are again utilised for comparison with the later years.

PRINCIPAL DIRECT IMPORTS INTO THE COMMONWEALTH FROM THE UNITED KINGDOM, GERMANY, AND THE UNITED STATES, 1886, 1906, 1914-15 and 1915-16.

Nature of Imports.	Year.	United Kingdom.	Germany.	United States.	All Countries.
		£	£	£	£
Foodstuffs of animal origin ...	(1886	348,950	5,603	70,959	674,296
	1906	293,950	24,319	146,781	697,830
	1914-15	355,136	17,954	283,899	1,265,068
	1915-16	323,282	637	613,827	1,797,407
	(1886	1,801,200	82,185	82,730	2,126,877
Alcoholic liquors ...	1906	1,053,154	109,426	24,367	1,388,671
	1914-15	1,567,301	43,740	33,081	1,780,927
	1915-16	1,356,156	540	27,746	1,498,987
	(1886	9,845,182	54,350	15,336	10,316,989
	1906	11,066,201	418,776	221,362	13,508,844
Apparel, textiles, etc. (incl. boots)	1914-15	13,760,893	144,582	551,203	17,577,422
	1915-16	15,921,557	2,954	1,186,917	21,272,545
	(1886	403,809	2,241	...	430,950
	1906	696,331	62,945	34,927	927,785
	1914-15	902,339	24,480	157,010	1,309,908
Metals unmanufactured and partly manufactured* ...	1915-16	830,350	450	435,810	1,425,645
	(1886	4,616,924	94,832	311,342	5,190,901
	1906	5,144,912	926,314	1,379,662	7,932,675
	1914-15	9,137,666	351,800	3,060,740	13,455,001
	1915-16	8,608,138	7,100	3,602,503	13,013,699
Manufactures of metal (including machinery) ...	(1886	1,260,531	21,038	39,700	1,340,627
	1906	1,207,729	261,684	288,509	1,838,474
	1914-15	1,805,444	64,115	316,519	2,745,827
	1915-16	1,768,077	855	408,597	2,961,310
	(1886	659,833	24,206	57,477	789,127
Jewellery, timepieces, fancy goods	1906	740,850	140,950	59,151	1,045,164
	1914-15	790,077	69,178	101,707	1,102,462
	1915-16	750,716	2,442	175,618	1,125,101
	(1886	755,907	78,762	24,711	938,476
	1906	316,252	227,390	37,344	688,510
Earthenware, cements, etc. ...	1914-15	776,209	102,008	121,241	1,208,186
	1915-16	717,253	5,271	214,458	1,355,299
	(1886	511,216	8,660	33,382	766,243
	1906	887,325	193,615	82,789	1,732,543
	1914-15	1,101,031	50,486	232,396	2,425,689
Drugs, chemicals, fertilizers, etc.	1915-16	1,364,721	5,704	319,216	3,000,984
	(1886	285,601	6,357	53,588	363,332
	1906	682,238	70,028	116,356	924,968
	1914-15	630,809	63,640	308,739	1,234,057
	1915-16	805,689	1,870	668,239	1,892,940
Total above-mentioned imports ...	(1886	20,489,153	378,234	689,225	22,937,818
	1906	22,038,942	2,435,447	2,391,248	30,685,464
	1911	32,038,457	3,282,974	4,103,528	45,826,196
	1912	36,450,681	3,736,567	4,790,930	51,939,310
	1913	35,503,919	3,589,492	4,410,495	51,640,500
	1914-15	30,826,905	931,983	5,156,535	44,104,547
	1915-16	32,445,939	27,823	7,652,931	49,333,917
	(1886	24,974,939	699,075	2,087,213	33,885,284
Total imports (less bullion and specie) ...	1906	26,437,768	3,202,990	4,633,331	42,413,995
	1911	39,145,829	4,427,153	7,747,470	64,934,538
	1912	45,630,869	5,134,594	9,443,643	76,483,360
	1913	47,422,225	4,956,828	9,522,502	78,196,109
	1914-15	37,466,500	1,296,861	9,584,665	63,563,781
	1915-16	39,508,832	1,296,917	15,358,433	76,740,899

* Mainly pig iron and bar and rod iron.

PERCENTAGE ON TOTAL COMMONWEALTH IMPORTS OF PRINCIPAL DIRECT IMPORTS FROM UNITED KINGDOM, GERMANY, AND UNITED STATES, 1886, 1906, 1914-15 and 1915-16.

Nature of Imports.	Year.	United Kingdom.	Germany.	United States.	All Countries
Foodstuffs of animal origin ...	1886	51.75	0.83	10.52	100
	1906	42.12	3.48	21.02	100
	1914-15	28.07	1.42	22.44	100
	1915-16	17.99	0.04	34.15	100
Alcoholic liquors ...	1886	84.69	3.86	3.89	100
	1906	75.84	7.88	1.75	100
	1914-15	88.00	2.46	1.86	100
	1915-16	91.14	0.04	1.86	100
Apparel, textiles, etc. (including boots)	1886	95.44	0.53	0.15	100
	1906	81.93	3.10	1.64	100
	1914-15	78.28	0.82	3.14	100
	1915-16	74.84	0.01	5.58	100
Metals unmanufactured and partly manufactured ...	1886	93.72	0.52	—	100
	1906	75.06	6.78	3.76	100
	1914-15	68.88	1.87	11.99	100
	1915-16	58.27	0.03	30.58	100
Manufactures of metals ...	1886	88.93	1.83	6.00	100
	1906	64.85	11.68	17.39	100
	1914-15	67.91	2.61	22.75	100
	1915-16	66.17	0.05	27.69	100
Paper and stationery ...	1886	94.03	1.57	2.96	100
	1906	65.69	14.23	15.69	100
	1914-15	65.75	2.34	11.53	100
	1915-16	59.71	0.03	13.79	100
Jewellery, timepieces, and fancy goods	1886	83.62	3.07	7.28	100
	1906	70.89	13.48	5.66	100
	1914-15	71.66	6.27	9.23	100
	1915-16	66.74	0.22	15.61	100
Earthenware, cements, etc. ...	1886	80.55	8.39	2.63	100
	1906	45.93	33.03	5.42	100
	1914-15	64.25	8.44	1.00	100
	1915-16	52.94	0.39	15.83	100
Drugs, chemicals, fertilizers, etc. ...	1886	66.71	1.13	4.36	100
	1906	51.22	11.18	4.78	100
	1914-15	45.39	2.08	9.17	100
	1915-16	45.46	0.19	10.64	100
Leather and mfs. thereof, and substitutes therefor, including indiarubber	1886	78.60	1.75	15.30	100
	1906	73.75	7.60	12.58	100
	1914-15	51.12	5.16	25.02	100
	1915-16	42.58	0.10	35.32	100
Total above-mentioned imports	1886	89.31	1.65	3.01	100
	1906	71.98	7.94	7.79	100
	1911	69.91	7.16	8.95	100
	1912	70.14	7.19	9.22	100
	1913	68.73	6.95	8.54	100
	1914-15	69.89	2.11	11.69	100
Total imports (less bullion and specie)	1915-16	65.76	0.06	15.51	100
	1886	73.71	2.06	6.16	100
	1906	62.34	7.55	10.92	100
	1911	60.28	6.82	11.93	100
	1912	59.66	6.71	12.35	100
	1913	60.66	6.34	12.18	100
1914-15	58.95	2.04	15.08	100	
1915-16	51.47	1.69	20.01	100	

The foregoing table shews that the share of the United Kingdom, as indicated by the records according to "Country of Shipment," in the trade of those classes of goods enumerated—representing over 80 per cent. of the total imports from that country—has declined from 89.31 per cent. of the whole in 1886 to 65.76 per cent. in 1915-16. The value of these imports from the United Kingdom has increased from £20,489,153 in 1886 to

only £32,445,939 in 1915-16, or by 58.37 per cent., while the total value of similar imports has increased from £22,937,818 to £49,333,917, or by 115.05 per cent. Had the same proportion of the total trade in these goods been shipped from the United Kingdom during 1915-16 as in 1886, it would have represented £44,067,400 instead of £32,445,939.

The following table gives an analysis of the imports during the quinquennium 1907-11, and the years 1912 to 1915-16 according to the countries of origin of the goods, and has been extended to include the products of Japan.

IMPORTS INTO THE COMMONWEALTH OF PRODUCTS OR MANUFACTURES OF THE UNITED KINGDOM, FRANCE, GERMANY, JAPAN, AND THE UNITED STATES OF AMERICA DURING THE YEARS 1907-11 to 1915-16.

Nature of Imports.	Year.	United Kingdom.	France.	Germany.	Japan.	U.S. of America.	All Countries
		£	£	£	£	£	£
Foodstuffs of animal origin	1907-11	278,852	4,435	7,869	3,166	206,253	732,968
	1912	268,870	3,807	9,775	14,218	335,533	1,037,692
	1913	301,025	3,093	12,071	6,988	289,229	947,697
	1914-15	297,767	2,940	1,323	8,330	298,639	1,265,068
	1915-16	239,196	2,925	315	17,214	668,726	1,797,407
Alcoholic liquors, etc.	1907-11	1,033,934	306,712	87,505	664	19,473	1,640,677
	1912	1,323,859	290,159	157,668	1,602	21,528	2,022,986
	1913	1,298,717	361,734	171,055	1,755	29,313	2,095,896
	1914-15	1,251,151	271,758	35,852	1,726	45,460	1,780,927
	1915-16	1,113,030	166,394	896	2,599	38,479	1,488,987
Apparel (including boots), textiles, etc.	1907-11	10,056,737	851,975	1,190,043	360,588	419,114	15,851,426
	1912	12,514,286	932,798	1,923,217	485,446	619,944	19,495,762
	1913	12,057,643	960,479	1,702,146	475,954	624,682	19,705,768
	1914-15	11,149,935	887,141	594,096	733,101	709,110	17,577,422
	1915-16	13,784,546	851,066	28,289	1,132,222	1,266,449	21,272,545
Metals unmanufactured or partly manufactured, excluding gold and silver bullion	1907-11	781,102	2,813	157,718	200	52,197	1,179,319
	1912	1,217,280	812	251,710	148	74,146	1,780,125
	1913	1,202,514	3,674	302,466	...	108,000	1,899,846
	1914-15	898,390	906	51,110	108	156,951	1,309,908
	1915-16	800,089	19,364	771	4,551	438,639	1,425,645
Manufactures of metals	1907-11	7,220,888	45,683	1,322,279	2,235	2,236,564	11,472,239
	1912	10,837,604	67,850	1,808,057	7,503	3,341,481	16,985,089
	1913	10,874,005	44,713	1,735,452	7,601	3,078,610	16,623,135
	1914-15	8,777,732	30,806	547,165	11,464	3,210,904	13,355,001
	1915-16	8,424,701	31,801	28,141	75,292	3,731,020	13,013,699
Paper and stationery	1907-11	1,353,390	15,804	284,730	7,032	285,723	2,338,787
	1912	1,748,338	24,657	293,233	9,385	367,264	3,116,215
	1913	1,789,577	21,930	266,488	10,656	403,679	3,134,750
	1914-15	1,602,290	25,473	77,913	10,709	445,166	2,745,827
	1915-16	1,664,894	30,313	4,705	20,852	401,390	2,961,310
Jewellery, timepieces and fancy goods	1907-11	511,077	122,976	252,702	15,591	131,892	1,350,166
	1912	624,911	163,776	294,483	22,795	234,559	1,873,917
	1913	506,608	85,430	250,846	19,192	136,965	1,410,555
	1914-15	453,166	68,418	97,352	35,193	131,896	1,102,462
	1915-16	395,097	93,720	47,512	87,213	193,044	1,125,101
Earthenware, cements, glass, etc.	1907-11	447,139	29,879	230,082	14,065	54,399	950,969
	1912	617,470	34,366	413,322	23,112	71,236	1,445,090
	1913	655,778	40,504	458,007	21,493	64,482	1,580,615
	1914-15	740,002	36,899	104,936	44,659	126,287	1,208,186
	1915-16	674,576	12,205	7,043	230,229	220,424	1,355,299
Drugs, chemicals, fertilizers	1907-11	846,060	198,124	185,658	94,975	141,039	1,973,248
	1912	929,142	252,358	235,903	136,632	172,070	2,394,162
	1913	909,343	226,917	266,811	129,188	178,501	2,493,192
	1914-15	928,736	180,035	76,729	170,852	308,530	2,425,689
	1915-16	1,151,039	285,676	11,557	189,357	414,288	3,000,984
Leather and manufactures thereof and substitutes therefor, including india-rubber (excluding boots)	1907-11	440,162	53,136	184,076	1,499	285,362	1,181,343
	1912	574,325	71,588	906,297	1,250	473,379	1,788,272
	1913	515,169	68,746	347,550	692	435,071	1,749,046
	1914-15	359,178	40,515	76,907	844	443,314	1,234,057
	1915-16	496,747	52,272	2,492	5,040	782,273	1,892,940
Total above-mentioned imports	1907-11	22,969,341	1,631,537	3,902,462	500,015	3,832,016	38,731,142
	1912	30,569,085	1,842,171	5,693,665	702,091	5,711,140	51,939,310
	1913	30,103,379	1,817,220	5,512,886	673,519	5,341,532	51,640,500
	1914-15	26,458,347	1,544,891	1,663,383	1,016,986	5,871,257	44,104,547
	1915-16	28,743,915	1,545,756	88,726	1,764,569	8,154,731	49,333,917
Total imports (less bullion and specie)	1907-11	27,941,680	1,904,148	5,043,912	676,898	7,187,630	54,475,915
	1912	38,589,434	2,293,291	7,153,543	993,633	10,763,615	76,483,360
	1913	40,948,803	2,222,631	7,029,325	950,300	10,907,512	78,196,169
	1914-15	32,062,380	1,754,432	2,005,131	1,436,310	18,870,742	63,563,781
	1915-16	34,914,908	1,792,525	113,232	2,909,696	15,863,766	76,740,899

* Mainly pig iron and bar and rod iron.

NOTE.—Figures for the years 1905-10 will be found in previous issues.

**COMMONWEALTH PERCENTAGE ON TOTAL IMPORTS, OF IMPORTS OF PRODUCTS
OR MANUFACTURES OF THE UNITED KINGDOM, FRANCE, GERMANY, JAPAN,
AND THE UNITED STATES OF AMERICA DURING THE YEARS 1907-11 to 1915-16.**

Nature of Imports.	Year.	United Kingdom.	France.	Germany.	Japan.	U.S.A.	All Countries
Foodstuffs of animal origin	1907-11	35.16	0.56	0.99	0.40	26.01	100
	1912	25.92	0.37	0.94	1.37	32.34	100
	1913	31.77	0.33	12.74	0.74	30.52	100
	1914-15	23.54	0.23	0.10	0.66	23.61	100
	1915-16	13.31	0.16	0.03	0.96	37.00	100
Alcoholic liquors, etc. ...	1907-11	63.02	18.69	5.33	0.05	1.18	100
	1912	65.42	14.64	7.79	0.08	1.07	100
	1913	61.96	17.26	8.16	0.08	1.06	100
	1914-15	70.25	15.26	3.01	0.10	2.55	100
	1915-16	74.75	11.18	0.06	0.17	2.58	100
Apparel (including boots), textiles, etc. ...	1907-11	63.44	5.38	7.51	2.27	2.64	100
	1912	64.19	4.79	9.37	2.49	3.18	100
	1913	61.18	4.87	8.64	2.42	3.17	100
	1914-15	63.43	5.05	3.38	4.17	4.03	100
	1915-16	64.84	4.00	0.13	5.32	5.95	100
Metals unmanufactured or partly manufactured, ex- cluding gold and silver bullion ...	1907-11	66.25	0.24	13.39	0.02	4.42	100
	1912	68.38	0.05	14.14	0.01	4.15	100
	1913	63.29	0.19	15.92	—	5.69	100
	1914-15	68.58	0.07	3.90	0.01	11.38	100
	1915-16	56.12	1.36	0.05	0.32	30.77	100
Manufactures of metals ...	1907-11	62.98	0.40	11.53	0.19	19.47	100
	1912	63.81	0.40	10.65	0.04	19.67	100
	1913	65.41	0.27	10.44	0.05	18.53	100
	1914-15	65.24	0.23	4.07	0.09	23.86	100
	1915-16	64.60	0.24	0.21	0.58	28.60	100
Paper and stationery ...	1907-11	57.90	0.68	12.19	0.30	12.23	100
	1912	56.05	0.79	9.47	0.30	11.79	100
	1913	57.41	0.70	8.50	0.34	12.88	100
	1914-15	58.36	0.93	3.84	0.39	16.21	100
	1915-16	56.62	1.03	0.22	0.80	14.20	100
Jewellery, timepieces, and fancy goods ...	1907-11	37.86	9.11	18.72	1.15	9.79	100
	1912	33.35	8.74	15.71	1.22	12.51	100
	1913	35.92	6.06	17.77	1.36	9.71	100
	1914-15	41.11	6.21	8.83	3.19	11.96	100
	1915-16	35.14	8.34	0.37	7.76	17.18	100
Earthenware, cements, glass, etc. ...	1907-11	47.05	3.13	24.23	1.49	5.73	100
	1912	42.73	2.38	28.61	1.60	4.93	100
	1913	41.49	2.56	28.98	1.36	4.08	100
	1914-15	61.26	3.05	8.69	3.70	10.45	100
	1915-16	49.77	0.90	0.52	16.99	16.27	100
Drugs, chemicals, and fertilizers ...	1907-11	42.93	10.05	9.41	4.81	7.15	100
	1912	33.81	10.54	9.85	5.71	7.19	100
	1913	36.19	9.10	10.70	5.18	7.16	100
	1914-15	38.29	7.42	3.16	7.04	18.28	100
	1915-16	38.36	9.52	0.39	6.32	13.83	100
Leather and manufactures thereof and substitutes thereof, including india- rubber (excluding boots)	1907-11	37.28	4.50	15.62	0.13	24.18	100
	1912	32.12	4.01	17.13	0.07	26.50	100
	1913	29.45	3.93	19.87	0.04	24.88	100
	1914-15	29.10	3.28	6.23	0.07	35.92	100
	1915-16	26.36	2.76	0.13	0.26	41.34	100
Total above-mentioned articles ...	1907-11	59.33	4.22	10.09	1.29	9.90	100
	1912	59.02	3.55	10.96	1.35	10.99	100
	1913	58.30	3.52	10.67	1.30	10.34	100
	1914-15	59.99	3.50	3.77	2.31	13.32	100
	1915-16	58.27	3.13	0.18	3.58	16.53	100
Total imports (less bullion and specie)	1907-11	51.33	3.50	9.26	1.21	13.21	100
	1912	50.45	3.00	9.36	1.30	14.07	100
	1913	52.37	2.84	8.99	1.21	13.95	100
	1914-15	50.45	2.76	3.16	2.26	17.10	100
	1915-16	45.52	2.36	0.15	3.79	20.69	100

In previous issues this table has included Belgian imports. As it will be some time before Belgian trade will regain its pre-war dimensions, figures relating to the imports from Japan have been substituted. The imports from Japan have expanded rapidly during recent years. In 1915-16 they were 52 per cent. greater than in 1913, and 94

per cent. greater than in 1910. The import trade from Japan has increased materially in almost every branch of the trade. The larger increases, however, have been in sugar (non-recurring trade), apparel and textiles, and earthenware, glass, etc.

It is gratifying to find that, notwithstanding the war, the United Kingdom has been able to so well maintain her share of the import trade of the Commonwealth. It will be noticed that, of the total of the groups shewn in the foregoing tables, the United Kingdom supplied 58.27-per cent. during 1915-16, as against 58.30 per cent. during 1913.

Apart from the collapse of the trade with Belgium and Germany in consequence of the war, the most striking feature of the figures given above, perhaps, is the increased proportion of the trade which has fallen to the United States. In the latest pre-war year (1913), the share of the United States in the "competitive" groups was £5,341,532, or 10.34 per cent., whereas in 1915-16 it was £8,154,731, or 16.53 per cent. The following are some of the principal lines in which United States' sales to Australia were increased over those of 1913:—Fish, £169,254; cocoa and chocolate, £9094; perfumed spirits, £11,774; apparel and textiles, £641,767; unmanufactured metals, £330,560; manufactured metals and machinery, £652,410; glass and glassware, £147,035; perfumery, £31,279; cream of tartar, £59,972; pianos, £104,296; motor vehicles and parts, £549,707; bicycles, etc., £36,038; other vehicles, £110,796. In view of the fact that at that time the United States was the one great industrial country not engaged in the war, and that transport between that country and Australia was comparatively immune from war risk, it was natural that Australian merchants should look thither for emergency supplies.

It may, perhaps, be necessary to explain the magnitude of imports of German goods during the year 1914-15, of which nearly eleven months were under war conditions. In the first place, a number of German ships *en route* to Australia, were, on the outbreak of war, interned in neutral ports and in South Africa. Subsequently the cargoes of these vessels were released and forwarded to Australia. British ships on the water on the 4th August, 1914, also, subsequently delivered their cargoes, which included German goods. Further, the earlier proclamations relating to trading with the enemy did not prohibit the importation of goods of enemy origin, provided they had not been purchased from an enemy country by a resident in Australia since the outbreak of war. Proclamation of the 12th September, 1914, provided that "where an enemy has a branch locally situated in British, allied or neutral territory, not being neutral territory in Europe, transactions by or with such branch shall not be treated as transactions by or with an enemy." It was not until the 11th December, 1915, that the importation, except with the consent in writing of the Minister of State for Trade and Customs, was prohibited of goods manufactured or produced in or bought directly or indirectly from an enemy country.

2. Preferential Tariff.—The Tariff Act of 1908 provided preferential tariff rates in favour of goods produced or manufactured in the United Kingdom. Subsequent amendments of the tariff have extended the list of articles to which the preferential rates apply. In the schedule submitted to Parliament on the 3rd December, 1914, the extension of the operation of preferential rates has been very material, and has been accompanied in many instances by an increase of the margin in favour of the United Kingdom. On the introduction of the preferential treatment of British goods, it was required that British material or labour should represent not less than one-fourth the value of such goods. From the 1st September, 1911, it has been required, in regard to goods only partially manufactured in the United Kingdom, that the final process or

processes of manufacture shall have been performed in the United Kingdom, and that the expenditure in material of British production and/or British labour shall have been not less than one-fourth of the factory or works' cost of the goods in the finished state.

Recent editions of this Year Book have contained exhaustive analyses of the imports into the Commonwealth, for the purpose of measuring the effect of the preferential treatment of British goods. The method adopted was to contrast the relative proportion of the trade supplied by the United Kingdom in respect to goods subject to preferential tariff rates with the proportion of goods of the same class supplied in unrestricted competition under the general tariff. The most satisfactory data for the purpose was furnished by two classes of goods, viz., "Apparel and Textiles" and "Machinery and Manufactures of Metals." Under the existing tariff, preferential treatment has been so extended as to cover practically all goods of these classes, and consequently the basis of comparison no longer exists. Prior to the existing tariff, just about one-half of all imports and about 60 per cent. of imports from the United Kingdom were affected by the preferential tariff, whereas, under the tariff now in operation, nearly 73 per cent. of all imports and about 80 per cent. of imports of United Kingdom origin are affected by the preferential tariff.

3. **Preferential Tariffs of the British Empire.**—The second report of a Special Committee of the London Chamber of Commerce on Trade During and After the War gives the following outline of the systems of preferential tariffs within the British Empire and the tariff arrangements between British Dominions or Colonies and Foreign Countries, together with a list of countries with whom Great Britain had concluded commercial treaties for "Most-Favoured-Nation" treatment.

PREFERENCE TARIFFS OF THE BRITISH DOMINIONS AND COLONIES IN FAVOUR
OF IMPORTS FROM THE UNITED KINGDOM.

1. *Commonwealth of Australia.*—The Tariff Act No. 7 of 1908, as amended by Acts No. 39 of 1910, and 19 of 1911, and by resolution of the Commonwealth Parliament on 3rd December, 1914, provides for preferential rates of duty on goods 5 to 10 per cent. *ad valorem* lower than the general rates of duty.
2. *Dominion of New Zealand.*—Preferential treatment is accorded produce and manufactures of the British Empire under the Tariff Act No. 35 of 1908 as amended in 1915 by the imposition of *additional* duties of 10 per cent. *ad valorem* on certain goods which are *not* the produce or manufacture of some part of the British Dominions.
3. *Union of South Africa.*—Preferential treatment is accorded under the Tariff Act No. 26 of 1914, as amended by Act 22 of 1915, by means of a rebate of import duty on certain British goods to the extent of 3 per cent. *ad valorem*, and in some instances rebates equivalent to one-fifth of the duty.
4. *Rhodesia.*—Provision is made in the Customs Tariffs of Southern and Northern Rhodesia for the preferential treatment of British goods, by according a rebate of duty upon certain articles the produce or manufacture of the United Kingdom.
5. *Dominion of Canada.*—The Customs Act No. 11 of 1907 contains a British Preferential Tariff providing for special rates of duty for British goods, 5, 7½, 10 per cent. *ad valorem* lower than the general rates of duty.

6. *St. Lucia, St. Vincent, Barbadoes, Grenada, Leeward Isles, Trinidad and Tobago, British Guiana.*—Under the Canadian-West Indian Reciprocity Agreement of 1912, certain goods, the growth, produce or manufacture of the United Kingdom, the Dominion of Canada and Newfoundland are accorded preferential rates of duty when imported into the countries indicated, equivalent to a rebate of one-fifth of the general rates of duty.

TARIFF ARRANGEMENTS BETWEEN BRITISH DOMINIONS OR COLONIES
AND FOREIGN COUNTRIES.

1. *Canada.*—The French Convention Act of 1908 provides that certain articles of French produce or manufacture on importation into Canada are entitled to enjoy the benefit of the Intermediate Tariff, or the benefits of a special tariff provided for in that convention, affecting a limited number of goods of special interest to French manufacturers and producers.
2. Certain commercial agreements have also been made with Belgium, the Netherlands and Italy, extending the advantages of the intermediate tariff to certain products of those countries.
3. In addition, in view of treaties or conventions with His Majesty, certain products of the following countries are accorded the terms and conditions granted in respect of similar French products :—

Argentine Republic	Denmark	Norway	Spain	Switzerland
Colombia	Japan	Russia	Sweden	Venezuela

INTER-COLONIAL RECIPROCAL AGREEMENTS.

1. There exist reciprocal tariff agreements between Australia and South Africa, New Zealand and South Africa, Canada and New Zealand, and the West Indies and Canada.
2. In addition Canada grants the preferential tariff rates to India, Ceylon, Straits Settlements and other British Colonies and Southern Rhodesia; and New Zealand gives the preferential tariff to produce or manufactures of any part of the British Dominions.
3. Rhodesia grants preferential treatment to products of Canada, Australia and New Zealand.

MOST-FAVOURED-NATION TREATMENT.

In commercial treaties concluded between Great Britain and the *foreign (neutral) countries* named in the appended list there are "most-favoured-nation" clauses.

Argentine Republic	Denmark	Netherlands	Portugal*	Switzerland
Bolivia	Greece	Nicaragua	Roumania*	United States*
China	Honduras	Norway	Salvador	Uruguay
Colombia	Liberia	Paraguay	Siam	Venezuela
Corea	Mexico	Persia	Spain	
Costa Rica	Morocco	Peru	Sweden	

* Since joined the Allies.

Similar clauses exist in commercial treaties with the undermentioned *allied countries* :—

Belgium France Italy Japan Montenegro Russia Serbia.

Most-favoured-nation treatment was also granted by the undermentioned *enemy countries* :—

Austria-Hungary Bulgaria Germany Turkey.

No commercial treaties have been concluded between Great Britain and Brazil, Chile, Cuba, Guatemala.

§ 13. Customs Tariff, 1914.

The following tables shew as nearly as possible the results which would be obtained by applying to the imports of 1913 the rates of duty imposed under the tariffs of 1908-11 and 1914 respectively. The figures for 1913 have been selected in preference to those for 1914-15, because it was considered that the trade of the earlier year would represent normal conditions more approximately :—

TOTAL IMPORTS.—COMPARISONS OF TARIFFS FOR 1908-11 AND 1914 APPLIED TO TOTAL IMPORTS DURING 1913.

Class*	Value of Imports, 1913.	Under Tariff of 1908-11.				Under Tariff of 1914.			
		Dutiable Imports.		Equivalent <i>ad val.</i> rate of duty.		Dutiable Imports.		Equivalent <i>ad val.</i> rate of duty.	
		Value.	Per cent. on Total Imports.	On Dutiable Goods.	On all Goods.	Value.	Per cent. on Total Imports.	On Dutiable Goods.	On all Goods.
£	£	%	%	%	£	%	%	%	
I.	947,697	848,910	89.58	17.23	15.43	848,910	89.58	20.30	18.19
II.	3,315,825	3,127,278	94.32	35.79	33.76	3,127,278	94.32	36.68	34.62
III.	1,833,235	471,777	25.73	20.74	5.34	471,777	25.73	22.02	5.67
IV.	2,095,896	2,095,896	100.00	136.94	136.94	2,095,896	100.00	169.98	169.98
V.	1,114,949	1,114,949	100.00	159.03	159.03	1,114,949	100.00	202.20	202.20
VI.	145,215	17,842	12.29	0.59	0.07	17,842	12.29	0.59	0.07
VII.	417,039	109,022	26.14	17.77	4.64	109,022	26.14	17.78	4.65
VIII.	1,344,204	231,746	17.24	18.78	3.24	265,263	19.73	20.42	4.03
IX.	19,705,768	11,498,498	58.35	22.44	13.09	14,364,931	72.90	22.57	17.44
X.	1,969,628	1,326,051	67.32	16.44	11.07	1,426,339	72.41	17.74	12.85
XI.	609,859	583,096	95.60	17.01	16.25	583,096	95.60	21.36	20.42
XII.	218,332	182,219	83.46	23.11	19.28	200,869	91.99	24.38	22.43
XIII.	377,220	...	...	...	...	...	...	...	...
XIV.	1,575,734	18,002	1.14	15.28	0.17	84,717	5.38	7.59	0.41
XV.	1,500,436	...	...	...	...	542,283	36.14	5.23	1.89
XVI.	16,623,135	10,281,812	61.85	15.98	9.88	13,120,157	78.92	17.07	13.48
XVII.	1,749,046	1,296,278	74.11	21.59	16.00	1,299,603	74.30	29.14	21.65
XVIII.	3,573,753	3,300,002	92.34	16.91	15.62	3,487,323	97.59	32.33	31.79
XIX.	1,580,615	1,468,735	92.91	27.58	25.63	1,542,984	97.61	32.96	32.19
XX.	3,134,750	934,636	29.82	22.99	6.85	1,759,097	56.12	20.30	11.39
XXI.	1,410,555	1,121,742	79.51	25.64	20.39	1,121,742	79.51	28.05	22.31
XXII.	754,589	186,175	24.67	14.26	3.52	393,580	52.15	25.62	13.36
XXIII.	2,493,192	565,569	22.69	20.08	4.56	1,196,301	47.98	12.85	6.17
XXIV.	11,258,981	3,853,022	34.22	21.23	7.27	3,937,906	34.98	24.30	8.50
Total	79,749,663	44,633,257	55.97	29.93	16.75	53,111,865	66.60	31.65	21.08
Total†	78,196,109	44,633,257	57.07	29.93	17.08	53,111,865	67.92	31.65	21.50

* For description of the Classes of imports see page 560. † Less bullion and specie.

COMPARISONS OF TARIFFS OF 1908-11 and 1914 APPLIED TO IMPORTS OF UNITED KINGDOM ORIGIN DURING 1913.

Class.*	Under Tariff of 1908-11. *									Under Tariff of 1914.					
	Dutiable Imports.						Equivalent a.v. Rate of Duty.	Dutiable Imports.			Equivalent a.v. Rate of Duty.				
	Under General Tariff.	Under Preference Tariff.	Total.	Per cent. of Dutiable Imports on Total Imports.	On Dutiable Goods.	On all Goods.		Under General Tariff.	Under Preference Tariff.	Total.		Per cent. of Dutiable Imports on Total Imports.	On Dutiable Goods.	On all Goods.	
I.	£ 301,025	£ 285,623	£ 9,225	295,548	98.18	23.08	22.66	101,110	£ 194,438	£ 295,548	98.18	23.08	22.66		
II.	789,600	177,999	518,788	696,087	88.16	22.58	19.90	64,177	631,910	696,087	88.16	24.87	21.93		
III.	173,775	36,878	136,897	173,775	100.00	18.92	18.92	34,322	139,453	173,775	100.00	19.55	19.55		
IV.	1,298,717	1,298,717	...	1,298,717	100.00	145.44	145.44	887,846	410,871	1,298,717	100.00	178.51	178.51		
V.	81,665	81,665	...	81,665	100.00	103.59	103.59	24,010	57,655	81,665	100.00	126.80	126.80		
VI.	46,189	5,265	...	5,265	11.40	0.30	0.03	5,265	5,265	5,265	11.40	0.30	0.03		
VII.	73,746	2,105	60,814	62,919	85.30	14.93	12.74	544	62,375	62,919	85.30	14.93	12.74		
VIII.	372,170	25,237	42,058	67,295	18.08	22.36	4.04	5,367	61,989	67,806	18.09	22.71	4.11		
IX.	12,057,643	182,107	6,534,701	6,716,808	55.71	23.38	13.03	26,759	6,690,049	6,716,808	55.71	27.05	15.09		
X.	301,078	250,216	40,645	290,861	96.61	19.44	18.78	19,210	271,651	290,861	96.61	19.44	18.78		
XI.	494,268	41,739	425,776	467,505	94.59	16.34	15.46	...	467,505	467,505	94.59	20.79	19.66		
XII.	74,556	12,392	57,269	69,601	93.37	22.28	20.80	...	69,601	69,601	93.37	23.08	21.55		
XIII.	377,020	...	...	...	...	...	...	...	...	...	...	...	...
XIV.	246,240	...	16,969	16,969	6.89	15.00	1.03	...	16,969	16,969	6.89	15.00	1.03		
XV.	958,153	...	...	...	...	...	...	...	...	...	...	...	...
XVI.	10,855,417	617,754	6,630,316	7,248,070	66.78	14.21	9.49	1,994	7,550,667	7,352,661	67.74	16.70	11.31		
XVII.	515,169	49,925	342,991	392,916	76.28	20.26	15.45	...	392,916	392,916	76.28	24.79	18.91		
XVIII.	230,941	9,473	157,735	167,208	72.40	28.48	20.62	9,052	158,272	167,324	73.45	31.26	22.65		
XIX.	655,778	53,434	564,713	618,147	92.47	23.35	22.02	47,794	570,353	618,147	94.27	26.94	25.40		
XX.	1,789,577	98,312	310,161	408,473	22.82	23.37	5.33	...	494,894	494,894	27.65	24.76	6.85		
XXI.	506,608	2,837	478,757	481,594	95.05	22.62	21.51	...	481,594	481,594	95.05	21.18	22.98		
XXII.	333,179	...	60,861	60,861	18.27	19.63	3.59	...	103,340	103,340	31.02	25.95	8.05		
XXIII.	902,343	218,489	92,346	310,835	34.45	18.07	6.23	...	310,835	310,835	34.45	18.30	6.30		
XXIV.	7,892,845	103,448	1,019,219	1,122,667	14.22	23.43	3.32	15,453	1,107,214	1,122,667	14.22	25.37	3.61		
Total ...	41,327,702	3,552,845	17,500,941	21,053,786	50.94	27.62	14.07	1,242,903	20,044,501	21,287,404	51.51	32.26	16.62		
Total† ...	40,948,803	3,552,845	17,500,941	21,053,786	51.41	27.62	14.20	1,242,903	20,044,501	21,287,404	51.99	32.26	16.77		

* For description of classes of imports see page 560. † Less bullion and specie.

COMPARISON OF TARIFFS OF 1908-11 and 1914 APPLIED TO IMPORTS OF THE PRODUCE OR MANUFACTURE OF COUNTRIES OTHER THAN THE UNITED KINGDOM.

Class.‡	Under 1908-11 Tariff.									Under 1914 Tariff.					
	Dutiable Imports.						Equivalent a.v. Rate.	Dutiable Imports.			Equivalent a.v. Rate.				
	Opposed by Preference Rates.†	Common Rates.‡	Total.	Per cent. on Total Imports.	On Dutiable Imports.	On all Imports.		Opposed by Preference Rates.†	Common Rates.‡	Total.		Per cent. on Total Imports.	On Dutiable Imports.	On all Imports.	
I.	£ 616,672	£ 16,673	£ 536,689	£ 553,362	85.57	14.09	12.06	£ 464,674	£ 88,688	£ 553,362	85.57	18.82	16.10		
II.	2,526,225	203,883	2,227,308	2,431,191	95.24	39.58	38.09	208,669	2,222,522	2,431,191	96.24	40.06	38.56		
III.	1,659,460	166,957	131,045	298,002	17.96	21.81	3.92	178,553	119,449	298,002	17.96	23.46	4.21		
IV.	797,179	...	797,179	797,179	100.00	123.10	123.10	136,995	660,184	797,179	100.00	156.09	156.09		
V.	1,033,284	...	1,033,284	1,033,284	100.00	163.40	163.40	190,720	842,564	1,033,284	100.00	208.17	208.17		
VI.	99,026	...	12,577	12,577	12.70	0.71	0.09	...	12,577	12,577	12.70	0.71	0.09		
VII.	343,293	35,697	10,406	46,103	13.43	21.64	2.91	36,165	9,938	46,103	13.43	21.67	2.91		
VIII.	972,034	26,203	138,248	164,451	16.92	17.31	2.93	54,030	143,927	197,957	20.37	19.64	4.00		
IX.	7,648,125	4,702,225	79,465	4,781,690	62.52	21.08	13.18	7,615,629	32,494	7,648,123	100.00	18.61	18.61		
X.	1,668,550	743,610	291,574	1,035,190	62.04	15.59	9.67	1,135,478	79,078	1,135,478	68.06	17.39	11.77		
XI.	115,591	83,748	31,843	115,591	100.00	19.66	19.66	115,591	...	115,591	100.00	23.69	23.69		
XII.	143,776	48,426	64,192	112,618	78.33	23.60	18.49	131,268	...	131,268	91.31	25.06	22.88		
XIII.	200	...	...	...	...	...	...	...	...	...	...	...	...
XIV.	1,329,494	1,033	...	1,033	0.08	19.94	0.02	67,748	...	67,748	5.10	5.74	0.29		
XV.	542,283	...	...	...	...	...	...	542,283	...	542,283	100.00	5.23	5.23
XVI.	5,767,718	2,408,495	625,247	3,033,742	52.59	20.21	10.63	5,659,720	107,776	5,767,496	99.98	17.53	17.53		
XVII.	1,233,877	531,201	372,161	903,362	73.21	32.17	16.23	906,687	...	906,687	73.50	31.03	22.81		
XVIII.	3,342,812	355,125	2,777,669	3,132,794	93.73	16.30	15.27	395,894	2,924,105	3,139,999	99.32	21.88	21.73		
XIX.	924,837	827,998	22,590	850,588	91.96	30.65	28.13	191,495	13,342	924,837	100.00	36.96	36.96		
XX.	1,345,173	449,394	76,769	526,163	39.12	22.69	8.88	1,264,203	...	1,264,203	93.98	16.55	17.44		
XXI.	903,947	637,400	2,748	640,148	70.82	27.91	19.76	640,148	...	640,148	70.82	30.97	21.93		
XXII.	421,410	125,314	...	125,314	29.74	11.65	3.47	290,240	...	290,240	68.88	25.51	17.57		
XXIII.	1,590,849	118,751	135,983	254,734	16.01	22.54	3.61	885,466	...	885,466	55.67	10.94	6.09		
XXIV.	3,366,136	2,552,378	177,977	2,730,351	81.12	20.32	17.11	2,807,524	7,715	2,815,239	83.64	23.27	19.07		
Total	38,421,951	14,034,517	9,544,954	23,579,471	61.37	31.99	19.63	24,560,102	7,264,359	31,824,461	82.83	31.24	25.87		
Total†	37,247,306	14,034,517	9,544,954	23,579,471	63.30	31.99	20.25	24,560,102	7,264,359	31,824,461	85.44	31.24	26.69		

* Less bullion and specie. † Imports other than the produce of United Kingdom. ‡ Similar imports of United Kingdom origin are admitted free under preference tariff, or at a rate of duty lower than the general rate. § Dutiable at rates similar to those on goods of United Kingdom origin. || For description of classes, see page 560.

In order to facilitate the interpretation of the foregoing tables, and also to deal further with the extension of preferential tariff treatment to the United Kingdom, the following synopsis of the changes made in rates of duty on the various classes of goods is appended. On pages 588 to 590 will be found a summary of the tariff changes as they affect the total imports and the imports of United Kingdom origin and the produce of "British Possessions" and "Foreign Countries" respectively.

SYNOPSIS OF THE PRINCIPAL DIFFERENCES BETWEEN THE TARIFF OF 1914 AND THE TARIFF OF 1908-11 AS APPLIED TO THE CLASSES OF COMMODITIES IMPORTED INTO THE COMMONWEALTH DURING 1913.

CLASS I.—FOODSTUFFS OF ANIMAL ORIGIN.

General Comparisons. The total value of imports in this class during 1913 was £947,697, of which the import of fish represented £718,036. The amount of *dutiable* goods would be the same under both tariffs, viz., £848,910, or 89.58 per cent. The average rate of duty on *dutiable* goods has been raised from an equivalent *ad valorem* rate of 17.23 per cent. to 20.30 per cent., thus increasing the average rate of duty on the total imports of the class from 15.43 per cent. to 18.19 per cent.

Imports from the United Kingdom. The value of foodstuffs of animal origin the produce of the United Kingdom imported during 1913 amounted to £301,025, of which 98.18 per cent. would be dutiable under both tariffs at an average *ad valorem* rate of 23.08 per cent.; including the small amount of free goods (sheet isinglass and sausage casings), the average rate of duty would be 22.66 per cent.

Under the earlier tariff, £9925 would have been favoured by preferential rates, whereas under the 1914 tariff, by the raising of the rates on similar imports from other countries, the United Kingdom would receive preferential treatment on goods to the value of £194,438. On these goods (£194,438) the United Kingdom would, under the existing tariff, pay duty to the amount of £46,088 (23.70 per cent.), while the same goods from other countries under the general tariff would pay £65,304 (33.58 per cent.), an advantage to the United Kingdom of £19,216, or 9.88 per cent. *ad valorem*. Under the 1908-11 tariff the margin of preference would have been £547 only, equal to 5.51 per cent. on the smaller value of imports affected.

CLASS II.—FOODSTUFFS OF VEGETABLE ORIGIN AND SALT.

General Comparisons. During 1913 imports of this class amounted to £3,315,825, of which 94.32 per cent. would be dutiable under both tariffs. The average rate of duty on *dutiable* goods has been increased from the average equivalent *ad valorem* rate of 35.79 per cent. to 36.68 per cent., the average rate on all goods within the class rising from 33.76 per cent. to 34.62 per cent.

Imports from United Kingdom. The imports of vegetable foodstuffs of United Kingdom origin amounted to £789,600, of which 88.16 per cent. would have been dutiable under the 1908-11 tariff at an equivalent *ad valorem* rate of 22.58 per cent., while under the 1914 tariff the average rate would be 24.87 per cent., the value of dutiable goods being unaltered. Including free goods (chiefly infants' and invalids' foods) the average rate on all goods of United Kingdom origin within the class would be under the respective tariffs 19.90 per cent. and 21.93 per cent.

Under the 1908-11 tariff, preferential treatment would apply to £526,613, or 66.69 per cent. of goods of United Kingdom origin, whereas under the 1914 tariff, £639,735, or 81.02 per cent. of the total imports from the United Kingdom, would be admitted under preferential rates (£7825 being free), the average preferential advantage being equal to 7.5 per cent. of the value of the goods, or £47,981 less than the same goods would have to pay if from other countries. Under the earlier tariff the margin of preference on goods of this class was £32,395, equal to 6.15 per cent. *ad valorem*.

CLASS III.—BEVERAGES (NON-ALCOHOLIC) AND SUBSTANCES USED IN MAKING.

General Comparisons. The value of imports during 1913 in this class was £1,833,235, of which tea was responsible for £1,328,471. The tariff changes in the class were small. The amount of *dutiable* goods represents 25.73 per cent. under both tariffs. The equivalent average *ad valorem* rate on dutiable goods has been increased from 20.74 per cent. to 22.02 per cent., the rates on all goods within the class being raised from 5.34 per cent. to 5.67 per cent. Tea in bulk and cocoa beans are free.

Imports from the United Kingdom. This class contains a small proportion only of produce of the United Kingdom, the amount during 1913 being £173,775, all of which would be dutiable under both tariffs. Preference equal to 10 per cent. *ad valorem* has been extended to mineral waters, while the margin of $\frac{1}{4}$ d. per lb. on cocoa and chocolate in powdered form has been increased to $\frac{3}{4}$ d. per lb. The average rate of duty on produce of the United Kingdom has been raised from 18.92 per cent. to 19.55 per cent., although the goods favoured by preferential rates have been increased from £136,897 to £139,453, and the margin of preference from 1.98 per cent. to 3.25 per cent. *ad valorem*.

CLASS IV.—SPIRITS AND ALCOHOLIC LIQUORS, INCLUDING INDUSTRIAL SPIRITS AND PHARMACEUTICAL PREPARATIONS DUTIABLE AS SPIRITS.

All imports under this class are dutiable. Prior to the 1914 tariff, goods of United Kingdom origin had no preferential tariff treatment. The present tariff has raised the general tariff rate on ale, beer and porter in bottle from 1s. 6d. to 2s. 6d. per gal.; with a preferential rate of 2s. per gal. the duty on ale, etc. in bulk has been raised from 1s. per gal. to 2s. per gal. under the general tariff, and 1s. 6d. per gal. under the preferential tariff; and the rates on cider and perry have been raised from 1s. 6d. per gal. in bottle and 1s. in bulk to 2s. 6d. per gal. under the general tariff, and 2s. per gal. under the preferential tariff, whether in bottle or bulk. The imports of beer and cider from the United Kingdom during 1913 were valued at £410,871. Under the 1914 tariff, this would pay duty to the amount of £257,936, whereas the same goods if from other countries would have to pay £323,984, representing a margin of preference equal to 16.08 per cent. *ad valorem*. It is true that while preference has been extended to British beers, the rates of duty now charged on them are 16 per cent. higher than formerly, but at the same time the excise duties on locally manufactured beers and spirits have also been increased. Duties on imported potable spirits have been increased by 3s. per gal. (14s. to 17s.), on sparkling wine by 8s. per gal. (12s. to 20s.), and on other wines by 4s. per gal. The result of these changes has been to raise the average equivalent *ad valorem* rate over the whole class from 136.94 per cent. to 169.98 per cent.

CLASS V.—TOBACCO, AND PREPARATIONS THEREOF.

General Comparisons. All goods in this class are dutiable. Under the 1914 tariff the duties have been raised on all forms of tobacco except snuff, so that the equivalent *ad valorem* rate on the imports of all tobacco has been raised from 159.03 per cent. to 202.20 per cent. Under the 1914 tariff the preferences of 1s. 3d. per lb. on cut tobacco and 1s. on other manufactured tobacco, formerly given to produce of the South African Union, have been reduced to 9d. per lb.

Imports from United Kingdom. Under the tariff of 1914 cigars manufactured in the United Kingdom have a preference of 1s. per lb. and cigarettes of 6d. per lb. This represents a remission of duty as compared with the general tariff rates of £4302, or 7.46 per cent. on the value of imports affected. Formerly no preference was given to the United Kingdom in this class.

CLASS VI.—ANIMALS, LIVING.

No alterations have been made in regard to this class. Most of the animals imported are for the improvement of stock, and are admitted free of duty. Of the total imports during 1913, 12.29 per cent. would now be dutiable at an equivalent average *ad valorem* rate of 0.59 per cent.

CLASS VII.—ANIMAL SUBSTANCES, MAINLY UNMANUFACTURED, WHICH ARE NOT FOODSTUFFS.

General Comparisons. The only changes in this class have been made by the extension of preference to curled hair for upholstering, and to printers' roller composition. On the former, the duty under the general tariff has been raised 5 per cent. *ad valorem*, and on the latter, by 10 per cent. *ad valorem*, while the rates on produce of the United Kingdom remain as formerly. Of the total imports of this class during 1913, 26.14 per cent. would be dutiable at an average equivalent *ad valorem* rate of 17.78 per cent., while the average rate on all goods (dutiable and free) within the class would be 4.65 per cent.

Imports from the United Kingdom. The imports of United Kingdom produce amounted to £73,746, of which 85.30 per cent. would be dutiable.

Under the tariff of 1908-11, £60,814 would be favoured by preferential rates, the margin of preference being 5.51 per cent., equal to £3350, whereas by the 1914 tariff, £62,375 would be favoured by a remission of £3484, or 5.58 per cent. of the value of the goods.

CLASS VIII.—VEGETABLE SUBSTANCES AND NON-MANUFACTURED FIBRES.

General Comparisons. In this class the application of duties has been extended to 19.73 per cent. (£265,263) of imports, as compared with 17.24 per cent. dutiable under the former tariff. The equivalent average *ad valorem* rate on dutiable goods has been raised from 18.78 per cent. to 20.42 per cent. Including free goods, the average rate of duty would now be 4.03 per cent. instead of 3.24 per cent.

Imports from the United Kingdom.—The imports of United Kingdom origin in this class amounted to £372,170, the principal items being yarns, cotton waste, starch, and seeds.

Under the tariff of 1908-11, goods to the value of £270,439 were favoured by a preference equal to 5.34 per cent. *ad valorem*; under the 1914 tariff, preferential treatment has been extended to embrace £290,868, while the margin of preference has been increased to 5.52 per cent.

CLASS IX.—APPAREL AND TEXTILES, AND MANUFACTURED FIBRES.

General Comparisons. The value of the total imports of this class during 1913 was £19,705,768, representing 25.20 per cent. of the total imports of merchandise. Under the 1908-11 tariff, 58.35 per cent. of these goods would be dutiable at an average equivalent *ad valorem* rate of 22.44 per cent., and under the 1914 tariff, 72.90 per cent. would be dutiable at an average rate of 22.57 per cent. The increase in the dutiable goods is due to the imposition of duties on goods not of United Kingdom origin, which were formerly free. These goods, if of United Kingdom origin, are still free. Including free goods, the average rate of duty on all goods within the class has been increased from 13.09 per cent. to 16.46 per cent.

Imports from the United Kingdom. The imports of this class from the United Kingdom during 1913 were valued at £12,057,643, equal to 29.44 per cent. of all imports of United Kingdom merchandise. Of these goods 55.71 per cent. would be dutiable under both tariffs, though the average rate would be increased from 23.38 per cent. under the 1908-11 tariff to 27.08 per cent. under the 1914 tariff, the corresponding rates on all goods within the class (dutiable and free) rising from 13.03 per cent. to 15.09 per cent.

Under the 1908-11 tariff, preferential rates applied to £10,594,158, with a margin of preference equal to 5.12 per cent. *ad valorem*, while under the 1914 tariff, preferential treatment has been extended to embrace £12,016,659 (99.66 per cent. of all goods within the class), on which an average preference equal to 5.36 per cent. of the goods (£643,544) is given.

CLASS X.—OILS, FATS, AND WAXES.

General Comparisons. In this class the imposition of new duties brings 72.41 per cent. (£1,426,339) of the imports into the dutiable class, as compared with 67.32 per cent. under the 1908-11 tariff. The average rate of duty on *dutiable* goods has been raised

from 16.44 per cent. to 17.74 per cent., so raising the average rate on all goods within the class from 11.07 per cent. to 12.85 per cent.

Imports from the United Kingdom. No changes have been made in the duties on goods of United Kingdom origin in this class. The increased rates mentioned in the previous paragraph are due to higher rates on foreign goods. By reason of these higher duties, oils, etc., of United Kingdom manufacture, to the value of £281,864 (93.60 per cent.), have the advantage of preferential duties, as compared with £40,645 (13.50 per cent.) under the former tariff. The margin of preference has also been slightly increased from 5.23 per cent. to 5.37 per cent. on the value of the goods.

CLASS XI.—PAINTS AND VARNISHES.

General Comparisons. In this class the value of *dutiable* goods would be the same under both tariffs, but the average rate of duty on all *dutiable* goods within the class would be raised from 17.01 per cent. to 21.36 per cent., and the rates on all goods within the class would be raised from 16.25 per cent. to 20.42 per cent.

Imports from the United Kingdom. Of the imports of paints and varnish manufactured in the United Kingdom, 94.59 per cent. would be dutiable under both tariffs. The average *ad valorem* rate of duty on dutiable goods has, however, been raised from 16.34 per cent. to 20.79 per cent., so raising the rates on all goods within the class from 15.46 per cent. to 19.66 per cent.

Under the tariff of 1908-11, £452,539, or 91.56 per cent. of all paints and varnishes of United Kingdom origin, was favoured by preferential tariff rates, while under the 1914 tariff all goods within the class have the advantage of preferential rates, but, through this extension, the average margin has been slightly reduced from 5.06 per cent. to 4.93 per cent. of the value of the goods.

CLASS XII.—STONES AND MINERALS USED INDUSTRIALLY.

General Comparisons. Under the 1908-11 tariff, 83.46 per cent. of the imports under this class would be dutiable at an average equivalent *ad valorem* rate of 23.11 per cent. Under the present tariff, dutiable goods comprise 91.99 per cent. of the total, and the average rate has been raised to 24.38 per cent. On all goods within the class (*dutiable* and *free*) the average rate has been increased from 19.28 to 22.43 per cent.

Imports from the United Kingdom. Of the imports from the United Kingdom, 93.37 per cent. would be dutiable under both tariffs. Under the 1914 tariff the average rate is slightly higher than formerly, the rates being respectively:—On *dutiable* goods 22.28 per cent., increased to 23.08 per cent.; and on all goods 20.80 per cent., raised to 21.55 per cent.

Under the 1908-11 tariff, preferential rates affected 76.80 per cent. of the stones, etc. of United Kingdom origin, the margin of preference being 5 per cent.; under the present tariff, 96.84 per cent. is favoured by an average margin of 8.06 per cent.

CLASS XIII.—SPECIE.

All specie is exempt from duty.

CLASS XIV.—METALS (UNMANUFACTURED) AND ORES.

This class includes ore of all kinds and gold and silver bullion. The proportion of *dutiable* goods is small, representing £18,002, or 1.14 per cent. of the total. The average rate on these *dutiable* goods is, now, 17.59 per cent., as against 15.28 per cent. formerly. Under the 1914 tariff, duties have been imposed on imports of pig iron and steel; mixed metals—aluminium, bronze, britannia metal, etc.; and on platinum bars when not the produce of the United Kingdom. Consequently, under the present tariff, imports of this class to the value of £236,985 would have the advantage of preference equal to 6.21 per cent. *ad valorem*, whereas, under the 1908-11 tariff, the advantage was restricted to 5 per cent. on £16,969.

CLASS XV.—METALS PARTLY MANUFACTURED.

All metals in this class are exempt from duty.

CLASS XVI.—METALS MANUFACTURED, INCLUDING MACHINERY.

General Comparisons. The imports under this class during 1913 amounted to £16,623,135, representing 21.25 per cent. of the total imports of merchandise. Under the 1908-11 tariff, 61.85 per cent. was dutiable at an equivalent average *ad valorem* rate of 15.98 per cent. Under the 1914 tariff, 78.92 per cent. would be dutiable at an average rate of 17.07 per cent., thus raising the rate on all goods (dutiable and free) within the class from 9.88 per cent. to 13.48 per cent. The greater proportion of dutiable goods under the 1914 tariff is almost entirely due to the imposition of duties on goods not of United Kingdom origin.

Imports from the United Kingdom. The imports from the United Kingdom of metal manufactures and machinery during 1913 amounted to £10,855,417, or 26.51 per cent. of the total imports of merchandise of United Kingdom origin. Under the 1914 tariff a small amount of imports which were formerly free became dutiable, thus increasing the proportion of dutiable goods from 66.78 per cent. to 67.74 per cent. The average rate of duty on *dutiable* goods has been raised from 14.21 per cent. to 16.70 per cent., and the rates on all goods (dutiable and free) from 9.49 per cent. to 11.31 per cent. *ad valorem*.

Under the 1908-11 tariff, imports of metals and machinery of United Kingdom manufacture to the value of £7,645,503 were favoured by preferential tariff treatment equal to 4.50 per cent. *ad valorem*, while under the 1914 tariff, preferential rates apply to £10,818,350, or 99.66 per cent., the margin of preference being raised to 6.14 per cent. *ad valorem*. This represents a remission of £664,000 of duty as compared with what the same goods would have to pay if manufactured outside the United Kingdom.

CLASS XVII.—LEATHER AND MANUFACTURES OF LEATHER AND SUBSTITUTES THEREFOR, ALSO INDIARUBBER AND INDIARUBBER MANUFACTURES.

General Comparisons. The total imports under this class amounted to £1,749,046, of which 74.30 per cent. (£1,299,603) would be dutiable under the 1914 tariff at an average rate equal to 29.14 per cent., as against 74.11 per cent. (£1,296,278) bearing an average rate of 21.59 per cent. under the 1908-11 tariff. The average rate of all goods in the class has been raised from 16 per cent. to 21.65 per cent.

Imports from the United Kingdom. The proportion of dutiable goods of United Kingdom origin would be the same under both tariffs (76.28 per cent.). The average rate on *dutiable* goods in this class has been raised from 20.26 per cent. to 24.79 per cent., and on all goods (dutiable and free) from 15.45 per cent. to 18.91 per cent.

Under the 1908-11 tariff, £342,991 was favoured by a preferential margin of duty equal to 5 per cent. Under the 1914 tariff, preferential treatment has been extended to £458,390 with a margin of 4.98 per cent. of the value of the goods. This slight decrease in the margin of preference is due to a new preference on patent and enamelled leather of $\frac{1}{4}$ d. per lb., which is less than the 5 per cent. otherwise allowed throughout the class.

CLASS XVIII.—WOOD AND WICKER, RAW AND MANUFACTURED.

General Comparisons. The total imports under this class amounted to £3,573,753. Under the 1908-11 tariff, 92.34 per cent. (£3,300,002) of the imports of this class was dutiable at an equivalent average *ad valorem* rate of 16.91 per cent. Under the 1914 tariff, 97.59 per cent. (£3,487,323) would become dutiable at an average rate of 22.33 per cent., thus raising the rate of duty on all goods (dutiable and free) within the class from 15.62 per cent. to 21.79 per cent. of the value of the imports.

Imports from the United Kingdom. The imports of this class from the United Kingdom are relatively small (£230,941), representing, in 1913, slightly more than 6 per cent. of all imports of wood, etc., and comprise chiefly furniture, picture frames, and miscellaneous manufactured articles of wood. Under the 1908-11 tariff, 72.40 per cent. of the imports of United Kingdom origin was dutiable at an average rate of 28.48 per cent., while under the 1914 tariff, 72.45 per cent. would become dutiable at an

average of 31.26 per cent. The average equivalent *ad valorem* rate on all imports of this class of United Kingdom origin was thus raised from 20.62 per cent. to 22.65 per cent.

Under the tariff of 1908-11, 68.34 per cent. of the imports from the United Kingdom was favoured by preferential treatment equal to 5.11 per cent. *ad valorem*, whereas, under the 1914 tariff, 95.93 per cent. would be favoured by a preferential margin of 5.02 per cent.

CLASS XIX.—EARTHENWARE, CEMENTS, CHINA, GLASS AND STONEWARE.

General Comparisons. The total imports under this class amounted to £1,580,615. Under the 1908-11 tariff, 92.91 per cent. was dutiable at an equivalent average *ad valorem* rate of 27.58 per cent. Under the 1914 tariff, 97.61 per cent. would be dutiable at an average of 32.95 per cent., the average rate on all goods within the class being raised from 25.63 per cent. to 32.16 per cent. The increased proportion of dutiable goods is due entirely to the imposition of duties of 5 per cent. on goods not of United Kingdom origin which were formerly free.

Imports from the United Kingdom. The dutiable imports of this class of United Kingdom origin would be the same under both tariffs (£618,147, or 94.27 per cent.), but the average rate of duty would be raised by the 1914 tariff from 23.35 per cent. to 26.94 per cent., so raising the rates on all goods within the class from 22.02 per cent. to 25.40 per cent.

Under the tariff of 1908-11, 86.11 per cent. of the imports from the United Kingdom was favoured by preferential treatment equal to 6.46 per cent. *ad valorem*, whereas, under the 1914 tariff, 92.66 per cent. would be favoured by a preferential margin of 8.98 per cent.

CLASS XX.—PAPER AND STATIONERY.

General Comparisons. The imports of paper and stationery during 1913 amounted to £3,134,750, of which £1,996,894 was paper, and £1,137,856 was stationery. Under the 1908-11 tariff, 29.82 per cent. was dutiable at an average equivalent *ad valorem* rate of 22.99 per cent. Under the 1914 tariff, 56.12 per cent. would be dutiable at an average rate of 20.30 per cent. Over all goods within the class (dutiable and free) the average rate would be raised, under the 1914 tariff, to 11.39 per cent., as against the former average rate of 6.85 per cent.

With regard to the imports of paper—apart from those of stationery—the proportion subject to duty has been raised from 28.26 per cent. to 65.96 per cent. The average rate of duty on dutiable paper has declined from 22.30 per cent. to 18.71 per cent., while the average rate on all imports of paper, dutiable and free, has increased from 6.30 per cent. to 12.34 per cent. The larger proportion of paper imports subject to duty, in conjunction with the lower average rate thereon, is due to the imposition of comparatively low rates on goods (formerly free) produced outside the United Kingdom. For instance, prior to the introduction of the 1914 tariff, printing paper was free, whereas now, when not made in the United Kingdom, it is subject to a duty of 10 per cent.

Of the imports of stationery—as distinct from paper, previously dealt with—the proportion subject to duty has been raised from 32.55 per cent. to 38.92 per cent., the average rate on these dutiable goods rising from 24.03 per cent. to 25.58 per cent., thus increasing the average rate on all imports of stationery from 7.82 per cent. to 9.93 per cent. Nearly 60 per cent. of the imports of stationery consist of printed books, which are entirely free from duty.

Imports from the United Kingdom. The imports of paper and stationery manufactured in the United Kingdom amounted to £1,789,577, of which £901,099 was paper, and £888,478 was stationery. Under the 1908-11 tariff, 22.82 per cent. was dutiable at an average rate of 23.37 per cent. Under the 1914 tariff, 27.65 per cent. would be dutiable at 24.76 per cent., thus increasing the average rate on all paper and stationery from 5.33 per cent. to 6.85 per cent. Under the 1908-11 tariff, preferential rates favoured £652,183 (36.45 per cent. of all imports), with a rebate of duty equal to 4.84 per cent. of

the value of the goods. Under the 1914 tariff, preferential treatment has been extended to embrace goods to the value of £1,192,111 (66.62 per cent.), the margin of preference at the same time being increased to 6.64 per cent. *ad valorem*.

Dealing with the imports of paper and of stationery separately, the tariff alterations affecting the trade of the United Kingdom would be as follows:—*Paper*. Of the imports of paper (£901,099), the proportion subject to duty under the 1908-11 tariff was 19.57 per cent., and under the 1914 tariff 24.60 per cent. The average *ad valorem* rate on these dutiable goods has been increased from 23.44 per cent. to 25.36 per cent., the rate on all paper (dutiabale and free) rising from 4.59 per cent. to 6.24 per cent. *Stationery*. The imports of stationery of United Kingdom manufacture amounted to £888,478, of which 26.13 per cent. was dutiable under the 1908-11 tariff at an average rate of 23.33 per cent. Under the 1914 tariff, 30.74 per cent. would be dutiable at 25.13 per cent., so raising the average rate on all stationery (dutiabale and free) from 6.09 per cent. to 7.73 per cent. *ad valorem*.

CLASS XXI.—JEWELLERY, TIMEPIECES, AND FANCY GOODS.

General Comparisons. The value of imports of this class during 1913 amounted to £1,410,555, of which £1,121,742, or 79.51 per cent., would be dutiable under both tariffs. Under the 1908-11 tariff, the average equivalent *ad valorem* rate on *dutiabale* imports was 25.64 per cent., and under the 1914 tariff 28.05 per cent. the average rates on all imports of the class being raised from 20.39 per cent. to 22.31 per cent. *ad valorem*.

Imports from the United Kingdom. The imports of goods of this class produced in the United Kingdom amounted to £506,608, of which £481,594, or 95.05 per cent., would be dutiable under both tariffs, though the rate of *dutiabale* goods has been raised from 22.62 per cent. to 24.18 per cent., and on all goods (dutiabale and free) from 21.51 per cent. to 22.98 per cent.

Under the 1908-11 tariff, preferential treatment was given to 94.49 per cent. (£478,757) of imports of United Kingdom origin; the margin of preference being equal to 5.38 per cent. of the value of the goods. Under the 1914 tariff, 95.04 per cent. (£481,594) would be favoured by a margin of 9.12 per cent.

CLASS XXII.—OPTICAL, SURGICAL, AND SCIENTIFIC INSTRUMENTS.

General Comparisons. The imports of this class during 1913 amounted to £754,589. Under the 1908-11 tariff, 24.67 per cent. (£186,175) was dutiable at an average rate of 14.26 per cent., while under the 1914 tariff, 52.15 per cent. (£393,580) would be dutiable at an average rate of 25.62 per cent. The average rate on all goods within the class would thus be raised from 3.52 per cent. to 13.36 per cent.

Imports from the United Kingdom. The imports of goods of this class manufactured in the United Kingdom amounted to £333,179. Under the 1908-11 tariff, 18.27 per cent. (£60,861) was dutiable at an average rate equal to 19.63 per cent.; whereas, under the 1914 tariff, 31.02 per cent. (£103,340) would pay duty at the average rate of 25.95 per cent. The average rate on all goods, including free goods, has been raised from 3.59 per cent. to 8.05 per cent.

Under the 1908-11 tariff, 44.24 per cent. (£147,398) of the imports of United Kingdom manufacture was favoured by a preferential tariff margin equal to 5.09 per cent. *ad valorem*. Under the 1914 tariff, 59.15 per cent. (£197,061) would be favoured by a tariff margin increased to 6.55 per cent.

CLASS XXIII.—DRUGS, CHEMICALS, AND FERTILIZERS.

General Comparisons. The imports of this class during 1913 were valued at £2,493,192. Under the 1908-11 tariff, 22.69 per cent. (£565,569) was dutiable at an average rate of 20.08 per cent. Under the 1914 tariff, 47.98 per cent. (£1,196,301) would pay duty at an average rate of 12.85 per cent., the rate over all imports of the class being raised from 4.56 per cent. to 6.17 per cent. *ad valorem*. The smaller average rate of duty on dutiable imports is due to the imposition of 5 per cent. duties on goods manufactured outside the United Kingdom which were formerly free.

Imports from the United Kingdom. The imports of this class from the United Kingdom during 1913 amounted to £902,343, of which 34.45 per cent. would be dutiable under both tariffs, the average rate being slightly increased from 18.07 per cent. to 18.30 per cent., the average rate on all goods in the class rising from 6.23 per cent. to 6.30 per cent.

Under the 1908-11 tariff, 12.92 per cent. (£116,543) of the imports of drugs, etc., made in the United Kingdom was favoured by a tariff margin of 4.58 per cent. *ad valorem*, whereas, under the 1914 tariff, preferential rates have been extended to 94.94 per cent. of the class, and the margin of preference has been increased to 5.09 per cent.

CLASS XXIV.—MISCELLANEOUS.

General Comparisons.—The total value of imports under this class during 1913 amounted to £11,258,981, of which £2,495,000 was in respect of warships for the Commonwealth Government, and £1,662,300 was for mercantile ships. Under the 1908-11 tariff, £3,853,022 (34.22 per cent.) would be dutiable at an average rate of 21.23 per cent., and under the 1914 tariff, £3,937,906 (34.98 per cent.) would be dutiable at an average rate of 24.30 per cent. The rate of duty on all imports of the class would be raised from 7.27 per cent. to 8.50 per cent. *ad valorem*. If the value of imports for the Commonwealth Government be excluded from the figures, the proportion of dutiable goods in this class under the 1908-11 tariff would be 46.83 per cent., and the average rate of duty on all other goods of the class 9.95 per cent., and under the 1914 tariff, 47.91 per cent. would be dutiable at an average rate for all goods (dutiable and free) of 11.64 per cent.

Imports from the United Kingdom. The imports of manufactures of the United Kingdom of this class amounted to £7,892,845, of which £4,073,452, or 51.60 per cent., was in respect of ships. Dutiable goods would represent, under both tariffs, 14.22 per cent. (£1,122,667) of the total. Under the tariff of 1908-11, the average rate of duty on dutiable goods would be 23.43 per cent., and under the tariff of 1914 it would be 25.37 per cent. The average rate on all imports of the class (dutiable and free) of United Kingdom origin would be raised from 3.32 per cent. to 3.61 per cent. If the value of imports for the Commonwealth Government be eliminated, the proportion of dutiable goods would be 22.20 per cent. under both tariffs, the average rates on all goods being respectively 5.15 per cent. under the tariff of 1908-11 and 5.58 per cent. under the tariff of 1914.

Under the tariff of 1908-11 preferential tariff treatment was given to imports of this class from the United Kingdom to the value of £2,716,217, or 34.41 per cent. of such imports. Under the tariff of 1914, preference favoured £2,883,474, or 36.54 per cent., with an average tariff margin of 8.79 per cent., as against a former margin of 6.76 per cent.

TOTAL IMPORTS.

General Comparisons.—The total imports of merchandise (bullion and specie not included) into the Commonwealth during 1913 amounted to £78,196,109. Under the tariff of 1908-11, the dutiable goods would be £44,633,257, or 57.07 per cent. of the total imports of merchandise. Under the 1914 tariff, the dutiable goods would be increased to £53,111,865, or 67.92 per cent. of the total. Under the 1914 tariff, the average equivalent *ad valorem* rate of duty on dutiable goods would be 31.65 per cent., as compared with 29.93 per cent. under the tariff of 1908-11, the average rate on all imports (dutiable and free) being raised accordingly from 17.08 per cent. to 21.50 per cent. If the value of warships and other goods imported for the Commonwealth Government (£3,039,876) be excluded, the proportion of dutiable goods under the 1914 tariff would be 70.76 per cent., as compared with 59.38 per cent. under the former tariff, while the average rate on all other goods within the class would now be 22.35 per cent., as against 17.77 per cent. under the 1908-11 tariff. The increased rates of duty represent £3,400,000 increase of duty.

**SUMMARISED COMPARISON OF THE TARIFFS OF 1908-11 AND 1914, BASED UPON
THEIR APPLICATION TO THE IMPORTS OF MERCHANDISE INTO THE
COMMONWEALTH DURING 1913.**

	Tariff of 1908-11.	Tariff of 1914.
Imports of free merchandise—	£	£
Favoured by preferential tariff (United Kingdom) ...	7,485,367	12,485,947
Under tariff common to all countries	26,077,485	12,598,297
Total imports of free merchandise	33,562,852	25,084,244
Percentage of free imports on total imports ...	42.93	32.08
Imports of dutiable merchandise—		
Favoured by preferential tariff—		
From United Kingdom	17,500,941	20,044,501
„ South Africa	38,569	38,569
Adversely affected by preferential tariffs—		
From British Possessions	491,972	3,260,638*
„ Foreign countries	13,542,545	21,299,469
Under tariff common to all countries	13,059,280	8,468,693
Total imports of dutiable merchandise	44,633,257	53,111,865
Percentage of dutiable imports on total imports ...	57.07	67.92
Total imports favoured by preferential tariffs ...	25,024,877	32,569,017
„ adversely affected by „ „ ...	14,034,517	24,560,102
„ under tariff common to all countries ...	39,136,715	21,066,990
Total imports of merchandise	78,196,109	78,196,109
Equivalent <i>ad valorem</i> rates of duty—	Per cent.	Per cent.
On total imports of merchandise	17.08	21.50
On imports of merchandise, less drink and tobacco ...	11.62	14.65
On <i>dutiable</i> merchandise	29.93	31.65
On <i>dutiable</i> merchandise, less drink and tobacco ...	21.79	23.23

* The surcharge on these imports as compared with similar imports from the United Kingdom would be at the average rate of 9.46 per cent.

Imports from the United Kingdom. The total imports of merchandise from the United Kingdom during 1913 amounted to £40,948,803. Under the tariff of 1908-11, the dutiable goods represented £21,053,786, or 51.41 per cent., the average equivalent *ad valorem* rate thereon being 27.62 per cent. Under the 1914 tariff, dutiable goods are increased slightly to £21,287,404 (51.99 per cent.), while the average rate on dutiable goods has been raised to 32.26 per cent. The average equivalent *ad valorem* rate on all imports from the United Kingdom would, under the 1914 tariff, be 16.77 per cent., compared with 14.20 per cent. under the former tariff. Omitting the value of imports for the Commonwealth Government (£2,786,430), the proportion of dutiable goods would now be 55.78 per cent., as against 55.16 per cent. formerly, and the average *ad valorem* rate on all goods (dutiable and free) would now be 18.04 per cent. instead of 15.24 per cent. The increased rates on imports of United Kingdom origin represent an additional impost of £1,050,000 on the same trade.

Under the tariff of 1908-11, imports of United Kingdom origin to the value of £24,986,308, representing 61.01 per cent. of the total imports of United Kingdom produce, were favoured by preferential tariff rates equal to 5.14 per cent. of the value of the goods. Under the 1914 tariff, preferential treatment is extended to £32,530,448, or 79.42 per

cent. of United Kingdom goods, the margin of preference being extended, at the same time, to 6.30 per cent. *ad valorem*. This means that if the same goods were imported from countries other than the United Kingdom, £2,050,000 additional duty would now be charged, whereas under the 1908-11 tariff the rebate of duty would have been £1,280,000.

A comparison of the results given in the second and third tables of the series shews that while the average rate of duty on goods produced or manufactured in the United Kingdom has been increased by 2.57 per cent. of the value of the goods (from 14.20 per cent. to 16.77 per cent.), the rates on goods from other countries have been increased by 6.44 per cent. (from 20.25 per cent. to 26.69 per cent.). This is the combined result of an extension of duties to 85.44 per cent. (£31,824,461) of the imports as compared with 63.30 per cent. (£23,579,471) previously dutiable, in conjunction with a decrease of the average rate on dutiable goods from 31.99 per cent. to 31.24 per cent.

Not only has the "preference" to the United Kingdom been increased by an extension of the principle to goods which did not formerly come within its scope, but in regard to many items, new duties have been imposed under the general tariff, or previous rates have been raised, while the rates on similar imports from the United Kingdom have not been altered. Thus many items which are still free if produced in the United Kingdom have become dutiable if produced elsewhere. The higher average rate of duty on United Kingdom goods is due to the increase of duties previously in force, rather than to any contraction of the free list.

SUMMARISED COMPARISON OF THE TARIFFS OF 1908-11 AND 1914, BASED UPON THEIR APPLICATION TO THE PRODUCE OR MANUFACTURE OF THE UNITED KINGDOM IMPORTED INTO THE COMMONWEALTH DURING 1913.

	Tariff of 1908-11.	Tariff of 1914.
Imports of free merchandise—	£	£
Favoured by preferential tariff	7,485,367	12,485,947
Under tariff common to all countries	12,409,650	7,175,452
Total imports of free merchandise	19,895,017	19,661,399
Percentage of free imports on total imports	48.59	48.01
Imports of dutiable merchandise—		
Favoured by preferential tariff	17,500,941	20,044,501
Under tariff common to all countries	3,552,845*	1,242,903*
Total imports of dutiable merchandise... ..	21,053,786	21,287,404
Percentage of dutiable imports on total imports	51.41	51.99
Total imports of merchandise	40,948,803	40,948,803
Total imports favoured by preferential tariff	24,986,308	32,530,448
Total imports favoured by preferential tariff, per cent. on total imports	61.01	79.42
Margin of preference—Per cent. <i>ad valorem</i>	5.14	6.30
Equivalent <i>ad valorem</i> rates of duty—	Per cent.	Per cent.
On total imports of merchandise	14.20	16.77
On imports of merchandise, less drink and tobacco	9.71	11.88
On <i>dutiable</i> merchandise	27.62	32.26
On <i>dutiable</i> merchandise, less drink and tobacco	19.53	23.62

* Includes tobacco to the value of £23,154 imported in competition with similar imports from South Africa, which is favoured by preferential rates under the South African Preference Act.

Imports from British Countries other than the United Kingdom.—With the exception of some imports from South Africa, which are admitted under special rates by virtue of the South African Preference Act, imports from "British Possessions" are subject to the same tariff as similar goods imported from "Foreign Countries." The rebate of duty on South African goods imported during 1913 amounted to £4296 under the tariff of 1908-11. Under the 1914 tariff the rebate, as compared with similar imports from the United Kingdom, would be £3345, and against similar imports from other countries the rebate would be £3517. The smaller rebate under the 1914 tariff is the effect of the reduction of the margin on cut tobacco from 1s. 3d. to 9d. per lb., and other manufactured tobacco from 1s. to 9d. per lb.

The imports of merchandise from "British Possessions" during 1913 were valued at £7,804,483. Under the tariff of 1908-11, 34.53 per cent. of this was dutiable at an average rate of 32.46 per cent., with the result that all imports from "British Possessions" would pay an average rate of 11.21 per cent. Under the 1914 tariff, £5,239,246 (67.12 per cent.) would become dutiable, but at an average rate reduced to 23.67 per cent., the effect being to increase the average rate on all imports, dutiable and free, to 15.89 per cent. This means that under the 1914 tariff these imports would be required to pay £1,240,485 duty, whereas, formerly, the duty on the same goods would have been £874,905 only. The lower average rate of duty on dutiable goods, in conjunction with the higher proportion of these goods to the total imports, is due to the imposition of comparatively low duties (10 per cent.) on jute goods from India, and on printing paper from Canada. It may be well to explain that the lower rate of duty on imports from "British Possessions" than on imports from foreign countries, although both are subject to the same tariff, is also largely due to the influence of bags and sacks, which are obtained almost entirely from India. The lower proportion of dutiable goods from "British Possessions," as compared with "Foreign Countries," is due to the fact that raw materials, and animals for breeding purposes, which are free, enter more largely into the trade of the former than that of the latter.

Of the imports from "British Possessions" (£7,804,483), £3,260,633 would be adversely affected by the preferential tariff in favour of the United Kingdom by a surcharge of £308,534, or 9.46 per cent. *ad valorem*. Under the 1914 tariff, jute goods imported from India—£2,153,000 in 1913—pay a duty of 10 per cent., whereas similar goods manufactured in the United Kingdom are free. Canadian goods to a value of over £750,000 would be similarly affected, the chief lines being—agricultural implements, printing paper, motor and other vehicles and parts, fish, rubber goods and furniture.

A tabular presentation of the changes made by the tariff of 1914 as they affect imports from "British Possessions" and from "Foreign Countries" is appended:—

IMPORTS OF MERCHANDISE FROM BRITISH POSSESSIONS AND FROM FOREIGN COUNTRIES, ANALYSED ACCORDING TO THE TARIFFS OF 1908-11 and 1914.

	Imports from British Possessions.		Imports from Foreign Countries.	
	According to Tariff of—		According to Tariff of—	
	1908-11.	1914.	1908-11.	1914.
	£	£	£	£
Free	5,108,991	2,565,237	8,558,844	2,857,608
Dutiable	2,695,492	5,239,246	20,883,979	26,585,215
Total imports	7,804,483	7,804,483	29,442,823	29,442,823
Duty payable	874,905	1,240,485	6,667,041	8,700,316
Proportion of dutiable goods ...	Per cent. 34.53	Per cent. 67.12	Per cent. 70.91	Per cent. 90.28
Average rate of duty on—				
Dutiable imports	32.46	23.67	31.92	32.72
All imports	11.21	15.89	22.65	29.55

§ 14.—Rates of Duty in Australia and other Countries.

The following table shews the proportion of the total imports of merchandise entered for "home consumption," free of duty, in the undermentioned countries, and also the equivalent *ad valorem* rates of duty charged:—

PROPORTION OF FREE GOODS AND RATES OF IMPORT DUTY.

Particulars.	Australia.			Canada.	New Zealand.	U.S. of America.
	31/12/06	30/6/16	Tariff of 1914 applied to Imports of 1913.	(a) 31/3/16	31/12/15	30/6/15
Year ended	31/12/06	30/6/16	Tariff of 1914 applied to Imports of 1913.	31/3/16	31/12/15	30/6/15
Percentage of free merchandise ...	35.18	34.71	32.08	43.01	57.21	62.65
Equivalent <i>ad val.</i> rates of duty on	%	%	%	%	%	%
Spirits, wines, and malt liquors	153.23	168.81	169.98	161.26	153.45	98.82
Tobacco, and preparations thereof	168.65	148.95	202.20	13.73b	127.73	80.69d
Other dutiable merchandise ...	17.04	20.96	23.23	34.54	20.98	29.36
Other merchandise dutiable & free	10.75	13.45	14.65	19.01	8.32	10.46
Total dutiable merchandise ...	27.14	27.69	31.65	35.92	35.57	33.43
Total merchandise dutiable & free	17.59	18.08	21.50	20.47	15.22	12.49
Customs duty per head ...	£ s. d. 1 15 10	£ s. d. 2 17 4	£ s. d. —	£ s. d. 2 13 8	£ s. d. 2 17 3c	£ s. d. 0 8 7

(a) The rates of duty given in relation to imports are exclusive of war tax, £565,000, which, however, is included in the duty per head of population. (b) Unmanufactured tobacco is admitted to Canada free of duty. (c) Exclusive of Maoris. (d) Tobacco is admitted free of Customs duty from the Philippine Islands.

The figures given for the year ended 30th June, 1906, represent the results of the last full year of operation of the tariff of 1902.

From the results given in the above table, it will be seen that the scheme of taxation, by means of import duties, varies materially between the countries named. In Australia and Canada, taxation is spread much more widely over imported commodities than in New Zealand or the United States of America. In the latter country, 62 per cent. of all imports are free of duty, whereas under the tariff at present in force in the Commonwealth, about 35 per cent. only of the total imports are exempt from taxation. A considerable restriction of the free list in this country was necessary to raise the revenue required by the exigencies of the war, though even prior to the war free goods represented only 42 per cent. of the total imports, while in New Zealand they comprised 52 per cent. The lower average rate of duty charged on imports into the Commonwealth during the year ended 30th June, 1916, as compared with the results obtained from the application of the same tariff to the imports of 1913, is due largely to increased prices reducing the equivalent *ad valorem* rates on goods subject to fixed rates of duty. This is particularly noticeable with regard to the tobacco group. Had the present tariff been in force during 1913 the imports of tobacco, cigars and cigarettes in that year would have paid an average *ad valorem* rate equivalent to 202.20 per cent., whereas on the imports of 1915-16, by reason of increased values, the same fixed rates represented an equivalent *ad valorem* rate of 148.96 per cent. only.

VALUE OF GOODS (EXCLUDING BULLION AND SPÉCIE) ENTERED FOR CONSUMPTION IN THE COMMONWEALTH, AND DUTY COLLECTED THEREON, 1915-16.

Classification of Imports,	Value Entered for Consumption.			Duty Collect'd, less Refunds.	Equivalent <i>ad valorem</i> Rate per cent. on—	
	Dutiable.	Free (Net Imports).	Total.		Dutiable Imports.	All Imports.
	£	£	£	£	%	%
I. Foodstuffs of animal origin, excluding living animals	1,598,816	74,004	1,672,820	394,549	20.30	19.40
II. Foodstuffs of vegetable origin and salt	5,415,616	3,131,663	8,547,279	1,243,068	25.17	14.54
III. Beverages (non-alcoholic) and substances used in making	642,427	1,932,811	2,575,238	170,894	26.60	6.64
IV. Spirits and alcoholic liquors, including industrial spirits and pharmaceutical preparations dutiable as spirits	1,477,324	838	1,478,162	2,495,148	168.91	168.81
V. Tobacco & preparations thereof	893,855	23	893,878	1,331,521	148.96	148.95
VI. Live animals	33,575	117,717	151,292	244	0.73	0.16
VII. Animal substances (mainly unmanufactured) not foodstuffs	123,613	407,127	530,740	16,681	13.49	3.14
VIII. Vegetable substances and fibres	260,450	1,956,247	2,216,697	51,416	19.74	2.32
IX. Apparel, textiles, and manufactured fibres	14,000,149	7,189,967	21,190,116	3,070,689	21.93	14.49
X. Oils, fats, and waxes	2,137,838	616,819	2,754,657	353,013	16.52	12.82
XI. Paints and varnishes	607,747	31,162	638,909	95,650	15.74	14.97
XII. Stones and minerals used industrially	129,178	25,938	155,116	30,625	23.71	19.75
XIII. Spécie (omitted)	...	...	...	...	...	...
XIV. Metals (unmanufactured) and ores, including gold and silver bullion	126,645	718,735	845,380	9,336	7.37	1.10
XV. Metals partly manufactured	422,350	674,144	1,096,494	21,545	5.10	1.97
XVI. Metals manufactured, including machinery	8,753,197	3,509,960	12,263,157	1,535,236	17.54	12.52
XVII. Leather and manufactures of leather and substitutes therefor, also indiarubber and indiarubber manufactures	1,247,847	647,924	1,895,771	392,544	31.46	20.71
XVIII. Wood and wicker, raw and manufactured	1,999,190	40,290	2,039,480	372,610	18.64	18.28
XIX. Earthenware, cements, china, glass, and stoneware	1,269,251	43,773	1,313,024	331,500	26.13	25.25
XX. Paper and stationery	1,645,935	1,242,416	2,888,351	349,603	21.24	13.10
XXI. Jewellery, timepieces, and fancy goods	929,001	187,129	1,116,130	264,685	28.49	23.71
XXII. Optical, surgical, and scientific instruments	316,885	234,349	551,234	107,838	34.03	19.56
XXIII. Drugs, chemicals, and fertilisers	1,384,642	1,553,778	2,938,420	160,579	11.60	5.46
XXIV. Miscellaneous	4,058,197	1,973,563	6,031,760	971,403	23.94	16.10
Total merchandise	49,473,728	26,310,377	75,784,105	13,700,377	27.69	18.08
Merchandise, excluding stimulants and narcotics	47,102,549	26,309,516	73,412,065	9,873,708	20.96	13.45

SECTION XVI.

SHIPPING.

§ 1. General.

1. **Record of Shipping before Federation.**—Prior to Federation it was customary for each State to regard the matter of shipping purely from the State standpoint, and vessels arriving from or departing to countries beyond Australia, via other Australian States, were recorded as if direct from or to the oversea country. Thus, a mail steamer from the United Kingdom, which made Fremantle her first port of call in Australia, would be recorded not only there, but again in Adelaide, Melbourne and Sydney, as an arrival from the United Kingdom. Consequently, any aggregation, especially of the recent shipping records of the different States, would repeatedly include a large proportion of the shipping visiting Australia. In earlier years, when many vessels sailed from the various State ports direct for their destination, the error of repeated inclusion was less serious, but as the commerce of Australia developed, more and more ports of call were included in the voyage of each vessel, and this made the mere aggregation of State records correspondingly misleading. It has, as a matter of fact, led to some erroneous publications of statistical results and deductions.

2. **Shipping since Federation.**—With the inauguration of the Commonwealth, the statistics of its shipping, especially of its oversea shipping, became of greater intrinsic importance. As an index of the position of Australia among the trading countries of the world, such statistics had a constitutional importance commensurate with Commonwealth interests, and correspondingly greater than those of individual States, and the nationality of the shipping trading with Australia became also a matter of greater moment.

3. **Difficulties of Comparisons of Total Shipping.**—From what is said in paragraph 1 above, it is obviously impossible now to obtain results for Australia not subject to the defect of repeated inclusions of the same vessels. Unfortunately, the statistical records of the first three years of Federal history are subject to the same defect, and do not admit of direct comparison with those now kept. A careful estimate of the extent and effect of repeated inclusion has been made and applied to the records of the earlier years, so as to extend the comparative results to those years. The error of such estimation will be negligible for comparative purposes.

4. **Present System of Record.**—The present system of record treats Australia as a unit, and counts, therefore, only one entry and one clearance for each visit to the Commonwealth. Repeated voyages of any vessel are, of course, included.

On arrival of every vessel at a port in the Commonwealth, whether from an oversea country or from another port within the Commonwealth, the master is required to deliver to the Customs officer a form giving all particulars, necessary for statistical purposes, in regard to the ship, passengers and crew. Similarly, on departure from a port, a form

containing corresponding information is lodged. These forms, which provide a complete record of the movements of every vessel in Commonwealth waters, are at the end of each month forwarded by the Customs officer at each port to the Commonwealth Bureau of Statistics, and furnish the material for the compilation of the Shipping and Migration Returns.

Under the system previously in force it was found that the estimates of population in so far as they were based on seaward movement, were very unsatisfactory, and it is believed that the method referred to above gives decidedly better results.

From the 1st July, 1914, the statistical year for the record of Trade and Shipping of the Commonwealth was altered from the calendar year to agree with the fiscal year.

§ 2. Oversea Shipping.

1. **Total Oversea Shipping.**—In order to extend, as indicated, the comparison of the oversea shipping to the earliest years for which any records are available, an estimate of its probable amount has been made. This estimate is based on a comparison of the results obtained by merely aggregating State statistics, with the defect of multiple records, and the results obtained under the present system, which avoids the multiple record. From the nature of the case it is obvious that the ratio of repeated inclusion to the total traffic has been continually advancing, and this fact has been duly taken into account in deducing the results in the following table:—

TOTAL OVERSEAS SHIPPING ENTERED AND CLEARED THE COMMONWEALTH, 1822 to 1915-16 (MULTIPLE RECORD EXCLUDED BY ESTIMATION PRIOR TO 1904.)

Year.	Vessels.	Tons.	Year.	Vessels.	Tons.	Year.	Vessels.	Tons.
1822	73	30,683	1854	3,781	1,744,251	1885	4,052	3,999,917
1823	76	30,643	1855	3,239	1,449,687	1886	3,793	3,853,246
1824	71	29,029	1856	2,669	1,195,794	1887	3,454	3,764,430
1825	80	30,786	1857	2,842	1,530,292	1888	3,933	4,464,895
1826	65	23,587	1858	2,607	1,375,050	1889	3,897	4,460,426
1827	95	23,301	1859	2,759	1,403,210	1890	3,263	4,150,027
1828	124	38,367	1860	2,464	1,288,518	1891	3,778	4,726,307
1829	185	56,735	1861	2,466	1,149,476	1892	3,432	4,239,500
1830	195	56,185	1862	2,917	1,389,231	1893	3,046	4,150,433
1831	185	52,414	1863	3,378	1,564,369	1894	3,397	4,487,546
1832	206	50,628	1864	3,344	1,537,433	1895	3,331	4,567,883
1833	241	72,647	1865	3,005	1,317,994	1896	3,309	4,631,266
1834	249	77,068	1866	3,378	1,470,738	1897	3,279	4,709,697
1835	310	96,928	1867	2,927	1,277,679	1898	3,222	4,681,368
1836	310	93,974	1868	3,080	1,350,573	1899	3,356	5,244,197
1837	442	113,432	1869	3,107	1,473,837	1900	3,719	5,894,173
1838	471	132,038	1870	2,877	1,381,878	1901	4,028	6,541,991
1839	652	191,507	1871	2,748	1,312,642	1902	3,608	6,234,460
1840	915	277,335	1872	2,788	1,380,466	1903	3,441	6,027,843
1841	900	278,738	1873	3,159	1,609,067	1904	3,700	6,682,011
1842	862	232,927	1874	3,153	1,728,269	1905	4,068	7,444,417
1843	736	183,427	1875	3,437	1,914,462	1906	4,155	7,966,658
1844	629	155,654	1876	3,295	1,863,343	1907	4,394	8,822,866
1845	735	164,221	1877	3,157	1,930,434	1908	4,051	8,581,151
1846	888	211,193	1878	3,372	2,127,518	1909	3,910	8,516,751
1847	1,033	245,358	1879	3,344	2,151,338	1910	4,048	9,333,146
1848	1,182	305,840	1880	3,078	2,177,877	1911	4,172	9,984,801
1849	1,137	355,886	1881	3,284	2,549,364	1912	4,154	10,275,314
1850	1,300	425,206	1882	3,652	3,010,944	1913	3,965	10,601,948
1851	1,576	515,061	1883	3,857	3,433,103	1914-15	3,211	8,599,258
1852	1,896	844,243	1884	4,315	4,064,947	1915-16	3,324	8,538,322
1853	3,364	1,490,422						

It will be borne in mind that while the above figures in themselves have no absolute significance, nevertheless, on the assumption that the element of duplication has been in fairly constant ratio, they furnish the best available indication of the growth of Australian oversea shipping.

2. Comparison with other Countries.—The place of Australia among various countries in regard to oversea shipping is indicated in the following table, both absolutely and in respect of tonnage per head of population:—

OVERSEA SHIPPING OF VARIOUS COUNTRIES.

Country.	Year.	Tonnage Entered and Cleared.		Country.	Year.	Tonnage Entered and Cleared.	
		Total.	Per Inhabitant.			Total.	Per Inhabitant.
Argentine Rep.	1912	23,372,714	3.2	Japan ...	1912	43,492,604	0.8
Belgium ...	1912	32,672,989	4.3	New Zealand	1915	3,277,358	3.0
Canada ...	1914	25,402,586	3.1	Norway ...	1912	10,806,050	4.4
Commonw'lth	1915-16	8,538,322	1.7	S. African Un.	1914	9,961,583	1.5
Denmark ...	1912	18,537,064	6.6	Sweden ...	1912	25,511,890	4.6
France ...	1912	62,775,775	1.6	United K'dom	1913	164,809,581	3.6
Germany ...	1912	51,065,940	0.8	United States	1915	70,489,831*	0.7
Italy ...	1912	56,889,048	1.6				

* Exclusive of Northern Border and Lake Ports.

3. Shipping Communication with various Countries.—Particulars of the number and tonnage of vessels recorded between Australia and various countries, distinguishing British from foreign countries, are given in the following tables—the next table shewing the tonnage of vessels which were recorded as having entered the Commonwealth from the particular countries mentioned; that on page 597 shews the tonnage of vessels which were recorded as having cleared the Commonwealth for the particular countries, while on page 598 is shewn the total tonnage of vessels recorded as entered and cleared from and to the countries named.

The smaller tonnage which entered and cleared Commonwealth ports during 1914-15, together with its altered distribution among the various countries, was, of course, almost entirely due to the war, though the failure of the wheat crop for that season undoubtedly had some effect in this direction. The principal factor in reducing shipping tonnage was the immediate withdrawal of ships of enemy countries. During 1913 German ships to and from the Commonwealth aggregated a tonnage of 1,211,404 tons, whereas the figures for 1914-15 include only 172,679 tons of German shipping. This latter tonnage represents vessels which arrived and departed between the 1st July, 1914, and the outbreak of war, together with a few vessels that arrived later in ignorance of the opening of hostilities.

The control of shipping by the Imperial Government for war purposes materially lessened the number of voyages of mail boats to and from England, and the tonnage of the Messageries Maritimes line was reduced from similar causes, whereas the increase shewn in the tonnage to and from India and Ceylon and "Other British Countries" represents vessels engaged in war transport services.

**SHIPPING TONNAGE ENTERED AND CLEARED THE COMMONWEALTH FROM AND
TO VARIOUS COUNTRIES 1911 to 1915-16.**

ENTERED.

Country.	1911.	1912.	1913.	1914-15.	1915-16.
United Kingdom ...	1,464,057	1,625,733	1,607,943	1,285,791	1,193,044
Canada ...	107,932	112,729	118,604	144,229	143,275
Fiji ...	77,745	73,033	86,442	85,442	72,612
Hong Kong ...	17,880	27,440	33,156	19,898	16,740
India and Ceylon ...	99,196	93,787	107,721	265,273	232,019
Mauritius ...	23,443	27,203	36,092	19,569	17,198
New Zealand ...	841,746	926,342	903,484	771,656	753,622
Papua ...	78,468	73,010	74,943	72,837	66,134
South African Union	289,229	96,679	198,505	84,365	93,262
South Sea Islands	61,983	37,472	58,498	24,279	44,191
Straits Settlements	97,735	102,598	100,238	106,534	105,531
Other British Countries	324	3,068	10,826	134,057	300,958
Total British Countries ...	3,159,738	3,199,094	3,341,452	3,013,930	3,043,586
Africa, Portuguese East	74,033	46,751	63,870	14,391	4,812
Belgium ...	18,734	11,852	9,563	6,871	...
Chile ...	182,460	176,416	108,121	33,288	19,165
Dutch East Indies	43,458	67,761	87,428	87,245	83,648
France ...	83,627	47,191	63,632	34,633	40,652
Germany ...	314,167	427,320	414,294	74,208	...
Hawaiian Islands ...	17,167	16,508	10,101	...	1,653
Japan ...	157,533	157,734	160,241	125,789	189,200
Mexico ...	16,481	19,445	9,973	...	...
New Caledonia ...	71,390	77,265	86,702	41,398	30,906
Norway ...	40,204	34,715	26,200	47,649	29,530
Peru ...	32,922	35,482	21,504	5,973	5,790
Philippine Islands ...	56,603	56,216	47,220	26,943	8,399
South Sea Islands (foreign) ...	56,878	67,805	66,651	73,762	77,309
Sweden ...	77,983	48,060	80,546	37,504	19,576
United States ...	389,208	453,354	509,922	426,513	570,918
Other Foreign Countries	200,584	220,388	264,111	119,858	144,340
Total Foreign Countries ...	1,833,482	1,964,263	2,030,079	1,161,025	1,225,898
Total all Countries ...	4,993,220	5,163,357	5,371,531	4,174,955	4,269,484

SHIPPING TONNAGE ENTERED AND CLEARED, ETC.—(Continued.)

CLEARED.

Country.	1911.	1912.	1913.	1914-15.	1915-16.
United Kingdom ...	1,537,084	1,369,143	1,455,018	1,031,279	894,628
Canada ...	54,732	54,661	82,849	90,105	101,485
Fiji ...	90,574	85,372	94,958	91,343	81,731
Hong Kong ...	19,155	32,121	27,959	30,566	17,047
India and Ceylon ...	143,632	144,487	126,656	210,688	112,989
Mauritius ...	2,953	4,526	3,505	7,681	2,817
New Zealand ...	1,044,013	1,183,741	1,198,837	916,809	894,618
Papua ...	71,811	66,409	73,923	63,962	58,378
South African Union ...	85,346	75,467	136,986	67,278	90,546
South Sea Islands ...	38,133	55,717	58,267	24,484	74,027
Straits Settlements ...	127,725	137,139	155,364	115,894	114,831
Other British Countries ...	...	...	2,270	522,870	807,481
Total British Countries	3,215,158	3,208,783	3,416,592	3,172,959	3,250,578
Africa, Portuguese East ...	6,949	3,836	5,447	2,691	...
Belgium ...	168,397	169,020	151,718	34,245	...
Chile ...	393,642	508,724	398,322	255,547	159,797
Dutch East Indies ...	115,499	155,332	189,499	180,649	112,912
France ...	155,506	94,062	81,240	54,642	29,591
Germany ...	321,502	349,685	385,752	38,358	...
Hawaiian Islands ...	26,200	34,009	45,634	37,770	16,286
Japan ...	103,550	96,108	117,472	73,228	135,876
Mexico ...	13,565	12,757	25,735	4,461	...
New Caledonia ...	62,165	74,063	86,321	43,581	51,893
Peru ...	70,960	64,881	52,626	24,431	18,584
Philippine Islands ...	102,748	95,120	46,746	72,272	18,385
South Sea Islands (foreign) ...	50,022	44,875	36,826	52,785	55,855
Sweden ...	...	...	...	...	...
United States ...	145,926	149,449	148,754	266,133	337,179
Other Foreign Countries ...	39,792	51,253	41,733	110,551	81,902
Total Foreign Countries	1,776,423	1,903,174	1,813,825	1,251,344	1,018,260
Total all Countries	4,991,581	5,111,957	5,230,417	4,424,303	4,268,838

The figures in the above table represent the tonnage of shipping recorded as having cleared the Commonwealth for the particular countries named. In the following section countries have been grouped according to larger geographical divisions with the purpose of depicting more clearly the general trend of Australian shipping.

Beyond the immediate military control of shipping, tonnage was further affected by the prohibition by the Government of the export of certain commodities. For instance, the restrictions placed on the export of coal were mainly responsible for the relatively small tonnage between this country and Chile and Peru.

**SHIPPING TONNAGE ENTERED AND CLEARED THE COMMONWEALTH FROM AND
TO VARIOUS COUNTRIES 1911 to 1915-16.**

Country.	1911.	1912.	1913.	1914-15.	1915-16.
United Kingdom	3,001,141	2,994,876	3,062,961	2,317,070	2,087,672
Canada	162,664	167,390	201,453	234,334	244,760
Fiji	168,319	158,406	181,400	176,785	154,343
Hong Kong	37,035	59,561	61,115	50,464	33,787
India and Ceylon	242,828	238,274	234,377	475,961	345,008
Mauritius	26,396	31,729	39,597	27,250	20,015
New Zealand	1,885,759	2,110,083	2,107,321	1,688,465	1,653,240
Papua	150,279	139,419	148,866	136,799	124,512
South African Union	374,575	172,146	335,491	151,643	183,808
South Sea Islands	100,116	93,189	116,765	48,763	118,218
Straits Settlements	225,460	239,737	255,602	222,428	220,362
Other British Countries	324	3,068	13,096	656,927	1,108,439
Total British Countries	6,374,896	6,407,877	6,758,044	6,186,889	6,294,164
Africa, Portuguese East	81,032	50,587	69,317	17,082	4,812
Belgium	187,131	180,872	161,221	41,116	...
Chile	576,102	685,140	506,443	293,835	178,962
Dutch East Indies	158,957	223,093	276,927	267,894	196,560
France	239,133	141,253	144,872	89,275	70,243
Germany	635,669	777,005	800,046	112,566	...
Hawaiian Islands	43,367	50,517	55,735	37,770	17,939
Japan	261,083	253,842	277,713	199,017	325,076
Mexico	30,046	32,202	35,708	4,461	...
New Caledonia	133,555	151,328	173,023	84,979	82,799
Norway	40,204	34,715	26,289	47,649	32,222
Peru	103,882	100,363	74,130	30,404	24,374
Philippine Islands	159,351	151,336	93,966	99,215	26,784
South Sea Islands (foreign)	106,900	112,680	103,477	126,547	133,164
Sweden	77,983	48,060	80,546	37,504	19,576
United States	535,134	602,303	658,676	692,646	908,097
Other Foreign Countries	240,376	271,641	305,755	230,409	223,550
Total Foreign Countries	3,609,905	3,867,437	3,843,904	2,412,369	2,244,158
Total all Countries	9,984,801	10,275,314	10,601,948	8,599,258	8,538,322

In respect of these tables it may be pointed out that the statistics for any country do not fully disclose the extent of its shipping communication with particular countries. The reason for this is that vessels are recorded as arriving from, or departing to, a particular country, whereas, as a matter of fact, many regular lines of steamers call and transact business at the ports of several countries in the course of a single voyage. The lines of steamers trading between Australia and Japan, for example, often call at New Guinea, the Philippine Islands, China, etc., but, being intermediate ports, these countries are not referred to in the statistical records. Similarly, in the case of the large mail steamers passing through the Suez Canal, a steamer may call at Colombo, Aden, Port Said, Genoa, Marseilles, London, and in ordinary times, Antwerp, and Bremerhaven, yet obviously can only be credited as cleared for one of these ports, to the consequent exclusion of all the other ports from the records.

4. General Trend of Shipping.—A grouping of countries into larger geographical divisions, as in the following tables, shews more readily the general direction of Australian shipping, and, to some extent, avoids the limitations of the records in relation to particular countries, by covering more closely the main trade routes.

GENERAL DIRECTION OF THE SHIPPING OF THE COMMONWEALTH, 1911 to 1915-16.

TONNAGE ENTERED.

Countries.		1911.	1912.	1913.	1914-15.	1915-16.
United Kingdom & European Countries	Cargo...	1,953,962	2,152,304	2,216,449	1,509,237	1,267,819
	Ballast	68,193	71,746	28,067	16,282	81,649
New Zealand	Cargo...	676,235	751,759	681,650	649,252	648,733
	Ballast	165,511	174,583	226,834	122,404	108,889
Asiatic Countries & Islds. in the Pacific	Cargo...	765,373	761,854	785,031	799,811	817,141
	Ballast	100,500	104,197	163,620	217,666	151,296
Africa	Cargo...	26,718	23,561	38,174	50,315	114,914
	Ballast	368,750	151,459	269,181	154,550	288,316
North and Central America	Cargo...	479,382	560,933	624,275	568,329	714,193
	Ballast	34,239	24,595	14,224	4,065	...
South America	Cargo...	13,114	31,321	23,576	26,798	61,940
	Ballast	341,243	355,075	300,130	56,246	13,694
Total	Cargo...	3,914,784	4,281,702	4,369,455	3,603,742	3,624,740
	Ballast	1,076,436	881,655	1,002,076	571,213	644,744
Total		4,993,220	5,163,357	5,371,531	4,174,955	4,269,484

TONNAGE CLEARED.

United Kingdom & European Countries	Cargo...	2,190,650	2,006,275	2,102,203	1,169,592	961,961
	Ballast	—	44	162	—	2,699
New Zealand	Cargo...	981,126	1,148,166	1,166,598	865,780	817,827
	Ballast	62,887	35,575	32,239	51,029	76,791
Asiatic Countries & Islds. in the Pacific	Cargo...	932,091	984,875	995,644	966,549	767,700
	Ballast	24,093	42,738	66,414	99,715	126,921
Africa	Cargo...	106,321	83,829	148,750	559,540	851,543
	Ballast	—	—	237	6,130	32,148
North and Central America	Cargo...	182,440	204,116	251,739	305,835	342,332
	Ballast	31,783	12,751	5,599	56,262	100,842
South America	Cargo...	476,385	592,248	460,832	210,292	158,696
	Ballast	3,805	1,340	...	133,079	29,378
Total	Cargo...	4,869,013	5,019,509	5,125,766	4,077,588	3,900,059
	Ballast	122,568	92,448	104,651	346,715	368,779
Total		4,991,581	5,111,957	5,230,417	4,424,303	4,268,838

TONNAGE ENTERED AND CLEARED.

Countries.	1911.	1912.	1913.	1914-15.	1915-16.	1915-16 Compared with 1911.
United Kingdom & European Countries	4,212,805	4,230,369	4,346,901	2,695,111	2,314,128	- 1,898,677
New Zealand	1,885,759	2,110,083	2,107,321	1,688,465	1,653,240	- 232,519
Asiatic Countries and Islands in the Pacific	1,822,057	1,893,664	2,010,709	2,083,741	1,863,058	+ 41,001
Africa	501,789	258,849	456,342	770,535	1,286,821	+ 785,032
North and Central America	727,844	802,395	895,837	934,991	1,157,367	+ 429,523
South America	834,547	979,954	784,838	426,415	263,708	- 570,839
Cargo	8,783,797	9,301,211	9,495,221	7,681,330	7,524,799	- 1,258,998
Ballast	1,201,004	974,103	1,106,727	917,928	1,013,523	- 187,481
Total	9,984,801	10,275,314	10,601,948	8,599,258	8,538,322	- 1,446,479

From these tables it would appear that the tonnage between Australia and Africa was greater during 1915-16 than in 1913. This, however, is merely the effect of the diversion of shipping from the usual occupation to military transport between this country and Egypt. The outward tonnage to North America both with cargo and in ballast has been very much greater since the war than before. The increased

tonnage with cargo was engaged in carrying the largely increased trade between the Commonwealth and the United States of America. The tonnage in ballast consisted of vessels which, owing to the abnormal circumstances previously alluded to, were unable to procure cargoes in Australian ports.

5. **Nationality of Oversea Shipping.**—As will be seen from the following table, the greater part of the shipping visiting the Commonwealth is of British nationality. The proportion which British shipping represented of the total tonnage which entered and cleared the Commonwealth rose from 72.83 per cent. during 1913 to 82.41 per cent. in 1914-15 and in 1915-16 represented 81.76 per cent. This increase was almost entirely due to the withdrawal of German ships.

NATIONALITY OF ALL VESSELS WHICH ENTERED AND CLEARED THE COMMONWEALTH FROM AND TO OVERSEA COUNTRIES, 1911 to 1915-16.

Nationality.	Tonnage.				
	1911.	1912.	1913.	1914-15.	1915-16.
BRITISH—					
Australian	848,240	889,285	851,931	1,107,402	1,118,470
United Kingdom... ..	5,511,504	5,299,157	5,590,966	4,897,452	5,304,683
New Zealand	1,008,036	1,274,584	1,247,742	1,017,721	515,187
Other British	38,871	51,199	30,459	64,040	42,808
Cargo	6,656,932	6,949,115	6,915,261	6,406,393	6,189,524
Ballast	749,719	565,110	805,837	680,222	791,624
Total British	7,406,651	7,514,225	7,721,098	7,086,615	6,981,148
Per cent. on total	74.18	73.13	72.83	82.41	81.76
FOREIGN—					
Austro-Hungarian	—	28,689	32,940	—	—
Danish	10,510	5,573	10,138	—	47,259
Dutch	139,606	120,864	193,880	198,223	279,291
French	424,461	356,207	366,730	199,619	180,144
German	1,005,986	1,211,738	1,211,404	172,679	—
Italian	65,415	51,098	55,898	39,147	8,886
Japanese	158,047	252,081	224,293	257,709	362,266
Norwegian	582,352	527,121	471,914	302,767	173,343
Russian	38,463	63,286	75,303	56,528	9,199
Swedish	50,207	37,330	59,484	60,600	56,234
United States	67,745	92,605	154,486	178,620	397,017
Other Foreign	35,358	14,497	24,380	46,751	43,535
Cargo	2,126,865	2,352,096	2,579,960	1,274,937	1,335,275
Ballast	451,285	408,993	300,890	237,706	221,899
Total Foreign	2,578,150	2,761,089	2,880,350	1,512,643	1,557,174
Per cent. on total	25.82	26.87	27.17	17.59	18.24
Cargo	8,783,797	9,301,211	9,495,221	7,681,330	7,524,799
Per cent. on total	87.97	90.52	89.56	89.33	88.13
Ballast	1,201,004	974,103	1,106,727	917,928	1,013,523
Per cent. on total	12.03	9.48	10.44	10.67	11.87
Grand Total	9,984,801	10,275,314	10,601,948	8,599,258	8,538,322

The tonnage of Australian-owned vessels engaged in the oversea trade represents in normal times about 8 per cent. of the total, and the tonnage of New Zealand vessels about 12 per cent. Both are ordinarily engaged mainly in the trade with New Zealand and eastern countries. The increase shewn above in Australian tonnage is in consequence of the diversion of vessels from the interstate trade to military purposes in transporting troops, etc., abroad.

The relative proportion of British and foreign tonnage which entered and cleared the Commonwealth during the last five years, apart from tonnage in ballast, is given below. From these figures, which may be considered to indicate more closely the proportion of the actual carrying trade done, than does the total tonnage, it will be seen that the proportion of British tonnage was lower during 1913 than in any other year shewn. In fact, since 1904, when the shipping statistics were first compiled in their present form, the proportion of British ships entered and cleared with cargo has never been so low as in 1913. From what has already been said it will be understood that the figures for 1914-15 and 1915-16 are the result of abnormal conditions, and are, therefore, of little economic significance.

**PROPORTION OF TONNAGE OF BRITISH AND FOREIGN NATIONALITY ENTERED
AND CLEARED THE COMMONWEALTH WITH CARGO, 1911 to 1915-16.**

Nationality.	1911.	1912.	1913.	1914-15.	1915-16.
British	75.79	74.71	72.83	83.40	82.26
Foreign	24.21	25.29	27.17	16.60	17.74
Total	100.00	100.00	100.00	100.00	100.00

The principal increases in foreign tonnage in the Australian trade have been German, Japanese, United States of America, Norwegian, and Dutch. The greater amount of German and Japanese tonnage has been due to the extension of services between those countries and the Commonwealth, while the revival of the service between this country and San Francisco, which was discontinued after the great earthquake in that city in 1906, accounts for the larger American tonnage in 1913, whereas the subsequent trade development between this country and the United States accounts for the large increase of American shipping during the last two years under review. The Norwegian tonnage, which was largely composed of sailing ships, was chiefly engaged under charter in the carriage of coal, wheat, ore, etc. The Norwegian shipping in the Australian trade has been, however, much affected by the war. The apparent increase in Dutch tonnage requires special explanation. During recent years the vessels of the Royal Dutch Packet Company, on their voyages between Java and the eastern Australian ports, have been frequently, but unavoidably, counted twice on what was practically the same voyage, first on arrival from Java and again on arrival from Papua. As in the case of the United States of America, the increase of Japanese shipping tonnage has been the corollary of increased Japanese trade with Australia.

The following table shews the direction of the activities of the principal foreign countries engaged in the oversea carrying trade of the Commonwealth. A similar analysis with regard to German and French ships will be found in previous issues.

SHIPPING OF PRINCIPAL FOREIGN NATIONS BETWEEN AUSTRALIA AND OTHER COUNTRIES DURING 1915-16.

Countries.	Nationality.					
	Dutch.		Japanese.		United States.	
	Entered.	Cleared.	Entered.	Cleared.	Entered.	Cleared.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
UNITED KINGDOM ...	...	...	...	2,666	...	...
NEW ZEALAND ...	...	4,728	14,589	...	545	...
ASIATIC COUNTRIES AND ISLANDS IN THE PACIFIC—						
Dutch East Indies ...	51,810	65,736	3,610	12,647	3,850	...
Japan ...	...	...	114,462	97,376	...	796
New Caledonia ...	...	...	5,292	5,292	...	...
Papua ...	60,968	54,300	...	...	...	...
South Sea Islands ...	...	...	2,692	18,094	...	19,754
Straits Settlements ...	4,586	...	4,113	6,763	...	647
Other Asiatic Countries ...	11,032	2,945	10,690	18,918	10,132	8,176
SOUTH AFRICAN UNION ...	...	...	...	4,305	2,785	...
NTH. AMERICAN COUNTRIES—						
United States ...	11,769	...	16,448	12,172	180,140	155,416
Other Nth. Amer. Countries...	...	...	2,880	...	1,450	2,264
STH. AMERICAN COUNTRIES—						
Chile ...	...	11,417	3,829	...	...	6,772
Peru ...	...	...	...	...	...	4,290
Other South American... Countries	...	...	...	5,428	...	...
With Cargo ...	140,152	129,792	154,529	148,082	192,368	117,636
In Ballast ...	13	9,334	24,076	35,579	6,534	80,479
Total ...	140,165	139,126	178,605	183,661	198,902	198,115

A further analysis is appended, distinguishing between steam and sailing vessels of British and foreign nationality, which entered and cleared the Commonwealth during the years 1911 to 1915-16.

STEAM AND SAILING VESSELS ENTERED AND CLEARED, 1911 to 1915-16.

Description and Nationality of Vessels.	1911.		1912.		1913.		1914-15.		1915-16.	
	Ton-nage.	Per-cent-ages.	Ton-nage.	Per-cent-ages.	Ton-nage.	Per-cent-ages.	Ton-nage.	Per-cent-ages.	Ton-nage.	Per-cent-ages.
Steam—										
British ...	6,912,085	81	7,094,126	79	7,375,109	77	6,939,087	86	6,760,751	86
Foreign ...	1,609,048	19	1,908,888	21	2,173,491	23	1,103,092	14	1,106,465	14
Total Steam	8,521,133	100 (86)	8,993,014	100 (88)	9,548,600	100 (90)	8,042,179	100 (94)	7,867,216	100 (92)
Sailing—										
British ...	494,566	34	430,099	34	345,969	33	147,528	26	220,397	33
Foreign ...	969,102	66	652,201	66	707,359	67	409,551	74	450,709	67
Total Sailing	1,463,668	100 (15)	1,282,300	100 (12)	1,053,348	100 (10)	557,079	100 (6)	671,106	100 (8)
Steam and Sailing—										
British ...	7,406,651	74	7,514,225	73	7,721,098	73	7,086,615	82	6,981,148	82
Foreign ...	2,573,150	26	2,761,089	27	2,880,850	27	1,512,643	18	1,557,174	18
Total ...	9,984,801	100	10,275,314	100	10,601,948	100	8,599,258	100	8,538,322	100

6. **Tonnage in Ballast.**—The following table shows the tonnage of oversea vessels which entered and cleared the Commonwealth in ballast during the years 1911 to 1915-16.

TONNAGE ENTERED AND CLEARED IN BALLAST, 1911 to 1915-16.

Year.	Entered.			Cleared.		
	British.	Foreign.	Total.	British.	Foreign.	Total.
1911 ...	668,599	409,837	1,078,436	81,120	41,448	122,568
1912 ...	503,041	378,614	881,655	62,069	30,379	92,448
1913 ...	721,124	280,952	1,002,076	84,713	19,938	104,651
1914-15 ...	441,908	129,305	571,213	238,314	103,401	346,715
1915-16 ...	595,591	49,153	644,744	196,033	172,746	368,779

PROPORTION OF TOTAL BRITISH AND FOREIGN TONNAGE WHICH ENTERED AND CLEARED IN BALLAST, 1911 to 1915-16.

Year.	Entered.			Cleared.		
	British.	Foreign.	Total.	British.	Foreign.	Total.
	per cent.	per cent.	per cent.	per cent.	per cent.	per cent.
1911 ...	18.09	31.61	21.60	2.19	3.23	2.46
1912 ...	13.31	27.24	17.03	1.66	2.21	1.81
1913 ...	18.39	19.37	18.66	2.23	1.39	2.00
1914-15 ...	12.88	17.36	13.68	6.51	14.12	7.84
1915-16 ...	17.02	6.38	15.10	5.63	21.95	8.64

The tonnage which entered each State of the Commonwealth, in ballast, during 1915-16, was as follows:—

TONNAGE OF OVERSEA VESSELS IN BALLAST WHICH ENTERED EACH STATE AND THE NORTHERN TERRITORY DURING 1915-16.

State ...	N.S.W.	Victoria.	Q'land.	S. Aust	W. Aust.	Tas.	N. Terr.	C'wealth.
Tonnage ...	190,923	58,357	2,279	46,490	346,695	...	...	644,744
Percentage of total ...	29.61	9.05	0.35	7.22	53.77	...	...	100.00

In normal times the large exports of coal from New South Wales afford special inducements to vessels in search of freights. During 1913, 600,050 tons, or 59.88 per cent. of all ballast tonnage arriving in Australia, entered in New South Wales, 463,134 tons having entered at the coal port of Newcastle. The tonnage in ballast into New South Wales is mainly for coal cargo, into South Australia for wheat and ore, and into Western Australia for timber and cattle. War conditions have, however, completely deranged the shipping of the Commonwealth, and the relatively large tonnage entering Western Australian ports in ballast represented vessels on military transport service.

§ 3. Shipping of Ports.

1. **Shipping of Ports.**—Appended is an abstract of the total shipping tonnage—over-sea and coastwise—which entered the more important ports of Australia during the year 1915-16, together with similar information in regard to some of the ports of New Zealand for the year 1915, and of the United Kingdom for the year 1913:—

SHIPPING OF PORTS, AUSTRALIA, NEW ZEALAND AND THE UNITED KINGDOM.

Port.	Tonnage Entered.	Port.	Tonnage Entered.
AUSTRALIA—		ENGLAND AND WALES—	
Sydney	7,535,277	London	20,088,071
Melbourne	5,479,867	Liverpool (inc. Birkenhead)	15,574,989
Newcastle	3,952,640	Cardiff	12,603,349
Port Adelaide	*2,131,372	Tyne ports	11,701,605
Brisbane	2,113,247	Southampton	8,268,860
Fremantle	1,929,425	Hull	5,904,698
Townsville	1,200,815	Plymouth	4,717,738
Albany	1,146,247	Newport	3,630,681
Rockhampton	743,739	Middlesbrough	3,416,582
Mackay	733,835	Swansea	3,374,439
Hobart	647,933	Sunderland	3,288,949
Cairns	585,622	Grimsby	3,056,578
Port Pirie	518,906	Bristol	2,732,832
Bowen	431,198	Manchester	2,685,184
Geelong	356,103	Dover	2,606,277
Burnie	308,305	SCOTLAND—	
Thursday Island	301,311	Glasgow	6,101,819
NEW ZEALAND—		Leith	2,344,195
Wellington	3,183,192	IRELAND—	
Lyttelton	1,954,500	Cork (inc. Queenstown)	4,317,966
Auckland	1,746,514	Belfast	3,345,779
Dunedin	829,698	Dublin	2,495,854

* Exclusive of coastal shipping, particulars of which are not available.

From the figures above it may be seen that the shipping business of the port of Sydney is exceeded by that of five ports only in the United Kingdom, viz., London, Liverpool, Cardiff, the Tyne, and Southampton.

§ 4. Vessels Built and Registered.

1. **Vessels Registered.**—The following table shews the number and net tonnage of steam, sailing, and other vessels on the registers of the various States and of the Northern Territory of the Commonwealth of Australia:—

VESSELS ON THE REGISTER, 31st DECEMBER, 1916.

State.	Steam.				Sailing.				Barges, Hulks, Dredges, etc., not Self-propelled.		Total.	
	Dredges and Tugs.		Other.		Fitted with Auxiliary Power.		Other.		No.	Net Tons.	No.	Net Tons.
	No.	Net Tons.	No.	Net Tons.	No.	Net Tons.	No.	Net Tons.				
New South Wales	45	1,542	582	95,422	97	1,718	561	25,836	52	11,361	1,137	135,879
Victoria	26	2,633	178	131,333	24	817	111	5,068	25	33,115	424	172,586
Queensland	22	3,434	82	16,744	21	909	123	3,302	36	3,919	289	27,608
South Australia	21	858	95	56,741	9	320	91	5,414	67	11,719	283	75,052
Western Australia	13	247	42	28,639	12	291	297	4,715	28	7,555	392	41,447
Tasmania	5	302	56	11,113	41	932	113	4,011	2	563	217	16,921
Northern Territory ... ..	...	...	3	79	...	...	33	398	...	...	26	477
Total	133	9,016	1,033	340,071	204	4,287	1,134	48,764	270	68,232	2,778	470,370

2. **Vessels Built.**—The following tables shew the number and tonnage of vessels built in the Commonwealth during each of the years 1901-1916, so far as such information can be ascertained from the Shipping Registers of the various States. The Merchant Shipping Act, under which vessels are registered in Australia, however, does not make it compulsory to register vessels under 15 tons burthen if engaged in river or coastal trade. Larger vessels are also exempt from registration if not engaged in trade. Yachts and small trading vessels may be, and frequently are, registered at the request of the owners. As the Shipping Registers have been, and are, the source of information, it follows that the figures given below will be subject to additions in the future, inasmuch as vessels already built may be added to the register at some future date.

VESSELS BUILT IN THE COMMONWEALTH, 1901 to 1916.

NUMBER.

Year.	Steamers Built of—					Oil Motor Vessels.	Sailing.	Pontoons, Dredges, etc.	Total.
	Wood.	Iron.	Steel.	Com-posite.	Total.				
1901 ...	18	...	1	...	19	4	39	...	62
1902 ...	29	...	...	1	30	8	74	1	113
1903 ...	15	1	2	...	18	17	157	2	194
1904 ...	14	...	1	1	16	13	74	...	103
1905 ...	15	...	4	...	19	22	17	2	60
1906 ...	12	1	1	...	14	22	20	3	59
1907 ...	17	...	...	1	18	12	34	1	65
1908 ...	13	...	3	...	16	18	17	2	53
1909 ...	10	...	...	...	10	12	36	1	59
1910 ...	9	3	2	...	14	11	35	4	64
1911 ...	14	1	2	1	18	8	37	4	67
1912 ...	9	...	3	2	14	12	30	1	57
1913 ...	17	...	2	...	19	12	29	...	60
1914 ...	17	...	...	...	17	8	27	2	54
1915 ...	4	...	2	...	6	5	2	...	13
1916 ...	...	...	...	...	...	2	2	...	4

TONNAGE.

Year.	Steamers.		Oil Motor Vessels.		Sailing.		Pontoons, Dredges, etc.		Total.	
	Gross.	Net.	Gross.	Net.	Gross.	Net.	Gross.	Net.	Gross.	Net.
1901 ...	2,270	1,251	41	33	1,083	958	...	...	3,394	2,242
1902 ...	3,166	1,849	96	82	2,409	2,087	64	64	5,735	4,082
1903 ...	1,569	956	624	455	3,195	2,745	385	350	5,773	4,506
1904 ...	2,094	1,240	161	125	1,607	1,388	...	...	3,862	2,753
1905 ...	2,444	1,462	291	214	338	290	967	896	4,040	2,862
1906 ...	1,426	735	268	189	498	425	546	536	2,738	1,885
1907 ...	2,381	1,305	108	93	791	736	152	145	3,432	2,279
1908 ...	2,492	1,317	265	199	493	418	260	260	3,510	2,194
1909 ...	1,351	735	184	151	805	677	98	98	2,438	1,661
1910 ...	1,944	1,105	137	124	807	691	688	646	3,576	2,566
1911 ...	2,123	1,130	143	115	779	694	762	720	3,807	2,659
1912 ...	2,592	1,592	391	304	673	579	78	78	3,734	2,553
1913 ...	2,227	1,189	300	205	510	484	...	...	3,037	1,878
1914 ...	3,041	1,595	118	97	492	434	148	148	3,799	2,274
1915 ...	914	385	178	115	155	147	...	...	1,247	647
1916 ...	...	...	23	20	39	28	...	...	62	48

§ 5. Interstate Shipping.

1. **Total Vessels and Tonnage.**—In the following tables are shown the number and tonnage of vessels recorded as having entered each State of the Commonwealth from any other State therein, and similarly, the number and tonnage clearing from each State to other Commonwealth States. The table gives results since 1891 and for 1915-16. The shipping on the Murray River, between the States of New South Wales, Victoria and South Australia, is not included:—

INTERSTATE SHIPPING, 1891 to 1915-16—NUMBER OF VESSELS.

ENTERED.

State.	1891.	1901.	1906.	1911.	1914-15.	1915-16.
New South Wales	1,692	1,611	1,575	1,791	1,934	1,947
Victoria	1,525	1,502	1,561	1,648	1,732	1,736
Queensland	376	430	478	567	584	570
South Australia	611	650	752	789	662	631
Western Australia	149	446	335	415	349	350
Tasmania	680	713	840	864	909	864
Northern Territory	*	*	*	39	49	39
Total	5,033	5,352	5,541	6,113	6,219	6,137

CLEARED.

New South Wales	1,415	1,473	1,417	1,728	1,792	1,871
Victoria	1,738	1,569	1,610	1,765	1,890	1,906
Queensland	389	395	431	572	554	547
South Australia	716	756	802	900	766	657
Western Australia	158	456	363	394	341	325
Tasmania	679	694	809	836	884	845
Northern Territory	*	*	*	40	39	42
Total	5,090	5,343	5,432	6,235	6,266	6,193

TOTAL.

New South Wales	3,107	3,084	2,992	3,519	3,726	3,818
Victoria	3,258	3,071	3,171	3,413	3,622	3,642
Queensland	765	825	909	1,139	1,138	1,117
South Australia	1,327	1,406	1,554	1,689	1,428	1,288
Western Australia	307	902	698	809	690	675
Tasmania	1,359	1,407	1,649	1,700	1,793	1,709
Northern Territory	*	*	*	79	88	81
Total	10,123	10,695	10,973	12,348	12,485	12,330

* Included with South Australia.

INTERSTATE SHIPPING, 1891 to 1915-16.—TONNAGE.

ENTERED.

State.	1891.	1901.	1906.	1911.	1914-15.	1915-16.
New South Wales	1,617,559	2,081,089	2,456,269	3,318,605	4,033,368	3,563,812
Victoria ...	1,392,818	1,956,900	2,473,771	2,959,551	3,246,141	2,800,103
Queensland ...	267,753	545,469	692,354	840,052	1,169,991	995,373
South Australia ...	658,600	1,124,499	1,582,802	1,970,490	1,801,181	1,628,771
Western Australia	237,708	973,474	968,664	1,378,800	1,363,190	1,305,537
Tasmania ...	371,205	485,023	721,240	895,546	818,124	749,494
North'n Territory	*	*	*	64,518	106,433	80,090
Total ...	4,545,643	7,116,454	8,895,100	11,427,562	12,538,428	11,123,180

CLEARED.

New South Wales	1,314,339	1,856,501	2,177,496	3,209,723	3,612,502	3,378,270
Victoria ...	1,692,189	2,038,424	2,617,966	3,233,531	3,658,856	3,285,036
Queensland ...	302,723	440,659	578,561	855,776	1,002,309	871,544
South Australia ...	829,616	1,365,668	1,772,356	2,343,269	2,169,611	1,751,044
Western Australia	269,256	977,846	1,051,629	1,303,359	1,210,138	1,187,222
Tasmania ...	352,406	433,735	636,944	728,170	721,144	652,450
North'n Territory			*	66,357	76,476	83,798
Total ...	4,760,529	7,112,833	8,834,952	11,740,185	12,451,536	11,209,364

TOTAL.

New South Wales	2,931,898	3,887,590	4,633,765	6,528,328	7,645,870	6,942,082
Victoria ...	3,085,007	3,995,324	5,091,737	6,193,082	6,904,997	6,085,139
Queensland ...	570,476	986,128	1,270,915	1,695,828	2,172,800	1,866,917
South Australia ...	1,488,216	2,490,167	3,355,158	4,313,759	3,970,792	3,379,815
Western Australia	506,964	1,951,320	2,020,293	2,682,159	2,573,328	2,492,759
Tasmania ...	723,611	918,758	1,358,184	1,623,716	1,539,268	1,401,944
North'n Territory	*	*	*	130,875	182,909	163,888
Total ...	9,306,172	14,229,287	17,730,052	23,167,747	24,989,964	22,332,544

* Included with South Australia.

The figures presented in the above table include oversea vessels—largely mail boats—passing from one State to another. This renders the results somewhat unsatisfactory.

In the earlier part of this section attention was drawn to the custom in vogue prior to Federation of recording vessels from or to "oversea countries via other Commonwealth States" as *direct* from or to the oversea country. At each port in Australia these vessels were, on the inward voyage (to Australia), entered as from the oversea country, and

cleared to the next Australian port as "interstate"; on the return journey—the outward voyage—they were entered as "interstate," and cleared as for the oversea country. In order to preserve the continuity of the records of the shipping communication of the several States with oversea countries this method has been followed in continuation of the pre-existing practice, excepting that vessels arriving or departing via other Commonwealth States are now so recorded instead of as "direct."

From the above it will be seen that while certain movements of the vessels referred to are included in the interstate shipping, other movements of the same vessels, between the same ports, are not so included.

To ascertain the aggregate movement of shipping between the States during the year 1915-16, including the total interstate movements of oversea vessels, the figures in the following table must be added to those of the preceding one:—

**SHIPPING ENTERED AND CLEARED FROM AND TO OVERSEAS COUNTRIES VIA
OTHER COMMONWEALTH STATES, 1915-16.**

State.	Entered.		Cleared.		Total.		
	Vessels.	Tonnage.	Vessels.	Tonnage.	Vessels.	Tonnage.	
New South Wales ...	433	1,653,434	360	1,409,010	793	3,062,444	
Victoria ...	371	1,414,079	324	1,233,798	695	2,647,877	
Queensland ...	115	413,900	128	498,012	243	911,912	
South Australia ...	121	460,788	155	614,408	276	1,075,196	
Western Australia ...	9	33,443	3	8,813	12	42,256	
Tasmania ...	31	90,440	46	183,964	77	274,404	
Northern Territory ...	1	3,829	...	...	1	3,829
Total ...	1915-16	1,081	4,069,913	1,016	3,948,005	2,097	8,017,918
	1906 ...	1,045	3,349,036	1,107	3,442,747	2,152	6,791,783

2. **Total Interstate Movement of Shipping.**—From the foregoing it is apparent that the interstate movement of shipping includes two very different elements, viz.:— (i.) Oversea ships moving from State to State, and (ii.) the movement of ships engaged solely in the interstate carrying trade. These two elements are approximately as follows:—

TOTAL INTERSTATE MOVEMENT OF SHIPPING, 1911 to 1915-16.

	1911.	1912.	1913.	1914-15.	1915-16.
	Tons.	Tons.	Tons.	Tons.	Tons.
Oversea vessels moving interstate ...	10,049,659	10,711,434	11,472,490	8,737,804	8,017,918
Vessels solely interstate ...	6,548,069	6,809,428	8,080,267	8,140,155	7,175,175
Total ...	16,597,728	17,520,862	19,552,757	16,877,959	15,193,093

The following table shows the number and tonnage of vessels which entered and cleared each State during 1915-16, including the coastal movements of oversea vessels:—

INTERSTATE SHIPPING OF EACH STATE, 1915-16.

State.	Entered.		Cleared.		Total.		
	Vessels.	Tonnage.	Vessels.	Tonnage.	Vessels.	Tonnage.	
New South Wales ...	2,380	5,217,246	2,231	4,787,280	4,611	10,004,526	
Victoria ...	2,107	4,214,182	2,230	4,518,834	4,337	8,733,016	
Queensland ...	685	1,409,273	675	1,369,556	1,360	2,778,829	
South Australia ...	752	2,089,559	812	2,365,452	1,564	4,455,011	
Western Australia ...	359	1,338,980	328	1,196,035	687	2,535,015	
Tasmania ...	895	839,934	891	836,414	1,786	1,676,348	
Northern Territory ...	40	83,919	42	83,798	82	167,717	
Total... ..	1915-16	7,218	15,193,093	7,209	15,157,869
	1906 ...	6,586	12,244,136	6,539	12,277,699

3. **Vessels Engaged Solely in Interstate Trade.**—The elimination of the element of oversea vessels, included in the interstate shipping returns, cannot be accurately effected; nevertheless, a close approximation is furnished if it be assumed that vessels entered in the several States as from "oversea countries via other Commonwealth States" have really been cleared from other States as "interstate," and further, that the vessels cleared to "oversea countries via other Commonwealth States" have likewise been entered as "interstate." Applying this suggestion, and so eliminating all interstate movements of oversea vessels, the number and tonnage of vessels engaged solely in the interstate trade during the years 1911 to 1915-16 will be found to be as follows:—

NUMBER AND TONNAGE OF VESSELS ENGAGED SOLELY IN INTERSTATE TRADE, 1911 to 1915-16.

Year.	Entered.		Cleared.	
	No.	Tons.	No.	Tons.
1911	4,794	6,548,069	4,811	6,570,019
1912	5,000	6,809,428	4,990	6,809,426
1913	5,174	8,080,267	5,187	8,105,988
1914-15... ..	5,143	8,140,155	5,142	8,112,005
1915-16... ..	5,121	7,175,175	5,112	7,139,451

This treatment cannot be extended to the individual States, as the records do not disclose the particular relationship of the States concerned.

4. **Interstate and Coastal Services.**—The foundation of the coastal steamship services in Australia dates back to the year 1851, when a regular trade was established between Melbourne and Geelong by the small screw steamer *Express*. Early in the fifties a company was formed in Tasmania with a capital of £40,000 for the purpose of purchasing steamboats, and employing them in the carriage of passengers and goods between Hobart

and Melbourne. This service was commenced in 1852, and was thus the first regular interstate service in Australia. About this time the great influx of population and the increase in commerce, caused chiefly by the gold discoveries, emphasised the desirability of establishing more regular and quicker means of communication between the principal ports of Australia, and in 1862 the regular interstate service between New South Wales and Victoria was inaugurated by the s.s. *You Yangs*, which was put into commission in regular service between Melbourne, Sydney, and Newcastle. In 1875 a company was formed in Adelaide for the purpose of supplying suitable steamers for the requirements of the trade between Adelaide and Melbourne. The first two steamers of the company were named the *South Australian* and the *Victorian*, and were small vessels of only 400 tons burthen. From the start, success attended these enterprises, and the services thus initiated were rapidly extended and their operations broadened. Numerous other companies were formed to cope with the increasing trade between ports in the Commonwealth, and the companies engaged from time to time added to their fleets of steamers by the acquisition of more modern and rapid vessels, until at the end of the year 1916 the total net tonnage owned by the twenty-three companies from whom returns have been received amounted to over 204,000 tons. A summary of the various mail services carried on during the year 1916 is given in Section XVIII. of this work.

The subjoined table gives particulars, so far as they are available, of all steamships engaged in regular interstate or coastal services at the end of each of the years 1901 and 1912 to 1916. The figures for 1912 and subsequent years include particulars relating to a number of smaller companies which did not supply returns for 1901, though they were, for the most part, carrying on business in that year.

PARTICULARS OF STEAMSHIPS ENGAGED IN REGULAR INTERSTATE AND COASTAL SERVICES IN THE COMMONWEALTH, 1901 and 1912 to 1916.

Particulars.	1901.	1912.	1913.	1914.	1915.	1916.
Number of companies making returns ...	11	24	23	23	23	23
Number of steamships	113	180	190	174	174	169
Tonnage { Gross	184,574	311,144	364,937	340,852	340,443	337,068
{ Net	114,080	179,996	206,340	206,424	205,795	204,357
Horse-power { Nominal	18,237	32,520	37,865	35,723	35,787	34,038
{ Indicated	122,519	276,703	321,794	288,856	289,488	283,471
Number of passengers { 1st class	4,617	9,084	9,826	8,069	9,557	9,077
for which licensed to { 2nd class and						
{ steerage	4,490	6,376	7,635	8,666	6,808	6,578
Complement { Masters and officers	403	604	649	622	623	606
of Crew { Engineers	332	509	559	527	532	519
{ Crew	2,875	4,609	5,509	5,493	5,508	5,385

5. Lighthouses and Lights on the Coast of the Commonwealth.—See Year Book No. 2.

6. Ports of the Commonwealth.—See Year Book No. 3.

§ 6. Shipwrecks.

The following statement shews the number and tonnage of vessels wrecked, or otherwise lost, on the coast or elsewhere under the jurisdiction of the several States, during the years 1901 and 1908 to 1916:—

NUMBER AND TONNAGE OF VESSELS WRECKED,* 1901 and 1908 to 1916.

Year.	Class of Vessel.	Number and Tonnage of Vessels.										Passengers and Crew.	Lives Lost.
		Under 50 tons.		50 to 500 tons.		500 to 2000 tons.		Over 2000 tons.		Total.			
		No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.		
1901	Steam ...	7	189	5	949	2	2,811	...	...	14	3,949	250	40
	Sailing ...	11	217	6	785	5	5,800	...	...	22	6,802	172	10
	Total ...	18	406	11	1,734	7	8,611	...	...	36	10,751	422	50
1908	Steam ...	6	137	7	816	2	2,930	2	5,585	17	9,468	299	37
	Sailing ...	56	775	3	276	3	4,074	1	2,062	63	7,187	348	219
	Total ...	62	912	10	1,092	5	7,004	3	7,647	80†	16,655	647	256
1909	Steam ...	1	48	3	359	1	1,382	1	2,286	6	4,075	131	40
	Sailing ...	6	163	3	362	2	2,681	...	...	11	3,206	88	6
	Total ...	7	211	6	721	3	4,063	1	2,286	17	7,281	219	46
1910	Steam ...	1	34	5	941	1	958	2	9,307	9	11,240	624	2
	Sailing ...	5	115	2	205	2	3,095	...	...	9	3,415	94	20
	Total ...	6	149	7	1,146	3	4,053	2	9,307	18	14,655	718	22
1911	Steam ...	4	109	5	681	3	5,194	...	...	12	5,984	275	161
	Sailing ...	7	103	4	642	4	5,100	...	...	15	5,845	128	25
	Total ...	11	212	9	1,323	7	10,294	...	...	27	11,829	403	186
1912	Steam ...	1	11	6	866	...	...	1	2,182	8	3,059	227	151
	Sailing ...	4	44	3	407	5	7,836	...	...	12	8,287	111	19
	Total ...	5	55	9	1,273	5	7,836	1	2,182	20	11,346	338	170
1913	Steam ...	1	25	2	237	...	...	...	...	3	262	23	...
	Sailing ...	10	175	5	359	...	...	...	...	15	534	51	7
	Total ...	11	200	7	596	...	...	...	...	18	796	74	7
1914	Steam ...	3	130	4	926	2	2,721	1	3,558	10	7,335	205	18
	Sailing ...	10	184	11	1,124	2	2,297	...	...	23	3,605	160	34
	Total ...	13	314	15	2,050	4	5,018	1	3,558	33†	10,940	365	52
1915	Steam ...	1	38	3	792	1	1,057	...	...	5	1,887	90	1
	Sailing ...	12	245	4	600	...	...	...	...	16	845	82	13
	Total ...	13	283	7	1,392	1	1,057	...	...	21	2,732	172	14
1916	Steam ...	3	107	6	582	...	...	1	2,529	10	3,218	87	6
	Sailing ...	10	240	1	114	...	...	1	3,087	12	3,441	78	19
	Total ...	13	347	7	696	...	...	2	5,616	22	6,659	165	25

* In some cases the vessels included in the above return were subsequently recovered. † The large number of wrecks during 1908 was due to cyclones on the north-west coast of Western Australia destroying a large number of the pearling vessels. ‡ Not including two dredges, particulars of whose tonnage are not available.

SECTION XVII.

ROADS AND RAILWAYS.

§ 1. Roads and Bridges.

1. **Introduction.**—In Year Books No. 1 (pages 541 to 551) and No. 2 (pages 675 to 685), a brief historical account was given of the construction and development of roads in Australia. It is not proposed to repeat that account in the present issue of the Year Book.

2. **Expenditure on Roads and Bridges.**—Figures showing the total expenditure on roads and bridges in the States are not available. The subjoined statement, however, gives the amounts of total loan expenditures by the State Governments up to the 30th June, 1916:—

**ROADS AND BRIDGES.—TOTAL GOVERNMENT LOAN EXPENDITURE TO THE
30th JUNE, 1916.**

State, etc. ...	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania. ¹	C'wealth.
Expenditure	£1,835,940 ¹	£964,323	£931,775	£1,622,710	£363,523	£4,588,560	£10,306,831

1. Including punts. 2. Including harbours, jetties, and lighthouses.

The following* table shews the annual expenditure from loans on roads and bridges by the central Governments in each State and in the Commonwealth during the year 1901 and from 1911 to 1916:—

**ROADS AND BRIDGES.—LOAN EXPENDITURE BY STATE GOVERNMENTS,
1901-2 and 1911-16.**

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	£	£	£	£	£	£	£
1901-2 ...	150,777	47,104	...	185	740	77,536 ¹	276,342
1911-12 ...	...	...	...	...	35,414	211,052	246,466
1912-13 ...	53,263	...	...	...	37,037	183,625 ²	273,925
1913-14 ...	23,553	...	...	17,838	...	191,428 ²	232,819
1914-15 ...	8,609	274,362	...	37,910	31,974	208,584	561,439
1915-16 ...	421	495,062	...	102,226	18,450	165,701 ²	781,860

1. For the calendar year 1902. 2. See note 2 to previous table.

The two tables given above shew only a small proportion of the actual expenditure upon roads and bridges in the different States, for the reason that (a) there have been large expenditures from revenue, both by the central Governments and by local authorities, and (b) the State Governments have in many cases voted grants and subsidies, and the amount of rates collected, and have issued loans to local authorities either for the express purpose of the construction of roads and bridges or for the general purpose of public works construction. Returns of expenditure, where available, are given below for each State. Although no revenue is now derived directly from roads and bridges, they are indirectly of great value to the community, forming, next to railways and public lands, the most considerable item of national property.

3. **New South Wales.**—The control of all roads, bridges, and ferries in New South Wales is now regulated by the Local Government Act 1906, which came into force on the 1st January, 1907 (see Section xxvi. *Local Government*). Under the provisions of this Act, the eastern and central divisions of the State are divided into shires and municipalities for the general purposes of local government, for the endowment of which a sum of not less than £150,000 is payable annually out of the consolidated revenue on the basis of a percentage subsidy on the proceeds of the general rates received by the District Councils. The control of all roads, bridges, and ferries (except those proclaimed "National" and those in the unincorporated areas of the Western Division) has been transferred from the Roads Department to the respective shires and municipal councils, who are now responsible for their construction and maintenance. Up to December, 1915, 31 miles of roads, 275 bridges, 55 wharves, 99 jetties, and 16 ferries have been proclaimed as "National" works. Power is given to construct new roads, to widen or close existing roads, to make by-laws for the regulation of traffic, etc.; in the case of the acquisition of land for the purpose of constructing new roads or of widening existing roads, the provisions of the Roads Act 1902 are incorporated. The Minister for Works is empowered to pay subsidies to the local authorities to maintain the roads. The roads leading to and within areas of lands which are made available for closer settlement will be constructed by the Government prior to transfer to the shires, as also will roads required mainly for tourists in districts not likely to produce revenue in rates to the local authorities.

(i.) *Principal Main Roads.* The four principal main roads in New South Wales run in the same direction as, and are roughly contiguous to, the four state-owned main railway lines. (a) *The Southern Road*, 385 miles in length, runs from Sydney to Albury, and before the days of railway construction formed part of the highway over which the interstate traffic between Melbourne and Sydney used to flow. (b) *The South Coast Road*, 250 miles long, runs from Campbelltown along the top of the coast range and across the Illawarra district as far as Bega, from which place it extends as a minor road to the southern limits of the State. (c) *The Western Road*, 513 miles long, runs through Bathurst, Orange, and many other important towns as far as Bourke, on the Darling River. (d) *The Northern Road*, 405 miles in length, runs from Morpeth, near Maitland, as far as Maryland, on the Queensland border.

(ii.) *Length and Classification of Roads and Bridges.* The length of roads in the State (exclusive of 31 miles proclaimed as "National" works) in 1915 was approximately 97,811 miles, of which 10,261 miles were controlled by municipalities, 81,075 by the shires, and 6,475 miles were in the unincorporated areas of the Western Division. The following table gives particulars for the year 1915 (the latest year for which figures are available), of roads classified according to whether metalled, etc., formed only, cleared only, or natural surface:—

NEW SOUTH WALES.—APPROXIMATE LENGTH OF ROADS, 1915.

Classification.	Metalled, Ballasted, Gravelled etc.	Formed only.	Cleared only.	Natural surface.	Total.
	Miles.	Miles.	Miles.	Miles.	Miles.
Metropolitan... ..	1,400	330	246	196	2,172
Country municipalities	2,676	1,638	1,897	1,878	8,089
Shires... ..	14,342	10,404	24,731	31,598	81,075
Western Division	100	196	2,752	3,427	6,475
Total	18,518	12,568	29,626	37,099	97,811

(iii.) *Bridges, Culverts, and Ferries.* The more important bridges have been proclaimed under the provisions of the Local Government Act as "National" works (see above), and these, together with the bridges, etc., in the Western Division, remain under the

control of, and are maintained by, the Public Works Department. Particulars of bridges, culverts, and ferries in the State in 1915, the latest year for which figures are available, are given in the following table:—

NEW SOUTH WALES.—BRIDGES, CULVERTS, AND FERRIES, 1915.

Particulars.	Bridges.		Culverts.		Ferries.
	No.	Length.	No.	Length.	No.
		ft.		ft.	
"National" works	275	105,330	...	...	16
Metropolitan... ..	130	6,133	844	78,117	3
Country municipalities	636	34,493	3,541	99,183	11
Shires	3,523	211,770	34,668	317,189	96
Western Division (unincorporated)	93	12,530	153	1,709	...
Total	4,657	370,256	39,206	496,198	126

(iv.) *Expenditure on Roads and Bridges.* Since the year 1857 the total expenditure by the Roads Department and Roads Trust on roads and bridges is £25,212,540. In this expenditure is included the cost of administering the Department, services for other Departments, and payments on account of punt approaches and similar works incidental to the road traffic of the country. The amount expended from 1857 to the 30th June, 1900, for the next decennium, and for each succeeding financial year up to 1916, is given below. Until recent years, the expenditure on these works increased at a much faster rate than the population.

NEW SOUTH WALES.—EXPENDITURE BY ROADS DEPARTMENT AND ROAD TRUSTS, 1857 to 1916.

Period:	Expenditure by Roads Department.	Expenditure by Trustees.	Total.
	£	£	£
1857 to 30th June, 1900	18,714,078	1,258,027	19,972,105
1900-09	4,605,766	30,664	4,636,430
1910-11	125,326	...	125,326
1911-12	126,111	...	126,111
1912-13	120,719	...	120,719
1913-14	73,192	...	73,192
1914-15	92,729	...	92,729
1915-16	65,928	...	65,928
Total	23,923,849	1,288,691	25,212,540

The expenditure by the Department is now limited to the construction of roads in closer settlement areas and to the construction and maintenance of national bridges and ferries, and of works in the unincorporated areas of the Western Division.

4. *Victoria.*—Under the Local Government Act 1915, the control, construction, and maintenance of all roads, streets, and bridges are in the hands of Municipal Councils, who are empowered to open new roads, and to close, divert, or increase the width of any existing street or road, provided that no new road less than one chain in width may be opened without the consent of the Minister. The councils are also authorised to make and repair streets, lanes, or passages on private property, or to form means of back access to private property, and may compel the owners of such property to pay the cost of so doing. Footways in front of houses or grounds may be kerbed, flagged, paved, or asphalted, and the owners of such houses or grounds must bear half the cost of so doing. The revenue of the councils is derived from rates, which may be either ordinary or special. The councils are empowered to raise loans for the purpose

of making or opening new streets and roads, and for diverting, altering, or increasing the width of streets and roads, provided that the amount of such loan must not exceed ten times the average income of the council during the three years immediately preceding.

(i.) *Country Roads Board.* With the object of improving the main roads of the State, an Act (No. 2415) was passed on 23rd December, 1912, which empowers the Governor-in-Council to appoint a board, to consist of three members.

The duties of the board are to ascertain by survey and investigation what roads are main roads; the nature and extent of the resources of Victoria in metals, minerals, and materials suitable for the purposes of road-making and maintenance, and the most effective and economical methods for dealing with the same, and for supplying and utilising the material in any part of Victoria; the most effective methods of road construction and maintenance; what deviations (if any) in existing roads or what new roads should be made so as to facilitate communication and improve the conditions of traffic; and to record, publish, and make available for general information the results of all such surveys and investigations. The duty of furnishing information that may be required is imposed on the municipal authorities.

The construction of permanent works and the maintenance of main roads are likewise to be carried out by the municipalities to the satisfaction of the board. The total cost of the works, in the first instance, is to be paid by the Treasury, but subsequently half the amount expended on permanent works and maintenance is to be refunded by the municipalities affected.

For the purpose of making permanent works, power is given to the Governor-in-Council to issue stock or debentures to the amount of £400,000 a year for five years, and the principal and interest are a charge upon the Consolidated Revenue of the State. The money so raised is to be placed to the credit of an account to be called "the Country Roads Board Loan Account," which will be debited with all payments made by the Treasurer towards the cost of permanent works. A sinking fund of 1 per cent. per annum on half the amount borrowed is authorised to be paid out of the Consolidated Revenue until half of the amount borrowed is redeemed. An annual payment to the Treasurer of 6 per cent. on the amount due by each municipality in respect of permanent works is provided for, and the cost of maintenance allocated to each municipality must be paid before the 1st July in each year. A special rate, not to exceed 6d. in the £1 on the net annual value of ratable property, to meet the cost of permanent works and maintenance, may be levied in any ward or riding of a municipality as the council may direct. In the event of default of payment by a municipality, the board may levy a rate to meet the amount owing. All fees and fines paid under the Motor Car Act, all moneys standing to the credit of the Municipal Fees and Fines Trust Fund, all fees paid on the registration or renewal of the registration of traction engines, and all fees received by the Crown after the 30th June, 1912, under the Unused Roads and Water Frontages Act 1903, are to be credited to the Country Roads Board Fund.

Up to the 30th June, 1916, there were 6500 miles of declared main roads, agreed to by the councils, and gazetted. The total amount of authorised contracts for permanent works was £182,624, and for maintenance work £53,644, a total of £236,268, affecting 122 municipalities. The expenditure incurred during the year ending 30th June, 1916, including contracts, day labour, and material supplied, amounted to £464,787. The net receipts for the year were £82,068, of which amount the chief items were motor registration fees, £39,740, unused roads and water frontages license fees, £20,754, and contributions by municipalities for permanent works, £12,847.

(ii.) *General and Local Government Expenditure.* The gross amount expended directly by the State Government of Victoria on roads and bridges was £8,749,678 up to the end of June, 1916. The annual expenditure from ordinary revenue by municipalities is not returned separately, but is included in Public Works Construction and Maintenance (see Section xxvi., *Local Government*). The subjoined table shews the cost from general revenue of municipalities of private streets, roads, etc., and also shews the amounts of municipal loan expenditure in 1901 and from 1912 to 1916:—

VICTORIA.—EXPENDITURE ON ROADS AND BRIDGES, 1901 and 1912 to 1916.

Financial Year. ¹	Annual Expenditure by State Government.	Municipal Loan Expenditure.		Formation of Private Roads, Streets, Lanes, etc. ²	
		Cities, Towns, and Boroughs.	Shires.	Cities, Towns, and Boroughs.	Shires.
	£	£	£	£	£
1901	72,890	16,844	12,928	18,829	4,521
1912	58,917	28,237	31,940	59,845	6,890
1913	73,374	49,743	30,758	51,034	5,566
1914	56,649	57,411	23,749	59,093	11,372
1915	47,898	103,124	40,129	53,365	8,647
1916	25,651	92,198	43,690	64,481	3,543

1. The financial years of Melbourne and Geelong end on the 31st December and the 31st August respectively; those of all other municipalities on the 30th September.

2. Including the cost of flagging, asphalted footpaths, etc., but exclusive of loan expenditure.

5. **Queensland.**—In Queensland the construction and maintenance of public roads are controlled under a system of local self-government, for the purposes of which the whole State is divided into (a) towns and (b) shires. The duties, rights, and responsibilities of the local authorities with regard to roads, streets, and bridges are regulated by the Local Authorities Act of 1902. The councils are invested with full powers to open, close, divert, or widen streets, roads, and bridges, and to make by-laws for the regulation of traffic, etc. The members of the councils are elected by the ratepayers, and with the aid of executive officers they undertake the supervision and control of all necessary constructions and improvements of roads and bridges within their district. The rates which the councils are empowered to levy are supplemented by Government grants. Separate returns as to the expenditure by towns and shires on roads and bridges are not available, the amounts being included in the returns of expenditure on public works, particulars as to which expenditure may be found in the section of this book on *Local Government*.

6. **South Australia.**—Under the provisions of the District Councils Act 1914, the Municipal Corporations Acts 1890 to 1914, and of the Roads Acts 1884 to 1915, the councils are invested with full powers as to the opening and making of new streets and roads, and the diverting, altering, or increasing the width of existing roads; as to raising, lowering, or altering the ground or soil of any street or road; and as to the construction, purchase, and management of bridges, culverts, ferries, and jetties.

(i.) *Main Roads and District Roads.* All the roads in each district are classified either as main roads or as district roads. Both classes of roads are under the direct control either of Municipal Corporations or of District Councils, but in the case of main roads the expenditure on construction and maintenance is chiefly provided for by Government grants, which are paid into a Government grants account, while the expenditure on district roads is paid for out of general rates, and out of subsidies on the amount of such rates granted by the central Government. Under the Main Roads Act 1915, a number of roads were declared to be main roads.

The total estimated length of streets and roads in South Australia up to the 30th June, 1916, was as follows:—

SOUTH AUSTRALIA.—ESTIMATED LENGTH OF ROADS AND STREETS, 1916.

Particulars.	Woodblocked.	Macadamised.	Other.	Total.
Miles	6	10,103	33,511	43,620

(ii.) *Expenditure by Corporations on Main and District Roads.* The following table shews the expenditure by municipal corporations on both main and district roads during 1901-2, and each year from 1911 to 1916 inclusive:—

**SOUTH AUSTRALIA.—EXPENDITURE BY CORPORATIONS ON STREETS, ROADS,
AND BRIDGES, 1901 and 1911-16.**

Year. ¹	District Roads.		Main Roads Fund.			
	Expenditure.		Receipts.		Expenditure.	
	Con- struction.	Main- tenance.	From Main Road Grants.	Total.	Con- struction.	Main- tenance.
	£	£	£	£	£	£
1901	4,906	50,628	7,403	8,738	159	7,745
1911	5,673	63,897	12,935	14,294	1,053	13,634
1912	10,907	59,609	11,477	11,865	322	12,590
1913	31,797	89,830	11,817	13,128	463	13,142
1914	8,909	95,970	12,573	13,516	361	11,949
1915	31,732	74,887	12,084	12,820	26	11,502
1916	25,483	73,118	9,669	12,098	88	13,679

1. Up to and including the year 1903 the financial year ended on the 31st December, but after that date ends on the 30th November.

(iii.) *Expenditure of District Councils on Main and District Roads.* The following table gives similar information with respect to main and district roads under the control of District Councils:—

**SOUTH AUSTRALIA.—EXPENDITURE BY DISTRICT COUNCILS ON STREETS,
ROADS, AND BRIDGES, 1901 and 1911-16.**

Year ended 30th June.	District Roads.		Main Roads Fund.			
	Expenditure.		Receipts.		Expenditure.	
	Con- struction.	Main- tenance.	From Main Road Grants.	Total.	Con- struction.	Main- tenance.
	£	£	£	£	£	£
1901	18,026	47,379	72,980	100,077	11,861	67,487
1911	44,289	63,811	110,397	111,182	24,660	82,115
1912	54,342	68,108	119,331	123,154	20,414	102,759
1913	56,128	76,880	106,482	108,489	14,915	96,673
1914	48,133	80,181	124,528	130,299	18,538	97,599
1915	51,625	85,119	114,722	114,781	15,571	102,679
1916	41,283	79,515	83,264	84,738	12,493	61,172

7. *Western Australia.*—In Western Australia the construction, maintenance, and management of roads and bridges throughout the State, except those within the boundaries of municipalities, are under the control of District Road Boards, constituted by the Roads Act 1911.

(i.) *District Roads and Bridges.* Under the provisions of this Act any part of the State, not within a municipality, may be constituted by the Governor-in-Council into a Road District, under the control of a board of not less than five, nor more than eleven members elected by the ratepayers. The board is invested with full powers for controlling and managing all roads and bridges within the district, and is empowered to make by-laws for the general regulation of traffic, to control the weight of engines and machines permitted to cross any bridge or culvert, to regulate the speed limits of vehicles, lights to be carried by vehicles, the lighting of streets and roads, and the licensing of bicycles and motor cars. A District Road Board may not, however, construct any road or street less than sixty-six feet wide, nor any bridge or culvert at a greater cost than £100, without the consent of the Minister. The construction of the more important bridges and culverts is generally carried out by the Government, the work, after completion, being handed over to the Road Board for maintenance. In case of land being required for the purpose of constructing a new street or road, or for widening an existing

street or road, the provisions of the Public Works Act of 1902 are incorporated in the Roads Act. A board may levy general rates within its district not exceeding two shillings and sixpence nor less than ninepence in the £ on the annual ratable value, and, if valued on the basis of unimproved values of lands, the general rate must not be over threepence nor under one penny in the £ on the capital unimproved value. Boards are also empowered to raise loans for works or undertakings or to liquidate existing loans, but the amount of such loans must not be greater than seven times the average ordinary revenue of the board. In the case, however, of boards already indebted, borrowing power to the extent of ten times the said average is given, less the amount of existing loan indebtedness at time of borrowing. For the purpose of paying the interest on money borrowed a board may levy a special rate. District Road Boards may also exercise the powers of Drainage Boards under the provisions of the Land Drainage Act of 1900.

(ii.) *Municipal Streets, Roads, and Bridges.* As regards roads, streets, and bridges within municipalities, these are under the control of local authorities elected under the provisions of the Municipal Corporations Act 1906. The municipal councils are invested with full powers for making, maintaining, and managing all streets, roads, and bridges within the municipal area, and may request the Governor to declare any such land reserved, used, or by purchase or exchange acquired for a street or way, to be a public highway, and on such request the Governor may, by notice in the *Gazette*, proclaim such highway absolutely dedicated to the public.

(iii.) *Length of Roads, Number of Bridges, and Expenditure on Roads and Bridges.* The following table gives particulars of the operations of the Road District Boards since the 1st January, 1911 :—

WESTERN AUSTRALIA.—PARTICULARS OF ROADS UNDER CONTROL OF DISTRICT ROADS BOARDS, 1911 to 1915.

Year ended the 30th June.	Area.	Revenue.				Expenditure.	Length of Roads. ⁵				No. of Bridges and Culverts.	
		From Rates.	From Grants and Subsidies.	From other Sources.	Total.		Cleared only.	Formed only.	Metalled or otherwise Constructed.	Total.	Bridges.	Culverts.
1911 ...	Sq. m. 975,800	£ 59,302	£ 100,126	£ 16,474	£ 175,902	£ 141,015	15,169	4,874	3,119	23,162	653	5,211
1912 ...	975,809	70,397	64,774	36,497	171,668	196,576	16,484	4,555	3,432	24,471 ²	719 ²	5,808 ²
1913 ...	975,815	80,551	60,687	29,770	171,008	184,587	19,236	4,429	3,651	27,316 ³	721 ⁴	6,157 ⁴
1914 ...	975,815	93,700	63,668	46,031	203,399	187,800	19,921	4,626	3,804	28,351 ³	731 ¹	6,450 ¹
1915 ...	975,815	68,569	27,753	47,571	163,893	193,083	19,641	4,674	4,039	28,354 ³	761	6,649

1. Exclusive of two Boards which have not supplied the information. 2. Exclusive of five Boards. 3. Exclusive of four Boards. 4. Exclusive of three Boards. 5. Approximate only.

The following table gives similar information with reference to roads controlled by municipalities under the Municipal Institutions Act 1900 and the Municipal Corporations Act 1906:—

WESTERN AUSTRALIA.—PARTICULARS OF STREETS, ROADS, AND BRIDGES UNDER THE CONTROL OF MUNICIPALITIES, 1901 and 1911-15.

Year ended the 31st October.	No. of Municipalities.	Length of Streets and Roads. ²					Revenue.		Expenditure.	
		Paved, M't'll'd or Gr'v'll'd Miles.	Form'd only. Miles.	Clear'd only. Miles.	Not Clear'd Miles.	Total. Miles.	From Rates. £	From Grants. £	Works and Impr'vments. £	Street Light'g and Wat'r'g £
1901 ...	42	195	30	149	137	511	78,021	66,850	111,256	15,969
1911 ...	42	521	105	292	284	1,202	144,993	27,944	75,697	30,341
1912 ...	38 ¹	528	103	278	312	1,221	148,538	25,902	78,576	27,522
1913 ...	33	544	95	267	299	1,205	153,966	19,362	159,445	26,069
1914 ...	33	550	95	258	290	1,193	153,686	13,142	223,098	19,056
1915 ...	31	570	92	254	279	1,195	170,675	10,309	190,739	24,956

1. Including also particulars of four municipalities which were dissolved during the year. 2. Approximate only.

8. *Tasmania*.—In 1906 all the existing Road Trusts and Main Road Boards were abolished by the Local Government Act, which provided that the councils of all municipalities constituted under the Act should exercise all powers conferred upon, and should be liable to all the obligations imposed upon Road District Trusts and Main Road Boards by the Roads Act of 1884. The whole State is divided into municipal districts, 49 rural and 2 city, each rural district being under the control of a warden and councillors, and deemed to be a road district and a main road district for the purposes of the Roads Act 1884.

(i.) *Mileage of Roads and Number of Bridges*. The following table gives particulars for the year 1915 as to length of roads and number of bridges and culverts under the control of the municipalities:—

TASMANIA.—ROADS AND BRIDGES IN MUNICIPALITIES, 1915.

Roads.			Bridges.	Culverts.
Macadamised or Gravelled.	Other.	Total.		
Miles. 5,610	Miles. 5,482	Miles. 11,092	No. 1,120*	No. 19,702*

* Last available figures.

(ii.) *Revenue and Expenditure*. The following table gives particulars for the year 1915 of the revenue and expenditure of municipal councils in respect of roads and bridges:—

TASMANIA.—ROADS AND BRIDGES, REVENUE AND EXPENDITURE, 1915.

Revenue.				Expenditure.
From Government.	Rates.	All other. ¹	Total.	
£ 14,651	£ 55,005	£ 164,732	£ 234,388	£ 199,867

1. Including current receipts from loans. 2. Municipal "Works and Services."

§ 2. Railways.

(A) General.

1. *Introduction*.—In the issues of the Commonwealth Year Book, Nos. 1-7, the statistics of all Government Railway systems were treated under the head of *Government Railways*. In the following issues, Nos. 8 and 9, the greater part of those statistics relating to State-owned lines was dealt with separately from those under the control of the Commonwealth Government. This arrangement is continued in the present issue. The State railways are referred to throughout as "State" and the Commonwealth railways as "Federal" railways. There is, however, a summary of the working of the Federal and States' railways in section (E) hereof.

2. *Railway Statistics*.—In some of the earlier issues of the Year Book will be found a condensation of the report issued in 1909 by the Commonwealth Statistician to the Minister for Home Affairs on the subject of *The Desirability of Improved Statistics of Government Railways in Australia* (see Year Book No. 7, page 598).

3. *Railway Communication in the Commonwealth*.—An account of the progress in railway construction in Australia since the opening of the first line in 1854 will be found in Year Book No. 6, p. 681. In the eastern, south-eastern, and southern parts of Australia there now exists a considerable network of railway lines converging from the various agricultural, pastoral and mining districts towards the principal

ports, which are themselves connected by systems of lines roughly running parallel to the coast. These are shewn on the map on page 645. In the east, lines radiating from Townsville, Rockhampton, Brisbane, and Sydney extend inland in various directions for distances ranging up to over 600 miles; in the south-east there are numerous lines, those in Victoria converging towards Melbourne, while others in New South Wales have their terminus in Sydney; in the south there are four main lines, with numerous branches, running from Melbourne, while from Adelaide one main line, with several branches to the coastal towns, runs inland in a northerly direction for a distance of nearly 700 miles, and another line runs in a south-easterly direction to various ports, meeting the main line from Melbourne on the border of South Australia and Victoria. The main interstate line (indicated by a heavier line in the map), which permits of direct communication between the four capital cities—Brisbane, Sydney, Melbourne, and Adelaide—covers a distance from end to end of 1781 miles. This journey occupies three days, two hours and thirty minutes. In the opposite direction the journey occupies three days, three hours and twenty minutes. Both of these are the times taken over all. The distances and the times occupied between the capitals and the duration of stops at Sydney and Melbourne are as follows:—

From—	To—	Distance.	Time (Actual).	Stops at—	
				Sydney.	Melbourne.
		Miles.	h. m.	h. m.	h. m.
Brisbane ...	Sydney ...	715 $\frac{3}{4}$	26 0	9 55	...
Sydney ...	Melbourne ...	582 $\frac{1}{4}$	16 51	...	3 39
Melbourne ...	Adelaide ...	482 $\frac{3}{4}$	17 55	...	...
Brisbane ...	Adelaide ...	1,781	60 46	9 55	3 39
Adelaide ...	Melbourne ...	482 $\frac{3}{4}$	16 59	...	7 1
Melbourne ...	Sydney ...	582 $\frac{1}{4}$	17 10	8 40	...
Sydney ...	Brisbane ...	715 $\frac{3}{4}$	25 40	...	...
Adelaide ...	Brisbane ...	1,781	59 49	8 40	7 1

The longest railway journey which can be undertaken in Australia, on one continuous line of railway, is from Longreach in Queensland to Oodnadatta in South Australia, a total distance of 3294 miles. In Western Australia there is a connected system of main or trunk lines between the ports of the State and the agricultural, pastoral, and mining districts.

In the northern parts of Queensland and in the Northern Territory there are also a number of disconnected lines running inland from the more important ports. In Tasmania the principal towns are connected by a system of lines, and there are also, more especially in the western districts, several lines which have been constructed for the purpose of opening up mining districts.

4. **Non-conformity of Gauge.**—With but few exceptions, all the railway lines in the Commonwealth open for general traffic are now owned and managed by the respective States in whose territory they run, but, unfortunately for the purpose of interstate traffic, the construction of the various systems in different parts of Australia has proceeded without uniformity of gauge. In 1846 Mr. Gladstone, then Colonial Secretary, recommended in a despatch to the Governor of New South Wales that the 4-ft. 8 $\frac{1}{2}$ -in. gauge should be adopted. In 1850, however, the engineer to the Sydney Railroad and Tramway Company strongly advocated the adoption of the 5-ft. 3-in. gauge, and in 1852 an Act was passed making it compulsory that all railways in New South Wales should be constructed to the wider gauge, the Governors of Victoria and South Australia being duly advised of the step that had been taken. In 1852, however, the company mentioned having changed its engineer, also changed its views as to the gauge question, and in the following year succeeded in obtaining the repeal of the Act of 1852 and in passing another, under

the provisions of which the narrower gauge was made imperative. This step was taken without the concurrence of the other States concerned, and a considerable amount of ill-feeling arose; especially in Victoria, where two private companies had already placed large orders for rolling stock constructed to the broad gauge originally chosen. The result was that it was decided in Victoria to adhere to the 5-ft. 3-in. gauge as the standard gauge for the State, while the Sydney Railroad and Tramway Company proceeded with the construction of its lines to the 4-ft. 8½-in. gauge, and these two gauges have since been adhered to as the standard gauges of the respective States. The Queensland Government had, at the outset, adopted a gauge of 3-ft. 6-in. as being best suited to the requirements of the colony, and has since adhered to that gauge throughout the State, so that all goods requiring conveyance into New South Wales or *vice versa* have to be transhipped at the boundary between the two States. In June, 1914, however, the Queensland Government purchased two short lengths of line laid on a 2-ft. gauge. In South Australia the broad gauge of Victoria was at first adopted, and the part of the interstate line between Adelaide and the Victorian boundary was constructed to that gauge, so that the line from Melbourne to Adelaide has a uniform gauge throughout. In 1870, however, on the grounds of economy, the 3-ft. 6-in. gauge was introduced and many of the lines in South Australia have been constructed with that gauge. At the 30th June, 1916, of the 2181½ miles of State Government railways in that State 1208½ miles were of 3-ft. 6-in. gauge, exclusive of 478 miles from Port Augusta to Oodnadatta belonging to the Federal Government. In the Northern Territory the line from Darwin to Pine Creek is of 3-ft. 6-in. gauge. In Western Australia and Tasmania the 3-ft. 6-in. gauge was also adopted. It was recognised in both these States that the construction of railways was essential to their proper development, but as their financial resources would not bear a heavy initial expenditure in connection with the establishment of railway lines, it was decided to adopt the narrow gauge. In Victoria, light railways have been constructed in recent years to a gauge of 2-ft. 6-in., whilst in Tasmania short lengths have been laid down to a 2-ft. gauge.

5. Interstate Communication.—Until the railway systems of the eastern states were connected at the common boundaries, the inconvenience of non-conformity of gauge was not felt. Since then, however, the necessary transshipments of both passengers and goods have been a source of trouble, delay, and expense. On the 14th June, 1883, a railway bridge over the River Murray at Wodonga was opened for traffic, and communication was then established between Melbourne and Sydney. On the 19th January, 1887, the last section of the Victorian line to Serviceton, on the South Australian border, was completed, and a junction was thus effected with the South Australian line to Adelaide. On the 16th January, 1888, a junction was effected between the New South Wales and Queensland lines at Wallangarra, but there was still a break in the line from Sydney at the Hawkesbury River, thirty-six miles from Sydney. This last link was, however, completed on the 1st May, 1889, by the opening of the Hawkesbury River bridge, 2900 feet in length, and railway communication was thus established between the four capital cities, Brisbane, Sydney, Melbourne, and Adelaide.

The effect of the east to west transcontinental railway, which is now under construction by the Commonwealth Government and to which reference is made in (B) hereof, will be that Western Australia will also be linked to the other States, and an unbroken line of communication established from one end of the continent to the other. The construction, moreover, of lines recently decided upon, connecting Victoria with the Riverina district in New South Wales and with the wheat-growing districts of South Australia, will undoubtedly facilitate interstate exchange and will allow the produce of inland areas to find its natural outlet at the nearest port.

6. Unification of Gauge.—The development of the railway systems of the Commonwealth has shewn that the adoption of different gauges on the main lines in the several States was a serious error. The extra cost, delay, and inconvenience incurred by the necessity of transferring through-passengers and goods at places where there are breaks of gauge, are becoming more serious as the volume of business increases. As an indication

of the extra cost thus involved, the junction charges on interstate traffic between New South Wales and Victoria range from 1s. 6d. to 2s. 6d. per ton.

Although the cost of alteration to a uniform gauge would be great, many propositions have from time to time been put forward with the object of securing such a gauge, and attention has been drawn to the importance of the unification of gauges before further expenditure on railway construction is incurred by the States. The problem is, however, one which is by no means easy of solution, and the difficulties are increased by the introduction of what may be called questions of local or State policy.

The first question that naturally arises in considering the problem is as to which gauge should be adopted as the universal gauge of the Commonwealth. As regards Government railways only, the New South Wales gauge has a mileage of 4188 (4148 of 4-ft. 8½-in. gauge and 40 of 3-ft. 6-in. gauge); Victoria and South Australia have a combined mileage of 4955 of 5-ft. 3-in. gauge; while New South Wales, Queensland, South Australia, Western Australia, and the Northern Territory have together 10,143 miles of 3-ft. 6-in. gauge. By far the greater part of the mileage of private railways open for general traffic has also been constructed to the 3-ft. 6-in. gauge. The mere question of preponderance of mileage, therefore, indicates the 3-ft. 6-in. gauge for adoption. But this question is obviously subordinate to those involving engineering and economic considerations. Thus, the relative efficiency from the widest point of view, the relative costs of alterations of permanent way and rolling stock, of carrying capacity and speed, that is to say, questions of a technical nature about which figures are not available, enter into the grounds for decision. As regards the unification of the New South Wales and Victorian gauges, the advantage of reducing the broad gauge to the 4-ft. 8½-in. gauge is that there would be no necessity for the alteration of tunnels, cuttings, bridges, or viaducts.

In 1897 a conference was held between the Railway Commissioners of New South Wales, Victoria, and South Australia to consider and report upon the unification of the railway gauges of these States. In their report the Commissioners estimated the cost of converting all the lines in the three States to a 5-ft. 3-in. gauge at £4,260,000, and to one of 4-ft. 8½-in. at £2,360,500. In 1903 the question was again brought up, more particularly with regard to the proposed transcontinental line, and the Engineers-in-Chief reported in favour of a gauge of 4 ft. 8½ in. At the Premiers' Conference, held in January 1912, the subject was again under consideration, but no decision was come to.

In November 1912, another conference of railway engineers, representing the six States and the Federal Government, was held, and the question of unification of gauge was again discussed. The necessity for such a step was emphasised, and a conclusion was come to that the relative advantages of the 5-ft. 3-in. and 4-ft. 8½-in. gauges, from the point of view of efficiency and economy of working, were approximately equal, and that the determination of the most suitable gauge should be made on the basis of cost. Owing, however, to the fact that track mileage, ton mileage, and wage, had at the time increased 90, 200, and 50 per cent. respectively since 1897, together with a correspondingly large increase in the cost of material, the Conference estimated the cost of converting all lines to a 5-ft. 3-in. gauge at £51,659,000 and to a 4-ft. 8½-in. gauge at £37,164,000. It recommended that the latter gauge should be adopted, and pointed out that the longer the work of conversion was delayed, the greater the cost would become. An alternative scheme by which the main trunk lines and more important branches should be converted was also proposed, as possibly meeting immediate requirements, and being, from a Federal point of view, perhaps a more attractive proposition than any other which could be suggested at the present time. The estimated cost of this limited scheme was £12,142,000. The subject was again under discussion at the Premiers' Conference, held in Melbourne in April 1914, when it was decided to refer the matter to the Interstate Commission, that the latter body might furnish a report as to the benefits of unification, its cost, and the apportionment of such cost.

In May 1915 another Premiers' Conference took place at Sydney, and the uniform gauge question again received consideration, with the result that the following resolution was carried without dissent:—"That . . . two leading railway experts, preferably

from outside Australia, should be forthwith appointed by the Government of the Commonwealth and the mainland States to . . . report on—(1) the need of a uniform gauge, (2) the most suitable gauge, (3) the best method of carrying out uniformity, (4) what benefits would result to the Commonwealth and to the States, and (5) the probable cost."

In May 1916 a Premiers' Conference took place at Adelaide, when the question of the adoption of a third rail was discussed, with the result that a motion was carried in the following terms:—"That this Conference agrees to the appointment of a committee of experts, one from each State and the Commonwealth, to investigate the whole question of the laying of a third rail." A further motion was carried to the effect—"That on the receipt of the report of the committee of experts there should be an early meeting of Commonwealth and State Ministers controlling railways to consider the advisability of an early practical application of the third rail system on some selected section."

7. **Loading Gauges.**—Allied to the question of the gauges of the railways of Australia is that of the loading gauges which are in use, the loading gauge being the maximum dimensions to which the rolling stock may be constructed. In the following tables will be found particulars of the loading gauges at present in use on the Government railways, State and Federal:—

LOADING GAUGES IN USE ON STATE AND FEDERAL GOVERNMENT RAILWAYS.

PASSENGER ROLLING STOCK.

Railway.	Gauge.	Maximum—				Tare.
		Width.	Height ab'v'e Rail Level.	Length over all.	T. c. q.	
New South Wales ...	4 8½	9 7¼	13 10½	74 4½	44 2 1	
Victoria ...	5 3	9 11½	14 0½	74 1½	46 17 2	
" ...	2 6	7 0½	10 4½	31 8	8 11 0	
Queensland ...	3 6	9 4	12 9	53 5	26 14 0	
" ...	2 0	6 3½	10 0	22 0	3 0 0	
South Australia ...	5 3	10 4½	14 1½	74 1½	37 11 2	
" ...	3 6	9 4½	12 1	62 6	24 18 0	
Western Australia ...	3 6	8 10	12 7	60 9	31 10 0	
Tasmania ...	3 6	9 6	12 5	64 0	30 0 0	
" ...	2 0	6 6	10 0	30 2	5 10 1	
Federal ...	4 8½	10 6	14 6	75 0	58 0 0	

GOODS ROLLING STOCK.

Railway.	Gauge.	Maximum—				
		Width.	Height ab'v'e Rail Level.	Length over all.	Tare.	Carrying Capacity.
New South Wales ...	4 8½	9 8	13 6	60 11	20 10 3	40 0 0
Victoria ...	5 3	9 7½	13 5	55 4½	20 6 0	30 0 0
" ...	2 6	6 5½	9 7½	27 3½	7 12 2½	10 0 0
Queensland ...	3 6	8 0	12 0	45 5	11 10 0	21 8 0
" ...	2 0	6 6	9 0	22 0	4 10 0	16 0 0
South Australia ...	5 3	10 0½	12 10½	43 6	16 0 0	30 0 0
" ...	3 6	8 6	12 1	38 9	11 15 0	25 0 0
Western Australia ...	3 6	8 8	12 6	44 9	17 18 0	25 0 0
Tasmania ...	3 6	8 10	11 6	40 10	12 5 2	30 0 0
" ...	2 0	6 6	6 6	27 0	5 15 2	20 0 0
Federal ...	4 8½	10 6	14 6	45 0	15 0 0	40 0 0

In the above tables the dimensions given are not necessarily those of one particular vehicle, but are the greatest employed on any vehicle.

8. **Mileage Open for Traffic.**—In all the States of the Commonwealth the principle that the control, construction, and maintenance of the railways should be in the hands of the Government has long been adhered to, excepting in cases presenting unusual circumstances. In various parts of the Commonwealth, lines have been constructed and managed by private companies, but at the present time practically the whole of the railway traffic in the Commonwealth is in the hands of the various State Governments. A large proportion of the private lines which are at present running have been laid down for the purpose of opening up forest lands or mining districts, and are not generally used for the conveyance of passengers or the public conveyance of goods. (See F. *Private Railways*, hereinafter.)

Mileage of Government and Private Lines, 1855 to 1916. The subjoined table shews the mileage of Commonwealth Government, State Government, and private lines open for traffic (exclusive of sidings and cross-overs) in each State at different periods since the inauguration of railways in Australia in 1854 up to the year 1916. The railway mileage given for each State includes both Commonwealth and State Government railways in that State, and in this table and in those on the following page, is estimated from the geographic point of view and not from that of ownership. The figures from 1855 to 1881 are given to the end of the calendar year; later figures are to the end of the financial year ended on the 30th June, unless otherwise stated, excepting the mileages for private lines, which are in all cases taken for the calendar year:—

GOVERNMENT AND PRIVATE RAILWAYS.—MILEAGE OPEN 1855 to 1916.

Year.	N.S.W.	Vict.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.	C'wth.
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
1855	14	2½	...	16½	...	...	...	23½
1861	73	114	...	56	...	...	...	243
1871	358	276	218	133	12	45	...	1,042
1881	1,040	1,247	800	845	92	168	...	4,192
1890-1... ..	2,263	2,763	2,205	1,666	2656	2425	145	10,123
1900-1... ..	2,926	3,238	2,904	1,736	1,984	2618	145	13,551
1910-11	4,027	3,574	4,390	1,993	3,208	675	145	18,012
1912-13	4,197	3,698	4,936	2,202	3,827½	729	145	19,734½
1913-14	4,251	3,886	5,213	2,357	3,910	766½	146	20,529½
1914-15	4,444	3,986½	5,449½	2,955	4,553	779½	146	22,263½
1915-16	4,496½	4,152½	6,452½	3,060½	4,707½	758½	146	23,773½

1. To the 31st December. The line between Goolwa and Port Elliot was opened in 1854 as a horse tramway, but now forms part of the railway system. 2. To the 31st December, 1891. 3. To the 31st December, 1901.

It will be seen from the above table that the rate of construction up to the year 1871 was very slow, the average annual length of lines opened from 1861 to 1871 being only 80 miles for the whole Commonwealth. By the middle of the following decade, however, the principal mountain ranges had been crossed, and the work of construction could be proceeded with at a greater rate, and at a less cost per mile. A great period of activity was from 1881 to 1891, when the average annual length opened for traffic was 593 miles for the whole Commonwealth; the corresponding figures for the following periods from June 1891 to June 1901, and from June 1901 to June 1911, were 343 and 446 miles respectively. Since June, 1911, the average annual length opened for traffic has been 1153 miles.

9. **Comparative Mileage of Government and Private Lines, 1916.**—The subjoined table shews for each State (a) the length of lines owned by the State Government, and by the Commonwealth Government in that State, all of which lines are of course open for general use by the public, (b) the length of private lines available for general use by the public, and (c) the length not so available. The mileages specified in the case of Government lines are to the 30th June, 1916; those given for private lines are as nearly as possible to the 31st December, 1915:—

GOVERNMENT AND PRIVATE RAILWAYS—COMPARATIVE MILEAGE OF GOVERNMENT LINES, OF PRIVATE LINES AVAILABLE FOR GENERAL TRAFFIC, AND OF PRIVATE LINES NOT SO AVAILABLE, 1915-16.

State or Territory.	Government Lines.	Private Lines available for General Traffic.	Total Open for General Traffic.	Private Lines used for Special Purposes only.	Grand Total.
	Miles.	Miles.	Miles.	Miles.	Miles.
New South Wales	14,193.01	179.75	4,372.76	124.00	4,496.76
Victoria...	4,100.40	26.00	4,126.40	26.00	4,152.40
Queensland ...	4,966.92	4651.75	5,618.67	*833.75	6,452.42
South Australia ...	23,026.31	...	3,026.31	34.00	3,060.31
Western Australia	23,743.18	277.00	4,020.18	687.50	4,707.68
Tasmania ...	562.25	163.50	725.75	32.50	758.25
Northern Territory	146.00	...	146.00	...	146.00
Total ...	20,738.07	1,298.00	22,036.07	1,737.75	23,773.82

1. Including the Queanbeyan-Canberra Line (5 miles). 2. Including the Port Augusta-Oodnadatta Line (478 miles), and Kalgoorlie-Port Augusta Line (361.75 miles). 3. Including the Kalgoorlie-Port Augusta Line (411.25 miles). 4. The figures differ from those published in Transportation Bulletin No. 9, as they are based on a later return.

10. **Comparative Railway Facilities in Different States, 1916.**—The area of territory and the population per mile of line open to the public for general traffic (including both Government and private lines) on the 30th June, 1916, are shown in the subjoined statement for each State and also for the Commonwealth:—

GOVERNMENT AND PRIVATE RAILWAYS.—COMPARISON OF RAILWAY FACILITIES IN DIFFERENT STATES, 1916.

State or Territory.	Population, 30th June, 1916.	Area.	Per Mile of Line Open.	
			Population.	Area.
	Number.	Sq. miles.	Number.	Sq. miles.
New South Wales ¹ ...	1,867,809	310,372	415	69.02
Victoria ...	1,407,648	87,884	339	21.16
Queensland ...	678,628	670,500	105	103.91
South Australia ...	431,892	380,070	141	124.19
Western Australia ...	314,687	975,920	67	207.30
Tasmania ...	197,497	26,215	260	34.57
Northern Territory ...	4,846	523,620	33	3,586.44
Total ...	4,903,007	2,974,581	206	125.12

1. Including Federal Territory.

11. **Classification of Lines according to Gauge, 1915-16.**—The subjoined tables show the total mileage, exclusive of sidings and cross-overs, of (i.) Commonwealth Government railways, given in the State in which situated; (ii.) State Government railways; (iii.) Private railways open to the public for general traffic; and (iv.) Private lines used for special purposes, classified according to gauge. Particulars of Government railways are up to 30th June, 1916, of private railways open for general traffic to the 31st December, 1915, and of private railways open for special purposes to the 31st December, 1915, as nearly as possible.

**GOVERNMENT AND PRIVATE RAILWAYS.—CLASSIFICATION ACCORDING
TO GAUGE, 1915-16.**

State or Territory in which situated.	Mileage having a Gauge of—						Total.
	5 ft. 3 in.	4 ft. 8½ in.	3 ft. 6 in.	3 ft. 0 in.	2 ft. 6 in.	2 ft. 0 in.	
FEDERAL RAILWAYS.							
South Australia ...	Miles. ...	Miles. 361.75	Miles. 478.00	Miles. ...	Miles. ...	Miles. ...	Miles. 839.75
Western Australia ...	...	411.25	...	...	...	...	411.25
Northern Territory ...	...	...	146.00	...	...	...	146.00
Federal Territory ...	...	5.00	...	...	...	...	5.00
Total ...	...	778.00	624.00	...	...	...	1,402.00
STATE RAILWAYS.							
New South Wales ...	...	4,147.92	40.09	...	...	...	4,188.01
Victoria ...	3,978.50	...	...	...	121.90	...	4,100.40
Queensland ...	...	...	4,937.57	...	...	29.35	4,966.92
South Australia ...	976.94	...	1,209.62	...	...	...	2,186.56
Western Australia ...	...	...	3,331.93	...	...	...	3,331.93
Tasmania ...	...	...	537.75	...	...	24.50	562.25
Total ...	4,955.44	4,147.92	10,056.96	...	121.90	53.85	19,336.07
PRIVATE RAILWAYS OPEN FOR GENERAL TRAFFIC.							
New South Wales ...	45.00	72.50	36.00	...	...	26.25	179.75
Victoria ...	14.00	...	...	12.00	...	...	26.00
Queensland ...	...	...	408.25	...	7.00	236.50	651.75
South Australia ...	...	...	...	...	...	...	...
Western Australia ...	...	...	277.00	...	...	...	277.00
Tasmania ...	...	...	153.50	...	...	10.00	163.50
Total ...	59.00	72.50	874.75	12.00	7.00	272.75	1,298.00
PRIVATE RAILWAYS OPEN FOR SPECIAL PURPOSES.							
New South Wales ...	...	120.50	3.50	...	...	...	124.00
Victoria ...	26.00	...	...	...	...	...	26.00
Queensland ...	...	...	174.00	...	10.00	649.75	833.75
South Australia ...	...	...	34.00	...	...	...	34.00
Western Australia ...	...	...	616.50	...	...	71.00	687.50
Tasmania ...	...	...	30.00	...	...	2.50	32.50
Total ...	26.00	120.50	858.00	...	10.00	723.25	1,737.75
ALL RAILWAYS.							
New South Wales ...	45.00	4,340.92	79.59	...	...	26.25	4,491.76
Victoria ...	4,018.50	...	...	12.00	121.90	...	4,152.40
Queensland ...	...	...	5,519.82	...	17.00	915.60	6,452.42
South Australia ...	976.94	361.75	1,721.62	...	...	...	3,060.31
Western Australia ...	...	411.25	4,225.43	...	...	71.00	4,707.68
Tasmania ...	...	...	721.25	...	...	37.00	758.25
Northern Territory ...	...	...	146.00	...	...	...	146.00
Federal Territory ...	...	5.00	...	...	...	...	5.00
GRAND TOTAL ...	5,040.44	5,118.92	12,413.71	12.00	138.90	1,049.85	23,773.82

1. Including 23 miles of 1-ft. 8-in. gauge.

(B) Federal Railways.

1. **General.**—On the 1st January, 1911, the Commonwealth Government took over the Northern Territory from the South Australian Government, and at the same time the railways from Darwin to Pine Creek, in the Northern Territory, and from Port Augusta to Oodnadatta, in South Australia, came under its control. Subsequently, the construction of a transcontinental line from Port Augusta, in South Australia, to Kalgoorlie, in Western Australia, was undertaken by the Commonwealth Government, while a line has been constructed in the Federal Territory, connecting Canberra with the New South Wales railway system at Queanbeyan.

2. **Darwin to Pine Creek Railway.**—This line at first came under the jurisdiction of the Department of External Affairs, and was worked under the Administrator of the Northern Territory. On the 1st July, 1915, the management of the line was handed over to the Commonwealth Railway Department.

Particulars as to the working of this line prior to its passing under the control of the Commonwealth Government will be found in section (C) State Government Railways.

In the Northern Territory Acceptance Act, the construction of a transcontinental line from South Australia is provided for. The extension of the line from Pine Creek to Katherine River is now under construction, while the connecting line from Katherine River to Oodnadatta is in course of survey.

3. **Port Augusta to Oodnadatta Line.**—This line was taken over by the Commonwealth Government from 1st January, 1911, but was held under lease by the South Australian Government until 31st December, 1913. It is provided in the Northern Territory Acceptance Act that the Commonwealth shall annually reimburse the State with the interest payable on the amount of loans raised by the State for the purpose of constructing the railway, and the agreement for working the line prescribes that the Commonwealth is responsible to the State for any financial loss incurred by the State in the working and management of the railway, but is entitled to receive from the State any profit made in such working and management.

4. **Port Augusta-Kalgoorlie Line.**—The Transcontinental Railway Bill, passed in 1907 by the Federal Houses of Parliament, provided for the expenditure of a sum of £20,000 for a preliminary survey of a railway line connecting Western Australia with the eastern States. This survey was commenced in 1908, and was completed in March, 1909. The route of the preliminary survey may be seen on reference to the map on page 645 hereof; the route *via* Tarcoola was, for several reasons, chosen in preference to that *via* Gawler Range and Fowler's Bay. The estimated cost of construction and equipment of the line on the basis of a 4-ft. 8½-in. gauge, from Port Augusta in South Australia to Kalgoorlie in the Western Australian goldfields, a distance of 1063 miles, was £3,988,000. In September, 1911, a Bill was introduced into the Commonwealth Parliament to authorise the construction of the line, and became law in December following. In South Australia an Act was passed enabling the Commonwealth to acquire lands for the railway in South Australia not exceeding one-eighth of a mile wide on either side of the line, but no town lands are to be included at any time. In Western Australia, an Act was also passed by which all necessary lands are to be granted to the Commonwealth for railway purposes. A Railway Construction Department was created by the Federal Government to carry out the work, which was commenced at Port Augusta in September, 1912. A commencement was also made at Kalgoorlie, and it was estimated that the line, which is being built from both ends, and has a gauge of 4-ft. 8½-in., would be completed in three years. The delay in its progress has been caused by the war, difficulties having arisen in obtaining supplies of materials. At the 30th June, 1916, 361.75 miles had been laid in the South Australian division, and 411.25 miles in the Western Australian division. It should be mentioned that owing to deviations from the original route

the length of this line will on completion be about 1053 miles, a saving of about 10 miles. It is reported that the line will be ready for through traffic in November, 1917.

5. **Queanbeyan-Canberra Railway.**—This line was built by the Railway Construction Branch of the Public Works Department, New South Wales, and was completed and taken over by the Chief Commissioner of Railways for that State, who has, for the time being, agreed with the Commonwealth Government to work it. The line was opened for Commonwealth departmental goods traffic on 25th May, 1914.

The Queanbeyan-Canberra railway connects with the New South Wales railway system at Queanbeyan, and is 4 miles 75 chains in length, in addition to which the sidings cover 2½ miles.

6. **Summary of Federal Railways.**—The following table shews the railway lines under the control of the Commonwealth at 30th June, 1916, together with the lines under construction and those which have been or are being surveyed:—

FEDERAL GOVERNMENT RAILWAYS, 30th JUNE, 1916.

Terminals.	Miles.
OPEN FOR TRAFFIC.	
Darwin to Pine Creek (Northern Territory)	146
Port Augusta to Oodnadatta (South Australia)	478
Queanbeyan (New South Wales) to Canberra (Federal Territory)	5
Kalgoorlie to 411 mile	411
Port Augusta to 362 mile	362
Total opened for traffic	1,402
UNDER CONSTRUCTION.	
Kalgoorlie (Western Australia) to Port Augusta (South Australia)	280
Pine Creek to Katherine River (Northern Territory)	54½
Total under construction	334½
SURVEYED OR BEING SURVEYED.	
Katherine River to Mataranka (Northern Territory)	65
Mataranka to Daly Waters (Northern Territory)	95
Kingoonya to Boorthanna (South Australia)	176
Canberra (Federal Territory) to Jervis Bay (New South Wales)	140
Canberra (Federal Territory) to Federal Territory Border in the direction of Yass (New South Wales)	12
Daly Waters (Northern Territory) to Oodnadatta (South Australia)	851
Total surveyed or being surveyed	1,339

7. **Average Miles Worked, Cost of Construction, Revenue, Expenditure, Train Mileage, Number of Passenger Journeys, and Tonnage of Goods and Live Stock carried on Federal Railways.**—In the following table will be found particulars of the average miles worked, cost of construction, revenue, expenditure, train mileage, number of passenger journeys, and tonnage of goods and live stock carried on the Federal lines during the undermentioned periods:—

FEDERAL RAILWAYS.—AVERAGE MILES WORKED, COST OF CONSTRUCTION, REVENUE, EXPENDITURE, TRAIN MILEAGE, NUMBER OF PASSENGER JOURNEYS, AND TONNAGE OF GOODS AND LIVE STOCK, 1911-1916.

KALGOORLIE—PORT AUGUSTA.

Year ended June 30.	Average Miles Open.	Cost of Construction.	Revenue.	Expenditure.	Train Miles run.	No. of Pass. Journeys.	Tonnage of Goods and Live Stock.
		£	£	£			
1915	370	2,846,090	142,159	147,846	497,553	12,234	282,471
1916	668	4,747,062	273,959	273,959	622,919	7,667	248,744

PORT AUGUSTA—OODNADATTA.

1911	³ 239	2,151,309	³ 29,954	³ 33,150	³ 90,031	1 ...	1 ...
1912	478	2,151,710	57,939	69,367	214,321	1 ...	14,071
1913	478	2,153,323	75,869	77,926	281,739	1 ...	15,302
1914	478	2,153,438	76,317	86,102	296,094	1 ...	1 ...
1915	478	2,155,156	66,664	95,871	273,488	1 ...	1 ...
1916	478	2,158,355	64,518	95,069	276,690	1 ...	1 ...

CANBERRA—QUEANBEYAN.

1915	5	45,486	1,088	1,635	² 6,000	1 ...	1 ...
1916	5	47,103	1,040	1,638	1,080	1,079	12,114

DARWIN—PINE CREEK.

1911	³ 72	1,040,734	³ 5,614	³ 5,882	³ 15,046	³ 1,130	³ 935
1912	145	1,040,702	13,267	18,769	30,916	1,791	1,895
1913	145	1,040,702	14,398	17,963	30,683	1,249	2,781
1914	146	1,040,702	17,819	22,991	30,229	2,739	3,615
1915	146	1,040,702	22,143	27,796	39,652	3,857	11,995
1916	146	1,055,754	31,518	47,953	52,424	4,718	30,007

1. Not available. 2. Estimated. 3. For six months only.

8. **Number and Description of Rolling Stock, 1916.**—The following table shows the numbers of locomotives and rolling stock in use on the Federal railways, classified according to gauge :—

CLASSIFICATION OF LOCOMOTIVES AND ROLLING STOCK ON FEDERAL RAILWAYS, 1915-16.

Railway.	Gauge.		Total . . .
	4 ft. 8½ in.	3 ft. 6 in.	
LOCOMOTIVES.			
Kalgoorlie-Port Augusta ...	38	...	38
Port Augusta-Oodnadatta ...	...	...¹	...
Canberra-Queanbeyan ...	...²	...	...
Darwin-Pine Creek ...	...	12	12
Total ...	38	12	50
PASSENGER VEHICLES.			
Kalgoorlie-Port Augusta ...	10	...	10
Port Augusta-Oodnadatta ...	...	...¹	...
Canberra-Queanbeyan ...	...²	...	...
Darwin-Pine Creek ...	...	4	4
Total ...	10	4	14

CLASSIFICATION OF LOCOMOTIVES AND ROLLING STOCK ON FEDERAL RAILWAYS, 1915-16—continued.

Railway.	Gauge.		Total.
	4 ft. 8½ in.	3 ft. 6 in.	
VEHICLES OTHER THAN PASSENGER.			
Kalgoorlie-Port Augusta	686	...	686
Port Augusta-Oodnadatta ... ..	...	32 ¹	32
Canberra-Queanbeyan ... ..	...²	...	...
Darwin-Pine Creek ... ..	...	220	220
Total	686	252	938

1. South Australian Government railway locomotives and rolling stock used. 2. New South Wales Government railway locomotives and rolling stock used.

9. **Number of Railway Employees.**—The following table shews the number of employees on the Federal railways at 30th June, 1916, classified according to (a) salaried staff, and (b) wages staff.

FEDERAL RAILWAYS.—NUMBER OF EMPLOYEES ON RAILWAYS, 1915-16.

Railway.	1915-16.	
	Salaried Staff.	Wages Staff.
Kalgoorlie-Port Augusta	82	873
Port Augusta-Oodnadatta ... ..	...¹	... ¹
Canberra-Queanbeyan ... ..	...²	... ²
Darwin-Pine Creek	11	129
Total	93	1,002

1. Worked by South Australian Government railways. 2. Worked by New South Wales Government railways.

10. **Accidents.—Number of Killed and Injured.**—The subjoined table gives particulars of the number of persons killed and injured through train accidents and the movement of rolling stock since the 1st January, 1911, on the Federal railways:—

FEDERAL RAILWAYS.—TOTAL NUMBER OF PERSONS KILLED AND INJURED ON FEDERAL RAILWAYS, 1911-1916.

Railway.	1911. ¹		1911-12.		1912-13.		1913-14.		1914-15.		1915-16.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
Kalgoorlie-Port Augusta ... ..	...	...	...	...	...	...	2	3	13	34	1	16
Port Augusta-Oodnadatta	1	1	...	1	...	2	...	13	2	2	...	6
Canberra-Queanbeyan ... ..	...	...	...	...	...	...	...	...	...	...	...	...
Darwin-Pine Creek ... ..	...	1	...	...	...	...	...	...	...	...	1	1
Total	1	2	...	1	...	2	2	16	15	36	2	23

1. To 30th June.

(c) State Railways.

1. Mileage Open, 1901 to 1916.—The following table shows the length of State railways open for traffic on the 30th June in the years 1901-2 and 1911-16:—

STATE RAILWAYS.—MILEAGE OPEN FOR TRAFFIC, 1901-2 and 1911-16.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.	All States.
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
1901-02 ...	3,026	3,302	2,801	1,736	1,360	1,462	145	12,832
1910-11 ...	3,758	3,523	3,868	1,457	2,376	470	3 ...	15,452
1911-12 ...	3,832	3,622	4,123	1,460	2,598	496	...	16,131
1912-13 ...	3,930	3,647	4,381	1,690	2,854	507	...	17,009
1913-14 ...	3,967	3,835	4,570	1,845	2,967	519	...	17,703
1914-15 ...	4,134	3,875	4,838	2,157	3,332	533	...	18,869
1915-16 ...	4,188	4,100	4,967	2,187	3,332	562	...	19,336

1. To the 31st December, 1902. 2. Including the mileage (478) of the Port Augusta to Oodnadatta line (see page 627). 3. Taken over by Commonwealth Government, 1st January, 1911 (see page 627).

The following statement shows the actual mileage opened for traffic in the year 1915-16, and also the annual average increase in mileage opened since 1906 in each State:—

STATE RAILWAYS.—MILEAGE OPENED ANNUALLY.

Mileage.	N.S.W.	Vic.	Qld.	S.A.	W.A.	Tas.	Total all States.
Mileage opened during 1915-16 ...	54½	225½	129	29½	—	29	467½
Average annual mileage increase in 10 years to 30th June, 1916 ...	80	70	183	92	172	10	607

(i.) *New South Wales.* During the year ended 30th June, 1916, the following lines were opened for traffic:—Raleigh to Coff's Harbour (13½ miles); Glenreagh to South Grafton (27½ miles); Campsie to Flemington (5½ miles); Flemington Goods Loop (1 mile); Glebe Island to Wardell Road (4½ miles); and increases by deviations (3 miles), making a total of 54½ miles.

(ii.) *Victoria.* The following lines were opened for traffic during 1915-16:—Murrayville to Pinnaroo (12½ miles); Hamilton to Cavendish (15½ miles); Elmore to Cohuna (57½ miles); Linton to Skipton (12½ miles); Bairnsdale to Orbost (60½ miles); Tallangatta to Shelley (22½ miles); Heywood to Dartmoor (26 miles); and Lorquon to Yanac-a-Yanac (18½ miles); a total of 225½ miles.

(iii.) *Queensland.* The increase of 129 miles in the mileage opened for traffic in 1915-16 was due to the opening of the following lines:—Logan Village to Canungra (21 miles); Drayton Deviation, near Toowoomba (10 miles); Oakley to Mount Russell (19 miles); Kingaroy to Tarong (18 miles); Enoggera to Rifle Range (1 mile); Mumbilla to Kalbar (6 miles); Yaamba to Kunwarara (22 miles); Sarina to Koumala (13 miles); Duchess to Butru (14 miles); and Malanda to Jaggan (5 miles).

(iv.) *South Australia.* The lines opened for traffic in this State during the year 1915-16 were on the 3-ft. 6-in. gauge, from Booleroo Centre to Wilmington (22½ miles); and on the 5-ft. 3-in. gauge, from Pinnaroo to Victorian Border (3½ miles); Outer Harbour Railway Extension (1 mile)—a total of 27½ miles. There were also alterations and extensions of existing lines which amounted to a net increase of 2½ miles in length.

By the transfer on 1st January, 1911, to the Commonwealth Government of the line from Port Augusta to Oodnadatta, the railways of the State have undergone a reduction to the extent of 478 miles. This line, however, was leased to the State by the Commonwealth Government until 31st December, 1913, since which date it has been worked on behalf of the Commonwealth under agreement. (See page 627.)

(v.) *Western Australia.* In the year 1915-16 no new lines were opened for traffic. This is the first year since 1901 in which no new mileage has come into operation.

(vi.) *Tasmania.* During the year 1915-16 the following lines were opened for traffic, Ulverstone Junction to Nietta (21½ miles), and Don Junction to Palcoona (8 miles), a total of 29½ miles.

2. Average Mileage Worked, Train Miles Run, Number of Passenger Journeys, and Tonnage of Goods and Live Stock Carried, on State Government Railways.—The table at head of page 631 gives the actual mileage open for traffic at the end of each financial year, but, in considering the returns relating to revenue and expenditure, and other matters, it is desirable to know the average number of miles actually worked during each year. The next table shews the average number of miles worked, the total number of train miles run, the number of passenger journeys, and the tonnage of goods and live stock carried by the Government railways of each State during the years 1901-2 and 1911-16 inclusive:—

STATE RAILWAYS.—AVERAGE MILEAGE WORKED, TRAIN MILES RUN, NUMBER OF PASSENGER JOURNEYS, AND TONNAGE OF GOODS AND LIVE STOCK CARRIED, 1901-2 and 1911-16.

Year.	N.S.W.	Victoria.	Q'land.	Sth. Aust.	West. Aust.	Tasmania.	N. Ter.	All States.
AVERAGE MILEAGE WORKED.								
1901-2	2,953	3,265	2,801	1,736	1,356	5 468	145	12,724
1911-12	3,799	3,543	3 4,144	1,460	2,471	503	7 ...	15,920
1912-13	3,872	3,639	3 4,351	1,534	2,783	508	...	16,687
1913-14	3,959	3,747	4,507	1,815	2,910	525	...	17,463
1914-15	4,057	3,948	4,730	2,026	3,096	536	...	18,293
1915-16	4,169	3,955	4,939	2,185	3,332	552	...	19,132

TRAIN MILES RUN.								
1901-2	11,649,059	11,284,944	5,666,058	4,196,138	4,507,919	5 902,918	30,275	38,237,311
1911-12	18,521,320	13,836,375	10,327,237	6,029,151	5,227,511	1,046,479	7 ...	54,987,873
1912-13	19,184,247	14,234,550	11,464,084	6,342,871	5,623,132	1,006,508	...	57,855,392
1913-14	20,549,635	15,028,649	11,346,334	6,721,284	5,565,062	1,000,740	...	60,221,764
1914-15	20,420,023	15,303,209	11,985,521	5,580,679	5,404,814	1,005,145	...	59,702,391
1915-16	21,556,034	13,826,538	11,571,746	5,630,964	5,149,289	1,051,511	...	58,786,102

NUMBER OF PASSENGER JOURNEYS.								
1901-2	30,885,214	57,465,077	1 8,421,258	9,643,058	8,158,299	5 761,345	3,755	115,338,006
1911-12	79,706,728	104,234,732	17,080,756	18,353,054	16,390,261	1,715,464	7 ...	228,480,995
1912-13	79,490,012	111,513,908	19,999,072	19,382,330	17,920,096	1,649,539	...	249,854,937
1913-14	86,328,421	116,611,448	22,252,476	19,809,533	19,208,420	1,708,334	...	265,918,632
1914-15	88,774,451	117,259,926	24,257,552	18,331,373	18,635,327	1,750,905	...	269,509,434
1915-16	92,850,838	115,771,238	24,433,905	20,512,753	18,884,541	2,078,228	...	274,536,503

TONNAGE OF GOODS AND LIVE STOCK CARRIED.								
1901-2	6,467,552	3,433,627	1,881,570	1,392,257	1,888,146	5 6 407,505	2,436	415,473,093
1911-12	10,910,553	5,297,685	3,493,727	2,781,720	2,542,087	469,855	7 ...	25,495,627
1912-13	11,666,250	5,150,404	3,797,581	3,016,039	2,866,241	464,934	...	26,961,449
1913-14	13,245,842	5,816,088	4,301,410	3,103,471	3,170,144	408,864	...	30,045,819
1914-15	11,920,881	5,410,045	4,970,873	3,076,280	2,523,859	408,069	...	27,310,007
1915-16	11,915,500	5,829,835	4,570,833	2,396,933	2,554,858	388,781	...	27,656,795

¹ These figures are partly estimated, the actual returns excluding journeys by season ticket holders. ² Exclusive of the Port Augusta-Oodnadatta line (478 miles) as from the 1st January, 1911. ³ Including the Etheridge railway 143 miles in length. ⁴ Exclusive of live stock returns for Tasmania. ⁵ For the calendar year 1902. The average mileage worked is greater than the actual mileage open, owing to the fact that the Government railways have running powers over certain private lines. ⁶ Exclusive of live stock. ⁷ Taken over by Commonwealth Government, 1st January, 1911 (see page 631).

3. Length and Gauge of Railway Systems in each State.—A map showing the State railway lines, and also some private lines open to the public for general traffic, in the different States of the Commonwealth is given on page 645 hereinafter. In all the States the Government railways are grouped, for the convenience of administration and management, into several divisions or systems, some of which have already been briefly referred to above in dealing with the history of construction of the railways. The subjoined summary shews concisely the gauge and length of the main and branch lines included in each division or system of the different States of the Commonwealth for the year ended the 30th June, 1916:—

STATE RAILWAYS, 1915-16.

Particulars.	Length, including Suburban Lines, and Gauge.		Suburban. (a)
	4 ft. 8½ in.	3 ft. 6 in.	4ft.8½ in
1. NEW SOUTH WALES.			
	Miles.	Miles.	Miles.
(i.) The Northern line and branches—			
(a) Main line. Strathfield-Wallangarra ...	488.48	...	98.84
(b) Branch lines ...	583.94	...	5.21
(ii.) The North Coast line and branches—			
(a) Main line. West Maitland-Murwillumbah ...	352.56	...	12.85
(b) Branch lines ...	17.89	...	...
(iii.) The Western line and branches—			
(a) Main line. Sydney-Bourke ...	508.79	...	34.25
(b) Branch lines ...	858.90	...	24.58
(iv.) The Southern line—			
(a) Main line. Granville-River Murray ...	386.25	...	20.69
(b) Branch lines ...	845.00	...	...
(v.) The South-coast (Illawarra) line—			
(a) Main line. Sydney to Nowra ...	94.94	...	34.23
(b) Branch lines ...	11.17	...	9.99
(vi.) Broken Hill line. Broken Hill-Tarrawingee ...	...	40.09	...
	4,147.92	40.09	240.64
		4,147.92	
		4,188.01	
Total all lines ...			
(a) Including lines 34 miles from Sydney and Newcastle respectively, and the Richmond line.			

2. VICTORIA.			
	5 ft. 3 in.	2 ft. 6 in.	(b) 5 ft. 3 in.
(i.) The South-eastern system—			
(a) Main lines. Dandenong-Port Albert ...	117.27	...	...
Caulfield-Stony Point ...	38.72	...	13.50
(b) Branch lines ...	47.49	3.23	...
(ii.) The Eastern system—			
(a) Main lines. South Yarra-Sale ...	125.27	...	16.00
Traralgon-Orbost ...	132.12	...	...
(b) Branch lines ...	66.67	26.06	1.60
(iii.) The North-eastern system—			
(a) Main line. Essendon Junc.-River Murray ...	187.44	...	14.75
(b) Branch lines ...	560.98	30.49	1.50
(iv.) The Northern system—			
(a) Main line. Melbourne-Echuca ...	156.00	...	20.25
(b) Branch lines ...	491.77	...	...
(v.) The Midland system—			
(a) Maryborough-Merbein ...	246.49	...	...
(b) Branch lines ...	337.85	...	...
(vi.) The Western and South-western systems—			
(a) Main lines. Sunshine-Warrenheip ...	61.95	...	10.75
Newport-Port Fairy ...	180.24	...	13.00
N. Geelong Junc.-Serviceton ...	267.57	...	...
(b) Branch lines ...	798.79	43.90	...
(vii.) Metropolitan District—			
(a) Richmond-Healesville ...	37.27	...	17.00
(b) Branch lines ...	41.15	18.22	12.99
(c) Princes Bridge-Hurst Bridge ...	22.70	...	19.50
(d) Whittlesea Junction-Whittlesea ...	22.07	...	16.25
(e) Suburban lines—Port Melbourne, St. Kilda, Sandringham, Burnley-Darling, Deepdene-Burwood, Fawkner, Williamstown, etc....	38.69	...	38.69
	3,978.50	121.90	195.78
		3,978.50	
Total all lines ...		4,100.40	

(b) Within 20 miles of Melbourne.

STATE RAILWAYS—Continued.

Particulars.	Length, including Suburban Lines, and Gauge.		Suburban
	3 ft. 6 in.	2 ft. 0 in.	3 ft. 6 in.
3. QUEENSLAND.	Miles.	Miles.	Miles.
(i.) The Southern division—			
(a) South-coast line. Yeerongpilly to Tweed Heads	68.13	...	(a) 19.93
(b) South Metropolitan lines and branches	78.86	...	28.09
(c) Main line. Brisbane to Toowoomba	102.20	...	(b) 24.09
(d) Branch lines	170.07	...	...
(e) Southern line. Toowoomba to Wallangarra	122.70	...	...
(f) Branch lines	113.70	...	...
(g) South-western line. Warwick to Dirranbandi	256.44	...	...
(h) Western line. Toowoomba to Cunnamulla	503.12	...	...
(i) Branch lines	332.28	...	...
(j) Nth.-coast line. Northgate Junction to Gympie	161.59	...	(c) 10.95
(k) Croydon Junction to 235 miles 14 chains	70.42	...	...
(l) Branch lines	419.32	...	...
(m) Suburban lines	24.43	...	24.43
(ii.) The Central division—			
(a) North Coast line. 235 miles 14 chains to Rockhampton	160.58	...	...
(b) Central line. Rockhampton to Longreach	424.54	...	...
(c) Branch lines	490.46	...	...
(iii.) The Northern division—			
(a) Mackay line (including Branches)	96.73	...	...
(b) Bowen line	65.32	...	...
(c) Great Nthn. Railway. Townsville to Cloncurry	479.98	...	...
Branch lines	403.62	...	...
(d) Geraldton and Mourilyan Tramway	...	29.35	...
(e) Cairns line. Cairns to Tumoulin	99.96	...	...
Branch lines	66.48	...	...
(f) Cooktown line. Cooktown to Laura	68.33	...	...
(g) Normanton line. Normanton to Croydon	95.96	...	...
(h) Mount Mulligan line	29.80	...	...
(i) Mount Garnet line	32.55	...	...
	4,937.57	29.35	107.49
Total all lines		4,966.92	
(a) To Beenleigh.	(b) To Ipswich.	(c) To Petrie.	
4. SOUTH AUSTRALIA.	5 ft. 3 in. Miles.	3 ft. 6 in. Miles.	5 ft. 3 in. (a)
(i.) Midland system—			
(a) Main line. Adelaide-Terowie	139.81	...	24.51
(b) Branch lines	143.45	...	22.91
(ii.) The Northern system—			
(a) Terowie-Quorn	...	94.41	...
(b) Other lines	5.15	477.81	...
(iii.) The Southern system—			
(a) Main line. Adelaide-Servigeton (near)	194.93	...	23.50
(b) Branch lines	195.46	...	34.28
(iv.) Murray Lands lines	298.14	...	...
(v.) South-eastern system—			
(a) Wolsley-Mount Gambier	...	112.26	...
(b) Branch lines	...	112.73	...
(vi.) Port Broughton line	...	10.01	...
(vii.) Eyre Peninsula system—			
(a) Port Lincoln-Cape Thevenard	...	269.53	...
(b) Branch lines	...	132.87	...
	976.94	1,209.62	105.20
Total all lines	...	2,186.56	...
(a) Within 25 miles of Adelaide.			

STATE RAILWAYS—Continued.

Particulars.	Length including Suburban lines, and Gauge.	
	3 ft. 6 in.	3 ft. 6 in.
5. WESTERN AUSTRALIA.	Miles.	Miles.
(i.) Eastern railway—		
(a) Main line. Fremantle-Northam ...	78.13	23.65
(b) Branch lines	78.34	...
(ii.) South-western railway—		
(a) East Perth-Picton Junction	110.11	18.20
(b) Branch lines	498.80	...
(iii.) Great Southern railway—		
(a) Main line. Spencer's Brook-Albany Jetty	280.05	...
(b) Branch lines	531.46	...
(iv.) Eastern Goldfields railway—		
(a) Main line. Northam-Laverton and Leonora	533.35	...
(b) Branch lines	156.25	...
(v.) East Northern-Mullewa railway—		
(a) Main line	262.86	...
(b) Branch lines	112.59	...
(vi.) Northern railway—		
(a) Main line. Geraldton-Meehatharra ...	333.97	...
(b) Branch lines	207.84	...
(vii.) Hopetoun-Ravensthorpe railway	33.78	...
(viii.) Port Hedland-Marble Bar	114.40	...
Total	3,331.93	41.85

Particulars.	Length, including Suburban Lines, and Gauge.		Suburban (a)
	3 ft. 6 in.	2 ft. 0 in.	
6. TASMANIA.	Miles.	Miles.	Miles.
(i.) Main line—			
(a) Hobart-Evandale Junction	124.00	...	10.00
(b) Branch lines	107.50	...	...
(ii.) Western line—			
(a) Launceston to Myalla	135.00	...	...
(b) Branch lines	55.75	...	...
(iii.) North Eastern line—			
(a) Launceston to Branzholm	71.00	...	...
(b) Branch line	0.50	...	...
(iv.) Sorell line	14.50	...	...
(v.) Strahan-Zeehan line	29.50	...	...
(vi.) North-east Dundas tramway ... ..	...	20.25	...
(vii.) Comstock tramway ... ..	...	4.25	...
Total all lines	537.75	24.50	10.00
		537.75	
		562.25	

GRAND TOTAL OF STATE RAILWAYS, 19,936.07 MILES.

(a) Within 10 miles of Hobart.

4. Administration and Control of State Railways.—In each State of the Commonwealth the policy has been established that the railways should be under the control of the Government. This policy, as has been shewn, was actualised early in the railway history of Australia, and, excepting in cases presenting unusual circumstances, may be regarded as the settled policy of the country. In previous Year Books (see No. 6, p. 693) will be found a description of the methods adopted by the various State Governments in the control and management of their railways.

5. Lines under Construction, and Authorised and Proposed Lines, 1916.—The following statement gives particulars up to the 30th June, 1916, of the mileage of State railways (a) under construction, and (b) authorised for construction but not commenced :—

**STATE RAILWAYS.—MILEAGE UNDER CONSTRUCTION AND AUTHORISED,
30th JUNE, 1916.**

Particulars.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	All States.
Mileage under construction	1,120.51	136.12	559.00	140.13	234.75	65.06	2255.57
Mileage authorised but not commenced ...	321.26	52.00	1,541.00	12.00	177.50	...	2103.76

¹ For similar statistics of Federal Railways see page 628.

(i.) *Lines under Construction.* In spite of the great extension of State railways which has taken place since the year 1875 throughout the Commonwealth, there are still, in some of the States, tracts of country of immense area which are as yet practically undeveloped, and in which little in the nature of permanent settlement has been accomplished; the general policy in the States is to extend the existing lines inland, in the form of light railways, as settlement increases, and although it is true that lines which were not likely to be commercially successful in the immediate future have been constructed from time to time, for the purpose of encouraging settlement, the general principle that the railways should be self-supporting is kept in view. (a) In *New South Wales* the lines under construction are chiefly of the "pioneer" class, and are made with a view to affording railway communication over level country to districts in which the traffic would not warrant the expenditure necessary to provide thoroughly equipped lines. As the traffic increases, the permanent way is strengthened in order to allow the heavy types of engines to run over it. It is probable that railway extension in *New South Wales*, in the near future, will be mainly confined to lines of the "pioneer" class. The lines under construction on 30th June, 1916, were those from *Wauchope* to *Kempsey* (30½ miles), *Kempsey* to *Macksville* (30½ miles), *Macksville* to *Raleigh* (20½ miles), and *Coff's Harbour* to *Glenreagh* (26½ miles). These lines, when completed, will form an alternative main route between *Newcastle* and *Brisbane*. Other lines under construction are as follow:—*Glenreagh* to *Dorrigo* (42 miles), *Forbes* to *Stockinbingal* (83½ miles), *Wagga* to *Tumbarumba* (76½ miles), *Condobolin* to *Broken Hill* (360 miles), *Denman* to *Merrilla* (33 miles), *Dunedoo* to *Coonabarabran* (76½ miles), *Wyalong* to *Lake Cudgellico* (70½ miles), *Dubbo* to *Werris Creek* (157½ miles), *Barellan* to *Griffith* (32 miles), *Tullamore* to *Tottenham* (33 miles), *Nimmitabel* to *Bombala* (40 miles), *Sydenham* to *Botany* (6 miles), and *Gosford* to *Gosford Racecourse* (1½ miles). (b) *Victoria.* In this State the following lines were under construction by the Board of Land and Works on the 30th June, 1916:—*5-ft. 3-in. gauge*: *Dartmoor* to *Mumbannar* (13.48 miles), *Shelley* to *Cudgewa* (19.64 miles), *Cavendish* to *Toolondo* (44 miles), *Neerim South* to *Toorenga River* (14 miles), *Rushworth* to *Stanhope North* (14.25 miles), and *Koo-wee-rup* to *McDonald's Track* (30.75 miles), making in all 136.12 miles. (c) *Queensland.* In December, 1910, the *North Coast Railway Act* was passed. Under this Act a series of lines, when constructed, will link up a number of existing lines in such a way that a through line will be obtained from *Rockhampton* to *Cairns*, *via Mackay* and *Townsville*, a total distance of 569 miles. By the completion of this line it will be possible to travel from *Cairns* to the southern border of the State at *Wallangarra*, a total distance of about 1189 miles. At the same time the *Great Western Railway Act* was passed. Under this Act provision is made for the extension in a westerly or south-westerly direction of the lines already constructed to *Quilpil*, *Emmet*, *Winton*, and *Butru*, in such a manner that they will form junctions with a line to be made running north-westerly from *Eromanga* to *Camooweal*. These extensions, together with the north-westerly line, will make an aggregate distance of 1125 miles to be constructed. With the completion of both these schemes, the railways of this State will be brought

into direct communication with each other on both their east and west boundaries. On the 30th June, 1916, the following lines, of an aggregate length of 559 miles, were under construction:—Enoggera to Terror's Creek (24 miles), Extension beyond Tara (50 miles), Goondoon to Kallia (31 miles), Murgon to Proston (26 miles), Branch to Windera (12 miles), Munbilla to Mount Edwards (from Kalbar) (11 miles), Roma to Orallo (29 miles), Rockhampton to Alton Downs (17 miles), Mount Morgan to Dawson Valley (third section) (25 miles), Malanda to Millaa-Millaa from Jaggan (first section) (5 miles), Tumoulin to Cedar Creek (4 miles), Koolamarra to Mount Cuthbert (28 miles), and Kalkadoon to Dobbyn (15 miles). Of the Great Western Railway the following parts are under construction:—Section A: From Cheepie to Bulloo River (48 miles); Section B: From Emmet to near Welford (32 miles); Section C: From Winton to Elderslie (38 miles); Section D: From Butru towards Sulieman Creek (20 miles). The following parts of the North Coast Railway are under construction:—Section A: Kunwarara to Marlborough (18 miles); Marlborough towards St. Lawrence (23 miles); Section B: Koumala to Carmila Creek (26 miles); Mackay to St. Helens (31 miles); Section D: From Rollingstone to Ingham (34 miles); Section E: From Mooliba to Innisfail (12 miles). (d) *South Australia*. In this State the lines under construction on the 30th June, 1916, were as follow:—Riverton to Spalding (51.25 miles), Salisbury to Long Plains (34.5 miles), Paringa to Renmark (2.5 miles), Balhannah to Mount Pleasant (22 miles), New Palmer to Sedan (20 miles), Nuriootpa to Truro (9.88 miles), 5-ft. 3-in. gauge. (e) In *Western Australia* the following lines were in course of construction by the Public Works Department on the 30th June, 1916:—Wyalkatchem to Mount Marshall (52½ miles), Wagin to Bowelling (62½ miles), Bolgart Extension (34½ miles), Kukerin to Lake Grace (25½ miles), and Esperance northward (60 miles). (f) *Tasmania*. At 30th June, 1916, the following lines were under construction, Branxholm to Moorina (13½ miles), Stanley to Trowatta (25½ miles), Russell to Maydena (10½ miles), and Flowerdale Junction to Preolenna (15½ miles).

(ii.) *Lines Authorised for Construction*. (a) *New South Wales*. At the 30th June, 1916, the following lines had been authorised for construction:—Mirrool to Hillston (62½ miles), Barmedman to Rankin Springs (71 miles), Coonabarabran to Burren Junction (95½ miles), Craboon to Coolah (24 miles), Gilgandra to Collie (24 miles), Canowindra to Eugowra (26½ miles), Grafton to South Grafton (2½ miles), and Roslyn to Taralga (15½ miles). (b) In *Victoria* the following lines were authorised, but their construction had not been commenced up to the end of June, 1916:—5-ft. 3-in. gauge: White Cliffs to Yelta (10 miles), Alberton to Won Wron (12.25 miles), Nandaly to Kulwin 19.75 miles, and Bittern to Red Hill (10 miles)—a total of 52 miles. (c) *Queensland*. In addition to the new lines upon which work has been commenced, Parliament has also authorised the construction of the following parts of the Great Western Railway: Section A, from Bulloo River (120 miles); Section B, from near Welford (251 miles); Section C, from Elderslie (324 miles); and Section D, from Carbine Creek (258 miles); and on the North Coast Railway, Section A, from beyond Marlborough to St. Lawrence (37 miles); Section B, from Carmila Creek to St. Lawrence, and St. Helens to Midge Point (32 miles); Section C, from Midge Point to Proserpine (13 miles); Section D, from Ingham to near Cardwell (19 miles); Section E, from Innisfail to near Cardwell (71 miles). The following lines were also authorised for construction: Inglewood to Texas and Silverspur (44 miles), Mount Edwards to Maryvale (28 miles), Lanefield to Rosevale (17 miles), Gatton to Mount Sylvia (11 miles), Juandah to Taroom (42 miles), Dirranbandi extension (52 miles), Mundubbera to the Northern Burnett (32 miles), Malanda to Millaa Millaa—second section—(8 miles), Mount Russell to Cecil Plains (19 miles), Longreach to Winton (110 miles), and Merinda to Bowen Coalfields (53 miles)—a total of 1541 miles. (d) In *South Australia*, Parliament has authorised the construction of a line on the 5-ft. 3-in. gauge from Mount Gambier to the Victorian border, a distance of 12 miles. (e) In *Western Australia* the following lines were authorised for construction up to the 30th June, 1916:—Busselton-Margaret River (37½ miles), Dwarda-Narrogin (33 miles), Kondinin-Merredin (85 miles), and Nyabing-Pingerup (21½ miles).

6. **Cost of Construction and Equipment of State Railways.**—The total cost of construction and equipment of the State railways of the Commonwealth at the 30th June, 1916, amounted to £197,158,588, or to an average of £10,196 per mile open for traffic. Particulars as to the capital expenditure incurred in each State on lines open for traffic are given in the following table:—

STATE RAILWAYS.—COST OF CONSTRUCTION AND EQUIPMENT to 30th JUNE, 1916.

State.	Length of Line Open.	Total Cost of Construction and Equipment.	Average Cost per Mile Open.	Cost per Head of Population.
	Miles.	£	£	£
New South Wales	4,188	68,825,592	16,434	36.85
Victoria	4,100	54,391,989	13,266	38.64
Queensland	4,967	34,787,623	7,004	51.26
South Australia	2,187	17,236,543	7,881	39.91
Western Australia	3,332	17,118,195	5,138	54.40
Tasmania	562	4,798,646	8,539	24.30
Total	19,336	197,158,588	10,196	40.25

It will be seen that the lowest average cost per mile open is in Western Australia, and is only £5138, which is less than one-third of the highest average cost, namely, £16,434 in New South Wales, compared with an average of £10,196 for all the State Government railways. In Western Australia there have been comparatively few engineering difficulties to contend with; moreover, the system was adopted in several instances in that State of giving contractors the right to carry traffic during the period of their contracts, with the result that, at least in all goldfields railway contracts, the cost of construction was considerably lessened.

In the above table the figures for Queensland relating to cost of construction and equipment do not agree with those contained in the report of the Railway Commissioner for that State. The amount in the report is given as £36,838,440, which includes discount and flotation charges on loans allocated to railways, but as no other State includes this depreciation of loan capital, it is necessary to exclude it in order to place the cost of railway construction in all States on the same basis.

(i.) *Reduction of Cost per Mile in Recent Years.* The average cost per mile of the lines constructed lately in the Commonwealth is very much less than the figure given in the above table, in consequence of the construction of light "pioneer" lines, which have already been referred to, and which it was originally considered in New South Wales could be laid down at a cost of £1750 per mile (exclusive of stations and bridges). It should also be remembered that in the early days of railway construction there were considerable engineering difficulties to overcome, and that labour was scarce and dear. Since 1892 over one thousand five hundred miles of the "pioneer" lines have been opened in New South Wales, the average cost ranging from about £2000 to £7500 per mile, according to the difficulties met in the country traversed. The lowest cost per mile for any line previously constructed had been that of the line from Nyngan to Cobar, the average cost of which, to the end of June, 1916, was £3786. In Victoria also the cost of construction has been greatly reduced in recent years. The total cost to the 30th June, 1916, of the narrow gauge (2 ft. 6 in.) lines, having a length of one hundred and twenty-two miles, was only £333,449, which gives an average cost per mile of only £2735. In the other States also the cost of construction per mile has been reduced by building light railways as cheaply

as possible. Fairly substantial permanent way is laid down with reduced ballast, and, as settlement progresses and traffic increases, the road is strengthened, and the stations and siding accommodation enlarged. The subjoined table gives examples of some of the more expensive lines, most of which were built in the early days :—

STATE RAILWAYS.—EXAMPLES OF LINES CONSTRUCTED AT LARGE CAPITAL EXPENDITURE PER MILE OPEN.

Line.	Gauge.	Length.			Total Cost.	Average Cost per Mile.	Date of Opening.
		Double Lines and over.	Single Line.	Total.			
	ft. in.	Miles.	Miles.	Miles.	£	£	
NEW SOUTH WALES—							
Penrith to Bathurst ...	4 8½	72.92	38.13	111.05	4,048,172	36,455	1876
Sydney to Kiama ...	4 8½	39.29	58.40	97.69	4,029,602	41,249	1887
Homebush to Waratah ...	4 8½	95.71	...	95.71	3,538,235	36,967	1889
VICTORIA—							
Melbourne to Bendigo ...	5 3	100.89	...	100.89	4,941,590	48,980	1862
N. Geelong to Ballarat ...	5 3	41.45	11.98	53.43	1,945,780	36,417	1862

The next table gives instances of lines which have been constructed in more recent years at a comparatively small cost per mile.

The average cost per mile of the 458.77 miles comprised in the above table was £40,033, whereas the average cost of the 360.06 miles referred to in the next table was £1889.

STATE RAILWAYS.—EXAMPLES OF LINES CONSTRUCTED AT SMALL CAPITAL EXPENDITURE PER MILE OPEN.

Line.	Gauge.	Length.	Total Cost.	Average Cost per Mile.	Date of Opening.
NEW SOUTH WALES—					
Parkes to Condobolin ...	4 8½	62.75	132,496	2,111	1898
Burren Junction to Collarenebri	4 8½	42.55	104,070	2,446	1906
VICTORIA—					
Wangaratta to Whitfield ...	2 6	30.49	39,869	1,308	1899
Wycheproof to Sealake ...	5 3	47.89	84,802	1,771	1895
Ultima to Chillingollah ...	5 3	20.14	33,858	1,681	1909
QUEENSLAND—					
Dalby to Bell ...	3 6	23.50	38,269	1,628	1906
Mahar to Jandowae ...	3 6	28.24	60,484	2,142	1914
SOUTH AUSTRALIA—					
Wandilo to Glencoe ...	3 6	9.13	11,673	1,279	1904
Cummins to Yeelanna ...	3 6	8.82	16,026	1,816	1909
Tailem Bend to Pinnaroo ...	5 3	86.55	158,719	1,847	1906

The comparisons afforded in the two preceding tables are subject to certain limitations, inasmuch as the cost is naturally greater in the case of the older lines. Further, the figures given represent the cost of construction only (i.e., are exclusive of cost of equipment), and cannot therefore be directly compared with the average cost per mile open given in the preceding table.

(ii.) *Capital Cost of Construction and Equipment, Total and per Mile Open.* The increase in the total capital cost of construction and equipment of Government railways in each State for 1901-2 and for each year from 1911 to 1916 is shewn in the following table :—

**STATE RAILWAYS.—CAPITAL COST OF CONSTRUCTION AND EQUIPMENT,
1901-2 and 1911-16.**

TOTAL COST.

Year.	N.S.W.	Victoria.	Q'land.	Sth. Aust.	West. Aust.	Tas.	N. Ter.	All States.
	£	£	£	£	£	£	£	£
1901-2	40,565,073	40,613,734	20,119,143	¹ 12,769,899	7,410,426	² 3,840,747	1,018,700	126,337,772
1911-12	53,139,612	45,543,054	27,751,227	12,810,815	13,233,093	4,253,013	...	156,730,814
1912-13	57,003,036	46,989,111	29,895,220	14,035,437	14,913,128	4,400,392	...	167,236,224
1913-14	60,128,491	49,216,744	31,817,792	15,240,779	15,873,852	4,496,634	...	176,774,232
1914-15	64,008,436	51,518,792	33,405,877	16,597,139	16,980,713	4,628,911	...	187,139,867
1915-16	68,825,592	54,391,989	34,787,623	17,236,543	17,118,195	4,798,646	...	197,158,588

COST PER MILE OPEN.

	£	£	£	£	£	£	£	£
1901-2	13,405	12,300	7,183	¹ 7,428	5,449	² 8,313	7,124	9,860
1911-12	13,867	12,574	6,731	8,766	5,094	8,583	...	9,716
1912-13	14,505	12,884	6,824	8,307	5,225	8,679	...	9,773
1913-14	15,157	12,834	6,962	8,260	5,350	8,664	...	9,986
1914-15	15,483	13,285	6,905	7,695	5,096	8,695	...	9,918
1915-16	16,434	13,266	7,004	7,881	5,138	8,539	...	10,196

1. Including the Port Augusta-Oodnadatta line. 2. To the 31st December, 1902.
3. Transferred to Commonwealth Government, 1st January, 1911 (see page 627).

(iii.) *Loan Expenditure on Railways.* The subjoined table shews the total loan expenditure on Government railways and tramways (including lines both open and unopen) in each State during the financial year 1901-2, and on railways only for the years 1911-12 to 1915-16.

STATE RAILWAYS.—LOAN EXPENDITURE, 1901-2 and 1911-16.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	£	£	£	£	£	£	£
1901-2 ¹	2,243,672	483,325	751,451	121,907	578,985	² 80,948	4,260,288
1911-12	2,850,791	1,703,453	2,854,560	789,143	¹ 1,316,800	¹ 120,179	9,634,926
1912-13	3,614,306	1,231,113	2,066,819	1,207,335	1,948,876	¹ 116,393	10,184,842
1913-14	4,903,328	2,361,660	1,679,482	1,489,168	¹ 1,227,711	¹ 146,055	11,807,404
1914-15	4,394,318	2,809,926	1,739,156	1,285,431	670,209	¹ 228,285	11,127,325
1915-16	4,787,669	2,440,317	2,034,614	929,143	414,026	233,601	10,839,370

1. Including Tramways. 2. For the calendar year 1902.

The following statement shews the total loan expenditure to the 30th June, 1916:—

**STATE RAILWAYS.—TOTAL LOAN EXPENDITURE IN EACH STATE
TO 30th JUNE, 1916.**

State, etc.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
	£	£	£	£	£	£	£
Expenditure	73,395,819	52,565,155	37,186,119	19,733,005	17,032,886	5,277,983	205,190,967

1. Including Tramways.

7. *Gross Revenue, Total, per Average Mile Worked, and per Train-mile Run.*—The following table shews the total revenue from all sources, the revenue per average mile worked, and the revenue per train-mile run in each State during 1901-2 and each financial year from 1911 to 1916 inclusive:—

**STATE RAILWAYS.—GROSS REVENUE, TOTAL, PER AVERAGE MILE WORKED,
AND PER TRAIN MILE RUN, 1901-2 and 1911-16.**

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.	All States.
TOTAL GROSS REVENUE.								
1901-2 ...	£ 3,668,686	£ 3,367,843	£ 1,382,179	£ 1,085,175	£ 1,521,429	£ 233,911	£ 12,522	£ 11,271,045
1911-12 ...	6,491,473	5,218,967	3,032,858	2,090,563	1,884,604	312,786	...	19,031,251
1912-13 ...	6,743,965	5,205,442	3,321,672	2,222,436	2,037,853	327,113	...	19,363,501
1913-14 ...	7,742,241	5,560,958	3,660,022	2,337,251	2,257,011	330,168	...	21,887,651
1914-15 ...	7,616,511	5,161,073	3,832,003	1,745,378	2,058,244	323,265	...	20,736,474
1915-16 ...	8,006,078	5,705,163	3,745,350	1,365,410	2,088,110	343,023	...	21,853,139
GROSS REVENUE PER AVERAGE MILE WORKED.								
1901-2 ...	£ 1,243	£ 1,031	£ 493	£ 625	£ 1,122	£ 408	£ 86	£ 886
1911-12 ...	1,709	1,473	732	1,430	763	622	...	1,195
1912-13 ...	1,743	1,430	763	1,449	732	644	...	1,190
1913-14 ...	1,956	1,484	812	1,288	776	629	...	1,253
1914-15 ...	1,877	1,341	810	861	665	603	...	1,134
1915-16 ...	1,920	1,443	758	899	627	630	...	1,142
GROSS REVENUE PER TRAIN-MILE RUN.								
1901-2 ...	d. 75.58	d. 71.62	d. 58.55	d. 62.07	d. 81.00	d. 161.99	d. 99.27	d. 70.74
1911-12 ...	84.12	90.53	70.48	83.22	86.53	71.73	...	83.06
1912-13 ...	84.43	87.77	69.54	84.09	86.98	78.00	...	82.40
1913-14 ...	90.42	88.81	77.42	83.33	97.34	79.18	...	87.23
1914-15 ...	89.52	80.94	76.71	75.06	91.40	77.18	...	83.36
1915-16 ...	89.14	99.03	77.68	83.77	97.32	79.43	...	89.24

1. For the calendar year 1902.

2. See Federal Government Railways (page 629).

8. Coaching, Goods, and Miscellaneous Receipts.—The gross revenue is composed of (a) receipts from coaching traffic, including the carriage of mails; horses, parcels, etc., by passenger trains; (b) receipts from the carriage of goods and live stock, and (c) rents and miscellaneous items. The subjoined table shews the gross revenue for 1901-2 and 1911-16, classified according to the three chief sources of receipts. The total of the three items specified has already been given in the preceding paragraph.

**STATE RAILWAYS.—COACHING, GOODS, AND MISCELLANEOUS RECEIPTS,
1901-2 and 1911-16.**

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.	All States.
COACHING TRAFFIC RECEIPTS.								
1901-2	£ 1,367,796	£ 1,580,218	£ 435,434	£ 369,677	£ 442,719	£ 110,196	£ 3,032	£ 4,309,072
1911-12	2,691,741	2,624,493	1,069,533	697,775	630,673	152,304	...	7,866,519
1912-13	2,940,230	2,762,163	1,153,384	733,159	646,218	160,792	...	8,395,946
1913-14	3,236,512	2,868,705	1,257,100	752,493	666,665	165,909	...	8,947,384
1914-15	3,315,294	2,795,673	1,284,595	668,403	617,553	157,726	...	8,839,244
1915-16	3,574,063	3,003,263	1,339,753	721,555	646,566	179,784	...	9,464,984
GOODS AND LIVE STOCK TRAFFIC RECEIPTS.								
1901-2	£ 2,263,837	£ 1,719,462	£ 862,234	£ 681,045	£ 1,037,099	£ 116,061	£ 7,996	£ 6,687,734
1911-12	3,715,707	2,506,982	1,940,596	1,345,879	1,173,844	148,199	...	10,831,207
1912-13	3,705,375	2,352,638	2,140,503	1,441,859	1,299,019	154,522	...	11,093,916
1913-14	4,397,997	2,603,415	2,359,786	1,534,187	1,483,862	154,564	...	12,533,811
1914-15	4,206,234	2,263,375	2,516,380	1,049,074	1,350,740	153,845	...	11,544,648
1915-16	4,329,971	2,610,210	2,364,364	1,211,465	1,356,452	156,860	...	12,029,322
MISCELLANEOUS RECEIPTS.								
1901-2	£ 37,053	£ 68,163	£ 84,511	£ 34,453	£ 41,611	£ 6,954	£ 1,494	£ 274,239
1911-12	84,025	87,492	22,729	46,909	80,087	12,283	...	333,525
1912-13	103,380	90,641	27,785	47,418	92,616	11,799	...	373,639
1913-14	107,732	88,838	43,136	50,571	106,484	9,695	...	406,456
1914-15	94,983	97,025	31,028	27,901	89,951	11,694	...	352,532
1915-16	102,044	91,690	41,233	32,390	85,092	11,384	...	363,833

¹ Tasmanian figures for 1902 are for year ended the 31st December. ² Exclusive of Port Augusta-Oodnadatta line as from 1st January, 1911 (see page 629). ³ See Federal Government railways (page 629).

(i.) *New South Wales.* The total earnings for the year 1915-16 amounted to £8,006,078, an increase of £389,567 as compared with the previous year. Increases of £258,769, £123,737, and £7061 took place in the coaching traffic, goods and live stock traffic, and miscellaneous respectively.

(ii.) *Victoria.* In Victoria, traffic receipts shew an increase of £544,090 as compared with the previous year. This was due to an increase of £207,590 and £341,835 in the receipts from coaching and goods and live stock traffic respectively, though there was a decrease of £5335 in miscellaneous receipts.

(iii.) *Queensland.* In Queensland, there was a decrease of £86,653 in 1915-16 relatively to 1914-15. There were increases of £55,158 and £10,205 in respect of coaching and miscellaneous receipts respectively, but goods and live stock receipts were £152,016 lower than in 1914-15.

(iv.) *South Australia.* In this State every item of traffic gave an increased return on the figures of the previous year, the increases in coaching, goods and live stock, and miscellaneous receipts being £53,152, £162,391 and £4489 respectively. The total increase was £220,032.

(v.) *Western Australia.* In this State the earnings in 1915-16 shewed an increase of £29,866 as compared with 1914-15. There were increases of £29,013 and £5712 in the coaching, and goods and live stock receipts respectively, but a decrease of £4859 in respect of the miscellaneous receipts.

(vi.) *Tasmania.* The gross revenue in 1915-16 shews an increase of £24,763 as compared with the previous year. In the coaching, and goods and live stock receipts there were increases of £22,058 and £3015 respectively, but there was a decrease of £310 in the miscellaneous receipts.

The following table shews for the two years 1914-15 and 1915-16 the percentage which each class of receipts bears to the total gross revenue:—

STATE RAILWAYS.—PERCENTAGE OF REVENUES FROM VARIOUS SOURCES ON TOTAL REVENUE, 1914-16.

Particulars.	1914-15.						
	N.S.W.	Vic.	Qld.	S.A.	W.A.	Tas.	All States.
	%	%	%	%	%	%	%
Coaching	43.53	54.17	33.52	38.30	30.00	48.79	42.63
Goods and live stock	55.22	43.95	65.67	60.10	65.63	47.59	55.67
Miscellaneous	1.25	1.88	0.81	1.60	4.37	3.62	1.70
Particulars.	1915-16.						
	N.S.W.	Vic.	Qld.	S.A.	W.A.	Tas.	All States.
	%	%	%	%	%	%	%
Coaching	44.64	52.64	35.77	36.71	30.96	51.66	43.30
Goods and live stock	54.08	45.75	63.13	61.64	64.96	45.07	55.03
Miscellaneous	1.28	1.61	1.10	1.65	4.08	3.27	1.67

9. Coaching Traffic Receipts per Average Mile Worked, per Passenger-train Mile, and per Passenger Journey.—The subjoined table shews the receipts from coaching traffic per average mile of line worked, per passenger-train mile, and per passenger journey in each State and for all States for the year ended the 30th June, 1916:—

STATE RAILWAYS.—COACHING TRAFFIC RECEIPTS PER MILE WORKED, PER PASSENGER-TRAIN MILE, AND PER PASSENGER JOURNEY, 1915-16.

State.	Number of Passenger-Train Miles. ¹	Number of Passenger Journeys.	Coaching Traffic Receipts.			
			Gross.	Per Average Mile Worked.	Per Passenger-Train Mile.	Per Passenger Journey.
	No.	No.	£	£	d.	d.
New South Wales ...	10,283,263	92,850,838	3,574,063	857	83.41	9.24
Victoria ...	7,569,353	115,771,238	3,003,263	759	95.22	6.23
Queensland ...	3,604,889	24,438,905	1,339,753	271	89.20	13.16
South Australia ...	2,785,848	20,512,753	721,555	330	62.16	8.44
Western Australia ...	2,233,680	18,884,541	646,566	194	69.47	8.22
Tasmania ...	465,122	2,078,228	179,784	326	92.76	20.76
Total ...	26,942,155	274,536,503	9,464,984	495	84.31	8.27

1. The returns include the undermentioned mixed-train mileage, which has been divided between passenger-train miles and goods-train miles in the proportion of one-third and two-thirds respectively in the case of the following States:—

New South Wales ...	1,526,003	Western Australia ...	1,242,492
Victoria ...	2,507,604	Tasmania ...	674,939

The preceding table shews that, amongst the States, there is a considerable difference in the amount of the average receipts per passenger journey. This amount ranges from 5.23 pence in Victoria, where there is a large metropolitan suburban traffic, to 20.76 pence in Tasmania. The difference in these amounts cannot be accounted for by the amounts of rates charged, which are fairly uniform in the several States (see paragraph 17), but is largely due to the different traffic conditions which prevail on various lines in the Commonwealth (see paragraph 14). In order to analyse these figures adequately it would be necessary to have particulars regarding the number of passenger-miles, *i.e.*, the total distance travelled by passengers, in each State, but these particulars are not generally available (see paragraph 15.)

The preponderance in the number of passenger journeys in Victoria is accounted for, to a great extent, by the large number of metropolitan suburban passengers in that State. Of the total number of passengers carried in Victoria, 106,927,781 were metropolitan suburban passengers, *i.e.*, were carried between stations within twenty miles of Melbourne, while in New South Wales the number of suburban passenger journeys between stations within thirty-four miles of Sydney, including the Richmond line, and of Newcastle, including Greta, was 83,652,807. In Sydney a large proportion of the metropolitan suburban traffic is carried on the electric and steam tramways, the number of passenger journeys during the year 1915-16 being 275,291,385. In Melbourne, on the other hand, the number of passengers carried on the cable tramways systems during the same period was 96,290,131; the number carried on the St. Kilda-Brighton, Prahran-Malvern Trust, Melbourne-Brunswick-Coburg Trust, Hawthorn Trust, and the North Melbourne tramways 33,849,760, making a total of 130,139,891. This is exclusive of 412,812 passengers carried by the omnibuses of the Melbourne Tramway and Omnibus Company. This matter is referred to hereinafter. (See paragraph 14.)

10. Goods and Live-Stock Traffic Receipts per Mile Worked, per Goods-train Mile, and per Ton Carried.—The following table shews the gross receipts from goods and live-stock traffic per mile worked, per goods-train mile, and per ton carried, for the year ended the 30th June, 1916:—

STATE RAILWAYS.—GOODS AND LIVE-STOCK TRAFFIC RECEIPTS PER MILE WORKED, PER GOODS-TRAIN MILE, AND PER TON CARRIED, 1915-16.

State.	Number of Goods-Train Miles. 1	Goods and Live-Stock Tonnage.	Goods and Live-Stock Traffic Receipts.			
			Gross.	Per Average Mile Worked.	Per Goods-Train Mile.	Per Ton Carried.
	No.	Tons.	£	£	d.	d.
New South Wales ...	11,272,771	11,915,500	4,329,971	1,039	92.19	87.21
Victoria ...	6,257,185	5,829,835	2,610,210	660	100.12	107.46
Queensland ...	7,966,857	4,570,888	2,364,364	479	71.23	124.14
South Australia ...	2,845,136	2,396,938	1,211,465	554	102.19	121.30
Western Australia ...	2,915,609	2,554,858	1,356,452	407	111.66	127.42
Tasmania...	586,389	388,782	156,860	284	64.30	96.83
Total...	31,843,947	27,656,796	12,029,322	629	90.66	104.39

1. The returns include the undermentioned mixed-train mileage, which has been divided between passenger-train miles and goods-train miles in the proportion of one-third and two-thirds respectively in the case of the following States:—

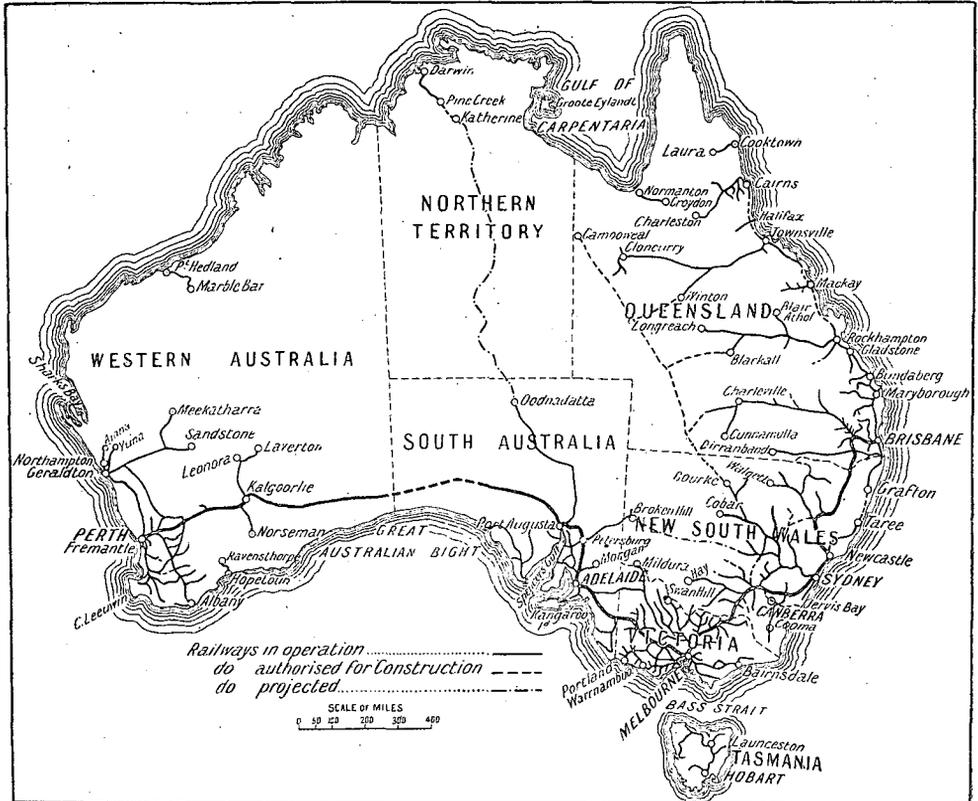
New South Wales ...	1,526,003	Western Australia ...	1,242,492
Victoria ...	2,507,604	Tasmania ...	674,939

From the preceding table it may be seen that the average cost of freight per ton ranges from 87.21 pence in New South Wales to 127.42 pence in Western Australia. The remarks made in the preceding paragraph (9) hereof with regard to the average fare paid per passenger and to passenger-miles, apply equally to the average amount of freight paid per ton and to ton-miles.

11. Working Expenses.—In order to make an adequate comparison of the working expenses of the Government railways in the several States, allowance should be made for the variation of gauges and of physical and traffic conditions, not only on the railways of the different States, but also on different portions of the same system. Where traffic is light, the percentage of working expenses is naturally greater than where traffic is heavy; and this is especially true in Australia, where ton-mile rates are in many cases based on a tapering principle—i.e., a lower rate per ton-mile is charged upon merchandise from remote interior districts—and where on many of the lines there is but little back-loading. Further, though efforts have been made from time to time to obtain a uniform system of accounts in the several States, the annual reports of the Commissioners do not yet comprise fully comparable data of railway expenditure.

The following table shews the total annual expenditure, comprising expenses on (a) maintenance of way, works, and buildings; (b) locomotive power—repairs and renewals; (c) carriages and wagons—repairs and renewals; (d) traffic expenses; (e) compensation; and (f) general and miscellaneous charges; and also the percentage of these expenditures upon the corresponding gross revenues in each State for 1901-2 and for each year 1911-16:—

THE GOVERNMENT RAILWAY SYSTEMS OF THE COMMONWEALTH
AS AT 30TH JUNE, 1916.



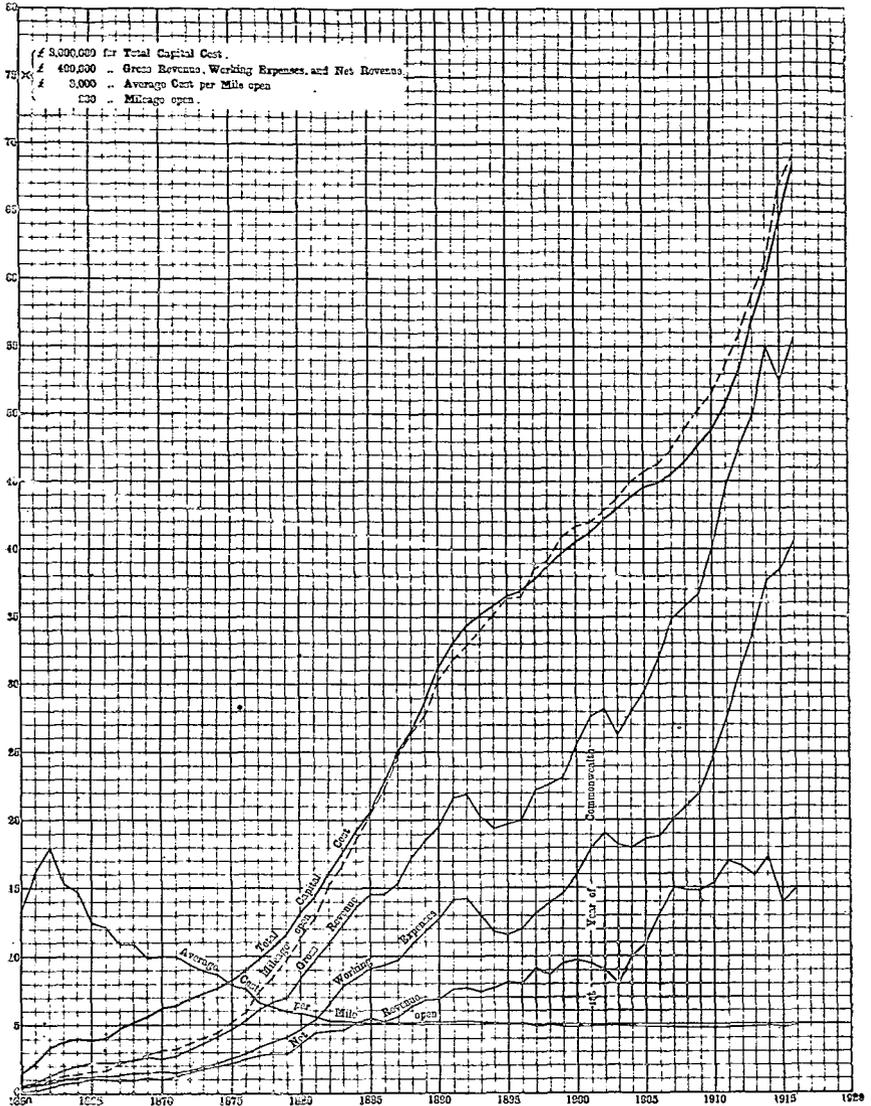
EXPLANATION OF MAP.—The continuous lines denote the existing railway lines of Australia, the heavier lines being the main routes.

Of the two transcontinental lines, viz., one joining the railways of South and Western Australia—and thus connecting continuously by railway Queensland, New South Wales, Victoria, South Australia, and Western Australia, and one connecting Oodnadatta in South Australia with Pine Creek in the Northern Territory, the former has been commenced, and is shewn — — — — ; while the latter, the construction of which is to be deferred for the present, is shewn - - - - .

LIST OF PRINCIPAL SECTIONS OF RAILWAYS.

	Miles.		Miles.		Miles.
Townsville to Winton	368	Sydney to Nimmitabel	291	Adelaide to Broken Hill	335
Townsville to Selwyn	552	" Melb'rne (17 hrs.)	582½	" Oodnadatta	688
Rockhampton to Longreach	428	Adelaide to Melb. (17 hrs.)	482½	Perth to Laverton	586
Brisbane to Cunnamulla	604	Melbourne to Merbein	358	" Meekatharra	597
Brisbane to Sydney (25½ hrs.)	715½	" Swan Hill	215	" Albany	340
Newcastle to Inverell	405	" S. Aust. border		Hobart to Launceston	133
Sydney to Bourke	508	via Murrayville	369½		
" Hay	460				

GRAPHS SHEWING THE FINANCIAL POSITION OF THE GOVERNMENT RAILWAYS OF THE COMMONWEALTH, 1860 TO 1916.



(See page 651.)

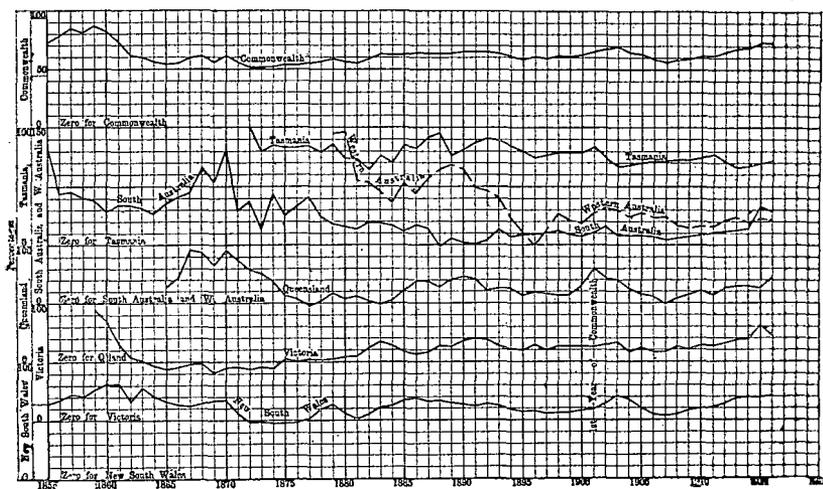
EXPLANATION OF GRAPHS.—In the above diagram the base of each small square represents throughout one year. The significance of the vertical height of each square varies, however, according to the nature of the several curves.

In the heavy curve denoting the total capital cost of the railways of the Commonwealth, the vertical side of each square denotes £3,000,000.

In the three lighter curves, representing (i.) gross revenue, (ii.) working expenses, and (iii.) net revenue, the vertical height of each small square denotes £400,000. For the curve of average cost per mile open, the vertical side of the small square denotes £3,000. The mileage open is shown by a dotted curve, the vertical side of each square representing 200 miles.

For the curves shewing the percentage of working expenses to gross revenue, and the percentage of net revenue to capital cost, see graphs on pages 647 and 648 respectively.

GRAPHS SHEWING PERCENTAGES OF WORKING EXPENSES TO GROSS REVENUE FOR GOVERNMENT RAILWAYS FOR STATES AND COMMONWEALTH, 1855 to 1916.

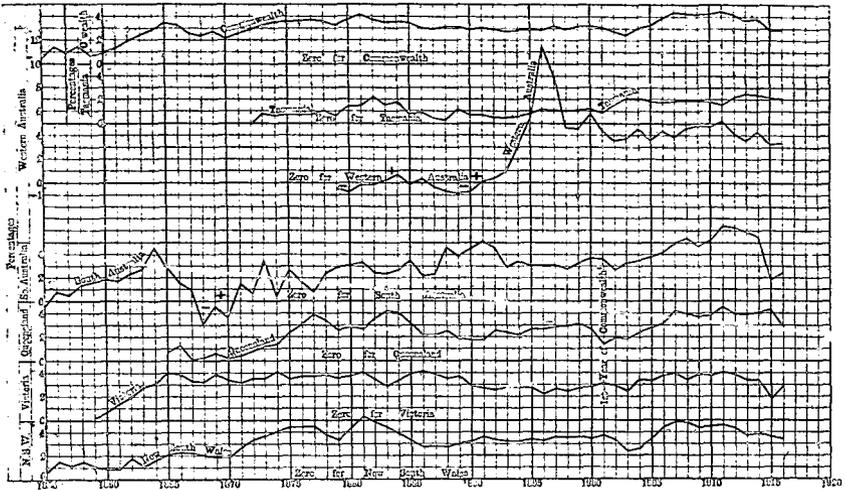


(See page 649.)

EXPLANATION OF GRAPHS.—In the above diagram the base of each small square represents throughout one year. The vertical side of a small square denotes throughout 10 per cent., the heavy zero lines being different for each State and the Commonwealth, with, however, one exception, viz., that the zero line for South Australia and Western Australia is identical.

The curve for Victoria commences in 1859; that for Queensland in 1865; that for Tasmania in 1872; and that for Western Australia in 1879, these being the years in which the Government Railway systems of the several States were inaugurated.

GRAPHS SHOWING PERCENTAGES OF NET REVENUE TO CAPITAL COST OF GOVERNMENT RAILWAYS FOR STATES AND COMMONWEALTH, 1855 TO 1916.



(See page 651.)

EXPLANATION OF GRAPHS.—In the above diagram the base of each small square represents throughout one year. The vertical side of a small square denotes 1 per cent., the thick zero lines, however, for each State and for the Commonwealth being different. This was necessary to avoid confusion of the curves.

Where the curve for any State falls below that State's zero line, loss is indicated, the working expenses having exceeded the gross revenue.

The curve for Victoria commences in 1859; that for Queensland in 1865; that for Tasmania in 1872; and that for Western Australia in 1879, these being the years in which the Government railway systems of the several States were inaugurated.

STATE RAILWAYS.—TOTAL WORKING EXPENSES AND PERCENTAGES OF WORKING EXPENSES UPON GROSS REVENUES, 1901-2 and 1911-16.

Year.	N.S.W.	Victoria. ¹	Q'land.	S. Aust. ⁴	W. Aust.	Tas.	N. Ter.	All States.
TOTAL WORKING EXPENSES.								
	£	£	£	£	£	£	£	£
1901-2 ...	2,342,369	2,166,119	992,751	689,517	1,256,370	173,292 ²	34,649	7,655,067.
1911-12 ...	4,169,591	3,441,803	1,917,266	1,293,987	1,343,977	221,172	...	12,387,796
1912-13 ...	4,644,881	3,589,194	2,150,991	1,393,775	1,506,600	217,357	...	13,502,798
1913-14 ...	5,409,820	3,865,498	2,371,261	1,505,765	1,572,008	222,713	...	14,947,065
1914-15 ...	5,311,162	4,238,411	2,401,679	1,448,495	1,497,826	225,995	...	15,123,568
1915-16 ...	5,661,168	4,118,744	2,745,061	1,545,489	1,511,655	248,651	...	15,830,768
PERCENTAGE OF WORKING EXPENSES ON GROSS EARNINGS.								
	%	%	%	%	%	%	%	%
1901-2 ...	63.85	64.32	71.83	63.54	82.58	74.31 ²	276.70	67.92
1911-12 ...	64.23	65.95	63.22	61.90	71.31	70.71	...	65.33
1912-13 ...	68.82	68.95	64.76	62.71	73.93	66.45	...	68.11
1913-14 ...	69.87	69.51	64.79	64.43	69.65	67.45	...	68.29
1914-15 ...	69.73	82.12	62.67	82.99	72.77	69.91	...	72.93
1915-16 ...	70.71	72.19	73.29	78.63	72.39	71.45	...	72.43

1. Including amounts paid for pensions and gratuities, and also special expenditures and charges for belated repairs and in reduction of deficiencies. 2. For the calendar year 1902. 3. See Federal Government railways, page 629. 4. Exclusive of the Port Augusta-Oodnadatta line as from 1st January, 1911.

(i.) *New South Wales.* In this State the total working expenses in 1915-16 amounted to £5,661,168, an increase of £350,006 as compared with the previous year. This increase was owing to a variety of causes, among which the principal were the reinstatement of full services on branch lines, and of full time being worked by the staff, increase of wages by awards of wages boards, higher cost of materials, and amount paid as difference between the departmental and military pay to employees serving in the Expeditionary Forces.

(ii.) *Victoria.* In Victoria the decrease in working expenses was owing mainly to the reduction in the train mileage, which in the year 1915-16 was 1,476,671 miles less than in the previous year, and in the amount expended for special and abnormal charges owing to the war, etc.

(iii.) *Queensland.* In this State the working expenses increased £343,382 from £2,401,679 in 1914-15 to £2,745,061 in 1915-16. The increase was mainly due to the additions to the wages of the staff by 8½ per cent., the extra cost of materials, higher freights of stores and fuel to the northern ports, and the opening of new lines, 129 miles in length.

(iv.) *South Australia.* In South Australia the working expenses in 1915-16 shewed an increase of £96,994 over 1914-15, viz., from £1,448,495 to £1,545,489. This was owing to an increase in the train mileage, coupled with the advance in the price of fuel and special repairs to locomotives injured owing to water troubles during the drought.

(v.) *Western Australia.* In this case the expenditure was £13,829 higher than in the previous year. As 236 miles of new lines were opened for traffic in the year 1914-15, this small increase was satisfactory.

(vi.) *Tasmania.* The working expenses in 1915-16 were £248,651 as compared with £225,995 in the previous year, being an increase of £22,656.

In the preceding table it will be observed that there has been an annual increase during the four financial years 1911-15 in the percentages of the total working expenses to the total gross earnings of the States' railways, but that in the last financial year 1915-16 there was a small decrease as compared with the previous year.

(vii.) *Working Expenses per Average Mile Worked and per Train Mile Run.* The following table shews the working expenses per average mile worked and per train mile, run in each State for the years 1901-2 and 1911-16:—

STATE RAILWAYS.—WORKING EXPENSES PER AVERAGE MILE WORKED AND PER TRAIN MILE RUN, 1901-2 and 1911-16.

Year.	N.S.W.	Victoria.	Q'land.	² S. Aust.	W. Aust.	Tas.	N. Ter.	All States.
WORKING EXPENSES PER AVERAGE MILE WORKED.								
	£	£	£	£	£	£	£	£
1901-2 ...	793	663	354	397	927	1,370	238	602
1911-12 ...	1,098	971	463	885	544	440	...	778
1912-13 ...	1,200	986	494	908	541	428	...	809
1913-14 ...	1,367	1,032	526	830	540	424	...	856
1914-15 ...	1,309	1,101	508	715	484	422	...	827
1915-16 ...	1,358	1,042	556	707	454	450	...	827
WORKING EXPENSES PER TRAIN MILE RUN.								
	d.	d.	d.	d.	d.	d.	d.	d.
1901-2 ...	48.26	46.07	42.05	39.44	66.89	³ 46.06	274.67	48.05
1911-12 ...	54.03	59.70	44.55	51.51	61.71	50.72	...	54.07
1912-13 ...	58.11	60.52	45.03	52.74	64.30	51.83	...	56.01
1913-14 ...	63.18	61.73	50.16	53.69	67.80	53.41	...	59.57
1914-15 ...	62.42	66.47	48.08	62.29	66.51	53.96	...	60.80
1915-16 ...	63.03	71.49	56.93	65.87	70.45	56.75	...	64.63

¹ For the calendar year 1902. ² Excluding the Port Augusta-Oodnadatta line as from the 1st of January, 1911 (see page 627). ³ For 6 months only.

12. **Distribution of Working Expenses.**—The subjoined table shews the distribution of working expenses, among four chief heads of expenditure, for the years 1901-2 and 1911-16:—

STATE RAILWAYS.—DISTRIBUTION OF WORKING EXPENSES, 1901-2 and 1911-16.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust. ¹	W. Aust.	Tas.	N. Ter.	All States.
MAINTENANCE.								
	£	£	£	£	£	£	£	£
1901-2 ...	554,483	490,438	355,615	166,691	246,931	² 58,612	29,001	1,901,771
1911-12 ...	906,001	840,141	582,097	308,479	291,490	63,669	...	3,971,877
1912-13 ...	1,024,215	876,631	601,866	291,361	322,267	58,534	...	3,174,874
1913-14 ...	1,109,749	928,702	649,925	308,244	362,517	57,685	...	3,416,892
1914-15 ...	918,790	1,107,310	626,798	280,062	346,771	58,253	...	3,337,984
1915-16 ...	895,526	998,619	738,160	306,420	361,627	66,090	...	3,366,442
LOCOMOTIVE, CARRIAGE, AND WAGON CHARGES.								
	£	£	£	£	£	£	£	£
1901-2 ...	1,102,314	845,464	389,766	343,572	670,465	² 63,732	3,210	3,418,603
1911-12 ...	1,984,997	1,390,378	793,840	631,939	655,795	88,254	...	5,545,203
1912-13 ...	2,162,217	1,465,733	914,827	729,675	747,240	86,300	...	6,105,991
1913-14 ...	2,687,079	1,636,480	1,015,522	803,431	746,882	96,676	...	6,986,060
1914-15 ...	2,755,669	1,789,836	1,051,683	793,997	714,173	99,829	...	7,205,187
1915-16 ...	2,917,299	1,747,319	1,196,160	859,334	714,802	107,885	...	7,544,799
TRAFFIC EXPENSES.								
	£	£	£	£	£	£	£	£
1901-2 ...	588,938	671,588	226,237	162,626	306,409	² 42,416	2,106	2,000,322
1911-12 ...	1,133,539	901,024	516,838	325,259	359,025	57,570	...	3,293,255
1912-13 ...	1,343,707	947,868	585,681	346,705	397,274	60,820	...	3,682,055
1913-14 ...	1,491,493	1,066,738	665,406	365,954	415,836	57,731	...	4,054,088
1914-15 ...	1,502,945	1,099,026	671,622	347,437	392,628	57,814	...	4,071,472
1915-16 ...	1,638,942	1,127,568	744,229	350,472	393,033	62,326	...	4,316,570
OTHER CHARGES.								
	£	£	£	£	£	£	£	£
1901-2 ...	96,634	158,629	21,133	16,628	32,545	² 8,472	330	334,371
1911-12 ...	145,064	310,260	44,491	23,310	37,667	11,679	...	577,461
1912-13 ...	114,742	298,963	48,617	26,034	39,819	11,703	...	539,878
1913-14 ...	121,569	233,578	49,408	23,146	46,773	10,621	...	490,095
1914-15 ...	133,758	242,239	51,576	26,999	44,254	10,099	...	508,925
1915-16 ...	209,401	245,238	64,512	29,263	42,193	12,350	...	602,957

1. Excluding the Port Augusta-Oodnadatta line as from the 1st of January, 1911 (see page 629).
2. For the calendar year 1902.

13. **Net Revenue, Total and per Cent. on Capital Cost.**—The following table shows the net sums available to meet interest charges, and also the percentage of such sums upon the capital cost of construction and equipment of lines opened for traffic in each State for the years 1901-2 and 1911-16:—

STATE-RAILWAYS.—NET REVENUE AND PERCENTAGE OF NET REVENUE UPON CAPITAL COST OF LINES OPEN, 1901-2 and 1911-16.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.	All States.
NET REVENUE.								
	£	£	£	£	£	£	£	£
1901-2 ...	1,326,317	1,201,724	389,428	395,658	265,059	259,919	-22,127	3,615,978
1911-12 ...	2,321,882	1,777,164	1,115,592	796,573	540,627	91,614	...	6,643,455
1912-13 ...	2,104,104	1,616,248	1,170,681	828,661	531,253	109,756	...	6,360,703
1913-14 ...	2,332,421	1,695,460	1,288,761	831,486	685,003	107,455	...	6,940,586
1914-15 ...	2,305,349	922,652	1,430,324	296,883	560,418	97,270	...	5,612,906
1915-16 ...	2,344,910	1,588,419	1,000,289	419,921	576,455	99,377	...	6,027,371
PERCENTAGE OF NET REVENUE ON CAPITAL EXPENDITURE.								
	%	%	%	%	%	%	%	%
1901-2 ...	3.27	2.96	1.94	3.10	3.58	21.56	-2.17	2.61
1911-12 ...	4.37	3.88	3.05	6.23	4.09	2.15	...	4.23
1912-13 ...	3.69	3.40	3.03	5.30	3.56	2.49	...	3.80
1913-14 ...	3.85	3.44	4.05	5.46	4.32	2.39	...	3.83
1914-15 ...	3.60	1.79	4.28	1.79	3.20	2.10	...	3.00
1915-16 ...	3.41	2.92	2.88	2.44	3.27	3.07	...	3.06

¹ Exclusive of Port Augusta-Oodnadatta line as from the 1st of January, 1911 (see page 627).

² For the calendar year 1902.

Note.—The minus sign (—) denotes net loss.

(i.) *Net Revenue per Average Mile Worked and per Train-Mile Run.* Tables shewing the gross earnings and the working expenses per average mile worked and per train mile run have been given above. The net earnings, i.e., the excess of gross earnings over working expenses, per average mile worked and per train mile run are shewn in the following tables:—

STATE RAILWAYS.—NET REVENUE PER AVERAGE MILE WORKED AND PER TRAIN MILE RUN, 1901-2 and 1911-16.

Year.	N.S. W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.	All States.
NET REVENUE PER AVERAGE MILE WORKED.								
	£	£	£	£	£	£	£	£
1901-2 ...	449	368	139	228	195	2128	-153	284
1911-12 ...	611	502	269	545	219	182	...	417
1912-13 ...	543	444	269	540	191	216	...	381
1913-14 ...	589	452	286	458	235	205	...	397
1914-15 ...	568	240	302	147	181	181	...	307
1915-16 ...	562	401	202	192	173	180	...	315
NET REVENUE PER TRAIN MILE RUN.								
	d.	d.	d.	d.	d.	d.	d.	d.
1901-2 ...	28.87	25.56	16.50	22.53	14.11	215.93	-175.40	23.16
1911-12 ...	30.09	30.83	25.93	31.71	24.82	21.01	...	29.00
1912-13 ...	26.32	27.25	24.51	31.85	22.67	26.17	...	26.39
1913-14 ...	27.24	27.07	27.26	29.64	29.54	25.77	...	27.66
1914-15 ...	27.10	14.47	28.63	12.77	24.89	23.23	...	22.56
1915-16 ...	26.11	27.54	20.75	17.90	26.87	22.68	...	24.61

1. Exclusive of Port Augusta-Oodnadatta line as from the 1st of January, 1911 (see page 627).

2. For the calendar year 1902.

Note.—The minus sign (—) denotes net loss.

14. **Traffic Conditions.**—Reference has already been made to the difference in the traffic conditions on many of the lines of the Commonwealth (see paragraphs 9, 10, and 11 hereof). These conditions differ not only in the several States, but also on different lines in the same State, and this is true with regard to both passenger and goods traffic. By far the greater part of the population of Australia is confined to a fringe of country near the coast, more especially in the eastern and southern districts. A large proportion of the railway traffic between the chief centres of population is therefore carried over lines in the neighbourhood of the coast, and is thus, in some cases, open to sea-borne competition. On most of the lines extending into the more remote interior districts, traffic is light; the density of population diminishes rapidly as the coastal regions are left behind; there is a corresponding diminution in the volume of traffic, while, in comparison with other more settled countries, there is but little back-loading.

As an indication of the different traffic conditions prevailing in the several States, the following table is given shewing the numbers of passenger journeys and the tons of goods carried (a) per 100 of the mean population; and (b) per average mile worked in each State during the financial year 1915-16:—

STATE RAILWAYS.—PASSENGER JOURNEYS AND TONNAGE OF GOODS AND LIVE STOCK, 1915-16.

Particulars.			N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	Total.
(a) PER 100 OF MEAN POPULATION.									
Passenger journeys	...	No.	4,969	8,166	3,592	4,666	5,938	1,034	5,574
Goods and live stock	...	Tons	638	411	672	545	803	193	561
(b) PER AVERAGE MILE OF LINE WORKED.									
Passenger journeys	...	No.	22,372	29,272	4,948	9,388	5,668	3,765	14,350
Goods and live stock	...	Tons	2,858	1,474	925	1,097	767	704	1,446

¹ Exclusive of the returns of the Federal lines.

Particulars of the actual numbers of passengers and tons of goods and live stock carried have already been given (see paragraph 2 hereof).

(i.) *Metropolitan and Country Passenger Traffic.* A further indication of the difference in passenger traffic conditions might be obtained from a comparison of the volume of metropolitan, suburban, and country traffic in each State. Particulars are, however, available only for the States of New South Wales and Victoria. The subjoined table shows the number of metropolitan and country passengers carried in each of the States mentioned and the revenue derived therefrom during the year 1915-16:—

STATE RAILWAYS.—METROPOLITAN SUBURBAN, AND COUNTRY PASSENGER TRAFFIC, 1915-16.

Particulars.	Number of Passenger Journeys.			Revenue.		
	Metropolitan.	Country.	Total.	Metropolitan.	Country.	Total.
N.S.W. ...	¹ 83,652,807	9,198,031	92,850,838	£ 1,054,890	£ 2,092,151	£ 3,147,041
Victoria ...	² 106,927,781	8,843,457	115,771,238	£ 1,133,905	£ 1,507,860	£ 2,641,765

¹ Within 34 miles of Sydney and Newcastle, and including the Richmond line.

² Within 20 miles of Melbourne, but exclusive of St. Kilda-Brighton tramway.

From this table it may be seen that the number of passenger-journeys in country districts in Victoria was slightly less than the corresponding number in New South Wales, while the number of metropolitan passenger-journeys in Victoria was far greater than in New South Wales, although in the latter State both Sydney and Newcastle are included. In Sydney a larger proportion of the suburban traffic is carried by the tramway systems than in Melbourne.

For several years it has been recognised that the suburban passenger transport, both in Sydney and in Melbourne, was increasing so rapidly that it must eventually become impossible to cope with under the existing systems. A scheme for the electrification of the Melbourne suburban lines was under the consideration of the Victorian Government in 1908, but owing chiefly to a doubt as to its success from a financial standpoint, its adoption was for a time deferred. In November, 1912, however, a Commission was appointed by Parliament to again consider the 1908 scheme, and, acting on its report, the Government decided to at once proceed with the electrification of the suburban lines. Contracts for the construction of power-houses and the necessary equipment were put in hand at an estimated cost of £2,250,299. It was anticipated that a portion of the suburban railway system would be electrically operated by the end of 1915, but, owing to delays in the delivery of plant, due to the war, the date of opening had to be postponed. It is now expected that electrically-propelled trains will be in operation early in the year 1918. In Sydney, a Metropolitan Railway Construction Branch of the Railway Department has been created to deal specially with this matter. The Minister has approved of the construction of an underground city railway, and the plans have been prepared, and a commencement has been made with the preliminary works. The preliminary work in the location of a system of electric railways for the eastern, western and northern suburbs is also in hand.

(ii.) *Goods Traffic.* The differing conditions of the traffic in each State might also, to some extent, be analysed by an examination of the tonnage of various classes of commodities carried and of the revenue derived therefrom. Comparative particulars regarding the quantities of some of the leading classes of commodities carried on the Government railways are available for all the States; corresponding information regarding the revenue derived from each class of commodity is not, however, generally available in a comparable form. In this connection it may be stated that the following resolution was passed at the Interstate Conference of Railway Commissioners held in Melbourne in May, 1909:—"That in view of the variations in the character and classification of the goods traffic in the different States, the subdivisions of tonnage carried and revenue in each State shall be those which best suit local conditions."

The following table shews the number of tons of various representative commodities carried, and the percentage of each class on the total tonnage carried during the financial year 1915-16:—

STATE RAILWAYS.—CLASSIFICATION OF COMMODITIES CARRIED, 1915-16.

State.	Minerals.	Fire-wood.	Grain and Flour.	Hay, Straw, and Chaff.	Wool.	Live Stock.	All other Com-modities.	Total.
TONS CARRIED.								
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
New South Wales ...	7,100,564	187,135	385,019	429,047	111,083	797,065	2,137,113	11,614,026
Victoria ...	1,217,771	475,723	1,256,187	274,420	42,364	453,264	2,110,106	5,829,835
Queensland ...	1,552,011	244,746	*31,980	*196,403	51,282	487,271	3,007,190	4,570,883
South Australia ...	790,627	119,561	439,194	74,006	18,697	123,770	825,983	2,396,938
Western Australia...	564,757	636,944	439,931	75,988	8,904	72,665	755,669	2,554,858
Tasmania ...	92,237	23,203	...	31,149	4,508	21,993	210,702	388,762
⁷ Total ...	11,317,957	1,692,412	3,019,311	1,081,013	236,838	1,961,028	8,046,763	27,355,322
PERCENTAGE ON TOTAL TONNAGE CARRIED.								
	%	%	%	%	%	%	%	%
New South Wales ...	61.14	1.61	7.34	3.69	0.96	6.86	18.40	100.00
Victoria ...	20.89	8.16	21.55	4.71	0.73	7.77	36.19	100.00
Queensland ...	33.96	5.35	*0.70	*4.30	1.12	10.66	43.91	100.00
South Australia ...	32.99	4.99	18.32	3.09	0.78	5.37	34.46	100.00
Western Australia...	22.11	24.93	17.22	2.97	0.35	2.84	29.58	100.00
Tasmania ...	23.72	7.25	...	8.01	1.16	5.66	54.20	100.00
⁷ Total ...	41.37	6.19	11.04	3.95	0.87	7.17	29.41	100.00

1. Exclusive of 301,474 tons of coal, on which only shunting and haulage were collected.
 2. Coal, stone, gravel, and sand. 3. Up journey only. 4. Flour only. 5. Sugar cane.
 6. Included in all other commodities. 7. Exclusive of Federal lines.

15. **Passenger-Mileage and Ton-Mileage.**—The useful comparisons and analyses which can be made with regard to the operations of the Government railways in the Commonwealth are to some extent limited by the absence in the annual reports of the Railway Departments of some of the States of particulars relating to "passenger-mileage" (*i.e.*, the total distance travelled by passengers) and "ton-mileage" (*i.e.*, the total distance for which goods and live stock are carried), and it is not possible to furnish totals for the Commonwealth in respect of these important particulars. The following resolution in regard thereto was passed at the Interstate Conference of Railway Commissioners held in Melbourne in May, 1909:—"That, in view of the differing conditions in each State, and of the expense involved, it is undesirable to include passenger-mile and ton-mile statistics in the annual reports." The general question as to the desirability of collecting and publishing "passenger-mile" and "ton-mile" statistics by railway companies in the United Kingdom has been made the subject of inquiry by a departmental committee appointed by the President of the Board of Trade. The report of this committee has been published in England as a parliamentary paper.¹

Information regarding "passenger-miles" and "ton-miles" is available, either wholly or in part, for three of the States only, *viz.*, New South Wales, South Australia, and Tasmania, but is not available at all for either Victoria, Queensland, or Western Australia. Of the three States which give particulars of the nature indicated, New South Wales furnishes the information in a classified form according to class of passengers and nature of commodities carried. South Australia supplies particulars for all classes of passengers and goods together, and Tasmania supplies particulars for all classes of passengers together and nature of commodities carried. Western Australia furnished particulars as to ton-miles for the years 1907-12, but has since discontinued to record them. The mere record of the total number of passenger-miles and ton-miles for all classes of passengers and for all classes of goods respectively, although of considerable value, would appear to be insufficient to enable the whole field of railway operations to be adequately analysed, or the extent to which efficiency has been secured and improvements in working have been effected to be accurately gauged.

(i.) *Passenger-Miles.* Particulars for the whole of the Commonwealth period regarding total "passenger-miles" are available for one State only, namely, Tasmania. For New South Wales to the end of 1909-10, particulars are only available for suburban and extended-suburban traffic—*i.e.*, including all stations within 34 miles of Sydney (including the Richmond line), and of Newcastle (including Greta), but since that date all passenger traffic is included. For South Australia particulars are available for each year since 1904. No particulars are available for other States. In the tables given below the average number of passengers carried per "train," etc., is obtained by dividing the number of "passenger-miles" by the number of "passenger-train-miles." The averages given for New South Wales for the year 1902 are naturally smaller than those for the other States, since the figures for that State refer to suburban and extended-suburban traffic only as already stated.

¹ See Cd. 4697. This report is also published at length in "The Statist," London, 19th June, 1909, Vol. LXII., No. 1634. In this report it is stated that ton-mile statistics have been used in India for forty years, and for a longer period in America. They are now compiled by the railways of nearly all foreign countries; in England, however, they are not generally compiled. Among the more important statistics deduced from ton-miles and passenger-miles the following are mentioned:—(a) The average Train Load of goods and of passengers, obtained by dividing the ton-mileage and the passenger-mileage respectively by the train-mileage. (b) The average Wagon Load and Carriage Load, obtained by dividing the ton-mileage by the wagon-mileage and the passenger-mileage by the carriage-mileage. (c) Ton-miles per Engine Hour. (d) The average Length of Haul for goods and passengers respectively, obtained by dividing the ton-mileage and the passenger-mileage by the tonnage and the total number of passengers conveyed. (e) The average Receipts per Ton per Mile and per Passenger per Mile, obtained by dividing the goods receipts by the ton-mileage and the passenger receipts by the passenger-mileage. (f) The average Density of Traffic per mile of road or per mile of track, obtained by dividing the ton-mileage and passenger-mileage by the length of road or by the length of track.

STATE RAILWAYS.—SUMMARY OF "PASSENGER MILES," 1901-2 and 1912-16.

Year ended 30th June.	Pass'nger Train Mileage.	Number of Passenger Journeys.	Total Passenger Miles.	Amount Received from Passengers.	Average Number of Passengers carried per Train.	Average Mileage per Passenger-journey.	Average Receipt per Passenger-mile.	Average Fare per Passenger-journey.	Density of Traffic per Average Mile Worked.
	Miles. (000 omitted.)	No. (000 omitted.)	No. (000 omitted.)	£	No.	Miles.	d.	d.	No.

NEW SOUTH WALES.¹

1902 ¹	... ²	27,999	184,064	361,849	... ³	6.57	0.47	2.92	... ³
1912	8,978	70,707	1,091,088	2,349,279	122	15.43	0.52	7.97	287,204
1913	9,667	79,490	1,192,584	2,571,446	123	15.00	0.52	7.76	308,002
1914	10,081	86,328	1,235,025	2,832,450	123	14.30	0.55	7.87	311,954
1915	10,099	88,774	1,230,901	2,910,684	122	13.87	0.57	7.87	303,402
1916	10,283	92,851	1,321,491	3,147,041	129	12.85	0.57	8.13	316,980

SOUTH AUSTRALIA.³

1912	2,614	18,353	213,299	589,045	82	11.62	0.65	7.70	127,267
1913	2,804	19,382	228,707	619,094	82	11.80	0.64	7.67	149,092
1914	2,952	19,809	236,764	635,967	80	11.95	0.63	7.70	130,449
1915	2,815	18,831	215,489	560,012	77	11.44	0.60	7.14	106,362
1916	2,786	20,513	218,609	603,203	78	10.66	0.66	7.06	100,050

TASMANIA.

1902 ⁴	336	761	19,444	88,541	58	25.60	1.09	27.91	42,086
1912	396	1,715	34,292	126,886	86	19.99	0.87	17.75	63,174
1913	438	1,650	35,607	135,545	81	21.58	0.91	19.71	70,092
1914	446	1,708	36,028	140,185	81	21.09	0.91	19.69	68,624
1915	454	1,751	36,051	132,680	79	20.59	0.88	18.19	67,260
1916	465	2,078	46,719	154,225	100	22.48	0.79	17.81	84,567

¹ Suburban lines only for year 1902; includes distances within 34 miles of Sydney and Newcastle, and including also the Richmond line. ² Not available. ³ Exclusive of the returns of the Port Augusta to Oodnadatta line on and after 1st January, 1911. ⁴ To 31st December, 1902.

(ii.) *Ton-Miles.* Particulars regarding total "ton-miles" are available for each year since 1901 for the States of New South Wales, South Australia, and Tasmania. Corresponding particulars for Western Australia are available for the years 1907 to 1912; figures for subsequent years are not available. The average freight-paying load carried per "train" is obtained by dividing the total "ton-miles" in the fourth column by the goods-train mileage in the second column. In New South Wales the tonnage carried is exclusive of coal, on which only shunting and haulage charges are collected, and the amount of earnings specified excludes terminals. In South Australia and Tasmania they include terminals, while in Western Australia they exclude wharfage and jetty dues, but include all other charges.

STATE RAILWAYS.—SUMMARY OF "TON MILES," 1901-2 and 1912-16.

Year ended the 30th June.	Goods Train Mileage.	Total Tons Carried.	Total "Ton-Miles."	Earnings.	Average Freight-paying Load carried per "Train."	Average Miles per Ton.	Earnings per "Ton-mile."	Density of Traffic per Average Mile Worked.
	No. (000 omitted.)	No. (000 omitted.)	No. (000 omitted.)	£	Tons.	Miles.	d.	Tons.
NEW SOUTH WALES. ¹								
1902	6,586	6,164	436,814	1,947,305	66.32	70.87	1.07	148,464
1912	9,544	10,632	862,016	3,181,771	90.32	81.08	0.89	226,906
1913	9,517	11,402	861,940	3,153,626	90.57	75.60	0.88	222,608
1914	10,469	12,901	1,037,911	3,760,384	99.14	80.45	0.87	262,165
1915	10,321	11,660	916,923	3,633,613	88.84	78.64	0.95	226,010
1916	11,273	11,614	1,028,760	3,738,227	91.26	88.58	0.87	246,764
SOUTH AUSTRALIA. ²								
1902	2,468	1,392	170,523	681,045	69.09	122.48	0.96	98,803
1912	3,415	2,782	334,125	1,345,879	97.84	120.11	0.97	199,358
1913	3,539	3,016	355,404	1,441,859	100.43	117.84	0.97	231,685
1914	3,780	3,103	402,356	1,534,187	106.45	129.65	0.92	221,684
1915	2,766	2,076	237,014	1,049,074	85.70	114.15	1.06	116,986
1916	2,845	2,397	278,942	1,211,465	98.04	116.37	1.04	127,662
WESTERN AUSTRALIA. ³								
1907	1,940	2,091	144,856	964,653	74.67	69.26	1.60	86,429
1908	1,976	2,059	142,719	948,373	72.22	69.32	1.59	77,989
1909	2,011	1,997	143,629	945,956	71.41	71.92	1.58	72,871
1910	2,281	2,242	163,651	1,042,789	71.75	73.00	1.53	77,855
1911	2,548	2,489	182,738	1,154,662	71.71	73.42	1.52	79,938
1912	2,747	2,542	184,748	1,154,087	67.25	72.67	1.49	77,767
TASMANIA. ⁴								
1902 ⁵	567	407	14,331	109,266	25.26	35.30	1.82	31,019
1912	651	452	17,672	138,184	27.16	39.09	1.87	35,133
1913	569	447	17,747	144,073	31.17	39.67	1.94	34,104
1914	554	389	18,709	142,642	33.76	48.06	1.82	35,826
1915	551	388	19,809	141,049	35.90	51.09	1.70	37,000
1916	586	367	20,105	145,094	34.29	54.81	1.73	36,392

1. Exclusive of tonnage on which only shunting and haulage charges are collected. 2. Exclusive of the returns of the Port Augusta to Oodnadatta line on and after 1st January, 1911. 3. Particulars for 1913, 1914, 1915, and 1916 and for years prior to 1907 not available. 4. Exclusive of live stock. 5. To 31st December.

(iii.) *Classification of Commodity Ton Mileage.* New South Wales and Tasmania are the only States for which particulars, specifying the ton-mileage and the earnings per ton-mile for various classes of commodities, are available.

The subjoined statement gives particulars for the last financial year in respect of New South Wales. Miscellaneous traffic consists of timber, bark, bricks, drain-pipes in six-ton lots, and cement in full truck loads, agricultural and vegetable seeds in five-ton lots, and traffic of a similar nature.

A and B classes consist of lime, vegetables, tobacco leaf, caustic soda and potash, copper ingots, fat and tallow, water and mining plant in six-ton lots, leather in one and three-ton lots, agricultural implements in five-ton lots, and other traffic of a similar nature. The table does not include 301,474 tons of coal on which only shunting and haulage charges were collected, nor does it include £64,992 for haulage, tonnage dues, etc.

NEW SOUTH WALES.—SUMMARY OF TON-MILEAGE FOR THE YEAR ENDED 30th JUNE, 1916.

Particulars.	Total Tons Carried.	Total Miles Carried.	Average Miles per Ton.	Earnings (exclusive of Terminals).	Earnings per Ton Mile.	Percent. on Total Tonnage.
	Tons.	Miles.	Miles.	£	d.	%
Coal, coke, and shale ...	6,109,029	174,533,076	28.57	377,603	0.52	52.60
Other minerals ...	753,959	39,464,931	52.34	87,900	0.53	6.49
Crude ores ...	237,576	24,947,862	105.01	52,555	0.50	2.05
Miscellaneous ...	748,363	71,935,606	96.12	188,071	0.63	6.44
Firewood ...	187,135	6,667,839	35.63	19,526	0.70	1.61
Fruit ...	81,941	13,307,297	162.40	51,509	0.93	0.70
Grain, flour, etc. (Up Journey) ...	852,019	194,596,359	228.39	338,417	0.42	7.34
Hay; straw, and chaff ...	429,047	108,965,460	253.97	149,705	0.32	3.70
Frozen meat ...	28,704	4,979,143	176.46	20,993	1.01	0.25
General goods ...	1,006	349,450	347.36	3,785	2.60	0.00
A Class ...	512,933	49,998,029	97.47	228,345	1.10	4.42
B " ...	350,285	36,830,783	105.11	270,693	1.76	3.02
C " ...	30,221	2,074,549	68.65	23,950	2.77	0.26
1st Class ...	152,563	17,525,907	114.88	227,119	3.11	1.31
2nd " ...	231,097	34,824,009	150.69	586,169	4.04	1.99
Wool ...	111,083	32,329,276	291.04	262,799	1.95	0.96
Live stock ...	797,065	215,430,723	270.28	849,088	0.95	6.86
Total ...	11,614,026	1,028,760,304	88.58	3,738,227	0.87	100.00

In the following table will be found particulars of the ton-mileage in the case of Tasmania:—

TASMANIA.—SUMMARY OF TON-MILEAGE FOR THE YEAR ENDED 30th JUNE, 1916.

Particulars.	Total Tons Carried.	Total Miles Carried.	Average Miles per Ton.	Earnings.	Earnings per Ton Mile.	Percent. on Total Tonnage.
	Tons.	Miles.	Miles.	£	d.	%
Agricultural produce ...	90,102	4,385,004	48.66	29,154	1.59	24.57
Hay, straw, chaff and horse feed ...	31,149	1,317,486	42.29	8,866	1.61	8.49
Manures ...	11,987	321,770	26.84	1,478	1.10	3.27
Native coal ...	63,271	6,473,997	102.32	19,684	0.72	17.25
Minerals, other than native coal ...	28,956	872,155	30.12	6,911	1.90	7.89
Bark ...	1,457	57,291	39.32	477	1.99	0.39
Firewood ...	23,203	648,819	23.00	3,184	1.17	7.69
Timber ...	38,316	1,340,864	34.99	7,926	1.41	10.45
Wool ...	4,508	276,017	61.22	3,369	2.92	1.23
Miscellaneous goods ...	68,840	4,411,308	64.08	64,045	3.48	18.77
Total ...	366,789	20,104,711	54.81	145,094	1.73	100.00

16. **Interest Returned on Capital Expenditure.**—In the table in paragraph 13 hereof, it will be seen that the State Government railways in the year 1901-2 made a profit of 2.81 per cent. on the capital expenditure at that time. In the subsequent years up to and including the year 1910-11, the percentages were 2.48, 3.04, 3.28, 3.91, 4.37, 4.23, 4.13, 4.18 and 4.56 respectively, rates which show a substantial increase on that for the first-named year. Since 1910-11, the rates have fallen each year with the exception of the year 1913-14, the rate for the year 1915-16 being 2.07, or 0.74 lower than that for 1901-2. The reasons for this reduction are to be found in the increases of the charges in respect of working expenses, brought about by the opening of new lines, the higher cost of materials, and the raising of the rate of wages, while in the last two years additional expenses have been incurred in consequence of the war. The return on the capital invested as at the 30th June, 1916, was not equal to the interest payable for that year, the rate of which was 3.75 per cent. This average, however, does not accurately express the position. At an early period the need of constructing railways for the sole purpose of opening up undeveloped districts was recognised, and the money had to be raised at a very high rate of interest. It may be noted, however, that although the loans made for expenditure on railway construction and equipment very largely increase the amount of the public debt of the States, forming, in fact, three-fifths of the total debt, the money borrowed has not been sunk in undertakings which give no return, but has been expended on works which are increasingly reproductive, yielding in most cases a direct return on the capital expended, and representing a greater value than their original cost. In Europe the national debts of various countries have been incurred principally through the expenses of prolonged wars, and the money has gone beyond recovery, but in Australia the expenditure by the States up to a recent period is represented to a large extent by public works which pay a direct return. In addition to the purely commercial aspect of the figures relating to the revenue and expenditure of the State railways, it is of great importance that the object with which many of the lines were constructed should be kept clearly in view; the anticipated advantage in building these lines has been the ultimate settlement of the country rather than the direct returns from the railways themselves, and the policy of the State Governments has been to use their railway systems for the development of the country's resources to the maximum extent consistent with the direct payment by the customers of the railways of the cost of working and interest charges.

(i.) *Profit or Loss after Payment of Working Expenses and Interest.*—The net revenue of the Government railways of each State after payment of working expenses is shewn in paragraph 13 hereof. The following table shews the amount of interest payable on expenditure from loans on the construction and equipment of the railways of each State, the actual profit or loss after deducting working expenses and interest and all other charges from the gross revenue, and the percentage of such profit or loss on the total capital cost of construction and equipment. Railways owned by the Commonwealth Government are not included in this return.

It will be seen that during the three years ended 30th June, 1914, all the States, with the exception of Queensland in 1913, and Tasmania for all three years, shew a net profit after paying working expenses and interest. In the year ended 30th June, 1915, only two States, New South Wales and Queensland, shew a profit, all the other States a loss, while in the year ended 30th June, 1916, all the States shew a loss.

STATE RAILWAYS.—INTEREST ON LOAN EXPENDITURE, PROFIT OR LOSS, AND PERCENTAGE OF PROFIT OR LOSS ON TOTAL COST, 1901-2 and 1911-16.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.	All States.
AMOUNT OF INTEREST ON RAILWAY LOAN EXPENDITURE.								
	£	£	£	£	£	£	£	£
1901-2 ...	1,434,638	1,492,695	837,205	469,787	234,932	140,550	47,012	4,656,819
1911-12 ...	1,901,326	1,511,024	1,069,840	456,733	439,153	159,123	...	5,537,199
1912-13 ...	1,903,660	1,591,927	1,170,961	492,907	505,925	164,412	...	5,929,792
1913-14 ...	2,089,495	1,674,036	1,250,593	566,497	556,843	169,268	...	6,306,737
1914-15 ...	2,279,070	1,764,379	1,312,196	584,812	536,069	172,349	...	6,998,875
1915-16 ...	2,568,659	1,922,410	1,418,280	663,588	625,250	180,772	...	7,378,959

PROFIT OR LOSS AFTER PAYMENT OF WORKING EXPENSES, INTEREST, AND OTHER CHARGES.²

	£	£	£	£	£	£	£	£
1901-2 ...	-108,321	-290,971	-447,777	-74,129	+30,127	-80,631	-69,139	-1,040,841
1911-12 ...	+420,556	+266,140	+45,752	+339,844	+101,474	-67,509	...	+1,106,257
1912-13 ...	+200,444	+24,321	280	+335,754	+25,398	-54,656	...	+530,911
1913-14 ...	+242,926	+21,424	+38,163	+264,989	+128,160	-61,813	...	+633,849
1914-15 ...	+26,279	-841,717	+118,128	-287,929	-25,651	-75,079	...	-1,085,969
1915-16 ...	-223,749	-335,991	-417,991	-243,667	-48,795	-81,395	...	-1,351,588

PERCENTAGE OF PROFIT OR LOSS ON CAPITAL COST OF CONSTRUCTION AND EQUIPMENT.²

	%	%	%	%	%	%	%	%
1901-2 ...	-0.27	-0.73	-2.22	-0.58	+0.41	-2.10	-6.71	-0.82
1911-12 ...	+0.79	+0.58	+0.16	+2.65	+0.77	-1.59	...	+0.71
1912-13 ...	+0.35	+0.05	-0.00	+2.39	+0.17	-1.24	...	+0.32
1913-14 ...	+0.40	+0.04	+0.12	+1.74	+0.81	-1.37	...	+0.36
1914-15 ...	+0.04	-1.63	+0.35	-1.73	-0.15	-1.62	...	-0.58
1915-16 ...	-0.33	-0.62	-1.20	-1.41	-0.29	-1.70	...	-0.69

¹ Inclusive of Port Augusta-Oodnadatta line to 31st December, 1910. ² The positive sign indicates a profit, the negative a loss. ³ Allowing for payment of special expenditure and charges (see paragraph 11 above).

17. **Passenger Fares and Goods Rates.**—Fares and rates are changed from time to time to suit the convenience and varying necessities of the railways, but, as traffic is developed and revenue increases, they are in many cases reduced to an extent consistent with the direct payment by the customers of the railways of the cost of working and interest charges.

(i.) *Passenger Fares.* On the Australian Government railways two classes are provided for passenger traffic. The fares charged may be classified as follows:—(a) Fares between specified stations (including suburban fares). (b) Fares computed according to mileage rates. (c) Return, periodical, and excursion fares. (d) Special fares for workmen, school pupils, and others. Fares in class (a) are issued at rates lower than the ordinary mileage rates. Fares in class (b) are charged between stations not included in class (a). Generally, it may be said that mileage-rate fares are computed on the basis of about twopence per mile for first-class and about 1½ pence per mile for second-class single tickets. In Tasmania, however, the fares are computed on the general basis of 1½ pence per mile first-class, one penny per mile second-class, with a terminal charge of one penny, and with one-sixth added to the total. In New South Wales, Victoria, and Queensland the mileage rates are based upon a tapering principle, *i.e.*, a lower charge per mile is made for a long journey than for a short journey. In Victoria and Western Australia, return fares are generally about 1½ to 1¾ times the single fare, and the second-class are about 30 to 45 per cent. lower than the first-class fares. In New South Wales, Queensland, South Australia, and Tasmania the issue of ordinary return tickets outside the suburban areas has now been discontinued. Special excursion return tickets are, however, issued at certain times of the year, subject to restrictions as to break of journey and trains available for such tickets.

The following table shows the passenger fares for different distances charged in each State, between stations for which specific fares are not fixed:—

ORDINARY PASSENGER MILEAGE RATES ON STATE RAILWAYS, 1916.

State.	For a journey of—					
	50 Miles.	100 Miles.	200 Miles.	300 Miles.	400 Miles.	500 Miles.
FIRST-CLASS SINGLE FARES.						
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
New South Wales ¹ ...	4 7	11 2	24 3	37 5	50 6	60 9
Victoria ...	8 0	15 10	31 6	46 0	61 2	75 8
Queensland ...	8 2	15 4	29 10	43 4	56 0	68 8
South Australia ...	7 6	15 0	30 0	45 0	60 0	75 0
Western Australia ...	8 4	16 8	33 4	50 0	66 8	83 4
Tasmania ...	7 5	14 8	29 3	...	...	...
Average ² ...	7 4	14 9	29 7	44 4	58 10	72 8
Average per passenger-mile ² d.	1.76	1.77	1.78	1.74	1.77	1.74
SECOND-CLASS SINGLE FARES.						
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
New South Wales ¹ ...	3 0	7 4	15 5	23 1	30 0	35 1
Victoria ...	5 4	10 6	21 0	31 2	40 10	50 4
Queensland ...	5 5	9 11	19 0	27 1	34 3	41 6
South Australia ...	5 0	10 0	20 0	30 0	40 0	50 0
Western Australia ...	5 3	10 5	20 10	31 3	41 8	52 1
Tasmania ...	5 0	9 10	19 7	...	...	...
Average ² ...	4 10	9 8	19 4	28 6	37 4	45 10
Average per passenger-mile ² d.	1.16	1.16	1.16	1.14	1.12	1.10

1. Inclusive of suburban rates up to 34 miles. 2. Exclusive of Tasmania for hauls of 300 miles and upwards.

(ii.) *Parcel Rates.* In all the States parcels may be transmitted by passenger train upon payment of the prescribed rates, which are based upon weight and distance carried. The rates vary slightly in the different States. In New South Wales they range from threepence for a parcel not exceeding 3 lbs. for any distance up to 75 miles, to eleven shillings and threepence for a parcel weighing from 84 lbs. to 112 lbs., for a distance of 500 miles. In Victoria the charge for a parcel weighing from 84 lbs. to 112 lbs. for a distance over 450 miles is twelve shillings. The rate in Queensland for a parcel weighing from 85 to 112 lbs. for 500 miles is thirteen shillings; in South Australia for 550 miles thirteen shillings and sixpence; in Western Australia fourteen shillings; and in Tasmania for a distance of 250 miles the rate is five shillings and sixpence.

(iii.) *Goods Rates.* The rates charged for the conveyance of goods and merchandise may generally be divided into three classes, viz. :—(a) Mileage rates, (b) District or "development" rates, and (c) Commodity rates. In each of the States there is a number—ranging from 8 in Victoria to 15 in Tasmania—of different classes of freight. Most of the mileage rates are based upon a tapering principle, i.e., a lower charge per ton-mile is made for a long haul than for a short haul; but for some classes of freight there is a fixed rate per mile irrespective of distance. District rates are charged between specified stations and are somewhat lower than the mileage rates. In addition to the ordinary classification of freights under class (a), certain commodities, such as wool, grain, agricultural produce, and crude ores, are given special rates, lower than the mileage rates, under class (c).

Space will not permit of exhibiting a complete analysis of goods rates in the several States. As an indication of the range and amount of such rates the subjoined tables are given. The first table shews for each State the truck-load rates charged for hauls of different distances in respect of agricultural produce not otherwise specified; these special rates are here given for this class of produce, since it is generally forwarded in truck-loads.

RATES FOR AGRICULTURAL PRODUCE IN TRUCK-LOADS ON STATE RAILWAYS, 1916.

State.	Charge per Ton in Truck-loads for a Haul of—					
	50 Miles.	100 Miles.	200 Miles.	300 Miles.	400 Miles.	500 Miles.
New South Wales ...	s. d. 5—6	s. d. 8 3	s. d. 10 5	s. d. 11 7	s. d. 12 6	s. d. 13 2
Victoria ...	5 6	8 9	11 6	13 4	15 0	16 8
Queensland ...	4 10	9 2	11 0	12 0	13 0	14 0
South Australia ¹ ...	6 9	9 8	14 3	18 10	23 5	28 0
Western Australia ...	6 3	8 11	12 1	17 0	22 0	24 0
Tasmania ...	6 9	9 8	13. 0	...	...	...
Average ² ...	5 11	9 1	12 1	14 7	17 2	19 2
Average per ton-mile ²	d. 1.42	1.09	0.73	0.58	0.52	0.46

1. Wheat is carried at a lower rate than that specified above for agricultural produce.
2. Exclusive of Tasmania for hauls of 300 miles and upwards.

The next tables shew for each State the ordinary mileage rates charged per ton for hauls of different distances in respect of (a) the highest-class freight, and (b) the lowest-class freight:—

ORDINARY GOODS MILEAGE RATES ON STATE RAILWAYS, 1916.

State.	Charge per Ton for a Haul of—					
	50 Miles.	100 Miles.	200 Miles.	300 Miles.	400 Miles.	500 Miles.
HIGHEST-CLASS FREIGHT.						
New South Wales ...	s. d. 27 10	s. d. 54 4	s. d. 94 8	s. d. 119 11	s. d. 130 0	s. d. 140 1
Victoria ...	22 6	44 3	83 6	114 3	140 6	166 9
Queensland ...	44 2	80 7	145 2	¹ 209 9	² 242 0	² 255 7
South Australia ...	27 1	52 1	97 11	134 7	166 8	194 2
Western Australia ...	41 1	71 1	125 10	171 9	209 4	240 8
Tasmania ...	33 9	54 0	100 0	...	...	...
Average ² ...	32 9	59 5	107 10	150 1	177 7	199 5
Average per ton-mile ²	d. 7.86	7.13	6.47	6.00	5.33	4.79
LOWEST-CLASS FREIGHT.						
New South Wales ...	s. d. 2 6	s. d. 4 7	s. d. 6 0	s. d. 7 9	s. d. 9 10	s. d. 11 11
Victoria ...	4 3	6 8	10 0	11 10	13 6	15 2
Queensland ...	4 10	9 2	15 9	20 1	24 6	28 10
South Australia ...	3 4	6 3	10 0	12 4	14 0	15 8
Western Australia ...	5 0	8 4	14 2	19 2	23 4	27 6
Tasmania ...	5 0	6 9	8 3	...	...	...
Average ² ...	4 2	7 0	10 8	14 3	17 0	19 10
Average per ton-mile ²	d. 1.00	0.84	0.64	0.57	0.51	0.48

1. Maximum freight on highest class goods to Western stations is 200 shillings per ton.
2. Exclusive of Tasmania for hauls of 300 miles and upwards.

The classification of commodities varies in the several States. Generally, the highest-class freight includes expensive, bulky, or fragile articles, while the lowest-class comprises many ordinary articles of merchandise, such as are particularly identified or connected with the primary industries of each State.

In New South Wales, for example, the highest-class freight comprises such articles as boots, drapery, drugs, groceries, furniture, liquors, crockery and glassware, cutlery, ironmongery, confectionery, and carpets. In the same State the lowest-class freight includes agricultural produce, ores, manures, coal, coke, shale, firewood, limestone, stone, slates, bricks, screenings, rabbit-proof netting, timber in logs, and posts and rails.

18. Numbers and Description of Rolling Stock, 1916.—The following table shews the rolling stock in use on the State Government railways in each State, classified according to gauge:—

ROLLING STOCK ON STATE GOVERNMENT RAILWAYS IN EACH STATE, CLASSIFIED ACCORDING TO GAUGE, 1915-16.

STATE.	GAUGE.					Total.
	5 ft. 3 in.	4 ft. 8½ in.	3 ft. 6 in.	2 ft. 6 in.	2 ft. 0 in.	
LOCOMOTIVES.						
New South Wales	...	1,211	...	...	...	1,211
Victoria	1,791	...	...	17	...	808
Queensland	...	...	641	...	4	645
South Australia	244	...	226	...	...	470
West Australia	...	...	424	...	...	424
Tasmania	...	...	73	...	7	80
Total	1,035	1,211	1,364	17	11	3,638
PASSENGER VEHICLES.						
New South Wales	...	1,626	...	...	...	1,626
Victoria	1,542	...	...	34	...	1,576
Queensland	...	...	738	...	7	745
South Australia	369	...	136	...	...	505
West Australia	...	...	378	...	...	378
Tasmania	...	...	167	...	6	173
Total	1,911	1,626	1,419	34	13	5,003
VEHICLES, OTHER THAN PASSENGER.						
New South Wales	...	22,179	...	...	...	22,179
Victoria	19,527	...	...	248	...	19,775
Queensland	...	...	13,598	...	83	13,681
South Australia	4,047	...	5,449	...	...	9,496
West Australia	...	...	10,081	...	...	10,081
Tasmania	...	...	1,710	...	77	1,787
Total	23,574	22,179	30,838	248	160	76,999

¹ Including three motor coaches, one steam and two gasoline. ² Including one gasoline motor coach. ³ Including five rail motors. ⁴ Including three motor coaches, two steam and one gasoline.

19. **Number of Railway Employees.**—The following table shews the number of employees in the Railway Departments of each State in the year 1901 and in each year from 1911 to 1916 inclusive, classified according to (a) salaried staff, and (b) wages staff.

From these figures it will be seen that there has been a steady increase in the number of persons engaged in the Railway Departments of the several States. During the period from 1901 to 1916, the total for the Commonwealth has increased from 42,270 to 93,576—an increase of 51,306, or over 121 per cent. The largest numerical increase for the individual States was that of New South Wales, viz., 25,663.

Separate returns for salaried and wages staff are not available for South Australia; the number of salaried staff is therefore included in the wages staff.

**STATE RAILWAYS.—NUMBER OF EMPLOYEES IN RAILWAY DEPARTMENTS,
1901 and 1911-16.**

State.	1900-1.		1911-12.		1912-13.		1913-14.		1914-15.		1915-16.	
	Salaried Staff.	Wages Staff.										
New South Wales ...	1,372	11,747	2,977	25,084	3,180	28,566	3,422	31,810	3,649	33,096	4,148	34,634
Victoria ...	1,432	10,524	2,243	19,910	2,471	21,115	2,598	22,169	2,661	24,314	2,428	20,500
Queensland ...	994	4,633	1,877	7,131	2,136	8,114	2,301	8,502	2,403	8,286	2,889	9,877
South Australia ² ...	...	3,855	...	8,569	...	8,754	...	8,995	...	10,182	...	10,460
Western Australia ...	876	5,407	935	6,627	1,016	6,734	1,079	6,913	1,054	7,093	1,011	6,204
Tasmania ...	178	1,252	200	1,147	204	1,131	224	1,180	218	1,277	222	1,203
All States ...	4,852	37,418	8,232	69,368	9,007	74,414	9,624	79,569	9,985	84,248	10,698	89,878

1. Exclusive of gate-keepers with free house only. 2. Separate returns for salaried and wages staffs are not available; the number of salaried staff is included with the wages staff.

20. **Accidents.—Number of Killed and Injured.**—The subjoined table gives particulars of the number of persons killed and injured through train accidents and the movement of rolling stock on the Government railways in each State for the year 1900-1, and for each of the years 1911-12 to 1915-16 inclusive:—

**STATE RAILWAYS.—TOTAL NUMBER OF PERSONS KILLED AND INJURED,
1901 and 1911-16.**

State.	1900-1.		1911-12.		1912-13.		1913-14.		1914-15.		1915-16.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
New South Wales ...	1	1	68	513	84	582	112	570	78	645	87	710
Victoria ...	45	371	67	362	36	723	45	473	48	409	54	360
Queensland ...	13	100	25	235	27	349	32	454	30	102	26	181
South Australia ...	8	50	16	185	18	224	19	202	20	172	14	193
Western Australia ...	25	205	20	121	15	139	25	154	14	131	18	131
Tasmania ...	1	8	...	37	...	43	1	42	...	39	10	89
All States ...	...	...	196	1,453	180	2,060	234	1,895	190	1,498	209	1,664

1. Not available. 2. Including all accidents which occurred on railway premises as well as those caused through train accidents and movement of rolling stock.

(D) Graphical Representation of Government Railway Development.

1. **General.**—Its railways are so important a factor in the development of Australia that it has been deemed desirable to graphically represent the main facts of their progress from 1860 onwards. To this end the graphs shewn on pages 646 to 648 have been prepared. The distribution of the railways is shewn on the map on page 645.

2. **Capital Cost and Mileage Open** (page 646).—The graph shows that the ratio between these elements was, naturally enough, very variable from 1860 to 1870, consequent upon progressive decrease in cost of construction. It then became subject to a more regular change, implying reduction of average cost.

3. **Cost per Mile Open.**—The fluctuations in cost per mile open from 1860 are clearly indicated by the graph on page 646. In 1855 the cost per mile open was no less than £28,430; by 1858 it had fallen to £17,752, when it rose again to a maximum of £35,958 in 1862. It then diminished rapidly till 1885—when it reached £10,074 per mile—rose to £10,244 in 1886, then fell slowly till 1888, when it amounted to £10,092 per mile. Again rising, this rate attained to £10,481 in 1892, since when it has, on the whole, been declining, reaching its lowest value, £9468, in 1911. In 1912, 1913, and 1914 it rose to £9545, £9666, and £9820 respectively, but fell in 1915 to £9632. In 1916 it rose to £9893.

4. **Gross Revenue.**—This graph (page 646) exhibits considerable irregularities, the most striking of which are the maxima at 1892, 1902, 1914 and 1916. The fall commencing in 1892 was in consequence partly of the commercial crisis and partly of the then droughty conditions of several of the States, while that of 1902-3 was due to drought. In the latter case the recovery was very rapid, and there has been a continuous rise up to the year 1914. In 1915, there was a fall amounting to £1,016,421. In 1916, the increase over 1915 was £1,260,646.

5. **Working Expenses and Net Revenue.**—The characteristics of these graphs (page 647), are similar to those of "Gross Revenue," and the same remarks apply. It may be noted, however, that the working expenses are increasing at a faster rate than gross and net revenue.

6. **Percentage of Working Expenses on Gross Revenue.**—This is shewn for each State and for the Commonwealth, from the year 1855, on page 648. The curve shews considerable fluctuations, but points also to the fact that, although a slight rise occurred in 1908, there was from 1903 to 1907 a rapid, and therefore very satisfactory, decline in the percentage of working expenses to gross revenue; since 1907, however, there has been a steady increase up to 1915. In 1916 the percentage slightly declined. The fluctuations of this percentage, for the individual States, call for no special comment.

7. **Percentage of Net Revenue on Capital Cost.**—For the Commonwealth and States, from the year 1855, this graph is shewn on page 647. After exhibiting somewhat remarkable oscillations in the earlier years, and less marked ones between 1885 and 1900, and also a rapid fall to 1903, the curve from that year shews a well marked increase until the year 1908, a slight fall occurring in that year and in 1909. Maxima were reached in 1865, 1877, 1881, 1907, and 1911—viz., 3.44, 3.71, 4.12, 4.37 and 4.46 per cent. Since 1911 there has been, with one exception in 1914, a continuous fall.

For the individual States the results are in general very satisfactory up to the year 1914, every State being able to record an increase over the previous year, with the exception of Tasmania, the figures for that State, however, having only once been exceeded, viz., in 1913. In 1914-15 the rates fell in each State with the exception of Queensland. This was mainly due to the effects of the drought experienced during this period. In 1916 the rates in Victoria, South Australia and Western Australia improved, while the rest of the States shewed falls in their percentages.

The remarkable maximum for Western Australia in 1896 is consequent upon the large use made of the railways at the time of the development of the Western Australian goldfields.

8. **General Indications of Graphs.**—Reviewing the cost of railways, as a whole, it may be noted that for the periods indicated the average cost per mile open is as follows:—

STATE RAILWAYS.—AVERAGE COST PER MILE OF LINE OPEN, COMMONWEALTH, 1855 to 1912.

Period	1855-1872.	1873-1882.	1883-1892.	1893-1902.	1903-1912.
Cost per mile	£ 24,561	£ 13,700	£ 10,286	£ 10,010	£ 9,614

While the sinister influence of the drought of 1902 is strikingly shewn in the curves (a) by the fall in the gross and net revenue in 1902-3, (b) by the fall in the percentage of net revenue on capital cost, and (c) by the increase of working expenses on gross revenue, the rapidity of recovery is even more striking, and goes to indicate the great elasticity of the economic condition of the Commonwealth. Although the percentage of net revenue on capital cost during the year 1915-16 has been exceeded in previous years, nevertheless it is satisfactory that the State Government Railways, necessarily constructed largely in accordance with a policy of widespread development of Australia's resources rather than as mere commercial enterprises, and costing so large a sum as £197,158,588 for construction and equipment up to the 30th June, 1916, should yield a return of no less than 3.06 per cent.

(E)—**Government Railways Generally.**

1. **Rolling Stock.**—In the following tables particulars of the numbers of the rolling stock employed on both the Federal and State Government Railways are set out, classified according to gauge, as at the 30th June in the years 1901, 1906, 1911, and 1916 respectively, together with the percentage of the numbers for each gauge on the total for the mainland. For geographical reasons the figures for Tasmania are shewn separately from those for the mainland.

ROLLING STOCK EMPLOYED ON THE FEDERAL AND STATE RAILWAYS AS AT 30th JUNE, 1901, 1906, 1911, and 1916.

LOCOMOTIVES.

Gauge.	1901.		1906.		1911.		1916.	
	No.	%	No.	%	No.	%	No.	%
Mainland—								
5 ft. 3 in.	692	35.36	663	30.48	705	26.82	1,035	28.69
4 " 8½ "	495	25.29	655	30.12	903	34.35	1,249	34.62
3 " 6 "	765	39.09	850	39.08	1,011	38.45	1,303	36.11
2 " 6 "	5	0.26	7	0.32	10	0.38	17	0.47
2 " 0 "	...	...	...	...	...	...	4	0.11
Total	1,957	100.00	2,175	100.00	2,629	100.00	3,608	100.00
Tasmania—								
3 ft. 6 in.	64	...	69	...	72	...	73	...
2 " 0 "	7	...	7	...	7	...	7	...
Grand total ...	2,028	...	2,251	...	2,708	...	3,688	...

ROLLING STOCK EMPLOYED ON THE FEDERAL AND STATE RAILWAYS
(Continued).

PASSENGER VEHICLES.

Gauge.	1901.		1906.		1911.		1916.	
	No.	%	No.	%	No.	%	No.	%
Mainland—								
5 ft. 3 in.	1,358	49.58	1,438	47.59	1,597	42.41	1,911	39.45
4 " 8½ "	610	22.27	713	23.59	1,136	30.16	1,636	33.77
3 " 6 "	761	27.78	859	28.42	1,012	26.87	1,256	25.93
2 " 6 "	10	0.37	12	0.40	21	0.56	34	0.70
2 " 0 "	...	...	...	...	...	...	7	0.15
Total ...	2,739	100.00	3,022	100.00	3,766	100.00	4,844	100.00
Tasmania—								
3 ft. 6 in.	163	...	176	...	170	...	167	...
2 " 0 "	8	...	6	...	6	...	6	...
Grand total ...	2,910	...	3,204	...	3,942	...	5,017	...

VEHICLES, OTHER THAN PASSENGER.

Gauge.	1901.		1906.		1911.		1916.	
	No.	%	No.	%	No.	%	No.	%
Mainland—								
5 ft. 3 in.	12,209	31.06	13,282	29.90	15,451	27.82	23,574	30.96
4 " 8½ "	11,540	29.35	13,010	29.29	17,112	30.81	22,865	30.03
3 " 6 "	15,481	39.38	18,026	40.59	22,793	41.03	29,380	38.58
2 " 6 "	82	0.21	99	0.22	190	0.34	248	0.32
2 " 0 "	...	...	...	...	...	...	83	0.11
Total ...	39,312	100.00	44,417	100.00	55,546	100.00	76,150	100.00
Tasmania—								
3 ft. 6 in.	1,389	...	1,525	...	1,618	...	1,710	...
2 " 0 "	50	...	61	...	71	...	77	...
Grand total ...	40,751	...	46,003	...	57,235	...	77,937	...

In the fifteen years under review the percentages of the numbers of locomotives for each gauge on the total number of locomotives on all Government railways on the mainland have undergone the following changes: on the 5 ft. 3 in. gauge the percentage has fallen by 6.67 per cent., the 4 ft. 8½ in. gauge increased by 9.33, and the 3 ft. 6 in. gauge fallen by 2.98 per cent.

As regards passenger vehicles the alterations are as follow: on the 5 ft. 3 in. gauge the percentage has fallen by 10.13 per cent., the 4 ft. 8½ in. gauge increased by 11.50 and the 3 ft. 6 in. gauge fallen by 1.85 per cent.

In the case of vehicles other than passenger the changes have been small, the 5 ft. 3 in. gauge percentage having fallen 0.10, the 4 ft. 8½ in. gauge risen by 0.68 and the 3 ft. 6 in. gauge fallen by 0.80 per cent.

2. **Railway Mileage Open for Traffic.**—The Government railway mileages open for traffic, classified according to gauge, as at the 30th June in each of the years 1901, 1906, 1911, and 1916, are set out in the following table, which gives as well the percentages of each mileage on the total on the mainland, the figures for Tasmania being shewn separately, as in the case of the last tables relating to rolling stock:—

RAILWAY (ROUTE) MILEAGES OF STATE AND FEDERAL RAILWAYS, CLASSIFIED ACCORDING TO GAUGE, AS AT 30th JUNE, IN EACH OF THE YEARS 1901, 1906, 1911, and 1916, WITH PERCENTAGES ON TOTAL FOR MAINLAND.

Gauge.	1901.		1906.		1911.		1916.	
	Miles.	%	Miles.	%	Miles.	%	Miles.	%
Mainland—								
5 ft. 3 in.	3,696	30.49	3,849	28.67	4,023	25.77	4,955.44	24.56
4 " 8½ "	2,806	23.15	3,350	24.96	3,721	23.84	4,925.92	24.41
3 " 6 "	5,571	45.96	6,172	45.98	7,742½	49.61	10,143.21	50.28
2 " 6 "	48	0.40	53	0.39	122	0.78	121.90	0.60
2 " 0 "	...	...	...	...	...	...	29.35	0.15
Total ...	12,121	100.00	13,424	100.00	15,608½	100.00	20,175.82	100.00
Tasmania—								
3 ft. 6 in.	439	...	440	...	446	...	537.75	...
2 " 0 "	19	...	23	...	24	...	24.50	...
Grand total	12,579	...	13,887	...	16,078½	...	20,738.07	...

From the above table it will be seen that in the fifteen years from 1901 to 1916 the 5-ft. 3-in. gauge percentage has fallen by 5.93 per cent., the 4-ft. 8-in. gauge increased by 1.26 per cent., and the 3-ft. 6-in. gauge increased by 4.32 per cent.

3. **Summary of Working of Federal and State Government Railways.**—In the following table a summary is given of the working of all Government railways, both Federal and State, for the year ended 30th June, 1916, fuller particulars of which have been given in the sections B and C of this chapter:—

SUMMARY OF THE WORKING OF THE FEDERAL AND STATE GOVERNMENT RAILWAYS FOR THE YEAR ENDED 30th JUNE, 1916.

Total mileage open	...	...	...	...	20,738
Average miles open during the year	...	...	...	...	20,429
Total train mileage	...	...	...	...	59,739,215
Total cost of construction of lines open	...	...	...	...	£205,166,862
Cost per mile	...	...	...	...	£9,893
Gross revenue	...	...	...	...	£22,229,174
Working expenses	...	...	...	...	£16,249,387
Percentage of working expenses on gross revenue	...	...	...	...	73.10
Net revenue	...	...	...	...	£5,979,787
Interest payable (exclusive of Kalgoorlie-Port Augusta and Canberra lines)	...	...	...	...	£7,511,199
Number of passenger journeys	...	...	...	...	1274,549,967
Tonnage of goods and live stock carried	...	...	...	...	127,947,660
Number of employees at 30th June, 1916—					
Salaried	...	...	...	...	10,791
Wages	...	...	...	...	83,880
Number of persons killed and injured during the year through train accidents and movement of rolling stock—					
Killed	...	...	...	...	211
Injured	...	...	...	...	1,637

1. Exclusive of Port Augusta-Oodnadatta line.

CLASSIFICATION OF PRIVATE RAILWAYS IN AUSTRALIA, 1916, (Continued).
NEW SOUTH WALES (Continued).

Railway Lines.	Length and Gauge.				Nature of Traffic Carried, etc.
	5ft.3in.	4ft.8½in.	3ft.6in.	2ft.0in.	
2. BRANCHES FROM NORTH-COAST LINE GOVT. RAILWAYS—					
New Redhead Coal Co.'s lines, Adams-town to Burwood Extended, and Dudley lines	...	7½	...	...	Coal and passengers
Seaham Coal Co.'s lines, Cockle Creek to West Wallsend and Seaham collieries	...	6	...	...	Coal " "
Nine other branches	...	9	...	...	Coal " "
Total	...	22½	...	...
3. BRANCHES FROM SOUTHERN LINE, N.S.W. GOVT. RLYS.—²					
Liverpool-Warwick Farm	...	3	...	...	Racecourse traffic
Goondah-Burrinjuck ²	26½	General & materials for construction of dam
4. BRANCHES FROM S. COAST LINE, N.S.W. GOVT. RLYS.—³					
Mount Kembla Coal Co.	...	7½	...	...	Coal
Corrimal and Balgownie	...	3½	...	...	"
Australian Smelting Co., Dapto	...	2½	...	...	Ores
Mount Keira Coal Co., Belmore Basin	...	3	...	...	Coal
Nine other branches	...	14	...	...	"
Mount Pleasant Coal Co.	3½	...	"
Total	...	30½	3½	...	
5. BRANCHES FROM WESTERN LINE, N.S.W. GOVT. RLYS.—					
Commonwealth Oil Corporation's line from Newnes Junction	...	33	...	...	General
Eleven other branches	...	6½	...	...	Coal, metal, and ores
Total	...	39½	...	...
6. SILVERTON TRAMWAY—					
Broken Hill and Cockburn	36	...	General
7. DENILQUIN-MOAMA LINE					
	45	...	...	...	"
Total for State	45	193	39½	26½	

1. Three other branch private lines having a total length of 24 miles have been constructed for the conveyance of minerals, but are now closed. 2. Owned and worked by the Public Works Department. 3. The Illawarra Harbour and Land Corporation's line, 6½ miles long, constructed for general traffic is not now working.

VICTORIA.

Railway Lines.	Length and Gauge.		Nature of Traffic Carried, etc.
	5ft. 3in.	3ft. 0in.	
1. KERANG TO KOONBROOK TRAMWAY	...	Miles. 14	General
2. ALTONA BAY RAILWAY— Williamstown racecourse and pit at Altona	...	Miles. 3	Timber and coal
3. McIVOR TIMBER AND FIREWOOD CO., TOOBORAC	...	Miles. 23	Firewood
4. YARRA JUNCTION TO POWELLTOWN	...	Miles. 12	General
Total for State...	...	40	12

CLASSIFICATION OF PRIVATE RAILWAYS IN AUSTRALIA, 1915-16 (Continued).

QUEENSLAND.

Railway Lines.	Length and Gauge.			Nature of Traffic Carried, etc.
	3 ft. 6 in.	2 ft. 6 in.	2 ft. 0 in.	
BRANCHES FROM GOVERNMENT RAILWAYS—				
1. SOUTH-COAST LINE—	Miles.	Miles.	Miles.	
Beaudesert Tramway to Rathdowney and Tabooba Junction to Lamington...	33	...	11	General Sugar
Nerang Central Mill ...	...	...	...	Mineral
Blue Metal Co. ...	2½	...	...	Timber
Lahey's Ltd. from Canungra ...	14½	...	...	General
Belmont Shire Council ...	4½	...	...	Sugar
Australian Meat Export Co. ...	½	...	...	Live stock & meat
2. MAIN LINE—				
Mount Crosby Water Supply (Tivoli) ...	5	...	...	Water Conserva- tion
Fourteen Colliery Branches ...	12½	...	...	Coal
Two Timber Branches ...	3½	...	...	Timber
Redbank Freezing Works ...	...	...	½	Meat
Marburg Sugar Mill ...	1	...	...	Sugar
Three Branch Lines ...	½	...	...	Various
3. SOUTHERN LINE AND BRANCHES—				
Tannymorell Colliery ...	3½	...	...	Coal
Queensland Cement and Lime Co. ...	4	...	...	Limestone
4. WESTERN LINE AND BRANCHES—				
Three Colliery Branches ...	1½	...	...	Coal [produce
Munro's Tramway to Perseverance ...	...	10	...	Timber and farm
Pechey's Siding ...	½	...	...	Timber
5. NORTH-COAST LINE—				
Buderim Tramway ...	...	7	...	General
Mapleton Tramway ...	...	...	15	"
Moreton Central Sugar Mill ...	...	...	12	"
Mount Bauple Sugar Mill ...	9½	...	8	Sugar
Goodwood Sugar Mill ...	...	...	2½	"
Millaquin Sugar Mill and Refinery ...	2½	...	9½	General
Woongarra Tramway ...	12½	...	...	"
Qunaba Sugar Mill ...	...	...	10½	Sugar
Doolbi Sugar Mill ...	...	...	14	"
Isis Central Sugar Mill ...	3	...	14½	"
Childers Sugar Mill ...	...	...	33½	"
Fairymead Sugar Mill ...	6½	...	2½	"
Avondale Sugar Mill ...	3½	...	...	"
Invicta Sugar Mill ...	8½	...	14½	General and sugar
Bingera Sugar Mill ...	6½	...	26½	Sugar
Gin Gin Sugar Mill ...	...	...	22½	"
Three Colliery Lines ...	3½	...	...	Coal
Twelve Branch Lines ...	4½	...	½	Various
6. CENTRAL LINE AND BRANCHES—				
Mount Morgan G.M. Co. ...	5	...	...	Minerals
Two Colliery Branches ...	2	...	...	Coal
Aramac Tramway from Barcaldine ...	41	...	...	General
Eight Branch Lines ...	5	...	...	Various
7. MACKAY LINE AND BRANCHES—				
Racecourse Central Mill ...	3½	...	5	Sugar
Palms Sugar Mill ...	½	...	10	"
Pleystowe Central Mill ...	1	...	35	"
Marian Central Mill ...	½	...	37½	"
Cattle Creek Central Mill ...	...	...	5	"
North Eton Central Mill ...	...	...	21	"
Homebush Sugar Mill ...	...	...	29	"
Farleigh Sugar Mill ...	...	...	40	"
Plane Creek Central Mill ...	...	...	44½	"
Mackay Harbour Board ...	2	...	...	General
8. BOWEN LINE—				
Proserpine from Bowen ...	38½	...	...	General
Proserpine Central Mill ...	...	...	50	Sugar and cane
9. GREAT NORTHERN RAILWAY—				
Kalamia Sugar Mill ...	...	...	17½	Sugar
Pioneer and Inkerman Sugar Mills ...	38½	...	18½	" [rals
Macgregor Tramway to Ballara ...	22½	...	...	General and mine-
Three Meat Preserving Co.'s Lines ...	4½	...	...	Meat & live stock
Fourteen Mineral Branches ...	19	...	4	Minerals
Two Branch Lines ...	1½	...	...	Various
10. CAIRNS LINE AND BRANCHES—				
Hambledon Sugar Mill ...	1½	...	37½	Sugar
Mulgrave Central Mill ...	1½	...	15½	" etc.
Babinda Sugar Mill ...	...	...	27	"
Chillagoe Railway ...	102½	...	...	General
Stannary Hills Tramway ...	...	...	21	"
Irvinebank Tramway ...	...	...	14	"
Etheridge Railway ...	142½	...	...	"
Three Branch Lines ...	5	...	...	Various

CLASSIFICATION OF PRIVATE RAILWAYS IN AUSTRALIA, 1915-16 (Continued).
QUEENSLAND (Continued).

Railway Lines.	Length and Gauge.			Nature of Traffic Carried, etc.
	3 ft. 6 in.	2 ft. 6 in.	2 ft. 0 in.	
11. GERALDTON-MOURILYAN LINE—	Miles.	Miles.	Miles.	
Goondi Sugar Mills ... ..	...	...	35½	Sugar
South Johnstone Sugar Mill ... ..	...	...	35½	"
Mourilyan Sugar Mill ... ..	...	...	21	"
Lines not connected with Govt. Railways—				
Victoria Sugar Mill (Ingham) ... ..	...	...	69½	General and sugar
Macnade Sugar Mill do ... ..	...	...	52½	" " "
Port Douglas to Mossman & Mowbray River ... ..	...	...	19	General " "
Mossman Central Mill ... ..	...	...	24	General and sugar
Total for State	582½	17	886½	

SOUTH AUSTRALIA.

Railway Line.	Length and Gauge.		Nature of Traffic Carried, etc.
	3 ft. 6 in.		
BROKEN HILL PROPRIETARY Co.'s LINE— Iron Knob to Hummock's Hill, Spencer's Gulf	Miles.		
	34		Carriage of ironstone.

WESTERN AUSTRALIA.¹

Railway Lines.	Length and Gauge.			Nature of Traffic Carried, etc.
	3ft.6in.	2ft.0in.	1ft.8in.	
1. MIDLAND RAILWAY—	Miles.	Miles.	Miles.	
Joining Govt. lines at Midland Junction & Walkaway	277	...	...	General
2. W.A. GOLDFIELDS FIREWOOD SUPPLY Co.'s LINE—				
From Kurrawang into bush	102	...	...	Firewood
3. KALGOORLIE AND BOULDER FIREWOOD Co.'s LINE—				
Goodwood railway, from Lake Side into bush	33	...	...	"
Lancefield railway into bush ... ..	...	34	...	"
4. W.A. TIMBER AND FIREWOOD Co. LTD. LINE—				
Kurramia railway, from Kalgoorlie-Kanowna railway to bush	66	...	...	"
5. SONS OF GWALIA GOLD MINING Co.'s LINE—				
Railway into bush ... ..	...	...	29	"
6. MURCHISON FIREWOOD Co.'s LINE—				
Nallan wood railway, from Nallan siding to bush	28½	...	...	"
7. W.A. JARRAH SAWMILLS LINE—				
From Kirupp to mills and into bush	34	...	...	Timber
8. TIMBER CORPORATION Co.'s LINE—				
From Greenbushes to mills and into bush	17½	...	...	"
9. S.-WEST TIMBER HEWERS' Co-OP. SOCIETY'S LINE—				
From Holyoake into bush	9½	...	...	"
10. MILLAR'S TIMBER TRADING Co.'s LINES—				
Upper Darling Range railway, from Pickering Brook to Canning mills and bush	12	...	...	"
Jarrahdale and Rockingham railway, from Mundijong to Rockingham and bush	54	...	...	"
Yarloop railway to mills and bush	54½	...	...	"
Mornington mills rly., from Wokalup to mills & bush	40½	...	...	"
Ferguson River railway, from Dardanup to mills and into bush	41	...	...	"
Kirupp saw mills into bush	26	...	...	"
Marrinup saw mills into bush	9	...	...	"
Jarrah woods saw mills into bush	15	...	...	"
11. BUNNING BROS. LTD. LINES—				
From Lion Mill, Argyle, Cardiff & Preston Valley to bush	38½	...	...	"
12. NORTH DANDALUP S.M. RAILWAY—				
To mill and bush	12	...	...	"
13. SWAN SAW MILL RAILWAY—				
From Lowden to mill and bush	11	...	...	"
14. BUCKINGHAM BROS. S.M. RAILWAY—				
From Muja to bush	4½	...	...	"
15. WILGARRUP KARRI AND JARRAH Co.'s LINE—				
Railway into bush	8	...	...	"
16. WEIM CREEK RAILWAY TO BALLA BALLA	...	14	...	Copper ore
Total for State... ..	893½	48	23	

1. To the 31st December, 1915, exclusive of those worked with horses.

CLASSIFICATION OF PRIVATE RAILWAYS IN AUSTRALIA, 1915-16 (Continued).

TASMANIA.

Railway Lines.	Length and Gauge.		Nature of Traffic Carried, etc.
	3ft. 6in.	3ft. 0in.	
	Miles.	Miles.	
1. EMU BAY RAILWAY Co.'s LINES—			
Burnie to Waratah	103½	...	General
Guildford to Zeehan			
Rayna to Dundas			
2. MOUNT LYELL MINING AND RAILWAY Co.'s LINES—			
Strahan to Queenstown	22	...	"
Gormanston to Kelly Basin	28	...	"
3. HUDON TIMBER Co.'s LINE	130	...	Timber
4. ZEEHAN TRAM Co.'s LINE—			
Emu Bay railway to British Queen ... ..	...	2½	Minerals and occasionally passengers
5. MAGNET SILVER MINING Co.'s LINES—			
Magnet Junction to Magnet ... ..	...	10	Minerals and passengers
Total for State... ..	183½	12½	

I. Approximate.

3. New South Wales.—In this State the mileage of private railways open to the public for general traffic at the end of 1915 was 179.75, and of lines used for special purposes, 124 miles. Most of these lines were constructed primarily for the purpose of conveying coal from the mines to the Government railway systems. Particulars for the year 1915 of the operations of lines open for general traffic are given, so far as available, in the table on page 675.

(i.) *Private Railways Open for General Traffic.* The most important of the lines open for general traffic are as follows:—(a) *The Deniliquin-Moama Line.* In 1874 permission was granted by the New South Wales Government to a private company to construct a line forty-five miles long from Deniliquin, in the Riverina district, to Moama, connecting with the Victorian Railway system at the Murray Bridge, near Echuca. The line was opened in 1876, the land required being granted by the Government. (b) *The Cockburn-Broken Hill Line.* This line is owned by the Silverton Tramway Company. It was opened in 1888, and connects Broken Hill with the South Australian railway system, having a total length of 36 miles. (c) *East Greta Lines.* These lines, belonging to the East Greta Coal Mining Company, run from East Greta Junction, on the Northern line of the Government railways, to Stanford Merthyr, a distance of 8 miles, and from Aberdare Junction to Cessnock, 12 miles—a total of 20 miles. (d) *The New Redhead Coal Company's Railway.* The lines owned by this company branch from the Northern line of the Government railways, and run from Adamstown to Burwood Extended Colliery, and from Adamstown to Dudley Colliery, a total distance of 7½ miles. The lines are worked by the Railway Department, coal wagons being supplied in part by the coal companies using the line. The colliery companies using the line pay a way-leave for right to run their coal over the line, and the Railway Commissioners allow the New Redhead Company a proportion of the revenue from the passenger and goods traffic. (e) *The Seaham Coal Company's Railway.* This line runs from Cockle Creek to West Wallsend and Seaham Collieries, and has a total length of 6 miles. (f) *Hexham-Minni Railway.* This line branches from the Northern line of the Government railways and has a length of 6 miles. (g) *The Commonwealth Oil*

Corporation's Railway. This line runs from Newnes Junction on the Great Western line of the Government railways to the company's refinery, a distance of 33 miles. The Shay geared type of locomotive is in use on this line. (h) *The Warwick Farm Line* is a short line, three-quarters of a mile in length, connecting the Government line near Liverpool with the Warwick Farm Racecourse. Government rolling-stock is used. (i) *The Goondah-Burrinjuck Line* is a line 26.25 miles in length built and worked by the Public Works department in connection with the dam in course of construction at Burrinjuck.

In addition to the lines referred to above, legislative sanction was obtained in 1890 for the construction of a private line from the flux quarries at Tarrawingee to the Broken Hill line, a distance of 40 miles. The line was purchased by the Government in 1901, and is operated by the Silverton Tramway Company under lease from the Chief Commissioner, who pays the working expenses and receives the ordinary earnings and one-half the net receipts on special and holiday traffic.

4. Victoria.—In Victoria there are two private railways open for general traffic. (a) Kerang-Koondrook tramway, opened in 1889. The cost of construction of this line to the end of September, 1916, was £39,449, paid out of a loan advanced by the Victorian Government. The total length is 14 miles. The line is at present controlled by the Kerang Shire Council, but proposals have recently been made for its transfer to the Railway Department. (b) Yarra Junction to Powelltown. This line has a length of 12 miles, and is worked mainly for timber purposes.

A line running from Elsternwick to Oakleigh, a distance of about 5 miles, has been constructed by a private company, but is not in use.

5. Queensland.—In this State private railways open for general traffic may be grouped under two heads:—(i.) Lines constructed primarily for mining purposes or for the transport of sugar-cane, and (ii.) Shire tramways.

(i.) *Mining Railways.* (a) *The Chillagoe Railway.* The most important of these is the Chillagoe railway, constructed under the Mareeba to Chillagoe Railway Act 1897, and opened in 1901. This line runs from Mareeba, on the Cairns railway, to Mungana, a distance of 102.75 miles. (b) *The Stannary Hills Line.* This line branches from the Chillagoe railway at Boonmoo and runs to Rocky Bluff, *via* Stannary Hills, a total distance of 21 miles. The gradients on this line, which has a gauge of 2 feet, range as high as 1 in 27, while the radius of some of the curves is as low as $1\frac{1}{4}$ chains. An additional length of 8 miles has been surveyed with a view to extending the line.

(ii.) *Shire Tramways.* Under Part XV. of the Local Authorities Act of 1902 provision is made whereby not less than one-third of the ratepayers in any district may petition the local authority to apply to the Governor for the constitution of a tramway area. The Governor may define the area and may also approve of the plans and specifications of the proposed tramway. The amount which may be advanced by the Government for the construction or purchase of a tramway may not exceed a sum equal to £3000 for every mile of its length. As regards repayment of loans, no sum need be paid during the first three years, but after the expiration of that period the principal and interest must be repaid by half-yearly instalments on the basis provided for by the "Local Works Loans Act, 1880 to 1899." For the purpose of raising the money to pay these instalments the local authority may levy a rate upon all ratable property within the tramway area. The money required for the tramway may be raised by the local authorities by the issue of debentures.

6. **South Australia.**—In this State there are no private railways open for general traffic. The only private line is that owned by the Broken Hill Proprietary Company, running from Iron Knob to the seaboard near the head of Spencer's Gulf, a distance of 34 miles. The line is utilised for the carriage of ore for use in connection with the smelting works at Port Pirie and the steel works at Newcastle.

7. **Western Australia.**—Owing to the Government's past difficulty in constructing lines urgently required for the development of the country, private enterprise was encouraged to undertake the work of construction on the land-grant principle, and two trunk lines were thus constructed. The greater part of the private lines now open, however, have been constructed in connection with the timber industry. (i.) *The Midland Railway.* This line is 277 miles in length, and runs from the Midland Junction, ten miles from Perth, to Walkaway, where it joins the Government line running to Geraldton. It was constructed under a concession of 12,000 acres of land per mile of line constructed, to be selected along the entire route of the railway. (ii.) *The Great Southern Railway.* This line, which was built by private enterprise under the land-grant system, is 242 miles in length, and was acquired by the Government by purchase on the 1st January, 1897. The total price paid, with all the interests of the private company and of the original concessionaire, was £1,100,000, which was divided by the Government for book-keeping purposes into £300,000 for the land and £800,000 for the railway. (iii.) *Millar's Timber Trading Company's Lines.* These lines have mostly been built under special timber concessions and leases. There were, at latest date available, in all nine lines situate in various parts of the State extending into the bush, whence logs are brought to the mills. The total length of these lines was approximately 252 miles. (iv.) *Other Lines.* There are also a number of other lines in various parts of the State used chiefly in connection with the timber industry. These are specified in the tabular statement on page 671.

8. **Tasmania.**—In this State there are three private lines open for general traffic. They are all situated in the western part of the island.

(i.) *The Emu Bay Railway Company.* The lines owned by this company run from Burnie to Waratah, from Guildford to Zeehan, and from Rayna to Dundas, and have a total length of 103½ miles.

(ii.) *The Mount Lyell Mining and Railway Company.* The Mount Lyell railway runs from Regatta Point, Strahan, to Queenstown, and the North Mount Lyell line from Kelly Basin to Linda. The former line, 22 miles in length, was constructed in 1895-6, while the latter line, 28 miles long, was taken over from the North Mount Lyell Copper Company on the amalgamation of the two companies in 1903. The line from Kelly Basin to Linda is now run only intermittently.

(iii.) *The Magnet Silver Mining Company's Railway.* This line runs from Magnet Junction, near Waratah, on the Emu Bay Company's line, to Magnet, a distance of 10 miles.

9. **Operations of Private Railways, 1915-16.**—The tabular statement given below shews particulars, so far as returns are available, for the year 1915-16, of all private railways open to the public for general traffic in the Commonwealth:—

PARTICULARS OF PRIVATE RAILWAYS OPEN FOR GENERAL TRAFFIC, 1915-16.

Line.	Miles Open.	Capital Cost.	Gross Revenue.	Expenses.		Train Miles.	Passenger Journeys.	Tons of Goods, etc.	No. of Employees.	Rolling Stock.		
				Working.	Interest, etc.					Locos.	Coaches.	Other Vehicles.
	No.	£	£	£	£	No.	No. '000.	Tons '000.	No.	No.	No.	No.
NEW SOUTH WALES.												
Deniliquin-Moama	45	162,672	20,744	11,845	2 ...	39,814	12	47	49	4	6	63
Silverton Tramway	36	473,163	132,145	63,949	2 ...	108,972	43	721	220	20	1	676
East Greta Railway	20	194,035	61,225	51,089	9,702	402,591	872	53	220	19	28	40
Seaham Colliery Co.	6	25,000	875	700	2 ...	7,643	17	9	10	7	2	2
New Redhead Co.	7½	102,000	54,584	52,121	51,882	2 ...	2 ...	2 ...	512	3 ...	3 ...	3 ...
Hexham-Minmi ...	6	2 ...	654	603	2 ...	10,560	9	1	6	1	4	1
Cwllth. Oil Corp ^r n	33	194,500	3,207	3,364	2 ...	13,665	1	5	7	7	2	95
Goondah-Burrinj ^r k ⁿ	26½	80,756	3,691	78,452	...	37,706	5	9	32	4	3	28
Total ¹	179½	1,232,126	227,125	142,123	11,584	620,951	959	845	556	62	46	905
VICTORIA.												
Kerang-Koondrook	14	39,449	2,977	2,204	1,682	18,978	10	10	11	2	2	9
Yarra J. Powelltown	12	45,350	2,760	2,411	465	25,000	9	35	11	2	2	28
Total ¹	26	84,799	5,737	4,615	2,147	43,978	19	45	22	4	4	37
QUEENSLAND.												
Chillagoe Railway	103	420,276	29,355	14,070	2 ...	52,555	15	28	59	8	2	89
Stannary Hills ...	21	65,320	2,561	2,515	2 ...	8,346	1	7	5	1	2	76
Invicta Mill ...	8½	19,446	952	684	1,003	1,615	1	9	3 ...	3 ...	3 ...	3 ...
Beaudesert ...	33	91,295	8,992	6,182	3,599	33,416	14	15	30	1	4	2
Douglas-Mossman ...	17	43,600	3,428	7,506	2 ...	12,000	9	8	16	2	3	24
Lucinda Pt. to Stone R. and Lg. Pocket	53½	2 ...	2 ...	2 ...	2 ...	25,000	2 ...	2 ...	2 ...	3	3	20
Green Hills to Hambleton Junc.	4½	2 ...	2 ...	2 ...	2 ...	2 ...	2 ...	2 ...	2 ...	2 ...	2 ...	2 ...
Bowen-Proserpine	38½	104,649	5,639	3,173	1,853	10,236	9	11	9	3 ...	3 ...	3 ...
Woongarra ...	14½	35,848	3,092	3,327	2 ...	5,078	36	27	4	3 ...	3 ...	3 ...
Mt. Molloy Tr. m'w'y	20	42,000	2,043	2,025	...	8,872	1	4	8	1	3 ...	7
Belmont Tramway	4	21,458	2,760	1,636	1,339	9,756	27	22	3 ...	3 ...	3 ...	3 ...
Aramac-Barcaldine	42	85,424	11,761	6,860	4,155	27,566	7	18	16	2	2	1
Etheridge ²	143	457,175	10,853	10,620	11,250	17,722	3	3	3 ...	3 ...	3 ...	3 ...
Total ¹	502½	1,386,491	81,436	58,648	23,199	212,162	123	152	149	18	16	219
WESTERN AUSTRALIA.												
Midland Railway ...	277	2,036,855	88,021	60,224	...	309,681	55	78	227	17	20	400
TASMANIA.												
Emu Bay Railway ...	103½	611,098	39,263	17,481	20,339	88,555	30	27	93	10	10	151
Mt. Lyell Railway ...	22	216,086	27,988	19,967	2 ...	47,268	21	90	78	7	7	129
Nth. Mt. Lyell Rly.	28	316,638	4,424	7,073	2 ...	10,760	5	16	18	4	3	54
Magnet Railway ...	10	18,750	283	2,143	2 ...	7,280	1	...	9	3	1	8
Total ¹	163½	1,162,572	71,958	46,664	20,333	153,883	57	133	198	24	21	342
Total for Cwllth. ⁴	1,148½	3,902,843	474,277	312,274	57,263	1,340,655	1,213	1,253	1,152	125	107	1,903

1. Incomplete. 2. Not available. 3. Worked by Government railways. 4. Including one motor car. 5. For year 1914. 6. Exclusive of coal. 7. Including interest. 8. For year ended 30th June, 1916. 9. These figures do not agree with those on pp. 625-626 ante; the latter being based on a later return which includes certain additional lines.

§ 3. Tramways.

1. **General.**—Tramway systems are in operation in all the States of the Commonwealth, and in recent years considerable progress has been made in the adoption of electrical traction, the benefit of which is now enjoyed by a number of the principal towns of the Commonwealth.

There are also in many parts of Australia private lines which are used for special purposes, usually in connection with the timber, mining, or milling industries. These lines are usually termed tramways, but they are really private railways, the traffic on which has nothing in common with that of a street tramway used for the conveyance of passengers. Though efforts have been made to collect particulars of these lines, the returns are generally too incomplete for publication.

(i.) *Total Mileage Open and Classification of Lines.* The following table shews the total mileage of tramway lines open for general passenger traffic in each State and in the Commonwealth for the year 1915-16, classified (a) according to the motive power utilised and (b) according to the nature of the authority by which the lines are controlled:—

TRAMWAYS.—CLASSIFICATION OF MILEAGE OPEN FOR PASSENGER TRAFFIC, 1915-16.

Nature of Motive Power and Controlling Authority.	N.S. Wales.	Victoria.	Q'land.	South Australia.	Western Australia.	Tas.	C'wealth.
ACCORDING TO MOTIVE POWER.							
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
Electric	151.05	85.01	40.45	54.42	52.98	21.95	405.86
Steam	73.27	1.00	6.00	...	...	22.25	102.52
Cable ... ..	...	45.93	...	...	...	...	45.93
Horse ... ..	...	...	...	123.31	28.96	8.00	60.27
Total	224.32	131.94	46.45	77.73	81.94	52.20	614.58

ACCORDING TO CONTROLLING AUTHORITY.

Government	220.82	5.16	...	119.86	56.30	27.75	329.89
Municipal ... ..	...	45.10	6.00	57.87	10.89	21.95	141.81
Private	3.50	81.68	40.45	...	14.75	2.50	142.88
Total	224.32	131.94	46.45	77.73	81.94	52.20	614.58

1. 17.35 miles included in South Australian Government railway mileage.

2. **New South Wales.**—In this State the tramways, with but few comparatively unimportant exceptions, are the property of the Government, and are under the control of the Railway Commissioners.

(i.) *Government Tramways.* In Sydney and suburbs the Government tramways are divided into distinct systems. There were in June, 1916, seven such systems in operation within the metropolitan area, the most important being the city and suburban lines, 111.21 miles in length (202.79 miles single track); the North Shore line, 19.39 miles in length

(33.41 miles single track); the Ashfield to Mortlake line, 8.47 miles in length (14.14 miles single track); Manly to the Spit, Brookvale, and Narrabeen, 10.73 miles (14.59 miles single track); and Rockdale to Brighton-le-Sands, 1.25 miles. The last-mentioned line was purchased from a private company and opened for traffic on 7th June, 1914. All of these systems are now operated by electricity. There are two systems on which the motive power used is steam, namely—(a) from Kogarah to Sans Souci, 5.56 miles in length (6.98 miles single track), and (b) from Arncliffe to Bexley, 2.63 miles long (single track).

There are also Government steam tramways in operation at Newcastle, Broken Hill, Parramatta, from East to West Maitland, and from Sutherland to Cronulla. The gauge of line on all the Government tramways is 4 feet 8½ inches.

(a) *Sydney Tramways.* In the early sixties a horse tramway, 1½ miles long, was constructed in Sydney. Owing to the rails being laid higher than the road surface, the inconvenience thus caused to other traffic necessitated its removal, and it was not until September, 1879, that the first steam tramway was opened, running from Bridge-street to Hay-street *via* Elizabeth-street. In the following few years the steam tramways were considerably extended. The electric system was not introduced into the city until the close of the year 1899, though it had at that time been in operation for some years in North Sydney. The tramways in the heart of the city, running along King-street to the suburb of Woollahra, as well as those in North Sydney, were originally worked by underground cables, and have since been converted into electric lines on the overhead trolley system. As already stated the whole of the steam tramways in Sydney and suburbs, with the exception of the Kogarah-Sans Souci and the Arncliffe-Bexley lines, have now been converted into electric lines, and provision for the extra power required for the electrification of the former of these lines has been made at the central power station.

(b) *Other Tramway Systems.* In Newcastle the first section of the tramways, from Perkins-street to Plattsburg, was opened in December, 1887; the total length open on the 30th June, 1916, was 32.86 miles (42.66 miles single track). At Broken Hill and Parramatta the first sections of the tramways were opened in 1902. On the 30th June, 1916, the mileage open at Broken Hill amounted to 10.05 miles (11.44 miles single track), and at Parramatta to 6.69 miles (single track). The line from East to West Maitland, 4.59 miles long (single track), was opened in February, 1909. Further particulars are given below.

(c) *Particulars of all Government Tramways.* The following table shews the total length, the capital cost, the gross revenue, working expenses, net earnings, and the percentages of working expenses on gross revenue, and of net earnings on capital cost, for the financial years 1901-2 and 1911-16:—

NEW SOUTH WALES.—PARTICULARS OF WORKING OF GOVERNMENT TRAMWAYS, 1901-2 and 1911-16.

Year ended the 30th June.	Total Length of Lines Open (Route).	Capital Expended on Lines Open.	Gross Revenue.	Working Expenses.	Net Earnings.	Percentage of Working Expenses on Gross Revenue.	Percentage of Net Earnings on Capital Cost.
	Miles.	£	£	£	£	per cent.	per cent.
1901-2	103.94	2,829,363	631,757	541,984	89,773	85.79	3.19
1911-12	195.63	5,664,324 ¹	1,531,393	1,331,413	249,980	84.19	4.41
1912-13	207.88	6,699,305 ¹	1,754,566	1,572,190	182,376	89.61	2.94
1913-14	212.16	7,628,653 ¹	1,934,164	1,669,033	265,131	86.29	3.66
1914-15	219.81	7,970,293 ¹	1,986,060	1,611,287	374,773	81.13	4.70
1915-16	220.83	8,156,423 ¹	1,991,628	1,602,650	388,978	80.47	4.76

1. £47,455 of this sum has been paid from the Consolidated Revenue, and no interest is payable thereon.

The net result, after providing for all working expenses and £302,686 for interest on the capital invested, was a surplus of £86,292 in 1915-16, as compared with a surplus of £90,135 in the preceding year. During the year 1915-16, 292,021,774 passengers were carried, an increase of 2,738,929 as compared with the previous year.

(d) *Particulars of Different Systems of Government Tramways.* In the subjoined statement particulars are given of the working of the electric and steam tramways in Sydney, and of other tramways under Government control.

**NEW SOUTH WALES.—PARTICULARS OF THE WORKING OF THE VARIOUS
GOVERNMENT TRAMWAYS, 1915-16.**

Line.	Length.		Total Cost.	Gross Revenue.	Working Expenses	In- terest.	Profit or Loss. ¹	Percentage of Working Expenses on Gross Revenue.
	Route.	Track.						
	Miles.	Miles.						
Sydney and Suburban—								
Electric... ..	151.05	266.18	7,526,701	1,838,707	1,452,470	279,250	+ 106,987	78.99
Steam	8.19	9.61	49,566	11,812	15,919	1,796	— 5,803	133.92
Total	159.24	275.79	7,576,267	1,850,519	1,468,289	281,046	+ 101,184	79.34
Parramatta Steam	6.69	6.69	38,446	7,779	8,185	1,448	— 1,854	105.22
Sutherland to Cronulla ..	7.40	7.40	49,696	11,178	8,755	1,874	+ 549	78.32
Newcastle ..	32.86	42.66	374,789	103,443	94,479	13,531	— 4,567	91.33
East to West Maitland ..	4.59	4.59	38,941	5,004	5,540	1,468	— 2,004	110.71
Broken Hill ..	10.05	11.44	88,284	13,705	17,402	3,319	— 7,016	126.98
Total	290.83	348.57	8,166,423	1,991,628	1,602,650	302,686	+ 86,292	80.47

1. The positive sign indicates a profit, the negative a loss.

The total capital cost shewn in the preceding table was made up as follows:—

**CAPITAL COST OF NEW SOUTH WALES GOVERNMENT TRAMWAYS AS AT 30th
JUNE, 1916.**

Permanent Way.	Rolling Stock	Power-house, Sub-stations, and Plant.	Machi- nery.	Work- shops.	Furni- ture.	Store Advances Account.	Total.
£	£	£	£	£	£	£	£
4,031,598	1,807,643	1,788,523	127,083	213,184	2,392	196,000	8,166,423

The average cost per mile open was £18,257 for permanent way and £18,725 for all other charges, making a total of £36,982 per mile.

During the year 1915-16, four new extensions, amounting in all to a length of 1.15 miles, were opened for traffic. On the 30th June, 1916, five extensions, having a total length of 5.39 miles, were under construction.

(e) *Sydney Electric Tramways.* The current for the operation of the city and suburban tramways is generated at the power-house at Ultimo, which has been erected at a total cost of £1,788,523, including the cost of the sub-stations and plant. The total output of the power-house, for both lighting and traction purposes, during the year 1915-16, was

94,352,417 kilowatt-hours, of which the direct-current supply was 690,389, and the alternating current 93,662,028 kilowatt-hours. The following table gives particulars of the working of the electric tramways for the financial years 1911-12 to 1915-16:—

NEW SOUTH WALES.—PARTICULARS OF SYDNEY ELECTRIC TRAMWAYS, 1911-12 to 1915-16.

Year ended 30th June.	Mileage Open for Traffic.		Total Cost of Construction and Equipment.	Current used for Traction Purposes.	Tram Miles Run.	Passengers Carried.
	Route.	Track.				
	Miles.	Miles.	£	Kilowatt-hours	No.	No.
1912 ...	131.70	222.95	5,153,321	70,920,407	23,016,315	250,785,895
1913 ...	141.45	242.69	6,162,063	79,839,867	25,479,802	275,977,634
1914 ...	145.74	252.34	7,054,832	86,187,367	26,973,702	290,547,553
1915 ...	150.04	261.09	7,349,866	81,591,224	25,406,807	269,633,638
1916 ...	151.05	266.18	7,526,701	81,688,434	25,008,055	272,048,293

Year ended 30th June.	Gross Revenue.	Working Expenses.	Net Revenue.	Number of Cars in Use.	Number of Persons Employed.
	£	£	£		
1912 ...	1,460,625	1,209,321	251,304	1,048	8,138
1913 ...	1,616,686	1,433,972	182,714	1,220	9,048
1914 ...	1,781,063	1,520,185	260,878	1,396	9,195
1915 ...	1,834,022	1,469,227	364,795	1,430	8,743
1916 ...	1,838,708	1,452,470	386,238	1,402	9,308

(ii.) *Private Tramways.* A private steam tramway passes through the township of Parramatta. Commencing at the park gates, it runs as far as the Duck River, a distance of $3\frac{1}{2}$ miles, where it connects with the Parramatta River steamers, conveying passengers and goods to and from Sydney. This line, the gauge of which is 4 ft. 8 $\frac{1}{2}$ in., was opened for traffic in 1883. In 1915 the number of tram miles run was 18,200, and the number of passengers conveyed 137,720.

Particulars regarding private tramways used for special purposes are not available.

(iii.) *Sydney Harbour Ferries.* As the ferry services on the waters of Port Jackson are mainly subsidiary to the suburban railway and tramway systems, it has been thought advisable to include them here rather than under Shipping. Returns for the year 1915 were received from four companies, and shew that these companies had 70 boats in commission, which were licensed to carry a total of 45,996 passengers, or an average of 657 per boat and per trip. The total number of passengers carried during the year is stated as 36,207,862, an average of 99,200 per day. In addition to the ordinary passenger traffic there are two lines providing for vehicular traffic, which afford the only rapid means of transit for such traffic between the city and the northern suburbs. The four companies employed during the year a total of 978 persons. The gross revenue during 1915 amounted to £373,873, and the expenditure to £295,939, thus giving a net revenue of £77,934. The services are well managed, and the boats constructed during recent years—double-ended screwboats—are claimed to be superior in size and equipment to boats employed on similar service in any part of the world.

3. **Victoria.**—In Melbourne there is a number of tramway systems carried on under the control of various authorities, the most important being the cable system worked by the Melbourne Tramway and Omnibus Company up to the 1st July, 1916, and since that date by the Melbourne Tramway Board, to which reference will be made further on. There are also five lines of electric tramways, viz.:—(a) St. Kilda to Brighton belonging to the Government and under the control of the Railway Commissioners; (b) Flemington Bridge to the Saltwater River and Keilor Road, owned by a private company; (c) lines connecting Prahran, Windsor, St. Kilda and Elsternwick with Glen Huntly, Caulfield, Malvern, Glenferrie and Kew, controlled by the Prahran and Malvern Tramways Trust; (d) lines from Elgin Street, Melbourne, to Bell Street, Coburg, and Moreland Road to Baker's Road, Fawkner, owned by the Melbourne, Brunswick and Coburg Tramways Trust, and (e) Princes Bridge to Boundary Road, Burwood, and Wallen Road, Hawthorn, to Bridge Road, Richmond, owned by the Hawthorn Tramways Trust. There is also a cable tramway, two and a-quarter miles in length, between Clifton Hill and Preston, owned by the Northcote municipality. There is a short steam tramway, about one mile long, at Sorrento, and there are also systems of electric tramways at Ballarat, Bendigo, and Geelong, constructed and run by private companies. A number of tramways has been constructed for special purposes in various parts of the State under the provisions of the Tramway Act 1890. These tramways correspond to the description of private railways referred to in paragraph 1 hereof. An electric tramway between Sandringham and Black Rock, 2.38 miles in length, is under construction by the Railway Department. A tramway to the Zoological Gardens, with horse traction, is operated by the Melbourne Tramway Trust.

(i.) *Melbourne Cable Tramways.* A short account of the formation of the Melbourne Tramway and Omnibus Company, and of the Tramway Trust, will be found in previous issues of this book. (See Year Books No. 7, page 652, and No. 9, page 679.) The company was required by the original Act, as amended in 1892, to complete the tramways by the end of the year 1893, and in return a thirty-two years' lease of the tramways was granted to it, dating from the 1st July, 1884—when the liability for interest on the loans commenced—and expiring on the 1st July, 1916. The total amount the Trust was empowered to borrow was £1,650,000, which was raised in London by means of debentures bearing interest at $4\frac{1}{2}$ per cent. The premiums received amounted to £55,794, making a total of £1,705,794. This amount had been expended by the end of the year 1893, when further loan expenditure ceased. The first line—that to Richmond—was opened to traffic in November, 1885, and the work being rapidly pushed on, the other lines were opened at short intervals, and the whole system was completed in 1891. The complete system consists of forty-three and a half miles of double-track cable lines, using constantly over ninety miles of wire rope. The gauge of track is 4 feet $8\frac{1}{2}$ inches.

(a) *Particulars of Working.* The subjoined statement shows the tram mileage, the number of passengers carried, and the revenue and expenditure for the years 1901-2 and 1912 to 1916:—

**MELBOURNE CABLE TRAMWAYS.—PARTICULARS OF WORKING,
1901-2 and 1912 to 1916.**

Year ended the 30th June.	Tram Mileage.	Number of Passengers Carried.	Revenue.	Working Expenses.	Percentage of Working Expenses to Revenue.
	No.	No.	£	£	%
1902	9,226,883	47,261,572	474,835	269,554	56.7
1912	11,313,212	84,926,712	760,792	343,919	45.2
1913	11,839,473	89,359,248	795,091	386,603	48.6
1914	12,056,510	91,438,777	823,567	400,202	48.5
1915	11,887,462	87,707,934	736,154	404,056	54.9
1916	11,977,916	96,702,943	805,636	411,426	51.1

On the 30th December, 1915, the Victorian Government appointed a Tramway Board of five members to take over the tramways as from 1st July, 1916, and in due course the Board entered into possession of the tramway properties. The amount of compensation to be paid to the company has been the subject of arbitration, but has not yet been settled owing to an appeal as to the amount awarded, which is still under consideration.

(ii.) *Electric Tramways.* As already mentioned, there are in Melbourne five electric tramway systems, namely (a) the St. Kilda-Brighton line, (b) the North Melbourne tramways, (c) the Prahran-Malvern Tramway Trust system, (d) the Melbourne, Brunswick and Coburg Tramway Trust system, and (e) the Hawthorn Tramway Trust system.

(a) *The St. Kilda-Brighton Line.* Under the St. Kilda and Brighton Electric Street Railway Act 1904, the Board of Land and Works was authorised to construct a tramway from St. Kilda to Brighton. The amount of interest payable on the cost of the land acquired for the tramway was guaranteed by the municipalities of St. Kilda and Brighton for a period of twenty years, and authority was given by the Act to the municipalities to levy either a general or special rate not exceeding one shilling in the pound for the purpose of paying the guarantee. The profit, if any, during the first twenty years is to be set off in reduction of the guarantee. The line was opened for traffic in May, 1906, and the extension to Brighton Beach was opened in the following year. The capital cost to the 30th June, 1916, exclusive of rolling-stock, was £96,141, and of rolling-stock £36,159, making a total of £132,300. The gauge of track is 5 ft. 3 in. The subjoined statement gives particulars of the working of this line for the financial years ended the 30th June, 1911 to 1916:—

ST. KILDA-BRIGHTON ELECTRIC STREET TRAMWAY, 1911-1916.

Year ended 30th June.	Mileage Open (Route).	Capital Cost.	Car Mileage.	Passengers Carried.	Gross Revenue.	Working Expenses.	Interest.	Net Profit or Loss.
1911	5.13	£ 59,007	346,849	1,410,907	12,852	9,819	2,107	+ 926
1912	5.13	60,590	367,306	1,674,918	15,012	13,283	2,078	— 349
1913	5.13	88,133	413,939	1,916,618	16,829	15,808	3,093	—2,072
1914	5.16	95,494	541,449	2,390,949	20,516	20,850	3,333	—3,667
1915	5.16	101,726	577,468	2,718,972	22,614	19,905	3,428	— 719
1916	5.16	132,300	597,819	3,126,984	25,580	22,844	4,697	—1,961

1. Profit is indicated by +, loss by —.

The average fare paid per passenger was 1.95 pence in 1915-16 as against 1.99 pence in 1914-15. The gross revenue in 1915-16 was 10.27 pence per passenger car mile and £2640 per mile of single track open.

(b) *The North Melbourne Tramways,* extending through the northern suburbs to the Saltwater River and to Keilor Road, were constructed by a private company, and were opened for traffic towards the end of the year 1906. The route and track mileage for year ended 30th September, 1916, were 7.51 and 11.43 miles respectively, the gauge of line being 4 feet 8½ inches. The number of passengers carried during the same period was 3,782,430. The current used during the year for traction purposes was 865,637 kilowatt hours, while the number of persons employed was 123.

(c) *The Prahran-Malvern Tramway.* The lines have been constructed under the control of a trust, which now consists of seven members appointed from the councils of Prahran, Malvern, St. Kilda, Caulfield, Hawthorn, Kew, and Camberwell. At the 30th September, 1916, the total route mileage open was 32.06 miles, the total track mileage being 59.43 miles, and the total capital cost £734,020. The gauge of the track is 4 ft. 8½ in. The current is supplied by the Melbourne Electric Supply Company Limited at a price varying according to the consumption of current and the price of fuel. Any surplus revenue, after providing for operating expenses, interest, sinking fund and renewal reserve, is to be paid to the municipal councils interested in proportion to the car mileage run in their respective districts. The lines were opened for traffic on 31st May, 1910. During the year ended 30th September, 1916, the current used for traction purposes was 5,597,580 kilowatt hours, and the number of tram miles run was 2,590,692, the number of passengers carried 23,095,442, the gross revenue £151,121, and the working expenses £105,926. The number of cars in use was 79, and the number of persons employed 458.

(d) *The Melbourne, Brunswick and Coburg Tramways Trust.* The first section of these tramways, that from between Moreland Road and Bell Street, was opened for traffic on 27th April, 1916. At the 30th September, 1916, the route and track mileages open for traffic were 4.14 and 7.39 miles respectively. For the five months the trams were in operation the current used for traction purposes was 113,820 kilowatt hours, the tram miles run 70,219, the number of passengers carried 718,958, the gross revenue £3516, and the working expenses £3091. Twelve cars were in use, and the number of persons employed was 47.

(e) *The Hawthorn Tramway Trust.* The first section of these tramways, that from Princes Bridge to Power Street, Hawthorn, was opened for traffic on 6th April, 1916, and on 30th September, 1916, the route and track mileages in operation were 8.89 and 15.72 miles respectively. In the six months the trams were in operation the current used for traction purposes was 662,590 kilowatt hours, the tram miles run 335,343, number of passengers carried 3,125,946, the gross revenue £22,095, and the working expenses £12,354. The number of cars in use was 24 and the number of persons employed 127.

(f) *The Ballarat and Bendigo Electric Tramways* are under the control of a private company, and run along the main streets and to and from the outlying suburbs of the two cities. The total length of lines open for traffic is 21.25 route miles and 25.86 track miles respectively, the gauge being 4 ft. 8½ in. During 1914-15, 4,841,667 passengers were carried, the gross revenue being £44,121, and the working expenses £33,814. The number of cars in use was 55, and the number of persons employed was 137.

(g) *The Geelong Electric Tramways.* This line, which is privately owned, was opened for traffic in January, 1912, and up to the 31st August, 1916, the cost of construction and equipment, exclusive of generating plant, was £59,643. The system has a length of 6 miles of single track, the gauge being 4 ft. 8½ in. The car mileage for the year ending on that date was 235,198 miles, and the number of passengers carried 1,196,778. For the same period the revenue was £13,492, and the expenditure £9874.

(h) *Particulars of Working of all Electric Tramways.* The following table gives particulars of the working of all electric tramways in Victoria for each year from 1911 to 1916 inclusive:—

VICTORIA.—PARTICULARS OF WORKING OF ELECTRIC TRAMWAYS, 1911-16.

Year.	Mileage Open for Traffic (Route).	Total Cost of Construction and Equipment.	Current Generated at Central Stations for Traction Purposes.	Tram Miles Run.	Number of Passengers Carried.	Gross Revenue.	Working Expenses.	Number of Cars in Use.	Number of Employees.
	Miles.	£	Kilowatt-hrs.	No.	No.	£	£	No.	No.
1911	39.30	1 407,576	3,009,375	2,353,896	12,360,516	1 86,983	1 60,362	117	413
1912	43.70	1 498,439	3,495,527	2,772,524	16,062,696	1 109,568	1 77,732	134	501
1913	54.12	1 778,940	4,551,022	3,182,916	20,181,350	1 139,809	1 102,629	169	593
1914	62.95	1 847,018	6,591,628	4,110,787	28,071,661	1 190,842	1 142,825	181	735
1915	70.57	1 1,061,288	7,445,978	4,358,030	30,150,912	1 200,107	1 149,469	193	811
1916	85.01	1 1,525,372	9,568,051	5,367,643	39,888,205	1 259,925	1 187,903	235	1,018

1. Exclusive of North Melbourne Tramway.

(iii.) *Private Tramways for Special Purposes.* There is in Victoria a number of tramways, or more strictly light private railways, used for special purposes, chiefly in connection with the timber, mining, and milling industries. These lines have been constructed either under authority of the Department of Public Works, pursuant to Section 36 of the Tramway Act 1890, or under leases or licenses issued by the Department of Lands and Survey, pursuant to Sections 144 and 145 of the Land Act 1901. Particulars of these lines are too incomplete for publication.

4. *Queensland.*—In this State there is a system of electric tramways running through the streets of the city and suburbs of Brisbane and controlled by a private company which has its head office in London. The total length of the Brisbane system was 40.45 route miles at the end of the year 1916, and there is a steam tramway in operation at Rockhampton having a length of 6 route miles. Particulars of Shire tramways have been given in the part of this section dealing with private railways (see p. 668).

(i.) *Brisbane Electric Tramways.* These tramways are run on the overhead trolley system, the voltage of the line current being 550. The total cost of construction and equipment to the end of the year 1915 was £1,476,866, the gauge of line being 4 ft. 8½ in. The following table gives particulars of these tramways for the calendar years 1901 and 1911-16.

QUEENSLAND.—BRISBANE ELECTRIC TRAMWAYS, PARTICULARS OF WORKING, 1901 and 1911-16.

Year.	Mileage Open for Traffic (Route).	Cost of Construction and Equipment.	Current Generated.	Tram Miles Run.	Number of Passengers Carried.	Gross Revenue.	Working Expenses.	No. of Cars in Use.	Number of Persons Employed.
	Miles.	£	Kilowatt-hrs.	No.	No.	£	£	No.	No.
1901	25.00	1 ...	3,192,955	2,756,443	16,183,801	111,483	64,710	79	375
1911	34.32	1,211,037	1 ...	3,671,963	36,443,222	253,971	129,285	124	736
1912	34.32	1,235,710	5,798,622	3,508,410	36,375,652	254,838	162,305	129	762
1913	34.55	1,238,518	7,013,962	3,979,443	44,690,950	316,244	191,936	149	803
1914	38.20	1,437,550	10,002,034	4,111,908	48,162,065	348,406	194,960	154	825
1915	40.20	1,476,866	11,563,696	4,339,863	49,695,313	372,383	233,761	161	803
1916	40.45	1 ...	12,213,674	4,286,802	51,029,668	364,745	216,607	172	921

1. Not available.

(ii.) *Rockhampton Municipal Tramways.* These tramways were opened for traffic in 1909, the motive power being steam. The length of track is 6 route miles, and the gauge 3 ft. 6 in. The capital cost to 31st December, 1916, was £45,678. During the year 1,369,453 passengers were carried, the revenue being £10,956, and working expenses £10,772.

(iii.) *Sugar-Mill Tramways.* There is a number of tramways in various parts of Queensland used in connection with the sugar-milling industry, chiefly for the purpose of hauling cane to the mills. Some of these lines are of a permanent nature, running through sugar-cane plantations, while others are portable lines running to various farms.

5. *South Australia.*—Up to the year 1906 there was a number of horse tramways in the principal streets of Adelaide and suburbs run by various private companies. Power to acquire part of these lines, with a view to their electrification, was given to the Adelaide Corporation by the Municipal Tramways Trust Act 1906. In accordance with the provisions of the Act, a Trust consisting of eight members, of whom two were nominated by the Governor, two elected by the City Corporation, and two each by the Suburban Corporations and the District Councils, was formed in 1907, and a length of forty-nine route miles of horse traction tramways was purchased from the private companies at a cost of £283,357. On the 9th March, 1909, the electric car system was inaugurated on the Kensington route. At the end of July, 1916, a length of 54.42 route miles had been electrified and opened for traffic, the corresponding length of track opened being 88.88 miles. The cost of construction and equipment on the 31st July, 1916, was £1,486,546. The following table gives particulars of the tramways for the years ended 31st July, 1911-16:—

SOUTH AUSTRALIA.—ADELAIDE ELECTRIC TRAMWAYS.—PARTICULARS OF WORKING, 1911-16.

Year.	Mileage Open for Traffic (Route)	Capital Cost.	Current Used for Traction.	Car Miles Run.	Number of Passengers Carried.	Gross Revenue.	Working Expenses.	No. of Cars in Use.		No. of Persons Employ'd	
								No.	No.	No.	No.
	Miles.	£	Kil'w'tt-hrs.	No.	No.	£	£	No.	No.		
1911	39.26	1,131,786	5,986,791	3,620,222	31,345,576	225,498	160,922	130	130	975	
1912	48.48	1,299,234	7,687,317	4,657,994	37,846,808	279,193	181,020	158	158	1,057	
1913	49.69	1,350,710	9,169,269	5,140,706	41,576,483	310,241	207,319	170	170	1,113	
1914	51.86	1,396,638	9,838,252	5,325,660	43,797,227	328,810	202,503	170	170	1,073	
1915	54.42	1,451,989	9,428,315	4,914,357	42,287,503	309,915	191,070	170	170	1,045	
1916	54.42	1,486,546	9,286,910	4,719,043	43,141,885	322,759	193,965	170	170	1,120	

There are also in South Australia nineteen and three-quarter miles of Government horse tramways in country districts, worked in connection with the railway system, and seven and one-half miles of private tramways used for passenger service. The subjoined statement gives various particulars of these lines:—

SOUTH AUSTRALIA.—PARTICULARS OF HORSE TRAMWAYS, 1915-16.

Particulars.	Length.	Gauge.	Nature of Traffic.
GOVERNMENT TRAMWAYS.			
Moonta, Moonta Bay, and Hamley Flat	15.15	5 3	Passengers and goods.
Gawler	1.20	5 3	" "
Victor Harbour and Breakwater	1.00	5 3	" "
Dry Creek and Magazine	1.00	2 0	Explosives.
Magazine and Broad Creek	1.50	2 0	" "
Port Broughton and Mundoorra	10.01	3 6	Passengers and goods.
PRIVATE TRAMWAYS.			
Port Adelaide and Alberton ¹	3.50	5 3	Passengers.
Glenelg and Brighton ²	4.00	4 8½	" "

1. Included in mileage of Government Railways. 2. Now owned by Municipal Tramway Trust. 3. Not in operation at present.

6. **Western Australia.**—In this State there are a number of horse tramways, amounting in all to a length of 24 miles, which are the property of the Government. Of these the most important is the line between Roeburne and Cossack, constructed on a 2 ft. gauge and under the control of the Colonial Secretary's Department. The length of this line is 13 miles. The remaining 11 miles belonging to the Government are made up of four short lengths, varying from two and a quarter miles to three miles long, worked in connection with the jetties at certain ports for the purpose of providing the necessary communication between such jetties and the goods sheds or warehouses. Most of these lines are leased at annual rentals, and are under the supervision of the Harbour Master. Their maintenance and improvement is in the hands of the Public Works Department. In addition to these Government lines there are electric tramway systems at Perth, Kalgoorlie and Boulder City, carried on by private companies, and at Fremantle and Leonora, under municipal control.

(i.) *Government Tramways.* Particulars as to the working of the Government horse-tramways or as to the rents received therefrom are not generally available. The returns of the Roeburne-Cossack line for the year ended 30th June, 1916, show that the capital cost of the line to that date was £60,101, the gross revenue for the year being £2376, and the working expenses £1847.

(ii.) *Electric Tramways.* There are now five towns in Western Australia which enjoy the benefits of electric tramway systems, namely, Perth, Fremantle, Kalgoorlie, Boulder City, and Leonora.

(a) *The Perth Electric Tramways* were opened for traffic by a private company in 1899, and the system has since been extended to many of the outlying suburbs. This tramway system was taken over by the Government on 1st July, 1913, and is now running in conjunction with the Government railways. On the 30th June, 1916, the route and track miles open for traffic were 27.34 and 36.55 miles respectively, the total cost of construction and equipment to that date being £562,541. During the year, 11,243,138 passengers were carried, the gross revenue being £118,934 and the working expenses £84,780. Sixty-three motors were in use, and the number of employees was 372. The gauge of line is 3 ft. 6 in.

(b) *The Fremantle Tramways* were opened in November, 1905, under the control of the municipality. On the 31st August, 1916, there were 8.64 route or 11.55 track miles of line open for traffic, the cost of construction and equipment at that date being £111,790. This line has a gauge of 3 ft. 6 in. During the year 4,866,730 passengers were carried, the gross revenue being £38,079 and the working expenses £29,052. Twenty-five cars were in use, and the number of employees was 125.

(c) *The Kalgoorlie and Boulder City Tramways* are run by a private company, the first line being opened in 1902. At the beginning of 1904 legislative authority was given for the construction of lines in Boulder City and suburbs, and in November, 1904, the last section of the Boulder system was completed. At the end of the year 1915 the total mileage of the whole system—in Kalgoorlie and Boulder City—amounted to 14½ route or 20½ track miles, the total cost of construction and equipment being £451,988. During the year, 2,192,135 passengers were carried, the gross revenue being £33,420 and the working expenses £24,546. Twenty-five motors and seven trailers were in use, and the number of employees was 69. The gauge of this line is 3 ft. 6 in.

(d) *The Leonora-Gwalia Tramway*, two and a quarter route miles in length, formerly a steam tramway, was opened for traffic by electrification on 5th October, 1908. This tramway is under municipal control, and has a gauge of 3 ft. 6 in. The cost of construction is approximately £5800, and during the year ended 31st October, 1916, 53,166 passengers were carried. Revenue for the year amounted to £692 and expenditure to £1255. Owing to a fire at the power house, traffic was interrupted during part of the year. Three cars were in use, and the number of employees was six.

(e) *Particulars of Working of all Electric Tramways.* The subjoined table shews, so far as returns are available, particulars of the working of all electric tramway systems in the State for the years 1901 and 1911-16.

**WESTERN AUSTRALIA.—PARTICULARS OF ELECTRIC TRAMWAYS,
1901 and 1911-16.**

Year.	Mileage Open for Traffic (Route).	Total Cost of Construction and Equipment.	Current Generated.	Tram Miles Run.	Number of Passengers Carried.	Gross Revenue.	Working Expenses.	No. of Cars in Use.	No. of Persons Employed.
	Miles.	£	Kilowatt-hrs.	No.	No.	£	£	No.	No.
1901	16½	367,037	...	721,056	...	46,270	26,673	30	
1911	47.89	1,031,374	4,028,102	2,337,860	13,889,777	154,470	92,779	101	377
1912	48.02	1,045,945	4,503,003	2,508,857	16,578,461	169,647	98,843	107	409
1913	48.02	1,042,584	4,728,809	2,602,321	16,480,895	174,803	103,387	109	425
1914	48.83	1,068,058	5,424,038	2,716,707	17,331,979	184,072	126,586	121	453
1915	50.75	1,092,289	5,045,163	2,793,519	17,568,161	182,935	130,868	121	471
1916	52.98	1,132,119	5,203,548	2,874,308	18,355,169	191,125	139,633	123	572

1. For the year 1901 the figures represent miles of single track. 2. Not available. 3. Exclusive of Leonora Tramway with the exception of the mileage open for traffic. 4. Exclusive of Perth Tramways. 5. Exclusive of Leonora Tramway.

(iii.) *Perth Ferries.* As the Perth ferry services are mainly subsidiary to the suburban railway and tramway systems, they are referred to in this section rather than under *Shipping*. Of the twelve boats in service, four are under the control of the Western Australian Government, the other eight belonging to a private company. The number of passengers carried during the year 1915-6 was 1,051,290, the revenue and expenditure for the same period were £9738 and £9293 respectively, and the number of persons employed 39.

7. *Tasmania.*—(i.) *Tramways.* In Hobart there is a system of electric tramways, opened for traffic in 1893, amounting in all to a length of 13 route and 15½ track miles. This was originally owned by a private company, but is now the property of the Hobart Municipal Council. Under the authority of the Launceston Tramway Act of 1906 the Launceston City Council entered into an agreement with a private company for the construction of a system of electric tramways in the city and suburbs of Launceston. The agreement provided that the company was to run the tramways for a period of twenty-five years, when the Council could purchase the lines and stock at cost price; the electric power required was to be supplied by the Council. This agreement, however, lapsed, and the Council has constructed the tramways, and is running them as a municipal undertaking. The system, which was opened on the 16th August, 1911, has a route and track mileage of 8.95 and 11.34 miles respectively. The gauge of track in both these systems is 3 ft. 6 in.

The following table gives particulars of the working of the two systems for the years 1901 and 1911-16 :—

**TASMANIA.—PARTICULARS OF WORKING OF ELECTRIC TRAMWAYS,
1901 and 1911-16.**

Year.	Mileage Open for Traffic (Route).	Total Cost of Construction and Equipment.	Current Generated.	Tram Miles Run.	Number of Passengers Carried.	Gross Revenue.	Working Expenses.	Number of Cars in Use.	Number of Persons Employed.
	Miles.	£	Kilowatt-hours	No.	No.	£	£	No.	No.
1901 ¹	9.00	90,000	...	321,633	1,734,120	16,097	11,735	20	90
1911 ³	14.77	144,283	845,403	434,295	3,363,500	32,780	19,310	42	152
1912	14.77	147,538	1,427,818	759,103	5,807,892	51,164	31,167	42	188
1913	16.71	280,871	1,555,053	836,508	6,344,566	55,875	37,058	47	235
1914	18.91	325,239	1,345,918	908,862	7,147,543	60,885	38,946	49	259
1915	21.43	347,214	2,171,968	999,315	7,462,782	68,170	46,568	60	314
1916	21.95	355,412	2,246,218	1,028,017	7,670,434	70,474	48,412	60	269

1. Hobart Tramways only. 2. Not available. 3. Exclusive of Launceston Tramways with the exception of mileage, cost of construction number of cars, and of persons employed.

There is also a tramway from Smithton to Marawah, 27½ miles in length, operated by the Government. Of this distance eight miles are worked as a horse tram, the rest being for steam traction. In the year 1915, 366 passengers and 20,309 tons of goods were conveyed, the number of employees being 11.

A private tram at Zeehan, 2½ miles in length, is also in operation. In 1915, 1138 passengers and 7929 tons of goods were conveyed, the number of persons employed being four.

(ii.) *Ferries.* The Hobart ferry service, being of a suburban character, is referred to here rather than under *Shipping*. There is one company controlling a fleet of six boats, and also a ferry operated by the Public Works Department with two boats. In the year 1915-16 the number of passengers carried was 601,483, the revenue £11,152, the working expenses £10,680, and the number of persons employed 39.

8. **Electrical Traction in Commonwealth, 1915-16.**—The subjoined table gives particulars of electric tramways for each State and the Commonwealth. The returns for the Hobart tramways in Tasmania, for the Ballarat and Bendigo tramways in Victoria, for the Kalgoorlie tramways in Western Australia, and for the Brisbane tramways, are for the calendar year 1915; and for other tramways the returns are, generally, for the financial year 1915-16:—

ELECTRIC TRAMWAYS IN COMMONWEALTH, 1915-16.

State.	Mileage open for Traffic (Route)	Capital Cost.	Current Generated.	Tram Miles Run.	No. of Passengers Carried.	Gross Revenue.	Working Expenses.	No. of Cars, Motors, and Trail'rs	No. of Employees
	Miles.	£	Kilowatt-hours.	No.	No.	£	£	No.	No.
N.S.W.	151.05	7,526,701	81,688,434	25,008,055	372,048,293	1,838,708	1,452,470	1,402	9,308
Victoria	85.01	1,525,372	9,568,051	5,367,643	39,888,205	1,259,925	1,187,903	235	1,018
Queensland	40.45	1,476,866	12,313,674	4,286,802	51,029,668	364,745	216,607	172	921
South Australia ...	54.42	1,486,546	9,286,910	4,719,043	43,141,885	322,759	193,665	170	1,120
West. Australia ...	52.98	1,132,119	5,203,548	2,874,308	18,355,169	191,125	139,633	123	572
Tasmania	21.95	355,412	2,246,218	1,028,017	7,670,434	70,474	48,412	60	269
Commonwealth	405.86	13,503,016	120,206,835	43,283,868	432,133,654	3,047,736	2,238,990	2,162	13,208

1. Exclusive of North Melbourne Tramway. 2. Incomplete. 3. Exclusive of Leonora Tramway.

In the following table particulars are shewn as to the operations of electric tramways in the Commonwealth for the period 1907-1916:—

ELECTRIC TRAMWAYS IN COMMONWEALTH, 1907-1916.

Year.	Mileage open for Traffic (Route).	Total Cost of Construct'n & Equip'm't.	Current Generated.	Tram Miles Run.	Number of Passengers Carried.	Gross Revenue.	Working Expenses.	No. of Cars, Motors, & Trailers	No. of Employees
	Miles.	£	Kilowatt-hours.	No.	No.	£	£	No.	No.
1906-7	203.43	5,497,003	40,636,237 ³	23,683,970	191,598,262	1,315,659	894,710	1,041	5,443
1907-8	208.74	5,844,308	48,606,307	24,539,014	210,332,185	1,328,183	977,439	1,060	6,102
1908-9	225.55	6,353,668	54,397,617 ⁴	25,913,152	227,412,566	1,428,448	1,037,615	1,310	6,920
1909-10	272.06	7,731,802	62,178,314 ⁴	30,467,336	268,221,754	1,717,710	1,296,193	1,401	8,372
1910-11	297.47	7,969,245	75,094,750 ⁴	33,625,344	312,857,166	1,917,286	1,411,866	1,506	9,329
1911-12 ²	322.24	9,443,587	93,897,694	37,256,203	363,959,404	2,327,537	1,763,021	1,628	11,063
1912-13	345.79	10,917,086	106,967,982	41,258,696	355,796,475 ⁵	2,616,381	2,078,770	1,854	11,723
1913-14	365.49	12,129,336	118,894,845 ⁴	44,147,626	435,058,028	2,894,078	2,226,005	2,071	12,548
1914-15	387.40	12,779,512	117,246,344 ⁴	42,811,891	416,798,309	2,967,532	2,220,982	2,135	12,077
1915-16	405.86	13,503,016	120,206,835 ⁴	43,283,868	432,133,654	3,047,736	2,238,990	2,162	13,208

1. Exclusive of North Melbourne Tramway. 2. Exclusive of Leonora Tramway (W.A.), with exception of mileage. 3. Exclusive of Brisbane Tramways. 4. Exclusive of Leonora Tramway. 5. Exclusive of Perth Tramways (W.A.).

SECTION XVIII.

POSTS, TELEGRAPHS, AND TELEPHONES.

§ 1. Posts.

1. **The Commonwealth Postal Department.**—Under the provisions of section 51 of the Commonwealth Constitution Act the Commonwealth Parliament was empowered to make laws with respect to the control of the postal, telegraphic, and telephonic services in Australia, and by proclamation, made under section 69 of the same Act, the six separate State Post and Telegraph Departments were amalgamated and taken over by the Federal Executive on the 1st March, 1901. On the 1st December following, the Commonwealth Post and Telegraph Act 1901 came into operation, and the provisions of the various State Acts referring to the postal and telegraphic services thereby ceased to apply; it was, however, specially provided by the Act of 1901 that, until such provisions should be revoked by the Governor-General, all regulations in force, and all rates and charges levied under any State Act, should continue in force and be applied in the same manner as if such State Act were not affected by the Commonwealth Act. The administration of the Act of 1901 was placed in the hands of a Postmaster-General, a responsible Minister with Cabinet rank, and of a Secretary having chief control of the Department throughout the Commonwealth under the Postmaster-General, whilst a principal officer in each State was provided for under the style of Deputy Postmaster-General. The rates and charges levied in each State for the transmission of letters, telegrams, and postal articles at the date of Federation remained in force until the Post and Telegraph Rates Act came into operation on the 1st November, 1902. This Act secured uniformity throughout the Commonwealth in the rates charged for the conveyance of newspapers by post, and for the transmission of telegrams, but did not alter the charges made in the individual States for the transmission of letters, cards, parcels, and packets. Uniform postage rates now exist in all the States under the Postal Rates Act of 1910, which came into operation by proclamation on the 1st May, 1911. (See paragraph 6 hereof.)

In previous issues of the Year Book will be found a brief description of the postal services in the earlier period of Australian history. (See Year Book No. 5, page 754.)

2. **Development of Postal Services.**—In 1841 the number of post offices open in Australia was 102, situated mainly in New South Wales and Tasmania. At the end of ten years 101 post offices were open in New South Wales, 44 in Victoria, 72 in South Australia, and 51 in Tasmania. From the year 1851 onwards a remarkable increase in the number of post offices in Australia took place, until, in 1891, the number open on the mainland and Tasmania totalled 4463, of which 1384 were situated in New South Wales, 1729 in Victoria, 307 in Queensland, 629 in South Australia, 86 in Western Australia, and 328 in Tasmania.

On the 30th June, 1916, the postal business had increased to such an extent that 6082 post offices were open for business, of which number 2074 were situated in New South Wales, 1787 in Victoria, 642 in Queensland, 739 in South Australia, 431 in Western Australia, and 409 in Tasmania.

3. State, Interstate, and Oversea Postages for whole Commonwealth.—In the following table the matter dealt with is divided into (i.) matter posted in the Commonwealth for delivery within the Commonwealth, (ii.) matter received from places outside the Commonwealth, (iii.) matter despatched to places outside the Commonwealth, and (iv.) total postal matter dealt with by the Commonwealth Postal Department from 1910 to 1915-16, but excluding interstate excess.

STATE, INTERSTATE, AND OVERSEA POSTAGES FOR WHOLE COMMONWEALTH,
1910 to 1915-16.

Year.	Letters and Postcards.	Newspapers.	* Packets.	Parcels.
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POSTED FOR DELIVERY WITHIN THE COMMONWEALTH (,000 OMITTED).

1910	363,893	118,674	76,991	2,956
1911	416,353	122,020	70,975	3,205
1912	431,996	122,373	60,439	3,583
1913	449,928	115,662	62,731	3,976
1914	467,114	122,534	59,989	4,163
1915-16	461,167	128,928	51,498	4,366

OVERSEA RECEIVED (,000 OMITTED).

1910	15,729	10,042	3,852	119
1911	19,445	11,691	4,568	142
1912	24,266	13,565	5,275	196
1913	37,986	13,043	4,424	213
1914	30,952	11,068	2,316	191
1915-16	32,292	8,603	2,115	220

OVERSEA DESPATCHED (,000 OMITTED).

1910	13,039	6,003	3,076	79
1911	17,265	7,926	3,120	83
1912	24,146	9,364	3,357	89
1913	30,569	10,658	4,131	108
1914	26,724	7,517	2,227	86
1915-16	33,668	10,011	2,955	466

TOTAL POSTAL MATTER DEALT WITH BY THE COMMONWEALTH POSTAL DEPARTMENT, BUT EXCLUDING INTERSTATE EXCESS (,000 OMITTED).

1910	392,351	132,415	83,599	3,155
1911	453,975	139,603	79,017	3,419
1912	479,677	138,170	70,609	3,764
1913	520,518	136,195	69,771	4,286
1914	524,483	136,670	62,634	4,436
1915-16	526,777	143,472	55,563	5,104

4. **State, Interstate, and Oversea Postages for each State.**—The following table shews separately for each State the postage matter dealt with in 1915-16 under the same classification adopted in the preceding paragraph :—

STATE, INTERSTATE, AND OVERSEA POSTAGES FOR EACH STATE, 1915-16.

State.	Letters and Postcards.	Newspapers.	Packets.	Parcels.
POSTED FOR DELIVERY WITHIN COMMONWEALTH (,000 OMITTED).				
New South Wales ...	175,550	60,893	30,115	2,154
Victoria ...	149,346	29,234	8,631	838
Queensland ...	52,807	20,263	6,279	830
South Australia ...	36,119	7,209	3,228	250
Western Australia ...	27,643	4,503	2,192	221
Tasmania ...	19,702	6,826	1,053	73
Commonwealth...	461,167	128,928	51,498	4,366

OVERSEA RECEIVED (,000 OMITTED).

New South Wales ...	12,719	2,931	633	76
Victoria ...	10,428	2,371	552	60
Queensland ...	3,184	1,402	425	37
South Australia ...	2,626	581	113	17
Western Australia ...	2,635	923	216	23
Tasmania ...	700	395	176	7
Commonwealth...	32,292	8,603	2,115	220

OVERSEA DESPATCHED (,000 OMITTED).

New South Wales ...	11,307	3,336	1,554	155
Victoria ...	13,855	3,955	922	146
Queensland ...	2,772	1,095	146	38
South Australia ...	2,312	753	82	64
Western Australia ...	2,332	619	190	43
Tasmania ...	1,090	253	61	20
Commonwealth...	33,668	10,011	2,955	466

5. **Postal Facilities.**—The subjoined statement shews the number of post and receiving offices, the area in square miles and the number of inhabitants to each post office (including receiving offices) in each State and in the Commonwealth at the end of the year 1915-16. It will be observed that the most sparsely populated States have the greatest number of offices in comparison with their population, but in order to judge the relative extension of postal facilities the area of country to each office must also be taken into account. The returns given for South Australia in this and all succeeding tables include those for the Northern Territory. Similarly, the returns for the Federal Territory are included in those for New South Wales.

**SQUARE MILES OF TERRITORY AND NUMBER OF INHABITANTS TO EACH POST
AND RECEIVING OFFICE ON 30th JUNE, 1916.**

State.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'with.
Number of post and receiving offices...	2,640	2,659	1,331	844	613	478	8,565.
Number of square miles of territory to each post office in State ...	118	33	504	1,071	1,592	55	347
Number of inhabitants to each office...	704	529	516	519	513	413	572
Number of inhabitants per 100 sq. miles	599	1,600	103	49	32	753	165

* Including Federal Territory.

† Including Northern Territory.

6. **Rates of Postage.**—Prior to the operation of the Postal Rates Act of 1910, the charges made for the postage of newspapers and parcels, and of interstate and foreign letters, were the same in all the States of the Commonwealth. The rates for the transmission of inland letters, however, were not uniform, the Post and Telegraph Act 1901 having specially provided that the rates and charges levied in any State should continue in force. The last-mentioned provision, however, was repealed by the Postal Rates Act of 1910, which came into force by proclamation on 1st May, 1911.

The following rates on letters, newspapers, and certain other postal articles posted in the Commonwealth for delivery therein came into force on the 1st May, 1911, the date of proclamation of the operation of the Postal Rates Act of 1910 :—

**POSTAL RATES ON CERTAIN ARTICLES POSTED IN THE COMMONWEALTH FOR
DELIVERY THEREIN ON AND AFTER 1st MAY, 1911.**

Postal Articles.	Rates of Postage.
LETTERS	1d. per $\frac{1}{2}$ ounce.
LETTER-CARDS	{ Single, 1d. each. Reply, 1d. each half.
POST CARDS	{ Single, 1d. each. Reply, 1d. each half.
PRINTED PAPERS AS PRESCRIBED	$\frac{1}{2}$ d. per 2 ounces or part of 2 ounces.
BOOKS PRINTED OUTSIDE AUSTRALIA	$\frac{1}{2}$ d. per 4 ounces or part of 4 ounces.
BOOKS PRINTED IN AUSTRALIA	$\frac{1}{2}$ d. per 8 ounces or part of 8 ounces.
MAGAZINES.—Printed in Australia, for each magazine	$\frac{1}{2}$ d. per 8 ounces or part of 8 ounces.
MAGAZINES.—Printed outside Australia, for each magazine	$\frac{1}{2}$ d. per 4 ounces or part of 4 ounces.
HANSARD.—Reports of Parliamentary Debates	$\frac{1}{2}$ d. per 12 ounces or part of 12 ounces.
COMMERCIAL PAPERS, PATTERNS, SAMPLES, AND MERCHANDISE AS PRESCRIBED	1d. per 2 ounces or part of 2 ounces.
NEWSPAPERS (in bulk), posted by registered newspaper proprietors, or by newsvendors, or returned by an agent or newsvendor to the publishing office	1d. per 20 ounces on the aggregate weight of newspapers.
NEWSPAPERS.—Printed outside Australia	Magazine rates.
ALL OTHER NEWSPAPERS	For each newspaper, $\frac{1}{2}$ d. per 10 ounces or part of 10 ounces.

Whilst the bookkeeping sections of the Constitution Act (see section XIX., § 1, hereinafter) were in force, each State had necessarily to use its own postage stamps, and stamps sold in one State were only allowed to be used on letters posted in that State. The necessity for this arrangement disappeared with the change in the keeping of the Commonwealth accounts, and since the 14th October, 1910, stamps of any State can be affixed to letters, irrespective of the State in which they are posted. Stamps of a uniform design are now used throughout the Commonwealth.

(i.) *Letters.* Under the Postal Rates Act of 1910, the charge (1d. for every $\frac{1}{2}$ -oz.) for letters posted for delivery within the Commonwealth is now uniform throughout all States. Previous to 1st May, 1911, various local and interstate rates were in operation within the States. The postage to the United Kingdom was reduced in January, 1891, from sixpence per half-ounce *via* the Red Sea, and fourpence *via* the Cape of Good Hope, to the uniform rate of twopence halfpenny. In 1891 the States were represented at the Congress of the Universal Postal Union held in Vienna, and on the 4th July a convention was signed on their behalf, by which they joined the Union from the 1st October of that year. On that date the rate of postage to all British possessions and to foreign countries included in the Union was reduced to twopence halfpenny. The present charge for postage of interstate letters and of letters to the United Kingdom and to British possessions is now uniformly one penny per half-ounce throughout the Commonwealth; the rate on letters to foreign countries (with the exception of New Hebrides, Banks and Torres Islands, where the rate is a penny per half-ounce) is twopence halfpenny for each half-ounce.

(ii.) *Newspapers.* The different rates charged for the carriage of newspapers in the various States, prior to Federation, continued after the control of the Postal Departments had been taken over by the Commonwealth, until the 1st November, 1902, when a uniform rate was imposed by the Post and Telegraph Rates Act 1902. At present the rates on all newspapers posted for delivery in the Commonwealth (without condition as to the number contained in each addressed wrapper posted) by registered newspaper proprietors, or by newsvendors, or returned by newsvendor or agent to the publishing office, is one penny per twenty ounces on the aggregate weight. On all other registered newspapers posted within the Commonwealth for delivery therein, the charge is a halfpenny per ten ounces for each newspaper. At the end of the year 1915 there were in all 1943 publications registered in the Commonwealth under section 29 of the Post and Telegraph Act 1901 for transmission by post as newspapers. The charge on postage of registered newspapers for transmission to the United Kingdom is one penny for each newspaper not exceeding eight ounces in weight by the ordinary route, and one penny for each newspaper not exceeding sixteen ounces in weight by the All-Sea route. To other parts of the world the rate is one penny up to four ounces, and a halfpenny for every additional two ounces. Newspapers which are not registered are charged at the same rates as other printed papers.

(iii.) *Parcels.* Parcels may not exceed 11 lbs. in weight, 3 ft. 6 in. in length, or 6 ft. in length and girth combined. The rate for the inland postage of parcels is sixpence up to 1 lb., and then threepence for every additional pound. For interstate transmission the rate is eightpence up to 1 lb., and then sixpence per lb., and for transmission to the United Kingdom the rate is one shilling up to 1 lb., and sixpence for every additional pound.

(iv.) *Packets.* The ordinary rate for the conveyance of packets is one penny for each two ounces. Packets must not as a rule exceed 2 ft. in length, 1 ft. in breadth or depth; or, if in a roll, 2 ft. 6 in. in length. Special rates are allowed for the conveyance of commercial papers, patterns, samples, etc.

7. *Registered Letters.*—Under section 38 of the Post and Telegraph Act 1901, provision is made for the registration of any letter, packet, or newspaper upon payment of a fee of threepence, and any person who sends a registered article by post may obtain

an acknowledgment of its due receipt by the person to whom it is addressed by paying an additional fee of twopence halfpenny in advance at the time of registration.

Number of Registered Articles Posted. The subjoined table shews the number of registered articles posted in each State during the year 1915-16, classified according to the places to which they were despatched for delivery:—

NUMBER OF REGISTERED ARTICLES POSTED DURING 1915-16.

(,000 OMITTED.)

State.	Posted in each State for Delivery within that State.	Posted in each State for Delivery in other States.	Posted in each State for Delivery in Places outside the C'wealth.	Total.
New South Wales ...	1,365	189	143	1,697
Victoria ...	986	149	90	1,225
Queensland ...	549	83	40	672
South Australia ...	252	39	18	309
Western Australia ...	351	35	35	421
Tasmania ...	138	29	8	175
Commonwealth ...	3,641	524	334	4,499

8. **Ocean Mail Services.**—Regular steamship communication between Australia and Europe was established in 1852 by a service run by the Peninsular and Oriental Company between Singapore and Sydney, *via* King George's Sound, Adelaide, and Melbourne. This service was inaugurated in September, 1852, by the arrival at Melbourne of the *Chusan*, and was continued until 1854, when it was stopped in consequence of the Crimean War; in 1856 a line of steamers was again started, and the service was carried on by the Peninsular and Oriental Company, in conjunction with the Royal Mail Company, for some years.

(i) *Mail Route via San Francisco.* The service *via* the Red Sea did not at that time give much satisfaction to the public, and was looked upon with a certain amount of disfavour in New South Wales and New Zealand. The effect was to stimulate the colonists to agitate for an improved service, and proposals were made for the establishment of a line of mail packets from Sydney to Panama *via* Wellington, by rail across the isthmus, and thence to Great Britain. The result was that in 1866 the line was started, and continued in operation until the end of 1868, when it was terminated through the failure of the company by which it had been carried out. The completion of the railway across the American continent in 1869, with its western terminus at San Francisco, opened up a new and agreeable route, and in that year a monthly service was inaugurated by the Union Steamship Company, in conjunction with the Pacific Steamship Company, from Sydney to San Francisco *via* Auckland. This service was subsidised to the extent of £37,000 per annum, of which New South Wales paid £25,750 and New Zealand £11,250, and was continued until November, 1890, when a new contract was entered into and the amount of the subsidy largely reduced, the amount of the contribution being based upon the weight of mail matter carried. Various extensions of the contract were made, but the last agreement made between the New Zealand Government and the Oceanic Steamship Company of San Francisco expired on the 10th November, 1906, and has not since been renewed. From that date mails were carried at Postal Union rates until the 12th April, 1907, when the service was discontinued. At present mails to and from Europe are carried by the Union Steamship Company,

which receives a subsidy from the New Zealand Government, with a four-weekly service; and by the Oceanic Company, with a three-weekly service. Each of these companies carries Australian mails at poundage rates.

(ii.) *Route via Suez Canal.* The establishment of a mail route *via* America had the effect of stimulating the steamship owners who were engaged in the service *via* Suez, and from that time there was a marked improvement in the steamers, as well as in the punctuality and speed with which the mails were delivered. The Peninsular and Oriental Company, and, at a little later date, the Orient-Pacific Company, have carried mails to and from Australia almost since the inception of ocean steam services. Postal matter was carried by contract until 1905, when the contract between the Peninsular and Oriental Company and the Commonwealth Government ceased, although that between the company and the Imperial Post Office is still in force. Mails are still carried from Australia by the Peninsular and Oriental Company, but are carried at Postal Union rates and not under contract with the Commonwealth. On the 25th April, 1905, the Orient-Pacific Company concluded a new contract with the Commonwealth Government for a fortnightly service between England and Australia. The subsidy was at the rate of £124,880 per annum. This contract has now been replaced by the present mail contract referred to in the next sub-section hereof. Fremantle has, since the year 1900, been the first and last port of call for European mail steamers, in lieu of Albany, the original port of call. The Peninsular and Oriental and Orient-Pacific Companies' steamers sail, as far as possible, alternately every week, both from London and Australia, conveying the outward and homeward mails. This service has to some extent been disorganised since the outbreak of war in August, 1914. The steamers of the Orient Steam Navigation Company have for some time travelled *via* South Africa instead of through Suez Canal.

(a) *Present Mail Contract.* On the 1st January, 1906, tenders were invited by the Commonwealth Postmaster-General for a fortnightly mail service between Adelaide and Brindisi, to alternate with a similar service to be provided by the Imperial Government, and a contract was entered into with Sir James Laing and Company Limited, providing for a service at an annual subsidy of £125,000. This contract, however, fell through, and new tenders were accordingly called for. On the 15th November, 1907, an agreement was entered into with the Orient Steam Navigation Company Limited providing for a fortnightly service for a period of ten years, commencing in February, 1910. The mail service was to be carried out by existing vessels belonging to the company and by five new mail ships, which have been specially built, and which are each over 12,000 tons gross registered tonnage and of not less than seventeen knots speed. An additional new vessel was to be added within eighteen months, and another within six years, from February, 1910, and the first of these—the *Orama*—entered into running during November, 1911. War conditions have, however, delayed the addition of the latter vessel to the mail fleet. The vessels are to call at Fremantle, Adelaide, Melbourne, Sydney, and Brisbane, and at least six of them at Hobart, during the months of February to May inclusive. The voyage from Taranto to Adelaide is to be completed within twenty-six days fourteen hours, and from Adelaide to Taranto within twenty-seven days two hours, but the latter period may be exceeded by thirty-six hours during the prevalence of the south-west monsoon. The amount of the subsidy is fixed at £170,000 per annum; but, if the earnings of the company be decreased, or the expenses increased, by reason of any Commonwealth shipping legislation passed subsequently to the date of the agreement, to the extent of not less than £5000 a year, the contractors have the right to terminate the agreement unless the subsidy is increased. Insulated space of not less than 2000 tons of forty cubic feet is to be provided in each of the new vessels, and the freights are not to exceed one halfpenny per lb. for butter and sixty shillings per ton for fruit. White labour only is to be employed, and no discrimination is to be made between unionists and non-unionists. If before or during the sixth year of the period of the contract an accelerated service is provided by any competing line of mail ships, the contractors must, if so required by the Postmaster-General, provide a service equal to the

competing service, at an increased subsidy, to be determined by agreement or arbitration. The Commonwealth flag must be flown on the mail ships, which the Commonwealth has the right to purchase at a valuation at any time. Within six months of the Postmaster-General establishing a permanent wireless telegraphy station at Rottnest Island, or at any point on the coast between Fremantle and Brisbane, the company must fit the mail ships with wireless telegraphy installations. The new service was inaugurated on the 11th February, 1910.

(b) *French and German Subsidised Mail Services.* Vessels belonging to the Messageries Maritimes and the Norddeutscher Lloyd, which were under contract respectively with the French and German Governments to convey mails monthly between Marseilles and New Caledonia and between Bremen and Sydney, *via* Genoa, also carried mails for the Commonwealth Government from Australia to Europe at Postal Union rates. The Messageries Maritimes service commenced in November, 1882; the amount of the annual subsidy granted by the French Government being £120,000. The vessels have, however, for the time being, been withdrawn from the Australian service. The first contract for the establishment and maintenance of a mail steamship line between Germany and Australia was made between the Imperial German Government and the Norddeutscher Lloyd in 1885, and the service was inaugurated in July, 1886, with the steamer *Salier*. The service afforded by German vessels was, of course, interrupted by the outbreak of hostilities in Europe in 1914.

(iii.) *Route via Vancouver and Canadian-Pacific Railway.* During the year 1893 a direct monthly service was started between Sydney and Vancouver, in British Columbia, *via* Wellington, in New Zealand, and thence to Liverpool *via* the Canadian-Pacific Railway, the New South Wales Government paying an annual subsidy of £10,000 for the maintenance of this service for a period of three years. In 1896 the agreement was renewed for a further period of three years, and in 1899 was again renewed for four years, subject to the same terms and conditions, except that the route was *via* Brisbane instead of Wellington. The contract was further extended, at an increased subsidy, from time to time until the 31st July, 1911, at a subsidy of £26,626 per annum. This subsidised service has now been discontinued. Mails for Canada are forwarded *via* New Zealand through Sydney at poundage rates:

(iv.) *Other Ocean Mail Services.* In addition to the mails *via* the Suez Canal, a number of other services, both regular and irregular, are maintained between the Commonwealth and various parts of the world, and also between the principal ports in the various States and a number of small ports in the less settled parts of the Commonwealth which are inaccessible by rail. The following statement gives a summary, in so far as returns are available, of all mail services maintained between the Commonwealth and other countries and between ports in the Commonwealth. The amounts of subsidies specified are the amounts payable per annum unless otherwise stated:—

SUMMARY OF COMMONWEALTH MAIL SERVICES, 1917.

Description of Service.	Frequency of Service.	Ports between which Service is maintained.	Particulars regarding Subsidies.
1. <i>To and from Europe, via Suez—</i>			
(a) Peninsular and Oriental* ...	Fortnightly	Adelaide, Fremantle and London, <i>via</i> Brindisi and Marseilles	Subsidised by Imperial Govt. Mails from Aust. at Postal Union rates.
(b) Orient Steam Navigation Co.† ...	..	Adelaide, Fremantle & London, <i>via</i> Taranto	Subsidised. Date of agreement, 15th Nov., 1907. Term, from Feb., 1910. Amt. of subsidy, £170,000.

* Mails carried also to India *via* Colombo. † Owing to the war, the steamers of this company temporarily travel *via* Capetown instead of Suez Canal.

SUMMARY OF MAIL SERVICES—(Continued).

Description of Service.	Frequency of Service.	Ports between which Service is maintained.	Particulars regarding Subsidies.
2. <i>To and from Europe, via Vancouver</i> — Union Steamship Co. ...	Every four weeks	Sydney and Vancouver, B.C., via Auckland, Fiji, Honolulu, and once every four weeks to Fanning Island	Poundage rates.
3. <i>To and from Europe, via San Francisco</i> — (a) Union Steamship Company ...	..	Sydney, Wellington and San Francisco	Subsidised by New Zealand Govt. Mails from Aust. at Poundage rates.
(b) Oceanic Steamship Co. ...	Every three weeks	Sydney, Apia, Honolulu, and San Francisco	Poundage rates.
4. <i>To and from New Zealand</i> —			
(a) Conjointly by Shaw, Savill and Albion Co. & N.Z. Shipping Co.	Fortnightly	Hobart, Bluff, Dunedin, and Wellington	Poundage rates.
(b) Conjointly by Union S.S. Co. and Huddart, Parker Ltd.	Bi-weekly	Sydney and Wellington, Sydney and Auckland	.. ..
(c) Other Steamers ...	Irregularly, when convenient	Sydney, Wellington, Auckland, and Lyttelton	.. ..
5. <i>To and from ports in N.S. Wales</i> —			
(i.) NORTHERN PORTS— (a) North Coast S.N. Co. ...	Weekly	Sydney, Manning River, Macleay, Nambucca, Bellinger Rivers.	.. ..
	Twice weekly	Coff's Harbour, Clarence River, Byron Bay, and Richmond River	.. ..
(b) Cain's Co-Operative S.S. Co. ...	Six times a month	Sydney & Port Macquarie	.. ..
(ii.) SOUTH COAST PORTS— Illawarra and S. Coast S.N. Co. ...	Twice weekly	Sydney, Eden, Bega and Tathra	.. ..
6. <i>To and from Northern Ports of Qld.</i> —			
(a) Australian Steamships Limited	Weekly	Gladstone, Mackay, Bowen, Townsville, Cairns, Cardwell, Mourilyan, Innisfail, Pt. Douglas & Cooktown	Subsidised by agreement dated 5th Dec., 1914, for three years. Amount of subsidy, £17,950.
(b) Australian United Steam Navigation Co. Ltd.	Once every three weeks	Brisbane, Normanton & Burketown, via Townsville, Cooktown, and Thursday Island	Subsidised by agreement dated 16th Jan., 1915, for five years. Amount of subsidy, £6500. Subsidies under 6 (a) and (b) paid by Queensland.
(c) Other steamers ...	Irregularly	Various... ..	Poundage rates.
7. <i>To and from Ports in S. Australia</i> —			
(a) Coast Steamship Co. Ltd. ...	Weekly	Pt. Adelaide & Kingscote	Subsidised to 31st December, 1917. Amount of subsidy, (a) £900; (b) £350; (c) £450; (d) £350. Subsidised for three years from 1st January, 1917. Amount of subsidy, £3000.
(b)	Twice a wk.	.. Edithburgh	
(c) .. ..	..	.. Stansbury	
(d) .. ..	..	.. Pt. Vincent	
(e) Adelaide Steamship Co. ...	Weekly	.. Pt. Lincoln	Subsidised without agreement. Amount of subsidy, £120. Subsidies under 7 (a), (b), (c), (d), (e), (f), paid by South Australia.
(f) Adelaide Steam Tug Co. ...	As required	Port Pirie & Hummocks Hill	
8. <i>Western Australia</i> —			
(i) INTERSTATE—			
(a) By P. & O. ...	Fortnightly	Fremantle and Adelaide	P. and O. at Postal Union rates. Orient line subsidised. See above 1 (a) and (b).
(b) Orient Line ...	Four times a year.	.. ..
(c) The Australian United Steam Navigation, Huddart Parker, Melbourne S.S. Co., and McIlwraith, McEachern lines	Conjointly Weekly	Fremantle, Albany, and Adelaide	Poundage rates.

† Carries also mails to Canada and the United States.

SUMMARY OF MAIL SERVICES—(Continued).

Description of Service.	Frequency of Service.	Ports between which Service is maintained.	Particulars regarding Subsidies.
<i>Western Australia—continued—</i>			
(ii.) To & FROM PORTS ON N.W. COAST			
(a) State Steamship Service	Monthly	Fremantle and Derby	Subsidised by agreement dated 23th February, 1913, for three years. Amount of subsidy, £5500. Subsidy paid by Western Australia.
(b) " " "	Once each sixty days	Fremantle & Darwin	
(c) West Australian S.N. Co.	Fortnightly	Fremantle and Broome	
(d) Ausn. United S. Navigation and State S.S. Co. and Melbourne S.S. Coy.	Irregularly, during the cattle season	Fremantle, Derby, and Wyndham	
(iii.) TO AND FROM PORTS ON S. COAST			
(a) State Steamship Service	Fortnightly	Albany and Esperance	Subsidised by agreement for three years, dating from 1st July, 1915. Amount of subsidy, £2000
(b) " " "	Every four weeks	Albany & Israelite Bay	
(c) " " "	Quarterly	Albany and Eucla	
9. <i>Tasmania—</i>			
(a) Union S.S. Co. and Huddart, Parker Proprietary	Three times a week	Melb'rne & Launceston	Subsidised by agreement dated 27th October, 1913, for five years. Amount of subsidy, £15,000, provided new steamer similar to <i>t.s. Loongana</i> is run on Launceston-Melbourne service. £13,000 only to be paid prior to running of new steamer.
(b) " " "	Twice a wk.	" Burnie	
(c) " " "	Weekly	Sydney, Hobart, and Wellington	Poundage rates.
(d) Union Steamship Co.	Fortnightly	Sydney, Eden, Launceston, and Devonport	" "
(e) To and from ports in Western districts	Weekly	Hobart and Strahan	" "
(f) Holyman and Sons Ltd.	"	Melbourne, Burnie, etc.	" "
(g) " " "	Twice a wk.	Hobart & Maria Island	Subsidised by agreement dated 1st January, 1916, for three years. Amount of subsidy, £25 per annum.
(h) F. G. Cutts	Every three weeks	Launceston and Furneaux group of Islands	Subsidised. Amount of subsidy per trip, £8 10s. Contract terminable by two months' notice being given by Mr. Cutts or Postmaster-General.
(i) King Island Steamers Ltd.	Fortnightly	Launceston and King Island	Subsidised by agreement dated 1st January, 1916, for three years. Amount of subsidy, £300 per annum.
10. <i>To and from Northern Territory—</i>			
(a) The Eastern and Ausn., and the China Navigation Co.	Irregularly	(To and from Adelaide, Melb'rne, and Sydney, via North Queensland ports, extending to China and Japan	Poundage rates.
(b) Burns, Philp and Co.	Monthly		
(c) Royal Dutch Packet S.N. Co.	Every two months	Melbourne to Darwin, via North Queensland ports en route to Java	Poundage rates
(d) State Steamship Service of Western Australia	Every two months	Fremantle and Darwin	Subsidised by Western Australian Government.

SUMMARY OF MAIL SERVICES—(Continued).

Description of Service.	Frequency of Service.	Ports between which Service is maintained	Particulars regarding Subsidies.
11. <i>To Eastern Ports—</i>			
(a) Burns, Philp & Co. ...	Monthly	Sydney, Sourabaya, Samarang, Batavia, and Singapore	Subsidised by N.S.W. Govt Mails at poundage rates.
(b) China Navigation, Eastern & Ausn., and Burns, Philp Co.'s	About three times a month	Sydney, to Hong Kong, Manila, etc., via North Queensland ports	Poundage rates.
(c) Nippon Yusen Kaisha ...	Monthly	Sydney to Manila, China, and Japan, via N. Queensland ports	Postal Union rates.
(d) Royal Dutch Packet S. N. Co.	Monthly	Melbourne to Java, via Sydney and Queensland ports	Poundage rates
(e) Various other steamers ...	About monthly	Sydney or Newcastle and ports in Borneo, Java, Sumatra, and Malay Peninsula	" "
(f) W.A.S.N. Co. ...	Fortnightly	W.A. Ports, Java, and Singapore	" "
12. <i>South Africa—</i>			
(a) White Star, P. & O. Branch Service, and other Companies	Irregularly	Various	" "
(b) Orient Line ...	Four times a year.	Adelaide and Capetown	" "
13. <i>North America—</i>			
(a) Various steamers ...	Irregularly	Sydney or Newcastle to San Francisco	Poundage rates.
(b) Various steamers ...	"	Sydney to Guaymas (Mexico)	" "
(c) Union S.S. Co. ...	13 voyages yearly	Syd., Wellington, Tahiti and San Francisco	" "
(d) " " ...	Every four weeks	Sydney, Auckland, Fiji and Vancouver	" "
(e) Oceanic S. S. Co. ...	Every three wks.	Sydney, Samoa, Pago Pago & San Francisco	" "
14. <i>South America—</i>			
Various steamers ...	About weekly	Sydney or Newcastle via N. Zealand to ports in Chile, Brazil, Peru, Uruguay, and Argentine	Poundage rates.
15. <i>Pacific Islands—</i>			
(a) Burns, Philp and Co. ...	Monthly	Sydney to Lord Howe & Norfolk Islands, N. Hebrides	Subsidised by Commonwealth at £19,850 per annum.
(b) " " ...	Every two months	Sydney to Gilbert and Marshall Islands	
(c) " " ...	Every six weeks	Papua	
(d) " " ...	"	Solomon Islands	
(e) Royal Dutch Packet S. N. Co.	Monthly	Melbourne to Papua via Sydney and Queensland ports	Poundage rates.
(f) Pacific Phosphate Co. Ltd. ...	Four times a year	Rabaul and Nauru	Contract with Defence Department.
16. <i>Noumea—</i>			
(a) Messageries Maritimes ...	Monthly	Sydney and Noumea and to Vila (New Hebrides)	Postal Union rates.
(b) Other steamers ...	About fortnightly	Sydney and Noumea	Poundage rates.
17. <i>Fiji—</i>			
(a) Union S.S. Co. ...	Monthly	Sydney and Suva	" "
(b) " " ...	"	Sydney, Auckland, Suva, Tonga, and Samoa	" "
(c) A.U.S.N. Coy ...	"	Sydney and Suva	" "
18. <i>Fiji and Noumea—</i>			
Burns, Philp and Co. ...	"	Sydney and Suva	" "
19. <i>Ocean and Pleasant Islands—</i>			
Various steamships ...	"	Sydney, Ocean and Pleasant Islands	" "

9. **Amount of Mail Subsidies Paid.**—The following table shows the amounts of subsidies which are paid by the Commonwealth Postal Department for ocean and coastal mail services during the year ended 30th June, 1916 :—

MAIL SUBSIDIES.—OCEAN AND POSTAL SUBSIDIES DURING THE YEAR 1915-16.

Service...	Orient Pacific.	Queens'l'd Ports.	South Australian Ports.	Western Australian Ports.	Tasmanian Ports.
Annual Subsidy	£ 55,577	£ 24,450	£ 3,650	£ 7,536	£ 13,890

During the year 1915-16 the amount paid by the Commonwealth for conveyance of mails at poundage rates by non-contract vessels was £36,974; by road services, £487,808; and by railway services, £371,759.

10. **Average and Fastest Time of Mails to and from London.**—Great progress has been made in regard to the means of postal communication with the United Kingdom and the continents of Europe and America. In 1857 there was an unsatisfactory ocean mail service, which nominally brought monthly mails, with news nearly sixty days old; before the outbreak of the war there were four lines of modern ocean steamships, which brought the mails in about twenty-nine days to Adelaide, in addition to services by way of New Zealand, *via* San Francisco and Vancouver. After leaving Fremantle, where the Western Australian mails are landed, the outward mail steamers *via* the Suez Canal all call at Adelaide, where the remaining mails are landed and conveyed to their ultimate destination by rail. In consequence of the war in Europe, some steamers belonging to the Orient-Pacific S.N. Co. travelled to England by way of South Africa. The subjoined table shows the average and the fastest times occupied in the conveyance of mails from London to Adelaide and *vice versa* during the year 1915-16 :—

AVERAGE AND FASTEST TIME OCCUPIED IN CONVEYANCE OF MAILS VIA SUEZ CANAL BETWEEN LONDON AND ADELAIDE, AND VICE VERSA, DURING 1915-16.

Service.	London to Adelaide.				Adelaide to London.			
	Average Time.		Fastest Time.		Average Time.		Fastest Time.	
	Days.	Hours.	Days.	Hours.	Days.	Hours.	Days.	Hours.
Orient Pacific S. N. Co., <i>via</i> Naples ...	*33	23	30	23	*39	21	31	4
Peninsular and Oriental S.N. Co., <i>via</i> Brindisi ...	34	12	30	15	36	3	33	6

* Some trips by the Orient-Pacific S.N. Co. were made *via* South Africa.

The journey by rail from Adelaide, where the mails for the eastern States are landed, to Melbourne takes 17½ hours; from Adelaide to Sydney, 42 hours, including a stop of about seven hours at Melbourne; while the through journey from Adelaide to Brisbane takes just over three days. The journey from Melbourne to Hobart occupies about 26 hours, *via* Launceston, and about 32 hours direct.

The average time occupied in the conveyance of mails from London to Sydney *via* Vancouver is a little over 37 days, and from Sydney to London by the same route nearly 35. A table shewing the average and fastest times of this service was given in previous issues (see Year Book No. 5, p. 766), but the discontinuance of the contract with the company operating between Australia and Vancouver renders the table no longer desirable.

11. **Money Orders and Postal Notes.**—The issue of money orders and postal notes in the Commonwealth is regulated by sections 74 to 79 of the Post and Telegraph Act 1901. A money order may be issued for payment of sums up to £20 within the Commonwealth and not exceeding £40 (in some cases £30, £20 or £10) in places abroad.

A postal note, which is payable only within the Commonwealth, cannot be issued for a larger sum than twenty shillings. Money orders are sent direct from the Commonwealth to the United Kingdom, and to most of the British colonies and possessions; to the British Solomon Islands Protectorate and the Gilbert and Ellice Islands Protectorates; to Italy; and to the United States of America. Money orders, payable in Japan and China, are sent *via* Hong Kong; orders payable in all other countries are sent through the General Post Office in London, where new orders are issued and forwarded to the addresses of the payees, less threepence for every £5, or part thereof. In order that the full amount of the original order may be forwarded to the payee, this extra commission must be paid by the remitter.

(i.) *Value of Orders Issued and Paid and of Notes Sold.*—The following table shews the total value of money orders issued and paid, and of postal notes sold in each State and in the Commonwealth during the year 1915-16, together with the total amount of commission on money orders and poundage on postal notes received by the Postal Department:—

VALUE OF MONEY ORDERS ISSUED AND PAID AND OF POSTAL NOTES SOLD, TOGETHER WITH THE TOTAL AMOUNTS OF COMMISSION AND POUNDAGE RECEIVED IN EACH STATE DURING 1915-16.

State.	Value of Money Orders Issued.	Value of Money Orders Paid.	Net Money Order Commission Received.	Value of Postal Notes Sold.	Poundage Received on Postal Notes.
	£	£	£	£	£
New South Wales ...	5,282,556	5,197,500	27,246	1,422,215	28,168
Victoria ...	2,646,486	2,800,879	10,381	918,600	18,536
Queensland ...	1,578,302	1,325,352	10,007	374,796	7,376
South Australia ...	1,000,844	914,679	4,330	215,135	4,371
Western Australia ...	1,288,218	1,075,303	7,994	245,091	4,660
Tasmania ...	539,358	501,270	2,549	116,567	2,398
Commonwealth ...	12,335,764	11,814,983	62,507	3,292,404	65,509

(ii.) *Rates of Commission on Money Orders.* The rates of commission chargeable for the issue of money orders are as follows:—

RATES OF COMMISSION, MONEY ORDERS.

If Payable in—	For sums—									
	Not exceeding £2.	Exceeding £2, but not exceeding £5.	Exceeding £5, but not exceeding £7.	Exceeding £7, but not exceeding £10.	Exceeding £10, but not exceeding £12.	Exceeding £12, but not exceeding £15.	Exceeding £15, but not exceeding £17.	Exceeding £17, but not exceeding £20.		
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
The Commonwealth...	0 6	0 6	1 0	1 0	1 6	1 6	2 0	2 0	2 0	2 0
New Zealand and Fiji	0 6	1 0	1 6	2 0	2 6	3 0	3 6	4 0	4 0	4 0
Papua ...	0 9	0 9	1 6	1 6	2 3	2 3	3 0	3 0	3 0	3 0
U. Kingdom & other countries	Sixpence for any amount up to £2 and 3d. for each additional £1 or fraction thereof.									

Remittances may also be made by telegraph to and from money order offices in the Commonwealth which are also telegraph or telephone offices, and to New Zealand. The charge for a telegraph money order is the cost of the telegram of advice in addition

to the ordinary commission. The remitter must also send a telegram to the payee advising the transmission of the money, which telegram must be produced by the payee when applying for payment.

(iii.) *Rates of POUNDAGE on Postal Notes.* The values of the notes issued have been so arranged that any sum of shillings and sixpences up to £1 can be remitted by not more than two of these notes. The poundage or commission charged on notes of different denominations is as follows:—

POUNDAGE RATES, POSTAL NOTES.

Denomination of Note ...	6d. to 1s. 6d.	2s. to 4s. 6d.	5s.	7s. 6d.	10s. to 20s.
Poundage charged ...	½d.	1d.	1½d.	2d.	3d.

12. Number and Value of Money Orders and Postal Notes Issued and Paid.—The following table shows the total number and face value of money orders and postal notes issued and paid in the Commonwealth during 1901 and from 1910 to 1915-16:—

NUMBER AND VALUE OF MONEY ORDERS AND POSTAL NOTES ISSUED AND PAID, 1901 and 1910 to 1915-16.

Year.	Money Orders.				Postal Notes.			
	Issued.		Paid.		Issued.		Paid.	
	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.
1901 ...	No. (,000).	£ (,000).	No. (,000).	£ (,000).	No. (,000).	£ (,000).	No. (,000).	£ (,000).
1901 ...	1,318	4,193	1,339	4,081	3,515	1,292	3,522	1,293
1910 ...	1,500	6,368	1,424	6,254	7,447	2,796	7,446	2,796
1911 ...	1,583	6,584	1,448	6,455	8,042	3,017	8,042	3,017
1912 ...	1,822	7,417	1,557	6,886	8,608	3,259	8,533	3,235
1913 ...	2,091	8,750	1,814	8,133	9,425	3,551	9,341	3,527
1914 ...	2,062	8,858	1,823	8,326	9,881	3,680	8,893	3,671
1915-16	3,007	12,336	2,904	11,815	9,536	3,292	9,517	3,316

13. Classification of Money Orders Issued and Paid.—The following table shows the number and value of money orders issued in each State during the year 1915-16 and classified according to the country where payable:—

MONEY ORDERS ISSUED IN EACH STATE, CLASSIFIED ACCORDING TO COUNTRY WHERE PAYABLE, 1915-16.

State in which Issued.	Where Payable.				Total.
	In the Commonwealth.	In New Zealand.	In the United K'dom.	In Other Countries.	
NUMBER.					
New South Wales	1,062,547	15,145	102,843	17,032	1,197,567
Victoria	582,346	7,678	54,091	10,209	654,324
Queensland	348,203	2,687	37,562	8,416	396,868
South Australia	264,682	1,309	18,966	5,699	290,656
Western Australia	283,660	1,431	31,134	4,505	320,730
Tasmania	137,563	2,039	6,059	1,302	146,963
Commonwealth	2,679,001	30,289	250,655	47,163	3,007,108

MONEY ORDERS ISSUED IN EACH STATE, Etc.—(Continued).

State in which Issued.	Where Payable.				Total.
	In the Commonwealth.	In New Zealand.	In the United Kingdom.	In Other Countries.	
VALUE.					
New South Wales	£ 4,862,815	£ 47,246	£ 259,762	£ 112,733	£ 5,282,556
Victoria ...	2,452,227	24,022	113,934	56,303	2,646,486
Queensland ...	1,409,189	8,460	92,487	68,166	1,578,302
South Australia ...	921,473	7,103	41,962	30,306	1,000,844
Western Australia	1,187,356	5,365	69,612	25,885	1,288,213
Tasmania ...	515,913	8,334	11,785	3,326	539,358
Commonwealth	11,348,973	100,530	589,542	296,719	12,335,764

The following table shows the number and value of money orders paid in each State during the year 1915-16, and classified according to the country where issued :—

MONEY ORDERS PAID IN EACH STATE, CLASSIFIED ACCORDING TO THE COUNTRY OF ISSUE, 1915-16.

State in which paid.	Where Issued.				Total.
	In the Commonwealth.	In New Zealand.	In the United K'dom.	In Other Countries.	
NUMBER.					
New South Wales	1,170,502	32,087	20,142	12,668	1,235,399
Victoria ...	634,273	21,503	12,990	7,296	676,062
Queensland ...	312,168	2,414	6,194	2,799	323,575
South Australia ...	257,656	1,655	3,469	1,471	264,251
Western Australia	259,820	2,574	6,036	1,726	270,156
Tasmania ...	126,771	1,692	4,320	1,368	134,151
Commonwealth	2,761,190	61,925	53,151	27,328	2,903,594
VALUE.					
New South Wales	£ 4,986,991	£ 96,393	£ 62,721	£ 51,395	£ 5,197,500
Victoria... ...	2,678,650	58,585	38,663	24,981	2,800,879
Queensland ...	1,288,133	8,841	18,573	9,805	1,325,352
South Australia ...	893,490	5,474	9,429	6,286	914,679
Western Australia	1,043,903	6,395	17,345	7,660	1,075,303
Tasmania ...	480,305	12,388	4,870	3,707	501,270
Commonwealth	11,371,472	188,076	151,601	103,834	11,814,983

In the above tables money orders payable or issued in foreign countries, which have been sent from or to the Commonwealth through the General Post Office at London, are included in those payable or issued in the United Kingdom.

14. **Classification of Postal Notes Paid.**—The subjoined table shows the number and value of postal notes paid during the year 1915-16 in each State and in the Commonwealth, classified according to the State in which they were issued.

Particulars regarding the total number and value of postal notes issued and paid during previous years since the inauguration of the Commonwealth have already been given in paragraph 12 hereof.

NUMBER AND VALUE OF POSTAL NOTES PAID, CLASSIFIED ACCORDING TO STATE OF ISSUE, 1915-16.

Particulars.	Postal Notes Paid in—						
	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
NUMBER.							
Issued in same State ...	3,180,683	2,173,546	840,357	480,576	548,914	272,754	7,496,830
Issued in other States ...	337,037	360,070	66,401	63,521	22,907	1,170,008	2,019,944
Total ...	3,517,720	2,533,616	906,758	544,097	571,821	1,442,762	9,516,774
VALUE.							
	£	£	£	£	£	£	£
Issued in same State ...	1,155,445	731,044	294,947	153,321	212,073	90,826	2,637,656
Issued in Other States ...	123,057	132,428	25,886	25,918	9,162	361,551	678,002
Total ...	1,278,502	863,472	320,833	179,239	221,235	452,377	3,315,658

15. **The Value Payable Post.**—This is a system under which the Postal Department undertakes to deliver registered articles sent by parcel post within the Commonwealth, or between Papua and the Commonwealth, and to recover from the addressee on delivery a specified sum of money fixed by the sender, and to remit the sum to the sender by money order, for which the usual commission is charged. The object of the system is to meet the requirements of persons who wish to pay at the time of receipt for articles sent to them, and also to meet the requirements of traders and others who do not wish their goods to be delivered except on payment. In addition to the ordinary postage, commission on the value of the articles transmitted at the rate of twopence on sums not exceeding ten shillings, and one penny for each additional five shillings or part thereof, must be prepaid by postage stamps affixed to the articles, distinct from the postage, and marked "commission." The registration fee (threepence) and the proper postage must also be prepaid. If the addressee refuse delivery, the parcel is returned to the sender free of charge. Any article that can be sent by parcel post may be transmitted as a value-payable parcel. Letters may also be sent as value-payable parcels, if prepaid at the letter rate of postage and handed to the parcels clerk, in the same manner as in the case of parcels. The subjoined statement gives particulars of the number and value of parcels sent through the Value Payable Post in each State during the years 1909

to 1915-16. From these figures it will be seen that the business in Queensland is greatly in excess of the combined transactions of all the other States, owing to the fact that the system has been established in that State for some years, but was only extended to the whole Commonwealth with the advent of Federal control of the post office. Western Australia is the only other State to make use of this system to any extent, the business transacted by that State and Queensland amounting to 84 per cent. of the total for the Commonwealth.

VALUE PAYABLE PARCELS POST.—NUMBER POSTED, VALUE COLLECTED, AND REVENUE, 1909 to 1915-16.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
NUMBER OF PARCELS POSTED.							
	No.	No.	No.	No.	No.	No.	No.
1909 ...	7,585	1,051	31,765	149	19,250	42	59,842
1910 ...	7,901	894	34,917	214	21,940	110	65,976
1911 ...	9,198	1,142	37,803	195	21,391	66	69,795
1912 ...	10,210	1,072	44,973	395	21,821	41	78,512
1913 ...	12,175	1,691	39,434	255	22,335	8	75,898
1914 ...	12,987	1,698	37,657	251	22,759	26	75,378
1915-16 ...	13,979	1,395	45,467	206	22,108	35	83,190

VALUE COLLECTED.

	£	£	£	£	£	£	£
1909 ...	10,926	1,697	39,351	234	30,712	93	83,013
1910 ...	14,736	1,656	43,478	288	34,697	344	95,199
1911 ...	15,314	2,312	52,628	413	35,659	165	106,491
1912 ...	13,053	2,160	53,061	827	37,307	92	106,500
1913 ...	14,881	2,857	53,461	435	35,945	20	107,599
1914 ...	20,181	3,412	51,205	872	36,972	27	112,669
1915-16 ...	20,214	2,095	50,917	451	35,239	61	108,977

REVENUE, INCLUDING POSTAGE, COMMISSION ON VALUE, REGISTRATION AND MONEY ORDER COMMISSION.

	£	£	£	£	£	£	£
1909 ...	937	164	4,112	22	2,603	6	7,844
1910 ...	1,201	162	4,634	19	3,178	18	9,212
1911 ...	1,087	225	5,241	28	2,943	9	9,533
1912 ...	1,147	143	5,418	54	3,027	6	9,795
1913 ...	1,343	261	5,113	30	3,124	1	9,872
1914 ...	1,618	304	4,901	47	3,108	3	9,981
1915-16 ...	1,715	183	5,793	33	3,022	3	10,749

16. **Agricultural Produce Parcels Post.**—On the 1st July, 1914, the Postal Department, acting in conjunction with the Railway Department, inaugurated a system under which parcels of agricultural produce, fish, cut flowers, etc., might be transmitted at cheap rates from places in the country to persons living within six miles of the General Post Office, Melbourne. The service was introduced, by way of experiment, into the State of Victoria only, but as a loss of £3000 per annum was incurred, the service has been discontinued.

17. **Transactions of the Dead Letter Office.**—Under sections 45 to 53 of the Post and Telegraph Act 1901 the Postmaster-General may cause all unclaimed and undelivered postal articles originally posted within the Commonwealth which have been returned from the place to which they were forwarded to be treated as unclaimed articles and opened. Every unclaimed letter and postal article must be kept for the prescribed period at the office to which it has been transmitted for delivery, and must then be sent to the General Post Office. Letters and packets originally posted elsewhere than in the Commonwealth are returned to the proper authorities in the country in which they were so posted, or, if originally posted in another State, are returned to the General

Post Office of that State; but unclaimed or undelivered newspapers may be forthwith sold, destroyed, or used for any public purpose. Opened postal articles not containing anything of value are returned to the writer or sender if his name and address can be ascertained, but may otherwise be destroyed forthwith. As regards opened letters and packets containing valuable or saleable enclosures, a list and memorandum of the contents are kept, and a notice is sent to the person to whom the letter or packet is addressed if he be known, or otherwise to the writer or sender thereof if he be known. Upon application within three months of the date of such notice the letter or packet may be claimed by the addressee, or, failing him, by the writer or sender. If unclaimed within three months, the letter and contents may be destroyed or sold, and the proceeds paid into the consolidated revenue fund. The following table shows the total number of letters, postcards, and packets dealt with by the Dead Letter Offices in the Commonwealth during the year 1915-16, together with the number of inland, interstate, and international letters either returned to writers, delivered, destroyed, or returned as unclaimed:—

TRANSACTIONS OF DEAD LETTER OFFICES IN THE COMMONWEALTH, 1915-16.

Particulars.	N.S.W.	Vic.	Qld.	S.A.	W.A.	Tas.	C'with.
LETTERS (,000 OMITTED).							
Returned to writers, delivered, etc. ...	502	581	250	111	175	58	1,677
Destroyed in accordance with Act ...	166	127	33	23	20	8	377
Returned to other States or Countries as unclaimed ...	124	182	50	26	37	14	433
Total ...	792	890	333	160	232	80	2,487
POSTCARDS (,000 OMITTED).							
Returned to writers, delivered, etc. ...	6	5	12	8	26	3	60
Destroyed in accordance with Act ...	4	5	2	1	2	...	14
Returned to other States or Countries as unclaimed ...	4	3	2	1	2	1	13
Total ...	14	13	16	10	30	4	87
PACKETS (,000 OMITTED).							
Returned to writers, delivered, etc. ...	471	106	90	20	121	19	827
Destroyed in accordance with Act ...	118	377	10	24	...	...	529
Returned to other States or Countries as unclaimed ...	1	8	40	16	23	10	98
Total ...	590	491	140	60	144	29	1,454
Grand total (letters, postcards, & packets)	1,396	1,394	489	230	406	113	4,028

18. **Post Offices and Receiving Offices and Employees.**—The following tables show the numbers of post and receiving offices and the corresponding numbers of employees in each State and in the Commonwealth at the end of the year 1901, and from 1911 to 1915-16 inclusive:—

NUMBER OF POST OFFICES AND RECEIVING OFFICES, 1901 and 1911-16.

State.	1901.		1911.		1912.		1913.		1914.		1915-16.	
	Post Offices.	Receiving Offices.										
New South Wales	1,684	524	1,948	542	2,000	559	2,025	571	2,049	574	2,074	566
Victoria	1,637	18	1,720	824	1,730	844	1,749	883	1,815	871	1,787	872
Queensland*	411	823	576	786	593	770	614	772	629	728	642	689
South Australia	699	...	662	84	668	95	672	124	680	131	739	105
Western Australia	187	28	372	107	390	130	398	146	418	158	431	182
Tasmania†	376	...	386	47	391	55	395	60	400	63	409	69
Commonwealth	4,994	1,393	5,664	2,390	5,772	2,453	5,853	2,556	5,991	2,525	6,082	2,483

* For the year 1901 the number of receiving offices is included in post offices in the official returns, and separate figures here given are estimated. † The return for 1901 includes both post offices and receiving offices.

**NUMBER OF EMPLOYEES AND NUMBER OF MAIL CONTRACTORS,
1901 AND 1911-16.**

State.	1901.		1911.		1912.		1913.		1914.		1915-16.	
	Employees.	Mail Contractors.										
New South Wales	5,636	984	10,844	1,733	12,614	1,798	10,823	2,376	11,131	2,512	13,166	1,899
Victoria	2,962	890	8,533	866	7,845	1,060	8,437	1,123	8,614	1,132	8,840	1,152
Queensland*	2,616	—	4,455	747	3,942	768	4,134	812	4,343	813	4,162	806
South Australia†	1,945	—	2,298	361	2,173	364	2,364	382	2,432	307	2,816	348
Western Australia	1,303	140	2,621	251	2,246	251	2,444	355	2,327	351	2,558	284
Tasmania†	865	—	1,178	260	1,094	217	1,141	294	1,176	281	1,275	224
Commonwealth	16,327	2,014	29,929	4,218	29,914	4,458	29,343	5,342	30,023	5,396	32,817	4,713

* Country postmasters and receiving officers included in employees. † Non-official postmasters are included in employees. ‡ The return for 1901 includes all persons in the pay of the Postal Department.

19. **Gross Revenue of Postal Department.**—The following table shews the gross revenue of the Postal Department for the years ended 30th June, 1901 and 1911 to 1916 inclusive, under three heads, viz., the Postal, the Telegraph, and the Telephone branches. In the Postal branch is included the revenue derived from money-order commissions, poundage on postal notes, private boxes and bags, and miscellaneous sources. The following figures and also those for expenditure are supplied by the Treasury and represent the actual collections and payments for the periods mentioned:—

GROSS REVENUE OF POSTAL DEPARTMENT, 1901 and 1911-16.

Year ended 30th June.	Postal Branch.	Telegraph Branch.	Telephone Branch.	Total.
	£	£	£	£
1901*	516,181	224,484†	†	740,665
1911	2,646,730	740,428	518,857	3,906,015
1912	2,375,390	788,441	752,423	3,916,254
1913	2,553,995	811,592	860,726	4,226,313
1914	2,680,944	834,316	996,047	4,511,307
1915	2,616,887	878,238	1,099,417	4,594,542
1916	2,940,631	912,950	1,221,450	5,075,081

* Period from 1st March to 30th June, 1901. † Including telephone revenue. ‡ Included in telegraph revenue.

The following table gives an analysis of the gross earnings of the Postal Department in each State and in the Commonwealth during the year ended 30th June, 1916:—

ANALYSIS OF GROSS REVENUE OF POSTAL DEPARTMENT, 1915-16.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wlth.
	£	£	£	£	£	£	£
Postage	998,997	722,646	350,723	206,930	153,147	95,358	2,527,101
Telegraphs	321,492	178,737	162,100	138,470	83,993	28,158	912,950
Telephones	489,121	340,221	172,773	106,058	77,265	36,012	1,221,450
Money order commission	59,136	32,152	17,643	10,212	12,654	5,559	137,356
Foundage on postal notes	12,009	5,502	6,525	3,360	2,149	1,226	30,770
Private boxes and bags	79,075	72,561	34,260	21,252	29,258	9,048	245,454
Miscellaneous							
Total	1,959,130	1,351,819	744,024	486,282	358,465	175,361	5,075,081

20. *Expenditure in respect of the Postal Department.*—The subjoined table shews the total expenditure in respect of the Postal Department in the Commonwealth for each of the years ended 30th June, 1903 and 1911 to 1916 inclusive. The figures given include certain items of expenditure, such as rent, repairs and maintenance of buildings, fittings and furniture, sanitation, water supply, new buildings and additions which are under the control of the Department of Home Affairs, and interest on transferred properties.

TOTAL EXPENDITURE IN RESPECT OF POSTAL DEPARTMENT, 1902-3 AND 1910-11 TO 1915-16.

Year.	1902-3.	1910-11.	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.
Expenditure	£ 2,568,846	4,343,231	5,344,421	6,435,039	6,597,123	6,315,744	6,347,537

The following table shews, as far as possible, the distribution of expenditure on various items in each State during the year ended 30th June, 1916. The table is not to be regarded as a statement of the working expenses of the Department, since items relating to new works, interest, etc., are included therein.

DISTRIBUTION OF EXPENDITURE OF POSTAL DEPARTMENT, 1915-16.

Particulars.	Central Office.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wlth.
	£	£	£	£	£	£	£	£
Salaries and Contingencies—								
Salaries	18,910	1,059,379	673,638	335,688	216,017	232,907	80,671	2,617,210
Conveyance of mails		381,275	165,577	190,815	89,230	78,431	44,741	950,069
Contingencies	2,490	463,026	313,829	203,169	116,161	125,818	51,507	1,281,000
Cables	7,499	...	...	...	...	...	...	7,499
Ocean mails	55,577	...	...	...	...	...	...	55,577
Miscellaneous	1,008	5,078	3,585	2,835	1,162	866	299	14,833
Pensions and retiring allowances		22,611	24,772	1,839	...	4,136	...	53,358
Rent, repairs, maintenance	131	46,512	18,648	10,349	7,959	6,629	1,395	91,623
Supervision of works		125	...	485	1,314	3,072	35	5,031
Proport'n of Audit Office exs.		1,054	1,465	425	299	275	157	3,675
Unforeseen expenditure		357	182	22	6	21	1	589
New Works—								
Telegraph and telephone		302,201	127,472	113,163	71,044	48,153	18,946	680,879
New buildings, etc.		46,489	120,421	4,621	10,726	49,811	355	222,423
Interest on transferred properties		81,780	46,710	32,332	29,330	19,972	7,502	217,626
Purchase of sites ... ..		...	...	...	...	...	...	*92,587
Other ... ..		...	...	...	...	...	...	*43,558
Total	85,615*	2,414,887	1,496,299	895,743	543,248	570,091	205,509	6,347,537

* Particulars of apportionment to each State not available.

21. **Balance Sheet of the Postmaster-General's Department.**—The first complete balance sheet and profit and loss account of the Postmaster-General's Department was presented in November, 1913, for the year ending 30th June, 1913. The balance sheet for the year 1915-16 has now become available, and discloses the fact that the working of the Postmaster-General's Department for that year resulted in a surplus of £207,902, from which must be deducted £523,892 for interest on capital, pensions and retiring allowances, making a total deficit of £315,990.

Tables shewing the results of the working of the Department for the years 1912-13, to 1915-16 are appended :—

**GENERAL PROFIT AND LOSS ACCOUNT, POSTMASTER-GENERAL'S DEPARTMENT,
1912-13 to 1915-16.**

Items.	1912-13.	1913-14.	1914-15.	1915-16.†
Total earnings ...	£ 4,243,292	£ 4,523,368	£ 4,620,061	£ 5,049,569
Total working expenses	4,273,985	4,589,601	4,761,714	4,841,667
Deficit	30,693	66,233	141,653	*207,902
Interest on capital ...	376,409	435,223	488,069	523,892
Total deficit	407,102	501,456	629,722	315,990

* Profit. † Excluding Wireless Telegraphy Branch, which was transferred to the Department of the Navy as from 1st July, 1915.

It will be seen from the above that, despite the increasing revenue of the Department, the total deficit has grown from £407,102 in 1912-13 to £629,722 in 1914-15. The deficit for 1915-16, however, was the smallest for the period for which balance-sheets have been issued. In the annual report for the year 1913-14, the increased deficit of that year over 1912-13 was stated by the Department to be "due to several factors, chief amongst which are higher rates of salaries and wages resulting from statutory increments, and large increases under Arbitration awards affecting postal electricians and linesmen, increased cost of contracts for the conveyance of inland mails, and increased prices for stores, fodder, horse-hire, printing, and increased debits for interest on additional capital expenditure." Effects of the drought and the war upon earnings, combined with increased charges to working expenses under the heading of depreciation (on account of assets dismantled during the year), are regarded by the Department as responsible for the deficit of £629,722 on the working for 1914-15. Increases of salaries under arbitration awards, increased amounts payable for mail contracts, and greatly enhanced prices for various items of stores, are responsible for the larger total of working expenses in 1915-16.

The following tables show the yearly results of the working of the various branches, and the Department as a whole, and in each State from 1913-14 to 1915-16 :—

**PROFIT OR LOSS OF THE VARIOUS BRANCHES OF THE POSTAL DEPARTMENT,
1913-14 to 1915-16.**

Branch.	1913-14.		1914-15.	1915-16.	
	Loss.	Profit.	Loss.	Loss.	Profit.
Postal ...	£ ...	£ 24,155	£ 81,296	£ ...	£ 42,131
Telegraph ...	151,446	...	114,555	86,426	...
Telephone ...	296,424	...	390,704	271,695	...
Wireless Telegraph ...	35,656	...	43,167	...	...
Pensions and retiring allowances and interest on general assets...	42,086	...	*	*	...
	525,612	24,155	629,722	358,121	42,131

* The amounts have been distributed among the above branches.

**PROFIT OR LOSS OF THE POSTAL DEPARTMENT IN THE VARIOUS STATES,
1913-14 to 1915-16.**

State.	1913-14.		1914-15.	1915-16.	
	Loss.	Profit.	Loss.	Loss.	Profit.
	£	£	£	£	£
New South Wales ...	228,949	...	238,612	170,800	...
Victoria ...	...	13,683	32,555	...	59,413
Queensland ...	110,221	...	97,480	68,594	...
South Australia ...	...	327	7,226	...	34,446
Western Australia ...	148,244	...	224,065	154,874	...
Tasmania ...	28,053	...	29,784	15,580	...
	515,467	14,010	629,722	409,848	93,858

22. **Royal Commission on Postal Services.**—In 1908 a Royal Commission was appointed to report on the Postal, Telegraphic, and Telephonic Services of the Commonwealth. An account of the work done by the Commission will be found in previous issues of the Year Book. (See Year Book No. 6, p. 766.)

§ 2. Telegraphs.

1. **First Lines Constructed.**—The electric telegraph was first introduced into Australia for use by the public in the year 1854, when a line from Melbourne to Williamstown was opened. The first line in South Australia, from Adelaide to Port Adelaide, was opened in 1856, while the first line in New South Wales was brought into operation in 1858, when the line from Sydney to Liverpool, twenty-two miles in length, was opened. In Tasmania the first telegraphic line was completed in 1857, while in the following year communication was established between Sydney, Melbourne, and Adelaide. The first lines to be constructed in Queensland were those between Brisbane and Warwick, and Brisbane and Lytton, distances of 169 and 12 miles respectively. These lines were working in 1861. In Western Australia the first telegraph constructed was from Perth to Fremantle, a distance of twelve miles, which was brought into use in 1869, and in the same year the cable joining Tasmania with the continent of Australia was completed.

2. **Development of Services.**—During the period from 1871 to 1881 great progress was made throughout Australia in the way of telegraphic construction, over 14,000 miles of line, exclusive of railway telegraph lines, being opened for use during the period mentioned, making the total length of the line open at the end of the year 1881, 25,470 miles. At the present time the systems of telegraph lines throughout Australia are well developed. The longest line extends from Thursday Island, in Torres Strait, by submarine cable to Paterson, on the mainland of Cape York Peninsula; from Paterson the line runs in a southerly direction as far as Brisbane, where it joins the main interstate line to Sydney, Melbourne, and Adelaide; from Adelaide it runs to Port Augusta, then on to Port Lincoln, on Eyre's Peninsula, and thence to Eucla, on the Western Australia boundary; from Eucla the line extends along the coast of the Great Australian Bight to Albany, and thence it runs adjacent to the west coast of Western Australia as far as Onslow, *via* Perth, Geraldton, and Carnarvon. From Onslow connection extends to Broome, in Roebuck Bay, from which place communication is made to Singapore by the Eastern Extension Company's cable. From Roebuck Bay the line crosses the Kimberley district in an easterly direction, and then runs north as far as the

terminus at Wyndham. In Queensland a line runs to Burketown, near the coast of the Gulf of Carpentaria, *via* Normanton; another line extends to Cloncurry and Urandangi, in the extreme west of the State. Branch lines extend to all important coastal and inland towns, while considerable networks of lines converge from the country districts towards the centres of population. From Adelaide the transcontinental line runs in a northerly direction to Darwin, from which place communication is provided with Europe by submarine cable by way of Batavia, Singapore, and Madras. In Western Australia a line runs from Eucla to the Coolgardie goldfields *via* Balladonia and Dundas, and from Coolgardie communication is provided with Perth and with Sir Samuel, in the East Murchison district.

3. **Number of Telegraph Offices and Length of Lines and Wire Open.**—The following table shows the number of telegraph offices and the length of telegraphic lines and of telegraph wire available for use in the Commonwealth from 1914 to 1916 inclusive. It will be noticed that 71,267 miles of wire are available for both telegraph and telephone purposes:—

NUMBER OF TELEGRAPH OFFICES, AND LENGTH OF LINE AVAILABLE FOR USE, 1914 to 1916.

Particulars.	1914.	1915.	1916.
Number of Offices	5,160	5,612	6,119
Length of Wire—			
Telegraph purposes only	70,992	71,680	62,224
Telegraph and telephone purposes ..	52,288	60,061	71,267
Length of Line—			
Conductors in Morse Cable	2,834	2,883	2,959
Conductors in Submarine Cable ..	910	1,080	1,196
Pole routes	55,362	57,424	58,889

The following table gives corresponding particulars for each State for the year 1915-16:—

NUMBER OF TELEGRAPH OFFICES, LENGTH OF LINE AND WIRE, IN EACH STATE, 1915-16.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wth.
No. of Offices	2,107	1,796	798	501	492	430	6,119
Length of Wire (miles)—							
Telegraph purposes only	21,741	4,748	14,942	11,821	8,807	165	62,224
Telegraph and Telephone purposes ...	26,806	16,095	11,703	5,202	6,620	4,841	71,267
Length of Line (miles)—							
Conductors in Morse Cable	486	2,117	322	...	21	13	2,959
Conductors in Submarine Cable	590	437	66	54	...	49	1,196
Pole routes	22,398	6,784	12,411	6,554	8,344	2,398	58,889

4. **Revenue and Expenditure.**—Particulars as to the revenue from the telegraph systems for the years 1901 and 1911-16 are given on page 706, while particulars as to the expenditure on telegraph works for the year 1915-16 are given on page 707.

5. **Number of Telegrams Despatched.**—The following table shows the total number of telegrams despatched in the Commonwealth in 1901 and in each of the years 1910 to 1915-16 inclusive:—

NUMBER OF TELEGRAMS DESPATCHED (,000 OMITTED), 1901 and 1911-16.

Year	1901.	1910.	1911.	1912.	1913.	1914.	1915-16.
Number*	8,003	12,238	12,821	13,343	13,556	13,918	13,939

* Including interstate cablegrams.

The following table shows the number of telegrams despatched in each State in 1915-16 for delivery in that State, and the number despatched in each State for delivery in other States, and also the total number of telegrams—exclusive of cablegrams for places outside the Commonwealth—despatched in each State:—

NUMBER OF TELEGRAMS DESPATCHED IN EACH STATE, 1915-16 (000 OMITTED).

State, etc.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
Inland (counted once)	3,852	2,189	1,839	327	1,301	361	10,369
Interstate*	1,078	1,013	541	397	368	173	3,570
Total	4,930	3,202	2,380	1,224	1,669	534	13,939

* Including interstate cablegrams.

6. **Rates for Transmission of Telegrams.**—The present rates for the transmission of telegrams within the Commonwealth were fixed by section 7 of the Post and Telegraph Rates Act 1902, and came into force on the 1st November, 1902. Under this Act charges are made for telegrams according to whether they are "ordinary" or "press" telegrams. "Press" telegrams are defined to mean those the text of which consists of political, commercial, etc., information, and of news intended for publication in a newspaper. The telegram must be sent by an authorised correspondent, and must be addressed to a registered newspaper or recognised news agency. The subjoined tables show the scales of charges:—

SCALE OF CHARGES FOR ORDINARY TELEGRAMS.

Particulars.	Town and Suburban, within Prescribed Limits, or within 15 Miles from the Sending Station.	Other Places within the State, except Town and Suburban.	Interstate.
	s. d.	s. d.	s. d.
Including address and signature—			
Not exceeding 16 words	0 6	0 9	1 0
Each additional word	0 1	0 1	0 1

Double the foregoing rates are imposed for the transmission of telegrams on Sunday, Christmas Day, and Good Friday, and between the hours of 8 p.m. and 9 a.m., and for telegrams sent on "urgent" forms.

SCALE OF CHARGES FOR PRESS TELEGRAMS.

Particulars.	Within any State.		Interstate.		Relating to Parliamentary, Executive, Departmental, and other Commonwealth Proceedings as may be prescribed.*	
	s.	d.	s.	d.	s.	d.
No exceeding 25 words	0	6	1	0	1	0
From 26 to 50 words	0	9	1	6	1	6
From 51 to 100 words	1	6	3	0	1	6
Every additional 50 words	0	6	1	0	0	6

*Within the Commonwealth.

7. **Letter-telegrams.**—Commencing in February, 1914, the Postal Department instituted a system of letter-telegrams between all telegraph offices which are open between 7 p.m. and midnight. The letter-telegrams are forwarded during the night by telegraph to the office of destination and are delivered as ordinary letters by the first letter delivery, or are despatched by mail to the address in the ordinary way. The rates charged throughout the Commonwealth are one shilling for the first 40 words, and one half-penny for each additional word, double these rates being charged on Sundays. At present the service extends to 104 offices in the Commonwealth.

8. **Wireless Telegraphy.**—Previous to September, 1915, the Postmaster-General was, under the Wireless Telegraphy Act 1905, given the exclusive privilege of establishing and using stations and appliances for receiving and transmitting messages by wireless telegraphy within Australia. Licenses for experimental work were granted by the Postmaster-General under the authority of the Act, but were withdrawn on the outbreak of hostilities. In September, 1915, the administration of the Act was transferred to the Minister for the Navy.

In preparing the initial scheme for the construction of wireless stations in the Commonwealth it was evident viewing the insular position of Australia, that, for an effective system of radio-telegraphic communication to be given, not only must the service offered be continuous, but the distances separating the stations must to a great extent be governed by the normal working range of the vessels with which communication would have to be established. With this object in view, the Commonwealth Government have constructed and erected twenty stations at or near the following localities:—Port Moresby, Thursday Island, Cooktown, Townsville, Rockhampton, Brisbane, Sydney, Flinders Island, Melbourne, Hobart, King Island, Mount Gambier, Adelaide, Esperance, Perth, Geraldton, Broome, Roebourne, Wyndham, and Darwin. A low power station is in course of erection at Samarai Island (New Guinea). To these must be added the station installed at Macquarie Island (which has been used chiefly for meteorological purposes, but is not at present in use), also the lighthouses at Tasman Island and Cape Don, which have small installations. In the Pacific, the Commonwealth controls stations at Woodlark Island, Rabaul, Mandang, Nauru, and Kieta; all these, with the exception of Woodlark Island, being on former German territory now occupied by Australia. The rates for messages forwarded between the foregoing stations in the Pacific and the Commonwealth are 3d. per word, plus the ordinary land line charges of the Commonwealth. The stations at Sydney, Perth, and Woodlark Island are of a high-power type, the first-named being capable of communication with New Zealand and the radio-telegraphic stations in the Pacific, and the Perth

station with Cocos Island. All the other stations are of a lower power, and constitute the internal scheme of inter and ship-to-shore communication.

The working range by day—and under unfavourable conditions—of the low-power stations is 300 miles; that of the high-power stations being 1000 miles.

The ordinary ship-to-shore communication rates for ships registered by the Commonwealth or New Zealand are 5d. per word, allocated as follows:—3d. for land station and 2d. for ship station charge, while for vessels registered by other administrations the rates are 10d. per word, allocated as follows:—6d. for land station, and 4d. for the ship station charge. In all cases must be added the inland forwarding charge of 1d. per word. Between the Commonwealth and Port Moresby and Thursday Island the rate is 2d. per word, and between the mainland and Flinders' Island, King Island, or Macquarie Island, one penny per word, plus ordinary land line charges.

In December, 1909, a conference of representatives of the Commonwealth, New Zealand, the High Commissioner for the Western Pacific, Fiji, the Admiralty, and the Pacific Cable Board was convened at Melbourne to report upon the establishment of wireless telegraphy in the Pacific. The chief recommendations of this Conference were:—(a) That high-power stations be established at Sydney, Doubtless Bay (New Zealand), Suva (Fiji), and Ocean Island, and (b) that medium-power stations be established at Tulagi (Solomon Islands), and Vila (New Hebrides). The total cost of construction of the scheme covered by these recommendations was £42,000, while the total annual cost was estimated at £13,820 for a continuous service, and £9970 for a restricted service. It was proposed to apportion the cost between Great Britain, New Zealand, Fiji, and Australia. These recommendations were adopted by the Commonwealth Government, but the British Government would not agree to the erection of high-power stations at Suva and Ocean Island. Up to the present no further concerted action has taken place, but radio-telegraphic stations have been erected at Suva, Ocean Island, and Tulagi, under the control of the High Commissioner of the Pacific, and another at Vila is under construction, while the New Zealand Government has erected high-power stations at Awanui (Auckland), and Awarua (Bluff), and low-power stations at Auckland, Chatham Island and Wellington, and is also considering the erection of stations at Gisborne, New Plymouth, and Christchurch.

§ 3. Submarine Cables.

1. **First Cable Communication with the Old World.**—In previous issues of the Year Book (No. 6, p. 770) will be found a detailed account dealing with the connection of Australia with the old world by means of submarine cables.

2. **The Tasmania - Victoria Cables.**—A submarine cable joining Tasmania to the continent of Australia was opened for use in 1869, the total length being 170 miles. The line was owned by the Eastern Extension Telegraph Company, and was subsidised by the Tasmanian Government until the year 1909. On the 28th February, 1908, the Postmaster-General entered into an agreement with Messrs. Siemens Brothers and Company Ltd., of London, for the manufacture and laying of two submarine cables between Tasmania and Victoria. The new cables were taken over on the 24th March, 1909, and opened to the public on the 1st May, 1909, the day following the expiration of the agreement with the Eastern Extension Company. Their aggregate length is approximately 350 nautical miles of main cable, and 20 nautical miles each of intermediate and shore-end cable, making a total of 390 nautical miles. The contract price was £52,447.

3. The Eastern Extension Company's Cables.—In addition to the first Victoria-Tasmania cable and the original cable from Darwin (see Year Book No. 6, p. 770), the Eastern Extension Company has constructed several other cables connecting with various places in the Commonwealth. (a) In 1879 the original cable *via* Banjoewangie was duplicated, the States of New South Wales, Victoria, South Australia, Western Australia and Tasmania having agreed to pay the above company a subsidy of £32,400 per annum for a period of twenty years, the amount to be divided between the States on a population basis. (b) In 1881 a cable was constructed connecting Broome, in Roebuck Bay, W.A., with Banjoewangie; from Broome there is direct telegraphic communication with Perth, from which place communication is made with the Eastern States by the interstate line *via* Albany, Eucla, and Port Augusta. (c) In July, 1899, the company offered to lay a cable direct to Great Britain *via* the Cape of Good Hope, and also offered reductions in the rates charged, if the States would agree to certain conditions giving the company the right of direct dealing with the public. The States of South Australia, Western Australia, and Tasmania accepted the terms offered, and New South Wales entered into the agreement in January, 1901. The cable was opened *via* Fremantle and Durban in October, 1901. (d) Another submarine cable from Fremantle to Adelaide forms an alternative line of communication between the Eastern States and Western Australia. (e) There is an alternative route, partly belonging to the Eastern Extension Company and connecting the Port Darwin-Singapore cable with London, *via* Hong Kong, Shanghai, Possiet Bay (Pacific Russia), Libau (Russian Baltic), and Newbiggin (England). (f) In 1909 a cable was laid from Java to Cocos Island, thus affording another route from Australia to South Africa, whilst in April, 1911, a radio-telegraphic station was opened at Cocos Island, thus strengthening the line of communication between Australia and the East.

4. The Pacific Cable.—In July, 1898, a conference of representatives of Great Britain, Canada, New South Wales, Victoria, Queensland, South Australia and New Zealand was held for the purpose of considering a project for a cable to be laid across the Pacific Ocean, touching only British territory on its way from Australia to Canada, thus providing an "All Red" route, as it is termed, for a cable system between England and Australia. In the following year it was agreed at a meeting held by representatives of the countries interested that the cable should be laid and that Great Britain and Canada should each pay five-eighteenths of the cost, and the States of New South Wales, Victoria, Queensland, and the Dominion of New Zealand should each pay one-ninth. The construction and management of the cable were placed under the control of a Board composed of seven members—two each from Great Britain, Canada, and Australia, and one from New Zealand—called the Pacific Cable Board. The Australian shore-end of the cable was landed at Southport, Queensland, in March, 1902, and the cable was completed on the 31st October, 1902, and opened for traffic on the 7th December of the same year. There are cable-stations at Norfolk Island, Fiji, and Fanning Island, and a branch cable runs from Norfolk Island to New Zealand. In 1910 the Board leased a wire from Bamfield, British Columbia, to Montreal, thus extending the Pacific cable system from Queensland to Montreal. The traffic is then carried across the Atlantic to the United Kingdom by the cables of the Anglo-American and Commercial Companies. The receipts for the year ended 31st March, 1916, were sufficient to meet the working expenses, interest and sinking fund, and, in addition, provided a surplus of £17,925, of which the Commonwealth proportion is £5975. No distribution of this surplus will, however, be made, as it must be applied in reduction of the outstanding balance of the original loan of £2,000,000 in accordance with the Pacific Cable Act of 1901. The following table shews particulars of the revenue, expenditure, total profit or loss, and the proportion of the loss payable by the Commonwealth for each financial year since the opening of the cable:—

**REVENUE, EXPENDITURE, AND PROFIT AND LOSS ON WORKING OF
PACIFIC CABLE, 1903 to 1916.**

Year ended the 31st March.	Revenue.		Expenditure (in- cluding Annuities and Renewal Fund).		Profit or Loss.		Commonwealth Proportion of Loss, or Profit.	
	£		£		£		£	
1903 ...	...	...	...	...	Loss	90,518	Loss	30,514
1904 ...	80,118		167,869		"	87,751	"	29,250
1905 ...	87,446		163,296		"	75,850	"	25,283
1906 ...	91,952		164,508		"	72,556	"	24,185
1907 ...	113,516		167,439		"	53,923	"	18,307
1908 ...	110,160		172,523		"	62,363	"	20,787
1909 ...	113,093		173,981		"	60,888	"	20,295
1910 ...	111,724		171,312		"	59,588	"	19,862
1911 ...	138,678		186,888		"	48,210	"	16,071
1912 ...	159,150		199,649		"	40,499	"	13,500
1913 ...	167,901		200,171		"	32,270	"	10,757
1914 ...	197,848		217,798		"	19,950	"	6,650
1915 ...	225,045		232,961		"	7,916	"	2,638
1916 ...	310,516		292,592		Profit	17,924	Profit	5,975

* To 30th June in each year.

5. **New Zealand Cables.**—A submarine cable joining New Zealand to the Australian Continent was laid in 1876. The line is 1191 miles in length. The Australian shore-end of the cable is at Botany Bay, while the New Zealand terminus is at Wakapuaka, near Nelson, in the Middle Island, from which place another cable, 109 miles in length, is laid to Wanganui, in the North Island. For a period of ten years after its opening the cable was subsidised by the New South Wales and New Zealand Governments, the total contributions amounting to £10,000 a year. The branch from Norfolk Island to New Zealand of the Pacific cable was opened on the 23rd April, 1902. The length of this cable is 597 miles, the New Zealand terminus being at Doubtless Bay in the north of the North Island. During 1911 a scheme to lay a second cable between New Zealand and Australia (Auckland to Sydney) was adopted by the various Governments concerned, and the laying of the new cable was completed on the 24th December, 1912, the cable being opened for traffic on the 31st December, 1912.

6. **The New Caledonian Cable.**—In April, 1892, a French company, known as the Compagnie Française des Câbles Télégraphiques, entered into an agreement with the French, the New South Wales, and the Queensland Governments to lay down a submarine cable between New Caledonia and Queensland in return for guarantees by the French Government to the extent of £8000, and by the Governments of New South Wales and Queensland to the amount of £2000 each annually for a period of thirty years. The cable was opened for use in October, 1893, the Australian shore-end being at Bundaberg. The guarantees of the Governments of New South Wales and Queensland have now been transferred to the Commonwealth Government.

7. **Number of Cablegrams Received and Despatched.**—The subjoined table shews the number of cablegrams received and despatched in the Commonwealth from 1913 to 1915-16:—

CABLEGRAMS RECEIVED AND DESPATCHED, COMMONWEALTH, 1913 to 1915-16.

Particulars.	Cablegrams Received.			Cablegrams Despatched.			Total Cablegrams Received and Despatched.		
	1913.	1914.	1915-16.	1913.	1914.	1915-16.	1913.	1914.	1915-16.
Number... ..	301,621	305,384	437,151	309,140	325,841	387,402	610,761	631,225	824,553

The following table shews the total number of cablegrams received and despatched in each State during the year 1915-16. The figures given are exclusive of interstate cablegrams, which are classed as interstate telegrams (see § 2 hereof):—

NUMBER OF CABLEGRAMS RECEIVED AND DESPATCHED IN EACH STATE. 1915-16.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.*	C'wealth.
Number received ...	211,490	150,951	23,313	24,510	18,855	8,032	437,151
„ despatched ...	186,487	133,088	22,077	18,660	20,040	7,050	387,402
Total ...	397,977	284,039	45,390	43,170	38,895	15,082	824,553

* Exclusive of interstate cablegrams, which are included with interstate telegrams (see § 2 ante).

8. Lengths of Cable Routes.—The following table gives the lengths of various cable routes:—

LENGTHS OF CABLE ROUTES.

Via Roebuck Bay.		Via Darwin.		Via South Africa.	
	Miles.		Miles.		Miles.
Perth to Roebuck Bay ...	1,485	Adelaide to Darwin ...	2,134	Perth to Mauritius ...	4,417
Roebuck Bay to Banjoewangie ...	970	Darwin to Banjoewangie ...	1,150	Mauritius to Durban ...	1,786
Banjoewangie to London ...	9,841	Banjoewangie to London ...	9,841	Durban to Cape Town ...	800
				Cape Town to Madeira ...	5,715
				Madeira to Penzance ...	1,341
				Penzance to London ...	260
Total ...	12,296	Total ...	13,125	Total ...	14,319

Via Vancouver.		Via Russia.	
	Miles.		Miles.
Southport (Queensland) to Norfolk Island ...	963	Sydney to Darwin ...	2,992
Norfolk Island to Suva (Fiji) ...	1,129	Darwin to Hong Kong ...	4,237
Suva to Fanning Island ...	2,351	Hong Kong to Possiet Bay ...	2,647
Fanning Island to Bamfield (Canada) ...	3,980	Possiet Bay to Libau ...	6,399
Across Canada ...	3,450	Libau to Newbiggin (England) ...	1,657
Canada to Ireland ...	2,450		
Total ...	14,323	Total ...	17,932

9. Cable Rates.—In 1872 the cable rate to England was nine guineas for twenty words, but when word rates were brought into general use in 1875, the rate between Great Britain and Australia was fixed at ten shillings and sixpence, subsequently altered to ten shillings and eightpence. In 1886 the Eastern Extension Telegraph Company reduced the rate to nine shillings and fourpence a word for ordinary messages, to seven shillings and a penny for Government messages, and to two shillings and eightpence a word for press messages. At a conference of the postal and telegraphic authorities held in March, 1891, the proposal to reduce the rates to four shillings a word for ordinary messages, three shillings and eightpence for Government, and one shilling and tenpence for press messages was agreed to, the States of New South Wales, Victoria, South Australia, Western Australia, and Tasmania undertaking to make good half the loss which the Eastern Company might suffer through such reductions. The States guaranteed to the company one-half of the amount of receipts short of the sum of £237,736—the amount received by the company in 1889 in respect of cable charges—the other half to be borne by the company. The Government of South Australia was also guaranteed by the other contracting States against any loss to the revenue which the lower cable rates might cause in the working of the overland lines. Queensland subsequently joined the other States in these guarantees. In 1893, however, owing to the heavy losses incurred,

the rates for ordinary messages were increased to four shillings and ninepence per word, and at the same time New Zealand joined the guarantees to the company and to South Australia.

(i.) *Present Rates to Great Britain.* On the acceptance by three of the States of the terms offered by the Eastern Extension Telegraph Company for the construction of a cable *via* South Africa, the rate for ordinary messages was reduced in May, 1900, to four shillings a word. It was further reduced to three shillings and sixpence in January, 1901, and to three shillings in January, 1902, at which amount the standard rate by all routes for cablegrams to Great Britain has since remained. The scale of reductions is governed by a revenue standard, and when the latter averages £330,000 per annum a further reduction to two shillings and sixpence will be made. In September, 1912, the "through" charge for press cables was reduced from ninepence to sevenpence-halfpenny per word.

(ii.) *Deferred Cablegrams.* With a view to affording additional cable facilities and to keeping the Pacific cable fully occupied during the whole twenty-four hours, proposals were made by the Postmaster-General's Department for the adoption of a system of deferred cablegrams. A meeting of representatives of the Administrations and companies concerned was held in London in November, 1910, and the new rates came into force on the 1st January, 1912. Under this system a reduction of 50 % in the charges is made, providing the message is written in plain language, and conveys no other meaning than that which appears on the face of it. Messages can only be transmitted after non-urgent private cablegrams and press cablegrams. Those which have not reached their destination within a period of twenty-four hours from the time of handing in are transmitted in turn with cablegrams charged full rate. They may be sent *via* the Pacific or Eastern routes to all countries to which the ordinary rate exceeds tenpence per word. The arrangement, previous to the war, extended to some sixty countries, and became very popular. The number of deferred ordinary words transmitted to and received from all countries with which the system is in operation, in 1915-16, was 5,283,191, the resulting Commonwealth revenue being £55,220. A comparison with the previous year's results discloses an increase in the number of words of 2,349,012, and in the revenue of £24,593. This service, together with that of the week-end cable letters, has to some extent affected the ordinary cable business. Deferred press cablegrams, subject to a delay of 18 hours, may be exchanged between the Commonwealth and the United Kingdom at the rate of 4½d. per word, and between the Commonwealth and Vancouver at the rate of 1½d. per word. Since the commencement of the war, it has been found necessary on several occasions, owing partly to the interruption to the Pacific cable from September to November, 1914, and partly to the pressure of other cable matter, to temporarily suspend the operation of the deferred cablegram service, as well as that of the week-end cable messages.

(iii.) *Week-End Cable Letters.* The service of the week-end cable letters between the Commonwealth and the United Kingdom was introduced on the 4th January, 1913. Under this arrangement, messages written in plain language might be lodged at any post office in the Commonwealth or the United Kingdom in time to reach the forwarding cable office by post or telegraph by midnight on Saturday. The messages, which were deliverable by post on Tuesday morning, were charged at the rate of ninepence per word, plus ordinary telegraph rates if required to be forwarded by land telegraph in either the country of despatch or destination.

The system has since been extended to apply to messages between the Commonwealth and the Union of South Africa, India, Ceylon, Burmah, Canada, Portugal, and Newfoundland. A further benefit has been conferred on users, and week-end cables to the countries enumerated may now be transmitted by telegraph throughout without extra charge. The rates to these countries and to the United Kingdom are shewn hereunder:—

RATES FOR WEEK-END CABLE LETTERS.

Country.	Rate per Word.	Minimum Charge per Telegram.
United Kingdom ...	9d.	15/-
Union of South Africa ...	7d. (plus $\frac{1}{2}$ d. for those lodged in Tasmania)	11/8
India, Ceylon, and Burma ...	7 $\frac{1}{2}$ d.	12/6
Canada (ordinary rate 2s. 4d.)	7d.	11/8
Other parts of Canada ...	8d. to 10d.	12/11 to 16/8
Newfoundland ...	8 $\frac{1}{2}$ d.	13/9
Portugal... ..	9d.	15/-

Week-end cable letters may also be sent to the United Kingdom or Canada for transmission by registered post to other countries at an extra charge of 5d. per message. As in the case of deferred cablegrams, the pressure on the cables during the war has, on several occasions, necessitated the temporary suspension of this service.

(iv.) *Rates to New Zealand.* As a result of the completion of the New Zealand branch of the Pacific cable in 1902, the rates charged for cablegrams between Australia and New Zealand, except to and from Tasmania, were uniformly reduced to fourpence-halfpenny per word. Between New Zealand and Tasmania the charge was fixed at fivepence-halfpenny a word, but it has since been reduced to fourpence-halfpenny. The charge for ordinary cablegrams from New Zealand to Great Britain was reduced from the 1st June, 1902, from five shillings and twopence to three shillings and fourpence a word, and has since been further reduced to three shillings a word.

10. Subsidised Press Cable Service.—In October, 1909, a Select Committee of the Commonwealth Senate was appointed to report upon the question of the supply, conditions of sale, and distribution, which control the Press Cable Service within and from outside the Commonwealth. A majority report of this Committee was issued in December, 1909, and recommended (a) the completion of an "All Red" cable route *via* Canada, (b) the conditional subsidisation of a press cable association, (c) the utilisation of the High Commissioner's office for the dissemination in Australia of Empire news, and (d) the amendment of the Copyright Act in regard to cables.

In accordance with the recommendations of this Committee the Commonwealth granted a total subsidy of £6000, extending over a period of three years, to the Independent Press Cable Service, on the conditions that at least 6000 cable words were supplied each week, to be sent *via* Pacific, and that any newspaper proprietary in the Commonwealth was permitted to become a subscriber at rates approved by the Government. This terminated on the 1st July, 1912, and a new arrangement was entered into under which the Commonwealth agrees to grant a subsidy of £2000 per annum, providing that not less than 26,000 words are sent each month. This agreement has been extended for a period of three years from 1st October, 1916, with an annual grant of £1500.

11. Cable Subsidies paid by each State.—The agreement between the State Governments and the Eastern Extension Telegraph Company expired on the 30th April, 1900. Since the year 1895 the amounts guaranteed—£237,736 to the company and £37,552 to South Australia—have been met by the receipts, and the contracting States have, therefore, not been called upon to contribute.

(i.) *Total Subsidies Paid.* The following table shews the total amounts paid by way of cable subsidies for the years 1909-10 to 1915-16:—

TOTAL AMOUNT OF CABLE SUBSIDIES PAID, 1909-16.

Year.	1909-10.	1910-11.	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.
Amount ...	£ 23,862	20,093	17,522	14,779	10,650	6,638	4,860

(ii.) *Subsidies Paid by each State.* The total amount of cable subsidies paid prior to the year 1908-9 included the subsidy paid in respect of the Tasmania-Victoria cable service.

As the agreement in connection with the Tasmanian cable expired in 1909, and as new cables have been laid by the Commonwealth Government (see page 713 *ante*), the guarantees were, in the course of the year 1910, reduced to those in connection with the New Caledonia and Pacific cables. The amount of cable subsidies paid by the Commonwealth in 1915-16 was £4860 in respect of the New Caledonian cable guarantee.

§ 4. Telephones.

1. *Development of Telephone Services.*—The Postal Department has established telephone services in all the capital towns and in many of the important centres of population throughout the Commonwealth. Particulars as to the revenue from telephone services in each State for the years 1901 and 1911-16 are given on page 706 *ante*, while particulars of the expenditure on telephone works in each State for the year 1915-16 are given in a table on page 707.

2. *Telephone Rates.*—On the 10th December, 1915, revised charges for telephone services came into operation. Under the new scale, ground-rent for telephones is calculated on the number of subscribers connected with the exchange or network, instead of being based on the total population residing within the telephone network, as formerly. The smallest and greatest rental charges remain the same as under the old system, but between these a more gradual scale was introduced. Previously the charge for calls made by a subscriber was at the rate of two calls for one penny up to 2000 calls per half-year; above that number, three calls for one penny. This charge was increased to one penny per call, without any progressive reduction. At the same time, the public telephone charge per call was increased from one penny to twopence. The charges mentioned in the table hereunder are payable for the different classes of telephone services specified therein:—

TELEPHONES.—RENTAL CHARGES, 30th JUNE, 1916.

Exchanges or Networks with Subscribers' Lines Connected, as shewn hereunder.	Radius of Network with Main Exchange as Centre.	Annual Ground Rent, within Two-mile Radius.		
		For an Exclusive Service.	For each Subscriber or Instrument on a Two-party Service.	For each Subscriber or Instrument on a Three or more party Service.
From 1 to 300	Miles. 5 ¹ / ₂	£ s. d. 3 0 0	£ s. d. 2 10 0	£ s. d. 2 0 0
„ 301 to 600	5	3 5 0	2 10 0	2 0 0
„ 601 to 1,500	5	3 10 0	2 15 0	2 5 0
„ 1,501 to 4,000	10	3 15 0	3 0 0	2 10 0
„ 4,001 and upwards	10	4 0 0	3 0 0	2 10 0

It is provided that for each effective call originating from a subscriber's instrument, the charge shall be one penny.

3. *Particulars of Telephone Services.*—On 30th June, 1916, there were in the Commonwealth 128,862 telephone lines connected to 1882 exchanges, as compared with 125,108 lines connected to 1673 exchanges a year previously. The following tables shew the mileage of lines, etc., for telephone purposes, shewing trunk lines separately, on 30th June, 1915 and 1916:—

MILEAGE OF LINES, ETC., FOR TELEPHONE PURPOSES (EXCLUSIVE OF TRUNK LINES, 1915 and 1916.

Particulars.	1915.	1916.
Conduits ... duct miles	1,853	2,101
Conductors in Aerial Cables ... loop mileage	34,437	39,299
„ Underground Cables ... „	160,115	178,161
„ Cables for Junction Circuits ... „	18,331	22,081
Open Conductors ... single wire mileage	161,133	168,440

MILEAGE OF WIRES, TELEPHONE TRUNK LINES, 1915 and 1916.

Particulars.	1915.	1916.
	Miles.	Miles.
Telephone Trunk Lines only ...	24,883	23,226
Telegraph and Telephone purposes ...	60,061	71,267

Particulars relating to the telephone service in each State will be found in the following table :—

PARTICULARS OF TELEPHONE SERVICE, 1905, 1915 and 1916.

Particulars.	Year.	N.S.W.	Vic.	Qld.	S.A.	W.A.	Tas.	Total C'wth.
No. of Exchanges ...	1905	64	23	19	11	16	16	149
	1915	608	536	223	128	95	83	1,673
	1916	705	586	248	143	105	95	1,882
No. of Lines Connected ...	1905	14,338	9,269	3,864	2,335	*3,462	1,523	*34,791
	1915	50,765	35,592	16,747	9,608	8,437	3,959	125,108
	1916	51,905	36,372	17,742	10,184	8,530	4,129	128,862
No. of Instruments Connected ...	1905	18,616	14,299	4,235	3,246	*4,857	1,751	*47,004
	1915	63,422	45,939	20,175	12,615	10,627	4,535	157,313
	1916	69,010	48,812	21,433	13,404	10,852	4,908	168,416
No. of Subscribers' Instruments ...	1915	63,318	44,815	19,236	12,312	10,061	4,496	154,238
	1916	66,532	46,497	20,312	12,846	10,235	4,421	160,843
No. of Public Telephones ...	1915	1,074	1,125	546	428	272	292	3,737
	1916	1,317	1,169	736	457	325	459	4,463
No. of other Local Instruments ...	1915	104	1,124	939	303	566	39	3,075
	1916	1,161	1,146	382	101	292	28	3,110
Instruments per 100 of Population ...	1905	1.3	1.2	.8	.9	1.9	.9	1.2
	1915	3.2	3.2	2.9	2.8	3.2	2.2	3.1
	1916	3.7	3.5	3.1	3.1	3.4	2.4	3.4
Earnings ...	1915	£ 432,391	£ 321,170	£ 157,461	£ 95,498	£ 70,438	£ 32,934	£ 1,109,892
	1916	508,594	355,484	180,577	112,103	79,117	37,612	1,273,467
Working Expenses ...	1915	508,190	326,959	132,266	81,834	136,214	38,437	1,223,900
	1916	533,411	319,576	150,379	84,173	110,721	39,028	1,237,287
Percentage of Working Expenses to Earnings ...	1915	117.53	101.80	84.00	85.69	193.38	116.71	110.27
	1916	104.88	89.90	83.28	75.09	139.95	103.77	97.16

Note.—For 1905 the figures are shown as on 31st December, and for the subsequent years on 30th June (the close of the financial year). * Approximate.

SECTION XIX.

COMMONWEALTH FINANCE.

§ 1. General.

1. Financial Provisions of the Constitution.—The main provisions of the Constitution relating to the initiation and development of the financial system of the Commonwealth are those contained in Chapter IV., "Finance and Trade," being sections 81 to 105 of the Constitution Act. Two other sections which have a most important bearing on questions of Commonwealth finance are sections 69 and 51. For subsequent modification of, and addition to, the original clauses, the enquirer is referred to sub-sections 5 and 6 hereunder.

2. Departments Transferred or Transferable under Constitution.—In section 69 it is provided that the Departments of Customs and Excise in each State should become transferred to the Commonwealth on its establishment, and that on a date or dates to be proclaimed by the Governor-General after the establishment of the Commonwealth the following departments should become transferred:—

- (i.) Posts, telegraphs, and telephones.
- (ii.) Naval and military defence.
- (iii.) Lighthouses, lightships, beacons and buoys.
- (iv.) Quarantine.

Under proclamation dated 12th February, 1901, and published in the Commonwealth *Gazette* of the 14th of that month, the Departments of Posts, Telegraphs, and Telephones in each State became transferred to the Commonwealth as from the 1st March, 1901, while under a similar proclamation dated 19th February, 1901, and gazetted on the 20th, the Departments of Naval and Military Defence in each State also became transferred to the Commonwealth as from 1st March, 1901. In the case of Quarantine, an Act (No. 3 of 1908) has been passed and control has been assumed by the Commonwealth.

The requisite proclamation of transfer in the case of departments dealing with "Lighthouses, lightships, beacons, and buoys," was made so as to effect the transfer on 1st July, 1915, although legislation relative thereto was passed by the Federal Parliament very much earlier (Act No. 14, 1911).

3. Departments Transferable by Means of Commonwealth Legislation.—In addition to the departments here mentioned which pass to the Commonwealth either automatically or by proclamation, there are several others whose duties the Commonwealth is empowered to undertake after the passing by the Commonwealth of the legislation necessary to authorise the assumption of such duties. These are referred to in section 51 of the Constitution, which contains a statement of all matters respecting which power is (subject to the Constitution) conferred on Parliament "to make laws for the peace, order and good government of the Commonwealth." The matters contained in this section include those already mentioned as being covered by section 69. The principal matters involving for the due performance of the duties connected therewith the creation or transfer of departments of the Public Service are:—

- (i.) Trade and commerce.
- (ii.) Taxation.
- (iii.) Bounties on production or export of goods.

- (iv.) Postal, telegraphic, telephonic, and other like services.
- (v.) Naval and military defence.
- (vi.) Lighthouses, lightships, beacons, and buoys.
- (vii.) Astronomical and meteorological observations.
- (viii.) Quarantine.
- (ix.) Census and statistics.
- (x.) Bankruptcy and insolvency.
- (xi.) Copyrights, patents, and trade marks.
- (xii.) Naturalisation and aliens.
- (xiii.) Marriage.
- (xiv.) Divorce and matrimonial causes.
- (xv.) Invalid and old-age pensions.
- (xvi.) Immigration and emigration.
- (xvii.) Conciliation and arbitration.

4. Commonwealth Departments.—As a result of legislation passed from time to time in accordance with section 51, various departments and sub-departments have been transferred from the States to the Commonwealth, whilst other departments necessary for the due performance of the Commonwealth functions have been brought into existence. In the former class are such departments as those of Patents, Trade Marks, Copyrights, Designs, Naturalisation and Meteorology, while in the latter are the Ministerial Departments of External Affairs,* Home Affairs,* Treasury, Trade and Customs, Defence, Attorney-General and Postmaster-General, as well as such general departments as Public Service Commissioner's Office, Treasury, Audit Department, Crown Law Department, Bureau of Census and Statistics, Federal Taxation Office, Prime Minister's Office, and Interstate Commission. It may, therefore, be said that, so far as its financial aspect is concerned, the effect of Federation up to the present time has been the transfer from States to Commonwealth of the revenue obtainable from the great revenue-producing Departments of Customs and Excise, and of the expenditure connected with various departments, whose number is gradually increasing, and that, in addition, the various functions of the Commonwealth have necessitated further new expenditure.

5. Financial Relations between Commonwealth and States.—For the first ten years after Federation the financial relations between the Commonwealth and State Governments were regulated by section 87 of the Constitution, known generally as the "Braddon Clause." This provided that the Commonwealth should, until 31st December, 1910—and thereafter so long as Parliament should decide—retain for its own use an amount not exceeding one-fourth of the net revenue from Customs and Excise duties, the balance being returned to the States. The framers of the Constitution only contemplated a moderate Federal expenditure, and doubtless considered that one-fourth of the Customs and Excise revenue would be sufficient, as, indeed, it was in the earlier years. It began to be realised, however, later on, that if the Commonwealth was to undertake large national duties such as Defence, a greatly increased expenditure must be faced. Consequently, on the expiry of the "Braddon Clause" in 1910, it was replaced by an agreement much more favourable to the Commonwealth. This agreement, known as the "Commonwealth Surplus Revenue Act 1910," was passed by the Fisher Administration for a period of ten years, after which time it would be subject to revision. It provided that the Commonwealth was to retain the whole of the Customs and Excise revenue, and to make to the Government of each State (by monthly instalments) an annual payment equal to 25s. per head of the population of the State. The population of a State in any financial year was considered, for the purposes of this Act, to be the number estimated by the Commonwealth Statistician as existing in the State on the 31st December falling in that financial year.

* Portions of these departments were amalgamated, at the end of 1916, into a new department called "Home and Territories."

6. **Special Assistance.**—By the same Act provision was made that, during the period of ten years succeeding 1st July, 1910, a special payment should be made to Western Australia of an annual sum, starting at £250,000 for the first year, and progressively diminishing by £10,000 each subsequent year. One half of the amount was to be debited to all the States (including Western Australia) in proportion to population.

Assistance has also been granted to Tasmania, partly by means of the "Tasmania Grant Act of 1912," and partly by means of a special sum allocated by the Budget of 1913. According to the "Grant Act" a sum of £500,000 was set aside to be paid to Tasmania by ten annual instalments, starting at £95,000, and progressively diminishing by £10,000 until £5000 is reached. In the Budget of 1913 a further sum of £400,000 was allotted to Tasmania, to be paid in nine annual instalments, starting at £5000 and progressively increasing by £10,000 until the last payment, which will, however, be £80,000 instead of £85,000. As the result of these two grants Tasmania will have a first annual instalment of £95,000, then eight instalments of £90,000 each, and a final one of £85,000.

These concessions to Western Australia and Tasmania have been granted in consideration of the sacrifices made by these States, when yielding control of their Customs revenue to the Commonwealth. The whole question of the financial relations between the Commonwealth and States since Federation has been fully treated in the chapters on Commonwealth Finance in all previous issues of the Year Book, up to and including No. 6.

7. **Accounts of Commonwealth Government.**—The Commonwealth Government, like the States' Governments operates nearly all its accounts by means of three funds, the Consolidated Revenue Fund, the Trust Fund, and the Loan Fund. The latter only came into existence in the financial year 1911-12, but on the outbreak of war became so important that it is now treated in two parts: a General Loan Fund for purposes of Public Works, and a War Loan Fund for purely military purposes. The accounts of these funds are now so interwoven, that a proper conspectus of the Commonwealth Accounts can hardly be obtained by an analysis of each of them singly. Two tables are therefore appended, shewing receipts and disbursements from all sources for the last five years. The different funds will then be treated in detail, in the subsequent sections.

COMMONWEALTH RECEIPTS, 1911-12 to 1915-16.

Heading.	1911-12.	1912-13.	1913-14.	1914-15	1915-16.
	£	£	£	£	£
Consolidated Revenue	20,548,520	21,907,084	21,741,775	22,419,798	30,762,216
Trust Funds in aid of Revenue ... ..	...	475,342	1,418,958	1,224,347	...
Total	20,548,520	22,382,426	23,160,733	23,644,145	30,762,216
General Loan Fund	700,000	1,300,000	2,100,000	(a)2,429,319	2,859,341
Unexpended Balance of General Loan Fund from previous years ... ..	...	39,525	151,498	96,237	...
Total	700,000	1,339,525	2,251,498	2,525,556	2,859,341
War Loan Fund in aid of Revenue ... ..	...	...	...	(b)14,100,000	57,656,683
Grand Total	21,248,520	23,721,951	25,412,231	40,269,701	91,278,240

(a) Includes £371,118 Treasury Bills credited by the Treasury to Consolidated Revenue.

(b) Credited by the Treasury to Consolidated Revenue.

COMMONWEALTH EXPENDITURE, 1911-12 to 1915-16.

Heading.	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.
	£	£	£	£	£
Expenditure from Consolidated Revenue	14,299,599	14,930,180	15,458,776	16,056,023	21,415,221
Expenditure from Trust Funds ... ..	...	475,342	1,418,958	1,224,347	...
Subsidy to States	5,824,423	6,119,930	6,282,999	6,363,775	6,316,995
Balance paid into Trust Funds	424,498	856,974	...	...	3,000,000
Total	20,548,520	22,382,426	23,160,733	23,644,145	30,762,216
General Loan Fund Expenditure	660,475	1,188,027	2,155,261	2,525,556	2,859,341
Unexpended Balance from General Loan Fund	39,525	151,498	96,237	...	...
Total	700,000	1,339,525	2,251,498	2,525,556	2,859,341
War Expenditure from War Loan Fund	...	...	...	(a)14,100,000	37,423,568
Temporary Advances to States from War Loan Fund ... ..	...	...	...	...	2,950,000
Unexpended Balance from War Loan Fund ... ..	...	...	...	...	17,283,115
...	...	...	...	14,100,000	57,656,683
Grand Total	21,248,520	23,721,951	25,412,231	40,269,701	91,278,240

(a) See footnote (b) to previous table.

§ 2. Consolidated Revenue Fund.

(A) Nature of Fund.

The provisions made for the formation of a Commonwealth Consolidated Revenue Fund, and the means to be adopted for operating on that fund, are contained in sections 81, 82, and 83 of the Constitution. In section 81 it is provided that "All revenues or moneys raised or received by the Executive Government of the Commonwealth shall form one Consolidated Revenue Fund, to be appropriated for the purposes of the Commonwealth in the manner and subject to the charges and liabilities imposed by this Constitution." A strictly literal interpretation of this section would appear to require all loan and trust moneys received by the Commonwealth Executive to be paid to Consolidated Revenue. It is, however, held by Quick and Garrahan, in their "Annotated Constitution," that the "generic word *moneys* must be controlled by the preceding specific word *revenues*, and limited to moneys in the nature of revenue." This is the view of the matter which has been adopted by the Commonwealth Treasury in the preparation of its accounts. At present certain moneys received by the Commonwealth, which are not of the nature of revenue, are paid to Trust Account. As regards expenditure from the Consolidated Revenue Fund, section 82 provides that the costs, charges, and expenses incident to the collection, management, and receipt of the Consolidated Revenue Fund should form the first charge thereon, while section 83 stipulates that "no money shall be drawn from the Treasury of the Commonwealth except under appropriation made by law." Such appropriations are either special, and as such are provided for by means of a permanent Act, or are annual, and provided for in an annual Appropriation Act.

(B) Revenue.

1. **Total Collections.**—The consolidated revenue of the Commonwealth, which in 1901-2, the first complete financial year under the new régime, amounted to £11,296,985, had, in 1915-16, reached a total of £30,762,216, an increase in the period of £19,465,231.

Particulars concerning the total amount of revenue collected by the Commonwealth Government from 1st July, 1911, to 30th June, 1916, are contained in the following table:—

CONSOLIDATED REVENUE OF THE COMMONWEALTH, 1911-12 to 1915-16.

	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.
Commonwealth ...	£ 20,548,520	£ 21,907,084	£ 21,741,775	£ 22,419,798	£ 30,762,216

Since 1911-12 the revenue has increased steadily every year, except that 1913-14 shews a slight decline from 1912-13. In 1914-15 the revenue was augmented by instalments, amounting to £14,100,000, of the War Loan from the British Government, and also by £371,118 Treasury Bills in aid of revenue. The great increase in 1915-16 is due to the large expansion in the direct taxation, which will be dealt with in detail in a later section.

2. Collections per Head.—In the table given hereunder particulars are furnished of the amount of revenue per head of population collected in respect of the Commonwealth for the last five years:—

COMMONWEALTH REVENUE PER HEAD OF POPULATION, 1911-12 to 1915-16.

	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.
Commonwealth ...	£ s. d. 4 9 11	£ s. d. 4 12 7	£ s. d. 4 9 3	£ s. d. 4 10 9	£ s. d. 6 4 9

3. Sources of Revenue.—The following table furnishes particulars concerning the Commonwealth revenue derived from each source during the years 1911-12 to 1915-16:—

SOURCES OF COMMONWEALTH REVENUE, 1911-12 to 1915-16.

Sources of Revenue.	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.
	£	£	£	£	£
Customs	12,071,434	13,055,925	12,652,737	12,105,698	13,610,684
Excise	2,636,702	2,497,109	2,325,333	2,771,556	3,323,419
Postal	3,916,254	4,226,313	4,511,307	4,594,542	5,053,596
Defence	74,298	39,193	22,836	219,152	881,115
Patents	19,081	18,355	22,393	17,165	15,457
Trade Marks, Copyrights, and Designs	5,639	5,637	5,932	4,741	5,175
Quarantine	9,875	13,162	15,173	13,768	19,242
Coynage	156,489	122,647	208,348	208,515	359,720
Public Service Pension Funds, Repay- ments and Transfers	39,027	42,006	36,824	44,817	47,604
Land Tax	1,366,457	1,564,794	1,609,836	1,953,696	2,040,436
Probate and Succession Duties ... ..	...	...	...	39,646	626,215
Income Tax ... ..	...	...	...	...	3,932,775
Northern Territory	31,225	40,084	54,777	53,026	64,780
Credit Balance Northern Territory Funds ... ..	...	24,456	...	...	...
Miscellaneous	220,039	257,403	270,179	393,476	791,968
Total	20,548,520	21,907,084	21,741,775	22,419,798	30,762,216

In addition to the new direct taxation, which has already been mentioned, there has been an appreciable increase in the customs and excise returns. The postal revenue has also shewn a steady upward tendency. The principal items included in the "Miscellaneous" are Lighthouses and Light Dues; receipts from Kalgoorlie-Port Augusta Railway; and Interest.

4. **Customs Revenue for Past Five Years.**—Particulars for the Commonwealth as a whole, for the five years 1911-12 to 1915-16, are furnished in the following table:—

COMMONWEALTH CUSTOMS REVENUE, 1911-12 to 1915-16.

Classes.	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.
	£	£	£	£	£
Stimulants	2,706,058	2,777,492	2,810,222	2,899,540	2,500,606
Narcotics	1,150,990	1,206,782	1,175,404	1,257,223	1,333,516
Sugar	275,077	691,568	209,375	60,403	587,028
Agricultural products	996,953	1,072,203	1,002,363	1,087,133	1,310,437
Apparel and textiles	2,385,786	2,367,945	2,514,170	2,302,764	2,902,012
Metals and machinery	1,554,983	1,639,749	1,672,125	1,638,416	1,572,536
Oils, paints, etc.	285,737	313,348	310,847	311,545	386,994
Earthenware, etc.	375,403	490,983	426,134	338,095	368,300
Drugs and chemicals	104,341	109,619	122,960	131,764	160,997
Wood, wicker, and cane	501,278	535,576	555,843	455,860	365,969
Jewellery, etc.	309,309	281,631	272,214	253,290	335,147
Leather, etc.	386,824	435,801	470,382	428,106	505,652
Paper and stationery	230,212	237,943	234,504	269,443	346,158
Vehicles	279,828	328,001	343,633	303,868	499,140
Musical instruments	176,009	165,839	166,059	83,570	100,562
Miscellaneous articles	313,505	361,350	330,548	248,977	295,895
Other receipts	39,141	40,095	35,954	35,701	39,735
Total Customs	12,071,434	13,055,925	12,652,737	12,105,698	13,610,684

It will be seen that throughout the period here dealt with, the Customs revenue from stimulants and narcotics has represented, approximately, one third of the total Customs revenue, except in the last year, when the proportion was only about two-sevenths. The other principal articles from which Customs revenue was derived were "apparel and textiles," "metals and machinery," and agricultural "products."

5. **Excise Collections, 1911-12 to 1915-16.**—Particulars concerning the amount of Excise collected under each head during each of the years ending 30th June, 1912 to 1916, are given hereunder:—

COMMONWEALTH EXCISE REVENUE, 1911-12 to 1915-16.

Particulars.	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.
	£	£	£	£	£
Beer	694,001	718,869	792,243	1,205,001	1,485,543
Spirits	376,440	411,192	421,506	514,794	627,431
Sugar	748,670	518,508	179,149	1,508	(a)170
Tobacco	810,242	840,012	927,293	1,043,885	1,204,556
Licenses	9,349	8,528	5,142	6,368	6,059
Total Excise	2,638,702	2,497,109	2,325,333	2,771,556	3,323,419

(a) Debit.

Comparing the Excise collections for 1915-16 with those for 1911-12, it will be seen that the increase in the revenue from tobacco was about 50 per cent., the yield from beer was more than doubled, and that from spirits increased about 67 per cent., while the revenue from sugar has vanished, owing to the abolition of the excise duties, and a decrease was also experienced in the return from licenses.

6. Commonwealth Direct Taxation.—(a) General. Under section 51, sub-section (ii.) of the Constitution, power is given to the Commonwealth Parliament to make laws with respect to taxation, but so as not to discriminate between States or parts of States. Section 90 of the Constitution makes the power of the Commonwealth Parliament to impose Customs and Excise duties an exclusive one, but it would appear that as regards all other forms of taxation the States and Commonwealth possess concurrent powers. The question of the imposition by the Commonwealth Parliament of direct taxes such as land and income taxes is one which has been the subject of considerable discussion, and the opinion has been expressed that the intention of the framers of the Constitution was that of restricting the powers of taxation of the Commonwealth to the imposition of Customs and Excise duties except in cases of great national peril. Whatever the intention of the framers may have been in this matter, the Constitution itself contains no such provision, and the Commonwealth Parliament is given an absolutely free hand in the imposition of taxation. Up to the end of the financial year 1909-10 the only taxes so levied were those of Customs and Excise, referred to in detail in the foregoing paragraphs. During the 1910 session of the Federal Parliament, however, an Act—assented to on 17th November, 1910—was passed, giving to the Commonwealth the power of levying a tax upon the unimproved value of all lands within the Commonwealth which were owned by taxpayers, and not specially exempted. Detailed reference to this Act will be found in Commonwealth Year Books Nos. 5 and 6.

(b) *Budget of 1914-15.* The fact stated in the previous paragraph, that there was nothing in the Constitution itself to restrain the Federal Government from entering the field of direct taxation, received further exemplification by the Budget of 1914-15. In the first place the Land Tax was raised by altering the graduation so that the increase in rate over the whole taxable value of the estate, for each succeeding pound of taxable value between £5000 and £75,000, was one eighteen-thousand seven-hundred and fiftieth of a penny, instead of one thirty-thousandth of a penny, as hitherto. The maximum rate for resident owners now becomes 9d. in the £ on estates whose taxable value is more than £75,000. Corresponding increases in the rates payable by absentee owners were made, rising to a maximum of 10d. in the £ on estates whose taxable value is more than £80,000. These advances were estimated as likely to increase the annual yield of the Land Tax by £1,000,000. In addition to this substantial increase in an already existing tax, the Federal Government, for the first time, introduced Succession Duties on estates of deceased persons, in addition to those already imposed by the State Governments. The Commonwealth scale of succession duty, after starting by the exemption of all estates of less than £1000, ranges from a minimum of 1 per cent. to a maximum of 15 per cent. on estates of a higher taxable value than £71,000. The rate of duty for any estate may be found by the following rule. Divide the number of thousands of pounds in the estate by five, and to the quotient thus obtained add $\frac{2}{5}$ per cent. in the case of an exact thousand, and $\frac{1}{5}$ per cent. in every other case. Thus for an estate of £43,000 the duty would be $9\frac{1}{2}$ per cent. (i.e. $4\frac{2}{5} + \frac{2}{5}$), but for an estate of £43,001 the duty would be $9\frac{2}{5}$ per cent. (i.e. $4\frac{2}{5} + \frac{1}{5}$). The succession duties thus outlined yielded £39,646 up to 30th June, 1915, an amount very much less than the estimate. It is possible, however, that sufficient account was not taken of the interval that frequently elapses between a person's death and the taking out of probate on the estate. This is borne out by the great increase in the yield for the year 1915-16. The respective contributions of the several States are as follows:—

COMMONWEALTH PROBATE AND SUCCESSION DUTIES.

Year.	N.S.W.	Vic.	Qld.	S.A.	W.A.	Tas.	Total.
1914-15	£ 18,474	£ 9,216	£ 4,774	£ 1,900	£ 1,912	£ 3,370	£ 39,646
1915-16	261,477	276,923	23,928	32,790(a)	8,530	22,567	626,215

(a) Including Northern Territory, £164.

(c) *Commonwealth Income Tax.*—(i.) The first Commonwealth Income Tax was levied during the financial year 1915-16. The legislation on the subject comprised the Income Tax Assessment Act No. 34 of 1915, as amended by the Income Tax Assessment Act No. 47 of 1915, whilst the prescribed schedule of rates was contained in Act No. 41 of 1915, as amended by Act No. 48 of 1915. Various estimates as to the probable yield were made, varying from £3,000,000 to £4,000,000, and the confidence of those who quoted the higher amount was justified by the result. The result of the first assessment was as follows:—

COMMONWEALTH INCOME TAX ASSESSMENTS, 1916.

States.	Number of Assessments.	Tax Assessed.	Average Tax Payable.
		£	£
Central	8,426	1,393,878	165.4
New South Wales	88,415	1,197,762	13.5
Victoria	67,123	682,463	10.2
Queensland	29,800	507,366	17.0
South Australia	16,126	161,311	10.0
Western Australia	18,921	190,712	10.0
Tasmania	6,300	63,632	10.1
	235,111	4,197,124	17.9

The "Central" returns relate to those taxpayers with income in more than one State.

(ii.) The principal exemptions are as follows:—

- (a) The salaries of the Governor-General and the various State Governors.
- (b) Income derived from the different Commonwealth securities issued for the purposes of the War Loan Act (No. 1) 1915.
- (c) The revenue of a municipal corporation or other local governing body.
- (d) The income of religious, scientific or charitable institutions.
- (e) The income of friendly societies, trade unions, or any associations registered under an Act for the settlement of industrial disputes.

(iii.) *Deductions.* The following deductions, amongst others, are allowed:—

- (a) All rates and taxes paid in Australia, exclusive of those paid under this Act.
- (b) Life assurance premiums and fidelity guarantee payments not exceeding a total of £50.
- (c) Payments not exceeding £50 to a friendly society, sustentation fund, superannuation, widows or orphans fund.

(d) Gifts exceeding £20 each to public charitable institutions, and contributions exceeding £5 to a public fund connected with the present war.

(e) The sum of £26 in respect of each child under sixteen years at the beginning of the financial year, wholly maintained by any taxpayer who is not an absentee.

(iv.) *Special deduction: Income derived from personal exertion.*

(a) The sum of £156 less £1 for every £4 by which the income exceeds £156.

Special deduction: Income derived from property.

(b) The sum of £156 less £5 for every £11 by which the income exceeds £156.

When the total taxable income consists partly of income from personal exertion and partly of income from property, the deduction is to be apportioned pro rata between the income from each source.

(v.) It is worthy of note that in the taxation of companies there is deducted from the income not only all the deductions already allowed for, but also so much of the income as is distributed to the members, or shareholders.

(c) *New Taxation in 1916-17.*—The Commonwealth Treasurer, on 27th September, 1916, made an interim financial statement in lieu of the formal Budget for 1916-17. Certain new taxation was proposed, and an old tax—the income tax—was increased. Some of the Treasurer's proposals were modified in detail ultimately by his successor in office. Details are as follows:—

Income Tax.—An increase of 25 per cent. was imposed, and it was decided that in the case of single persons without dependents no one should pay a less amount than £1. The general exemption was reduced to £100 in the case of single tax-payers with no dependents who were not absentees, but the exemption for each child under 16 was increased from £13 to £26.

Entertainments Tax.—This tax was to amount to 1d. for a ticket costing between 6d. and one shilling, and $\frac{1}{2}$ d. for each additional 6d., or part thereof.

War Time Profits Tax.—This tax has recently been passed by Parliament. It provides for a tax on the amount by which the profits made in a war-time financial year (1st July to 30th June following), exceeds the pre-war standard of profits, which may be either:—(a) the average profits of two of the three years before 4th August, 1917, or (b) 10 per cent. on the capital employed in a business. The tax in respect of profits derived in the financial year 1st July, 1915, to 30th June, 1916, is 50 per cent., and in all subsequent years 75 per cent.

7. *Commonwealth Land Tax.*—Particulars as to the Land Tax assessment for each State for the year ending 30th June, 1915, the latest available return at the time of writing, will be found in the following table. Details in regard to rate of tax, etc., will be found in Year Books Nos. 5 and 6.

PARTICULARS OF LAND TAX ASSESSMENT FOR EACH STATE OF THE COMMON-WEALTH FOR THE YEAR ENDING 30th JUNE, 1916.

State.	Number of Taxable Returns.	Unimproved Value as ascertained by Department.	Tax Assessed.		
			Town.	Country.	Total.
		£	£	£	£
Central—					
Resident ...	1,456	36,475,504	340,448	360,640	701,088
Absentee ...	214	501,737	5,948	2,502	8,450
	1,670	36,977,241	346,396	363,142	709,538
New South Wales—					
Resident ...	4,553	70,483,037	257,753	397,519	655,272
Absentee ...	578	1,453,662	12,039	5,369	17,408
	5,131	71,936,699	269,792	402,888	672,680
Victoria—					
Resident ...	4,372	48,332,425	117,169	202,715	319,884
Absentee ...	721	1,177,498	12,375	4,284	16,659
	5,093	49,509,923	129,544	206,999	336,543
Queensland—					
Resident ...	1,127	13,674,298	28,670	72,515	101,185
Absentee ...	245	353,701	1,913	1,865	3,778
	1,372	14,027,999	30,583	74,380	104,963
South Australia—					
Resident ...	1,544	16,556,802	43,459	74,052	117,511
Absentee ...	315	351,160	2,825	572	3,397
	1,859	16,907,962	46,284	74,624	120,908
Western Australia—					
Resident ...	494	6,525,327	29,256	26,653	55,909
Absentee ...	1,073	436,048	2,206	785	2,991
	1,567	6,961,375	31,462	27,438	58,900
Tasmania—					
Resident ...	494	5,519,731	8,585	29,192	37,777
Absentee ...	289	222,315	500	843	1,343
	783	5,742,046	9,085	30,035	39,120
Grand Total—					
Resident ...	14,619	197,567,124	825,340	1,163,286	1,988,626
Absentee ...	2,856	4,496,121	37,806	16,220	54,026
	17,475	202,063,245	863,145	1,179,506	2,042,652

8. Details of Postal Revenue, 1911-12 to 1915-16.—Particulars concerning the postal revenue of the Commonwealth for each of the financial years from 1911-12 to 1915-16 are contained in the following table:—

COMMONWEALTH POSTAL REVENUE, 1911-12 to 1915-16.

Particulars.	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.
Private boxes and bags ...	£ 23,383	£ 25,618	£ 27,744	£ 29,995	£ 30,743
Commission—					
Money orders & postal notes	121,432	129,653	134,834	129,760	137,355
Telegraphs ...	788,441	811,592	834,316	878,238	893,904
Telephones ...	752,423	860,726	996,047	1,099,417	1,220,855
Postage ...	2,088,866	2,260,000	2,391,424	2,338,489	2,525,873
Miscellaneous ...	141,709	138,724	126,942	118,643	244,866
Total ...	3,916,254	4,226,313	4,511,307	4,594,542	5,053,596a

(a) These figures are taken from the Auditor-General's Report, and differ slightly from those on page 707 owing to certain small adjustments.

9. Revenue from Patents.—Under the Commonwealth Patents Act 1903, which was assented to on 22nd October, 1903, and came into force on 1st June, 1904, the complete control of the Patents administration of Australia passed from the several State Governments to that of the Commonwealth, which, under section 19 (a) of the Act mentioned, was authorised to collect for each State the fees to which it was entitled under the State Act in respect of proceedings then pending.

The revenue collected since the financial year 1911-12 is shewn in the following table:—

COMMONWEALTH PATENTS REVENUE, 1911-12 to 1915-16.

	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.
	£	£	£	£	£
Revenue ...	19,081	18,355	22,393	17,165	15,487

10. Revenue from Trade Marks, etc.—Under the several Acts of the Commonwealth Legislature relating to trade marks, copyrights, and designs, the Commonwealth Government has assumed the exclusive administration of such matters, and now collects all revenue accruing therefrom. The following table gives particulars of the amounts since this item first appeared in the Commonwealth accounts:—

COMMONWEALTH TRADE MARKS, COPYRIGHTS AND DESIGNS REVENUE, 1911-12 to 1915-16.

	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.
	£	£	£	£	£
Revenue ...	5,639	5,637	5,932	4,741	5,175

11. Defence Revenue.—The revenue appearing under the head of "Defence" comprises the receipts derived from the sale of stores and clothing, from fines, etc., and for 1915-16 amounted to £881,115.

12. Coinage.—The revenue for the Commonwealth under this head is derived from the profit on coin issued, and is made up of £347,297 from silver coin and £12,423 from bronze coin.

(c) Expenditure.

1. **Nature of Commonwealth Expenditure.**—The disbursements by the Commonwealth Government of the revenue collected by it fell naturally, under the "book-keeping"* system, into three classes, viz.:—

- (a) Expenditure on transferred services.
- (b) Expenditure on new services.
- (c) Payment to States of surplus revenue.

Of these three, only the first two were actual expenditure, the last being merely a transfer, the actual expenditure being incurred by the States. In accordance with the provisions of the Constitution, the expenditure on transferred services was, under the "book-keeping" system, debited to the several States in respect of which such expenditure was incurred, while the expenditure on new services was distributed *per capita*. Surplus Commonwealth revenue was paid to the States monthly. During the earlier years of Federation, viz., until the end of the year 1903-4, new works, etc., for transferred departments were treated as transferred expenditure, and were charged to the States on whose behalf the expenditure had been incurred. In subsequent years all such expenditure was regarded as expenditure on new services, and was distributed amongst the States *per capita*. Under the new system of keeping the accounts there is no further debiting of expenditure to the several States.

2. **Total Expenditure.**—The expenditure by the Commonwealth Government during the period 1911-12 to 1915-16 is shewn in the following table:—

COMMONWEALTH EXPENDITURE, 1911-12 to 1915-16.

	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.
	£	£	£	£	£
Commonwealth ...	14,724,097	15,787,154	15,458,776	16,056,023	21,415,221

The largely increased expenditure of recent years is due partly to Old-age and Invalid Pensions, partly to fleet construction, and partly to such public works as the Transcontinental Railway, Federal Capital, etc. In 1914-15 an additional amount of £14,471,118 was spent, made up of £14,100,000 war loan from the Imperial Government, and £371,118 Treasury Bills in aid of revenue. In 1915-16 the expenditure included £3,000,000 set aside for the purposes of Invalid and Old-age Pensions in subsequent years. These totals include amounts paid into Trust Funds, but exclude subsidy to States.

3. **Expenditure per Head.**—Particulars concerning the Commonwealth expenditure per head are furnished hereunder:—

COMMONWEALTH EXPENDITURE PER HEAD, 1911-12 to 1915-16.

	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Commonwealth ...	3 4 6	3 6 8	3 3 5	3 5 0	4 19 0

4. **New Works, etc.**—As previously mentioned, the Commonwealth expenditure on new works, etc., for transferred departments was, prior to 1904-5, included under the head of "transferred" expenditure, but in that and subsequent years up to 1909-10 has been treated as "other" expenditure, and debited to the States *per capita*. Particulars of the expenditure on new works, etc., during the last five years are given in the following table:—

* For an exposition of the "book-keeping system" see Commonwealth Year Book No. 6, p. 780.

COMMONWEALTH EXPENDITURE ON NEW WORKS, ETC., 1911-12 to 1915-16.

Departments.	1911-12.	1912-13. (a)	1913-14. (b)	1914-15.	1915-16.
	£	£	£	£	£
Defence	1,953,195	1,258,277	1,079,940	1,520,684	1,940,682
Trade and Customs	15,015	51,272	56,014	66,338	133,976
Postmaster-General	1,443,115	1,088,022	1,121,632	831,828	644,134
Home Affairs... ..	128,290	186,345	266,124	217,784	168,898
External Affairs	23,276	65,290	50,653	30,647	50,598
Treasury	3,476	4,076	1,637	6,396	2,547
	3,566,367	2,653,282	2,576,000	2,673,939 (c)	2,940,835

(a) In addition, the following amounts were spent from Trust Funds:—£475,342 for Fleet construction, and £413,097 for Telegraphs and Telephones. (b) In addition, the following amounts were spent from Trust Funds: £721,437 for Fleet construction, and £16,493 for Telegraphs and Telephones. (c) Includes £262 for Attorney-General's Department.

It will be seen that the Commonwealth expenditure under this head has become very considerable in recent years. The main cause of this great amount is the large expenditure on fleet construction.

5. **Cost of Departments, etc.**—Arranged in such a manner as to shew under each Department the expenditure on behalf of that Department, the cost of the several branches of the Commonwealth service for the years 1911-12 to 1915-16 was as follows:—

COST OF COMMONWEALTH DEPARTMENTS, ETC., 1911-12 to 1915-16.

Departments, etc.	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.
	£	£	£	£	£
Governor-General	23,842	21,648	17,815	24,750	23,535
Parliament	189,550	281,261	243,163	340,605	263,397
Prime Minister	14,863	57,559	82,847	56,642	60,790
External Affairs	494,010	539,722	678,974	595,178	840,199
Attorney-General	62,899	66,517	82,442	78,466	86,164
Home Affairs	155,628	129,972	152,289	440,932	592,251
Treasury	2,368,596	2,910,224	2,787,034	2,527,833	3,817,851
Trade and Customs	1,024,369	875,784	730,458	551,318	589,121
Defence	2,128,649	2,612,687	2,950,722	3,545,086	4,518,534
Navy ... ..	...	...	...	...	2,324,173
Postmaster-General	4,330,896	4,781,524	5,157,022	5,221,274	5,358,371
All other Expenditure	3,990,865	3,510,256	2,576,000	2,673,939	2,940,835
Total	14,724,097	15,787,154	15,458,776	16,056,023	24,415,221

(a) Exclusive of £14,471,118 spent from loans in aid of Revenue.

(b) Including £3,000,000 carried forward in respect of Old Age and Invalid Pensions in subsequent years.

The largeness of the expenditure under the head of Parliament in the year 1912-13 was in great measure due to the fact that the general elections were held in that year, while the expenditure in connection with the sugar bounties is mainly responsible for the variations which have taken place in the cost of the Department of Trade and Customs. The amount paid in Old-age and Invalid Pensions is included in Treasury expenditure for every year. More detailed reference to the items included under the above general heads is furnished in the succeeding paragraphs.

6. **Governor-General.**—In section 3 of the Constitution it is enacted that, until the Commonwealth Parliament otherwise provides, there shall be payable out of the Consolidated Revenue Fund for the salary of the Governor-General an annual sum of ten thousand pounds, and a proviso is made that the salary of the Governor-General shall not be altered during his continuance in office. The total expenditure in connection with the Governor-General and his establishment for the five years 1911-12 to 1915-16 is as follows:—

EXPENDITURE, GOVERNOR-GENERAL AND ESTABLISHMENT, 1911-12 to 1915-16.

Details.	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.
	£	£	£	£	£
Salary	9,973	10,000	10,000	10,000	10,000
Governor-General's Establishment	10,113	6,983	5,118	5,573	4,365
Contingencies	3,756	4,665	2,697	9,177	9,170
Total	23,842	21,648	17,815	24,750	23,535 <i>a</i>

(a) See also General Government, § 1, paragraph, 7.

7. **Parliament.**—Under this head have been grouped all the items of expenditure connected with the Parliamentary government of the Commonwealth, including the salaries of the Ministers and the allowances to senators and members of the House of Representatives. Details for the five years 1911-12 to 1915-16 are furnished in the table given hereunder:—

EXPENDITURE, COMMONWEALTH PARLIAMENT, 1911-12 to 1915-16.

Details.	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.
	£	£	£	£	£
Salaries of Ministers	12,000	12,000	12,000	12,000	13,597
Allowances to Senators	20,997	20,950	21,004	18,979	21,000
Allowances to Members of House of Representatives	43,257	39,198	43,745	39,556	43,132
Officers, staff, contingencies, etc.	30,985	32,873	36,703	36,347	37,746
Repairs, maintenance, etc.	1,814	3,172	2,808	4,411	6,085
Printing	16,829	19,341	20,078	21,429	17,817
Travelling expenses of Members and others	10,029	9,252	10,627	10,173	10,458
Insurance	342	342	342	342	342
Electoral Office	5,578	6,764	11,716	49,815	49,155
Election expenses	1,435	82,370	28,252	84,600	1,360
Referendum	4,183	...	...	...	21,334
Administration of Electoral Act	39,863	54,441	54,541	57,691	34,687
Miscellaneous	2,238	558	1,347	5,262	6,684
Total	189,550	281,261	243,163	340,605	263,397

In section 66 of the Constitution, provision is made that there shall be payable out of the Consolidated Revenue Fund of the Commonwealth, for the salaries of Ministers of State, an annual sum which, until Parliament otherwise provides, shall not exceed £12,000. This was modified in 1915-16, when the Minister of the Navy was given separate Cabinet rank. Allowances to senators and members of the House of Representatives are also provided for in the Constitution, section 48 of which specifies that until Parliament otherwise provides, each such allowance shall consist of £400 a year, reckoned from the day on which the member takes his seat. During the second session of the Commonwealth Parliament in 1907 the question of allowances to members came under consideration, and an Act was passed raising the annual allowance from £400 to £600, such increase to date from 1st July, 1907. This provision is still in force.

8. **Prime Minister's Department.**—This is a new department created during the financial year 1911-12. In addition to the Prime Minister's Office it includes the Audit Office taken from the Treasury, the Executive Council taken from the External Affairs

Department, and the Public Service Commissioner's Office taken from the Home Affairs Department. The expenditure for the five years of its existence is shewn in the following table :—

EXPENDITURE, PRIME MINISTER'S DEPARTMENT, 1911-12 to 1915-16.

Details.	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.
	£	£	£	£	£
Salaries, Contingencies, etc.	4,447	21,685	8,961	11,087	11,906
Executive Council ...	109	128	152	164	137
Audit Office ...	9,454	10,663	12,167	10,943	11,574
Rent, Repairs, etc. ...	761	3,381	2,552	2,829	3,021
Public Service Commissioner's Office...	...	20,683	22,303	23,255	21,252
Miscellaneous ...	92	1,019	36,712	8,364	12,900
Total ...	14,863	57,559	82,847	56,642	60,790

9. **External Affairs.**—Under the control of the Department of External Affairs is placed the expenditure in connection with the London Office, Papua and the Northern Territory. The expenditure in connection with the Northern Territory is exclusive of the Customs and Postal expenditure. Particulars for the five years 1911-12 to 1915-16 are as follows :—

EXPENDITURE, EXTERNAL AFFAIRS DEPARTMENT, 1911-12 to 1915-16.

Details.	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.
	£	£	£	£	£
High Commissioner ...	3,000	3,000	3,000	3,000	3,000
Chief Office ...	15,684	16,486	18,320	17,547	19,263
London Office ...	14,282	21,351	24,606	38,064	28,759
Papua ...	30,280	64,987	60,640	44,126	50,543
Rents, repairs, etc. ...	1,298	1,500	1,466	1,261	1,160
Northern Territory ...	248,758	281,140	335,850	413,436	669,440
Port Augusta Railway ...	119,426	85,965	102,394		
Miscellaneous ...	61,282	65,293	132,698	77,744	68,034
Total ...	494,010	539,722	678,974	595,178	840,199

10. **Northern Territory.**—The Department of External Affairs assumed control of the administration of the Northern Territory from 1st January, 1911, and separate accounts were issued for the first time in the Treasurer's statement for the financial year ending 30th June, 1911. The chief sources of revenue for the year ending 30th June, 1916, were the Customs and Excise, amounting to £21,282, and railways £29,150. The Postal revenue amounted to £7366, whilst the total revenue was £97,180. The chief items of expenditure were as follows :—Postal Department, £18,315 ; goldfields and mining, £21,506 ; and railways, £52,395. The total expenditure was £282,188. In addition to this expenditure the Commonwealth is liable for interest on loans and redemption, which for this financial year totalled £464,510. The deficiency for the year was £649,518.

REVENUE, NORTHERN TERRITORY, 1911-12 to 1915-16.

Details.	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.
	£	£	£	£	£
Customs and Excise	12,562	12,337	12,628	13,466	21,282
Credit Balance paid by South Aust. ...	...	24,456	...	...	...
Miscellaneous	34,120	44,158	61,029	69,599	75,898
Deficiency for year	364,368	388,658	458,878	391,862	649,518
Total	411,050	469,609	532,535	474,927	746,698

EXPENDITURE, NORTHERN TERRITORY, 1911-12 to 1915-16.

Details.	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.
	£	£	£	£	£
Interest and Redemption	284,755	227,561	246,271	246,442	464,510
Miscellaneous	126,295	242,048	286,264	228,485	282,188
Total	411,050	469,609	532,535	474,927	746,698

11. **Papua.**—The sums shewn in the above table as expenditure in connection with Papua represent the Commonwealth grants towards the cost of administering that territory, as well as certain additional amounts. The ordinary revenue and expenditure of Papua are kept distinct from those of the Commonwealth. Apart from the Commonwealth contribution, the principal source of revenue is the Customs House. Details for the five years 1911-12 to 1915-16 are as follows :—

PAPUAN REVENUE, 1911-12 to 1915-16.

Details.	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.
	£	£	£	£	£
Customs dues	37,751	33,453	37,341	32,244	33,931
Other collections	13,284	18,882	17,363	19,717	15,380
Commonwealth grant	30,000	(a)48,000	30,000	30,000	30,000
Total	81,035	100,335	84,704	81,961	79,311

(a) Including £18,000 for special purposes.

The expenditure for 1915-16 totalled £77,913, out of which £34,874 was spent on the Government Secretary's Department, and £19,357 on the Departments of Agriculture, Lands, and Public Works. The total expenditure for each of the five years 1911-12 to 1914-15 was as follows :—

PAPUAN EXPENDITURE, 1911-12 to 1915-16.

Particulars.	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.
	£	£	£	£	£
Total expenditure	85,636	89,170	81,095	82,535	77,913

12. **Attorney-General's Department.**—The extra expenditure connected with this Department of late years has been brought about in large measure by the extension of the Federal High Court, the total cost of which, including the Court of Conciliation and Arbitration, for the year 1914-15, amounted to £34,623, and in 1915-16 to £40,084. The expenditure on Patents, Trade Marks, Copyrights, and Designs was included for the first time in 1911-12. Details for the five years 1911-12 to 1915-16 are furnished hereunder:—

EXPENDITURE, ATTORNEY-GENERAL'S DEPARTMENT, 1911-12 to 1915-16.

Details.	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.
	£	£	£	£	£
Attorney-General's Office	4,449	5,279	6,302	5,852	10,457
Crown Solicitor's Office	4,829	6,046	7,565	8,371	10,078
Salaries of Justices of High Court	15,500	16,495	21,500	21,175	21,500
High Court expenses	6,772	6,839	11,209	9,862	9,947
Court of Conciliation and Arbitration	4,047	4,690	6,450	3,586	8,637
Rent, repairs, etc.	3,411	3,745	3,733	4,755	3,412
Patents, Trade Marks, etc.	23,291	22,768	24,439	23,485	20,579
Miscellaneous	600	655	1,244	1,380	1,554
Total	62,899	66,517	82,442	78,466	86,164

13. **Home Affairs Department.**—The creation of new departments such as the Bureau of Census and Statistics, and the Meteorological Bureau, and the extension of the field of operations of the Public Works branch, all of which are grouped for general administrative purposes under the Department of Home Affairs, have led to a considerable increase in the expenditure. The large increase in "Miscellaneous" for 1913-14 was due to an item of £32,916, representing interest on that portion of the Commonwealth Inscribed Stock which was allocated to the expenditure of this department. In 1914-15 the "Miscellaneous" had increased to £131,276, and included £87,019 for interest on Commonwealth Inscribed Stock. In 1915-16 the interest on Commonwealth Inscribed Stock had increased to £97,131, whilst the interest on Treasury Bills was £98,888. The interest charge is heavy, since a large proportion of the general loan expenditure is due to railway expansion. The expenditure on this department is likely to increase materially owing to the extension of Public Works. Particulars for the five years 1911-12 to 1915-16 are as follows:—

EXPENDITURE, HOME AFFAIRS DEPARTMENT, 1911-12 to 1915-16.

Details.	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.
	£	£	£	£	£
Chief Office	15,684	22,606	26,337	27,381	30,311
Public Service Commissioner	17,881	(a)	(a)	(a)	(a)
Public Works	17,192	26,054	11,546	8,885	6,327
Census and Statistics	68,857	29,886	21,662	15,936	15,796
Meteorological Bureau	22,389	22,729	23,639	25,614	25,302
Rents, repairs, etc.	6,111	7,796	12,070	15,874	16,570
Railways ... ..	...	...	...	215,966	275,759
Miscellaneous	7,514	20,901	57,045	131,276	222,186
Total	155,628	129,972	152,299	440,932	592,251

(a) Now included in Prime Minister's Department.

14. **Treasurer's Department.**—The sub-departments under the control of the Commonwealth Treasurer are the Treasury, the Old-age Pensions Department, and the Taxation Office. The Audit Office was transferred to the Prime Minister's

Department in 1911-12. The statements in previous Year Books, up to No. 5 inclusive, have been rearranged so as to include expenditure on Invalid and Old-age Pensions from 1908-9. The rather large item for "Miscellaneous" in 1914-15 includes the Belgian grant of £100,000. Details of the expenditure of this department for each of the five years 1911-12 to 1915-16 are furnished hereunder :—

EXPENDITURE, TREASURER'S DEPARTMENT, 1911-12 to 1915-16.

Details.	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.
	£	£	£	£	£
Treasury	13,708	17,052	22,696	26,291	26,996
Old-age pensions—Salaries, etc.	39,810	42,543	44,942	46,421	42,796
Rents, repairs, etc.	7,206	7,101	6,294	6,654	17,103
Invalid and Old-age pensions ...	2,143,212	2,288,368	1,881,794a	1,479,963b	2,859,766
Taxation	60,686	73,452	79,525	78,737	131,089
Maternity Allowance... ..	..	412,375	674,990	694,275	659,745
Miscellaneous	43,884	69,313	76,793	195,492	80,356
Total	2,308,506	2,910,224	2,787,034	2,527,833	3,817,851

(a) In addition, £697,471 was spent from Trust Funds. (b) In addition, £1,224,347 was spent from Trust Funds.

15. **Trade and Customs.**—Under this head have been included the expenditure of all the sub-departments under the control of the Minister of Trade and Customs, as well as the amounts payable as sugar and other bounties and the expenses in connection therewith. The administration of Patents, Trade Marks, and Copyright is now entrusted to the Attorney-General's Department. The fluctuations in the total expenditure of this department in recent years have been mainly due to variations in the amount payable in respect of sugar bounties. Particulars for the five years 1911-12 to 1915-16 are given in the following table :—

EXPENDITURE, TRADE AND CUSTOMS DEPARTMENT, 1911-12 to 1915-16.

Details.	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.
	£	£	£	£	£
Chief Office	12,698	13,582	14,429	16,240	15,986
Customs (ordinary)	301,278	347,657	341,116	354,205	323,309
Fisheries	6,688	6,754	7,443	4,447	492
Analyst	3,235	2,523	3,441	3,441	3,576
Audit (proportion)	7,057	7,763	8,144	7,427	6,722
Quarantine	22,973	23,371	44,063	32,057	38,804
Pensions and retiring allowances	12,049	14,099	13,318	16,041	14,524
Rents, repairs, etc.	17,969	13,371	14,872	15,448	21,067
Sugar bounties and expenses ...	543,503	370,125	149,244	4	..
Bounties	22,941	18,171	14,304	23,286	6,767
Iron Bonus	23,048	18,098	51,810	15,072	24,465
Lighthouses... ..	..	..	..	..	86,524
Miscellaneous	50,950	40,270	68,274	58,650	46,885
Total	1,024,389	875,784	730,458	551,318	589,121

16. **Defence.**—The Commonwealth expenditure in connection with Defence, which in 1901-2 amounted to £861,218, had by 1911-12 grown to £2,128,649. The largeness of the expenditure for recent years has been in the main the consequence of the new defence

system. The great increase in expenditure of the last two years is, of course, due to the war. Particulars for the five years 1911-12 to 1915-16 are as follows:—

EXPENDITURE, DEFENCE, 1911-12 to 1915-16.

Details.	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.
	£	£	£	£	£
Chief Office	54,004	74,480	86,191	88,233	46,441
Military	1,409,398	1,557,443	1,547,921	2,977,903	1,273,885
Naval	449,701	790,750	979,554		(a)
Audit (proportion)	1,180	1,298	1,362	2,398	5,486
Pensions and retiring allowances	2,269	1,121	1,103	1,427	363
Rents, repairs, etc.	46,257	58,746	70,471	79,665	76,744
Miscellaneous	165,840	128,849	264,120	395,460	109,621
Total	2,128,649	2,612,687	2,950,722	3,545,086	4,518,534 (b)

(a) Now a separate department. (b) Including £3,005,994 war expenditure from revenue.

17. **Navy Office.**—During the financial year 1915-16, the Navy Office, owing to its increasing importance, was separated from the Defence Department and constituted an independent Department. Appended is the expenditure for the year 1915-16, under similar headings to the Defence Department:—

EXPENDITURE, NAVY DEPARTMENT, 1915-16.

Chief Office	£	39,170
Naval	1,444,521	
Audit (proportion)	1,166	
Pensions and retiring allowances	899	
Rent, Repairs, etc.	17,402	
Miscellaneous	49,160	
Total	2,324,173	(a)

(a) Including £771,855 War Expenditure from Revenue.

18. **Postal.**—From a total of £4,330,896 in 1911-12, the cost of the Department under the control of the Postmaster-General advanced to £5,358,371 in 1915-16, an increase of £1,027,475. The large amount of "Miscellaneous" since 1911-12 is due, in the main, to the payment of interest on transferred properties, which is discussed in detail later on. Details for the five years 1911-12 to 1915-16 are furnished hereunder:—

EXPENDITURE, POSTAL DEPARTMENT, 1911-12 to 1915-16.

Details.	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.
	£	£	£	£	£
Chief Office	18,515	20,154	22,506	23,606	21,400
Postal Department (ordinary)	3,796,157	4,145,803	4,567,895	4,809,672	4,904,839
Audit (proportion)	2,894	3,184	3,340	3,955	3,670
Pensions and retiring allowances	36,812	42,757	48,400	48,073	53,358
Rents, repairs, etc.	72,222	84,883	88,884	84,044	92,083
Miscellaneous	404,296	484,743	425,997	251,924	283,021
Total	4,330,896	4,781,524	5,157,022	5,221,274	5,358,371

19. **Miscellaneous.**—In addition to the foregoing there are certain items which do not come under any of the heads enumerated. For 1915-16 the total expenditure under this heading was £5,940,835, made up partly of £3,000,000 set aside for future payment of Old-age and Invalid Pensions, and partly of £2,940,835 expenditure on new works. Detailed expenditure on new works for the past five years has already been shewn in the table on page 733.

(D) **Subsidy Paid to States.**

1. **Net Revenue.**—As mentioned in sub-section 1 of this section, the Constitution provided under sections 87, 93 and 95 for the payment to the States of all surplus revenue of the Commonwealth, such payment to amount in the aggregate during the continuation of the Braddon clause to not less than three-fourths of the net revenue from Customs and Excise. The expression "net revenue" used in section 87 has been taken to mean the gross revenue less drawbacks and refunds, and less also cost of collection. This view, adopted by the Commonwealth Government, was that indicated by Quick and Garran in their "Annotated Constitution of the Australian Commonwealth," in which they say: "The net revenue from duties of Customs and Excise is the total receipts from these sources after deducting the cost of collection. No attempt was made in the Constitution to define the deductions which may be made in order to arrive at the net revenue; this is a matter of book-keeping, which is left wholly to the Executive Government." In actual practice the statutory three-fourths of net Customs and Excise revenue was ascertained by the Commonwealth Treasury by deducting from the total Customs and Excise revenue (less drawbacks and refunds) the "transferred" expenditure of the Department of Trade and Customs and the expenditure on new works for that department, and taking three-fourths of the result.

2. **Payments to the Several States.**—In the following table are furnished particulars relative to the amounts actually paid to the several States on account of each of the financial years 1911-12 to 1915-16:—

COMMONWEALTH SUBSIDY PAID TO STATES, 1911-12 to 1915-16.

State.	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.
	£	£	£	£	£
New South Wales ...	2,046,993	2,178,683	2,248,241	2,287,295	2,297,872
Victoria ...	1,667,657	1,692,121	1,733,229	1,757,891	1,743,467
Queensland ...	761,302	780,051	810,274	831,486	836,743
South Australia ...	511,719	527,151	540,113	542,715	540,649
Western Australia ...	599,991	605,215	613,606	606,900	591,064
Tasmania ...	236,761	(a) 241,709	(b) 247,536	(b) 247,485	(b) 247,200
Total ...	5,824,423	(a) 6,024,930	(b) 6,192,999	(b) 6,273,775	(b) 6,256,995

(a) Not including special grant of £85,000 to Tasmania.

(b) " " " " £90,000 " "

In 1911-12, owing to the new system of allotting the Commonwealth subsidy, the amounts received by each State were the smallest for the period under review, but the totals increased in 1912-13, and again in 1913-14. The rate of increase was checked in 1914-15 owing to the departure of the troops, and in 1915-16 four of the States, from this cause, shewed a decrease. The amounts allotted to Tasmania in the last three years are exclusive of the first instalments of the special payment to which reference has already been made (see page 723).

3. **Commonwealth Subsidy per head of Population.**—The following table furnishes particulars concerning the amount of surplus Commonwealth revenue per head of population which the several States received during the financial years 1905-6 to 1909-10, and is of interest in connection with the present financial agreement, under which the Commonwealth pays 25s. per head of population to all the States for a period of ten years, subject to a special arrangement in favour of Western Australia (see page 723).

**COMMONWEALTH SUBSIDY PER HEAD OF POPULATION PAID TO STATES,
1905-6 to 1909-10.**

State.	1905-6.	1906-7.	1907-8.	1908-9.	1909-10.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
New South Wales ...	1 16 10	1 19 9	2 6 4	2 2 0	2 3 1
Victoria ...	1 14 7	1 16 1	1 18 7	1 11 9	1 13 0
Queensland ...	1 12 3	1 14 10	1 18 1	1 16 10	1 18 1
South Australia ...	1 10 8	1 14 10	-2 1 11	1 16 10	2 2 6
Western Australia ...	3 9 9	3 0 9	2 19 1	2 8 4	2 13 3
Tasmania ...	1 7 5	1 8 2	1 9 6	1 5 6	1 6 3
Commonwealth. ...	1 16 8	1 18 4	2 2 7	1 17 6	1 19 3

4. **Proportion Actually Paid.**—For the period of nine and a-half years from the 1st January, 1901, to 30th June, 1910, the percentage of net revenue from Customs and Excise duties paid to the several States was as follows:—New South Wales, 84 per cent.; Victoria, 80 per cent.; Queensland, 74 per cent.; South Australia, 84 per cent.; Western Australia, 86 per cent.; Tasmania, 78 per cent.

§ 3. Trust Fund.

1. **Trust Accounts.**—The Trust Fund credit balance on 30th June, 1916, amounted to £54,098,016, as compared with £36,781,606 for the corresponding date in the year ending 30th June, 1915. These enormous amounts are due mainly to the Australian Notes Account referred to in detail in paragraph 3. Details concerning the various trust accounts contributing to this amount are as follows:—

COMMONWEALTH TRUST FUND, 30th JUNE, 1916.

Trust Accounts.	Balance at 30th June, 1916.	Trust Accounts.	Balance at 30th June, 1916.
	£		£
Small Arms Ammunition ...	234,215	Officers' Assurance... ..	2,552
Defence Clothing Material ...	172,363	Defalcations	162
Small Arms... ..	12,041	Guarantee Fund	1,018
Unclaimed Militia Pay—Military	8,987	Naval Defence	60,792
" " Naval... ..	153	Repatriation Pacific Islanders	50
Military Expenses	121	London Liabilities... ..	2,418,882
Deferred Pay—Naval	252,123	Quarantine	41
Customs Officers' Overtime ...	990	Other Trust Moneys	244,644
Money Order	486,424	Minerals Account	2,870
International Postal and Money		Australian Notes Account ...	46,679,897
Order	12,353	Miscellaneous	404,338
Invalid and Old-age Pensions...	3,103,000		
		Total	54,098,016

2. **Distribution.**—The amounts to credit of Trust Fund in the several States on 30th June, 1916, were as follows:—New South Wales, £1,468,951; Victoria, £51,313,951; Queensland, £521,707; South Australia, £394,225; Western Australia, £208,867; and Tasmania, £190,315.

3. **Australian Notes Account.**—After the passage of the Australian Notes Act, Australian notes began to appear in circulation in December, 1910. For the first half of the calendar year 1911, they circulated side by side with bank notes and Queensland Treasury notes. After 30th June, 1911, the penal clauses of the Notes Act came into operation, and the banks and the Queensland Government began to withdraw their notes from active circulation. By the end of the year the process was virtually complete.

In the financial year 1913-14 the Commonwealth Government called in as far as possible its outstanding advances to the State Governments. The money lent on fixed deposit was taken up as the term expired; and furthermore, the Commonwealth Government, requiring further money for the expenditure on Public Works, etc., induced some of the State Governments to discount a portion of their securities held by the Commonwealth. The money thus obtained was spent in the purchase of further Commonwealth Inscribed Stock, thus increasing the Loan Fund, to which reference is made in the next section. On the outbreak of war the Commonwealth Government agreed to lend to the States (Queensland standing out of the arrangement) the sum of £18,000,000 for the purpose of maintaining the expenditure on Public Works. "The bulk of the money, lent to the States from the Note Account, was advanced in pursuance of that undertaking.

§ 4. Commonwealth Public Debt.

Although it was not until 1915 that the Federal Government appeared before the public as a direct borrower, there has been a Commonwealth Public Debt for many years. It includes several items, such as the balance of the debt taken over from South Australia, the money owing to the States for transferred properties, the Commonwealth General Loan Fund, the loans for military purposes, etc. In view of the recent large expansion of the Public Debt, and its present importance in Commonwealth public finance, the different items are treated seriatim in the sub-sections that follow.

1. **Loans Taken Over from South Australia.**—The first portions of the debt were contracted at the beginning of 1911, when the Commonwealth assumed responsibility for the administration and the liabilities of the Northern Territory and the Port Augusta-Oodnadatta Railway. At 30th June, 1911, the debt on account of the former was £3,657,836, and on account of the latter, £2,274,486, a total of £5,932,322. As the securities fall in they are redeemed by the Commonwealth Government, the money required being taken from the Loan Fund, which was created for this reason, amongst others. This item is thus a constantly diminishing one, and on 30th June, 1916, stood at £4,674,398, of which £2,778,266 was on account of the Northern Territory, and £1,896,132 on account of the railway.

2. **Loan Fund.**—Up to 1911 the Commonwealth Government had met its Public Works expenditure out of revenue. In that year, however, the Commonwealth being faced with the heavy prospective cost of the Transcontinental Railway and the Federal Capital Territory, it was decided to initiate a Loan Fund similar to those of the States. The flotation of this Fund was greatly assisted by the fact that the Treasury at this time held a large quantity of gold, principally on behalf of the Australian Notes Account, at that time only just started. Up to 30th June, 1914, the money required for loan expenditure was taken mainly from this account at 3½ per cent., and inscribed stock of an equivalent value created. Since the outbreak of war the creation of inscribed stock has practically ceased, the money required for the Loan Fund being obtained by the issue of Treasury Bills. The relation between the magnitude of the Loan Fund and the expenditure therefrom is shewn for the last four years in the following table:—

SECURITIES CONSTITUTING COMMONWEALTH LOAN FUND AND EXPENDITURE THEREFROM, 1912 to 1916.

Year ended 30th June.	Commonwealth Loan Fund.			Expenditure in year ended 30th June.	Total Expenditure up to year ended 30th June.	Unexpended Balance.
	Inscribed Stock.	Treasury Bills.	Total Receipts.			
	£	£	£	£	£	£
1912 ...	700,000	...	700,000	660,475	660,475	39,525
1913 ...	2,000,000	...	2,000,000	1,188,027	1,848,502	151,498
1914 ...	4,100,000	...	4,100,000	2,155,261	4,003,763	96,237
1915 ...	4,580,000	1,949,319	6,529,319	2,525,556	6,529,319	...
1916 ...	4,580,000	4,808,660	9,388,660	2,859,341	9,388,660	...

The preceding table gives the total expenditure for five years. The details of the expenditure are as follows:—

COMMONWEALTH LOAN EXPENDITURE, DETAILS, 1912-16.

Particulars.	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.
	£	£	£	£	£
Railways Construction—Kalgoorlie to Port Augusta ... ..	...	595,614	1,346,040	1,670,459	1,646,963
Pine Creek ... ..	...	...	126,529	94,392	126,592
Loan Redemption—Port Augusta Railway ... ..	...	168,954	135,627	15,077	923
Northern Territory	226,000	71,945	...	...	400,000
Payment to South Australia on account of Port Augusta Railway	34,475	...	...	...	...
Papua—Railways and wharves ... ..	...	...	685	13,042	12,829
Posts and Telegraphs—Purchase of land ... ..	...	...	42,598	84,500	92,712
Construction of conduits ... ..	...	...	258,407	178,142	271,211
Acquisition of Land—London (a)	400,000	19,784	64,887	19,274	113,744
Perth, Western Australia ... ..	...	152,205	...	...	...
Federal Territory ... ..	...	179,525	180,488	36,770	127,537
Defence machinery, etc.; Dockyards, Cockatoo Island ... ..	...	...	...	42,782	66,840
In aid of revenue ... ..	...	...	...	371,118	...
Total	660,475	1,188,027	2,155,261	2,525,556	2,859,341

(a) Including cost of erection of buildings.

3. Properties Transferred from States.—At the time of Federation, when the Commonwealth undertook control of a great many departments which had previously been administered by the States, a great deal of property was handed over to the Commonwealth Government. This consisted mainly of Post Offices, Customs Houses, Defence works, and other buildings necessary to the effective working of the transferred departments. In the early days of the "Braddon Clause," when the Federal Government was spending less than its statutory proportion of the Customs revenue, the question of suitable compensation to the States did not become acute; but, when the "Braddon Clause" was replaced by another arrangement between Commonwealth and States, much less favourable to the latter, the time had evidently come to put matters on a more definite footing. In the Commonwealth accounts of the last five years, certain amounts (independent entirely of the subsidy) have been paid to the States as "Interest on Transferred Properties." These amounts have been substantially based upon a valuation made by the Home Affairs Department, with the following result:—

ORIGINAL VALUATION OF TRANSFERRED PROPERTIES.

State.	Department.				Total.
	Postmaster-General.	Defence.	Trade and Customs.	Home Affairs.	
	£	£	£	£	£
New South Wales	2,337,316	1,182,003	154,009	1,320	3,674,648
Victoria	1,332,862	805,389	190,657	1,266	2,330,174
Queensland	925,628	386,802	202,082	7,356	1,521,868
South Australia	842,281	161,140	28,486	815	1,032,722
Western Australia	600,895	64,842	37,714	835	704,286
Tasmania	214,906	121,490	48,212	143	384,751
Commonwealth	6,253,858	2,721,666	661,160	11,735	9,648,449

Since the valuation some transfers and retransfers have been made. The estimated value of the transferred properties for the last five years is given in the table in sub-section 7.

4. War Loan from the Imperial Government.—On the outbreak of the European war in 1914, the Commonwealth Government contracted a loan from the Imperial Government for the purpose of financing the large military expenditure which was seen to be

inevitable. At first, the arrangement was that the Imperial Government should advance the sum of £18,000,000 in twelve monthly instalments of £1,500,000 each. It was soon found, however, that this would be insufficient, and consequently the Imperial Government made a fresh advance of £6,500,000, also to be paid in monthly instalments. A third loan of £25,000,000 was subsequently contracted for, of which £12,000,000 was received by 30th June, 1916. The total capital debt thus created up to 30th June, 1916, is set out in the following table:—

Authority.	Imperial Loans—Capital Debt created up to 30th June, 1916.			
	Issues, 3½% at 95.	Issues, 4½% at 99.	Issues, 5% at par.	Total.
	£	£	£	£
War Loan Act 1914—£18,000,000 ...	1,263,158	15,454,545	1,500,000	18,217,703
War Loan Act No. 2 1915—£6,500,000 ...	...	5,656,566	900,000	6,556,566
War Loan Act (United Kingdom) No. 2 1916—£25,000,000 ...	...	...	12,000,000	12,000,000
	1,263,158	21,111,111	14,400,000	36,774,269

5. **Flotation of War Loans in Australia.**—In addition to the advances from the Imperial Government, the Commonwealth Government has raised large amounts of money for the prosecution of the war, by direct application to the investing public of Australia. Acts No. 21 and No. 50 of 1915 authorised the Commonwealth to make application for £20,000,000 and £18,000,000 respectively, and in pursuance of these a loan of £5,000,000 was placed upon the market late in 1915, and a further amount of £10,000,000 early in 1916. These issues—unprecedented in Australian finance—were entirely successful, the latter being subscribed twice over, and the former more than two and a-half times. Both loans were issued at par, bore interest at 4½ per cent., and are redeemable on 15th December, 1925. The expenses included a commission of two shillings per cent. to the Commonwealth Bank, commission to brokers at ¼ per cent., and miscellaneous items such as printing. The total cost of flotation, however, was most moderate, amounting only to £85,041, or less than five shillings per cent. of the amount subscribed. The two Acts already mentioned were succeeded by a third, which authorised the Commonwealth Parliament to raise a further sum of £50,000,000. In pursuance of this a third issue was placed upon the market, closing on 1st August, 1916, and subsequently a fourth issue, closing on 8th February, 1917. These issues differ in no material respect from the first two, and the full details for the entire four are appended in the following table:—

PARTICULARS OF LOCAL AUSTRALIAN WAR LOANS, 1915-17.

Heading.	1st Issue.	2nd Issue.	3rd Issue.	4th Issue.	Total.
Number of subscribers—	No.	No.	No.	No.	No.
For Inscribed Stock ...	8,603	12,450	13,660	13,657	48,370
For Treasury Bonds ...	10,145	16,495	88,382	53,303	168,325
Total ...	18,748	28,945	102,042	66,960	216,695
Amount subscribed—	£	£	£	£	£
For Inscribed Stock ...	9,581,120	16,271,710	15,417,650	14,565,190	55,835,670
For Treasury Bonds ...	3,808,320	5,383,970	8,169,770	7,011,880	24,373,940
Total ...	13,389,440	21,655,680	23,587,420	21,577,070	80,209,610
Accrued interest ...	221,502	324,170	326,881	254,778	1,127,331
Expenses of flotation ...	34,659	50,382	50,688	45,900	181,629
Total deductions ...	256,161	374,552	377,569	300,678	1,308,960
Net proceeds of loan ...	13,133,279	21,281,128	23,209,851	21,276,392	78,900,650

It will be seen that whilst the expenses of flotation are small, the accrued interest is by no means negligible. Owing mainly to this, the net proceeds to the Federal Government only amount to about 98½ per cent., consequently, when allowance is made for redemption at par, the Government pays about £4 14s. per cent. interest, instead of the nominal 4½ per cent. In view, however, of the advancing rate of interest, this cannot be called excessive.

6. Australian Notes.—It is impossible to leave the subject of the Public Debt without a further short reference to the issue of Australian notes. The gold held in reserve in the Treasury has varied from rather more than 30 per cent. to rather less than 50 per cent. of the outstanding notes. Consequently a large proportion of the notes—all of which are payable on demand—is permanently uncovered by gold, and this proportion constitutes an undoubted part of the Public Debt. This item is constantly fluctuating in amount, and financially resembles a bank overdraft on which no interest is payable. Whilst, however, attention has been drawn to this on the ground of principle, no reference has been made to the uncovered notes in the tables summarising the Public Debt which appear in sub-section 7 hereafter. On 30th June, 1916, the value of the notes issued and unredeemed was £45,057,616, against which there was a gold reserve of £16,262,693, leaving an uncovered amount of £28,794,923. In this connection reference may be made to the table on page 742.

7. Total Commonwealth Public Debt.—Having given separate consideration to the items composing the Public Debt, it now remains to treat it as a whole. The table appended to this sub-section shows the entire debt of the Commonwealth (apart from the States) at yearly intervals since 1912. The liability on account of the note issue is excluded, for reasons already given, but the liability on account of the transferred properties has been included for the entire period. The Commonwealth Public Accounts do not take cognizance of this item until 1913, but as the debt was incurred, and interest paid for some time previous, it has been inserted in the earlier years for the sake of uniformity.

PUBLIC DEBT OF THE COMMONWEALTH AS AT 30th JUNE, 1912 to 1916.

Details.	1912.	1913.	1914.	1915.	1916.
Balance of loans taken over from South Australia—	£	£	£	£	£
(a) On account of Northern Territory ...	3,431,836	3,359,891	3,359,891	3,359,891	2,778,266
(b) On account of Port Augusta railway ...	2,240,011	2,071,058	1,935,431	1,920,354	1,896,132
Value of properties transferred by States ...	9,648,449	9,648,449	9,787,011	10,777,161	10,781,797
Amount of Commonwealth Loan Fund—					
(a) Inscribed Stock ...	700,000	2,000,000	4,100,000	4,580,000	4,580,000
(b) Treasury Bills ...	...	...	...	1,949,319	4,808,661
War Loan from British Government ...	...	...	...	14,842,105	36,774,269
Commonwealth Internal Loans	...	...	...	...	34,965,430
Accrued Deferred Pay, A.I.F.	...	...	...	...	4,759,730
Total ...	16,020,296	17,079,398	19,182,333	37,428,830	101,344,285
Commonwealth Debt per capita	£3 8 7	£3 11 2	£3 17 11	£7 11 6	£20 13 5

The debt has increased most rapidly since 30th June, 1916, on account of the further monthly instalments of the British War Loan, and the last two issues of the Australian War Loan, to which reference has already been made. On 31st March, 1917, it stood at £161,294,712.

It will be noticed that the amount of the Commonwealth Internal Loans does not quite agree with the totals of the first and second issues in the table on page 745. This is owing to the fact that stock to the amount of nearly £80,000 has been presented as payment of Estate Duty, and cancelled. The amount of £34,965,430 is the balance of the first two issues.

8. **Place of Flotation.**—The loans taken over from South Australia, which constituted the first portion of the Federal Public Debt, included both London and Australian securities. The presence in the Treasury of a large holding of gold, and the moderate rate of interest ruling on gilt-edged securities, made the conditions in 1911, and for some little time afterwards, very favourable for the flotation of local loans. London securities were redeemed as they fell due, and replaced by the $3\frac{1}{2}$ per cent. stock of the Loan Fund. Consequently, up to 1914 the amount of the securities repayable in London fell steadily, and the amount repayable in Australia rose rapidly. In 1915, however, the military loan from the Imperial Government caused a sharp rise in the amount of the securities repayable in London, which was maintained in 1916. Appended is a table shewing particulars of the loans of the Commonwealth for six financial years which have been floated in London and Australia respectively. A separate column is reserved for the transferred properties, which, for obvious reasons, it is impossible to allocate:—

COMMONWEALTH PUBLIC DEBT.—LONDON AND AUSTRALIAN FLOTATIONS.

Year ended 30th June—	Payable in—		Value of Transferred Properties.	Total.
	London.	Australia.		
	£	£	£	£
1911	3,815,502	2,116,820	9,648,449	15,580,771
1912	3,815,502	2,556,345	9,648,449	16,020,296
1913	3,646,548	3,784,401	9,648,449	17,079,398
1914	3,510,921	5,884,401	9,787,011	19,182,333
1915	18,337,949	8,313,720	10,777,161	37,428,830
1916	40,063,440	50,499,048	10,781,797	101,344,285

9. **Rates of Interest.**—When the first debt was taken over from South Australia it consisted in the main of a mass of securities varying from 3 per cent. to 4 per cent., the average rate of interest for the first year being £3 12s. 4d. For the first three years the increase in the debt was due almost entirely to the expansion of the $3\frac{1}{2}$ per cent. stock of the Loan Fund, and as a consequence the average rate of interest fell steadily, until on 30th June, 1914, it stood at £3 11s. 10d. Then came the loans for military purposes, and the fall in the average rate will in future be checked, since there is not likely to be any further borrowing for some time at a rate of less than $4\frac{1}{2}$ per cent. In fact, the influence of the heavy borrowing of 1915-16 at high rates is already reflected in the average rate of interest, which rose during that year by more than $\frac{1}{2}$ per cent. It is notoriously difficult to forecast the future of the rate of interest, but the influence of the large Imperial War Loan of 1915 on gilt-edged securities has been so far-reaching, that in all probability during the next decade the average rate of interest on the Federal Public Debt will rise.

The accompanying table gives full particulars concerning the interest for the five financial years ended 30th June, 1915.

RATES OF INTEREST ON COMMONWEALTH PUBLIC DEBT, 1912 to 1916.

Rates of Interest.	Year ended 30th June—				
	1912.	1913.	1914.	1915.	1916.
%	£	£	£	£	£
Not bearing interest ...	...	...	...	...	4,759,730
3 ...	35,612	35,612	35,612	35,612	35,063
3½ ...	10,520,206	11,820,206	14,058,768	30,371,023	16,796,712
£3/12/3 ...	1,124,929	884,031	748,404	748,404	720,411
3¾ ...	1,798,383	1,798,383	1,798,383	1,798,383	1,999,758
4 ...	2,541,166	2,541,166	2,541,166	4,475,408	7,156,070
4½ ...	...	...	...	...	56,076,541
5 ...	...	...	...	...	14,400,000
Total ...	16,020,296	17,079,398	19,182,333	37,428,830	101,344,285
Average rate of interest	£3 12 3	£3 12 1	£3 11 10	£3 11 6	£4 2 10

10. **Dates of Maturity.**—It is now possible to append a table, giving the dates of maturity of the several portions of the Commonwealth debt. The Commonwealth Government has refrained from issuing a large amount of terminable stock, although as regards about one-third of the debt no definite date of maturity had been assigned on 30th June, 1916. It will be noticed that nearly £35,000,000 falls due in one year—1925—but doubtless suitable arrangements can be made for renewal.

DUE DATES OF THE COMMONWEALTH PUBLIC DEBT OUTSTANDING ON
30th JUNE, 1916.

Due Dates.	Amounts.	Due Dates.	Amounts.	Due Dates.	Amounts.
	£		£		£
1916 ...	27,389	1926 ...	66,801	1972 ...	4,580,000
1917 ...	341,639	1927 ...	4,645	Indeter- minate } Indefinite }	33,811
1918 ...	134,897	1928 ...	1,263,158		
1920 ...	176,714	1930 ...	750,950	Total ...	101,344,285
1921 ...	47,100	1935 ...	83,051		
1922 ...	125	1936 ...	583,769		
1924 ...	1,553,952	1939 ...	859,755		
1925 ...	34,975,230	1945 ...	21,111,111		

SECTION XX.

STATE FINANCE.

§ 1. General.

1. **Functions of State Governments.**—In any comparison of the finances of the several States due recognition must be made of the actual functions assumed by the respective Governments, and also of the local conditions and requirements in each case. Direct comparisons of public expenditure are thus rendered difficult, owing to the fact that functions which in one State are assumed by the Central Government are in another State relegated to local governing bodies, and further by the fact that costly developmental work may, under certain conditions, be not only economically justifiable, but may be an essential of progress, whilst parsimonious expenditure may be a serious economic blunder. A large expenditure may, therefore, be an indication either of gross extravagance and bad economy on the one hand or healthy and vigorous progress and good economy on the other.

Similarly, as regards revenue, imposts which in some States are levied by the Central Government are in others considered as matters to be dealt with locally. Under these circumstances care is needed in instituting comparisons between the several States, and the particulars contained in this section should be read in connection with those contained in the section dealing with Local Government. It should also be noted that in many ways the budgets of the Australian Governments differ materially from those of most European countries, owing to the inclusion therein of the revenue and expenditure of departments concerned in rendering public services, such for instance as railways, tramways, water supply, etc., which, in the other countries referred to, are often left to private enterprise.

2. **Accounts of State Governments.**—The various financial transactions of the States are in each case concerned with one or other of three Funds—the “Consolidated Revenue Fund,” the “Trust Funds,” and the “Loan Funds.” All revenue collected by the State is placed to the credit of its Consolidated Revenue Fund, from which payments are made under the authority of an Annual Appropriation Act passed by the Legislature, or by a permanent appropriation under a special Act. The hypothecation of the revenue from a specific tax to the payment for some special service is not practised in Australia, all statutory appropriations ranking on an equality as charges on the Consolidated Revenue Fund. The Trust Funds comprise all moneys held in trust by the Government, and include such items as savings banks funds, sinking funds, insurance companies’ deposits, etc. The Loan Funds are credited with all loan moneys raised by the State, and debited with the expenditure therefrom for public works or other purposes.

3. **Inter-relation of Commonwealth and State Finance.**—The principal alteration in State finance, brought about by Federation, has been that the States have transferred to the Commonwealth the large revenue received by the Customs and Postal Departments, and have been relieved of the expenditure connected with these and the Defence Departments, while, on the other hand, a new item of State revenue has been introduced, viz., the payment to the States of a Commonwealth subsidy. Provision for the taking over by the Commonwealth of certain of the public debts of the States is made

in section 105 of the Constitution, and a proposed law extending this provision to the whole of the State indebtedness, which passed both Houses of the Federal Legislature by the statutory majority, was submitted to a referendum at the election in April, 1910, and received the requisite endorsement by the electorate. No action has as yet been taken, although the subject has, on more than one occasion, been under discussion.

§ 2. State Consolidated Revenue Funds.

(A) Receipts.

1. Sources of Revenue.—The principal sources of State revenue are:—

- (a) Taxation.
- (b) The public works and services controlled by the State Governments.
- (c) Sale of and rental from Crown lands.
- (d) The Commonwealth subsidy.
- (e) Miscellaneous sources, comprising fines, fees, interest, etc.

Of these sources, that yielding the largest revenue for the States as a whole is the group of public works and services, the principal contributor being the Government railways and tramways. Next in magnitude comes Taxation, followed in order by the Commonwealth Subsidy and Land Revenue.

2. Amount Collected.—The following table furnishes particulars of the total amount of consolidated revenue received by the several States during the ten years 1905-6 to 1914-15:—

STATE REVENUE, 1906-7 to 1915-16.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	£	£	£	£	£	£	£
1906-7 ...	13,392,435	8,345,534	4,307,912	3,252,705	3,401,354	970,843	33,670,783
1907-8 ...	13,960,763	8,314,480	4,488,398	3,722,090	3,376,641	1,005,274	34,867,646
1908-9 ...	13,646,126	8,247,684	4,769,172	3,591,260	3,268,993	934,405	34,457,640
1909-10	14,540,073	8,597,992	5,119,254	4,032,891	3,657,670	1,008,932	36,956,812
1910-11	13,839,139	9,204,503	5,320,008	4,181,472	3,850,439	970,092	37,365,653
1911-12	15,776,316	10,009,796	5,989,347	4,450,739	3,966,673	1,084,663	41,278,034
1912-13	16,057,298	10,287,285	6,378,213	4,506,698	4,596,659	1,206,292	43,032,445
1913-14	18,298,625	10,730,961	6,973,259	4,822,766	5,205,343	1,238,085	47,269,039
1914-15	18,928,551	10,529,017	7,202,658	3,973,310	5,140,725	1,244,095	47,018,356
1915-16	19,629,442	11,470,875	7,706,365	4,356,967	5,356,978	1,376,493	49,897,120

The figures given in this table relate in each instance to the financial year ended 30th June.

During the nine years from 30th June, 1907, to 30th June, 1916, the aggregate revenues of the States increased by no less a sum than £16,226,337, or about 48 per cent. Increases were in evidence in all the States, the largest being that of £6,237,007 in New South Wales. This general advance is the more notable since, in the last six years, a much smaller amount has been received from the Commonwealth, in the way of subsidy, than was the case up to 1910.

It will be noticed that in all the States, except Queensland, the revenue for 1908-9 was lower than that of the preceding year, largely owing to the fact that the revenue for 1907-8 was swelled by the payment of Customs duties in anticipation of, or in consequence of, the new tariff imposed on 8th August, 1907.

3. Revenue per Head.—Details concerning the revenue per head of population, collected in the several States of the Commonwealth during the ten years 1906-7 to 1915-16, are furnished in the table given hereunder. It will be seen that throughout the period Western Australia has collected by far the largest amount per head, and that Tasmania has collected the least.

STATE REVENUE PER HEAD OF POPULATION, 1906-7 to 1915-16.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
1906-7 ...	8 16 0	6 16 10	7 19 10	8 15 7	13 16 7	5 4 8	8 4 7
1907-8 ...	8 18 10	6 14 11	8 4 6	9 17 3	13 5 9	5 6 0	8 7 7
1908-9 ...	8 12 4	6 11 11	8 11 3	9 4 5	12 11 9	4 17 6	8 2 10
1909-10 ...	9 0 2	6 14 8	8 17 2	10 3 6	13 15 4	5 4 6	8 10 11
1910-11 ...	8 8 5	7 1 5	8 17 8	10 3 11	13 18 2	5 0 1	8 8 11
1911-12 ...	9 8 5	7 6 11	9 12 6	10 12 10	13 9 8	5 12 1	9 0 8
1912-13 ...	9 0 6	7 9 0	10 0 5	10 9 6	15 0 3	6 2 4	9 1 10
1913-14 ...	9 19 10	7 12 0	10 11 3	10 19 2	16 4 8	6 2 9	9 14 1
1914-15 ...	10 3 1	7 7 2	10 12 10	8 19 11	15 18 3	6 3 6	9 10 3
1915-16 ...	10 10 1	8 1 10	11 6 6	9 18 2	16 16 11	6 16 11	10 2 4

In all the States, during the period, there has been a marked increase in the State revenue collections per head, the most noticeable advance being £3 6s. 8d. in the case of Queensland. The Western Australian decline was continuous until 1908-9, though there was a recovery in 1909-10, and for 1915-16 the revenue per head in that State exceeded the Commonwealth average by about 67 per cent. South Australia shewed a marked decline in 1914-15, due largely to a diminished revenue from public works and services, but recovered in 1915-16.

4. Details for 1915-16.—Classifying the revenue of the several States in the manner indicated in § 2 (A) 1 above, particulars for the year 1915-16 are as follows:—

DETAILS OF STATE REVENUE, 1915-16.

Particulars.	N.S.W.	Victoria.	Q'land.	S.A.	W.A.	Tas.	All States.
	£	£	£	£	£	£	£
Taxation ...	3,117,221	2,074,889	1,455,358	701,511	407,997	384,820	8,141,746
Public Works & Services ...	11,847,076	6,340,507	3,893,879	2,489,808	3,961,431	404,191	28,930,892
Land ...	1,865,313	291,430	973,024	268,955	381,445	97,093	3,877,260
Commonwealth Subsidy ...	2,297,872	1,743,467	833,324	540,649	581,620	(a) 937,200	6,334,132
Miscellaneous ...	501,960	1,020,632	550,780	362,044	24,485	153,189	2,613,090
Total ...	19,629,442	11,470,875	7,706,365	4,356,967	5,356,978	1,376,493	49,897,120

(a) Including special grant of £90,000.

It will be noted that the amounts returned under the heading "Commonwealth subsidy" do not always agree with those given in the chapter on Commonwealth Finance, page 740. This arises from the fact that the State figures shew the amount for which credit was taken by the State during the financial year 1915-16, whilst the Commonwealth figures shew the amounts paid to State Treasurers on account of that financial year.

5. Revenue per Head, 1915-16.—Particulars concerning the revenue per head of population in each State derived from the several sources enumerated in the preceding paragraph are given hereunder:—

STATE REVENUE FROM VARIOUS SOURCES PER HEAD, 1915-16.

Particulars.	N.S.W.	Victoria.	Qld.	S. Aust.	W. Aust.	Tas.	C'wealth.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Taxation ...	1 13 4	1 9 3	2 2 9	1 11 11	1 5 8	1 18 3	1 13 0
Public Works & Services ...	6 6 10	4 9 6	5 14 6	5 13 0	12 9 2	2 0 3	5 27 4
Land ...	1 0 0	0 4 1	1 8 7	0 12 3	1 4 0	0 9 8	0 15 9
Commonwealth Subsidy ...	1 4 7	1 4 7	1 4 6	1 4 7	1 16 7	1 13 6	1 5 8
Miscellaneous ...	0 5 4	0 14 5	0 16 2	0 16 5	0 1 6	0 15 3	0 10 7
Total ...	10 10 1	8 1 10	11 6 6	9 18 2	16 16 11	6 16 11	10 2 4

The magnitude of the revenue per head from public works and services in the case of Western Australia is mainly due to the fact that the number of miles of railway in that State is large compared with the population, and that the revenue-earning power of the railways is also high.

6. **Relative Importance of Sources of Revenue.**—The following table furnishes an indication of the relative importance of the different sources of revenue in the several States, the figures given being the percentage which each item of revenue bore to the total for the State for the year 1915-16:—

PERCENTAGE OF ITEMS ON TOTAL STATE REVENUE, 1915-16.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wth.
	%	%	%	%	%	%	%
Taxation	15.88	18.10	18.88	16.10	7.61	27.95	16.32
Public Works and Services ...	60.35	55.27	50.53	57.01	73.95	29.36	57.98
Land	9.50	2.54	12.63	6.17	7.12	7.06	7.77
Commonwealth Subsidy ...	11.71	15.20	40.81	12.41	10.85	24.50	12.69
Miscellaneous	2.56	8.89	7.15	8.31	0.47	1.13	5.24
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00

One of the most noticeable features of the figures here given is the comparatively low percentage for "public works and services" and the high percentage for "taxation" in the case of Tasmania. In New South Wales and Queensland land revenue is an important item, while in Queensland as well as Tasmania, the revenue from "public works and services" falls considerably below the Commonwealth average.

7. **State Taxation.**—(a) *Details, 1915-16.* Prior to the inauguration of Federation the principal source of revenue from taxation was the imposition of duties of Customs and Excise. At the present time the most productive forms of State taxation are the income tax, which is now imposed in all the States (Western Australia, the last of the States to adopt this method of taxation, having passed the necessary legislation during the Parliamentary session of 1907), and probate and succession duties. For 1915-16 stamp duties occupied third place. In addition to these a State land tax is now collected in all the States, license fees of various kinds are also collected in all the States, while a dividend tax is levied in Western Australia. The total revenue from taxation collected by the States during the year 1915-16 was £8,141,746, details of which are set forth in the table given hereunder:—

STATE REVENUE FROM TAXATION, 1915-16.

Taxation.	N.S.W.	Victoria.	Q'land.	S. Aust.	W.A.	Tas.	All States
Probate and succession duties	£ 645,554	£ 510,032	£ 136,277	£ 183,919	£ 44,284	£ 36,700	£ 1,556,766
Other stamp duties	523,992	400,056	185,734	114,169	64,358	69,828	1,357,697
Land tax	3,190	352,353	247,044	154,483	47,716	82,436	887,222
Income tax	1,707,403	702,745	766,560	212,418	(a) 195,249	177,730	3,762,105
Licenses	151,894	98,302	90,329	24,117	43,448	14,369	422,449
Other taxation	86,198	11,351	29,414	12,406	12,442	3,697	155,507
Total	3,117,221	2,074,839	1,455,358	701,511	407,997	384,820	8,141,746

(a) Includes £103,585 dividend tax.

Land Tax shows a notable increase owing to the imposition for the first time of a substantial tax in Queensland.

(b) *Summary, 1906-7 to 1915-16.* The total amount raised by means of taxation by the several State Governments during the ten years 1906-7 to 1915-16 is given in the following table:—

STATE REVENUE FROM TAXATION, 1906-7 to 1915-16.

Year.	New South Wales.	Victoria.	Queensland.	S. Australia.	W. Aust.	Tasmania.	All States.
	£	£	£	£	£	£	£
1906-7	1,381,305	1,110,411	540,737	411,867	266,152	276,450	3,986,922
1907-8	1,077,534	977,620	525,540	477,637	277,463	265,656	3,601,450
1908-9	907,249	1,072,228	535,194	450,250	296,599	250,835	3,512,355
1909-10	1,223,521	1,088,353	584,997	481,003	336,396	303,390	4,017,660
1910-11	1,027,519	1,344,573	667,196	545,986	325,246	284,965	4,195,485
1911-12	1,885,653	1,501,696	787,577	551,994	352,314	340,434	5,419,668
1912-13	1,405,360	1,577,878	806,677	536,401	393,615	345,282	5,065,213
1913-14	2,330,005	1,598,876	887,798	730,640	386,104	371,413	6,304,836
1914-15	2,955,670	1,762,041	954,457	588,690	371,960	367,577	7,000,395
1915-16	3,117,221	2,074,839	1,455,358	701,511	407,997	384,820	8,141,746

During the period between 30th June, 1907, and 30th June, 1916, the aggregate State revenue from taxation increased by about 104 per cent., the increase varying considerably in the several States. The remarkable increase of the last three years in New South Wales is due principally to the broadening of the basis of the State Income Tax, and increased receipts from Stamp Duties. Queensland collected a Land Tax for the first time in 1915-16. The total increase in State taxation for the year amounted to £1,141,351, or about 16 per cent.

The revenue from State taxation per head of population, collected in the several States during each of the years 1906-7 to 1915-16, was as follows:—

STATE TAXATION PER HEAD, 1906-7 to 1915-16.

Year.	New South Wales.	Victoria.	Queensland.	S. Australia.	W. Aust.	Tasmania.	C'wealth.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
1906-7	0 18 2	0 18 2	1 0 1	1 2 3	1 0 10	1 9 10	0 19 6
1907-8	0 13 9	0 15 10	0 19 3	1 5 3	1 1 10	1 8 0	0 17 3
1908-9	0 11 6	0 17 2	0 19 2	1 3 1	1 2 10	1 6 2	0 16 7
1909-10	0 15 2	0 17 0	1 0 3	1 4 3	1 5 4	1 11 5	0 18 7
1910-11	0 12 6	1 0 8	1 2 3	1 6 8	1 3 6	1 9 5	0 19 0
1911-12	1 2 6	1 2 1	1 5 4	1 6 2	1 3 11	1 15 2	1 3 9
1912-13	0 15 10	1 2 10	1 5 4	1 4 9	1 5 8	1 15 0	1 1 5
1913-14	1 5 5	1 2 8	1 6 11	1 13 2	1 4 1	1 16 10	1 5 11
1914-15	1 11 8	1 4 8	1 8 2	1 6 8	1 3 0	1 16 6	1 8 4
1915-16	1 13 4	1 9 3	2 2 9	1 11 11	1 5 8	1 18 3	1 13 0

Taking the States as a whole, the State taxation increased by thirteen shillings and sixpence per head during the period from 1906-7 to 1915-16, the most marked increase occurring in the case of Queensland. Most of the advance took place in the last year, and was in the main the consequence of the imposition of the Land Tax for the first time.

8. **Commonwealth and State Taxation.**—For the purpose of obtaining an accurate view of the extent of taxation imposed on the people of the Commonwealth by the central governing authorities, it is necessary to add together the Commonwealth and State collections. This has been done in the table given hereunder, which contains particulars

concerning the total taxation for each of the years 1911-12 to 1915-16, as well as the amount per head of population:—

COMMONWEALTH AND STATE TAXATION, 1911-12 to 1915-16.

Particulars.	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.
	£	£	£	£	£
Commonwealth taxation ...	16,076,593	17,117,828	16,587,906	16,870,596	23,533,529
State taxation ...	5,419,668	5,065,213	6,304,836	7,000,395	8,141,746
Total ...	21,496,261	22,183,041	22,892,742	23,870,991	31,675,275
Taxation per head ...	£4 14 1	£4 13 9	£4 14 0	£4 16 7	£6 8 5

Whilst the Commonwealth taxation increased during the period by £7,456,936, the State taxation advanced by £2,722,078, the aggregate increase being £10,179,014. The amount per capita of total taxation, after rising till 1911-12, remained fairly constant thereafter, up to 1914-15, at an average of about £4 15s. In 1915-16, however, it reached an abnormally high amount, owing to the imposition of fresh direct taxation by the Commonwealth Government. The large increase in Commonwealth taxation in recent years is mainly due to the appearance of the Federal Land Tax, Federal Income Tax, and Federal Succession Duties.

9. **Public Works and Services.**—A very large proportion of the revenue of all the States of the Commonwealth is made up of the receipts from the various public works and services under the control of the several Governments. The principal of these are railways and tramways, harbour works, and water supply and sewerage, while in addition, State batteries for the treatment of auriferous ores exist in Western Australia, and various minor revenue-producing services are rendered by the Governments of all the States. For the year 1915-16 the aggregate revenue from this source totalled £28,930,892, or nearly 58 per cent. of the revenue from all sources. Details of revenue from public works and services for the year 1915-16 are as follows:—

STATE REVENUE FROM PUBLIC WORKS AND SERVICES, 1915-16.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	£	£	£	£	£	£	£
Railways and Tramways ...	9,990,502	5,727,275	3,756,901	1,997,984	2,217,250	346,364	24,036,276
Harbour Services ...	577,599	105,045	35,476	107,836	136,798	...	963,754
Public Batteries ...	...	1,000	...	...	70,014	...	71,014
Water Supply and Sewerage ...	942,753	(a)230,254	...	(a)193,542	414,580	...	1,781,129
Other Public Services ...	336,222	276,933	100,502	184,446	1,122,789	57,827	2,078,719
Total ...	11,847,076	6,340,507	3,893,879	2,483,808	3,961,431	404,191	28,930,892

(a) Water supply only.

10. **Land Revenue.**—The revenue derived by the States from the sale and rental of Crown lands has, with few exceptions, been created from the earliest times as forming part of their respective Consolidated Revenue Funds, and has been applied to meet ordinary current expenses. Where the rentals received are for lands held for pastoral or for residential purposes, such application of the revenue appears perfectly justifiable. On the other hand, where the rentals are those of mineral and timber lands, and in all cases of sales of lands, such a proceeding is essentially a disposal of capital in order to defray

current expenses. As a matter of financial procedure such a course is open to criticism. In the following table particulars of revenue derived from sales and rental of Crown lands are given for the year 1915-16:—

STATE LAND REVENUE, 1915-16.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States
	£	£	£	£	£	£	£
Sales ...	1,064,246	157,917	283,443	93,908	322,671	64,254	1,986,439
Rentals	801,067	133,513	689,581	175,047	58,774	32,839	1,890,821
Total ...	1,865,313	291,430	973,024	268,955	381,445	97,093	3,877,260

11. **Commonwealth Subsidy.**—The payments to the States of Commonwealth subsidy represent in each instance a considerable proportion of the States' revenue, and for the year 1915-16 aggregated £6,334,132. This represents a great decline from the amounts received up to 1910, owing to the new system of allotting the subsidy. The percentage which the subsidy received by each State for 1915-16 was of the total revenue of that State is shewn in the following table:—

COMMONWEALTH SUBSIDY PAID TO STATES DURING 1915-16.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	£	£	£	£	£	£	£
Commonwealth subsidy ...	2,297,872	1,743,467	833,324	540,649	581,620	(a) 337,200	6,334,132
Total revenue ...	19,629,442	11,470,875	7,706,365	4,356,967	5,356,978	1,376,493	49,897,120
Percentage of subsidy on revenue ...	% 11.71	% 15.20	% 10.81	% 12.41	% 10.85	% 24.50	% 12.69

(a) Including special grant of £90,000.

The amount of subsidy here shewn is that for which the several States took credit during the year 1915-16. (See also page 751.)

12. **Miscellaneous Items of Revenue.**—In addition to the foregoing sources of revenue there are in each State several miscellaneous ones, including such items as interest, fines, fees, etc., which for the year 1915-16 aggregated £2,613,090.

(B) Disbursements.

1. **Heads of Expenditure.**—The principal heads of State expenditure from Consolidated Revenue Funds are:—

- (a) Interest and sinking funds in connection with public debt.
- (b) Working expenses of railways and tramways.
- (c) Justice.
- (d) Police.
- (e) Penal establishments.
- (f) Education.
- (g) Medical and charitable expenditure.
- (h) All other expenditure.

Of these items that of working expenses of railways and tramways was the most important, and for the year 1915-16 represented about 35 per cent. of the aggregate expenditure from the Consolidated Revenue Fund. Next in order for that year was the item of interest and sinking fund in connection with the public debt, then education, medical and charitable expenditure, police, other public works, and lands and surveys in the order named.

2. **Total Expenditure.**—The total expenditure from Consolidated Revenue Funds in the several States during each of the years 1905-6 to 1915-16 is furnished in the table given hereunder:—

STATE EXPENDITURE, CONSOLIDATED REVENUE FUNDS, 1905-6 to 1915-16.

Year.	N.S. Wales.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	£	£	£	£	£	£	£
1905-6 ...	11,986,864	7,261,475	3,725,712	3,004,974	3,632,318	853,147	29,864,490
1906-7 ...	11,876,657	7,679,143	3,911,797	3,394,999	3,490,182	913,762	31,266,540
1907-8 ...	12,095,593	7,862,246	4,373,097	3,862,336	3,379,006	929,885	32,502,163
1908-9 ...	12,893,662	8,240,177	4,759,231	3,760,005	3,370,530	960,237	33,983,842
1909-10 ...	13,038,150	8,579,980	5,113,578	4,196,493	3,447,732	997,321	35,373,254
1910-11 ...	13,807,538	9,194,157	5,314,737	4,181,472	3,734,448	1,016,963	37,249,315
1911-12 ...	15,277,001	9,999,342	5,965,692	4,450,739	4,101,082	1,064,725	40,858,581
1912-13 ...	16,793,500	10,258,081	6,372,097	4,506,698	4,787,063	1,095,883	43,818,322
1913-14 ...	17,701,851	10,717,642	6,962,516	4,604,130	5,340,754	1,235,014	46,561,907
1914-15 ...	17,935,748	11,706,968	7,199,399	4,662,395	5,706,542	1,384,150	48,595,202
1915-16 ...	18,931,814	11,683,363	7,671,573	4,741,377	5,705,201	1,340,711	50,074,039

As in the case of the table previously given for revenue, the above figures relate to the year ended 30th June.

3. **Expenditure per Head.**—Owing to the varying conditions of the several States and the extent to which the different functions of Government are distributed therein between central and local governing authorities, the expenditure per head from Consolidated Revenue Funds differs materially in the several States, being highest in the case of Western Australia and lowest in that of Tasmania. The expenditure per head of population for each State for the years 1905-6 to 1915-16 is as follows:—

STATE EXPENDITURE PER HEAD, 1905-6 to 1915-16.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
1905-6 ...	7 13 1	6 0 0	7 0 2	8 3 11	14 10 5	4 11 6	7 8 1
1906-7 ...	7 16 1	6 5 11	7 5 2	9 3 4	13 13 7	4 18 6	7 12 10
1907-8 ...	7 14 11	6 7 6	8 0 3	10 4 8	13 5 6	4 18 1	7 16 2
1908-9 ...	8 2 10	6 11 9	8 10 10	9 13 1	12 19 7	5 0 2	8 0 7
1909-10 ...	8 1 7	6 14 4	8 17 0	10 11 9	12 19 6	5 3 3	8 3 7
1910-11 ...	8 8 0	7 1 3	8 17 5	10 3 11	13 9 9	5 4 11	8 8 4
1911-12 ...	9 2 5	7 6 9	9 11 9	10 12 10	13 18 10	5 10 1	8 18 10
1912-13 ...	9 9 0	7 8 8	10 0 3	10 9 6	15 12 9	5 11 2	9 5 2
1913-14 ...	9 13 3	7 11 10	10 10 11	10 9 3	16 13 1	6 2 6	9 11 2
1914-15 ...	9 12 8	8 3 8	10 12 7	10 11 1	17 13 4	6 17 5	9 16 8
1915-16 ...	10 2 7	8 4 10	11 5 6	10 15 8	17 18 10	6 13 4	10 3 1

The total expenditure per head has increased every year in the period under review, although there have been fluctuations in the individual States.

4. **Details of Expenditure for 1915-16.**—The following table furnishes for the year 1915-16 particulars as to the expenditure of the several States under each of the principal heads:—

DETAILS OF STATE EXPENDITURE, 1915-16.

Particulars.	N S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	£	£	£	£	£	£	£
Public debt (int., sink'g fund, &c.)	4,781,822	2,972,912	2,197,169	1,339,090	1,668,208	580,224	13,339,425
Rlws. & tramways (work'g exps.)	7,234,151	4,028,449	2,750,221	1,558,740	1,599,800	253,988	17,424,349
Justice	362,422	175,188	101,508	46,005	81,627	12,883	779,633
Police	539,590	371,974	265,048	130,925	129,099	45,752	1,503,388
Penal establishments	92,529	58,395	31,381	22,684	22,295	7,261	234,545
Education	1,693,515	1,176,347	592,178	320,587	340,509	126,456	4,254,572
Medical and charitable	880,243	603,708	477,981	219,566	265,640	87,894	2,535,032
All other expenditure	3,523,542	2,296,390	1,256,087	1,103,800	1,598,023	226,253	10,004,095
Total	18,931,814	11,683,363	7,671,573	4,741,377	5,705,201	1,340,711	50,074,039

5. **Expenditure per Head, 1915-16.**—The expenditure per head of population of the several States for the year 1915-16, under each of the principal items, is given hereunder:—

STATE EXPENDITURE PER HEAD, 1915-16.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Public debt, (interest, sinking fund, &c.)	2 9 0	2 1 11	3 4 7	3 0 11	5 4 11	2 17 9	2 14 1
Railways and tramways (working expenses)	3 17 5	2 16 10	4 0 10	3 10 11	5 0 7	1 5 3	3 10 8
Justice	0 3 11	0 2 6	0 3 0	0 2 1	0 5 2	0 1 3	0 3 2
Police	0 6 0	0 5 3	0 7 10	0 6 0	0 8 2	0 4 6	0 6 1
Penal establishments	0 1 0	0 0 10	0 0 11	0 1 0	0 1 5	0 0 9	0 1 0
Education	0 18 2	0 16 7	0 17 5	0 14 7	1 1 5	0 12 7	0 17 3
Medical and charitable	0 9 5	0 8 6	0 14 0	0 10 0	0 16 8	0 8 9	0 10 3
All other expenditure	1 17 8	1 12 5	1 16 11	2 10 2	5 0 6	1 2 6	2 0 7
Total	10 2 7	8 4 10	11 5 6	10 15 8	17 18 10	6 13 4	10 3 1

In three of the States, viz., Western Australia, South Australia, and Queensland, the average State expenditure per head exceeded that for the Commonwealth as a whole, falling short of it in the other three States.

6. **Relative Importance.**—The relative importance of the items of expenditure enumerated above varies considerably in the several States. This will readily be seen from the following table, giving for each State the percentage of the expenditure under the various items, on the total expenditure for the State:—

PERCENTAGE OF ITEMS ON TOTAL STATE EXPENDITURE, 1915-16.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
	%	%	%	%	%	%	%
Public debt (interest, sinking fund, &c.)	24.20	25.44	28.64	28.24	29.24	43.28	26.64
Railways and tramways (working expenses)	38.21	34.48	35.66	32.88	28.04	18.94	34.79
Justice	1.91	1.50	1.32	0.97	1.43	0.96	1.56
Police	2.96	3.18	3.46	2.76	2.26	3.41	3.00
Penal establishments	0.49	0.50	0.41	0.48	0.39	0.54	0.47
Education	8.97	10.07	7.72	6.76	5.98	9.43	8.50
Medical and charitable	4.65	5.17	6.23	4.63	4.65	6.56	5.06
All other expenditure	18.61	19.66	16.36	23.28	28.01	16.88	19.93
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Taken together, the interest and sinking fund on the public debt, and the working expenses of the railways and tramways, represented for the year 1915-16 about 60 per cent. of the aggregate State expenditure, a proportion which has been maintained with great regularity for many years past.

(c) Balances.

1. **Position on 30th June, 1916.**—On various occasions in each of the States the revenue collected for a financial year has failed to provide the funds requisite for defraying the expenditure incurred during that year, the consequence being a deficit which is usually liquidated either by cash obtained from trust funds, or by the issue of Treasury bills. In some of the States a number of such deficits has occurred, interspersed with occasional surpluses, the result being an accumulating overdraft, which in certain instances assumed very large proportions. Thus, during the period of financial stress resultant upon the crisis of 1893 and the drought conditions of succeeding years, the accumulated overdrafts of several of the States grew very rapidly, and the situation has changed very much for the worse in the years preceding 1915-16. The position of the balances of the several Consolidated Revenue Funds on 30th June, 1916, was as follows:—

STATE CONSOLIDATED REVENUE FUND BALANCES, 30th JUNE, 1916.

State.	Cash Credit Balances.	Debit Balance.		Net Result.
		Cash Overdraft.	Overdraft liquidated by Treasury Bills	
	£	£	£	£
New South Wales ... ..	...	214,340	...	Dr. 214,340
Victoria ... ..	...	213,805	1,428,286	Dr. 1,642,091
Queensland	34,792	...	...	Cr. 34,792
South Australia ... ..	...	854,857	...	Dr. 854,857
Western Australia ... ..	...	1,360,965	...	Dr. 1,360,965
Tasmania ... ..	...	89,355	...	Dr. 89,355
Total	34,792	2,733,322	1,428,286	Dr. 4,126,816

(D) Principal State Taxes.

(a) Probate and Succession Duties.

1. **General.**—Probate duties have been levied for a considerable time in all the States of the Commonwealth. From the provisions of the several State Acts governing the payment of duty, it will be seen that both the ordinary rates and those which apply to special beneficiaries differ widely in several cases. In the following table the amount under which the estates of deceased persons were sworn, is shewn for the years 1911 to 1915:—

VALUE OF ESTATES OF DECEASED PERSONS, 1910-11 to 1914-15.

State.	1911.	1912.	1913.	1914.	1915.
	£	£	£	£	£
New South Wales	13,138,068	13,389,806	8,443,068	(b) 9,997,615	b10,813,889
Victoria	8,469,163	8,533,502	8,367,862	(b) 8,481,720	b8,759,728
Queensland	(b) 2,409,495	(b) 2,730,039	1,685,287	2,101,558	2,483,908
South Australia	2,855,089	(a) 2,383,238	2,214,241	2,907,561	2,734,597
Western Australia	844,151	(a) 841,800	607,972	739,956	850,367
Tasmania	596,870	983,618	680,477	620,108	721,850
Total	28,312,836	28,862,003	21,998,907	24,848,518	26,364,339

(a) Gross values.

(b) Including Letters of Administration.

The duty collected in the several States for the financial years 1911-12 to 1915-16 is as follows:—

AMOUNT OF PROBATE AND SUCCESSION DUTIES COLLECTED, 1911-12 to 1915-16.

State.	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.
	£	£	£	£	£
New South Wales ...	849,405	365,250	512,529	551,629	645,554
Victoria ...	448,283	443,682	457,042	536,869	510,032
Queensland ...	144,309	108,367	89,835	112,740	136,277
South Australia ...	95,667	58,811	226,367	113,734	183,919
Western Australia ...	22,276	47,929	30,662	40,156	44,284
Tasmania ...	35,012	25,980	29,094	38,252	36,700
Total ...	1,594,952	1,050,019	1,345,529	1,393,380	1,556,766

For particulars relating to the legislation of the different States on probate and succession duties see Year Book No. 6, pp. 815-818.

(b) Stamp Duties.

1. **Revenue.**—The revenue derived by the several States of the Commonwealth from the imposition of stamp duties for the years 1911-12 to 1915-16 is shewn in the accompanying table:—

**STAMP REVENUE (EXCLUSIVE OF PROBATE AND SUCCESSION DUTIES),
1911-12 to 1915-16.**

State.	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.
	£	£	£	£	£
New South Wales ...	255,085	233,940	377,707	552,762	522,992
Victoria ...	285,212	252,407	278,240	289,384	400,056
Queensland ...	187,533	186,083	205,635	208,664	185,734
South Australia ...	106,910	101,498	101,094	81,007	114,169
Western Australia ...	74,828	70,652	77,051	64,398	64,858
Tasmania ...	64,236	75,171	83,202	73,754	69,888
Total ...	973,804	919,751	1,122,929	1,269,969	1,357,697

2. **Bank Notes.**—Promissory notes issued by any bank are not required to bear a duty stamp either impressed or adhesive, and may be re-issued as often as thought fit. An annual composition was, however, paid in lieu of stamp duty up to 1910. This composition was payable quarterly, and was the same in all States, being at the rate of £2 per annum on every £100 or part thereof of the average annual amount of bank notes in circulation. On 2nd June, 1893, the Treasury Notes Act of Queensland was assented to, by which the issue of Treasury notes payable on demand was authorised. These notes were used exclusively by the banks in that State, but their issue was prohibited by the Federal Bank Note Tax Act, and they have now passed out of circulation. (See Section xxi., Private Finance.)

The issue of bank notes by the banks has practically ceased owing to this Act, which passed the Federal Parliament in the session of 1910, and was assented to on 10th October, 1910. Further reference is made to the Act in the section dealing with Private Finance. It is enough to say here that it imposes a tax of 10 per cent. per annum on all bank notes issued or re-issued by any bank in the Commonwealth after the commencement of the Act and not redeemed.

For further details concerning Stamp Duty Legislation, see Year Book No. 7, p. 723.

(c) Land Tax.

1. **General.**—All the States now impose a Land Tax, although Queensland, the last State to fall into line, only collected its first levy in 1915-16. Western Australia imposed its first tax in 1907, but in the other States the impost is of very long standing.

The following table shows the amount collected by means of such taxes during the financial years 1911-12 to 1915-16 in the States in which a land tax was imposed:—

STATE LAND TAX COLLECTIONS, 1911-12 to 1915-16.

State.	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.
	£	£	£	£	£
New South Wales	6,479	5,738	4,692	3,346	3,190
Victoria	293,823	308,275	302,224	303,550	352,353
Queensland ... ..	...	...	...	...	247,044
South Australia	118,725	141,807	136,602	131,896	154,483
Western Australia	45,166	46,519	46,201	36,433	47,716
Tasmania	81,234	79,276	79,085	80,863	82,436
Total	545,427	581,615	568,804	556,088	887,222

For details relating to State Land Tax legislation see Year Book No. 6, pp. 821-823.

(d) Income Tax.

1. **General.**—A duty on the income of persons, whether it be derived from personal exertion or from the produce of property, is now imposed in all the States of the Commonwealth. As might be expected in dealing with the different States, the rates, exemptions, etc., are widely divergent, but the general principle of the several Acts is strikingly consistent. The Dividend Duties Acts of Queensland and Western Australia—the former of which is now repealed—supplied to a certain extent the place of an income tax in those States in former years, but, with the increasing demands upon the State Treasury, the levying of a direct income tax has been found necessary.

In the following table particulars are furnished concerning the total amount collected in the several States during the years 1911-12 to 1915-16. In the case of Queensland and Western Australia the amount of dividend duty collected is included, this tax being closely allied to the income tax.

STATE INCOME AND DIVIDEND TAXES, 1911-12 to 1915-16.

State.	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.
	£	£	£	£	£
New South Wales	644,571	662,625	1,290,370	1,653,923	1,707,403
Victoria	443,248	542,236	527,705	506,214	702,745
Queensland	372,497	421,507	472,918	517,273	766,560
South Australia	207,416	210,034	240,996	236,270	212,418
Western Australia	154,442	171,239	174,558	174,561	195,249
Tasmania	143,875	148,413	162,458	157,595	177,730
Total	1,966,049	2,156,054	2,869,005	3,245,836	3,762,105

For details relating to Income Tax legislation in the various States see Year Book No. 6, pp. 823-829.

§ 3. Trust Funds.

1. **Nature.**—In addition to the moneys received by the several State Governments as revenue, and paid to the credit of their respective Consolidated Revenue Funds, considerable sums are held by the Governments in trust for various purposes. One of the chief sources of these trust funds is the State Savings Bank, which exists in each State either as a Government department or under the control of a Board acting under Government supervision or Government guarantee. In most of the States also, sinking funds for the redemption of public debt are provided, and the moneys accruing thereto are paid to the credit of the appropriate trust funds. A similar course is followed in the case of municipal sinking funds placed in the hands of the Government. In all the States except New South Wales, life assurance companies carrying on business are required to deposit a substantial sum in cash or approved securities with the Government, and these deposits go to further swell the trust funds. Various other deposit accounts, superannuation funds, suspense accounts, etc., find a place in these funds. The trust funds have at various times enabled the several State Treasurers to tide over awkward financial positions, but the propriety of allowing deficits to be frequently liquidated in this manner is worthy of very serious consideration.

2. **Extent of Funds.**—The amount of such funds held by the several State Governments on 30th June, 1916, was as follows:—

STATE TRUST FUNDS ON 30th JUNE, 1916.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	£	£	£	£	£	£	£
Amount of trust funds	5,601,471	8,754,194	7,708,529	1,707,417	11,092,867	978,186	35,842,664

§ 4. Loan Funds.

1. **Nature.**—As early in the history of Australia as 1842 it was deemed expedient to supplement the revenue collections by means of borrowed moneys, the earliest of the loans so raised being obtained by New South Wales for the purpose of assisting immigration, at rates of interest varying from 2½d. to 5½d. per £100 per diem, or approximately from 4½ per cent. to 8 per cent. per annum. The principal reason for Australian public borrowing, however, has been the fact that the Governments of the several States have, in addition to ordinary administrative duties, undertaken the performance of many functions which, in other countries, are usually entrusted to local authorities, or left to the initiative of private enterprise. Principal amongst these have been the construction of railways and the control of the railway systems of the several States, while the assumption by the State Governments of responsibilities in connection with improvements to harbours and rivers, and the erection of lighthouses, as well as the construction of works for the purposes of water supply and sewerage, have materially swelled the amounts which it has been considered expedient to obtain by means of loans. The Australian State loan expenditure and public debt thus differ very materially from those of most European countries, where such expenditure is very largely incurred for purposes of defence, or absorbed in the prosecution of war. The State debts of Australia, on the other hand, consist in the main of moneys raised and expended with the object of assisting the development of the resources of the Commonwealth, and are, to a very large extent, represented by tangible assets such as railways, tramways, waterworks, etc.

2. **Loan Expenditure, 1915-16.**—During the year ended 30th June, 1916, the actual expenditure of the Australian States from loan funds amounted to £20,270,746, New South Wales with a total of £8,173,104 being the principal contributor to this amount, while Victoria, whose expenditure amounted to £4,473,569, ranked second. The chief item of expenditure for the year was that of railways and tramways, which represented a total of £11,068,861, water supply and sewerage works contributing the amount of £2,806,884; the expenditure on harbours, rivers, etc., and roads and bridges totalling £2,145,398, and land purchases for settlement, loans to local bodies, advances to settlers, etc., were the most important of the remaining items. Details for the year for each State are given in the following table:—

STATE LOAN EXPENDITURE, 1915-16.

Heads of Expenditure.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	£	£	£	£	£	£	£
Railways and tramways ...	4,983,632	2,440,317	2,034,614	929,143	447,554	233,601	11,068,861
Water supply and sewerage ...	1,535,364	347,135	613	554,215	165,543	204,014	2,806,884
Harbours, rivers, etc. ...	1,005,712	575,679	...	270,618	127,688	165,701	2,145,398
Roads and bridges ...	228,208	134,441	127,924	50,682	40,661	48,437	630,353
Public buildings ...	a 972	...	...	111,878	98,109	...	97,837
Development of mines, etc. ...	61,129	101,830	...	162,936	372,226	...	647,063
Advances to settlers ...	...	85,938	...	...	...	64,954	314,828
Land purchases for settlement ...	a 10,457	...	537,918	...	...	163,687	691,148
Loans to local bodies ...	a 5,733	...	8,367	(a) 23,234	56	...	a 20,544
Rabbit-proof fences ...	375,249	342,031	352,403	40,959	332,806	...	1,443,448
Other public works and purposes ...	...	b	...	...	...	...	...
Total ...	8,173,104	4,473,569	3,061,839	2,077,197	1,584,643	880,394	b 20,270,746

(a) Repayment.

(b) Including £445,470 in aid of revenue.

3. **Aggregate Loan Expenditure.**—The total loan expenditure of the Australian States from the initiation of the borrowing system to the 30th June, 1916, has amounted to no less a sum than £357,291,411. The manner in which this sum has been spent in the several States is furnished in the following table:—

AGGREGATE STATE LOAN EXPENDITURE to 30th JUNE, 1916.

Heads of Expenditure.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	£	£	£	£	£	£	£
Railways and tramways ...	82,041,937	52,592,980	37,186,119	19,733,005	17,634,640	5,277,983	214,466,664
Telegraphs & telephones ...	1,761,844	...	996,587	991,773	269,308	142,410	4,161,922
Water supply & sewerage ...	22,340,197	11,786,590	364,543	8,434,253	4,740,495	...	47,665,078
Harbours, rivers, etc. ...	13,792,743	811,628	2,423,243	2,953,964	3,434,604	4,588,560	33,723,013
Roads and bridges ...	1,835,940	964,323	931,775	1,622,710	363,523	...	2,389,782
Defence ...	1,457,536	149,323	363,084	291,615	...	128,224	14,863,821
Public buildings ...	7,410,855	2,332,207	1,810,448	1,393,261	756,176	1,160,874	3,957,986
Immigration ...	569,930	...	2,763,070	...	389,986	235,000	2,070,238
Development of mines, &c. ...	...	372,148	...	...	1,698,030	...	4,881,236
Advances to settlers ...	67,155	873,458	...	1,849,229	2,091,394	...	8,083,215
Land purchases for settlement ...	489,000	354,569	...	2,072,091	324,662	942,893	5,824,662
Loans to local bodies ...	6,853	...	4,592,868	...	64,491	1,160,450	733,149
Rabbit-proof fences ...	51,826	...	(a)	352,620	328,703	...	14,470,645
Other public works & purposes ...	686,646	5,575,892	2,130,495	2,448,417	2,710,061	919,134	...
Total ...	132,512,462	80,412,118	53,562,232	42,142,938	34,806,133	13,855,528	357,291,411

(a) Included in loans to local bodies.

It must be noted that the figures furnished in this table represent the amounts actually spent, and consequently differ somewhat from those given later in the statements relating to the public debt, which represent amount of loans still unpaid at a given date. The loan expenditure statement includes all such expenditure, whether the

loans by means of which the necessary funds were raised have been repaid or are still in existence. On the other hand, in the public debt statement loans repaid are excluded, but in the case of loans still outstanding each is shewn according to the amount repayable at maturity, not according to the amount originally available for expenditure.

4. **Relative Importance of Loan Items.**—The relative importance of the different items of loan expenditure given in the foregoing table varies considerably in the several States, but in each instance the expenditure on railways and tramways predominates, the percentage of this item on total expenditure ranging between the limits of 38 per cent. in the case of Tasmania and 69 per cent. in that of Queensland. The following table gives for each State the percentage of each item on the total loan expenditure of that State to 30th June, 1916:—

**PERCENTAGE OF EACH ITEM ON TOTAL LOAN EXPENDITURE OF THE STATES
TO 30th JUNE, 1916.**

Heads of Expenditure.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	%	%	%	%	%	%	%
Railways and tramways ...	61.91	65.40	69.43	46.82	50.67	38.07	60.02
Telegraphs and telephones ...	1.33	...	1.86	2.35	0.77	1.03	1.16
Water supply and sewerage ...	16.86	14.66	0.68	20.01	13.62	...	13.34
Harbours, rivers, etc. ...	10.41	1.01	4.52	7.01	9.87	} 33.12	9.44
Roads and bridges ...	1.39	1.20	1.74	3.85	1.04		
Defence ...	1.10	0.19	0.68	0.69	...	0.93	0.67
Public buildings ...	5.59	2.90	3.38	3.31	2.17	8.38	4.16
Immigration ...	0.43	...	5.16	...	1.12	1.70	1.11
Development of mines, etc. ...	...	0.46	...	...	4.88	...	0.58
Advances to settlers ...	0.05	1.09	...	4.39	6.01	...	1.37
Land purchases for settlement ...	0.37	6.16	...	4.92	0.93	1.75	2.26
Loans to local bodies ...	0.01	...	8.57	...	0.19	8.38	1.63
Rabbit-proof fences ...	0.04	...	(a)	0.84	0.94	...	0.21
Other public works & purposes	0.51	6.93	3.98	5.81	7.79	6.64	4.05
Total ...	100.00	100.00	100.00	100.00	100.00	100.00	100.00

(a) Included in loans to local bodies.

5. **Loan Expenditure in Successive Years.**—In the following table are given particulars relative to the loan expenditure of the several States during each of the years 1906-7 to 1915-16:—

STATE LOAN EXPENDITURE, 1906-7 to 1915-16.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
	£	£	£	£	£	£	£
1906-7 ...	1,058,553	595,658	683,570	499,132	900,964	156,945	3,894,822
1907-8 ...	1,965,329	783,538	1,033,676	495,928	733,745	224,954	5,237,170
1908-9 ...	2,906,507	1,098,360	1,247,821	832,114	1,012,452	334,200	7,431,454
1909-10 ...	3,246,640	1,209,505	1,486,216	978,082	1,028,995	435,104	8,384,542
1910-11 ...	3,921,758	2,657,271	1,995,301	1,567,210	1,484,367	300,216	11,926,123
1911-12 ...	5,491,103	2,974,149	3,324,248	1,756,050	2,344,070	435,557	16,325,177
1912-13 ...	7,703,594	2,202,697	2,448,066	2,247,337	3,423,020	404,560	18,429,274
1913-14 ...	9,126,844	3,276,994	2,190,150	2,762,686	2,883,169	498,141	20,737,984
1914-15 ...	6,996,107	5,351,830	2,638,266	2,532,759	2,521,608	785,269	20,825,839
1915-16 ...	8,173,104	4,473,569	3,061,839	2,097,197	1,584,643	880,394	20,270,746

Throughout the ten years under review the loan expenditure of New South Wales exceeded that of any other of the States, and for the year 1905-6 represented nearly 40% of the aggregate of Australia. The large loan expenditure of New South

Wales in 1908-9, 1909-10, and 1910-11, was incurred chiefly in connection with railway construction and the resumption of the foreshores and adjoining properties of Darling Harbour. In Victoria the large expenditure of 1905-6 resulted in large measure from the purchase of lands for closer settlement, while the construction of railways and water supply and sewerage works was mainly responsible for the high amounts of 1908-9 and 1909-10. In 1910-11 the large amount was mainly accounted for by heavy expenditure on railways and land purchased for settlement. In the case of the large loan expenditure of Queensland in 1906-7, 1908-9, 1909-10 and 1910-11, railway construction was the principal contributing item. In Western Australia the heavy loan expenditure of 1908-9 was principally in connection with railway construction and water supply.

6. Loan Expenditure per Head.—The loan expenditure per head of population varies materially in the different States and in different years, reaching its highest point for the ten years under review in Western Australia in 1912-13 with £11 3s. 7d. per head, and its lowest in Victoria in 1906-7 with 9s. 9d. per head. Particulars concerning the loan expenditure per head for the ten years 1906-7 to 1915-16 are given hereunder:—

STATE LOAN EXPENDITURE PER HEAD, 1906-7 to 1915-16.

Year.	N.S.W.			Victoria.			Q'land.			S. Aust.			W. Aust.			Tasmania.			All States.		
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
1906-7	0	13	10	0	9	9	1	5	4	1	7	0	3	10	7	0	16	11	0	19	0
1907-8	1	5	2	0	12	9	1	17	11	1	6	3	2	17	8	1	3	9	1	5	2
1908-9	1	16	8	0	17	7	2	4	10	2	2	9	3	18	0	1	14	10	1	15	1
1909-10	2	0	3	0	18	11	2	11	5	2	9	4	3	17	6	2	5	1	1	18	9
1910-11	2	7	9	2	0	10	3	6	7	3	16	5	5	7	3	1	11	0	2	13	11
1911-12	3	5	7	2	3	8	5	6	10	4	4	0	7	19	4	2	5	0	3	11	6
1912-13	4	6	8	1	11	10	3	16	11	5	4	6	11	3	7	2	1	0	3	17	10
1913-14	4	19	8	2	6	5	3	6	4	6	5	6	8	19	10	2	9	5	4	5	1
1914-15	3	15	1	3	14	10	3	17	3	5	14	8	7	16	2	3	18	0	4	4	4
1915-16	4	7	6	3	3	1	4	10	0	4	15	5	4	19	8	4	7	7	4	2	2

§ 5. Public Debt.

1. Initiation of Public Borrowing.—The earliest of the loans raised in Australia for Government purposes was that obtained by New South Wales in 1842. This and nine other loans raised prior to 1855 were all procured locally. In the last-mentioned year Australia's first appearance on the London market occurred, the occasion being the placing of the first instalment of the New South Wales 5 per cent. loan for £683,300. Victoria first appeared as a borrower in 1854, and made its first appearance on the London market in 1859. In the remaining States the first public loans were raised in the following years:—Queensland 1861, South Australia 1854, Western Australia 1845, and Tasmania 1867.

2. Nature of Securities.—All the earlier loans raised by the Australian States were obtained by the issue of debentures, some of which were repayable at fixed dates, and others by annual or other periodical drawings. In more recent years, however, the issue of debentures has given place to a great extent to that of inscribed stock, the inscription in the case of local issues being carried out by the State Treasuries, and in the cases of loans floated in London being mainly performed by the Bank of England and the London and Westminster Bank. The issue of debentures has not, however, been entirely discontinued, for within recent years debentures to a large amount have been placed on the market by the Government of New South Wales. In other States also, recent issues of debentures have taken place, the occasions usually being those in which the term of the loan is less than that ordinarily attaching to issues of

inscribed stock. Another form of security is that variously known as the Treasury bill or Treasury bond. This is usually merely a short term debenture having a currency in most instances of from three to five years. The bonds are issued in certain cases to liquidate deficiencies in revenue, and in others to obtain moneys for the purpose of carrying on public works at a time when it is deemed inexpedient to place a permanent loan on the market. The amount of the public debt of the several States held in each of these forms of security is furnished in the table hereunder:—

PUBLIC DEBT OF THE AUSTRALIAN STATES, 30th JUNE, 1916.

State.	Debentures.	Inscribed Stock.	Treasury Bills.		Total Amount Outstanding.
			For Public Works and Services.	In aid of Revenue.	
	£	£	£	£	£
New South Wales ...	9,623,250	110,166,331	10,724,437	...	130,514,018
Victoria ...	21,096,177	49,423,525	4,984,860	1,270,470	76,775,032
Queensland ...	16,606,256	41,001,237	...	1,125,350	58,732,843
South Australia ...	2,156,900	30,153,664	5,682,725	...	37,993,289
Western Australia ...	359,300	34,847,751	4,682,625	...	39,889,676
Tasmania ...	1,227,733	11,676,180	1,000,000	5,000	13,908,913
Total ...	51,069,616	277,268,688	27,074,647	2,400,820	357,813,771

The manner in which the amount of public debt of the Australian States held under these various forms of security has grown during the past nine years will be seen from the following table:—

PUBLIC DEBT OF THE AUSTRALIAN STATES, 1906-7 to 1915-16.

Date.	Debentures.	Inscribed Stock.	Treasury Bills.		Total Amount Outstanding.
			For Public Works and Services.	In aid of Revenue.	
	£	£	£	£	£
30th June, 1907 ...	38,061,799	184,157,771	13,571,985	4,358,172	240,149,727
" 1908 ...	37,665,279	190,377,823	12,131,871	3,660,516	243,835,489
" 1909 ...	31,218,229	203,640,152	13,620,561	3,294,591	251,773,533
" 1910 ...	29,765,929	213,599,894	12,393,503	1,864,337	257,623,663
" 1911 ...	31,148,162	222,343,184	8,939,771	3,946,166	(a) 267,127,283
" 1912 ...	31,576,656	230,170,271	13,962,002	1,265,166	(b) 277,124,095
" 1913 ...	39,044,995	241,819,896	12,345,935	1,161,660	(c) 294,472,486
" 1914 ...	37,160,145	265,734,131	13,572,562	1,131,950	317,598,788
" 1915 ...	47,550,115	269,686,934	23,658,270	2,030,350	342,925,669
" 1916 ...	51,069,616	277,268,688	27,074,647	2,400,820	357,813,771

(a) Includes an advance of £750,000 from South Australian Government to Victorian Government.
 (b) Includes £150,000, balance of £750,000 referred to in Note (a). (c) Includes £100,000 advance from Queensland to Victorian Government.

During the period between 30th June, 1907, and 30th June, 1916, the public debt of the States increased by £117,664,044, or at the rate of about £13,000,000 per annum. The amount of debentures comprised in the total debt increased by £13,007,817 during the period, while the amount held as inscribed stock increased by £93,110,917, and that held as Treasury bills increased by £11,545,310.

3. Increase in Indebtedness of the Several States.—The table given hereunder furnishes particulars of the increase which has taken place during the past nine years in the public debts of the several States:—

PUBLIC DEBT OF THE AUSTRALIAN STATES, 30th JUNE, 1907 to 1916.

Date.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
	£	£	£	£	£	£	£
30th June, 1907 ...	85,607,832	53,104,989	41,764,467	30,526,718	19,222,638	9,923,063	240,149,727
" 1908 ...	87,635,826	53,305,487	42,264,467	29,985,858	20,493,618	10,150,233	243,835,489
" 1909 ...	90,307,419	54,667,197	44,276,067	30,436,183	21,961,753	10,134,914	251,773,533
" 1910 ...	92,525,095	55,576,725	44,276,067	31,387,870	23,287,459	10,570,453	257,623,663
" 1911 ...	95,523,926	57,983,764	44,613,197	34,224,653	23,703,953	11,077,790	267,127,283
" 1912 ...	100,052,635	60,737,216	47,068,186	31,680,124	26,283,523	11,302,411	277,124,095
" 1913 ...	106,170,747	62,776,724	53,604,733	30,147,883	30,276,436	11,495,963	294,472,486
" 1914 ...	116,695,031	66,130,726	54,523,506	33,564,332	34,420,181	12,265,012	317,598,788
" 1915 ...	127,735,405	72,083,927	56,869,046	35,081,623	37,022,622	13,133,046	342,925,669
" 1916 ...	130,514,018	76,775,032	58,732,843	37,993,289	39,889,676	13,908,913	357,813,771

The State in which the greatest increase in indebtedness was experienced during the period is New South Wales, which added £44,906,186 during the period under review. On the other hand, the public debt of Tasmania increased by about £4,000,000 only.

4. **Indebtedness per Head.**—The indebtedness per head of population varies considerably in the several States, being highest in the case of Western Australia, and lowest in that of Victoria. Details for the period from 30th June, 1907, to 30th June, 1916, are as follows:—

PUBLIC DEBT OF AUSTRALIAN STATES PER HEAD, 30th JUNE, 1907 to 1916.

Date.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
30th June, 1907 ...	55 9 2	43 6 8	76 19 0	83 0 4	75 4 8	53 14 0	58 4 9
" 1908 ...	55 14 0	42 19 5	76 6 10	79 6 7	79 9 9	54 2 9	58 2 8
" 1909 ...	56 10 3	43 6 11	77 13 8	78 7 1	83 7 7	53 5 7	58 18 0
" 1910 ...	56 13 2	43 6 8	74 16 10	78 18 6	85 18 6	55 6 10	58 19 0
" 1911 ...	57 9 4	43 18 3	72 12 4	83 4 6	82 13 0	58 4 2	59 9 9
" 1912 ...	57 11 9	44 16 11	74 5 0	75 5 8	86 18 8	59 9 7	59 13 5
" 1913 ...	58 13 4	45 3 0	81 13 4	68 18 5	96 8 0	59 0 2	61 6 5
" 1914 ...	62 17 9	46 10 1	80 6 4	76 12 0	106 5 0	62 6 9	64 10 5
" 1915 ...	68 7 2	51 4 9	82 9 2	80 1 6	114 15 9	66 3 9	69 5 3
" 1916 ...	70 6 0	54 12 1	85 8 8	87 12 7	126 15 2	70 8 6	72 19 7

5. **Flotation of Loans.**—The early loans of the Australian States, usually for comparatively small amounts, were raised locally, but, with the increasing demand for loan funds and the more favourable terms offering in the London than in the local money market, the practice of placing Australian public loans in London came into vogue, and for many years local flotations, except for short terms or small amounts, were comparatively infrequent. In more recent years, however, the accumulating stocks of money in Australia seeking investment have led to the placing of various redemption and other loans locally, with very satisfactory results. In the following table are given particulars of loans of the several States outstanding on 30th June, 1916, which had been floated in London and Australia respectively:—

PUBLIC DEBT OF AUSTRALIAN STATES, 30th JUNE, 1916.

State.	Floted in London.		Floted in Australia.		Total Public Debt
	Amount.	Percentage on Total Debt.	Amount.	Percentage on Total Debt.	
	£	%	£	%	£
New South Wales	87,153,587	66.78	43,360,431	33.22	130,514,018
Victoria...	42,160,566	54.92	34,614,466	45.08	76,775,032
Queensland	46,680,147	79.48	12,052,696	20.52	58,732,843
South Australia	20,367,393	53.61	17,625,896	46.39	37,993,289
Western Australia	26,834,158	67.27	13,055,518	32.73	39,889,676
Tasmania	8,844,250	63.59	5,064,663	36.41	13,908,913
Total	232,040,101	64.85	125,773,670	35.15	357,813,771

The following table, giving corresponding particulars for the aggregate indebtedness of the Australian States at the end of each of the financial years 1906-7 to 1915-16, furnishes an indication of the rapidity with which the local holdings of Australian securities have grown in recent years:—

PUBLIC DEBT OF AUSTRALIAN STATES, 30th JUNE, 1907 to 1916.

Date.	Floated in London.		Floated in Australia.		Total Public Debt.
	Amount.	Percentage on Total Debt.	Amount.	Percentage on Total Debt.	
	£	%	£	%	£
30th June, 1907 ...	185,579,389	77.28	54,570,338	22.72	240,149,727
" 1908 ...	183,321,256	75.18	60,514,233	24.82	243,835,489
" 1909 ...	189,410,036	75.23	62,363,497	24.77	251,773,533
" 1910 ...	191,972,479	74.52	65,651,184	25.48	257,623,663
" 1911 ...	189,067,671	70.78	78,059,612	29.22	267,127,283
" 1912 ...	192,190,771	69.35	84,933,324	30.65	277,124,095
" 1913 ...	204,395,129	69.41	90,077,357	30.59	294,472,486
" 1914 ...	224,061,456	70.55	93,537,332	29.45	317,598,788
" 1915 ...	229,212,541	66.84	113,713,128	33.16	342,925,669
" 1916 ...	232,040,101	64.85	125,773,670	35.15	357,813,771

It will be seen that in the course of nine years the London indebtedness of the States has increased by £46,460,712, while the local indebtedness has increased by no less than £71,203,332. In other words, whilst on 30th June, 1906, the Australian portion of the debt represented only about two-ninths of the total, the proportion had on 30th June, 1915, grown to more than one-third.

It will be noticed in the foregoing table that the Australian indebtedness of the States increased during the year 1915-16 to a figure both relatively and absolutely higher than had ever before been attained. This was due, in the main, to an arrangement with the Commonwealth Government, which was concluded shortly after the outbreak of war. It seemed very probable, at that period, that London would be reluctant to make advances for other than military purposes, and this would have seriously embarrassed several of the States which were committed to a vigorous public works and developmental policy. The Commonwealth Government met the situation by advancing £18,000,000 to five of the States in the following proportion:—New South Wales, £7,400,000; Victoria, £3,900,000; South Australia, £2,600,000; Western Australia, £3,100,000; and Tasmania, £1,000,000. Victoria contracted her portion of the debt in debentures, whereas the remaining States chose Treasury bills, but otherwise the conditions were the same. The Commonwealth Government paid the money in monthly instalments, to be repaid after two years, and the rate of interest was fixed at $4\frac{1}{2}$ per cent. The money was taken entirely from the Australian Notes Account, and the whole transaction furnishes another illustration of the increasingly intimate financial relationship between the Commonwealth and State Governments, to which reference was made in the preceding chapter, page 742. A further advance was made to the States by the Commonwealth in 1915-16 out of the proceeds of a loan contracted in London. The loan was for £2,950,000, and carried interest at the rate of $5\frac{1}{4}$ per cent.

6. Rates of Interest.—As mentioned above, the highest rate of interest paid in connection with the earliest Australian public loans was fivepence farthing per-£100 per diem, or, approximately, 8 per cent. per annum. At the present time the principal rates of interest payable on Australian public securities are $4\frac{1}{2}$ per cent., $4\frac{1}{8}$ per cent., 4 per cent., $3\frac{1}{2}$ per cent., $3\frac{1}{4}$ per cent., and 3 per cent. The average rate payable on the aggregate indebtedness of the Australian States is about $3\frac{3}{4}$ per cent. For the separate States

the average rate payable varies considerably, being lowest in the case of Victoria and highest in that of South Australia; the difference between these two average rates is about $\frac{1}{2}$ per cent. In the table given hereunder particulars are furnished of the rates of interest payable on the public debt of the several States of the Commonwealth on 30th June, 1916:—

RATES OF INTEREST PAYABLE ON PUBLIC DEBT OF STATES, 30th JUNE, 1916.

Rate of Interest.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Total.
	£	£	£	£	£	£	£
%							
6	...	...	...	39,900	...	...	39,900
5½	...	650,000	1,200,000	250,000	750,000	100,000	2,950,000
5	2,214,700	1,424,975	...	2,379,000	892,000	100,000	7,010,675
4½	10,612,437	3,265,100	12,026,400	1,456,313	532,605	262,241	28,155,096
4	...	600,000	...	...	...	...	600,000
4½	...	630,500	...	...	...	140,750	771,250
4	7,400,000	3,900,000	...	2,600,000	3,100,000	1,000,000	18,000,000
4	29,412,840	19,554,892	18,425,650	11,925,098	12,724,511	5,922,750	97,965,741
3½	13,514,098	267,683	2,550,050	6,990,399	1,912,070	754,772	25,989,072
3½	50,306,321	36,182,175	19,040,760	6,425,339	12,628,490	5,149,614	129,732,699
3	17,047,072	10,298,707	5,489,383	5,927,240	7,350,000	(b) 478,786	46,591,188
Not bearing interest	6,550	1,000	600	...	...	...	8,150
Total public debt	130,514,018	76,775,032	58,732,843	37,993,289	39,889,676	13,908,913	357,813,771
Average rate per cent. payable	£ s. d. 3 14 4	£ s. d. 3 13 8	£ s. d. 3 17 3	£ s. d. 3 18 4	£ s. d. 3 14 1	£ s. d. 3 16 1	£ s. d. 3 15 1

(a) Includes £20,000 at 4½ per cent. (b) Includes £24,718 at 3½ per cent.

The rapid increase which has taken place in recent years in the amount of Australian Government securities, bearing interest at the higher rates, is clearly shewn in the table hereunder, which gives particulars concerning the aggregate amount of the Australian indebtedness, at the several rates of interest, on 30th June in each of the years 1912 to 1916:—

RATES OF INTEREST PAYABLE ON PUBLIC DEBT OF STATES, 30th JUNE, 1912 TO 1916.

Rate of Interest.	30th June, 1912.	30th June, 1913.	30th June, 1914.	30th June, 1915.	30th June, 1916.
	£	£	£	£	£
%					
6	156,200	109,900	74,900	49,900	39,900
5½	...	...	...	...	2,950,000
5	142,700	142,700	142,700	2,146,800	7,010,675
4½	46,400	42,900	39,300	25,279,647	28,155,096
4	...	...	...	300,000	600,000
4½	...	100,000	...	290,750	771,250
4	...	...	...	10,625,000	18,000,000
4	70,204,992	87,511,852	111,771,586	100,551,888	97,965,741
3½	26,251,486	27,855,439	27,679,770	25,372,084	25,989,072
3½	133,631,321	132,108,659	131,292,054	130,392,839	129,732,699
3	46,686,446	46,585,516	46,592,430	(a) 46,567,286	(a) 46,591,188
Not bearing interest	4,560	15,520	6,048	349,475	8,150
Total public debt	277,124,095	294,472,486	317,598,788	342,925,669	357,813,771
Average rate % payable	£3 11 4	£3 11 11	£3 12 6	£3 13 11	£3 15 1

(a) Including £24,718 at 3½ per cent.

The feature of this table is the rapid rise in the average rate of interest. The process started in 1912, but was accelerated by the war, which has virtually made $4\frac{1}{2}$ per cent. the present minimum rate of interest for gilt-edged securities. The average rate is likely to rise for some considerable time.

7. Interest Payable per Head.—The relative burden of the debts of the several States in respect of interest payments will be seen from the following table, which gives for the 30th June, 1916, the amount of interest paid during the financial year ending at that date, and also the corresponding amount per head of population :—

STATE DEBTS.—INTEREST PAYABLE PER HEAD, 1915-16.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	£	£	£	£	£	£	£
Total annual interest payable ...	4,552,765	2,674,823	2,197,169	1,329,090	1,398,680	500,665	12,653,192
Annual interest payable per head	£2 8 9	£1 17 9	£3 4 7	£2 14 11	£4 8 0	£2 9 10	£2 11 4

(a) Inclusive of flotation expenses.

8. Dates of Maturity.—An important point of difference between the securities of the Australian Governments, whether in the form of inscribed stock, debentures, or Treasury bills, and such a well-known form of security as British Consols, is that whereas the latter are interminable, the Australian Government securities have in almost all cases a fixed date for repayment, the exceptions being the State of New South Wales, which includes in its public debt an amount representing interminable securities totalling on 30th June, 1913, £532,889; and also £7,395,208 redeemable by Government on giving 12 months' notice; the State of Victoria, which includes £4,899,657 due in 1917 and £365,619 due in 1931, payable at the option of the Government at any time after 29th September, 1917; and the State of South Australia, which includes £5,089,034 similarly repayable. The terms of the loans raised by the issue of debentures and inscribed stock have varied considerably in the different States, ranging between fifteen and fifty years, while loans obtained by means of Treasury bills have usually been for such short terms as from six months to five years. In the case of the majority of the loans the arrival of the date of maturity means that arrangements for renewal are necessary in respect of the greater portion of the loan, as it is only in exceptional cases that due provision for redemption has been made. The condition of the money market at the date of maturity has an important bearing on the success or otherwise with which the renewal arrangements can be effected, and consequently, in order to obviate the necessity for making an application to the market at an unfavourable time, several of the States have now adopted the practice of specifying a period of from ten to twenty years prior to the date of maturity within which the Government, on giving twelve, or in some cases six, months' notice, has the option of redeeming the loan. By such means advantage may be taken by the Government during the period of opportunities that may offer for favourable renewals. Particulars concerning the due dates of the loans of the several States outstanding on 30th June, 1915, are given in the following table.

Those loans in the case of which the Government has the option of redemption during a specified period, have been in each instance classified according to the latest date of maturity :—

**DUE DATES OF THE PUBLIC DEBTS OF THE SEVERAL STATES OUTSTANDING
ON 30th JUNE, 1916.**

Due Dates.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Total.
	£	£	£	£	£	£	£
Overdue ...	6,550	1,000	600	...	...	...	8,150
1916 ...	828,667	1,558,250	...	777,990	262,070	443,157	3,870,134
1917 ...	8,053,683	4,174,100	...	4,432,022	311,000	1,561,461	18,332,246
1918 ...	12,826,200	4,243,020	...	2,810,242	4,359,555	420,896	24,659,913
1919 ...	11,233,995	6,028,095	...	1,927,915	...	343,196	19,533,201
1920 ...	5,305,137	6,846,036	...	946,768	...	450,319	13,548,260
1921 ...	5,150,143	2,907,100	...	3,549,099	...	702,882	12,309,224
1922 ...	4,500,000	5,903,738	2,324,750	955,478	...	117,726	13,801,692
1923 ...	7,855,432	8,690,950	...	403,312	556,550	68,695	17,574,939
1924 ...	16,698,065	455,740	12,973,834	980,160	568,570	51,665	31,728,034
1925 ...	311,799	2,772,240	...	38,549	...	141,163	3,263,751
1926 ...	...	5,427,380	12,026,400	1,074,083	1,922,305	176,270	20,626,438
1927 ...	5,000,000	691,450	...	570,651	2,500,000	...	8,762,101
1928 ...	...	897,500	...	846,308	...	...	1,743,808
1929 ...	...	747,500	...	221,418	...	300,000	1,268,918
1930 ...	...	1,814,650	3,704,800	302,425	...	100	5,821,975
1931 ...	...	1,061,648	...	450	...	...	1,062,098
1932 ...	...	954,350	...	1,225	1,380,540	...	2,336,115
1933 ...	9,686,300	...	...	368,912	716,708	39,207	10,811,127
1934 ...	...	...	...	1,043,421	1,847,993	39,207	2,930,621
1935 ...	12,500,000	...	...	1,478,499	8,358,185	179,957	22,516,641
1936 ...	...	300,000	...	4,250,380	1,240,000	39,207	5,829,587
1937 ...	...	...	...	15,586	...	39,207	54,793
1938 ...	...	...	...	92,383	...	39,207	131,590
1939 ...	...	...	...	2,560,999	...	39,207	2,600,206
1940 ...	...	248,900	...	6,000	...	5,645,707	5,900,607
1941 ...	...	...	...	...	...	39,207	39,207
1942 ...	...	485,100	...	...	...	39,207	524,307
1943 ...	...	3,600	...	...	...	39,207	42,807
1944 ...	...	400	...	...	...	39,207	39,607
1945 ...	...	...	7,516,050	...	...	39,207	7,555,257
1946 ...	...	217,400	...	...	...	39,207	256,607
1947 ...	...	...	4,498,693	...	2,000,000	39,207	6,537,900
1948 ...	...	...	...	...	...	39,207	39,207
1949 ...	...	11,699,471	...	...	...	39,207	11,738,678
1950 ...	12,250,000	...	6,946,600	...	...	2,839,207	22,035,807
1951 ...	...	...	999,600	...	...	39,207	1,038,807
1952 ...	...	...	...	...	...	39,200	39,200
1953 ...	...	...	2,147,809	...	...	...	2,147,809
1954 ...	...	123,874	...	...	...	...	123,874
1955 ...	...	...	...	...	4,437,000	...	4,437,000
1960 ...	...	2,979,700	2,000,000	3,000,000	1,000,000	...	8,979,700
1862 ...	10,500,000	...	...	...	6,000,000	...	16,500,000
1964 ...	...	...	...	...	1,566,000	...	1,566,000
1965 ...	...	...	1,122,000	...	...	...	1,122,000
1970 ...	...	...	2,000,000	...	...	...	2,000,000
Interminable ...	532,889	...	...	...	...	...	532,889
Annual drawings ...	...	...	...	...	113,200	...	113,200
Indefinite ...	7,275,158	5,541,840	471,707	5,089,034	...	...	18,377,739
Total ...	130,514,018	76,775,032	58,732,843	437,993,289	639,889,676	13,908,913	1,357,813,771

(a) Including £250,000 from Commonwealth Government. (b) Including £750,000 from Commonwealth Government. (c) See footnotes (a) and (b).

9. **Sinking Funds.**—The practice of providing for the ultimate extinction of the public debt by means of the creation of sinking funds, receiving definite annual contributions from Consolidated Revenue, and accumulating at compound interest, has only been consistently adopted in the case of Western Australia. This State has established, in connection with each of its loans, sinking funds varying from 1 per cent. to 3 per cent. per annum of the nominal amount of the loan. These funds are placed in the hands of trustees in London, by whom they are invested in the securities of the British, Indian, and Colonial Governments, and applied from time to time in the redemption of loans falling due. In the remaining States the sinking fund provision made is varied, consisting in certain instances of the revenues from specified sources, in others of the Consolidated Revenue Fund surplus, and in others again of fixed annual amounts. In the

following table are given particulars of the sinking funds of each State, and the net indebtedness of each after allowance for sinking fund has been made, the details given being those for 30th June, 1916:—

STATE SINKING FUNDS AND NET INDEBTEDNESS, 30th JUNE, 1916.

State	Gross Indebtedness.	Sinking Fund.	Net Indebtedness.	Net Indebted- ness per head.
	£	£	£	£ s. d.
New South Wales ...	130,514,018	439,612	130,074,406	70 1 4
Victoria ...	76,775,032	1,758,977	75,016,055	53 7 1
Queensland ...	58,732,843	258,896	58,473,947	85 1 2
South Australia ...	37,993,289	1,318,500	36,674,789	84 11 9
Western Australia ...	39,889,676	4,528,432	35,361,244	112 7 5
Tasmania ...	13,908,913	704,312	13,204,601	66 17 2
Total ...	357,813,771	9,008,729	348,805,042	71 2 10

SECTION XXI.

PRIVATE FINANCE.

§ 1. Currency.

1. **The Three Australian Mints.**—Soon after the discovery of gold in Australia steps were taken for the establishment of a branch of the Royal Mint in Sydney. The formal opening took place on the 14th May, 1855, the mint being located in the southern part of the building once known as the "rum hospital," where it has remained up to the present. It is proposed, however, to erect more suitable buildings for its accommodation in some other part of the city. The Melbourne branch of the Royal Mint was opened on the 12th June, 1872, and the Perth branch on the 20th June, 1899. The States of New South Wales, Victoria, and Western Australia provide an annual endowment, in return for which the mint receipts are paid into the respective State Treasuries, and it may be said that, apart from expenditure on buildings, new machinery, etc., the amounts paid into the Treasuries fairly balance the mint subsidies.

2. **Receipts and Issues in 1915.**—(i.) *Assay of Deposits Received.* The number of deposits received during 1915 at the Sydney Mint was 920, of a gross weight of 509,139 ozs.; at the Melbourne Mint, 2376, of a gross weight of 487,195 ozs.; and at the Perth Mint, 4219, of a gross weight of 1,535,905 ozs. The average composition of these deposits in Sydney was, gold 866.0, silver 83.9, base 50.1 in every 1000 parts; Melbourne, gold 920.3, silver 39.0, base 40.7 in every 1000 parts; and Perth, gold 811.7, silver 125.2, base 63.1 in every 1000 parts. As many parcels have, however, undergone some sort of refining process before being received at the mint, the average assay for gold shews higher in these figures than for gold as it naturally occurs.

(ii.) *Receipts.* Practically all the gold coined at the Australian mints is the produce of either the Commonwealth or of the Dominion of New Zealand. The following table shews the origin of the gold received at the three mints during 1915:—

ORIGIN OF GOLD RECEIVED AT MINTS DURING 1915.

Origin of Gold.	Sydney Mint.	Melbourne Mint.	Perth Mint.
	ozs.	ozs.	ozs.
New South Wales	123,613.14	11,988.48	...
Victoria	67.25	361,309.17	...
Queensland... ..	292,474.24	1,983.76	...
South Australia ... ..	...	10,039.72	3
Western Australia	166.40	9,220.22	1,534,655
Tasmania	8,412.92	8,616.78	...
Northern Territory	988.20	...	...
New Zealand	82,867.43	36,094.16	...
Other countries, origin not stated, and light gold coin	549.18	47,942.28	1,247
Total	509,138.76	487,194.57	1,535,905

It will be seen that practically all gold produced in New South-Wales and Queensland, about two-thirds of that produced in New Zealand, and one-half of the Tasmanian found its way to the Sydney Mint, while the Melbourne Mint received all Victorian and South Australian gold, together with one-half of the Tasmanian and about one-third of the New Zealand production, and the Perth Mint treated practically all Western Australian gold with the exception of a small portion sent to Sydney and Melbourne.

(iii.) *Issues.* The Australian mints, besides issuing gold coin in the shape of sovereigns and half-sovereigns, also issue gold bullion, partly for the use of local manufacturers (jewellers and dentists), and partly for export, India taking annually a considerable quantity of gold cast into 10-oz. bars. The issues during 1915 are shewn in the table below:—

ISSUES OF GOLD FROM MINTS DURING 1915.

Mint.	Coin.			Bullion.	Total.
	Sovereigns.	Half-sovereigns.	Total.		
	£	£	£	£	£
Sydney ...	1,346,000	446,000	1,792,000	72,036	1,864,036
Melbourne ...	1,637,839	62,832	1,700,671	203,037	1,903,708
Perth ...	4,373,596	68,109½	4,441,705½	851,931	5,293,636½
Total ...	7,357,435	576,941½	7,934,376½	1,127,004	9,061,380½

In addition to the issue of gold, the Mints are also charged with the issue of silver and bronze coin struck in London. There was, however, no issue of either Imperial silver or bronze coin in 1915. (See page 775, par. 5 (iii).)

(iv.) *Withdrawals of Worn Coin.* The mints receive light and worn coin for recoinage, gold being coined locally, while silver is forwarded to London. The value of gold coin so received in 1915 amounted to £155,783, viz.:—Sydney, £663; Melbourne, £155,120; and Perth, *nil*. The value of worn silver coins received during 1915 was £97,961, viz.:—Sydney, £64,480; Melbourne, £28,695; and Perth, £4,786.

3. Total Receipts and Issues. (i.) *Receipts.* The total quantities of gold received at the three mints since their establishment are stated in the gross as follows:—Sydney, 37,376,681.58 ozs.; Melbourne, 36,639,224.26 ozs.; and Perth, 22,236,619.35 ozs. As the mints pay for standard gold (22 carats) at the rate of £3 17s. 10½d. per oz., which corresponds to a value of £4 4s. 11½d. per oz. fine (24 carats), it is possible to arrive at the number of fine ounces received from the amounts paid for the gold received. These amounts were:—Sydney, £137,881,923; Melbourne, £144,179,432; Perth, £78,071,001; corresponding to—Sydney, 32,460,162 ozs. fine; Melbourne, 33,942,715 ozs. fine; and Perth, 18,379,475 ozs. fine. Silver found in assaying is paid for if it exceeds 8 per cent.; in Sydney it has been paid for at the rate of one shilling and sixpence per oz. fine since 12th May, 1902; in Melbourne the price is fixed monthly by the Deputy-master of the Mint; and in the Perth accounts it has been taken at one shilling per oz.

(ii.) *Issues.* The total values of gold coin and bullion issued by the three mints were as shewn in the table on page 774. It may be said that rather more than one-half of the total gold production of Australasia has passed through the three Australian mints, the production of the Commonwealth States to the end of 1915 being valued at £572,487,653, and that of New Zealand at £84,648,463, or a total of £657,136,116.

TOTAL ISSUES OF GOLD FROM MINTS TO END OF 1915.

Mint.	Coin.			Bullion.	Total.
	Sovereigns.	Half-sovereigns.	Total.		
	£	£	£	£	£
Sydney ...	126,726,500	4,557,000	131,283,500	6,612,255	137,895,755
Melbourne ...	132,605,388	946,780	133,552,168	10,630,743	144,182,911
Perth ...	70,182,045	257,344	70,439,389	7,610,414	78,049,803
Total ...	329,513,933	5,761,124	335,275,057	24,853,412	360,128,469

The total issues of silver coins to the end of 1915 were £2,415,200, viz.:—Crowns, £3500; double florins, £4585; half-crowns, £722,600; florins, £528,215; shillings, £606,200; sixpences, £253,220; and threepences, £296,880.

Bronze coins to the value of £180,150 have been issued, viz.:—Pence, £126,640; half-pence, £53,310; and farthings, £200.

(iii.) *Withdrawals of Worn Coin.* Complete figures as to the withdrawal of gold coin are as follows:—Sydney, £1,084,327; Melbourne, £669,945 (since and including 1890); and Perth, £422.

Withdrawals of worn silver coin amounted to £502,388 in Sydney, to £516,791 in Melbourne, and to £47,505 in Perth.

4. **Standard Weight and Fineness of Coinage.**—The coinage of the Commonwealth is the same as that of the United Kingdom, and the same provisions as to legal tender hold good, viz., while gold coins are legal tender to any amount, silver coins are only so for an amount not exceeding forty shillings, and bronze coins up to one shilling. As will be seen from the table below, the standard weights of the sovereign and half-sovereign are respectively 123.27447 grains and 61.63723 grains, but these coins will pass current if they do not fall below 122.5 grains and 61.125 grains respectively.

STANDARD WEIGHT AND FINENESS OF COMMONWEALTH COINAGE.

Denomination.	Standard Weight.	Standard Fineness.
GOLD—		
	Grains.	
Sovereign ...	123.27447	} Eleven-twelfths fine gold, viz.:— Gold ... 0.91667 } 1.00000 Alloy ... 0.08333 }
Half-sovereign ...	61.63723	
SILVER—		
Crown ...	436.36363	} Thirty-seven-fortieths fine silver, viz.:— Silver ... 0.925 } 1.000 Alloy ... 0.075 }
Double florin ...	349.09090	
Half-crown ...	218.18181	
Florin ...	174.54545	
Shilling ...	87.27272	
Sixpence ...	43.63636	
Threepence ...	21.81818	
BRONZE—		
Penny ...	145.83333	} Mixed metal, viz.:— Copper ... 0.95 } 1.00 Tin ... 0.04 } Zinc ... 0.01 }
Half-penny ...	87.50000	
Farthing ...	43.75000	

5. **Prices of Silver and Australian Coinage.**—(i.) *Prices of Silver.* The value of silver has greatly decreased since its demonetisation and restricted coinage in almost the whole of Europe. Its average price in the London market in recent years is shewn in the subjoined table:—

AVERAGE PRICE OF SILVER IN LONDON MARKET, 1877 to 1915.

Year.	Price per Standard Oz.	Year.	Price per Standard Oz.	Year.	Price per Standard Oz.
	d.		d.		d.
1877 ...	54.7500	1890 ...	47.7500	1903 ...	24.7500
1878 ...	52.5625	1891 ...	45.0625	1904 ...	26.3750
1879 ...	51.1875	1892 ...	39.8125	1905 ...	27.8125
1880 ...	52.2500	1893 ...	35.6250	1906 ...	30.8750
1881 ...	51.7500	1894 ...	29.0000	1907 ...	30.1875
1882 ...	51.8125	1895 ...	29.8750	1908 ...	24.3750
1883 ...	50.5625	1896 ...	30.7500	1909 ...	23.6875
1884 ...	50.6875	1897 ...	27.5625	1910 ...	24.6875
1885 ...	48.6250	1898 ...	26.9375	1911 ...	24.5625
1886 ...	45.3750	1899 ...	27.5000	1912 ...	28.0625
1887 ...	44.6250	1900 ...	28.3125	1913 ...	27.5625
1888 ...	42.8750	1901 ...	27.2500	1914 ...	25.3125
1889 ...	42.6875	1902 ...	24.1250	1915 ...	23.6875

(ii.) *Profits on Coinage of Silver.* As sixty-six shillings are coined out of one pound troy of standard silver, the silver required to produce £3 6s. of coin was only worth £1 3s. 8d. during 1915; the difference of £2 2s. 4d. represents, therefore, the gross profit or seignorage made on the coinage of every £3 6s. This represents a rate of seignorage of 178.63 per cent., but the expenses of coining (including interest on cost of machinery) and of withdrawals of worn coin must be deducted. Still, given a large annual demand for new silver coin, even the net profit amounts to a considerable sum. Negotiations, therefore, took place for a number of years between the Imperial authorities and the Governments of New South Wales and Victoria, which in 1898 resulted in permission being granted to the two Governments named to coin silver and bronze coin at the Sydney and Melbourne Mints for circulation in Australia. No steps were, however, taken in the matter, and as section 51 of the Commonwealth Constitution makes legislation concerning "currency, coinage, and legal tender" a federal matter, the question remained in abeyance until the latter part of 1908, when the Commonwealth Treasurer announced his intention of initiating the coinage of silver in the future.

(iii.) *Coinage Bill.* In 1909 a Coinage Bill was introduced in the Commonwealth Parliament, which provided that the future Australian coinage should consist of the following coins:—In gold, £5, £2, £1, and 10s.; in silver, 2s., 1s., 6d., and 3d.; and in bronze, 1d. and $\frac{1}{2}$ d. Gold was to be legal tender up to any amount, silver up to 40s., and bronze up to 1s. Ultimately the coinage was to be undertaken in Australia, but for the time an agreement was made with the authorities of the Royal Mint in London, under the terms of which the coinage was to be done in London on account of the Commonwealth Government: Orders were given for the immediate coinage of £200,000 worth of silver, viz., one million florins, one million shillings, one million sixpences, and two million threepences. The coins were to bear on the obverse H.M. the King's head, with the Latin inscription which appears on the British coins, and on the reverse the Australian coat-of-arms, with the denomination and the date. The Imperial authorities undertook to withdraw £100,000 worth of the existing silver-coinage per annum at its face value. The first consignment of the new coinage arrived in Australia early in 1910, and in a short time all the silver coins contracted for were supplied to the Royal Mints, Australia. Copper coins of the value of £10,000, viz., 1,560,000 pennies and 1,680,000 half-pennies, of a design similar to that of the silver coins, were ordered. It was not, however, intended to withdraw any of the existing copper coins, but merely to make good the "leakage," which was considerable.

The issue of Australian coin in 1915 was as follows:—Sydney, £148,700 silver, and £7070 bronze; Melbourne, £98,700 silver, and £3180 bronze; and Perth, £25,400 silver, and £860 bronze. In Melbourne, the coin is distributed from the Federal Treasury.

For information concerning the imports into the Commonwealth and exports from the Commonwealth of coin and bullion during the year 1915, the enquirer is referred to the tables on pages 562-563.

§ 2. Banking.

1. Banking Facilities.—Head Offices of Banks. Of the twenty-five banks trading in the Commonwealth on 30th June, 1916, four have their head offices in London, viz., the Bank of Australasia; the Union Bank of Australia Limited; the English, Scottish and Australian Bank Limited; and the London Bank of Australia Limited. The head offices of the following five banks are in Sydney—The Commonwealth Bank of Australia, The Bank of New South Wales, the Commercial Banking Company of Sydney Limited, the Australian Joint Stock Bank Limited (now the Australian Bank of Commerce Limited), and the City Bank of Sydney. Five banks have their head offices in Melbourne, viz., the National Bank of Australasia Limited, the Commercial Bank of Australia Limited, the Bank of Victoria Limited, the Colonial Bank of Australasia Limited, and the Royal Bank of Australia Limited. Brisbane is the headquarters of three banks, viz., the Queensland National Bank Limited, the Royal Bank of Queensland Limited, and the Bank of North Queensland Limited. Only one bank has at present its head office in Adelaide, viz., the Bank of Adelaide; and one in Perth, viz., the Western Australian Bank. Of the two Tasmanian banks, the Commercial Bank of Tasmania Limited has its head office in Hobart, and the National Bank of Tasmania Limited in Launceston. The Bank of New Zealand has its headquarters in Wellington. Of the three remaining banks, the Comptoir National d'Escompte de Paris has its head office in Paris, the Ballarat Banking Company in Ballarat, and the Yokohama Specie Bank in Yokohama, Japan. It is proposed, in the few instances where the banks are referred to by name, to arrange them in the order just given, with the exception of the Commonwealth Bank, which is placed first.

2. Banking Legislation.—Under Section 51 of the Commonwealth Constitution Act the Commonwealth Parliament has power to legislate with respect to "Banking, other than State banking, also State banking extending beyond the limits of the State concerned, the incorporation of banks, and the issue of paper money." Until recently the only Commonwealth banking legislation passed was Act No. 27 of 1909, "An Act relating to Bills of Exchange, Cheques, and Promissory Notes," which came into force on the 1st February, 1910. In the session of 1910, however, two Acts relating to banking were passed by the Federal Parliament. The first was the Australian Notes Act No. 11 of 1910, assented to on the 16th September, 1910, and proclaimed 1st November, 1910; and the second the Bank Notes Tax Act No. 14, 1910, assented to on 10th October, 1910, and proclaimed 1st July, 1911. Under the first of these Acts the Commonwealth Treasurer was empowered to issue notes which shall be legal tender throughout the Commonwealth, and redeemable at the seat of Federal Government. The notes are issued in denominations of 10s., £1, £5, £10, £20, £50, and £100. The Act directed the Treasurer to hold the following reserve of gold coin:—

- (a) An amount not less than one-fourth of the amount of Australian notes issued up to seven million pounds;
- (b) An amount equal the amount of Australian notes issued in excess of seven million pounds.

For the purpose of estimating the reserve, notes which have been redeemed are not included amongst those issued.

The portion of the Act relating to the reserve has been amended by Act No. 21 of 1911, which was assented to on 22nd December, 1911. According to this amending Act the clause relating to the reserve now reads as follows:—"The Treasurer shall hold in gold coin a reserve of not less than one-fourth of the amount of Australian notes issued." It was intended that this amendment should come into force on 1st July, 1912, but the Federal Treasurer afterwards announced that its operation would be deferred until after the Commonwealth elections of 1913. These elections resulted in the return to power of another administration, and the new Treasurer, Sir John Forrest, announced his intention of maintaining the reserve at the rate provided for in the original Act during his tenure of office. This only lasted until September, 1914, but there has not, since then, been a very great diminution in the proportionate gold reserve, which on 27th June, 1917, stood at about 32.29 per cent.

The Australian Notes Act prohibited the circulation of notes issued by a State six months after the commencement of the Act, and such notes then ceased to be legal tender. In addition, the Bank Notes Act imposed a tax of 10 per cent. per annum in respect of all bank notes issued or re-issued by any bank in the Commonwealth after the commencement of this Act and not redeemed.

The Notes Act and the Bank Notes Act were supplemented in the following year by the passing of No. 18 of 1911, "An Act to provide for a Commonwealth Bank," which passed both Houses and was assented to on 22nd December, 1911. The bank thus authorised has no power to issue notes, but in every other respect it has the functions of an ordinary bank of issue. It is managed by a governor and a deputy-governor, who are appointed by the Governor-General and will hold office during good behaviour for a period of seven years, after which they will be eligible for reappointment. A novel feature is the establishment of a department dealing with savings bank business only. No further reference need be made here to this department, which is dealt with in detail in § 5. The framers of the Act have largely followed the lines laid down by the respective State Savings Bank Acts, particularly the Western Australian Act No. 9 of 1906. The capital of the bank was originally fixed at one million pounds, to be raised by the issue and sale of debentures. During the session of 1914 authority was obtained from Parliament to increase the capital of the bank to ten million pounds, with the object, it was understood, of acquiring the entire business of another bank. No such acquisition has, as yet, taken place, and no capital has, so far, been actually advanced by the Commonwealth Government to the bank. The debentures previously referred to were to be for ten pounds or some multiple of ten pounds and redeemable at par, the Commonwealth guaranteeing interest and principal. All expenses incidental to the establishment of the bank were met by an advance from the Consolidated Revenue Fund, such advance being ultimately repaid with interest at the rate of three-and-a-half per cent.

The first step in the organisation of the bank was the appointment as Governor, from 1st June, 1912, of Mr. Denison Miller, of the Bank of New South Wales. Mr. James Kell, of the Bank of Australasia, was subsequently appointed Deputy-Governor, and the bank was formally opened on 20th January, 1913, for the transaction of all general banking business. The result of the first day's operations was the deposit of £2,341,720, the bulk of which consisted of funds belonging to various departments of the Commonwealth Government. The opening of branches simultaneously at Sydney, Melbourne, Brisbane, Adelaide, Perth, Hobart, Townsville, Canberra, and London, marked the accomplishment of the provisions of the Commonwealth Bank Act of 1911. The Savings Bank Department, which came into existence six months previously, is dealt with in detail in the section on Savings Banks.

As the initial expenses of the bank were heavy, and as no capital was advanced, the early operations resulted in a small loss. This was debited to the profit and loss account of the bank, and the increasing prosperity of the institution can be seen by the way in which the original debit has been reduced, until on 30th June, 1915, it was entirely extinguished. The following table shews the results of the transactions of the bank as published for the several periods mentioned :—

COMMONWEALTH BANK, 1913-16.

Net Result at 30th June.	General Bank.	Savings Bank.	Entire Bank.
	£	£	£
1913	Dr. 24,329	Dr. 22,308	Dr. 46,637
1914	Cr. 11,761	Dr. 48,757	Dr. 36,996
1915	Cr. 56,905	Dr. 54,634	Cr. 2,221
1916	Cr. 181,445	Dr. 34,376	Cr. 147,069

It will be seen from the above that the general bank became profitable at a much earlier stage than the savings bank. According to the provisions of section 30 of the Bank Act, the net profit of £147,069 disclosed at 30th June, 1916, was divided equally between a bank reserve fund and a redemption fund. The reserve fund is available for

the payment of any liabilities of the bank. The redemption fund is available for the repayment of any money advanced to the bank by the Treasurer, or for the redemption of debentures or stock which may be issued by the bank; and any excess may be used for the purposes of the redemption of any Commonwealth debts, or State debts taken over by the Commonwealth.

Under the existing laws, banks are required to furnish quarterly statements of their average assets and liabilities, but these statements are not equally complete in all the States. Until the close of 1907 these quarterly statements, together with the periodical balance-sheets of the banks (generally half-yearly, but in a few cases yearly), were the only information available in regard to banking business. During the year 1908 the Commonwealth Statistician, under the provisions of the Census and Statistics Act, asked the banks for quarterly returns giving slightly more detailed information than had previously been obtained. As, however, this extra information has not been forthcoming in the case of all the banks, the returns for the years subsequent to 1907 have been practically left in the same condition as those for 1907 and previous years.

The Acts under which the various banks are incorporated are not all of the same nature, but it may be stated that while most of the older banks were incorporated by special Acts, *e.g.*, the Bank of New South Wales, by Act of Council 1817; the Bank of Australasia, by Royal Charter; the Bank of Adelaide, by Act of the South Australian Parliament; and the Bank of New Zealand, by Act of the General Assembly of New Zealand, the newer banks are generally registered under a "Companies Act," or some equivalent Act. This is also the case with those banks which, after the crisis of 1893, were reconstructed.

3. Capital Resources of Banks.—The paid-up capital of the cheque-paying banks, together with their reserve funds, the rate per cent., and the amount of their last dividends, is shown in the table hereunder. The information relates to the balance-sheet last preceding the 30th June, 1916. In regard to the reserve funds it must be stated that in the case of some of the banks these are invested in Government securities, while in other cases they are used in the ordinary business of the banks, and in a few instances they are partly invested and partly used in business.

CAPITAL RESOURCES OF CHEQUE-PAYING BANKS, 1915-16.

Bank.	Paid-up Capital.	Rate per cent. per annum of last Dividend and Bonus.	Amount of last Dividend & Bonus.	Amount of Reserved Profits.
	£	%	£	£
Commonwealth Bank of Australia	2,000,000	14 & 12/- bonus ps.	170,000	1,147,068
Bank of Australasia	2,000,000	14	140,000	3,010,095
Union Bank of Australia Limited	539,438	8	43,155	2,030,528
English, Scottish and Australian Bank Limited	669,785 ¹	7	23,170 ⁵	433,229
London Bank of Australia Limited	3,500,000	10	87,500 ⁹	354,701
Bank of New South Wales	2,000,000	10	100,000	2,763,249
Commercial Banking Company of Sydney Limited	1,196,108	3	17,334	1,890,970
Australian Bank of Commerce Limited	400,000	4	8,000	79,079
City Bank of Sydney	1,498,220 ²	7	52,437	42,880
National Bank of Australasia Limited	2,213,000 ³	6	42,347	622,101
Commercial Bank of Australia Limited	1,478,010 ⁴	4	44,340	11,266
Bank of Victoria Limited	439,280	7	15,375	422,774
Colonial Bank of Australasia Limited	300,000	3	12,000	269,476
Royal Bank of Australia Limited	480,000	5	13,644	260,401
Queensland National Bank Limited	545,659	5	4,875	36,934
Royal Bank of Queensland Limited	162,500	6	20,000	84,787
Bank of North Queensland Limited	500,000	8	40,000	41,161
Bank of Adelaide	250,000	20	25,000	552,997
Western Australian Bank	200,000	14	14,000	707,840
Commercial Bank of Tasmania Limited	195,250	7	6,534	265,984
National Bank of Tasmania Limited	2,279,988	{ 12 & 3 bonus Ordinary 10 Preferen. 4 Guarant'd	236,507	82,992
Bank of New Zealand	8,000,000		400,000 ⁵	2,118,605
Comptoir National d'Escompte de Paris	85,000	9	3,825	1,688,596
Ballaarat Banking Company Limited	3,000,000	12	180,000	89,492
Yokohama Specie Bank				2,173,670
Total	33,932,247			20,171,787

1. Including calls in arrear, £952. 2. £305,780 preferential, £1,192,440 ordinary. 3. Subject to estimated deficiency in connection with Special Assets Trust Co. Ltd. 4. £416,760 preferential, £1,061,250 ordinary. 5. For 12 months. 6. Dividend for quarter.

4. **Liabilities and Assets of Banks.**—(i.) *Liabilities of Banks for Quarter ended 30th June, 1916.* As already stated, the banks transacting business in any State are obliged, under the existing State laws, to furnish a quarterly statement of their assets and liabilities, which contains the averages of the weekly statements prepared by the bank for that purpose, and they have, during the years 1908-15, furnished quarterly statements to the Commonwealth Statistician. As all other financial returns in this work embrace, so far as possible, a period ended 30th June, 1916, it seems advisable to give the banking figures for the quarter ended on that date; and, where they are shewn for a series of years, similarly to use the figures for the June quarter of each year. The liabilities are those to the general public, and are exclusive of the banks' liabilities to their shareholders, which are shewn in the preceding table:—

AVERAGE LIABILITIES OF BANKS IN EACH STATE OF THE COMMONWEALTH AND THE NORTHERN TERRITORY FOR THE QUARTER ENDED 30th JUNE, 1916.

State.	Notes in Circulation, not bearing interest.	Bills in Circulation, not bearing interest.	Balances Due to other Banks.	Deposits.			Total Liabilities.
				Not Bearing Interest.	Bearing Interest.	Total.	
	£	£	£	£	£	£	£
New South Wales	87,316	529,210	2,120,888	43,610,880	36,435,167	80,046,047	82,783,461
Victoria	100,585	124,454	798,691	25,175,255	34,105,454	59,280,709	60,304,439
Queensland	(a)	496,932	491,918	11,435,695	14,213,027	25,648,722	26,637,572
South Australia	30,085	18,704	564,667	5,750,998	7,880,829	13,631,827	14,245,283
West. Australia	27,678	73,237	281,911	4,145,792	3,924,688	8,070,380	8,453,206
Tasmania	11,957	20,943	112,170	2,568,303	3,474,148	6,042,451	6,187,521
North. Territory	...	142	18,983	134,949	85,545	220,494	239,619
Total	257,621	1,263,622	4,339,228	92,821,872	100,118,758	192,940,630	198,851,101

(a) In Queensland, Treasury notes were used instead of bank notes.

(ii.) *Assets of Banks for Quarter ended 30th June, 1916.* The average assets of the banks are shewn in the following table:—

AVERAGE ASSETS OF BANKS IN EACH STATE OF THE COMMONWEALTH AND THE NORTHERN TERRITORY FOR THE QUARTER ENDED 30th JUNE, 1916.

State.	Coined Gold and Silver and other Metals.	Gold and Silver in Bullion or Bars.	Government and Municipal Securities.	Landed and House Property.	Notes and Bills of other Banks.	Balances Due from other Banks.	Discounts Overdrafts, and all other Assets.	Australian Notes.	Total Assets.
	£	£	£	£	£	£	£	£	£
N.S. W.	11,270,443	134,935	8,625,456	2,255,032	504,809	2,584,894	50,443,748	13,073,103	88,892,420
Victoria	6,348,325	193,485	3,593,268	1,494,481	550,533	913,706	41,960,188	9,366,082	64,450,068
Q'land	2,759,823	95,668	816,488	793,450	371,272	574,138	18,456,103	3,637,955	27,504,897
S. Aust.	2,242,062	4,917	279,371	320,103	180,065	565,533	10,156,148	1,969,213	15,717,412
W. Aust.	3,604,919	413,088	702,619	232,300	110,401	512,479	9,414,042	1,307,879	16,297,667
Tas.	729,313	474	1,368,123	140,601	39,665	375,473	2,871,661	1,142,310	6,667,620
Nor. Ter.	2,691	647	...	1,200	51	8	4,141	14,737	23,475
Total	26,957,576	843,214	15,385,325	5,237,167	1,756,796	5,526,231	133,336,031	30,511,219	219,553,559

(iii.) *Liabilities of Banks for June Quarter, 1907 to 1916.* In the subjoined table, which shews the average liabilities of the banks for the quarters ended 30th June, 1907 to 1916, for the Commonwealth as a whole, it will be seen that the growth in total liabilities is almost entirely due to an increase in the deposits, and that deposits not bearing interest and deposits bearing interest have equally shared in that increase:—

AVERAGE LIABILITIES OF BANKS IN THE COMMONWEALTH FOR THE QUARTER ENDED 30th JUNE, IN THE YEARS 1907 to 1916.

Year.	Notes in Circulation not Bearing Interest.	Bills in Circulation not Bearing Interest.	Balances due to other Banks.	Deposits.			Total Liabilities
				Not Bearing Interest.	Bearing Interest.	Total.	
1907	£ 3,563,181	£ 801,878	£ 444,460	£ 46,781,234	£ 65,916,735	£ 112,697,969	£ 117,507,488
1908	3,536,227	707,903	796,447	46,015,448	67,678,940	113,694,388	118,734,965
1909	3,510,629	720,853	555,806	46,812,632	70,945,623	117,758,255	122,545,543
1910	3,748,482	821,758	570,115	55,233,862	74,667,274	129,891,136	135,081,491
1911	3,718,458	928,663	741,188	62,226,897	81,220,013	143,446,910	143,835,219
1912	536,964	1,002,062	872,946	65,408,841	84,397,756	149,806,597	152,218,589
1913	368,975	894,095	2,492,229	62,012,773	87,314,795	149,327,568	153,582,867
1914	306,809	1,069,548	2,750,788	70,195,462	93,659,093	163,854,555	168,001,700
1915	275,589	1,140,592	3,347,646	75,380,916	99,598,420	174,979,336	179,743,163
1916	257,621	1,263,622	4,389,228	92,821,872	100,118,758	192,940,630	198,851,101

(iv.) *Assets of Banks for June Quarter, 1907 to 1916.* A similar table shewing the average assets of the banks for the June quarters of each of the years 1907 to 1916 is shewn below. Bullion, in the case of the Tasmanian banks, is included with coin in the year 1907.

AVERAGE ASSETS OF BANKS IN THE COMMONWEALTH FOR THE QUARTER ENDED 30th JUNE, IN THE YEARS 1907 to 1916.

Year.	Coined Gold and Silver and other Metals.	Gold and Silver in Bullion or Bars.	Landed and other Property.	Notes and Bills of other Banks.	Balances Due from other Banks.	All other Debts Due to the Banks.(a)	Total Assets.
	£	£	£	£	£	£	£
1907	22,420,395	1,291,033	5,028,379	840,217	1,170,276	94,990,435	125,740,735
1908	23,578,293	1,353,267	4,938,212	889,377	1,131,612	101,647,044	133,587,805
1909	24,943,910	1,353,933	4,852,471	932,354	1,153,611	98,481,421	131,717,700
1910	28,826,729	1,322,899	4,919,991	973,161	1,343,669	101,371,817	138,758,266
1911	32,330,705	1,140,065	4,937,437	1,279,714	1,698,097	118,179,425	159,565,443
1912	27,581,368	1,104,644	4,956,593	1,168,958	1,761,701	129,197,992	165,771,256
1913	30,133,187	1,118,879	4,983,882	1,334,182	3,211,812	123,772,972	164,554,914
1914	35,385,924	1,024,100	4,592,951	1,785,498	4,737,862	127,922,971	175,449,306
1915	33,888,106	1,015,017	5,064,575	1,671,105	4,070,229	148,603,014	194,312,046
1916	26,957,576	843,214	5,237,167	1,756,796	5,526,231	179,232,575	219,553,559

(a) Including Government and Municipal securities, and Australian notes.

As the table shews, the increase in the total amount of assets is partly due to an increase in the amount of specie held by the banks against liabilities at call, partly to advances, and, to a lesser extent, to an increase in the "balances due." The marked advance in the item "all other debts" in the year 1915 was due to the large expansion of the Australian note issue, owing to the war. The banks have materially assisted the Federal Government in its war finance by advancing £10,000,000 in gold, receiving in return an equivalent amount in Australian notes, which they undertook not to present for payment until the termination of the war.

5. Percentage of Coin, Bullion, and Australian Notes to Liabilities at Call.—

(i.) *Commonwealth.* Although it is not strictly correct to assume that the division of deposits into those bearing interest and not bearing interest would in every case coincide with a division into fixed deposits and current accounts, the division, in default of a better one, must be adopted, and in the following table "liabilities at call" are therefore understood to include the note circulation of the banks and the deposits not bearing interest. From 1912 onwards, however, the former item has tended to become negligible.

PERCENTAGE OF COIN, BULLION, AND AUSTRALIAN NOTES TO LIABILITIES AT CALL, COMMONWEALTH BANKS, 1907 to 1916.

Year.	Liabilities at Call.	Coin, Bullion, and Australian Notes.	Percentage to Liabilities at Call.
		£	%
1907	50,344,415	23,711,428	47.10
1908	49,551,675	24,931,560	50.31
1909	50,323,261	26,297,843	52.26
1910	58,932,344	30,149,628	51.12
1911	65,945,355	33,470,770	50.76
1912	65,945,825	34,120,831	51.74
1913	62,381,748	36,105,775	57.88
1914	70,502,271	41,446,540	58.79
1915	75,656,505	55,376,352	73.19
1916	93,079,493	58,312,009	62.65

It would appear from the figures just given that the banks generally consider it advisable to hold rather more than half the amount of liabilities at call in coin and bullion. In the two years 1913 and 1914 the ratio rose to more than four-sevenths, and in 1915 to nearly three-fourths. The drop to 47.10 per cent. in 1907 was due to the very large increase in the amount of deposits during the year, and to the fact that the increase in the coin and bullion held, considerable though it was, did not keep pace therewith. The large rise in 1913 was due to a decrease in the deposits, coupled with a simultaneous advance in coin, bullion, and Australian notes. The result of over 73 per cent. for 1915 was abnormal, and was due to the rise in the holdings of Australian notes, which are being held in excess of requirements.

(ii.) *Queensland Treasury Notes.* No bank notes are issued by any of the banks in Queensland, where a Treasury note took the place of bank notes from 1893. These Treasury notes are disregarded in the quarterly statements of the banks; according to Treasury returns the amount outstanding on 30th June, 1916, was £28,652, partly in circulation, and the balance held by the banks. Under the Australian Notes Act, previously referred to, the issue of notes by a State is now prohibited.

(iii.) *States.* The proportion of coin, bullion and Australian notes to liabilities at call varies considerably in the different States, and is generally highest in Western Australia, and lowest in Queensland and Tasmania. A table is appended shewing the percentage for each State for the quarter ended 30th June in each of the years 1907 to 1916:—

PERCENTAGE OF COIN, BULLION, AND AUSTRALIAN NOTES TO LIABILITIES AT CALL, COMMONWEALTH BANKS, 1907 to 1916.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.	All States.
	%	%	%	%	%	%	%	%
1907	44.81	49.17	37.20	46.73	71.14	39.84	...	47.10
1908	47.70	54.68	41.09	45.63	76.09	40.06	...	50.31
1909	50.38	56.57	39.68	46.90	83.29	41.48	...	52.26
1910	51.33	51.66	39.78	48.27	81.09	37.77	...	51.12
1911	52.28	45.05	43.60	51.64	86.55	35.13	16.27	50.76
1912	50.79	50.42	47.53	56.98	72.82	44.63	32.95	51.74
1913	51.93	59.87	54.18	70.75	94.23	47.23	20.98	57.88
1914	57.66	55.16	47.85	74.93	102.60	50.04	19.53	58.79
1915	66.50	69.13	63.82	115.07	139.21	68.90	20.80	73.19
1916	56.02	62.94	56.78	72.93	127.61	72.55	13.40	62.65

6. *Deposits and Advances.*—(i.) *Total Deposits.* The total amount of deposits held by the banks shews a steady advance during the period under review, although there was a slight check in the advance during 1913.

TOTAL DEPOSITS IN COMMONWEALTH BANKS, 1907 to 1916.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	N. Ter.	All States.
	£	£	£	£	£	£	£	£
1907	41,967,265	38,393,179	14,852,584	8,247,366	5,500,112	3,737,463	...	112,697,969
1908	43,616,984	37,538,722	15,328,056	8,644,346	4,894,639	3,671,641	...	113,694,388
1909	44,626,194	35,611,731	16,138,981	9,727,879	4,967,894	3,665,626	...	117,758,255
1910	50,018,885	41,809,708	17,420,034	10,782,890	6,123,668	3,729,551	...	120,891,135
1911	55,229,458	46,363,615	19,633,309	11,128,300	7,280,392	3,759,486	59,350	143,446,910
1912	58,229,571	48,453,808	20,311,907	11,600,180	6,900,758	4,236,207	74,166	149,806,587
1913	57,282,179	47,690,128	21,504,588	11,714,785	6,350,055	5,188,274	97,559	140,827,568
1914	62,927,433	52,027,824	24,244,483	12,243,015	6,858,956	5,415,462	132,382	163,854,555
1915	68,170,388	54,159,707	27,369,725	11,857,003	7,539,468	5,710,106	172,939	174,979,336
1916	80,046,047	59,280,709	25,648,722	13,631,827	8,070,380	6,042,451	220,494	192,940,630

(ii.) *Deposits per Head of Population.* To shew the extent to which the population makes use of the banking facilities afforded to it, a table is given hereunder shewing the amount of total deposits per head of mean population for each of the years 1906 to 1915. The figures must not be taken as representative of the savings of the people, as a large proportion of the deposits is non-interest-bearing and therefore presumably used in the business of the banks' customers, together with a small part of the interest-bearing deposits.

DEPOSITS PER HEAD OF POPULATION IN COMMONWEALTH BANKS, 1907 to 1916.

Year.	N.S.W.			Victoria.			Q'land.			S. Aust.			W. Aust.			Tasmania.			Northern Territory.			All States.		
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
1907	27	5	8	31	7	2	27	9	1	22	5	0	21	10	8	20	6	6	£	...	£	7	11	11
1908	27	15	6	30	6	8	27	15	0	22	14	11	19	0	8	19	12	10	...	...	27	3	5	
1909	28	0	4	30	14	0	28	8	6	24	17	5	19	0	4	19	6	1	...	...	27	12	8	
1910	30	13	5	32	14	9	29	11	6	27	1	2	22	14	10	19	11	0	...	...	29	16	5	
1911	33	9	1	35	1	10	32	2	2	27	3	7	25	11	0	19	7	7	17	17	0	32	1	8
1912	34	15	5	35	11	1	32	13	0	27	14	10	23	9	2	21	17	11	22	16	8	32	8	1
1913	31	14	9	34	6	10	33	1	3	27	1	8	20	6	11	26	15	0	26	17	10	31	6	0
1914	34	18	10	37	5	4	36	14	11	28	17	2	22	12	6	28	0	0	36	7	8	34	4	7
1915	36	8	10	37	18	6	39	16	2	26	19	0	23	7	2	28	12	5	41	9	1	35	6	8
1916	42	19	0	42	0	6	37	9	1	31	6	3	25	11	8	30	9	7	45	10	9	39	5	5

(iii.) *Total Advances.* In the quarterly statements furnished by the banks the column headed "all other debts due to the banks," which usually average about 75 per cent. of the total assets, is made up of such miscellaneous items as bills discounted, promissory notes discounted, overdrafts on personal security, overdrafts secured by deposit of deeds or by mortgage, etc. The quarterly returns furnished to the Commonwealth Statistician in 1908 and 1909 provided for a division of the amounts contained under this heading into a number of sub-headings, but all the banks were not in a position to make the necessary division, so that under present circumstances it is impossible to separate these items, and the total amounts contained in the column must, therefore, be treated as advances. The following table shews the totals for each State during the years 1907 to 1916. It will be noted that between the pair of consecutive years 1908-9 and 1912-13 there was a marked decrease in the advances. In each case this was roughly concurrent with a slackening in the increase of deposits, and was due partly to this slackening, and partly to international causes.

ADVANCES BY COMMONWEALTH BANKS, 1907 to 1916.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Northern Territory.	All States.
	£	£	£	£	£	£	£	£
1907	34,460,993	31,894,070	15,076,455	5,545,346	5,140,911	2,872,660	...	94,990,435
1908	37,918,889	33,264,780	15,245,537	5,805,575	5,581,001	3,008,237	...	100,844,019
1909	34,853,220	31,455,141	14,499,669	5,699,546	5,384,518	2,715,648	...	94,607,742
1910	34,809,345	33,064,881	14,167,480	6,426,809	5,889,061	2,722,645	...	97,080,221
1911	39,001,933	35,792,928	15,639,657	8,018,597	7,327,529	2,796,045	2,085	108,578,774
1912	43,575,784	37,843,369	17,765,880	8,565,340	8,360,993	2,857,565	3,755	118,972,677
1913	41,740,849	35,914,896	16,748,341	7,893,585	8,124,242	3,056,852	2,279	113,481,046
1914	43,423,580	35,667,449	17,114,230	8,142,197	8,024,452	3,132,988	4,314	115,509,210
1915	45,365,096	35,233,268	17,304,016	8,078,242	8,563,033	2,880,489	8,332	117,312,478
1916	50,443,748	41,990,188	18,456,103	10,156,148	9,414,042	2,871,661	4,141	133,336,031

(iv.) *Proportion of Advances to Deposits.* The percentage borne by advances to total deposits shews to what extent the needs of one State have to be supplied by the resources of another State, and where the percentage for the Commonwealth as a whole exceeds 100 (as it did in the early years of the century), the banks must have supplied the deficiency from their own resources, or from deposits obtained outside the Commonwealth. The following figures shew, however, that the banking business of the Commonwealth has been self-contained during the period under review:—

**PERCENTAGE OF ADVANCES TO TOTAL DEPOSITS, COMMONWEALTH BANKS,
1907 TO 1916.**

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.	All States.
	%	%	%	%	%	%	%	%
1907	82.11	83.07	101.51	67.24	93.47	76.86	...	84.29
1908	87.00	88.59	99.46	67.16	114.00	81.93	...	88.70
1909	78.10	81.47	89.84	58.59	107.95	74.08	...	80.34
1910	69.59	79.08	81.33	59.60	96.07	72.99	...	74.74
1911	70.63	77.20	79.66	72.06	100.65	74.37	8.51	75.69
1912	74.83	78.10	87.47	73.84	121.16	67.46	5.06	79.42
1913	72.87	75.31	77.88	67.38	127.94	58.92	2.34	75.74
1914	69.01	68.55	70.59	66.48	116.99	57.85	3.26	70.49
1915	66.46	65.05	68.22	68.13	112.78	50.45	7.82	67.04
1916	63.02	70.83	71.96	74.50	116.65	47.52	1.88	69.11

7. Clearing Houses.—The Sydney Banks' Exchange Settlement and the Melbourne Clearing House, at which two institutions settlements are effected daily between the banks doing business in New South Wales and Victoria respectively, publish figures of the weekly clearances effected. From these figures it appears that in 1916 the total clearances in Sydney amounted to £422,371,000, and in Melbourne to £357,788,000. These figures represent an increase for Sydney of £64,568,000 on those for 1915, and for Melbourne of £58,493,000. Owing to the different distribution of the banking business in the two cities these figures do not, however, afford a fair comparison of the volume of banking business transacted in Sydney and Melbourne. For Adelaide the clearances in 1916 totalled £71,433,000, an increase for the year of £10,483,000. Returns for all Australian Clearing Houses for the last five years are shewn in the following table:—

**YEARLY TOTAL OF BILLS, CHEQUES, Etc., PASSED THROUGH AUSTRALIAN
CLEARING HOUSES, 1912-1916.**

Year.	Sydney.	Melbourne.	Brisbane.	Adelaide.	Perth.
	£	£	£	£	£
1912	330,621,000	303,462,000	73,233,000	74,924,000	...
1913	348,741,000	297,256,000	80,273,000	75,475,000	...
1914	353,068,000	299,668,000	84,925,000	70,031,000	...
1915	357,803,000	299,295,000	96,291,000	60,950,000	...
1916	422,371,000	357,788,000	100,064,000	71,433,000	40,366,000

§ 3. Companies.

1. General.—Returns in regard to registered companies are defective, and, with few exceptions, are not available for Tasmania. They embrace (a) Returns relating to Trustees, Executors and Agency Companies; (b) Returns relating to Registered Building and Investment Societies; and (c) Returns relating to Registered Co-operative Societies.

2. Trustees, Executors and Agency Companies.—Returns are available of eight Victorian, two New South Wales, one Queensland, three South Australian, one Western Australian, two Tasmanian companies, and two with head offices in New Zealand. The

paid-up capital of these nineteen companies amounted to £556,030; reserve funds and undivided profits to £510,829; other liabilities, £199,531; total liabilities, £1,266,390. Among the assets are included:—Deposits with Governments, £241,967; other investments in public securities, fixed deposits, etc., £208,690; loans on mortgage, £143,570; property owned, £441,775; other assets, £230,388. The net profits for the year were £85,323, and the amount of dividends and bonuses £53,332. Returns as to the amount at credit of estates represented by assets are available for only twelve companies, the total shewn being £45,429,089.

Probably about £20,000,000 would have to be added to this amount for the remaining seven companies, so that the total amount would not be far short of £65,000,000. None of these companies receives deposits, and advances are only made under exceptional circumstances, and to a very limited extent, the total so shewn in the last balance-sheets being but £88,805.

3. Registered Building and Investment Societies.—Returns have been received of a total of 204 societies, viz., 117 in New South Wales, 32 in Victoria, 13 in Queensland, 26 in South Australia, 12 in Western Australia, and 4 in Tasmania. The balance-sheets cover various periods ended during the second half of 1915 and the first half of 1916, so that the returns may be assumed to correspond roughly to the financial year 1915-16. The liabilities of the societies are stated as follows:—

LIABILITIES OF REGISTERED BUILDING AND INVESTMENT SOCIETIES, 1915-16.

State.	Paid-up Capital or Subscriptions.	Reserve Funds.	Deposits.	Bank Over-drafts and other Liabilities.	Total Liabilities.
	£	£	£	£	£
New South Wales	1,436,083	(a)	504,493	155,559	2,096,135
Victoria ...	1,299,072	331,174	887,813	123,808	2,641,867
Queensland ...	489,260	42,979	108,579	38,606	679,424
South Australia ...	486,822	12,623	1,943	22,306	523,694
Western Australia	130,533	...	29,197	17,496	177,226
Tasmania ...	110,718	51,908	158,246	6,705	327,577
Total ...	3,952,488	438,684	1,690,271	364,480	6,445,923

(a) Included in paid-up capital or subscriptions.

The assets of the companies for the same period were as follows:—

ASSETS OF REGISTERED BUILDING AND INVESTMENT SOCIETIES, 1915-16.

State.	Advances on Mortgage.	Landed and House Property, Furniture, etc.	Cash in Hand and on Deposit and other Assets.	Total Assets.
	£	£	£	£
New South Wales ...	1,767,246	(a)	323,889	2,096,135
Victoria ...	2,161,297	476,296	81,786	2,719,379
Queensland ...	649,879	14,345	22,853	687,077
South Australia ...	514,602	3,513	19,726	537,841
Western Australia	171,637	25	5,564	177,226
Tasmania ...	285,218	8,040	34,319	327,577
Total ...	5,549,879	502,219	493,137	6,545,235

(a) Included with other assets.

Statistical information, so far as is available, is furnished in the following table:—

REGISTERED BUILDING AND INVESTMENT SOCIETIES, 1915-16.

Particulars.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'wth.
Number of societies ...	117	32	13	26	12	4	204
Number of shareholders ...	(a)	8,001	4,705	11,227	3,264	1,723	(b)28,920
Number of shares ...	(a)	(a)	713,663	26,508	8,070	10,641	(c)758,882
Number of borrowers ...	(a)	10,337	4,524	2,487	2,370	1,465	(b)21,183
Income for year from interest ...	81,689	173,448	48,539	26,447	(d)	20,816	349,939
Working expenses for year ...	73,158	71,773	9,295	7,938	3,277	3,749	169,190
Amount of deposits during year ...	(a)	584,849	20,982	2,430	53,691	23,351	690,303 (b)
Repayment of loans during year ...	(a)	518,245	70,776	77,059	44,867	60,190	771,137 (b)
Loans granted during year ...	(a)	315,350	67,703	109,998	44,643	31,459	569,153 (b)

(a) Not available. (b) Exclusive of New South Wales. (c) Exclusive of New South Wales and Victoria. (d) Included in repayment of loans.

4. **Registered Co-operative Societies.**—Returns are available of 115 societies, of which 45 were in New South Wales, 50 in Victoria, 5 in Queensland, 7 in South Australia, and 8 in Western Australia. As in the case of Building and Investment Societies, so in the case of Co-operative Societies the balance-sheets cover various periods ended during the financial year 1915-16. The liabilities of the 115 societies are shewn in the following table:—

LIABILITIES OF REGISTERED CO-OPERATIVE SOCIETIES, 1915-16.

State.	Paid-up Capital.	Reserve Funds.	Bank Over-drafts and Sundry Creditors.	Other Liabilities, Profit and Loss Account, &c.	Total Liabilities. (b)
New South Wales ...	£ 405,175	£ (a)	£ 119,675	£ ...	£ 524,850
Victoria ...	109,401	36,395	125,687	79,217	350,700
Queensland ...	(c)	(c)	(c)	(c)	8,644
South Australia ...	144,223	16,034	14,316	23,389	197,962
Western Australia ...	12,168	1,853	37,174	50,864	102,059
Total ...	670,967(d)	54,282(d)	296,852(d)	153,470(d)	1,184,215

(a) Included in paid-up capital. (b) Exclusive of Tasmania. (c) Not available. (d) Exclusive of Queensland and Tasmania.

The assets of the societies are shewn hereunder:—

ASSETS OF REGISTERED CO-OPERATIVE SOCIETIES, 1915-16.

State.	Stock and Fittings.	Cash in Hand and Sundry Debtors.	Freehold and other Property and other Assets.	Total Assets.
New South Wales ...	£ 393,665	£ 114,405	£ 16,282	£ 524,352
Victoria ...	122,041	148,358	91,534	361,933
Queensland ...	11,056	6,178	4,573	21,807
South Australia ...	157,162	31,796	18,440	207,398
Western Australia ...	81,363	19,487	1,209	102,059
Total(a) ...	765,287	320,224	132,038	1,217,549

(a) Exclusive of Tasmania.

The following table gives statistical information, so far as available:—

REGISTERED CO-OPERATIVE SOCIETIES, 1915.

Details.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	C'wth. (a)
Number of societies on 31st December, 1915 ...	45	50	5	7	8	115
Total No. of members on 31st December, 1915 ...	36,868	20,661	17,673	13,191	1,539	89,932
Total income for year 1915 ...	£ 1,806,636	820,607	22,076	426,120	168,008	3,243,447
Working expenses for year ended 31st December, 1915 ...	£ 1,672,336	145,319	16,498	68,777	176,722	2,079,652

(a) Exclusive of Tasmania.

§ 4. Savings Banks.

1. **General.**—The total number of savings banks, with their branches and agencies, in the Commonwealth, nearly approximates to that of ordinary banks, and at the middle of 1916 numbered 2252, distributed as follows:—New South Wales, 650; Victoria, 472; Queensland, 482; South Australia, 305 (exclusive of school penny savings banks); Western Australia, 194 (exclusive of school penny savings banks); and Tasmania, 149. These figures are exclusive of the recently-established Commonwealth Savings Bank, except in the State of Tasmania, in which the Commonwealth Savings Bank absorbed the State Savings Bank.

In the following tables the figures for all the States except Tasmania refer to financial years ended 30th June. In the case of Tasmania figures for the two joint-stock savings banks are made up to the last day of February in each year. In the case of the Commonwealth Bank, figures are made up to the 30th June, 1916.

2. **Depositors.**—The total number of depositors, *i.e.*, of persons having accounts open, not of those making deposits, in each of the last ten years is shown in the following table:—

NUMBER OF DEPOSITORS IN SAVINGS BANKS, 1906-7 to 1915-16.

Year.	N.S.W.	Victoria. (a)	Q'land.	S. Aust. (a)	W. Aust. (a)	Tasmania.	All States.
1906-7 ...	392,050	491,318	92,912	161,855	66,737	53,817	1,258,689
1907-8 ...	421,928	511,581	100,324	174,289	72,178	55,620	1,335,920
1908-9 ...	436,029	532,425	106,627	187,482	77,748	58,145	1,398,456
1909-10 ...	460,251	560,515	114,720	201,275	86,166	60,646	1,483,573
1910-11 ...	498,658	595,424	127,219	216,480	99,017	63,314	1,600,112
1911-12 ...	544,023	641,736	189,091	232,971	111,078	67,105	1,736,004
1912-13(b) ...	619,224	703,084	168,438	251,963	121,201	70,402	1,934,312
1913-14(b) ...	693,618	735,400	201,163	267,805	134,510	76,000	2,108,496
1914-15(b) ...	755,835	781,490	229,023	282,169	144,777	80,446	2,273,740
1915-16(b) ...	806,882	821,208	249,235	299,308	157,355	86,489	2,420,477

(a) Inclusive of depositors in penny savings banks.
Commonwealth Savings Bank.

(b) Inclusive of

The subjoined table shows the above figures in relation to the population of the States; it must, of course, be borne in mind that savings bank accounts are not restricted to the adult population, but that it is, on the contrary, a very usual practice to open accounts in the names of children. Even so, the proportion is a large one, amounting in the case of the Commonwealth to about one-half, and rising in Victoria to seven-twelfths, and in South Australia to nearly seven-tenths.

DEPOSITORS IN SAVINGS BANKS PER 1000 OF POPULATION, 1906-7 to 1915-16.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
1906-7	258	403	172	437	262	290	308
1907-8	270	415	184	462	284	293	321
1908-9	295	426	191	481	299	308	330
1909-10	285	439	199	508	324	314	343
1910-11	303	458	212	528	358	327	362
1911-12	325	471	224	553	378	347	380
1912-13(a)	342	506	257	581	386	362	403
1913-14(a)	373	517	296	607	415	386	428
1914-15(a)	404	548	332	637	449	405	459
1915-16(a)	434	584	362	690	560	438	494

(a) Inclusive of Commonwealth Savings Bank.

3. **Deposits.**—The total amount of deposits in the savings banks of the six States reaches the large sum of ninety-seven million pounds, and would no doubt be even larger if the banks did not restrict interest-bearing deposits to certain limits. It must be remembered that though not granting facilities to draw cheques, the Australian savings banks practically afford the small tradesman all the advantages of a current account, in addition to which they also allow him interest on his minimum monthly balance, instead of charging him a small fee for keeping his account, as the ordinary banks do. The rates of interest allowed, and the limits of interest-bearing deposits, are as follows:—New South Wales, Government Savings Bank, $3\frac{1}{2}$ per cent. up to £300, and 3 per cent. on the excess to £500; Victoria, $3\frac{1}{2}$ per cent. on first £350, and on deposit stock up to £1000; Queensland, $3\frac{1}{2}$ per cent. up to £1000; South Australia, $2\frac{1}{2}$ per cent. on accounts closed during the year, and 4 per cent. up to £350 on accounts remaining open; Western Australia, $3\frac{1}{2}$ per cent. from £1 to £500, and 3 per cent. from £500 to £1000; Hobart Trustees' Savings Bank, 4 per cent. up to £50, $3\frac{1}{2}$ per cent. on the excess from £50 to £150; Launceston Trustees' Savings Bank, $3\frac{1}{2}$ per cent. up to £150, and Commonwealth Savings Bank, 3 per cent. up to £300. The savings banks of five of the States—New South Wales, Victoria, Queensland, South Australia, and Western Australia—have, for the further benefit of depositors, entered into a reciprocity arrangement, under which money deposited in one State may be drawn out in another State, and even by telegraph. The two Savings Banks in New South Wales amalgamated on 1st May, 1914. The Act of amalgamation provided for interest at the rate of $3\frac{1}{2}$ per cent. on the accounts carried to the combined institution. If the rate of interest to Government Savings Bank depositors should fall subsequently below 3 per cent., the transferred accounts of the old Barrack Street Bank are to receive a preferential rate of interest of $\frac{1}{2}$ per cent. Otherwise their accounts will never receive less than $2\frac{1}{2}$ per cent.

The table below shows the total amounts at credit of depositors in each of the last ten years:—

DEPOSITS IN SAVINGS BANKS, 1906-7 to 1915-16.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
	£	£	£	£	£	£	£
1906-7	15,320,532	12,792,590	4,543,104	5,320,872	2,633,135	1,488,056	42,098,289
1907-8	17,530,157	13,428,676	4,921,881	5,820,344	2,885,463	1,560,951	46,147,472
1908-9	18,805,082	14,101,710	5,158,219	6,347,271	3,059,738	1,605,919	49,077,939
1909-10	20,150,574	15,417,888	5,622,986	6,791,320	3,481,764	1,652,966	53,117,498
1910-11	22,453,924	17,274,423	6,376,969	7,435,772	4,092,504	1,760,090	59,393,682
1911-12	25,361,338	19,662,465	7,342,811	8,248,396	4,408,320	1,933,448	66,956,778
1912-13(a)	28,862,592	22,232,196	8,668,284	8,766,182	4,682,738	2,036,211	75,245,203
1913-14(a)	32,363,069	24,533,519	10,166,946	9,366,490	4,932,895	2,178,305	83,541,224
1914-15(a)	35,562,649	28,936,025	11,972,965	9,595,156	5,149,536	2,301,336	91,577,667
1915-16(a)	37,363,272	28,789,426	12,938,636	10,035,036	5,338,009	2,534,266	96,996,645

(a) Inclusive of Commonwealth Savings Bank.

A comparison between the tables shewing the number of depositors and the amount of deposits reveals the fact that the average amounts to the credit of each depositor are considerably larger in some States than in others; in other words, that in one State a comparatively larger proportion of the population makes use of the savings banks, and that the natural result is a smaller amount to the credit of the individual depositor. Within the same State there is little variation in the figures from year to year.

AVERAGE AMOUNT PER DEPOSITOR IN SAVINGS BANKS, 1906-7 to 1915-16.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
1906-7 ...	39 1 7	26 0 9	48 17 11	32 17 6	39 9 1	27 13 0	33 8 11
1907-8 ...	41 10 11	26 5 0	49 1 2	33 7 11	39 19 6	28 1 4	34 10 10
1908-9 ...	43 11 2	26 9 9	48 7 6	23 17 1	39 7 1	27 12 5	35 4 1
1909-10 ...	43 15 8	27 10 1	49 0 4	33 14 10	40 8 2	27 5 1	35 16 1
1910-11 ...	45 0 7	29 0 3	50 2 6	34 7 0	41 6 7	27 16 0	37 2 4
1911-12 ...	46 12 4	30 12 9	52 15 10	35 8 1	39 13 9	28 16 3	38 11 4
1912-13(a) ...	46 12 2	31 12 5	51 9 3	34 15 10	38 12 9	28 13 3	38 18 0
1913-14(a) ...	46 13 2	33 7 2	50 10 10	34 18 10	36 13 6	28 13 3	39 12 4
1914-15(a) ...	47 1 0	34 10 11	52 5 7	34 0 1	35 11 5	28 12 2	40 5 7
1915-16(a) ...	46 6 1	35 1 2	51 18 3	33 10 6	33 16 6	29 6 0	40 1 6

(a) Inclusive of Commonwealth Savings Bank.

The average amount deposited per head of population shews a satisfactory increase during the period under review. In 1906-7 it ranged from £14 7s. 3d. in South Australia to £8 0s. 6d. in Tasmania, while in 1915-16 the amount in South Australia had risen to £23 2s. 11d., and in Tasmania to £12 16s. 8d. The following table gives the figures for each year:—

SAVINGS BANKS DEPOSITS PER HEAD OF POPULATION, 1906-7, to 1915-16.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
1906-7 ...	10 1 4	10 9 9	8 8 7	14 7 3	10 6 5	8 0 6	10 5 9
1907-8 ...	11 4 6	10 17 10	9 0 4	15 8 5	11 6 9	8 4 8	11 1 9
1908-9 ...	11 17 5	11 5 6	9 5 2	16 6 0	11 15 8	8 7 6	11 11 11
1909-10 ...	12 9 8	12 1 6	9 14 7	17 2 8	13 2 1	8 11 2	12 5 8
1910-11 ...	13 13 2	13 5 6	10 12 11	18 2 7	14 15 8	9 1 9	13 8 5
1911-12 ...	14 11 7	14 10 5	11 11 8	19 8 11	14 11 7	10 3 6	14 8 4
1912-13 ...	15 19 0	15 19 10	13 4 2	20 4 3	14 17 8	10 9 4	15 13 4
1913-14 ...	17 8 7	17 5 1	14 19 6	21 4 0	15 4 6	11 1 5	16 19 6
1914-15 ...	19 0 1	18 18 6	17 7 2	21 13 6	15 19 4	11 12 0	18 10 0
1915-16 ...	20 1 0	20 9 6	18 16 5	23 2 11	16 19 3	12 16 8	19 16 1

4. **Annual Business.**—The annual volume of business transacted by the Australian savings banks is very large when compared with the total amount of deposits. This is mainly due to the fact already pointed out that many accounts are used as convenient current accounts. Thus, during the last year of the period under review, the total amount deposited and withdrawn (exclusive of interest added) amounted to about 153 per cent. of the total amount of deposits at the end of the previous year, while the amount at credit of depositors (inclusive of interest added) increased by only about 10 per cent. during the same year. The following table shews the business transacted during the year 1915-16:—

SAVINGS BANKS TRANSACTIONS DURING THE YEAR 1915-16.

State.	Total Deposits at End of Year 1914-15.	Amounts Deposited during Year 1915-16.	Interest Added during Year 1915-16.	Total.	Amounts Withdrawn during Year 1915-16.	Total Deposits at End of Year 1915-16.
	£	£	£	£	£	£
N.S. Wales ...	35,562,649	27,966,808	1,186,629	64,716,036	27,352,814	37,363,272
Victoria ...	26,996,025	22,512,876	857,590	50,366,491	21,577,065	28,789,426
Queensland ...	11,972,965	8,587,312	382,289	20,942,566	8,003,930	12,938,636
South Australia	9,595,156	5,854,820	328,638	15,778,614	5,743,578	10,035,036
West. Australia	5,149,536	4,469,964	163,009	9,782,509	4,444,500	5,338,009
Tasmania ...	2,301,336	1,717,043	76,450	4,094,829	1,560,563	2,534,266
Total ...	91,577,667	71,108,823	2,994,605	165,681,095	68,682,450	96,998,645

5. **Commonwealth Savings Bank.**—A most important recent event has been the opening of the Savings Bank department of the Commonwealth Bank. This started operations in Victoria on 15th July, 1912, in Queensland on 16th September, 1912, in the Northern Territory on 21st October, 1912, and in the States of New South Wales, South Australia, and Western Australia on 13th January, 1913. Business is being carried on on the usual Savings Bank lines, interest at the rate of 3 per cent. per annum being allowed on deposits up to £300. Extensive use is being made of the country post-offices as local agencies, the several States having received notice that their Savings Banks would have to be removed from the post-offices by the end of 1912. Victoria and Queensland withdrew at a very early stage.

At the conference of State Premiers, held at Melbourne on 19th January, 1912, and following days, the Commonwealth Prime Minister submitted certain proposals as the basis upon which the States might become partners in the Commonwealth Bank. One of the proposals was that the Commonwealth should take over the Savings Banks of each State, whether Government or trustee. After this had happened the State Government was to have first call on any loan which the Commonwealth Bank should repay to the State Bank in redemption of loans existing when it was taken over; and also first call on three-fourths of the amount of deposits in the State available for investment. The Premiers, feeling unwilling to agree to this, submitted a counter proposal [the Victorian Treasurer dissenting], that the Commonwealth Bank should refrain from embarking on Savings Bank business, and that the States, in consideration thereof, should lend to the Bank an amount equal to one-fourth of the excess of deposits over withdrawals. This arrangement was to come into force on 1st June, 1913, and last for five years. The Prime Minister, in reply, intimated that his original proposals were still open for acceptance. On 23rd January the Premiers' Conference passed the following resolution [the representatives from Victoria and Queensland dissenting]: "That this conference expresses its readiness to accept the proposals submitted by the Prime Minister, subject to a satisfactory arrangement being arrived at for giving the States an equitable share in the management of the Commonwealth Bank." The matter then remained for some months in abeyance.

Almost from the time of the opening of the Savings Banks department the Governor of the Bank made proposals to the various State Governments which might form a basis for the transfer of the various State Savings Banks to the Commonwealth. The Government of Tasmania ultimately accepted the offer, and the State Savings Bank of Tasmania was formally transferred to the Commonwealth as from the 1st January, 1913, and opened for business under the new régime on 3rd January. The remaining States Governments announced their intention of retaining their Savings Banks as separate institutions, and their example was followed by the Savings Bank of New South Wales; and the two trustee Savings Banks of Tasmania. The Savings Bank of New South

Wales, however, amalgamated with the Government Savings Bank of that State as from 1st May, 1914. It will be of interest to give a summary of the agreement between the Commonwealth Bank and the State Savings Bank of Tasmania. The following is condensed from a statement by the Governor of the Commonwealth Bank :—

"The Commonwealth Bank is to take over all the liabilities to depositors, etc., amounting to £788,081, leaving the profit and loss balance, amounting to £5659, in the hands of the State. The assets, amounting to £793,690, are dealt with as follows: the securities to be retained by the State Government, and debentures to be issued to the Commonwealth Bank, Savings Bank Department, in lieu of same. Three per cent. stock totalling £19,000, and 3½ per cent. stock totalling £420,961, to be exchanged for 3½ per cent. debentures at 95, and 3¾ per cent. stock amounting to £204,000, and 4 per cent. stock amounting to £146,700 to be exchanged for 4 per cent. debentures. The total debentures, amounting to £784,133, will mature in 20 yearly instalments of £39,207 per annum (except the last one, which will be £39,200), the first payment to be made on 30th June, 1932. The Government will provide a sinking fund of 1 per cent., to be a charge on the consolidated revenue of the State, and to be deposited in the Commonwealth Bank in reduction of debentures in even thousands, in the proportion of 3½ per cent. and 4 per cent. debentures issued. The remaining items on the balance sheet, amounting to £31,229, will be handed over to the Commonwealth Bank as cash.

"The State is to have first call for State requirements on 75 per cent. of the increased deposits at current rates, and should the State at any time not require the amount, the Governor of the Commonwealth Bank will be at liberty to invest the same, either in the business of the Bank, or in the Commonwealth or in municipal securities. The whole of the staff at present exclusively engaged in savings bank business will be retained."

The following table shews for each State the number of depositors, and the amount at credit on 30th June, 1916, of the Commonwealth Savings Bank :—

COMMONWEALTH SAVINGS BANK AS AT 30th JUNE, 1916.

Locality.	Number of Depositors.	Amount at Credit.
		£
New South Wales	87,563	2,748,050
Victoria	60,314	2,385,142
Queensland	45,012	1,600,067
South Australia	18,669	732,348
Western Australia	23,542	726,419
Tasmania	39,963	1,098,086
Northern Territory	1,139	77,956
Papua	650	25,263
London	1,684	84,565
Total	278,536	9,477,896

§ 5. Life Assurance.

1. **General.**—Under section 51 of the Commonwealth Constitution Act, the Commonwealth Parliament is empowered to legislate in regard to "insurance, other than State insurance; also State insurance extending beyond the limits of the State concerned." With the exception of Act No. 12 of 1905, "an Act relating to assurance on the lives of children by life assurance companies or societies," no legislation relating to life assurance has been passed by the Commonwealth Parliament, and life assurance companies carry on their business under State laws where such laws are in existence, or otherwise under the provisions of various companies' or special Acts. A Royal Commission consisting of the Honourable J. H. Hood, one of the judges of the Supreme Court of Victoria, and G. H. Knibbs, Esq., C.M.G., Commonwealth Statistician, was, however,

appointed in 1908, "to inquire into and report upon the law relating to and the methods of operating, Fire, Life, Industrial, and other Insurance in Australia." The Commission was originally required to report the result of its inquiry before the 30th June, 1909. A progress report was issued before that date, and the time for the final report extended to the 30th June, 1910. The report relating to Life Assurance was published on 15th March, 1910, and that relating to Fire Insurance on 15th October, 1910. On the conclusions contained in these reports future Commonwealth legislation will probably be based. In fact, a bill embodying some of the conclusions was introduced into the Federal Parliament on December 20th, 1912, but, owing to lack of time, did not reach its second reading. An additional report on Social Insurance was prepared by the Commonwealth Statistician and issued on 9th September, 1910.

Returns for the year 1913 have been directly collected from life assurance societies by the Commonwealth Statistician, with results which are in the main satisfactory. Figures for 1913 refer to business in the Commonwealth only, and do not include New Zealand business.

2. Companies Transacting Business in the Commonwealth.—The total number of companies at present established in the Commonwealth is nineteen, of which the following nine have their head offices in New South Wales:—The Australian Mutual Provident Society, the Mutual Life and Citizens' Assurance Company Limited, the City Mutual Life Assurance Society Limited, the Australian Metropolitan Life Assurance Company Limited, the People's Prudential Assurance Company Limited, the Life Insurance Company, the Assurance and Thrift Association Limited, the Co-operative Assurance Company Limited, and the Australian Provincial Assurance Association Limited. The Standard Life Association Limited is now omitted, since a controlling interest in it has been purchased by the Colonial Mutual Life Assurance Society, and almost all its policyholders have transferred themselves to the latter corporation. The Mutual Life and Citizens' Assurance Company Limited was formed in 1908 by the amalgamation of the Mutual Life Association of Australasia and the Citizens' Life Assurance Company Limited. During 1910 it increased in size by amalgamating with the Australian Widows' Fund Life Assurance Society Limited, which is therefore no longer included in the list of independent corporations. Five companies have their head offices in Victoria, viz.:—The Australian Alliance Assurance Company, the National Mutual Life Association of Australasia Limited, the Victoria Life and General Insurance Company, the Colonial Mutual Life Assurance Society Limited, and the Australasian Temperance and General Mutual Life Assurance Society Limited. The head office of the Provident Life Assurance Company is in New Zealand, and that of the Liverpool and London and Globe Insurance Company in England. The remaining three societies belong to the United States, viz.:—The Equitable Life Insurance Society of the United States, the Mutual Life Insurance Society of New York, and the New York Life Insurance Society.

Most of the Australian companies are purely mutual; the following, however, are partly proprietary, the figures in brackets representing the shareholders' capital paid up:—The Victoria Life and General (£40,000), Mutual Life and Citizens' (£200,000), Metropolitan (£11,740), Prudential (£10,000), Life Insurance Company (£44,000), Assurance and Thrift (£17,684), Co-operative Assurance (£56,254), and Australian Provincial Association (£67,782). Of foreign companies transacting business in the Commonwealth, the Liverpool and London and Globe, the Provident, and the Equitable are partly proprietary, the shareholders' capital amounting to £265,525, £21,000, and £20,550 respectively.

3. Ordinary and Industrial Business.—Of the societies enumerated in the preceding paragraph, the following seven in 1913 transacted both ordinary and industrial business:—The Australian Mutual Provident Society, the Mutual Life and Citizens' Assurance Company Limited, the Australasian Temperance and General Mutual Life Assurance Society Limited, the Australian Metropolitan Life Assurance Company Limited, the Colonial Mutual Life Assurance Society, the Life Insurance Company, and the Co-operative Assurance Company.

The People's Prudential Assurance Company Limited and the Provident Life Assurance Company formerly restricted their operations to industrial business, but have now established an ordinary department.

The remaining nine societies transacted ordinary life assurance business only, with the exception of those companies which have fire and accident branches, etc.

It has been attempted in this section to keep returns relating to ordinary and to industrial business apart, so far as it is possible to do so, and figures relating to companies whose head offices are in New Zealand or in Europe or America refer to the Australian business only of those companies.

4. **Ordinary Business: Australian Business in Force, 1915.**—The subjoined table shows the ordinary life business in force at the latest dates available in the nineteen societies conducting operations in the Commonwealth:—

ORDINARY LIFE ASSURANCE.—AUSTRALIAN BUSINESS IN FORCE, 1915.

Society.	Policies in force, exclusive of Annuities.	Amount Assured, exclusive of Bonus Addition, etc.	Annual Premium Income, exclusive of Annuities.
	No.	£	£
Australian Mutual Provident Society	254,189	69,383,230	2,208,270
Mutual Life and Citizens' Assurance Company Limited	97,477	17,324,248	595,119
City Mutual Life Assurance Society	24,890	3,826,878	149,972
Australian Metropolitan Life Assurance Company	3,670	386,099	16,419
Australian Alliance Assurance Company	329	113,205	2,723
National Mutual Life Association of Australasia	79,997	18,038,267	654,881
Victoria Life and General Insurance Company	76	50,989	819
Colonial Mutual Life Assurance Society	29,540	5,328,508	176,286
People's Prudential Assurance Company	3,322	233,618	(a) 23,400
Australasian Temperance & General Mutual Life Assurance Society	43,065	4,586,418	183,360
Liverpool and London and Globe Insurance Company (Life Branch)	276	113,691	3,342
Provident Life Assurance Company	461	49,203	1,732
Life Insurance Company	2,531	456,595	33,866
Assurance and Thrift Association Limited	942	182,327	7,238
Co-operative Assurance Company	657	164,668	6,861
Australasian Provincial Assurance Association Limited	2,346	674,425	24,053
Equitable Life Assurance Society of United States	4,867	1,593,134	61,074
Mutual Life Insurance Society of New York	3,465	1,327,466	39,019
New York Life Insurance Society	5,122	2,019,084	74,941

(a) Including industrial.

5. **Industrial Business: Australian Business in Force, 1915.**—Similar information in regard to the industrial business of the nine societies transacting that kind of business is given in the following table:—

INDUSTRIAL ASSURANCE.—AUSTRALIAN BUSINESS IN FORCE, 1915.

Society.	Policies in Force.	Amount Assured.	Annual Premium Income.
	No.	£	£
Australian Mutual Provident Society	108,789	3,775,878	223,094
Mutual Life and Citizens' Assurance Company	238,876	4,369,574	238,524
Australian Metropolitan Life Assurance Company	27,722	723,464	37,682
Colonial Mutual Life Assurance Society	58,840	1,370,587	83,592
People's Prudential Assurance Company	5,528	111,021	(a)
Aust. Temperance and General Mutual Life Ass. Society	162,809	3,606,576	243,422
Provident Life Assurance Company	8,906	233,487	10,663
Life Insurance Company	3,068	78,065	(a)
Co-operative Assurance Company	3,252	88,521	(a)

(a) Included in ordinary.

6. Receipts and Expenditure of Insurance Societies, 1915.—(i.) *Ordinary Business.* The following returns refer to the Australian business of all societies doing business in the Commonwealth. The People's Prudential Assurance Company, whose accounts do not distinguish between revenue and expenditure on account of ordinary and industrial business, has been included among the companies doing industrial business.

ORDINARY LIFE ASSURANCE.—AUSTRALIAN RECEIPTS AND EXPENDITURE, 1915.

Society.	Receipts.	Expenditure.	Excess Receipts (Addition to Funds).
	£	£	£
Australian Mutual Provident Society	3,514,977	2,379,227	1,135,750
Mutual Life and Citizens' Assurance Company	877,817	614,923	262,894
City Mutual Life Assurance Society	231,029	150,208	80,821
Australian Metropolitan Life Assurance Company	19,104	10,975	8,129
Australian Alliance Assurance Company	7,412	12,383	(a) 4,971
National Mutual Life Association of Australasia	1,019,679	575,681	443,998
Victoria Life and General Insurance Company	5,434	12,484	(a) 7,050
Colonial Mutual Life Assurance Society	299,103	170,957	128,146
Aust. Temperance & General Mutual Life Ass. Socy.	233,002	116,153	116,849
Liverpool and London and Globe (Life Branch)	3,342	10,993	(a) 7,651
Provident Life Assurance Company	1,736	460	1,276
Life Insurance Company (b)	36,892	33,263	3,629
Assurance and Thrift Association Limited	10,116	6,426	3,690
Co-operative Assurance Company (b)	14,282	15,718	(a) 1,436
Australian Provincial Assurance,	28,662	30,858	(a) 2,196
Equitable Life Assurance Society	86,064	119,059	(a) 32,995
Mutual Life Insurance Society of New York	49,774	78,545	(a) 28,771
New York Life Insurance Society	81,981	96,965	(a) 14,984

(a) Decrease. (b) Including Industrial.

(ii.) *Industrial Business.* A similar return for those societies which transact industrial business is given below. The figures for the Prudential, as stated above, are included therein.

INDUSTRIAL LIFE ASSURANCE.—AUSTRALIAN RECEIPTS AND EXPENDITURE, 1915.

Society.	Receipts.	Expenditure.	Excess Receipts (Addition to Funds)
	£	£	£
Australian Mutual Provident Society	257,817	88,896	168,921
Mutual Life and Citizens' Assurance Company	282,972	189,083	93,889
Australian Metropolitan Life Assurance Company	38,961	29,743	9,218
Colonial Mutual Life Assurance Society	85,452	64,729	20,723
People's Prudential Assurance Company	25,577	18,869	6,708
Aust. Temperance & General Mutual Life Ass. Soc.	270,128	180,947	89,181
Provident Life Assurance Company	11,092	8,131	2,961

7. *Liabilities and Assets of Assurance Societies, 1915.*—The liabilities of the Australasian societies consist mainly of their assurance funds; as already mentioned, only nine of the societies are partly proprietary, viz., the Mutual Life and Citizens', with a paid-up capital of £200,000; the Metropolitan, with a paid-up capital of £11,740; the Prudential, with a paid-up capital of £10,000; the Victoria Life and General, with a paid-up capital of £40,000; the Provident, with a paid-up capital of £21,000; the Life Insurance Company, with £44,000; the Assurance and Thrift, with £17,684; Co-operative Assurance Company, with £56,254; and the Australian Provincial with £67,782. With

the exception of the Victoria, the Life Insurance, Assurance and Thrift, and Australian Provincial, this paid-up capital belongs in every case to the industrial branch of the respective societies. The capital of the Provident (£21,000) is held in New Zealand, that of the Liverpool and London and Globe (£265,525) in England, and that of the Equitable Life (£20,550) in the United States. None of these three amounts appears, therefore, in the two subjoined tables, where the capital of the Australian societies is included with the assurance funds. The assets consist mainly of loans on mortgage and policies, Government, municipal, and similar securities, shares, freehold property, etc. As in some cases the Australian liabilities exceed the Australian assets, it may be pointed out that this table should be read in connection with the table on page 795, which sets out the total assets. Loans on personal security are granted by only very few of the Australian societies.

(i.) *Ordinary Business.* The following table shews the liabilities and assets of the societies transacting ordinary life business:—

ORDINARY LIFE ASSURANCE.—AUSTRALIAN LIABILITIES AND ASSETS, 1915.

Society.	Liabilities.			Assets.(c)		
	Total Funds including Paid-up Capital.	Other Liabilities.	Total.	Loans on Mortgages and Policies.	Securities, Freehold Property, etc.	Total.
	£	£	£	£	£	£
Australian Mutual Provident Society(a) ...	29,235,511	492,435	29,727,946	14,046,546	11,943,910	25,990,456
Mutual Life and Citizens' Assurance Co. ...	(b)	(b)	(b)	3,054,971	3,167,521	6,222,492
City Mutual Life Assurance Society	820,036	57,246	877,282	503,544	373,738	877,282
Australian Metropolitan Life Assurance Co.	66,145	9,280	75,425	12,201	63,224	75,425
Australian Alliance Assurance Company	112,306	6,402	118,708	52,102	66,606	118,708
National Mut. Life Assoc. of Australasia ...	7,458,054	166,770	7,624,824	5,127,265	2,497,559	7,624,824
Victoria Life and General Insurance Co. ...	120,514	8,088	128,602	8,886	119,716	128,602
Colonial Mutual Life Assurance Society ...	2,820,212	49,478	2,869,690	1,167,741	1,701,949	2,869,690
Aust. Temp. & Gen. Mut. Life Assur. Soc.(a)	1,747,314	79,143	1,826,457	690,851	1,135,606	1,826,457
Liverpool & London & Globe (Life Branch)	(b)	400	400	(b)	(b)	(b)
Provident Life Assurance Company ...	4,165	41	4,206	10	182	192
Commonwealth Life Insurance Co. ...	44,000	4,705	48,705	2,959	36,320	39,279
Assurance and Thrift Association Limited	38,301	2,216	40,517	32,096	7,243	39,339
Co-operative Assurance Co. (a) ...	56,254	1,147	57,401	15,660	15,233	30,893
Australian Provincial Assur. Assocn. Ltd.	67,782	1,681	69,463	1,550	36,305	37,855
Equitable Life Assurance Society ...	194,374	421	194,795	177,502	394,798	572,300
Mutual Life Insurance Society of New York	(b)	(b)	(b)	166,738	66,503	233,241
New York Life Insurance Society ...	770,000	15,167	785,167	125,713	37,458	163,171

(a) Including industrial business. As the business of these three societies is mainly ordinary life business they have been included in this table. (b) Not available. (c) Several life offices have a considerable portion of their assets invested outside the Commonwealth (see table on page 795).

(ii.) *Industrial Business.* As stated in the footnote to the preceding table, the Australian Mutual Provident Society, the Australasian Temperance and General Mutual Life Assurance Society, and the Co-operative Assurance Company, which transact a certain amount of industrial business, but whose business is mainly ordinary life business, have been included with those societies doing only ordinary life business. On the other hand, the People's Prudential Assurance Company, in whose case industrial business greatly predominates over ordinary life business, has been included in the following table. Incomplete as the table is, it shews that the funds appropriated to industrial business are very insignificant in comparison with those pertaining to ordinary life business. Taking the table in conjunction with the statements of revenue and expenditure, the question may well be asked whether in the case of some of the societies, industrial business is worth catering for at all.

INDUSTRIAL LIFE ASSURANCE.—AUSTRALIAN LIABILITIES AND ASSETS, 1915.

Society.	Liabilities.			Assets.		
	Total Funds, including Paid-up Capital.	Other Liabilities.	Total.	Loans on Mortgages and Policies.	Securities, Freehold Property, etc.	Total.
	£ (b)	£ (b)	£ (b)	£	£	£
Mutual Life & Citizens' Assurance Company				1,150,865	434,609	1,585,474
Australian Metropolitan Life Assurance Co.	54,682	3,670	58,352	1,855	56,497	58,352
Colonial Mutual Life Assurance Society ...	129,499	539	130,038	2,234	125,142	127,376
People's Prudential Assurance Company (a)	53,877	466	54,343	36,971	17,372	54,343
Provident Life Assurance Company ...	6,019	92	6,111	14	6,097	6,111

(a) Including ordinary business. (b) Particulars not available.

(iii.) *Total Assets.* It has been thought advisable to confine the figures relating to life assurance to business in the Commonwealth. Several of the companies whose head offices are in Australia transact, however, a large amount of business elsewhere, viz., in New Zealand, in South Africa, and in the United Kingdom, while in the case of the foreign companies, the Australian business is insignificant compared with that done elsewhere. Particulars as to this foreign business of both Australian and foreign companies will be found in "Finance Bulletin, No. 10," and a short table only is inserted here, shewing the total assets of the various companies, so that the deficiencies in the Australian assets shown in the previous tables for those companies doing business elsewhere may not be misunderstood:—

TOTAL ASSETS OF ASSURANCE COMPANIES, 1915.

Society.	Assets.	Society.	Assets.
ORDINARY BUSINESS.			£
(a) Australian Mutual Provident Soc.	35,486,413	Assurance & Thrift Association Ltd.	40,699
Mutual Life and Citizens' Assur. Co.	8,534,376	(a) Co-operative Assurance Co. ...	30,893
City Mutual Life Assurance Society...	877,282	Australian Provincial Ass. Assoc. ...	37,855
Aust. Metropolitan Life Assur. Co. ...	75,425	Equitable Life Assurance Society ...	112,629,282
Australian Alliance Assurance Co. ...	118,708	Mutual Life Ins. Society of New York	126,597,177
National Mutual Life Association ...	9,693,153	New York Life Insurance Society ...	169,114,657
Victoria Life and General Insur. Co.	128,602	INDUSTRIAL BUSINESS.	
Colonial Mutual Life Assurance Soc.	4,087,161	Mutual Life and Citizens' Assur. Co.	1,966,807
(a) Aust. Temp. & Gen. Mut. Life A. Soc.	2,046,022	Aust. Metropolitan Life Assur. Co. ...	58,352
Liverpool & London & Globe (Life) ...	14,475,852	Colonial Mutual Life Assurance Soc.	156,106
Provident Life Assurance Company	39,923	(b) People's Prudential Assurance Co.	54,343
Commonwealth Life Insurance Co.	39,279	Provident Life Assurance Company	95,248

(a) Including industrial business. (b) Including ordinary business.

§ 6. Fire Insurance.*

1. **General.**—Returns as to fire insurance are very defective, and only for Sydney and Melbourne and the country districts of Victoria have some figures been given which are worth reproducing. The Royal Commission mentioned above under "Life Assurance" has reported upon fire insurance matters, and Commonwealth legislation may, therefore, be expected in the future. Legislation concerning fire insurance was, in fact, contained in the bill to which reference has already been made. [§ 6, paragraph 1.]

2. **Sydney.**—Under the Fire Brigades Act 1902 the cost of the Metropolitan Fire Brigade is defrayed by equal payments on the part of the Colonial Treasurer, the municipal councils within the area under the jurisdiction of the Fire Brigades Board, and the insurance companies represented in Sydney. The companies divide their share proportionately to the amount held at risk. Under this arrangement the amount payable by the companies for the year 1909 was £19,100, divided amongst sixty-five companies, of

* See also Section XXVI., § 5, Fire Brigades.

which not more than six had their head office in Sydney. The amounts thus held at risk at the close of the last four years for which returns are available were, in 1905, £78,108,749; in 1906, £81,364,129; in 1907, £86,563,304; and in 1908, £89,071,992. A new Act, which came into force on the 1st January, 1910, was passed in 1909. This Act substituted a Board of Fire Commissioners for New South Wales for the original Metropolitan Fire Brigades Board, and divides the whole State into eight fire districts for the greater facilitation of working.

3. Melbourne.—In Melbourne the Metropolitan Fire Brigades Board assesses the amount payable by the insurance companies on the amount of premiums returned. These premiums for the last four years averaged about £435,000 per annum, while the contributions paid by the companies averaged about £22,000, or about £5 for every £100 of premiums. It may be said, therefore, that the companies have to devote about 5 per cent. of their premium income from metropolitan insurances to the maintenance of the fire brigade.

The value of ratable property is about £7,365,000, and the amounts contributed by the municipalities—as in the case of the insurance companies, one-third of the amount required by the Fire Brigades Board, the remaining one-third being contributed by the State Treasurer—are equal to about $\frac{1}{3}$ d. per £1 of ratable value. In addition to this contribution, insurance companies doing business in Victoria have to take out an annual license at a cost of $1\frac{1}{2}$ per cent. of the gross premium income, which is probably equal to about $1\frac{3}{4}$ per cent. on net income.

4. Country Districts of Victoria.—The country districts are divided into nine areas for fire insurance purposes, and the contributions to be paid vary in these areas according to the actual requirements of the Country Fire Brigades Board. The value of ratable property for the last year was slightly over £1,812,000. The premium income of the insurance companies from country business in protected areas during the year 1915 was about £206,000, and the contributions of the companies £5267, equal to rather less than $2\frac{3}{4}$ per cent. of the premium income.

5. Brisbane.—A similar arrangement holds good in Brisbane, under which the cost of the Fire Brigade Board, amounting to about £18,000 per annum, is paid in equal shares by the Government, the Brisbane City Council, and the insurance companies.

6. Adelaide.—The Fire Brigades Board of South Australia is incorporated under "The Fire Brigades Act 1904"; "The Fire Brigades Act Amendment Act 1905"; and "The Fire Brigades Act Further Amendment Act 1910." The cost is distributed as follows:—Three-ninths to the Government; four-ninths to the insurance companies; and two-ninths to the municipalities and districts which come under the operations of the board. The insurance companies are assessed in proportion to that portion of their premium incomes derived from the insurance of property (re-insurance within the State excepted) situated within the limits of the municipalities and districts coming under the operations of the board. The respective contributions for 1915 were as follows:—The Government, £7824; the companies, £9766; the municipalities, £4883.

7. Perth.—A District Fire Brigades Bill was reported on by a committee of the Legislative Assembly during 1909, and it was recommended that all brigades should in future be controlled by one board, and that the expense should be met by contributions at the following rate:—By Government, two-eighths; by the municipalities, three-eighths; and by the insurance companies, three-eighths. These provisions were incorporated in an Act, "The District Fire Brigades Act 1909," which was assented to on 21st December, 1909, and came into force on the 1st day of January, 1910. This Act, however, did not apply to Perth or the other districts in which the Fire Brigades Act 1898 was still operative. According to the provisions of the latter Act the expenditure was allocated as follows:—One-ninth to the Government; four-ninths to the insurance companies; and four-ninths to the municipalities. It was provided that the Governor might, at any time,

on the petition of the council of any municipality, declare by proclamation that the provisions of the Act of 1898 should cease to be in force in that municipal district. The whole of the State, however, has now come under the operation of the Act of 1909.

8. Australian Fire Insurance Business.—Returns are available shewing the revenue and expenditure, assets and liabilities, and investments of twenty-six insurance companies having their head offices either in the Commonwealth or in New Zealand. These companies are:—(a) with head office in Sydney—the Australian Mutual Fire Insurance Company, the City Mutual Fire Insurance Company, the Mercantile Mutual Fire Insurance Company, the Queensland Insurance Company Limited, the United Insurance Company, the Insurance Office of Australia Limited, the Federal Mutual Insurance Company of Australia, and the Manufacturers' Mutual; (b) with head office in Melbourne—the Australian Alliance Assurance Company, the Colonial Mutual Fire Insurance Company, the Victoria Insurance Company, the Victoria General Insurance and Guarantee Company Limited, the Australasian Mutual Insurance Society, the Commonwealth Insurance Company, the Chamber of Manufactures, and the Victoria State Accident Office; (c) with head office in Hobart—the Derwent and Tamar Fire and Marine Assurance Company Limited; (d) with head office in Launceston—the Mutual Fire Insurance Company of Tasmania; (e) with head office in Auckland—the New Zealand Insurance Company, and the South British Fire and Marine Insurance Company of New Zealand; (f) with head office in Dunedin—the National Fire and Marine Insurance Company of New Zealand, and the Standard Fire and Marine Insurance Company of New Zealand; (g) with head office in Wellington—the New Zealand State Fire Insurance Office, and the New Zealand Government Accident; (h) with head office in Christchurch—the Farmers' Co-operative Insurance Association of New Zealand; and (i) with head office in Perth—the Western Australian Insurance Company. As their names imply, the majority of these companies transact marine insurance, and in some cases guarantee and other business, in addition to the fire insurance business, and the returns relating to the latter cannot be separated from the former.

The accounts given hereunder cover two consecutive years, the second year ending at various dates from 31st December, 1914, to 30th April, 1916. The figures for the first year are in brackets.

The premiums, less reinsurances and returns, amounted to £3,064,411 (£2,655,104); losses were £1,515,008 (£1,419,716). Expenses and commission came to £994,726 (£921,085), and there was, therefore, a profit on trade operations of £554,677 (£314,303). As, however, interest, rent, fees, etc., amounted to £235,025 (£219,056), the total profit was £789,702 (£533,359). Dividends and bonuses came to £268,280 (£257,724). The ratio to premium income of losses was, therefore, 49.44 per cent. (53.47 per cent.), and of expenses and commissions, 32.46 per cent. (34.69 per cent.). The resulting ratio of trade surplus to premium income was 18.10 per cent. (11.84 per cent.).

The paid-up capital of the twenty-six companies was £2,263,221 (£2,143,931); reserve and reinsurance funds, £3,142,006 (£2,778,569); undivided profits, £315,989 (£239,149). The total paid-up capital and reserves were, therefore, £5,721,216 (£5,161,649). In addition to these liabilities there were others, viz.:—Unsettled losses, £408,018 (£321,423); sundry creditors, £434,102 (£309,057); dividend to pay, £199,140 (£182,255); and, in the case of one company, a life assurance fund, £112,306 (£117,278); thus bringing the total liabilities to shareholders and to the general public up to £6,874,782 (£6,091,662).

The corresponding amount of assets is made up of investments, £5,820,984 (£5,269,922), viz.:—Loans on mortgage, £1,561,770 (£1,582,000); Government securities, debentures, shares, etc., £1,836,709 (£1,461,968); landed and other property, including furniture, £1,154,471 (£995,874); fixed deposits, £1,184,917 (£1,094,027); in the case of one company doing a mixed business—loans on its own life policies, etc., £6889 (£7760); other investments, £76,228 (£128,293). The balance of assets consisted of cash in bank, on hand, and bills receivable; £397,617 (£286,927); and sundry debtors, etc., £656,181 (£534,813).

The financial position of the companies is undoubtedly a strong one, owing to the steady accumulation of reserves, and the high ratio borne by capital and reserves to premium income must be a cause of satisfaction to policy holders.

§ 7. Marine Insurance.

No returns are available in regard to Marine Insurance. It may, however, be stated, that the Commonwealth Parliament in 1909 passed an Act (No. 11 of 1909, "An Act relating to Marine Insurance") which was assented to on the 11th November, 1909. This Act materially alters some of the conditions under which marine policies have heretofore been issued.

§ 8. Friendly Societies.

1. **General.**—Friendly societies are an important factor in the social life of the community, as probably nearly one-third of the total population of the Commonwealth comes either directly or indirectly under their influence. Their total membership is about 450,000, but as certain benefits, such as medical attendance and free medicines, and in many cases funeral expenses, are granted to members' families as well as to members themselves, this figure must, even when due allowance is made for young and unmarried members, be multiplied by at least four to arrive at the total number of persons more or less connected with these societies. Legislation has conferred certain privileges on friendly societies, but, on the other hand, it insists on their registration, and it is the duty of the Registrars in the various States, prior to registering a new society, to see that its rules are conformable to the law, and that the scale of contribution is sufficiently high to enable the promised benefits to be conferred on members. Societies are obliged to forward annual returns as to their membership and their finances to the Registrar, and elaborate reports are published in most of the States dealing with the returns thus received.

In the following tables the figures refer to the year 1915, except those for South Australia, which refer to the year 1909; the latest for which particulars are available.

2. **Number of Societies, Lodges, and Members.**—The total number of societies registered in New South Wales is 67; in Victoria, 45; in Queensland, 20; in South Australia, 17; in Western Australia, 15; and in Tasmania, 14. No total is given of these figures for the Commonwealth, as the societies shewn in one State are in most cases represented in all the other States. The number of different lodges, the total number of benefit members at the end of the year, and their average number during the year are shewn in the following table:—

FRIENDLY SOCIETIES.—LODGES AND MEMBERS, 31st DECEMBER, 1915. (a)

State.	Number of Lodges.	Benefit Members at End of Year.	Average No. of Benefit Members during Year.
New South Wales	1,902	160,712	161,094
Victoria	1,533	157,750	158,746
Queensland	563	52,082	52,004
South Australia	574	65,801	65,292
Western Australia	300	19,339	19,625
Tasmania	207	23,174	(b)23,229
Commonwealth	5,079	478,858	479,990

(a) See paragraph 1, above. (b) Estimated.

3. **Sickness and Death.**—Sick pay is generally granted for a number of months at full rates, then for a period at half rates, and in some societies is finally reduced to quarter rates. The following table shews the total number of members who received sick pay during the year, the number of weeks for which they received pay in the aggregate, and the average per member sick, and further the number of benefit members who died during the year, together with the proportion of deaths per thousand average members:—

FRIENDLY SOCIETIES.—SICKNESS AND DEATH, 1915. (a)

State.	Number of Members who received Sick Pay.	Total Number of weeks Sick Pay granted.	Average No. of weeks per Member sick.	Deaths of Benefit Members and Wives.	Proportion of Deaths to 1000 average Benefit Members.
New South Wales	(b)	(b)	(b)	(b)	(b)
Victoria ...	28,784	239,134	8.31	2,175	13.70
Queensland ...	9,136	55,698	6.10	456	8.77
South Australia ...	11,114	104,392	9.39	965	14.78
Western Australia	3,199	18,507	5.78	227	11.57
Tasmania ...	4,154	29,359	7.07	208	8.99
Commonwealth	(b)	(b)	(b)	(b)	(b)

(a) See paragraph 1. (b) Not available.

4. **Revenue and Expenditure.**—The financial returns are not prepared in the same way in each State, but an attempt has been made in the subjoined table to group the revenue under the main headings:—

FRIENDLY SOCIETIES.—REVENUES, 1915. (a)

State.	Entrance Fees, Members' Contributions, and Levies.	Interest, Dividends, and Rents.	All other Income.	Total Revenue.
	£	£	£	£
New South Wales ...	491,928	87,591	34,597	614,116
Victoria ...	482,499	113,227	38,923	634,649
Queensland ...	169,464	33,975	...	203,439
South Australia ...	(b) 146,841	44,443	(c)	(c)
Western Australia ...	56,753	14,130	14,975	85,858
Tasmania ...	64,401	9,526	8,797	82,724
Commonwealth ...	1,411,886	302,892	(c)	(c)

(a) See paragraph 1. (b) Excluding levies. (c) Not available.

The returns relating to expenditure are more complete than those relating to revenue, and can be shewn in full for every State. The figures shew that the excess of revenue, amounting in the aggregate to £293,885, exclusive of South Australia, was divided amongst the six States as follows:—New South Wales, £91,896; Victoria, £131,571; Queensland, £50,591; South Australia, not available; Western Australia, £13,891; and Tasmania, £5,936. The revenue exceeded the expenditure by about twelve shillings per average benefit member, a margin which cannot be called very large.

Appended is the result of an investigation into matters relating to the administration of Friendly Societies. It is arranged in tabular form so that the course of procedure in one State can be compared with that in the others.

STATE LEGISLATION REGULATING THE REGISTRATION OF

Heading.	New South Wales.	Victoria.	Queensland.
Legislation in force	"Friendly Societies Act 1912." "Friendly Societies (Amendment) Act 1912-1913"	"Friendly Societies Act 1915." "Friendly Societies Act 1915" (No. 2)	"The Friendly Societies Act of 1913." "The Friendly Societies Amendment Act of 1914"
Officer controlling Registration	Registrar of Friendly Societies	Registrar of Friendly Societies, who must be a Barrister-at-law of not less than seven years' standing	Registrar of Friendly Societies or Deputy-Registrar of Friendly Societies
Compulsory or Voluntary Registration	Compulsory within six months from date of commencement to carry on business.	Compulsory within three months from date of commencement to carry on business.	Compulsory
Benefits to which Registration applies	Relief or maintenance of members and relatives during sickness, infirmity, old age (over 50), or widowhood, and of orphan children of members. Medical attendance and medicine. Insurance of births of members' children and deaths of members. Funeral expenses. Relief or maintenance of members when travelling in search of employment, in distress, in case of shipwreck or loss or damage of boats or nets. Fire insurance of implements of trade (maximum, £15). Endowment of members or nominees at any age. Registrar is authorised to register other Societies for any purpose of mutual benefit to members only, under such provisions of Act as might apply	Relief or maintenance of members and relatives in infancy, old age (over 60), widowhood, sickness, infirmity, or any natural state where probability may be calculated by way of average. Medical attendance and medicine. Funeral expenses. Relief or maintenance of members when travelling in search of employment, in distress, in case of shipwreck or loss or damage of boats or nets. Fire insurance of implements of trade (maximum, £15). Providing homes for aged and distressed members. Registrar is authorised to register other Societies for any purpose of mutual benefit to members only, provided a Law Officer of Crown certifies that the purpose is legal	As in New South Wales; also guaranteeing the performance of their duties by officers and servants of a Society. Establishment, endowment and control of hospitals, sanatoria, homes and orphanages for members
Penalty for Non-Registration	Any officer accepting money or other valuable consideration on behalf of an unregistered society is liable to a penalty of not exceeding £20	Any officer accepting money or other valuable consideration on behalf of an unregistered society is liable to a penalty not exceeding £50	Any officer carrying on any business in connection with an unregistered society incurs a penalty of £10 for each day, such penalty to be recoverable by member or non-member
Minimum membership of Registered Society.	Seven	Ten	Seven
Certification of tables of contributions.	By Actuary of five years' standing	By Government Statist, or some Actuary of not less than five years' standing, approved by the Governor	...
Registration of Branches	Same as Societies. Branches cannot register as separate societies, except where expelled or wholly seceded from parent body	Every Branch must be registered, as well as every Society	As in Victoria

FRIENDLY SOCIETIES IN AUSTRALIA.

South Australia.	Western Anstralia.	Tasmania.
<p>"An Act to regulate Friendly Societies" (No. 22 of 1852). "The Manchester Unity of Oddfellows Act 1874." "The Friendly Societies Act 1886." "The Manchester Unity of Oddfellows Amendment Act 1887." "The Friendly Societies Amendment Act 1892." "An Act to rectify a mistake in 'The Friendly Societies Act 1886'" (593 of 1894). "The Friendly Societies Amendment Act 1894" (609). "The Friendly Societies Amendment Act 1894" (610). "The Friendly Societies Amendment Act 1908." "The Friendly Societies Amendment Act 1910"</p>	<p>"The Friendly Societies Act 1894." "Friendly Societies Amendment Act 1904." "Friendly Societies Amendment Act 1913." "Friendly Societies Amendment Act 1914"</p>	<p>"The Friendly Societies Act 1888." "The Friendly Societies Amendment Act 1888." "An Act to consolidate enactments and amend the law relating to Trustees 1898"</p>
<p>Registrar-General, who is a Public Actuary appointed by Government</p>	<p>Registrar of Friendly Societies</p>	<p>Registrar of Friendly Societies</p>
<p>Voluntary. Particulars refer to incorporated societies, which must furnish notice of situation of registered office to Registrar. The Act of 1852 does not apply to certain societies incorporated under private Acts</p>	<p>Voluntary</p>	<p>Voluntary, but Act provides that any member of an unregistered society may recover at any time all contributions paid by him during the period of six years immediately preceding date of action for recovery, members who actually receive benefits excepted</p>
<p>Relief, maintenance or endowment of members and relatives in infancy, old age, widowhood, sickness, distress, or other natural state where probability may be calculated by way of average. Insurance of deaths of members. Medical attendance and medicine, funeral expenses. Guarantee fund for effecting policies of guarantee assurance of officers of Society. Superannuation fund</p>	<p>As in Victoria, but maximum insurance on implements of trade, £20</p>	<p>Relief or maintenance of members and relatives in infancy, old age, widowhood, sickness, infirmity, or any natural state where probability may be calculated by way of average. Insurance of births of members' children and deaths of members. Medical attendance and medicine, funeral expenses. Relief or maintenance of members when travelling in search of employment, in distress, in case of shipwreck or loss or damage of boats or nets. Fire insurance of implements of trade (maximum, £15)</p>
<p>...</p>	<p>Ten</p>	<p>Ten</p>
<p>Contributions in respect to annuities to be certified to by the Accountant of the Savings Bank of South Australia</p>	<p>By Registrar, or Actuary of at least five years' standing, approved by the Government</p>	<p>By Actuary or other person approved by the Government</p>
<p>Similar to Societies</p>	<p>A Registered Society must also register its Branches</p>	<p>A Registered Society must send in a list of Branches with its application for registration</p>

STATE LEGISLATION REGULATING THE REGISTRATION OF

Heading.	New South Wales.	Victoria.	Queensland.
Appeal against refusal to register Cancellation or suspension of registration	To supreme Court At request of Society. Where registration has been obtained by fraud or mistake. Where a Society exists for an illegal purpose, or has violated the provisions of the Act, or has ceased to exist, and if Society fails to comply with any requirement of the Registrar with regard to contributions. Registrar is also authorised to suspend registration for three months and renew suspension from time to time for like period, in cases where he might, with the approval of the Governor, cancel the registration. Two months' notice to be given of suspension or cancellation.	As in New South Wales At the request of Society, or of Branch with consent of Society. With approval of Minister on proof that registration has been obtained by fraud or mistake, or that Society exists for an illegal purpose, or has willfully violated any provisions of the Act, or has ceased to exist, also Registrar, with approval of Minister, may suspend registry for three months and renew suspensions from time to time for like period. Where Society fails to adopt new tables at instance of Statist. Two months' notice to be given of cancellation or suspension	As in New South Wales Attorney-General may cancel registration, at the request of the Society, or on proof that the Society has less than seven members, or has ceased to exist, or that registration has been obtained by fraud or mistake, or that Society exists for an illegal purpose, or has willfully violated the Act. Attorney-General may suspend registry for three months, and renew suspension from time to time. Two months' notice of cancellation or suspension to be given
Auditors, number of, and how appointed	One appointed by Government, or two or more under rules of Society	One Public Auditor or two or more under rules of Society	One licensed Auditor, or two or more under rules of Society. One of latter to retire annually and to be ineligible for re-election during ensuing 12 months. Annually. Registrar, if dissatisfied, has power to order fresh audit
Frequency of audit	Annually	Annually	As in New South Wales
Nature of Annual Returns to be furnished	General statement, as audited, of receipts and expenditure and funds, shewing separately expenditure in respect of the several objects of the Society, auditors' report (if any), names and ages of members, periods of sickness, deaths, and particulars of benefits distributed	As in New South Wales. Also a copy of all balance sheets issued during year by Society and Branches	As in New South Wales
Date to which Annual Returns apply	31st December	31st December, or to date of half-yearly or quarterly meeting, if held in December	31st December, or such other date in December or January as is approved by Registrar
Date of receipt of Annual Returns by Registrar	31st March. (Registrar may authorise extension to 31st May)	1st February. Returns sent to Government Statist	1st March
Nature of Quinquennial Returns to be furnished	Auditors' abstract of audit, and return containing particulars of benefits assured, contributions receivable, funds, effects, debts and credits. On receipt thereof, Actuary attached to office of Registrar to make valuation and report	An abstract of valuation of assets and liabilities made and duly signed by valuer appointed by Society, and a return containing particulars of benefits assured, contributions receivable, funds, effects, debts, and credits. In lieu of valuation full returns to be forwarded to enable valuation by Actuary appointed by Statist	Such information to be sent to the Registrar as is required by him for the purpose of valuing and reporting on assets and liabilities. Registrar shall value and report on such assets and liabilities. If assets are less than 17s. 6d. in the £, Registrar may call upon Society to submit proposals for improving its financial position
Provisions for publicity	Last balance sheet, quinquennial valuation and auditors' report (if any), to be open for inspection at all reasonable hours at Registered Office	Last balance sheet, quinquennial valuation, and auditors' report (if any), to be always exhibited in a conspicuous place in Registered Office	Last balance sheet, report, abstract of valuer, and auditors' report (if any) to be always exhibited in a conspicuous place in Registered Office
Fees payable for Registration or Audit	Nil	Registration of amendment of rules, 10s.; registration of Society, £2 14s. 6d.	Registration of Society, £5 5s.; amendment of rules, £2 2s., to certifying Barrister
Trustees, number and appointment of	Three or more. Elected at meeting by majority of members	Not less than three, nor more than five. Elected at meeting of Society held as provided by rules	Not less than two nor more than five. Elected at meeting by majority of members
Officers not entitled to be Trustees	Secretary, Treasurer	...	Treasurer, Secretary, Auditor

FRIENDLY SOCIETIES IN AUSTRALIA—Continued.

South Australia.	Western Australia.	Tasmania.
...	As in New South Wales	As in New South Wales
...	Registrar may cancel registration at request of Society, or of Branch with consent of Society, or with approval of Minister, on proof that registration has been obtained by fraud or mistake, or that Society exists for illegal purpose, or has violated provisions of Act, or has ceased to exist. Registrar, with consent of Minister, may suspend Society for three months, and renew suspension from time to time. Two months' notice to be given of suspension or cancellation	As in Western Australia. Cancellation may also be made on proof that Society or Branch has less than ten members
Two or more, as provided by rules of Society	As in Victoria	As in Victoria
Half-yearly	Annually	Annually
As in New South Wales. Also occupations of members	As in Victoria	As in New South Wales
End financial year	As in Victoria	31st December
1st May	1st March	1st February. Returns sent to Statistician
Valuation of assets and liabilities made by the Official Actuary or a valuer appointed by Society and approved by Chief Secretary, and a return shewing benefits assured, contributions receivable, funds, effects, debts, and credits; also names, occupations, and ages of members	Valuation of assets and liabilities, by Valuer appointed by Society, and a return shewing benefits assured, contributions receivable, funds, effects, debts, and credits. In lieu of valuation, full returns to be furnished to enable Registrar to have valuation made and report thereon or have report made by Actuary	Valuation of assets and liabilities by Valuer appointed by Society, and a return shewing benefits assured, contributions receivable, funds, effects, debts and credits. In lieu of valuation full returns to be furnished to enable valuation to be made by Actuary or other person approved by Governor-in-Council
Last balance sheet and quinquennial valuation to be available for inspection at Registered Office	Last balance sheet, quinquennial valuation, and auditors' report (if any) to be always exhibited at Registered Office	As in Western Australia
Registration: To official certifying to table of contributions, £1 1s.; to Crown Solicitor, if rules submitted for his opinion: Society, £1 1s.; Branch, 10s. 6d.; amendment of rules, 5s.	Registration of Society, £2 2s.; amendment of rules, 10s.	Registration of rules, £2 2s.; amendment of rules, £1 1s., to Attorney-General for certificate
No provision, but according to Act at least three must sign certain documents	Not less than three nor more than five	As in Western Australia
...	Secretary, Treasurer	Act provides that Secretary, Treasurer, or other officer to be deemed servant Trustees

STATE LEGISLATION REGULATING THE REGISTRATION OF

Heading.	New South Wales.	Victoria.	Queensland.
Vesting of Property of Society in Trustees	All property to be vested in Trustees, whether acquired before or after registration	As in New South Wales. The property of a Branch to be vested in Trustees of the Branch, wholly or partly as rules provide	As in Victoria
Liability of Trustees	Trustees liable only for moneys received by them respectively on account of Society	As in New South Wales	As in New South Wales
Separation of Accounts	A separate account to be kept for each fund or benefit. Moneys belonging to one fund or benefit not to be used for the purposes of any other, except with consent of Registrar, savings out of management expenses excepted	A separate account to be kept for each fund or benefit. Government Statist may authorise surplus in one fund to be used for another fund. Savings out of management expenses may be used for any fund	A separate account to be kept for each fund or benefit. Moneys belonging to one fund or benefit not to be used for purposes of any other unless sanctioned by Registrar
Securities in which funds may be invested	Government Savings Bank; Savings Bank of New South Wales; public funds; purchase of land, and erection, alteration of buildings thereon; other securities expressly directed by rules of Society (other than personal)	Victorian Government Special Inscribed Stock; Savings Banks (including debentures); Incorporated Banks; on deposit Post Office Savings Bank; Victorian Government securities; on first mortgage freehold property (up to three-fifths of value); debentures or other securities of corporations, municipalities (Vic.); Melbourne and Metropolitan Board of Works; Melbourne Harbour Trust; Geelong Harbour Trust; purchase property for use of Society only	Government Savings Bank; any Australian Government security; purchase of land, and erection, alteration of buildings thereon (from funds specified); securities (other than personal) expressly directed by rules of Society
Loans to Members	From separate loan fund formed by contributions or deposits (maximum loan, £50)	...	From separate loan fund formed by contributions or deposits (maximum loan, £50). Not more than one-half of amount of assurance on life of member
Contributions to other bodies	One registered Society or Branch permitted to contribute to funds of another or to subscribe to any hospital, infirmary, charitable or provident institution to secure benefits to members and their families	As in New South Wales	As in New South Wales
Security required from officers in charge of money	Security of Guarantee Society in such sum as Society directs	Bond, with at least one surety, or security of Guarantee Society	Bond, with at least one surety, or security of Guarantee Society (minimum, £30)
Priority of Society's claim on officer's effects	Upon death or bankruptcy (including liquidation) of any officer possessing money, securities, etc., belonging to Society, or where any execution, attachment or other process is issued against such officer	As in New South Wales	As in New South Wales

FRIENDLY SOCIETIES IN AUSTRALIA—Continued.

South Australia.	Western Australia.	Tasmania.
Trustees must invest in the corporate name of the Society	As in New South Wales	As in New South Wales
<p>As in New South Wales. Each Trustee is also personally liable for a penalty of not less than £2 or more than £20 where a policy of assurance of any officer is not duly effected or kept alive in accordance with Act. "The Manchester Unity Act 1874" provides that each Trustee, Member of Committee or Management, or any other person directing or managing affairs of Society is liable for penalty of not less than £5 or more than £50 for each day an officer's assurance is not effected or kept alive</p>	As in New South Wales	Trustees liable only for moneys, deeds, documents, and other property actually received
<p>A separate account to be kept for each fund or benefit. Moneys belonging to one fund or benefit not to be used for the purposes of any other</p>	<p>A separate account to be kept for each fund or benefit. Moneys belonging to one fund or benefit not to be used for purposes of any other, except where Registrar or Actuary reports that transfer can be safely made</p>	As in South Australia
<p>Government securities; loans guaranteed by Government; mortgages on freehold property; fixed deposit in banks; bonds City of Adelaide Corporation; South Australian Municipal Debentures; purchase of property for use of Society only</p>	<p>Incorporated Banks; Post Office Savings Banks; Western Australia Government securities; mortgages on freehold or leasehold property (leasehold, 20 years unexpired); debentures or other securities of corporations, municipalities; purchase of property for use of Society only</p>	<p>Savings Banks; Incorporated Banks; Post Office Savings Bank; Tasmanian Government securities; mortgages on freehold or leasehold property (leasehold, 20 years unexpired); debentures, Hobart and Launceston, and Government guaranteed securities under Local Bodies Loan Act; registered Building Societies; Parliamentary stocks, public funds and Government securities of United Kingdom; real or heritable securities, Great Britain and Ireland; stock of Bank of England or Bank of Ireland; securities guaranteed by Governments of United Kingdom, Australian States and New Zealand; purchase of property for use of Society only</p>
<p>One registered Society or Branch permitted to contribute to funds of another, to unite to provide medical benefits, or to establish officers' guarantee fund without amalgamation</p>	As in New South Wales	As in New South Wales
<p>Security of Guarantee Society or Company approved by Trustees (minimum, £50). "Manchester Unity Act 1874." Bond with two sureties or give security of Guarantee Society</p>	As in Victoria	As in Victoria
As in New South Wales	As in New South Wales	As in New South Wales

STATE LEGISLATION REGULATING THE REGISTRATION OF

Heading.	New South Wales.	Victoria.	Queensland.
Limitation of benefits	Gross sum, £200; annuity, £50; sick pay, £2 2s. per week	Gross sum, £50; weekly payment, £2	Gross sum, £200; annuity, £52; weekly payment, £2
Limitation of payment on deaths of children	Under 5 years, £6 gross; under 10 years, £10 gross; to parent or personal representatives of parent only. Amount due to be stated on certificate of death	Under 10 years. Actual funeral expenses (maximum, £5) paid to undertaker. Amount due to be stated on certificate of death	As in New South Wales. (Insurances where person insuring has interest in life of person insured exempted)
Amalgamation, transfer or conversion	Amalgamation of Registered Societies or Branches permitted without dissolution or division of funds, or one Society may transfer its engagements to another. Conversion of Society into Company, under Companies Acts, allowed, or any Society may amalgamate with or transfer its engagements to a Company. Rights of creditors not to be prejudiced. A majority of five-sixths in value of members and consent of beneficiaries necessary	As in New South Wales	As in New South Wales
Dissolution of Society	As provided by rules of Society, or by consent of five-sixths in value of members (in case of Branches, consent of central body to be obtained), together with written consent of every person receiving, or entitled to receive, benefits; or by award of Registrar owing to inadequacy of funds or contributions	As in New South Wales	Society:—Upon the happening of any event declared by the rules, or by consent of five-sixths in value of members, or by award of Attorney-General. Branches:—By agreement of Committee of Management, confirmation of majority of members, approval by central body, and approval by Registrar
Investigation by Registrar	Upon application of one-fifth of total number of members, or one hundred members where members number from one to ten thousand, or five hundred where members exceed ten thousand, setting forth that funds are insufficient to meet existing claims, or contributions insufficient to cover benefits assured. Where funds or contributions appear insufficient, Registrar is empowered to dissolve Society or suspend award to enable necessary alterations and adjustments to be made. Registrar's award final	As in New South Wales	...
Inspection by Registrar or Inspectors	Upon application by Committee of Society, or one-fifth total number of members, or one hundred members where members number one to ten thousand, or five hundred where members exceed ten thousand. Application to furnish good reason and prove absence of malicious motives. On receipt of such application the Registrar may appoint inspectors to examine the affairs of the Society, or call a special meeting of the Society to determine matters. The Registrar may also appoint inspectors to examine into and report on the affairs of any Society without any application having been made. Branches making application to have the consent of the central body	Upon application of one-fifth total number of members, or one hundred members where members number one to ten thousand, or five hundred where members exceed ten thousand. Application to furnish good reason and prove absence of malicious motives. On receipt of such application Registrar may appoint inspectors to examine into the affairs of the Society, or call a special meeting of the Society to determine matters	As in Victoria, except that Attorney-General appoints inspectors or calls special meeting of Society instead of Registrar

FRIENDLY SOCIETIES IN AUSTRALIA—Continued.

South Australia.	Western Australia.	Tasmania.
<p>From any one Society: Gross sum, £50; annuity, £26; sick pay, £1 per week; superannuation, 10s. per week</p>	<p>Gross sum at death of member, £100; other person, £50; weekly payment, £2</p>	<p>From two or more Societies: Gross sum, £200; annuity, £50; weekly payment, £2 2s. From single Society: Gross sum, £100; annuity, £50; weekly payment, £1 1s.</p>
<p>...</p>	<p>Under 10 years, not exceeding £5, payable only to parent, on production of death certificate with amount due stated thereon</p>	<p>As in Victoria</p>
<p>Two or more Societies or Branches entitled to become united or incorporated as one Society, upon terms approved by majority of Trustees and Board of Management of Societies or Branches concerned</p>	<p>As in New South Wales</p>	<p>As in New South Wales</p>
<p>Proposed appropriation and division of funds to be first submitted and consent obtained of five-sixths in value of members and all persons receiving or entitled to receive benefits (1852 Act)</p>	<p>Society:—Upon the happening of any event declared by the rules, or by consent of five-sixths in value of members, with consent of persons in receipt of benefit, or by award of Registrar. Branches to have consent of central body</p>	<p>As in Western Australia</p>
<p>Public Actuary to investigate annual returns and make quinquennial valuations of all Societies and Branches, and also investigate all valuations, reports, and returns submitted by valuers employed by Societies</p>	<p>As in New South Wales. Where assets are insufficient to meet liabilities, Registrar is required to notify Society and specify nature of changes in conduct of business. In event of any Society failing to comply within six months, Registrar to publish name of Society, with facts and comments, as many times as he thinks fit</p>	<p>As in New South Wales</p>
<p>Public Actuary authorised to inspect, at any time, all accounts, books, documents, valuations, etc., and make whatever extracts he may deem necessary</p>	<p>As in Victoria</p>	<p>As in Victoria</p>

STATE LEGISLATION REGULATING THE REGISTRATION OF

Heading.	New South Wales.	Victoria.	Queensland.
Inspection of books by members	At all reasonable hours	At all reasonable hours. A free copy of annual returns to be available on application	At all reasonable hours
Disputes	Between Society and member, officer, or branch, or between branches to be decided in manner directed by rules; decision final. Where rules do not expressly forbid, any party entitled to submit matter to Registrar to decide. Where rules contain no direction, or decision not arrived at within forty days after application for reference under rules, person aggrieved may apply to Registrar to hear and determine; no appeal	Between Society and any member, officer (except breach trust, etc.), or branch to be decided in manner directed by rules; decision final. Where rules do not expressly forbid, parties may, by consent, refer matters to Registrar to decide. Where rules direct, dispute to be referred to Justices' Court of Petty Sessions to decide. Disputes cognisable under rules by Justices may, by consent, be referred to County Court. Where rules contain no direction, or direction not applicable, or decision not arrived at within forty days after application for reference under rules, person aggrieved may apply to County Court or Court of Petty Sessions to determine. Appeal to Supreme Court allowed on questions of law only	Between Society and any member, officer (except breach trust, etc.), or branch, or between branches to be decided in manner directed by rules; no appeal. Where rules do not expressly forbid, parties may, by consent, refer dispute to Attorney-General. Where rules so direct, disputes to be decided by Court of Petty Sessions. Where rules contain no direction, or decision not arrived at within forty days after application for reference under rules, person aggrieved may apply to District Court or Court of Petty Sessions. Appeal to Supreme Court allowed on questions of law only
Limiting age for admission of Junior Members	Over three years	Over 16 years. Societies and Branches consisting wholly of members under 16 years, but over 3 years, entitled to register, subject to regulations made on their behalf	As in Victoria
Special fees payable by Societies for Certificate of births and deaths	Not to exceed one shilling. Extra certificates applied for at same time as original not to exceed sixpence each. Form of application, if filled in by Registrar, three-pence	Not to exceed one shilling	As in New South Wales
Concessions, Stamp Duties, etc.	...	...	Exempt from Stamp Duty: draft or order or receipt for money; bonds given by Society or officer; draft or order; form of policy; appointment or revocation of appointment of agent; other documents required or authorised by Act or rules of Society. Probate or Succession Duty not payable on any amount assured in any Friendly Society
Special Resolutions	Two-thirds majority required	Three-fourths majority required, and confirmed by a majority at a subsequent meeting	As in Victoria
Persons in Military and Naval Forces	Persons in Commonwealth military or naval forces not to forfeit their interest or be fined for non-attendance at meetings. If serving out of State, may be deprived of benefits or may pay increased dues, provided rules made before Dec. 5, 1899	Persons enrolled in volunteer or military or naval forces not to forfeit any interest or be fined for non-attendance at meetings. Any disputes to be decided by Court of Petty Sessions	As in Victoria
Special War Provisions	...	Society may reinsure its liability to financial members on active service with Treasurer of Victoria or company approved by Government Statist. Central body of Society may apply portion of its funds towards contributions of members on active service, and, if necessary, make a levy on all members to restore the portion so applied	Society may advance to a member who is unable to pay or secure moneys due or accruing owing to service with troops, unemployment, or as result of war, such sums as are required to meet obligations of the member to the Society. Such advances deemed to be a debt by him to the Society

FRIENDLY SOCIETIES IN AUSTRALIA—Continued.

South Australia.	Western Australia.	Tasmania.
At all reasonable hours. A copy of last balance sheet to be available at cost price	At all reasonable hours	At all reasonable hours
Where nature of dispute, according to law, compels recourse to Supreme Court, matter may be referred, at option of either party, to Special Magistrate of Local Court at Adelaide. Where rules provide for settlement by arbitration, the number of arbitrators, mode of election, and procedure to be followed to be stated in rules of Society. Where no provision is made for arbitration, or arbitration is provided for but no arbitrators appointed, or no award made within time prescribed by rules, or where either party fails to comply with the arbitrators' award, or where rules do not direct or specify, the matter is to be determined by the Local Court; decision final. Disputes between branches or officer, member, members, or other persons to be decided as rules direct	Between Society and any member, officer (except breach trust, etc.), or branch to be decided in manner directed by rules; decision final. Where rules do not expressly forbid, parties may, by consent, refer dispute to Registrar. Where rules direct dispute to be referred to Justice of Peace, two or more must adjudicate. Where rules contain no direction, or direction is not applicable, or decision is not reached within forty days after application for reference under rules, person aggrieved may apply to Local Court or two or more Justices of Peace to determine. Appeal to Supreme Court allowed on questions of law only	Between Society and member, officer, or branch, or between branches to be decided in manner directed by rules; no appeal allowed
Any age	As in Victoria	Any age, unless contrary to rules. Societies and Branches consisting wholly of members under 21 and over 3 years of age allowed to register, subject to regulations made on their behalf
...	Not to exceed one shilling	Not to exceed one shilling
Incomes of all Friendly Societies exempt from Income Tax	Returns furnished Registrar to be free of postage	...
...	Three-fourths majority required, confirmed by majority at subsequent general meeting	As in Western Australia
...	As in Victoria	As in Victoria, but disputes settled by two Justices
...	Payment of contributions by member on active service may be suspended, but liability to pay remains, member remains entitled to benefits. Registrar may direct special levy to be made on members not granted suspension, to maintain stability of Society	...

FRIENDLY SOCIETIES.—EXPENDITURE, 1915. (a)

State.	Sick Pay.	Medical Attendance and Medicine.	Sums Paid at Death of Members & Members' Wives.	Adminis- tration.	All other Expendi- ture.	Total Expendi- ture.
	£	£	£	£	£	£
New South Wales	177,198	182,705	50,131	88,149	24,037	522,220
Victoria	160,386	162,537	35,981	80,207	63,967	503,078
Queensland	42,767	59,463	18,035	30,731	1,852	152,848
South Australia	61,433	36,425	30,803	31,128	(c)	(c)
Western Australia	15,554	20,359	3,527	14,720	17,807	71,967
Tasmania	21,200	17,979	13,344	11,688	12,577	76,788
Commonwealth	478,538	479,468	151,821	256,623	(c)	(c)

(a) See paragraph 1. (b) Included in "Administration." (c) Not available.

It appears from the above figures that sick pay averaged about thirteen shillings and sixpence per week, but, as the returns include pay at half and quarter rates, and as the proportion of these to full rates is not stated, the average given must be taken for what it is worth. Medical attendance and medicine came to about one pound per average benefit member, or to about £5 per member who received sick pay during the year.

5. **Funds.**—The two foregoing tables shew that the surplus of revenue over expenditure in five States amounted to £293,885 for the year, and a small surplus must, of course, result annually in every society which levies adequate contributions to enable it to meet all possible claims. These accumulations of profits are generally invested, and the subjoined table shews for all of the six States the division into invested and uninvested funds:—

FRIENDLY SOCIETIES.—FUNDS, 31st DECEMBER, 1915. (a)

State.	Invested Funds.	Uninvested Funds.	Total Funds.
	£	£	£
New South Wales	1,876,827	(d)	1,876,827
Victoria	2,678,819	96,968	2,775,787
Queensland	780,421	18,462	798,883
South Australia	1,186,176	39,914	1,226,090
Western Australia	233,427	10,029	(c)243,456
Tasmania	232,874	14,546	247,420
Commonwealth	6,988,544	(b)179,919	7,168,463

(a) See paragraph . (b) Exclusive of New South Wales. (c) Exclusive of other Funds £8258. (d) Included in Invested Funds.

The total funds amounted, therefore, to about £14 18s. Od. per member at the close of the year under review.

§ 9. Probates.

1. **Number of Probates and Letters of Administration and Value of Estates.**— The value of the estates left by deceased persons gives a fair view of the distribution of property among the general population. There occurred in 1915 the deaths of 36,991 adult persons, while the total number of probates and letters of administration granted during the same period was 13,048. It would therefore appear that about one in every three adults who died during the year was possessed of sufficient property to necessitate the taking out of probate. The details for each State are shown in the table hereunder:—

PROBATES AND LETTERS OF ADMINISTRATION, 1915.

State.	Number of Estates.			Net Value of Estates.		
	Probates.	Letters of Administration.	Total.	Probates.	Letters of Administration.	Total.
				£	£	£
New South Wales	5,088	(a)	5,088	10,813,889	(a)	10,813,889
Victoria ...	2,918	1,531	4,449	8,759,728	(a)	8,759,728
Queensland ...	664	232	896	2,483,908	236,988	2,720,896
South Australia ...	1,146	369	1,515	2,734,597	159,920	2,894,517
Western Australia	429	253	682	850,367	85,740	936,107
Tasmania ...	343	75	418	721,850	71,256	793,106
Commonwealth	10,588	2,460	13,048	26,364,339	553,904	26,918,243

(a) Included with Probates.

Intestate estates were placed under the control of the Curator during the year, and unclaimed money paid into Consolidated Revenue. The details for each State are shewn hereunder:—

INTESTATE ESTATES, 1915.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wlth.
Intestate estates placed under control of Curator during 1915							
Number ...	(a)	438	673	157	268	64	(a)
Value ...	£ (a)	26,878	63,306	38,221	12,666	9,055	(a)
Unclaimed money paid into Consolidated Revenue by Curator during 1915	£ 31,864	5,380	8,027	1,370	1,843	...	48,484

(a) Not available.

SECTION XXII.

PUBLIC INSTRUCTION.

§ 1. Evolution of Educational Systems in Australia.

1. **Educational Systems of the States.**—(i.) *Place of New South Wales in Australian Education.* The first settlement in Australia being in New South Wales, it is but natural that Australian education should have had its beginning in that State. In the evolution of educational method and system in Australia, New South Wales also has played a leading part, and has had practically a dominating influence. For that reason an account of the evolution of education in this State contains, as it were, the key to the understanding of the Australian attitude to this question. The subject is dealt with in some detail in No. I. and No. II. issues of the Commonwealth Official Year Book, but it is not proposed to repeat it in the present volume. (See also 2 hereunder.)

(ii.) *Educational Systems of Commonwealth States.*—A more or less detailed account of the origin and development of the primary educational systems of the other States also appears in No. I. and No. II. issues of the Year Book. Later details are given hereunder.

2. **Recent Development in State Educational Systems.**—(i.) *New South Wales.* The year 1913 was an important one in New South Wales educational history, in that it was the first complete year of active operation of the principles laid down in the University Amendment Act and the Bursary Endowment Act of 1912. More extended reference to these Acts will be found later on. It was also remarkable for the reorganisation of technical education on a Trades School basis and of the Superior Schools on a vocational basis. Reference may also be made to the development of the Evening Continuation Schools established in 1911, and to the wide extension of the scheme of school medical inspection. As pointed out in a preceding Official Year Book (see No. VII., page 765), the Education Department instituted a scheme of certificated examinations in 1911 called respectively the "qualifying," "intermediate," and "leaving" certificate. The first "qualifying" examination was held in March, 1911, the first "intermediate" in November, 1912, and the first "leaving" in November, 1913. The successful students who were awarded exhibitions at the leaving certificate examination took up University studies in the first term of 1914, thus marking the definite linking up of the State School system with the University. Amongst noteworthy features in the year 1914 were the remarkable increase in school population, the establishment of Trade Schools, the expansion of secondary education, and the extension of the scheme of school medical inspection. The travelling hospital and the travelling ophthalmic and dental clinics are rendering splendid service in the remote and sparsely settled districts.

(ii.) *Victoria.* Under the Amending Education Act of 1910 it is provided that every child must attend school for the full period of eight years between 6 and 14, unless he be given a certificate of education at 13. The schools are open on an average 225 days in each year, and require attendance on all these days, unless reasonable excuse is forthcoming. Provision is made for the mentally deficient. The primary curriculum divides the school life into eight grades, so that a child entering at six years of age will have completed the full course by the time he reaches his fourteenth year. After completion of the elementary school course, the pupil may go on to the Evening Continuation Schools, Higher Elementary Schools, District High Schools, or the Trade Schools.

Special schools for feeble-minded children have been established in the metropolis, and an "open air" school for delicate children is in operation at Blackburn. Highly encouraging results have been obtained at all these institutions. A Council of Public Education has been appointed to advise on educational matters generally, and particularly in regard to co-ordination. Examinations are held throughout the State for the certificate of merit and the qualifying certificate. The former is granted to pupils who, under prescribed conditions, reach a satisfactory standard in subjects prescribed for Grade VIII., while the latter is awarded to pupils who reach a satisfactory standard in Grade VI. Possession of this certificate enables the holder to enter upon the work of the Higher Elementary or the District High School. Acting on the advice of the Council of Education, the Melbourne University has established a Schools Board. The function of this body is to consider all questions relating to school studies and the inspection and examination of schools. In addition to University representation, there are also on the Board representatives of the Department of Education, the registered Secondary Schools, and the business interests of the community. Being clothed with such wide powers, this Board must of necessity be the chief guiding factor in the development of Education in Victoria. During the year 1915 a considerable amount of attention was devoted to the organisation of the elementary schools, especially in connection with the question of retardation, and in regard to the teaching of infants. It is hoped that the greater flexibility in organisation and system of promotions, coupled with special methods of dealing with backward pupils, will tend to considerably lower the retardation percentage. The institution of the uniform school year, the greater powers conferred on the head teachers in regard to the promotion of scholars, the making of the inspector an advisory rather than an examining officer, and the better provision for the practical training of the junior teachers have all been fraught with excellent results.

(iii.) *Queensland.* The Amending Act of 1910 introduced several new features into the educational system of Queensland, chief amongst them being—(a) employment of proceeds of sales of land and other school property for school purposes; instead of being paid into Consolidated Revenue; (b) abolition of local contributions; (c) provision of scheme of school certificates to assist in co-ordination of various branches of the system; (d) establishment of compulsory continuation classes; (e) compulsory medical and dental examination; (f) raising the compulsory age to 14 years instead of 12 years; (g) provision for compulsory attendance on every day on which the school is open. The last-mentioned provision has already produced good results in regard to improved attendance. The organisation of the general scheme of education is being systematically developed. State High Schools were inaugurated in February, 1912, and a more liberal scheme of scholarships to secondary schools came into force in 1913. A Teachers' Training College has been established, and greater attention is being given to the development of technical education. Methods of instruction have been brought into consonance with the latest developments under the new syllabus adopted in 1914. During this year also the medical and dental inspection of State School children were considerably extended.

(iv.) *South Australia.* One of the chief events in educational development in South Australia in 1911 was the provision of Evening Continuation Schools, intended to help those who cannot afford to attend the Higher Day Schools. The State has also come into line with the other States in the matter of medical supervision of school children, and a medical officer and two trained nurses have been appointed. The changes introduced at the Teachers' Training College have proved very satisfactory, and the academic teaching at the University is now supplemented by a systematic pedagogic instruction for all classes of teachers. In 1913 the principle was adopted of simultaneous examination of the schools, and granting to teachers the authority to make the promotions of their scholars. An Act to consolidate and amend the law relating to Public Instruction was assented to on the 23rd December, 1915.

(v.) *Western Australia.* During 1912 the curriculum of the Primary Schools was remodelled in order to bring it into line with the most up-to-date principles. The work was lightened in directions where experience shewed there was overloading, and efforts were particularly directed towards the removal of the abstract and to the development of the imaginative and constructive throughout all grades. Greater freedom was given for experiment by the teacher, and it is recognised that considerable improvement has resulted. Montessori principles are being increasingly adopted in the teaching of the youngest children. Constructive work is receiving greater attention in all departments, and encouragement is given to original or research work of an elementary character. The three special courses—commercial, industrial, and domestic—were continued in the central schools, and it is proposed to provide a fourth course for pupils who desire to qualify for entrance to the University but have not succeeded in gaining admission to the High Schools. The scheme of bringing about a closer correlation between primary and secondary education was further advanced during the year. The Modern School, opened in 1911, was strengthened. In June, 1914, a Goldfields High School was opened at Kalgoorlie, and it is proposed to establish additional schools at the larger country centres. Continuation classes were held at various centres in 1915, with an enrolment of 2259. Certificates granted to successful students entitle the holder to advanced tuition at the Technical College.

(iv.) *Tasmania.* The most important features in the development of education in Tasmania during 1912 were the establishment of subsidised schools, the taking of preliminary steps towards the establishment of State High Schools, and the adoption of more effective measures to secure regular attendance. In 1913, High Schools were established at Hobart and Launceston. During that year a remodelled set of rules in regard to the planning of new schools was put into operation. All new schools will now be erected in accordance with improved designs, and the older buildings will, as far as possible, be reconstructed, so as to ensure the maximum of comfort in lighting and ventilation. A conference of teachers and inspectors met under the presidency of the Director in 1914, and remodelled the primary curriculum issued five years previously. Amplifications and improvements were effected, and a revised syllabus prepared. The Bursaries Act of 1915 provided additional facilities for secondary education. Further reference to this Act will be found in § 2, 7. Intermediate High Schools were opened in 1915 at Burnie and West Devonport.

(vii.) *Northern Territory.* Although the number of children of school age in the Territory is small, nevertheless ample provision has been made by the Commonwealth Government for their education. Five State schools are in operation, viz.: at Darwin, Pine Creek, Brook's Creek, and Daly River in the northern portion, and at Alice Springs in the south. There is a special school for aboriginal and half-caste children at Darwin, and also at Alice Springs. A satisfactory standard is maintained at the schools, but progress is somewhat retarded by irregular attendance. Continuation classes are available at Darwin for cadets in Government employment and for others.

(viii.) *Present Position of State Education in Australia.* Throughout Australia primary education is compulsory and free, while there exists in most of the States a liberal provision of scholarships and bursaries to the Higher State Schools, to the Secondary Schools, and to the Universities. Provided that the requisite standards are reached, it is, of course, permissible for children to receive home tuition, or to attend so-called private schools. Considerable interest is taken in educational matters by the people of the Commonwealth, and within recent years several of the States have sent qualified representatives to inspect and report on the methods adopted in the chief countries of Europe and America. The reports of these Commissioners, especially those of New South Wales, have been widely studied, and various improvements have been made in

accordance with their recommendations. The orientation, lighting, and ventilation of school buildings are being modernised. In all of the States periodical medical inspection of the children is in force. (A detailed statement of the work being done in this direction will be found in the chapter dealing with Public Hygiene.) Methods of training teachers are now better developed, and although the "pupil teacher" system and its effects have not been wholly eliminated, it appears to be gradually vanishing. (The methods adopted in the various States for the selection and training of teachers are described in some detail in § 2, par. 10, hereinafter.) There has been a wider employment of kindergarten principles in the early stages, and the more or less purely abstract teaching of the older days has been largely replaced by concrete methods. Such subjects as nature study, manual training, music, and drawing have received a general impetus. Greater attention has been given to the scientific classification of children. Moreover, as will be seen from the above, and from § 2, par. 7, the State Education Departments are increasing their activities in the direction of secondary education. Lastly, the system of inspection has been considerably remodelled. Under the old system, the inspector was little more than an examining officer, but, under the present régime, the primary duty of this officer consists in guiding and directing the teaching in accordance with approved methods. [See also § 6, Technical Education.]

(ix.) *Co-ordination of Educational Activities.* As pointed out already, the educational system of New South Wales may now be considered as a more or less homogeneous entity, the various stages succeeding one another by logical gradation from kindergarten to university. In the other States development is proceeding on somewhat similar lines, although in varying degree.

§ 2. State Schools.

1. **Introductory.**—The State Schools, or, as they are sometimes termed, the "public" schools, of the Commonwealth comprise all schools directly under State control, in contradistinction to the so-called "private" schools, the bulk of which, though privately managed, nevertheless cater for all classes of the community. Information regarding Technical Education is given in § 6.

2. **Enrolment and Attendance.**—The following table shews the number of State Schools, together with the teachers employed and the enrolment and "average attendance" in each State during the year 1915:—

STATE SCHOOLS, TEACHERS, AND SCHOLARS, 1915.

(COMMONWEALTH.)

State or Territory.	Schools.	Teachers.*	Scholars Enrolled.	Average Attendance.
New South Wales†	3,254	7,781	265,446	194,244
Victoria	2,302	6,242	224,256	166,714
Queensland	1,408	3,724	104,702	85,108
South Australia	849	1,835	62,600	48,512
Western Australia	603	1,524	46,258	39,970
Tasmania	457	966	28,959	23,285
Northern Territory	6	7	243	• 129
Commonwealth	8,879	22,079	732,464	557,962

* Exclusive of sewing mistresses.

† Including Federal Territory.

Unfortunately, the schemes of enrolment and of the computation of "average attendance" are not identical in each State, so that the comparisons are imperfect. In the case of Victoria, returns were not available in regard to enrolments at District High Schools and Higher Elementary Schools, and these totals were estimated.

The enrolment and average attendance at the State Schools in the Commonwealth are given below for the years 1891, 1901, and for each year of the period 1911 to 1915:—

ENROLMENT AND ATTENDANCE AT STATE SCHOOLS, 1891 to 1915.

(COMMONWEALTH.)

Year.	Total Population.	Enrolment.	Average Attendance.	Year.	Total Population.	Enrolment.	Average Attendance.
1891	3,240	561,153	350,773	1913	4,872	685,406	515,948
1901	3,825	638,478	450,246	1914	4,941	713,232	544,230
1911	4,569	638,850	463,799	1915	4,932	732,464	557,962
1912	4,733	662,576	496,252				

1. In thousands.

3. Schools in the Federal Capital Area.—During the year 1915 fourteen State Schools were in operation in the Federal Territory (Yass-Canberra). The pupils enrolled numbered 405 and the average attendance 270. Cost of upkeep in 1915 amounted to £2560. By arrangement with the Federal Government these schools are conducted by the New South Wales Education Department on the same lines as the ordinary State Schools, the Department being recouped for expenditure.

4. Centralisation of Schools.—The question of centralisation of schools adopted so successfully in America has received some attention in the Commonwealth, and particularly in New South Wales. It is recognised that a single adequately-staffed and well-equipped central institution can give more efficient teaching than a congeries of small scattered schools in the hands of less highly trained teachers, and the small schools in some districts were therefore closed and the children conveyed to the central institution. The principle was first adopted in New South Wales in 1904, when the conveyance of pupils was authorised in the case of 12 schools.

5. Education in Sparsely-settled Districts.—It has always been the aim of the State to carry the benefits of education into the remotest and most sparsely-settled districts. This is effected in various ways. (i.) By the establishment of Provisional Schools, *i.e.*, small schools in which the attendance does not amount to more than about a dozen pupils, these institutions merging into the ordinary public school list when the attendance exceeds the minimum. (ii.) When there are not enough children to form a provisional school, what are known as Half-time Schools are formed, the teacher visiting them on alternate days. In still more sparsely-peopled districts, an itinerant teacher goes from house to house within a certain radius. Thus, in Queensland during 1915 the 17 itinerant teachers covered 441,200 square miles of country and travelled 47,705 miles to visit 1369 children. In this State also the Education Department has established what are known as Saturday Schools, in which small groups of children in outlying districts are visited by the nearest teacher on Saturdays and receive the benefit of several hours' instruction. These schools, of which there are now ten, have been warmly welcomed in the districts in which they are established, inasmuch as under this system the children "outback" receive a greater amount of instruction than is possible under the system of itinerant teachers. During 1915, the Education Department in Western Australia disbursed £6910 in "driving grants," *i.e.*, sums of money granted to parents whose homes are over three miles from the nearest schools, and who arrange to have their children driven in. In New South Wales and Western Australia parents in the thinly-peopled

areas are also allowed to club together and build a school, which receives aid from the Government in the form of a yearly subsidy and grant of school material. During 1915 subsidy was paid to 675 schools in New South Wales. (iii). An experiment on the part of New South Wales, the result of which was awaited with some interest, was the establishment in 1908 of a "travelling" school. A van was provided in which the teacher travelled, carrying with him a tent for himself and one to be used as a school, together with such books and apparatus as are required in a Primary School. So far very satisfactory results have been attained. Two additional schools of this nature were established in 1914. (iv.) There are also railway camp schools in operation on the sites of extensive railway works. Regulations were framed in Tasmania during 1912, providing for the subsidising of private teachers at a rate not exceeding £5 per pupil in districts too remote or sparsely settled to warrant the establishment of an ordinary provisional school. The schools of this nature established in 1915, numbered 55, with an enrolment of 686 scholars. During the year the department also paid for the conveyance of 164 children to schools by boat, vehicle, or train.

6. Evening Schools.—Evening Public Schools have been in existence for many years in some of the States, but their progress has been uncertain. In New South Wales the 47 Evening Continuation Schools had an average attendance in 1915 of 2104. In Victoria there was only one night school in operation for elementary work during the year. It is stated that future developments in evening instruction will be in the direction of continuation classes. Western Australia has evening continuation classes in the chief centres; the attendance in 1915 numbered 2225. Evening Continuation Schools have been established under regulation in South Australia, and are intended principally to help the working boy to improve his general education and to add to the store of knowledge most useful in his present work.

7. Higher State Schools.—(i.) In *New South Wales* public schools, which provided advanced courses of instruction for two years for pupils who had completed the primary course, were classed as *Superior Schools*. These were reorganised in 1913 as Day Continuation Schools, and divided into Superior Commercial Schools, Superior Junior Technical Schools, and Superior Domestic Schools for Girls. At the close of 1915 there were 29 schools in the Commercial group, 21 in the Junior Technical, and 41 in the Domestic group, with an average attendance of 2613 in the sixth and seventh classes. It is believed, however, that greater efficiency could be produced by reducing the number of these schools and establishing Central "Superior Public Schools" instead. Provision has also been made for the more advanced education of children in country centres by the establishment of 21 District Schools. These schools are specially staffed, and undertake the work of preparing students for admission to the training colleges. There are also 17 *High Schools* in the State. These had an enrolment in 1915 of 4971, with an average attendance of 4037. To meet the wishes of representatives of the registered Secondary Schools, the syllabus of the High Schools was amended in 1913, and now offers such a wide range of choice in the selection of subjects that there is no possibility of producing a merely stereotyped uniformity of study. Four "Intermediate" High Schools have been established to meet the growing demand for High School education in the metropolis, and others will be provided during the next few years in the city and in country centres. The average attendance at these schools in 1915 was 707. In accordance with Departmental regulations liberal provision is made for scholarships and bursaries to the higher State Schools. Under the provisions of the University Amendment Act of 1912, 199 exhibitions were awarded in 1915 to successful students at the leaving certificate examination, and 142 of these were given to pupils attending the State Schools.

The Sydney Grammar School (not a "State" School in the ordinary acceptation of the term), which receives a State endowment of £1500 a year, had, in 1915, a quarterly enrolment of 567 pupils, and an average attendance of 545.

(ii.) In *Victoria*, action was taken in January, 1912, to give effect to the provisions of the Education Act of 1910, with regard to the decentralisation of the system of secondary education. Seventeen Higher Elementary and 25 District High Schools have been established, and, to obviate congestion during the first year at the High Schools, Higher Elementary Classes are carried on at four centres. The average attendance at the Higher Elementary Schools in 1915 was 1464, of whom 709 were girls, and at the District High Schools 4365, of whom 2034 were girls. The qualifications for admission to the High Schools and Higher Elementary Schools are that pupils shall not be less than 12 years of age, shall possess the qualifying certificate or its equivalent, and that their parents shall undertake that the children will remain at school for four years. For the first two years there is a common course for all pupils, thereafter replaced by four special courses:—(1) A preparatory professional course for pupils preparing to proceed to the University, to enter the teaching profession, or to gain a sound general education; (2) an agricultural course to be taken in agricultural High Schools; (3) commercial course; (4) a domestic arts course for girls. Parallel with these courses an industrial course has been developed for pupils who intend to enter upon some form of industrial occupation.

Junior Technical Schools have been established apart from the High Schools in Melbourne, Ballarat, Bendigo, and Geelong, and there are schools also at Glenferrie, Collingwood, Sunshine, and Warrnambool.

Scholarships granted by the Department are as follows:—(a) One hundred junior, tenable for four years at a District High School or approved Secondary school, with allowance of £26 per annum for board where required; (b) Forty senior, tenable four to six years, with allowance of £40 towards expense of course at University; (c) Fifty junior technical, giving free tuition for two years at a Junior Technical or other approved school, and, in certain cases, board allowance of £26 per annum; (d) Fifty senior technical, giving free tuition for approved courses at Technical schools, with £30 allowance for day students, and £10 for night students; (e) Sixty teaching, similar in other respects to junior; (f) Twenty nominated courses, giving four to six years' free tuition in agriculture, mining, or veterinary science at the University, with allowance in certain cases of £26 per annum. Ten specially trained Nature Study teachers have been appointed to the High Schools and to Teachers' Training Colleges.

(iii.) Prior to the year 1912, *Queensland* did not possess any distinctly Secondary Schools under State control, but in February of that year High Schools were opened at Warwick, Gympie, Bundaberg, Mount Morgan, Mackay, and Charters Towers. Tuition at these schools is free, but students must pass a qualifying entrance examination. In smaller centres where an average of not less than 25 qualified pupils can be obtained, secondary tuition is provided at existing State Schools, and this has been arranged for at Brisbane Central (boys), Brisbane Central (girls and infants), Herberton, Childers, Gatton, Dalby, Pittsworth, and Roma. The enrolment at High Schools in 1915 was 741, and the daily attendance 631. There are, moreover, ten Grammar Schools—six for boys and four for girls, each of which is subsidised by the State to the extent of £750 per annum, and in addition receives a payment of £250 per annum for providing five scholarships for State scholars. In order to conserve the interests of children of poor parents, scholarships have been made available at any State High School, Technical School, Grammar School, or approved Secondary School, and allowances are granted up to £30 per annum to students who must live away from home, and £12 to those who live at home. The scholarships to Secondary Schools awarded in 1915 numbered 699. Of these, 165 boys and 107 girls were granted the allowance at £12 per annum, and 66 boys

and 55 girls received £30 per annum. There are also 20 University scholarships tenable for three years, and carrying an allowance of £52 per annum where the holder has to live away from home, and £26 per annum in cases where the holder can reside at home while taking the University lectures. The enrolment at the Grammar Schools in 1915 was 1574, and the average attendance 1432. Since the year 1909 these schools have been regularly examined by the Inspector-General of the Education Department.

(iv.) *South Australia.* Including the Adelaide High School, there were altogether twenty-nine District High Schools open in South Australia in 1915, with an enrolment of 2785 students, and a teaching staff of 111. In addition to giving secondary education, these institutions form a valuable source from which the Department can draw a supply of young teachers. Under existing regulations provision is made for the following scholarships:—(i.) Eight public exhibitions open to boys and girls who have been *bona fide* residents of South Australia for two years prior to the competitive examination. The exhibitions are tenable for three years at an approved school or college, carry free tuition and books, and an allowance of £22 per annum when the holder lives away from home. (ii.) Forty exhibitions, tenable for three years at a High School, are open to competition by children under 13 years of age in attendance at State Primary Schools. (iii.) Eight senior exhibitions, worth £40 per annum, and four of the value of £20, are tenable at the Adelaide High School or other approved Secondary School, and are open to pupils of any Secondary School. (iv.) Twelve Government bursaries, of which six are reserved for pupils of the High Schools. These are tenable at the University, and the holder receives £20 per annum and free tuition. (v.) The Government provides £180 per annum to assist students who are unable to attend the University during the day. Each studentship is limited to £10 for science students, and £7 for arts students.

(v.) *Western Australia.* A Modern School, designed to give a four years' course to pupils admitted at about the age of 13 years, was opened in Perth early in 1911. The first two years of the course are to a large extent common to all, but in the final two years specialisation is aimed at, in order to meet the needs of future University students, teachers, agriculturists, scientific and business men; and, in the case of girls, to give tuition in domestic economy to those desirous of it. Parents are required to undertake that their children will remain at the school for the full course. At the end of 1915 there were 350 students. No fees are charged at the Modern School. A High School organised on similar lines was opened with 128 pupils in May, 1914, at Kalgoorlie, and at the end of 1915 had 172 pupils. During 1909 the upper classes of schools in the largest centres of population were brought together into central schools, in order to secure more economical and effective teaching, and it is intended that these central institutions shall form the nucleus of future High Schools. Continuation classes were inaugurated in 1911, and were attended at 16 centres in 1915 by about 2300 pupils. The classes are intended to provide some measure of higher education to those who leave school as soon as they reach the compulsory age of 14 years. Admission to these classes is free, but pupils must attend regularly three evenings a week. Evening Schools are held in various parts of the State, but the work carried on is mainly primary. Junior and senior exhibitions were abolished in 1914 and provision made for 10 University exhibitions, each tenable for three years, and valued at £40 per annum for students living at home and £60 in the case of those living away from home.

(vi.) *Tasmania.* Up to the year 1912 the Department confined its efforts to the provision of primary education for the school children in Tasmania. In 1911, however, super-primary classes were formed in the larger schools, with an enrolment in 1911 of 200, and in 1912 of 400 pupils. It was recognised, however, that the previously existing scheme of scholarships and exhibitions was inadequate to meet the demands for higher education. High Schools were therefore opened in January, 1913, at Hobart and

Launceston, and intermediate High Schools were opened in 1915 at West Devonport and Burnie. These will cater for five classes of pupils—(i.) Those who desire to become teachers; (ii.) University students; (iii.) Commercial; (iv.) Mechanics; (v.) Home duties (girls). It is proposed to grant a leaving certificate at the end of a four years' course. The Bursaries Act of 1915 provides for 30 junior and 20 senior bursaries tenable for two years at an approved State School or registered Secondary School. They are valued at £2 per annum for a State School and £12 at a Secondary School, in addition to satisfactory boarding and travelling allowance where required. Four-fifths of the bursaries are awarded to country children.

8. Agricultural Training in State Schools.—The question of agricultural training in ordinary schools has received considerable attention in *New South Wales*. In 1905 a teacher of school agriculture was appointed to visit schools and districts for the purpose of giving instruction to teachers and scholars in the subject, the officer selected possessing the qualifications of a thorough acquaintance with agricultural work as well as school methods. The Education Department makes grants of seeds of various kinds to the schools having gardens, and in some instances has installed windmill plants to provide an adequate water supply. Under the direction of a capable head master, a college has also been opened at Hurlstone, near Sydney, at which practical lessons are given in elementary agriculture, and the institution also serves as a stepping-stone to the Hawkesbury Agricultural College. Scholarships are available to students of the Hurlstone Agricultural High School as it is now called, and these scholarships entitle the holder to a two years' free course at the Hawkesbury institution, with a grant of £1 10s. per annum for text books. The Department has also organised Rural Camp Schools for the purpose of giving teachers and scholars first hand knowledge of country industries.

The subject of Agricultural Colleges and Experimental Farms is dealt with in the section relating to Agriculture. (See page 375.)

In *Victoria*, what are termed Agricultural High Schools have been established at Ballarat, Colac, Leongatha, Mansfield, Mildura, Sale, Shepparton, Wangaratta, Warragul, and Warrnambool. Pupils must be at least fourteen years of age, and have passed beyond the curriculum of the elementary school, or else be able to afford satisfactory proof that they are qualified to profit by the instruction offered. The schools are practically secondary schools with an agricultural bias, and form a link between the rural school and the agricultural college. They are also used as a preliminary stage in the education of boys and girls who wish to become teachers and eventually graduate in the State Training College and the University. At some of the schools short courses in agriculture have been instituted for farmers' sons who have left school. A local council is appointed for each school, and exercises a general oversight over its operations. The experimental plots at these schools have aroused much interest among the farmers from the surrounding districts. A Supervisor of Agriculture reports and gives advice on the teaching of agriculture in the State Schools. A fair number of teachers have gained diplomas in agriculture, and will be in a position to give practical instruction at the High Schools. The elementary principles of agriculture are now taught in about 700 State Schools. A Horticultural Society has been established in connection with State Schools, and has now 650 schools in affiliation. The Society has a nursery and distributing centre for plants and seeds at Oakleigh.

Although *Queensland* possesses an Agricultural College and several experimental farms, there is no agricultural institution directly connected with the Education Department. The Government, however, provides a small grant to encourage the study of agriculture, horticulture, and kindred subjects in the State Schools, while a departmental teacher of agriculture visits the schools and gives assistance in agricultural, horticultural,

and nature study work. Some excellent experimental work has been carried out at a few of the schools, while gardens have been established wherever circumstances permitted. Short courses of instruction for teachers have been instituted at the Gatton College. A large number of teachers have gained a practical knowledge of milk and cream testing, and the subject is now added to the programme of instruction in several of the dairying-districts. Suitable land has been acquired for the establishment of a Farm School near Brisbane. At Nambour, it is proposed to establish a school with a practical trend, the boys to be taught agricultural science, farm carpentry, etc., and the girls cookery, dressmaking, and millinery.

In *South Australia*, the Public Schools' Floral and Industrial Society founded in 1880, holds annual exhibitions of school work from all parts of the State. In addition, it has for some years undertaken the distribution of flower seeds among school children at a very cheap rate, and has thus fostered the love of horticulture with remarkable success. A special instructor has been appointed to give assistance to teachers desirous of making their school gardens aid in nature study work.

In *Western Australia* an advisory teacher of nature study visits the schools and gives advice in regard to proper methods in horticulture and experimental agricultural work. The number and usefulness of the gardens and experimental plots attached to State Schools shew marked improvement each year. Early in 1914 a school was opened on the Narrogin State Farm. The students are taken directly from the primary schools, and the course of instruction lasts for two years. On its completion students are qualified to enter on the diploma course at the University.

9. **Teachers in State Schools.**—The distribution of the teaching staff in the State Schools during the year 1915, including teachers of needlework, was as follows:—

TEACHING STAFF IN STATE SCHOOLS, 1915.
(COMMONWEALTH.)

State.	Principal Teachers.		Assistants.		Pupil or Junior Teachers.		Sewing Mis- tresses.	Total.		
	Males.	Fem.	Males.	Fem.	Males.	Fem.		Males.	Fem.	Total.
New South Wales	2,357	1,072	1,317	2,972	...	63	109	3,674	4,216	7,890
Victoria ...	1,640	854	498	1,430	279	1,541	453	2,417	4,276	6,695
Queensland ...	809	638	393	926	369	569	...	1,581	2,135	3,724
South Australia ...	424	447	87	561	79	237	139	590	1,384	1,974
Western Australia	343	279	133	576	32	161	70	508	1,086	1,594
Tasmania ...	169	299	68	177	35	218	2	272	696	968
Northern Territory	2	3	...	2	...	...	...	2	5	7
Commonwealth	5,744	3,592	2,496	6,644	814	2,789	773	9,054	13,798	22,852

It will be observed that there is a fairly large number of junior teachers, or pupil teachers, as they are called in some of the States. The pupil teachers, will, however, in time disappear, and their places will be filled by young people who have undergone a course of training in schools specially provided for the purpose. Allusion to the methods of training will be found in the next paragraph.

10. **Training Colleges.**—The development of the training systems of the various States has been alluded to at some length in earlier issues of the Year Book. The present position is as follows:—

(i.) *New South Wales.* During 1915, the total number of students in the Blackfriars Training College was 782, women students numbering 538. A branch institution was opened early in 1911 at Hereford House for the training of candidates for the position of

teacher or assistant at small country schools, and this was attended in 1915 by 88 students. Several of the larger metropolitan schools are used as practice schools for giving training college students opportunity to acquire practical skill in teaching. At the College a complete set of Montessori apparatus has been prepared for demonstration work on the Montessori principles, and one of the College staff was recently sent to Italy in order to gain first-hand knowledge of the possibilities of the scheme. Opportunities are also afforded to other members of the teaching staff to visit foreign countries on study leave. The Principal of the Training College is also Professor of Education at the Sydney University. A new Teachers' College within the University grounds is now in course of erection. Up to the year 1913 the limits of accommodation at the Teachers' College were responsible for the employment of a number of untrained junior assistants, but it is now provided that no teacher enters the Service without at least six months' professional training. Nineteen schools of instruction attended by 531 male teachers were held in 1915. A school of instruction for female teachers was held at the beginning of 1915, at which 55 teachers attended.

(ii.) *Victoria.* Candidate teachers in this State are trained in the District High Schools or Agricultural High Schools, the period of probation being supplemented by a course of training for one year in the Senior Training College at Melbourne. A "short course" of training was introduced in 1913 for students who have passed the junior public or an equivalent examination. The course lasts for six months, about half the time being spent at lectures and the rest at practice in teaching. The present Training College dates back to 1874, but during the retrenchment period, viz., from 1893 to 1900, it was closed. The institution was reopened in February, 1900, with an enrolment of fifty-seven students. By the 30th June, 1915, the number had increased to 395, exclusive of country correspondence students. Departmental students numbered 122. The College lectures are also attended by considerable numbers of private students qualifying for certificates as Infant, Kindergarten or Primary teachers. A Training College Hostel has been established, and a Correspondence class formed for country teachers desirous of qualifying for the Infant Teacher's Certificate. The students at the Hostel receive training in domestic economy. Three city and six country practising schools are attached to the Training College. The University High School gave secondary teaching practice to 43 students in 1915, of whom 18 were non-departmental. A remodelled system of training came into force in 1914, providing, amongst other things, for the alteration of the name "Training College" to "Teachers' College," and for the classification of students in three groups, i.e., those training for secondary teacher's certificate, for sub-primary teachers, and for primary teachers.

(iii.) *Queensland.* In connection with the Teachers' Training College opened in Brisbane in 1914, the following scheme has been evolved:—Twenty-five special Teacher scholarships to the University, each with a currency of two years, are to be awarded annually. Living allowances at the rate of £52 per annum and £26 per annum respectively are provided, the former being paid to students living away from home. The University is to provide an Education group of subjects, including Logic, Psychology, and Education. Ten of the scholarships may be carried on for a third year, and five for a fourth year. Practical training is entrusted to a Training Master appointed by the Department. Those who attend the two years' course will be appointed to the Primary Schools, and the graduates from the three and four years' course will be available for High Schools and Secondary Schools. Short courses of training have been instituted for teachers to take charge of small schools, and arrangements have been made to allow an approved number of teachers already in charge of such small schools to obtain the benefit of the training. About 70 short course students are trained each year. In the meantime, young people of both sexes are admitted to the service as pupil-teachers at the age of 14 years, and receive training from the principals of the schools to which they are appointed. The schools for infants at Kangaroo Point and Rockhampton have been specially staffed and equipped for training

Kindergarten teachers, and Kindergarten methods have been introduced into most of the larger schools. Teachers of small schools are also greatly helped by the inspectors' practical and theoretical instruction in the various districts.

(iv.) *South Australia.* During the year 1910 the system of training in force in South Australia was remodelled and improved. Prior to this year students had devoted themselves chiefly to academic studies, but in 1910 provision was made for increased attention to the theory and practice of teaching. District courses of training were established to prepare teachers for work in primary and infant schools, and an advanced course was outlined for those who will become High School teachers. Each of these courses extends over a year. Students in the primary course who shew special ability may be granted a second year's training. The special course for Secondary Schools will give students an opportunity of obtaining the Diploma of Education. Provision has also been made for a six months' course of training for teachers of provisional schools. There were 50 students in the Training College in 1915. At the Adelaide High School there were 119 students training for teachers at the beginning of 1915, and 141 new candidates were admitted, 10 for one year, 41 for two years, and 90 for a three years' course. In December, 1915, 41 students left the school to commence teaching. There were also 251 candidates for the junior teachers' entrance examination, of whom 183 passed. Practice in teaching is gained by the student-teachers at the Observation School, which also provides training for teachers qualifying for appointment to provisional schools.

(v.) *Western Australia.* A Training College for teachers was opened at Claremont in 1902. The original building provided accommodation for sixty students, but extensions were opened in 1908, and the number in training in 1915 was 124. Two classes of training are provided for—the full course, lasting two years, and a special course of six months. The latter is intended for teachers of small schools in country districts, and the trainees are drawn partly from those already acting as teachers in these schools and partly from outside applicants who pass the necessary qualifying examination. Special practising schools have been established for the proper training in teaching and managing the smaller country schools. Three classes of students are admitted to the full course—(i.) from State or private secondary schools; (ii.) monitors from departmental schools; (iii.) ordinary teachers from the departmental schools. The standard of education required on entering is the school-leaving or matriculation certificate, but a special examination is held for candidates possessing neither. The course is both academic and practical, the former being co-ordinated with the University. As a help in the practical work there is an adjunct school attached to the College, and several practising schools, two of which are for infants only. At the Claremont Infants' School a room has been set apart for work on Montessori lines.

(vi.) *Tasmania.* Consequent on the establishment of State High Schools and a lectureship in Education at the University, the Department has reorganised the scheme of work and raised the standard of entrance to the Training College. The junior teachers will in future receive their education and preliminary professional training in the High Schools and practising schools. From 1917 onwards it is hoped that the bulk of the students will have matriculated, and on entering the College will attend University lectures in Arts and Science, leaving the College staff to devote itself to purely professional training, and instruction in special subjects. Students in training during 1915 numbered 64.

The practical training of students and junior teachers is carried out in Hobart, while the training of candidates for the office of provisional teacher and the preliminary training of junior teachers were undertaken at the East Launceston practising schools. Schools of instruction for teachers of small schools are conducted at regular intervals by the instructors.

11. **School Savings Banks.**—Returns shew that these institutions are in existence in three States. In New South Wales, there were 744 banks at the end of 1915, the deposits amounting to £27,204, and withdrawals to £28,990. Since the establishment of the banks in 1887, deposits totalled £525,455, and withdrawals £514,278. Of the latter sum £120,236 was placed to the children's accounts in Government Savings Banks. In South Australia, 465 schools had 20,158 depositors, with £7155 to their credit; and in Western Australia, there were 365 school banks, with 20,460 depositors and £26,697 to their credit.

12. **Expenditure on State Schools.**—The net expenditure on State education during 1901 and for the five years ended 1915 is shewn below. The figures do not include expenditure on buildings, which is shewn separately in a subsequent table.

EXPENDITURE ON MAINTENANCE, STATE SCHOOLS, 1901 AND 1911-15.

(COMMONWEALTH.)

Year.	N.S.W.	Victoria.	Qld.	S. Aust.	W. Aust.	Tas.	Nor. Ter.	C'wealth.
	£	£	£	£	£	£	£	£
1901 ...	623,734	656,907	256,245	152,006	89,694	37,710	...	1,816,296
1911 ...	1,048,584	884,276	351,942	198,979	187,301	84,317	629	2,706,028
1912 ...	1,285,410	893,649	393,543	217,874	220,780	86,500	674	3,098,430
1913 ...	1,318,326	975,977	432,751	243,094	258,171	91,513	1,942	3,321,774
1914 ...	1,366,955	995,120	458,466	254,485	290,929	105,147	1,830	3,472,932
1915 ...	1,428,873	1,033,292	462,842	260,279	299,505	110,981	1,246	3,597,018

The expenditure per head of average attendance for each of the years given above will be found in the succeeding table.

COST PER HEAD OF AVERAGE ATTENDANCE, STATE SCHOOLS, 1901 AND 1911-15.

(COMMONWEALTH.)

Year.	N.S.W.	Victoria.	Qld.	S. Aust.	W. Aust.	Tasmania.	Nor. Ter.	C'wlth.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
1901	4 0 10	4 7 0	3 12 9	3 9 5	5 9 3	2 12 11	...	4 0 8
1911	6 10 5	5 13 11	5 0 5	5 12 10	6 7 2	4 13 0	10 9 7	5 16 8
1912	7 10 4	5 12 1	5 1 9	5 6 8	6 14 0	4 8 5	9 9 10	6 4 11
1913	7 8 1	6 4 2	5 8 3	5 12 3	7 2 5	4 6 5	28 1 1	6 8 9
1914	7 3 9	5 17 0	5 10 1	5 9 11	7 11 1	4 13 2	18 9 8	6 7 7
1915	7 7 1	6 4 0	5 8 9	5 7 4	7 10 0	4 15 4	9 13 2	6 8 11

Expenditure on school buildings in each of the years quoted was as follows:—

EXPENDITURE ON STATE SCHOOL BUILDINGS, 1901 and 1911-15.

(COMMONWEALTH.)

Year.	N.S.W.	Victoria.	Qld.	S. Aust.	W. Aust.	Tasmania	Northern Territory.	C'wealth.
	£	£	£	£	£	£	£	£
1901 ...	57,663	36,040	33,421	13,656	49,073	7,762	...	197,615
1911 ...	176,194	117,048	53,953	35,581	58,406	16,548	...	457,730
1912 ...	287,522	167,657	67,637	40,855	73,920	9,423	2,117	649,131
1913 ...	347,183	158,028	77,715	59,385	61,464	16,456	791	721,022
1914 ...	302,566	198,377	107,113	56,840	36,513	20,233	...	721,642
1915 ...	234,281	315,869	83,159	32,163	51,252	20,640	214	737,578

The net total cost and the net cost per scholar in average attendance during the year 1915 were as follows:—

NET TOTAL COST, STATE SCHOOL EDUCATION, 1915.

(COMMONWEALTH.)

Item.	N.S.W.	Vic.	Q'land.	S. Aust.	W. A.	Tas.	N. T.	C'wealth.
Net cost of education, including buildings	£ 1,668,154	£ 1,349,161	£ 546,001	£ 292,442	£ 350,757	£ 131,621	£ 1,460	£ 4,334,596
Per scholar in average attendance	£8 11/3	£8 1/10	£6 8/4	£6 0/7	£8 15/9	£5 13/0	£11 6/4	£7 15/5

The average for the Commonwealth in 1901 was £4 9s. 3d. per scholar in average attendance.

§ 3. Private Schools.*

1. **School Teachers, etc., in 1915.**—The following table shows the number of Private Schools, together with the teachers engaged therein, and the enrolment and average attendance in 1915:—

PRIVATE SCHOOLS, 1915.

(COMMONWEALTH.)

State.	Schools.	Teachers.	Enrolment.	Average Attendance.
New South Wales	718	3,682	64,863	55,163
Victoria	509	1,879	60,865	50,000
Queensland	157	852	18,520	15,836
South Australia	164	634	11,582	9,416
Western Australia	124	466	10,942	9,532
Tasmania	92	328	6,109	4,800
Northern Territory	1	2	76	57
Commonwealth	1,765	7,843	172,957	144,804

The totals for New South Wales include returns from the Sydney Grammar School, which receives a yearly State subsidy of £1500, and which, in 1915, had an enrolment of 567, and an average attendance of 545.

The figures for Queensland include the returns from Grammar Schools, of which there are ten—six for boys and four for girls. These schools are governed by boards of trustees, partly nominated by Government, and partly by the subscribers to the funds. The trustees make regulations regarding the fees of scholars, the salaries of teachers, and generally for the management of the schools. Each school is endowed by the Government at the rate of £750 per annum, together with an additional £250 to provide district scholarships, of which five were allotted to each school from 1st January, 1911. During the year all the Grammar Schools were inspected by the departmental Inspector-General.

2. **Growth of Private Schools.**—The enrolment and average attendance at Private Schools during 1891, 1901 and in each year of the period 1903 to 1915 are as follows:—

* Private Schools include all schools not wholly under State control. The term "private" though popularly applied, is, of course, a misnomer.

ENROLMENT AND ATTENDANCE AT PRIVATE SCHOOLS, 1891 to 1915.
(COMMONWEALTH.)

Year.	Enrolment.	Average Attendance.	Year.	Enrolment.	Average Attendance.
1891 ...	124,485	99,588	1911 ...	160,794	132,588
1901 ...	148,659	120,742	1912 ...	164,085	133,940
1908 ...	152,399	125,530	1913 ...	161,204	132,679
1909 ...	164,428	127,069	1914 ...	162,813	135,141
1910 ...	158,694	129,872	1915 ...	172,957	144,804

The small rate of increase in private school enrolment and attendance is due in a large measure to the development of the State Educational systems, especially as regards the provision of secondary education.

3. Registration of Private Schools.—Until recent years the various State Governments had comparatively little control over privately conducted Schools. With the advance of modern educational thought the position is improving, but still leaves much to be desired. It is evident that without a thorough system of registration there will always be a difficulty in regard to enforcing the compulsory clauses of the various Education Acts. Moreover, advanced educational thought demands complete supervision, not only of curricula, but of all matters pertaining to school hygiene.

In New South Wales, under the provisions of the Bursary Endowment Act of 1912, 39 non-State Schools were inspected by the Departmental Inspector of Secondary Education for registration or renewal thereof. It is pointed out by the inspector that the schools obtaining registration under this Act will gain an advantage over non-registered schools which will tend to increase their yearly capital value.

In Victoria, up to the year 1905, no attempt had been made to bring Private Schools under general administrative control, but the Registration of Teachers and Schools Act of 1906, and the Education Act of 1910, established a registration scheme under a special committee. At present, the committee consists of nine members of the Council of Education. Section 60 of the Act of 1910 also empowers the Minister of Education to authorise the inspection of any school (other than a State School) in order to ascertain whether the instruction given is satisfactory. The inspector of registered schools has on several occasions pointed out that there is a fair number of institutions which are very unsatisfactory, both as regards buildings and quality of instruction given therein.

In Queensland, with the exception of the Grammar Schools, which are now examined annually, there is practically no control over the private schools, beyond the fact that they may submit themselves to inspection if so desired, and there is apparently no provision in South Australia for any Government supervision over private school affairs.

In Western Australia, non-Government schools must be declared efficient by the Education Department if attendance at them is to be recognised as fulfilling the requirements of the law, and the school registers must be open to the inspection of the compulsory officers of the Department.

In Tasmania the Education Act requires the teachers of other than State Schools "to furnish during January of each year returns shewing attendances at such schools." Despite the fact that penalties are prescribed for non-compliance with the law, nevertheless many teachers neglect to return the forms sent out. Provision has been made for registration of private teachers and schools very much on the lines adopted in Victoria. The Act declares that all persons who were employed in a *bona fide* manner for at least three months before 25th October, 1906, were entitled to be registered as teachers without submitting proof of professional qualifications. No person can be registered as a private teacher since July, 1907, unless the Board is satisfied as to his fitness for the work.

4. German Schools in Australia.—The accompanying particulars in regard to German Schools in Australia have been extracted from information supplied by the State Education Departments.

New South Wales.—In this State there are 3 private schools conducted by German teachers, and attended entirely by children of German descent. The schools are situated at Jindera, near Albury (33 pupils); Duck Creek, near Temora (36 pupils); and Gidgenburg, near Temora (14 pupils). The schools are inspected by the Departmental officers, and school work is conducted in English. The use of German as the language of instruction is not permitted in any school.

The scholars attending the following State schools consisted largely of children whose parents were known to be of German descent:—Alma Park, Burrumbuttock (East and North), Gerogery Railway Station and Gerogery West, Glenellen, Hovell, Major's Plains, Jindera, Lavington, Walkyrie, Walla Walla. Many of the scholars at these schools could speak German before they attended school.

Victoria.—There are 10 registered private Lutheran schools in Victoria, with an attendance of 324 pupils. In connection with these schools it has been laid down by the Government that the German language is not to be employed in teaching, and books, charts, etc., in German are prohibited. Religious instruction in German is not permitted, and the syllabus of instruction must be on lines laid down by the Education Department, and be such as will promote good citizenship and loyalty to the British Empire. There are no State German schools.

Queensland.—There are no German schools in operation, and it is stated that German is not used as language of instruction in any school.

South Australia.—In the year 1916 there were 52 Lutheran schools in this State, practically all under the control of the Lutheran Church. In many of these schools the teaching was carried on in the German language and English was hardly spoken at all. Religion as taught by the Lutheran Church formed an important part of the instruction.

The Education Act of 1915 provided that teaching should be through the medium of the English language for at least four hours a day. The Education Amendment Act of 1916, however, provided that the Government should take over and carry on all Lutheran schools not earlier than 30th June, 1917, and not later than 31st December, 1917, and that no language but English shall be spoken in the schools.

Western Australia and Tasmania.—There are no German schools in either of these States.

§ 4. Free Kindergartens.

The following information regarding Free Kindergartens in the Commonwealth has been compiled from particulars supplied by the principals of the chief institutions in each State, except in the cases of Victoria and Western Australia, the details for which were furnished by the Education Departments.

FREE KINDERGARTENS IN THE COMMONWEALTH, 1915.

State.	No. of Schools.	Average Attendance.	Permanent Instructors.	Student Teachers.	Voluntary Assistants.
New South Wales (Sydney) ...	9	480	14	88	11
Victoria (Melbourne) ...	19	867	39	11	224
(Ballarat) ...	1	50	2	6	12
Queensland (Brisbane) ...	6	152	23	16	2
South Australia (Adelaide) ...	4	200	7	25	1
Western Australia (Perth) ...	2	45	3	10	...
Tasmania (Hobart) ...	2	64	3	6	13
(Launceston) ...	1	35	6	5	1
Total ...	44	1,893	97	167	264

It must, of course, be distinctly understood that the information given above refers to institutions under private kindergarten unions or associations, and is exclusive of institutions controlled by the Education Departments of the various States.

§ 5. Universities.

1. **Origin and Development.**—The history of the foundation and progress of the four then existing Australian Universities was traced at some length in Year Books I. and II. In the present volume space will permit of only a very brief reference to the subject.

(i.) *University of Sydney.* The Act of Incorporation of the University of Sydney received Royal Assent on the 1st October, 1850, and the first Senate was appointed on the 24th December of that year. The first matriculation examination was held in October, 1852, when 24 candidates passed the required test, and the formal inauguration ceremony took place on the 11th October of the same year. A Royal Charter was granted to the University on the 27th February, 1858. Women students were admitted in 1881. The passing of the University (Amendment) Act of 1912 marks an important epoch in the development of the educational system of New South Wales. The Act aims at placing the University in a more effective position as the culminating point in a thoroughly co-ordinated system of State education, and it is claimed that the passing of this measure makes the educational system—from the Primary Schools through the Secondary Schools to the Technical Colleges or to the University—form a progressive and continuous whole. Under the new Act the Constitution of the Senate was radically changed, and this body now consists of—four Fellows appointed by the Governor, one elected by members of the Legislative Council, one elected by members of the Legislative Assembly, five representatives of the University teaching staff, ten elected by graduates of the University, and three elected by the aforesaid Fellows. The professorial representatives hold office for two years, and the other Fellows for five years. In addition, it was provided that in view of their distinguished services, the late Chancellor, Sir Normand MacLaurin, and the Vice-Chancellor, Judge Backhouse, should each during his life be a Fellow in addition to the ten Fellows elected by the graduates. The second part of the Act contains a feature of outstanding importance, in that it provides for the allotment of exhibitions in the proportion of 1 for every 500 of the population of New South Wales between the ages of 17 and 20, or in such other ratio as may be determined by Parliament. These exhibitions, which carry exemption from all fees, are not restricted to any particular faculty in the University, and are principally allotted in order of merit as shewn by examinations for leaving certificates at the State Schools. Pupils of registered Secondary Private Schools are also eligible for leaving certificates on the same conditions as those of the State Schools. To gain a leaving certificate a candidate must have satisfactorily completed an approved four years' course of study. Five per cent of the total number of exhibitions allotted in any year are available for successful candidates at the written examination, even though they be ineligible for a leaving certificate. For the year 1915 Government aid to the University was £44,675. At the inception of the University there were only three professorships. The present staff consists of 23 professors, including the Director of Military Science, eight assistant professors, and 121 lecturers and demonstrators. There are, in addition, 10 honorary lecturers, various honorary demonstrators, as well as various miscellaneous assistants in laboratories, and three curators of museums.

(ii.) *University of Melbourne.*—This institution was established by Act of Parliament assented to on the 22nd January, 1853, and its first Council was appointed on the 11th April of that year. The foundation stone of the main building was laid on the 3rd July, 1854, and the University was formally inaugurated on the 13th April, 1855. By Royal Letters Patent, issued in 1859, its degrees are, like those of the Sydney institution, declared of equal status with those of any other University in the British Empire. Women students attended lectures for the first time in 1881. The University, which began in 1855 with Schools of Arts and Laws, has now a staff of 18 professors, 71 lecturers and demonstrators, as well as various assistants. The Conservatorium of Music has a staff numbering 24.

(iii.) *University of Adelaide.* This University was established by Act of Parliament in 1874. Its origin and progress was largely due to the munificence of the late Sir

Walter Watson Hughes and Sir Thomas Elder, G.C.M.G., the total gifts of the latter amounting to over £100,000. The academical work of the institution was commenced in March, 1876, when eight matriculated and fifty-two non-graduating students attended lectures. The foundation stone of the University buildings was laid on the 30th July, 1879, and the buildings were opened in April, 1882. In 1881, by Royal Letters Patent, the degrees granted by the institution were recognised as of equal distinction with those of any University in the British Empire. The Elder Conservatorium of Music was opened in 1898. Power was given by Act of Parliament in 1880 to grant degrees to women. At first there were only four professorships in the University, whereas the present staff consists of eleven professors, thirty-three lecturers with the necessary complement of demonstrators, etc., while the staff at the Conservatorium, not included in the foregoing figures, numbers fourteen.

(iv.) *University of Tasmania.* The Act to establish the University of Tasmania (Hobart) was assented to on the 5th of December, 1889. At the present time, the institution, which is small but efficient, possesses a staff of five professors, one assistant professor, eight independent lecturers, and two demonstrators. Under Statute dated 13th April, 1905, the Zeehan School of Mines and Metallurgy was affiliated to the University. To provide for extra-University tuition in History, Economics, and other subjects, the Government made a grant to the University of £500 in 1914, which was raised to £675 in 1915. Tutorial classes have been formed at Hobart and Launceston, and Extension Committees have been formed in various country centres.

(v.) *University of Queensland.* The Act to establish the University of Queensland was passed in 1909, and the first Senate was appointed on the 14th April, 1910. The University was opened on the 14th March, 1911, when 60 students were matriculated. Provision has been made for a Correspondence Study department in connection with the institution, and at the request of the Brisbane branch of the Workers' Educational Association, weekly lectures are given in History and Economics. At the present time there are four professors, *i.e.*, one each of classics, chemistry, engineering, and for mathematics and physics, with a liberal complement of lecturers and demonstrators. University extension lectures are delivered at important country centres.

(vi.) *University of Western Australia.* The University of Western Australia was established under an Act which received Royal assent on the 16th February, 1911, and the first Senate was appointed on the 13th February, 1912. There are now professorships in agriculture, biology, chemistry, English, geology, history and economics, mathematics and physics, and mining and engineering, in addition to eight lecturers and seven demonstrators, etc. The Chair of Agriculture was endowed by Sir Winthrop Hackett. Students of the Perth Technical School and the Kalgoorlie School of Mines are admitted to the first year examinations in certain subjects provided they have matriculated. The institution was opened in March, 1913.

2. **Teachers and Students of Universities.**—The following table shows the number of professors and lecturers and the students in attendance at each of the Commonwealth Universities during the year 1914:—

UNIVERSITIES.—TEACHERS AND STUDENTS, 1915.

University.	Professors.	Lecturers.	Students attending Lectures.		
			Matriculated.	Non-matriculated.	Total.
Sydney	31	121	1,385	437	1,822
Melbourne,	18	71	...	...	1,200†
Adelaide	11	33	370	319	689†
Tasmania (Hobart) ...	6	8	92	15	107
Queensland (Brisbane)	4	21	227	38	265
West. Australia (Perth)	8	15	132	82	214

* Exclusive of 151 music students.

† Exclusive of 324 music students.

3. **University Revenues.**—The income of the Universities from all sources during the year 1915 was as follows:—

UNIVERSITIES.—REVENUE, 1915.

University.	Government Grants.	Fees.	Other.	Total.
	£	£	£	£
Sydney	44,675	19,181	30,625	94,481
Melbourne	29,302	36,486	7,911	73,699
Adelaide	12,060	9,265	5,346	26,671
Tasmania (Hobart)	6,208	1,394	823	8,425
Queensland (Brisbane)	14,275	3,500	5,035	22,810
Western Australia (Perth)	13,500	635	2,065	16,200

The column "Other" includes the receipts from private foundations. The extent to which the Universities have benefited by private munificence will be apparent from the following table:—

PRINCIPAL PRIVATE BENEFACTIONS TO AUSTRALIAN UNIVERSITIES.

University of Sydney.		University of Melbourne.		University of Adelaide.	
Donor.	Amount.	Donor.	Amount.	Donor.	Amount.
	£		£		£
J. H. Challis	250,750	Sir Samuel Wilson	30,000	Sir Thos. Elder	98,760
Sir P. N. Russell	100,000	James Stewart	25,624	Sir W. Hughes	20,000
Thos. Fisher	30,000	Hon. Francis Ormond	20,000	Hon. J. H. Angus	10,000
Edwin Dalton	8,000	John Hastie	19,140	R. Barr Smith	10,150
Hugh Dixon	7,050	Robert Dixon	10,837	Other donations	18,451
Hon. Sir W. Macleay	6,000	John Dixon Wy-			
Mrs. Hovell	6,000	selaskie	8,400		
Thos. Walker	6,200	David Kay	5,764		
Other donations	54,794	Henry Dwight	5,000		
		Wm. Thos. Mollison	5,000		
		Other donations	51,570		
Total	£ 468,794.	Total	£ 181,335	Total	£ 157,361

In addition to the sum of £6000 shewn above, the Hon. Sir W. Macleay also presented the Museum of Natural History to the University.

The credit balances of some of the above endowments now amount to very considerable sums. For example, on the 31st December, 1915, the Challis Fund amounted to nearly £312,000, and the Fisher bequest to over £41,000. The cash balance at the end of 1915 on account of all private foundations to Sydney University stood at £257,119. In the case of Melbourne University the Stewart fund on the 31st December, 1915, stood at £30,550, the Hastie at £19,266, the Dixon fund at £13,131, etc.

In addition to the above there were various other bequests to Sydney University—*e.g.*, collection of Egyptian antiquities, etc., by Sir Charles Nicholson, and Natural History collection by Mr. Geo. Masters, while the building for the Natural History Museum was given by Sir W. Macleay. Numerous prizes and scholarships have also been given to the various colleges. In Melbourne, the Hon. Francis Ormond's benefactions to Ormond Collège amounted to about £108,000. With a view to advancing the course of education in agriculture, forestry and allied subjects, Mr. Peter Waite transferred to the Adelaide University in 1914 the whole of the valuable Urrbrae estate at Glen Osmond. The estate comprises 134 acres of land with a fine mansion. Private benefactions to the University of Tasmania and the newly-established University of

Queensland amount to £3280 and £15,000 respectively. In Western Australia the chair of Agriculture was founded by an endowment of Sir Winthrop Hackett, first Chancellor of the University, who made available also an annual sum of £900 for the establishment of a Department of Agriculture.

4. **University Extension.**—These lectures were instituted at Sydney University in 1886, but under a statute of the Senate, approved of in 1892, a Board was appointed, which was empowered from time to time to recommend to the Senate the names of suitable persons for giving courses of lectures, and to hold examinations in the subjects of the lectures. The Board receives and considers applications from country centres, and makes provision for engaging lecturers and managing the entire business connected with the various courses. The project has only met with fair success, no lectures having been given in some years, but lately there appears to be an awakening of interest in the matter. The Board also arranged for courses of lectures in other States. In 1915 the average attendance at extension lectures in New South Wales was 150.

University extension lectures in Victoria date from the year 1891, when a Board was appointed by the Melbourne University for the purpose of appointing lecturers and holding classes and examinations at such places and in such subjects as it might think fit. Interest in University extension has varied in Victoria, the attendance at the various centres being estimated at 1750 in 1915.

The Adelaide University has also instituted short courses of extension lectures in Arts and Science, to which students are admitted on payment of a nominal fee. Public intimation of these lectures is made from time to time during the session. For 1915 a course of nine lectures was provided at the University, and courses are given in various country centres as desired.

The University of Tasmania provides for courses of lectures at Launceston, which are delivered weekly by members of the University teaching staff. Attendance at extension lectures in 1914 numbered 55.

As pointed out previously, a correspondence study department has been inaugurated in connection with the University of Queensland in order to overcome, as far as possible, the difficulties of students who desire to benefit by University teaching, but who for various reasons are unable to attend the lectures. At present the work of this department is confined to the Arts course.

In Western Australia provision has been made for the giving of courses of extension lectures in Perth and suburbs, and also—by arrangement with local committees—in country centres. The professor of agriculture visits the chief farming districts for the purpose of giving lectures to, and holding conferences with, the primary producers. Special short courses for farmers are given at the University.

5. **Workers' Tutorial Classes.**—Chiefly as the result of a visit to Australia in 1913 by Mr. Mansbridge, Secretary of the Workers' Educational Association of Britain, a movement has been incorporated having for its object the bringing of the University into closer relationship with the masses of the people, and thereby providing for the higher education of the workers in civic subjects. In New South Wales the Workers' Educational Association was at once formed, and similar branches of the movement have since been established in all the States of the Commonwealth and in New Zealand. The Government of New South Wales granted the University of Sydney the sum of £1000 to initiate the scheme for tutorial classes. In that State the number of classes was by 1917 about 40, and the number of students about 1000, while the Government grant has increased to £5000. There are direct grants in all other States except Western Australia, and also in New Zealand. The particulars of grants to classes are as follow:—New South Wales, £5000, 40 classes; Victoria, £300, 4 classes; Tasmania, £500, 6 classes; South Australia, £1300, classes just beginning; Queensland, £1000, 3 classes; New Zealand, £1200, 24 classes; Western Australia, no grant, 1 class. In addition, a great many preparatory classes and study circles are organised by the Association, numerous courses of public lectures are delivered, and educational conferences promoted. In New South Wales, the Association organised an important representative conference on

"Trade Unionism in Australia" in 1915, the report of which has been issued in book form. Another conference on the "Teaching of Sex Hygiene" was held in 1916, the report of which is just about to be published. The great majority of students and members of the Workers' Educational Association are artisans, and the principal subjects chosen in all States are Industrial History, Economics, Political Science and Sociology, though Psychology, Philosophy, Literature, and Biology are occasionally selected.

§ 6. Technical Education.

1. **General.**—Although provision has been made in some of the States in respect to many necessary branches of technical education, the total provision made would imply that this branch of education has not been regarded as of great importance. As will be seen later on, the expenditure on technical education for the whole of Australasia is comparatively insignificant. The question of apprenticeship is dealt with in the sections dealing with "Manufacturing Industries" and "Labour and Industrial Statistics."

2. **New South Wales.**—The present organisation of technical education in this State dates from the year 1883, when a Technical Education Board was appointed as a result of suggestions made at the Technological Conference held in 1879. This Board continued its functions till November, 1889, when it was dissolved, and the work has thenceforward been carried on as a branch of the Public Instruction Department. The chief centre of activity is, of course, in Sydney, where the Technical College and Technological Museum are situated, the college having been opened for the reception of students early in 1892. Colleges were also erected in some of the chief country towns—at Maitland in 1890; Newcastle 1896; Bathurst 1898; Broken Hill 1898; Albury 1899; and Goulburn 1902. In other centres classes were established in various subjects whenever the prospects were sufficiently encouraging. Up to the year 1912 the provision for technical education is stated to have partaken more or less of the nature of successive accretions on the original humble beginnings, rather than to have aimed at development in accordance with a definite plan. With the systematisation of the other branches of education, the necessity for more effective organisation of the technical side became imperative, and in 1913 a rearrangement was effected. Under the new conditions Trades Schools will supersede the branch Technical Colleges, with the exception of that at Newcastle. Entrance to the Trades Schools will be conditional on a student being actively engaged in the trade concerned during the day and possessing a certain degree of preparatory knowledge. The latter qualification is assured by the possession of a certificate from a Commercial Superior Junior Technical School or an Evening Continuation Junior Technical School. It is proposed to build new Trades Schools in several of the suburbs of Sydney, and to establish institutions in the country wherever circumstances demand. The co-operation of both employers and employees has been sought and obtained, and while at first there will be some diminution in the number attending the classes, this will be counterbalanced by increased efficiency. At the beginning of 1913 a conference was held between the education authorities and leading employers and employees with a view to deciding on a scheme of organisation of the system of technical education. Sub-conferences were held for each trade or group of trades. In view of the information received, the Director of Education submitted a scheme to the Minister, and the scheme was approved at the end of November. Under the new plan the instruction will be given in two divisions—(1) Trade Courses; (2) Higher Technical Courses. Instruction in the Trade courses will be really continuation trade instruction, *i.e.*, supplementary to actual workshop practice under an employer. Attempts to train youths to be tradesmen in the College will be abandoned, and only those actually engaged as apprentices or journeymen will be admitted to the College classes. Entrance tests are prescribed so as to ensure that students admitted to the courses will possess sufficient preparatory knowledge to benefit by them, but journeymen desirous of improvement may join at any time. Advisory committees have been appointed for each trade or group of trades. The first two or three years' course of instruction will be given in the Trade Schools, of which

there are ten, and the last two or three years' at the Technical Colleges, of which there are two, one at Sydney and one at Newcastle. The higher courses will embrace instruction in advanced trades work qualifying for the position of manager or foreman, but no attempt will be made to train for the professional standing. It is hoped, however, that the scheme will develop so that part of the graduates may proceed to the University. Admission to the higher courses will eventually be restricted to those who have either graduated in the Trade Schools of the Department, or who evidence possession of a similar standard of knowledge. A liberal scheme of scholarships has been provided for students passing from the day or evening Junior Technical Schools or Domestic Science Schools to the Trades and Science Schools, as well as scholarships to the University at the close of the diploma course.

The table below gives some idea of the development of technical education in New South Wales:—

TECHNICAL EDUCATION, NEW SOUTH WALES, 1911-15.

Year.	Number of Classes.	Number of Enrolments.	Average Weekly Attendance.	Number of Lecturers and Teachers.	Fees Received.
1911	875	23,621	15,074	329	£ 16,395
1912	793	28,082	17,749	320	15,846
1913	582	16,193	12,214	286	18,760
1914	513	13,687	11,523	289	10,779
1915	519	13,000	9,257	298	9,830

At the beginning of 1913 the Sydney Technical High School and the Hurlstone Agricultural High School were removed from the control of the technical branch and placed under the Inspector of Secondary Schools. Reference to the Agricultural Colleges will be found in the section dealing with Agriculture.

3. **Victoria.**—Technical instruction in mining has for many years received considerable attention in Victoria, the Ballarat School of Mines, which was established as far back as 1870, having achieved an Australasian reputation. Fine work was also done at the School of Mines in Bendigo, and later on excellent courses of training were evolved at the Working Men's College in Melbourne. The general scheme of instruction, however, lacked cohesion, and it was not until after the publication of the Report of the Royal Commission on Technical Education, which was appointed in 1899, that many defects were remedied. It is hoped that the Agricultural and District High Schools will serve as an effective connecting link between the ordinary State Schools and the Technical Schools, as also the Junior Technical Schools established in and around Melbourne, and at Ballarat, Bendigo, Geelong, Sunshine, and Warrnambool. At present there are 22 Technical Schools receiving State aid, and of these 7 afford instruction in Science, Art, Commercial and Trade subjects; 8 in Art, Trade, and Science; 2 in Art, Commerce, and Trade; 1 in Science, Commerce, and Art; 1 in Art and Commerce, while 3 confine their teaching to Art. The largest technical institution in Melbourne is the Working Men's College, founded in 1887. The College, in addition to giving instruction in a large number of technical subjects, is also a School of Mines. Six of the schools, viz., the Working Men's College, and the Schools of Mines at Ballarat, Bendigo, Bairnsdale, Maryborough and Stawell are classed as Certified Science Schools, and provide full courses in metallurgy and mining engineering, extending over three or four years. There are at the present time eight Junior Technical Schools in existence, giving a two years' course of instruction to boys between the ages of 12½ and 15 years.

Provision has been made for the establishment of Technical Schools at Brunswick, Footscray, South Melbourne, and Ballarat. The Committee of the Mechanics' Institute at Prahran has erected a building at a cost of £17,000, to a design approved by the Department, and has made it available without rent as a Technical School, the Department undertaking the expenses of equipment and maintenance.

In his report for 1913-14, the Chief Inspector of Technical Schools alludes to the necessity for an Employment Officer, in order to ensure that boys who have had vocational training will be able to find suitable situations when their term has expired.

TECHNICAL EDUCATION, VICTORIA, 1911-15.

Year.	No. of Subjects Taught.	No. of Enrolments.	Fees Received.
1911	90	7,008	£ 12,991
1912	101	7,923	11,664
1913	92	9,036	13,054
1914	103	10,249	12,968
1915	110	10,782	14,992

The average attendance in 1914 was 6487, and in 1915, 6852.

4. **Queensland.**—The control of technical education in Queensland was removed from the hands of the local Committee in 1905, and vested in the Education Department. At present the Director is assisted in his administration by a Superintendent, and an Inspector of Technical Colleges. During 1915 there were 15 colleges in operation—Bowen, Bundaberg, Cairns, Central, Charters Towers, Gympie, Ipswich, Mackay, Maryborough, Mount Morgan, Rockhampton, Sandgate, Toowoomba, Townsville, Warwick, and branch classes of these colleges were held in various country centres. The progress of technical education since 1910 is shown in the following table:—

TECHNICAL EDUCATION, QUEENSLAND, 1911-15.

Year.	Number of Classes.	Enrolments.	Average Weekly Attendance.	Number of Teachers.	Fees Received.
1911	381	7,089	5,567	219	£ 10,349
1912	363	7,851	5,589	238	9,794
1913	353	7,958	6,009	247	11,069
1914	355	7,820	6,481	255	11,326
1915	358	7,522	6,258	271	10,761

Greater attention is being devoted to the development of trade classes, and the Technical College authorities have been assisted by the University Professors in the preparation of a properly organised system of Trade instruction. It is proposed to establish a preparatory day trade school at Ipswich. Trade Advisory Committees have been inaugurated in connection with several of the subjects of instruction at the Central Technical College. The Department now pays about £2000 per annum to the Technical Colleges for the instruction of selected State School pupils in approved subjects. Tuition by correspondence is given by the Central Technical School. It is believed that the raising of the school age to 14 years, coupled with the establishment of High Schools, will result in a more effective co-ordination between ordinary and technical education in the State.

5. **South Australia.**—A considerable amount of attention has been given to technical education in South Australia, particularly in connection with the mining industry. The School of Mines and Industries in Adelaide was founded in 1889. Individual students enrolled in 1915 numbered 2726. The number of classes held was 123. There are in addition Schools of Mines at Moonta, Port Pirie, Kapunda, Mt. Gambier, and Gawler. The conditions connected with the country Technical Schools, viewed from the standpoint of the Department of Education, are not considered satisfactory. While the Government bears the bulk of the cost of maintenance, the Minister for Education is not consulted in regard to the organisation, curriculum, or staffing of the schools.

Although good work has been accomplished, the system of control of Technical Schools by independent councils is declared by the Director of Education to be no longer suitable, and stress is laid on the necessity for co-ordinating technical effort under one central authority. The development since 1911 is shewn in the table hereunder :—

TECHNICAL EDUCATION, SOUTH AUSTRALIA, 1911-15.

Year.	Number of Classes.	Enrolments.	Average Weekly Attendance.	Number of Teachers.	Fees Received.
1911	185	4,456	*	91	£ 3,547.
1912	201	4,760	3,445	95	3,526
1913	218	4,885	3,473	115	3,459
1914	229	4,947	3,508	127	3,365
1915	228	5,402	3,645	126	3,272

* Not available.

6. **Western Australia.**—A Technical School was established at Perth in 1900, and since its opening has progressed rapidly. Extensive additions to the buildings were made in 1909, and the remodelled institution was opened in 1910. The school is affiliated to the University. There are branch institutions at Midland Junction, Fremantle, Claremont, Kalgoorlie, Boulder, and Geraldton. In addition, Continuation Classes are held at Perth, Fremantle, Midland Junction, Claremont, Kalgoorlie, Coolgardie, Boulder, Day Dawn, Northam, Albany, Bunbury, Geraldton, Pingelly, Gwalia, and Collie, while it is proposed to open classes at other centres as occasion demands. The schools are all under the control of the Education Department, the officer entrusted with their supervision being styled Director of Technical Education. The Continuation Classes remained a charge on the Technical Education vote to the end of June, 1913. The Director also supervises the School of Mines at Kalgoorlie, which is controlled by the Mines Department. Advanced work at present is taken only in Perth, Fremantle, Boulder, and in Kalgoorlie by the School of Mines, the other branches dealing almost entirely with preparatory work chiefly in Continuation Classes. Up to the establishment of the local University, the Perth Technical School was affiliated with Adelaide University. Over 100 railway apprentices regularly attend the special classes held at Midland Junction. Returns for the last five years are embodied in the table hereunder :—

TECHNICAL EDUCATION, WESTERN AUSTRALIA, 1911-15.

Year.	No. of Classes.	Enrolments.	No. of Teachers.	Fees Received.
1911	230	4,595	157	£ 3,332
1912	304	5,090	163	3,144
1913	230	2,346	77	1,941
1914	306	3,353	89	969
1915	313	3,184	96	928

The average attendance at classes in 1915 was 1920, of whom 992 were female students.

7. **Tasmania.**—In this State provision for technical education dates from the year 1888. At the present time the most important technical institution is the School of Mines and Metallurgy at Zeehan. Courses of instruction are given in metal mining and in metallurgical chemistry and assaying, the diploma in metal mining entitling the holder to the Government certificate of competency as a mine manager. The institution is affiliated to the University of Tasmania. There are also Schools of Mines at Beaconsfield and Queenstown, and Technical Schools at Hobart and Launceston. In the report of the Commission appointed in 1916 to enquire into the condition of technical education in Tasmania, allusion was made to the want of co-ordination between these institutions

and the Education Department, and it was recommended that the schools should be taken over by the Government, and a trained technologist appointed as organising inspector. Statistics for the last five years are as follows:—

TECHNICAL EDUCATION, TASMANIA, 1911-15.

Year.	No. of Classes.	Enrolments.	Average Weekly Attendance.	No of Teachers.	Fees Received.
1911 ...	54	833	295*	32	£ 667
1912 ...	62	993	300*	36	768
1913 ...	76	1,013	787	41	918
1914 ...	78	900	700	40	936
1915 ...	85	955	545	40	874

* Estimated.

8. Attendance at Commonwealth Technical Schools.—The table hereunder shows the enrolment and attendance at Technical Schools and classes in the Commonwealth during 1915:—

ENROLMENT AND ATTENDANCE AT TECHNICAL SCHOOLS, Etc., 1915.
(COMMONWEALTH.)

State.	Enrolment.	Average Attendance.
New South Wales ...	13,000	9,257
Victoria ...	10,782	6,852
Queensland ...	7,522	6,258
South Australia ...	5,402	3,645
Western Australia ...	3,184	1,920
Tasmania ...	955	545
Commonwealth ...	40,845	28,477

9. Expenditure on Technical Education.—The expenditure on technical education in each State during the period 1911 to 1915 is shown below:—

EXPENDITURE ON TECHNICAL EDUCATION, 1911-15.
(COMMONWEALTH.)

Year.	N.S.W.	Victoria.	Queensland.	South Aust.	West. Aust.	Tasmania.	C'wealth.
	£	£	£	£	£	£	£
1911 ...	77,160	41,030	34,611	13,017	14,590	3,726	184,134
1912 ...	99,265	42,541	44,073	13,906	27,536	3,318	230,639
1913 ...	132,305	49,139	63,589	10,532	26,886	3,529	285,980
1914 ...	72,718	73,654	83,722	12,889	13,552	3,493	260,028
1915 ...	78,129	77,852	69,740	13,658	10,375	3,906	253,660

The figures in the preceding table represent an expenditure of about 1s. per head of the population of the Commonwealth, as compared with 14s. 6d. per head spent on maintenance for primary education, and clearly show that technical education has not attained its proper place in the educational organisation of Australia. Expenditure on buildings, included in the foregoing totals, comprises £7630 in New South Wales, £14,880 in Victoria; £40,622 in Queensland, and £583 in Western Australia.

§ 7. Business Colleges and Shorthand Schools.

There has been considerable development in recent years both in the number and scope of privately conducted institutions, which aim at giving instruction in business methods, shorthand, typewriting, the use of calculating machines, etc. Particulars for all States excepting Queensland are given in the table hereunder:—

BUSINESS COLLEGES AND SHORTHAND SCHOOLS, ETC., 1915.

State.	Schools.	Teachers.	Students Enrolled.		Aver. Attendances.		Fees Recd.
			Males.	Females.	Males.	Females.	
New South Wales ...	17	85	2,931	6,062	918	1,322	£ 22,337
Victoria ...	16	151	3,702	1,934	2,618	1,448	†
Queensland*	...	...	...	...	...	...	...
South Australia ...	5	39	825	862	487	421	8,576
Western Australia ...	7	38	571	816	405	611	6,100
Tasmania ...	3	7	63	174	27	94	1,160

* Included in Private Schools. † Not available.

The figures for New South Wales are exclusive of students instructed at home through the medium of correspondence classes.

In Victoria it is explained that the preponderance of male students is due to the larger enrolment of males in the correspondence classes.

§ 8. Diffusion of Education.

1. General Education.—A rough indication of the state of education of the people is obtained at each Census under the three headings, "read and write," "read only," and "cannot read." The grouping of the whole population, exclusive of aborigines, in these three divisions is given for each Census since 1861:—

EDUCATION AT CENSUS PERIODS, 1861 to 1911.

(COMMONWEALTH.)

State or Territory.	1861.	1871.	1881.	1891.	1901.	1911.	
N.S.W. (a)	Read & write	188,543	296,741	507,067	835,562	1,071,935	1,379,631
	Read only...	46,024	56,391	49,372	43,539	29,728	6,442
	Cannot read	116,293	149,866	193,386	244,853	253,183	260,661
Vic. ...	Read & write	328,362	478,464	653,346	908,490	998,010	1,136,289
	Read only...	57,351	70,953	47,950	32,794	21,852	4,630
	Cannot read	152,915	180,781	160,270	198,556	181,208	174,632
Q'nsland	Read & write	17,152	74,940	136,436	276,381	376,294	508,703
	Read only...	3,680	12,080	13,657	14,618	11,737	3,416
	Cannot read	9,227	33,084	63,432	102,719	110,098	93,694
S.A. (b)	Read & write	72,190	117,349	200,057	236,514	290,748	344,095
	Read only...	18,535	21,509	15,267	9,571	8,283	1,785
	Cannot read	36,105	46,768	64,541	74,346	64,126	62,678
W. Aus.	Read & write	7,683	14,166	19,684	34,254	150,099	237,629
	Read only...	1,301	2,717	2,430	2,061	3,107	917
	Cannot read	5,853	7,902	7,594	13,467	30,918	43,568
Tas. ...	Read & write	48,282	55,941	74,966	103,138	133,579	155,295
	Read only...	13,136	13,946	9,606	6,287	3,907	918
	Cannot read	28,559	29,441	31,133	37,242	34,989	34,998
North'rn	Read & write	...	...	...	...	...	2,397
T'rt'y (c)	Read only...	...	...	...	...	...	34
	Cannot read	...	...	...	...	...	879
Federal	Read & write	...	...	...	...	...	1,424
	Read only...	...	...	...	...	...	14
	Cannot read	...	...	...	...	...	276
C'wealth	Read & write	662,212	1,037,601	1,591,556	2,394,339	3,020,665	3,765,463
	Read only...	140,027	177,596	138,282	108,870	78,614	18,156
	Cannot read	348,952	447,842	520,356	671,183	674,522	671,386

(a) Including Federal Territory prior to 1911.
(c) Included in South Australia prior to 1911.

(b) Including Northern Territory prior to 1911.
(d) Included in New South Wales prior to 1911.

The proportion in the Commonwealth of the various classes per 10,000 of the population is shewn below for each Census period:—

PROPORTION OF EDUCATED AND ILLITERATE PER 10,000 PERSONS, 1861 to 1911.
(COMMONWEALTH.)

Division.	1861.	1871.	1881.	1891.	1901.	1911.
Read and write ...	5,752	6,239	7,073	7,543	8,004	8,452
Read only ...	1,217	1,068	615	343	208	41
Cannot read ...	3,031	2,693	2,312	2,114	1,788	1,507

2. **Education of Children.**—The figures in the preceding tables refer to the entire population of the Commonwealth, and as the age constitution of those dwelling in the various portions of Australia underwent considerable modifications during the period dealt with, a far more reliable test of the diffusion of education will be obtained by a comparison of the Census returns in regard to children of school age. For comparative purposes this has been taken to include all children in the group over five and under fifteen years of age, and the degree of education of these at each Census will be found below:—

EDUCATION OF CHILDREN AT CENSUS PERIODS, 1861 to 1911.

(COMMONWEALTH.)

State or Territory.	1861.	1871.	1881.	1891.	1901.	1911.	
N.S.W. (a)	Read & write	34,040	68,776	121,735	196,240	251,187	291,450
	Read only ...	20,345	26,886	25,100	21,375	15,934	993
	Cannot read	25,472	32,924	41,663	48,580	60,734	34,793
Victoria	Read & write	42,268	122,739	170,713	201,199	236,515	237,028
	Read only ...	25,518	39,636	25,249	15,656	13,128	410
	Cannot read	19,341	29,490	21,421	27,441	27,765	19,621
Q'land... (a)	Read & write	2,156	12,698	33,317	62,402	95,635	117,347
	Read only ...	1,534	6,104	7,019	7,580	5,955	616
	Cannot read	1,629	6,015	9,615	16,257	18,827	8,633
S.A. (b)	Read & write	15,485	30,608	46,630	58,291	69,451	69,878
	Read only ...	8,748	12,432	7,926	4,618	4,229	248
	Cannot read	6,907	10,074	12,483	17,988	15,480	9,638
W. Aus.	Read & write	1,333	3,218	4,418	6,910	25,326	47,568
	Read only ...	226	617	1,260	933	1,815	159
	Cannot read	1,015	1,795	1,593	2,348	5,431	5,234
Tas. ...	Read & write	11,919	17,335	17,188	24,007	32,890	36,351
	Read only ...	2,848	4,143	4,108	2,974	1,795	186
	Cannot read	4,581	6,663	6,606	8,829	8,475	5,575
N. T. (c)	Read & write	...	...	...	...	...	195
	Read only ...	...	...	...	...	...	...
	Cannot read	...	...	...	...	...	118
Federal Ter. (d)	Read & write	...	...	...	...	...	322
	Read only ...	...	...	...	...	...	2
	Cannot read	...	...	...	...	...	47
C'wealth	Read & write	107,201	255,374	394,001	549,049	711,004	800,139
	Read only ...	59,219	89,818	70,662	53,136	42,856	2,614
	Cannot read	58,945	86,961	93,381	121,443	136,712	83,659

(a) Including Federal Territory prior to 1911. (b) Including Northern Territory prior to 1911. (c) Included in South Australia prior to 1911. (d) Included in New South Wales prior to 1911.

In the case of Tasmania full details for the years 1861 and 1871 are not available, and the figures for those years are approximate. The variation in degree of education will be more readily seen by reducing the foregoing figures to the basis of proportion per 10,000, and the results so obtained are embodied in the following table, a glance at which is sufficient to demonstrate the remarkable strides that at least the lower branches of education have made since 1861. In that year, only 47 per cent. of the children of school age could read and write, while 26 per cent. were illiterate. The returns for 1911 show that the proportion of those who could read and write had increased to over 90 per cent., while the totally ignorant had declined by nearly two-thirds.

**EDUCATION OF CHILDREN (AGES 5 TO 14) PER 10,000 AT CENSUS PERIODS,
1861 to 1911.**

(COMMONWEALTH.)

State or Territory.		1861.	1871.	1881.	1891.	1901.	1911.
N.S.W. (a)	Read & write	4,263	5,349	6,458	7,372	7,662	8,907
	Read only...	2,547	2,091	1,332	803	486	30
	Cannot read	3,190	2,560	2,210	1,825	1,852	1,063
Victoria ...	Read & write	4,851	6,397	7,853	8,236	8,526	9,221
	Read only...	2,929	2,066	1,162	641	473	16
	Cannot read	2,220	1,537	985	1,123	1,001	763
Queensl'd	Read & write	4,053	5,116	6,670	7,236	7,942	9,269
	Read only...	2,884	2,460	1,405	879	495	49
	Cannot read	3,063	2,424	1,925	1,885	1,563	682
S. Aus. (b)	Read & write	4,973	5,763	6,956	7,206	7,790	8,761
	Read only...	2,809	2,341	1,182	571	474	31
	Cannot read	2,218	1,896	1,862	2,223	1,736	1,208
W. Aus....	Read & write	5,179	5,716	6,076	6,780	7,775	8,982
	Read only...	878	1,096	1,733	916	557	30
	Cannot read	3,943	3,188	2,191	2,304	1,668	988
Tasmania	Read & write	6,160	6,160	6,160	6,704	7,620	8,632
	Read only...	1,472	1,472	1,472	830	416	44
	Cannot read	2,368	2,368	2,368	2,466	1,964	1,324
Northern Territ'y (c)	Read & write	...	...	...	...	...	6,230
	Read only...	...	...	...	...	...	...
	Cannot read	...	...	...	...	...	3,770
Federal Territ'y (d)	Read & write	...	...	...	...	...	9,868
	Read only...	...	...	...	...	...	5
	Cannot read	...	...	...	...	...	127
C'wealth	Read & write	4,757	5,910	7,061	7,588	7,984	9,027
	Read only...	2,628	2,078	1,266	734	481	29
	Cannot read	2,615	2,012	1,673	1,678	1,535	944

(a), (b), (c), (d), see notes to preceding table.

3. Education as shewn by Marriage Registers.—Another common method of testing the spread of education is to compare the number of mark signatures with the total number of persons married during each year of a series. The percentage of males and females signing with a mark to the total persons married in the Census years 1861 to 1901, and during each of the last eight years, was as follows. The figures refer to marriages in the Commonwealth in respect of which information was obtainable.

ILLITERACY SHEWN BY MARRIAGE SIGNATURES, 1861 to 1915.
(COMMONWEALTH.)

Year.	Proportion Signing with Marks of Total Persons Married.						
	Males.			Females.			Total.
	per cent.	per cent.	per cent.	Year.	per cent.	per cent.	per cent.
1861 ...	18.50	30.69	24.60	1910 ...	0.56	0.59	0.58
1871 ...	10.58	16.40	13.49	1911 ...	0.56	0.54	0.55
1881 ...	4.34	6.78	5.56	1912 ...	0.43	0.45	0.44
1891 ...	2.27	2.40	2.34	1913 ...	0.36	0.38	0.37
1901 ...	1.35	1.29	1.32	1914 ...	0.41	0.38	0.39
1908 ...	0.71	0.73	0.72	1915 ...	0.27	0.27	0.27
1909 ...	0.65	0.62	0.64				

The table shews that there has been a large diminution in illiteracy, and judging from the figures for the last few years the proportion bids fair to practically disappear. Up to 1891 there was a higher proportion of illiteracy amongst females, but during the last eight years the rates have been very even.

§ 9. Miscellaneous.

1. **Scientific Societies.**—(a) *Royal Societies.* Despite the trials and struggles incidental to the earlier years of the history of Australia, higher education and scientific advancement were not lost sight of. Thus the origin of the Royal Society of New South Wales dates as far back as 1821, when it was founded under the name of the Philosophical Society of Australasia, Sir Thomas Brisbane being its first president. Scientific work was fitfully carried on by means of a society whose name varied as the years rolled on. It was called the Australian Philosophical Society in 1850. In 1856 the old Australian Society merged into a resuscitated Philosophical Society of New South Wales, and its papers were published up to 1859 in the Sydney Magazine of Science and Art (2 vols. 1858-9). Its present title dates from 1866. Some of the papers of the old Philosophical Society were published in 1825 under the title of "Geographical Memoirs of New South Wales" (Barron Field), and contain much that is interesting in regard to the early history of Australia. One volume containing the Transactions of the Philosophical Society of New South Wales (1862-65) was published in 1866. The journal of the Society did not begin to bear a serial number, however (vol. 1), until the year 1867. "Transactions of the Royal Society of New South Wales" were issued in 1867, the title of the series being altered to "Journal" in 1876. Up to the end of 1916, 50 volumes had been published. The exchange list comprises the names of 384 kindred societies. At the present time the library contains about 22,000 volumes and pamphlets, valued at about £7700. Income and expenditure for the year ended 31st March, 1916, were £1323 (Government grant £400) and £1329 respectively. The Society had on the same date 317 members.

The Royal Society of Victoria dates from 1854, in which year the Victorian Institute for the Advancement of Science and the Philosophical Society of Victoria were founded. These were amalgamated in the following year under the title of the Philosophical Institute of Victoria, whilst the society received its present title in 1860. The first volume of its publications dates from 1855. The earlier publications dealt largely with Physics, later on Biology became prominent, while at present a large number of papers deal with Geology. Up to 1916, 62 volumes of publications had been issued. The Society exchanges with 325 kindred bodies. The constitution of the society states that it was founded "for the promotion of art, literature, and science," but for many years past science has monopolised its energies. The library contains over 10,000 volumes, valued at £3000. Income for the year 1916 amounted to £328, and expenditure to £280.

The inaugural meeting of the Royal Society of Queensland was held on the 8th January, 1884, under the presidency of the late Sir A. C. Gregory. The society was formed "for the furtherance of the natural and applied sciences, especially by means of

original research." Shortly after its formation it received an addition to its ranks by the amalgamation with it of the Queensland Philosophical Society, which was started at the time when Queensland became a separate colony. At latest date the members numbered 109; publications issued, 28 volumes; library, 5000 volumes; societies on exchange list, 172. Income and expenditure in 1916 amounted to £80 and £75 respectively.

The present Royal Society of South Australia grew out of the Adelaide Philosophical Society, which was founded in 1853, its object being the discussion of all subjects connected with science, literature and art. Despite this programme, the tendency of the papers was distinctly scientific, or of a practical or industrial nature. With the advent of the late Professor Tate the society became purely scientific. Permission to assume the title of "Royal" was obtained in 1879, the society thenceforward being known as "The Royal Society of South Australia." In 1903 the society was incorporated. In 1916 the number of members was 91. The income for the year 1916 was £558, and expenditure £540. Up to 1916 the society had issued 42 volumes of proceedings and six parts of memoirs, exclusive of several individual papers published in earlier years. The exchange list numbers about 205. The library contains 2600 volumes and over 1600 pamphlets.

Permission to assume the title of Royal Society was granted to the Natural History and Science Society of Western Australia in March, 1914. This society has grown out of the Mueller Botanic Society, founded in July, 1897. The objects of the society are the study of natural history and pure science, promoted by periodical meetings and field excursions, the maintenance of a library, and issue of reports of proceedings. It numbers at present 100 members, whose subscriptions form its main source of revenue. Income and expenditure in 1916 were respectively £67 and £58. Five volumes of proceedings were issued as Journal of the Natural History and Science Society of Western Australia, and one as Royal Society. Its publications are exchanged with 39 institutions at home and abroad. The library contains 302 volumes, besides unbound journals, pamphlets, etc.

The Royal Society of Tasmania (the first Royal Society outside the United Kingdom) was founded by Sir Eardley Wilmot, Lieutenant-Governor of Van Diemen's Land, on the 14th October, 1843. A large portion of the Colonial Gardens, together with a grant of £400, was given to the society. A library and museum were established in 1848. In 1885 the museum and gardens were given back to the State, the society being granted room in the museum for its library and meetings. The names of Captains Ross and Crozier, of H.M.S. *Erebus* and *Terror*, appear in the list of the first corresponding members. The society, which, since 1844, has published 56 annual volumes of proceedings, possesses 100 members, 13 corresponding members, exchanges with 216 kindred bodies, and has a library containing 12,500 volumes, in addition to manuscripts, etc., valued at £4000. Income for the year 1916 was £220, and expenditure £238.

(b) *Other Scientific Societies.* The Australian Association for the Advancement of Science, founded in 1888, has its headquarters in Sydney. It meets usually in each State biennially in turn. Its receipts to date were about £14,000, including Government aid to the amount of £4000. The library contains 4000 volumes, valued at £400. Up to date, 14 volumes of proceedings have been issued. The exchange list numbers 176. The Linnean Society of New South Wales, with headquarters in Sydney, was founded in 1875, and possesses a library of 10,000 volumes, valued at £6000. Up to date 41 volumes of proceedings have been issued. Exchanges number 188. This society maintains five investigators engaged in research work, and owes its development almost entirely to the benefactions of Sir William Macleay. The number of ordinary members at the end of 1916 was 161. Income for the year came to £1241, and expenditure to £855. The special revenue for research purposes only was £2632, and the expenditure £2260. The British Astronomical Society has a branch in Sydney, and in some of the States the British Medical Association has branches.

In addition to the societies enumerated above, there are various others in each State devoted to branches of scientific investigation, particulars respecting which are not at present available.

2. **Libraries.**—As far as can be ascertained the total number of libraries in the Commonwealth at the latest available date was about 1700, and the number of books contained therein is estimated at about four millions. In each of the capital cities there is a well-equipped Public Library, the institutions in Melbourne and Sydney especially comparing very favourably with similar institutions elsewhere. The new reading room at the Melbourne Library ranks amongst the finest in the world. It was opened in November, 1913, and has a diameter of 114 feet, with a similar height, and is capable of seating 320 readers at a time, all of whom are under efficient supervision from the centre of the room. The following statement gives the number of volumes in the Public Library of each city :—

METROPOLITAN PUBLIC LIBRARIES.

City.	Number of Volumes in—			Total.
	Reference Branch.	Ordinary Lending Branch.	Country Lending Branch.	
Sydney ...	270,654	*	11,980	282,634
Melbourne ...	237,065	33,368	...	270,433
Brisbane ...	38,563	...	...	38,563
Adelaide ...	95,082	30,438	...	125,520
Perth ...	103,343	12,766	...	116,109
Hobart ...	21,212	...	...	21,212

* The maintenance and control of the lending branch of the Public Library at Sydney were transferred in 1908 to the Municipal Council. At the end of December, 1915, the books numbered 30,000.

The Mitchell Library in Sydney consisted of over 60,000 volumes and pamphlets, and 300 paintings, principally relating to Australasia, valued at £100,000, bequeathed in 1907 by Mr. D. S. Mitchell, together with an endowment of £70,000. The testator stipulated that the regulations of the British Museum were to be adopted as far as practicable, hence the library is the resort of specialists. There are now 85,240 volumes in the library.

The Launceston Mechanics' Institute in Tasmania possesses a library of 27,000 volumes.

The number of libraries in receipt of State or municipal aid, together with the estimated number of books contained therein, is given below for each State:—

SUBSIDISED LIBRARIES AND BOOKS THEREIN.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Terr.
Number of libraries ...	464	500	226	210	255	31	3
Estimated number of books ...	1,033,000	1,142,000	358,000	549,000	250,000	105,000	5,400

The figures in the above table can be taken only as approximations, as in many instances returns were not received from various institutions. The return for New South Wales includes the Public Library, the Mitchell Library, and the Sydney Municipal Library. Amongst other important libraries not included, may be enumerated those at the Sydney University and the Australian Museum, which contain 100,000 and 22,000 volumes respectively, and the Parliamentary Library with over 52,000 volumes. There are also 2704 libraries, with an estimated total of 365,000 volumes, attached to State Schools.

3. **Museums.**—The Australian Museum in Sydney, founded in 1836, is the oldest institution of its kind in Australia. In addition to possessing a fine collection of the usual objects to be met with in kindred institutions, the Museum contains a very valuable and complete set of specimens of Australian fauna. The cost of construction of the building was £79,000. The number of visitors to the institution in 1915 was 161,000

and the average attendance on week-days 429, and on Sundays 958. The expenditure for 1915 amounted to 9,714. A valuable library containing over 22,000 volumes is attached to the Museum. Representative collections, illustrative of the natural wealth of the country, are to be found in the Agricultural and Forestry Museum, and the Mining and Geological Museum. The latter institution prepares collections of specimens to be used as teaching aids in country schools. The "Nicholson" Museum of Antiquities, the "Macleay" Museum of Natural History, and the Museum of Normal and Morbid Anatomy, connected with the University, and the National Herbarium and Botanical Museum at the Sydney Botanic Gardens, are also accessible to the public. There is a fine Technological Museum in Sydney, with branches in six country centres, the combined institutions containing over 115,000 specimens. Valuable research work has been undertaken by the scientific staff in connection with oil and other products of the eucalyptus. The number of visitors at the Technological Museums during 1915 was about 219,000.

The National Museum at Melbourne devoted to Natural History, Geology, and Ethnology, is located in the Public Library building. The National Art Gallery is also situated in the same building. The expenditure for specimens, furniture, etc., in 1915 was £760, and salaries and wages £2608. The Industrial and Technological Museum, opened in 1870, contains about 8000 exhibits. There is a fine Museum of Botany and Plant Products in the Melbourne Botanic Gardens. Well-equipped museums of mining and geological specimens are established in connection with the Schools of Mines in the chief mining districts.

The Queensland Museum dates from the year 1871, but the present building was opened in January, 1901. Since its inauguration the Government has expended on the institution a sum of £86,954, of which buildings absorbed £19,369, purchases £26,494, and salaries £41,091. The number of visitors during the year was 75,031, of whom 27,112 visited the institution on Sundays. The Queensland Geological Survey Museum has branches in Townsville, opened in 1886, and Brisbane, opened in 1892.

Under the Public Library Act of 1884 the South Australian Institute ceased to exist, and the books contained therein were divided amongst the Museum, Public Library, and Art Gallery of South Australia, and the Adelaide Circulating Library. The Museum was attended by 82,000 visitors in 1915.

The latest available returns shew that the Western Australian Museum contains altogether 86,000 specimens, of an estimated value of £77,000. The Museum is housed in the same building as the Art Gallery, and the visitors to the combined institutions during the year reached 70,000. The expenditure totalled £2635, of which salaries absorbed £2349.

There are two museums in Tasmania—the Tasmanian Museum at Hobart, and the Victoria Museum and Art Gallery at Launceston, both of which contain valuable collections of botanical and mineral products. The Tasmanian Museum received aid from the Government during last year to the extent of £500. The Hobart institution cost £9500 to construct, and that at Launceston £6000.

4. Art Galleries.—Information regarding the State collections of objects of art in the various capitals is in some cases very meagre, while the method of presentation does not admit of any detailed comparisons being made. The National Art Gallery of New South Wales originated in the Academy of Art founded in 1871. Cost of construction is returned at £94,000. The contents, which are valued at £149,000, comprise 427 oil paintings, 397 water colours, 594 black and white, 168 statuary and bronzes, and 422 ceramics, works in metal and miscellaneous. During 1915 the average attendance on week days was 465, and on Sundays 1680.

The National Gallery at Melbourne at the end of 1915 contained 583 oil paintings, 4599 objects of statuary, bronzes and ceramics, and 14,105 water-colour drawings, engravings, and photographs. The Gallery is situated in the same building as the Museum and Public Library, the total cost of construction being £325,000. Several munificent bequests have been made to the institution. That of Mr. Alfred Felton, given in 1914, amounts to about £8000 per annum. In 1913, Mr. John Connell presented

his collection of art furniture, silver, pictures, etc., the whole being valued at £10,000. At the end of 1915 the Ballarat Art Gallery contained 219 oil paintings and 161 water colours, etc., while there are some valuable works of art in the smaller galleries at Bendigo, Geelong, and Warrnambool.

The Queensland National Art Gallery, situated in the Executive Buildings, Brisbane, was founded in 1895 and contains a small, but well chosen, collection of pictures. At latest available date there were on view 92 oil paintings, 23 water colours, 100 black and white, and 27 pieces of statuary, together with various prints, mosaics, and miniatures. Exclusive of exhibits on loan, the contents are valued at about £10,000.

The Art Gallery at Adelaide dates from 1880, when the Government expended £2000 in the purchase of pictures, which were exhibited in the Public Library building in 1882. The liberality of private citizens caused the Gallery to rapidly outgrow the accommodation provided for it in 1889, at the Exhibition Building, and on the receipt of a bequest of £25,000 from the late Sir T. Elder, the Government erected the present building, which was opened in April, 1900. The Gallery also received a bequest of £16,500 in 1903 from the estate of Dr. Morgan Thomas, and of £3000 in 1907 from Mr. David Murray. At the latest available date there were in the Gallery 276 oil paintings, 93 water colours, and 24 statuary. Building and site are valued at upwards of £31,000. Visitors during the year 1915 numbered 242,000.

The foundation stone of the present Art Gallery at Perth in Western Australia was laid in 1901, the building and site being valued at £60,000. The collection comprises 96 oil paintings, 51 water colours, 192 black and white, 265 statuary, and miscellaneous metal works, etc.

In Tasmania the Art Gallery at Hobart was opened in 1887. Its present contents consist of 96 paintings and 81 etchings and black and white drawings. The building is valued at £9500.

The Art Gallery at Launceston was erected in 1888 at a cost of £5000, and opened on the 2nd April, 1891. Only a small proportion of the contents belong to the Gallery, the bulk of the pictures being obtained on loan. At latest date there were on view 80 oil paintings and 44 water colours valued at £5000. The building is valued at £6000. Average attendance of visitors on week days is returned as 120 and on Sundays 250.

5. **State Expenditure on all Forms of Educational Effort.**—The expenditure from the Consolidated Revenue in each State and Territory on all forms of educational and scientific activity during each of the last five financial years was as follows:—

EXPENDITURE ON EDUCATION, SCIENCE, AND ART, 1911-12 to 1915-16.

State or Territory.	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.
	£	£	£	£	£
New South Wales { Total	£ 1,416,015	1,609,734	1,735,404	1,651,571	1,717,040
{ Per head	16/8	18/1	18/11	17/9	18/4
Victoria ... { Total	£ 1,142,399	1,122,854	1,147,319	1,218,459	1,161,335
{ Per head	17/1	16/3	16/3	17/0	16/5
Queensland ... { Total	£ 535,082	622,238	702,491	807,915	703,664
{ Per head	17/2	19/6	21/6	23/10	20/8
South Australia... { Total	£ 298,610	323,787	342,209	342,464	337,307
{ Per head	14/3	15/1	15/6	15/6	15/4
Western Australia { Total	£ 298,530	319,723	349,371	351,516	348,344
{ Per head	20/3	20/10	21/9	21/9	21/11
Tasmania ... { Total	£ 95,352	101,008	112,364	124,791	127,016
{ Per head	9/10	10/3	11/2	12/5	12/7
Northern Territ'y { Total	£ 1,477	2,516	3,916	2,073	2,180
{ Per head	9/1	14/6	21/4	10/5	9/7
Commonwealth { Total	£ 3,787,465	4,101,860	4,393,074	4,498,789	4,396,886
{ Per head	16/7	17/4	18/0	18/3	17/10

The comparatively heavy increase in Queensland during recent years is due to the inclusion of expenditure in connection with the University.

SECTION XXIII.
PUBLIC JUSTICE.

§ 1. Police.

1. **Introductory.**—In previous issues of the Year Book a *résumé* was given of the evolution of the police force in Australia up to the passing of the Police Act of 1862 (25 Vic. No. 16) in New South Wales, but considerations of space preclude its inclusion in the present volume.

In general terms the police forces of Australia may be said to be satisfactory both in regard to physique and intelligence, while as regards methods of prevention and detection of crime it is believed that the system in vogue here compares very favourably with those of the older-settled countries of the world.

2. **Strength of Police Force.**—The strength of the police force in each State during the five years ended 1915 was as follows. It may be mentioned that the police forces are entirely under State control, but, by arrangement, the Commonwealth Government utilises their services in various directions, such as the collection of Commonwealth electoral rolls, etc.:—

POLICE FORCES IN THE COMMONWEALTH, 1911 to 1915.

State.	Area of State in Sq. Miles.	1911.	1912.	1913.	1914.	1915.
New South Wales ...	310,372	2,487	2,554	2,582	2,627	2,613
Victoria... ..	87,884	1,640	1,662	1,753	1,739	1,737
Queensland	670,500	1,011	1,084	1,108	1,112	1,194
South Australia ...	380,070	502	522	500	556	541
Western Australia ...	975,920	481	487	477	482	495
Tasmania	26,215	232	237	237	231	233
Northern Territory ...	523,620	22	25	26	25	26
Commonwealth ...	2,974,581	6,375	6,571	6,683	6,772	6,839

The figures for New South Wales for 1915 are exclusive of forty-eight "black trackers," *i.e.*, natives employed in detection of offenders chiefly in outlying districts, and five female searchers. In Queensland there were ninety-nine native trackers. The South Australian returns for 1915 are exclusive of nine "black trackers" and one female searcher, and the Tasmanian returns are exclusive of a female searcher. The Northern Territory had twenty-four "black trackers" in 1915. There are also fifty-three "black trackers" in Western Australia and four searchers not included in the table.

Average Number of Inhabitants to each Police Officer. The average number of inhabitants to each officer in each State during the same period is as follows. In considering these figures, allowance must, of course, be made for the unequal area and unequal distribution of the population of the various States.

INHABITANTS TO EACH POLICE OFFICER, 1911 to 1915.
(COMMONWEALTH.)

State.	No. of Persons per Sq. Mile, 1911 Census.	Inhabitants to each Police Officer.				
		1911.	1912.	1913.	1914.	1915.
New South Wales ...	5.31	683	697	710	709	716
Victoria ...	14.97	817	831	805	823	816
Queensland ...	0.90	615	587	595	603	570
South Australia ...	0.46	833	824	880	794	813
Western Australia ...	0.29	612	628	672	670	642
Tasmania ...	7.29	834	832	851	872	863
Northern Territory ...	...	148	139	141	159	175
Commonwealth ...	1.50	717	720	729	730	721

The figures in the preceding tables shew a great disparity in the relative numbers of the population protected by each police officer in the various States, and also in the relative area of territory to each officer. Western Australia and South Australia exhibit the largest figures in the latter respect, this, of course, being due to the fact that extensive areas in each State are as yet unpeopled by white settlers.

3. Duties of the Police.—In addition to the ordinary employment attaching to their office, the police are called upon to perform many duties which in other countries are carried out by various functionaries. Thus, in Queensland, according to the Commissioner's report for 1915, no less than sixty subsidiary offices are held by the police. As far as the statistician is concerned, it is found that the expert local knowledge possessed by the police renders their services in the collection of such returns as those relating to the agricultural, pastoral, and manufacturing industries, private schools, etc., more than ordinarily valuable. Then, again, the fact that their services are enlisted by such widely different departments as those dealing with mines, stock, agriculture, elections, registrations of births, deaths, and marriages, forestry, fisheries, explosives, old-age pensions, lunacy, public works, labour, etc., greatly enhances their general alertness by widening the range of their experience. Occasionally the objection is heard in some quarters that these special tasks involve some degree of sacrifice of ordinary routine duties, but that the general intelligence of the Australian police is adequate to the obligation to perform these tasks, besides being most creditable, results in a great saving of the public money.

4. Cost of Police Forces.—The expenditure from Consolidated Revenue on the police forces in each State during the five years 1911 to 1915 is shewn in the following table. Cost of buildings has been excluded from the return:—

COST OF POLICE FORCES IN THE COMMONWEALTH, 1911 to 1915.

State.	1911.	1912.	1913.	1914.	1915.
	£	£	£	£	£
New South Wales ...	515,569	578,767	593,406	592,694	603,347
Victoria ...	345,889	348,227	354,264	380,724	365,821
Queensland ...	258,538	306,431	304,817	302,633	302,209
South Australia ...	107,872	116,847	129,834	132,445	131,580
Western Australia ...	127,458	129,556	126,532	133,452	131,806
Tasmania ...	41,535	43,236	45,237	45,972	45,952
Northern Territory ...	9,708	10,609	10,614	10,307	10,216
Commonwealth ...	1,406,569	1,533,673	1,564,704	1,598,227	1,590,931

The total for New South Wales includes £31,000 payment to Police Superannuation Fund. Similar payments in Victoria and Queensland amount to £22,000 and £28,000 respectively, while smaller sums are included in the returns for other States. The cost per head of the population in each State for the period 1911 to 1915 was as follows:—

COST OF POLICE PER INHABITANT, 1911 to 1915.

(COMMONWEALTH.)

State.	1911.	1912.	1913.	1914.	1915.
	s. d.	s. d.	s. d.	s. d.	s. d.
New South Wales ...	6 2	6 8	6 7	6 4	6 6
Victoria ...	5 1	5 2	5 1	5 4	5 2
Queensland ...	8 4	9 8	9 4	9 0	8 11
South Australia ...	5 2	5 6	6 0	6 0	6 0
Western Australia ...	8 8	8 7	8 1	8 3	8 3
Tasmania ...	4 4	4 6	4 7	4 7	4 7
Northern Territory ...	58 6	63 2	58 0	52 0	44 9
Commonwealth ...	6 2	6 7	6 6	6 6	6 6

The relatively high cost per head in Queensland and Western Australia is due to the fact that there are in those States extensive areas of sparsely settled country, in which mounted patrols have to be maintained.

In view of the small number of its white population and the vast extent of country to be patrolled, the figures for the Northern Territory necessarily shew a very high average. The duties of the police, moreover, chiefly pertain to matters connected with the control of aborigines.

§ 2. Lower (Magistrates') Courts.

1. **Introductory.**—In considering the criminal returns of the various States, due allowance must be made on account of several factors, such as the relative powers of the courts, both lower and higher, etc. In the case of lower courts, the actual number of laws in each State, the breach of which renders a person liable to fine or imprisonment, must be taken into account. Again, the attitude of the magistracy and police towards certain classes of offences is a factor, for in the case of liquor laws, or laws connected with vagrancy or gaming, the views of magistrates, and instructions issued to the police, may be responsible for considerable variations in the returns. The strength and distribution of the police forces, and the age constitution and distribution of the State's population, also influence the results. In any consideration of criminal returns, due weight should also be given to the prevalence of undetected crime, but information on this point can only be obtained for the State of Victoria. It may be mentioned that each State has its own separate judicial system, the Commonwealth jurisdiction being confined to the High Court of Australia, which is largely a Court of Appeal intermediate to the Privy Council, although it has also original jurisdiction, and the Commonwealth Court of Arbitration and Conciliation. Full particulars regarding the judicial power of the Commonwealth will be found in Chapter III. of the Commonwealth Constitution (see page 29).

2. **Powers of the Magistrates.**—In New South Wales there is no general limit to the powers of the magistrates in regard to offences punished summarily, their authority depending in such case on the statute which creates the offence and gives them jurisdiction. Except in the case of a very few statutes, and excluding cumulative sentences, the power of sentence is limited to six months. Imprisonment in default of payment of fine is regulated by a scale limiting the maximum period according to the sum ordered to be paid, but in no case exceeding twelve months. Actions for debt and damage

within certain limits also come within magisterial jurisdiction. In cases of debts, liquidated or unliquidated, the amount recoverable is not exceeding £50 before a court constituted of a stipendiary or police magistrate at certain authorised places, and not exceeding £30 at any other place before a court constituted of a stipendiary or police magistrate or two or more justices of the peace. The amount in actions of damage is limited to £10, but may extend to £30 by consent of parties.

In Victoria, the civil jurisdiction of magistrates is restricted to what may be designated ordinary debts, damages for assault, restitution of goods, etc., where the amount in dispute does not exceed £50. No definite limit is fixed to the powers of the magistrates on the criminal side, and for some offences sentences up to two years may be imposed. The proportion of long sentences is, however, comparatively small.

In Queensland, generally speaking, the maximum term of imprisonment which justices can inflict is six months, but in certain exceptional cases, such as offences against sections 233 and 445 of the criminal code (betting-houses and illegally using animals), sentences of twelve months may be imposed. No limit exists as to the extent to which cumulative sentences may be applied, but in practice the term is never very lengthy.

In South Australia, under the Minor Offences Act, magistrates can impose sentences up to six months, and under the Summary Convictions Act, up to three months. The Police Act of 1869 gives power to sentence up to one year, with hard labour, in the case of incorrigible rogues; while under the Quarantine Act of 1877, and the Lottery and Gaming Act of 1875, sentences of two years may be imposed.

Under the Petty Sessions Act of 1867, in Tasmania, any person charged with having committed, or with having aided or abetted in the commission of an offence, in regard to property of a value not exceeding £10, may, on conviction, for a first offence, before two or more justices in Petty Sessions, be imprisoned for any term not exceeding one year, and for a term not exceeding two years for a second or subsequent offence.

3. Persons Charged at Magistrates' Courts.—The total number of persons who were charged before magistrates in each State is given below for the five years 1911 to 1915:—

PERSONS CHARGED BEFORE MAGISTRATES IN THE COMMONWEALTH, 1911 to 1915.

State.	1911.	1912.	1913.	1914.	1915.
New South Wales	75,114	89,951	92,107	94,766	86,576
Victoria	44,526	53,087	56,058	57,977	63,140
Queensland	25,482	27,323	29,166	29,635	30,047
South Australia	8,435	10,685	11,818	10,693	9,587
Western Australia	13,862	15,092	16,442	17,879	14,864
Tasmania	6,597	7,084	7,101	6,481	6,306
Northern Territory	92	219	139	203	287
Commonwealth	174,108	203,441	212,831	217,634	210,807

As the table shews, the number of charges at Magistrates' Courts in New South Wales increased during 1912 by nearly 20 per cent. It would, however, be rash to conclude that crime is therefore on the increase in that State, for a scrutiny of the detailed returns shews that the bulk of the increase took place in offences against good order, and in the indefinite "not included" class, which comprises breaches of various enactments, such as the Local Government Act, Commonwealth Defence Act, etc. These offences hardly come within the category of ordinary crime. In Western Australia the decrease of 3000 in 1915 as compared with 1914 was due to a falling-off in offences against good order.

The considerable falling-off in the returns for Victoria during 1911 was due in large measure to the decline in summons cases under the Education Act, the figures for 1911 being 4695, as compared with 12,317 in the preceding year. An increase in summons cases accounted for the rise in the total for 1912, to which summonses contributed 33,273 cases, as against 25,128 in the previous year. A scrutiny of the summons returns shews that the rise was due largely to an increase in breaches of the Education Act, for which the figures advanced from 4695 in 1911 to 7470 in 1912. Further, the summons cases for 1912 include in the column "other" 2936 breaches of the Defence Act, this entry appearing, of course, for the first time in the 1912 returns. Again, in 1915, there was a considerable increase due to the inclusion in the summons returns of 10,954 cases in connection with the Commonwealth Electoral Act. The above considerations afford an excellent illustration of the necessity for analysis of the total returns prior to drawing therefrom any deductions in regard to the increase or otherwise of criminality. (See also in this connection § 2, 1. *ante*.)

The figures given in the tabulation above include, of course, a number of people who were wrongly charged, and statistically are not of great importance. The actual number of convictions in connection with the persons who appeared before the lower courts in each year of the period 1911 to 1915 is, therefore, given hereunder. A separate line is added shewing the committals to higher courts.

CONVICTIONS AND COMMITTALS AT MAGISTRATES' COURTS, 1911 to 1915.

(COMMONWEALTH.)

State.		1911.	1912.	1913.	1914.	1915.
New South Wales	{ Convictions	65,058	77,611	79,079	81,217	73,248
	{ Committals	1,178	1,490	1,529	1,648	1,570
Victoria	{ Convictions	31,564	38,646	39,786	41,033	44,947
	{ Committals	564	571	611	571	634
Queensland	{ Convictions	23,072	24,996	26,782	27,244	27,625
	{ Committals	529	425	417	458	411
South Australia...	{ Convictions	7,303	9,184	10,447	9,280	8,222
	{ Committals	99	121	141	135	105
Western Australia	{ Convictions	11,936	13,251	14,590	15,849	13,308
	{ Committals	204	162	150	147	*116
Tasmania	{ Convictions	5,756	6,108	6,471	5,852	5,492
	{ Committals	57	60	58	67	35
Northern Territory	{ Convictions	75	183	134	187	271
	{ Committals	...	8	2	2	1
Commonwealth	{ Convictions	144,764	169,979	177,289	180,662	173,113
	{ Committals	2,631	2,837	2,908	3,028	2,872

* Exclusive of four extradited.

4. Convictions for Serious Crime.—While the figures given in the preceding table refer to the entire body of convictions, the fact must not be lost sight of that they include a large proportion of offences of a technical nature, many of them unwittingly committed, against various Acts of Parliaments. Cases of drunkenness and minor breaches of good order, which, if they can be said to come within the category of crime at all, at least do so in a very different sense to some other offences, also help to swell the list. The following table has, therefore, been prepared for the purpose of shewing the convictions at magistrates' courts for what may be regarded as the more serious offences, *i.e.*, against the person and property, either separately or conjointly, and forgery and offences against the currency:—

CONVICTIONS FOR SERIOUS CRIME AT MAGISTRATES' COURTS, 1911 to 1915.
(COMMONWEALTH.)

State.	1911.	1912.	1913.	1914.	1915.
New South Wales	5,075	5,904	6,161	6,100	5,217
Victoria	2,362	2,655	2,405	2,705	2,994
Queensland	1,540	1,495	1,651	1,497	1,639
South Australia	488	554	571	665	607
Western Australia	1,025	1,053	1,111	1,237	1,005
Tasmania	557	566	657	611	558
Northern Territory	6	11	12	28	18
Commonwealth	11,053	12,238	12,568	12,843	12,038

Compared with the population the above figures give the following results per 10,000 inhabitants:—

CONVICTIONS FOR SERIOUS CRIME PER 10,000 INHABITANTS, 1911 to 1915.
(COMMONWEALTH.)

State.	1911.	1912.	1913.	1914.	1915.
New South Wales	30.7	33.9	34.1	32.9	27.9
Victoria	17.8	19.6	17.3	19.0	21.0
Queensland	25.0	23.7	25.3	22.2	23.9
South Australia	11.9	13.1	13.2	15.1	13.8
Western Australia	35.7	34.9	35.4	38.2	31.2
Tasmania	29.3	29.5	33.5	30.8	28.0
Northern Territory	18.1	32.7	32.8	74.6	40.9
Commonwealth	24.6	26.3	26.2	26.1	24.3

5. Decrease in Crime.—The figures quoted in the preceding table shew that during the last five years the rate of serious crime has remained practically constant, while if the comparison be carried back to 1881 the position is seen to be more satisfactory. The rate of convictions at magistrates' courts per 10,000 of the population is given below for each of the years 1881, 1891, 1901, 1911, and 1915. Only the more serious offences, particularised in the preceding paragraph, have been taken into consideration.

RATE OF CONVICTIONS FOR SERIOUS CRIME IN THE COMMONWEALTH, 1881-1915.

Year.	Convictions per 10,000 Persons.
1881	69.3
1891	44.8
1901	29.1
1911	24.6
1915	24.3

6. Need of Statistics of Distinct Persons.—The figures already quoted refer to total convictions, and in respect of individuals necessarily involve a considerable amount of duplication, especially in minor offences, such as petty larcenies, etc., in which the same offender appears before the court many times in the course of the year. In a few of the States it is possible to obtain the number of distinct persons arrested, but there are no means of arriving at the total distinct persons convicted before the magistrates in any State.

7. Causes of Decrease in Crime.—The statistics given shew that there has been a considerable decrease in crime throughout Australia. The results so far quoted are restricted entirely to the lower or magistrates' courts. There has also been a gratifying decrease in regard to offences tried at the higher courts, as will be seen later.

Attempts have been made to account for this decline: *e.g.*, advance in education, enlightened penological methods, etc. Much depends upon what is meant by education. Many classed in census statistics as "educated" can barely read and write. In this connection, moreover, it ought not to be forgotten that collaterally with the introduction of ordinary intellectual education certain people have departed from their pristine virtues. In regard to the deterrent effect of punishment, it may be said that in respect of many offences, notably drunkenness, vagrancy, petty larcenies, etc., it appears to be almost negligible. In general, punishment has declined in brutality and severity, and has improved in respect of being based to a greater extent upon a scientific penological system, though in this latter respect there is yet much to be desired. Recent advances in penological methods will be referred to in a subsequent section. Here it will be sufficient to remark that under the old *régime*, a prisoner on completion of a sentence in gaol was simply turned adrift on society, and in many cases sought his criminal friends, and speedily qualified for readmission to the penitentiary. Frequently he was goaded to this by mistaken zeal on the part of the police, who took pains to inform employers of the fact of a man having served a sentence in gaol. For a long time any assistance to discharged prisoners was in the hands of private organisations, such as the Salvation Army Prison Gate Brigade, but in some of the States, and notably in New South Wales, the authorities themselves look after the welfare of discharged prisoners in the way of finding work, providing tools, etc.

Improvements in the means of communication and identification have been responsible for some of the falling-off noticeable in the criminal returns, the introduction of the Bertillon system having contributed to certainty of identification. In his report for the year 1910 the Inspector-General of Police in New South Wales states that "criminals have a wholesome dread of the finger print system, and I have not the slightest doubt that it is one of the principal causes of the diminution of serious crimes." Part of the improvement may no doubt be referred also to the general amelioration in social conditions that has taken place during the last fifty years.

8. **Drunkenness.**—The number of cases of drunkenness and the convictions recorded in connection therewith during the period 1911 to 1915 will be found in the following table:—

CASES AND CONVICTIONS.—DRUNKENNESS, 1911 to 1915.

(COMMONWEALTH.)

State.	1911.		1912.		1913.		1914.		1915.	
	Cases.	Convictions.	Cases.	Convictions.	Cases.	Convictions.	Cases.	Convictions.	Cases.	Convictions.
New South Wales ...	29,399	29,299	32,915	32,720	32,676	32,467	33,393	33,208	26,010	25,863
Victoria ...	13,603	7,557	13,524	7,446	14,782	7,676	14,437	7,425	13,453	7,086
Queensland ...	12,824	12,767	14,225	14,213	14,852	14,840	16,510	16,443	16,260	16,196
South Australia ...	4,673	4,627	5,470	5,416	5,994	5,982	5,282	5,243	4,060	4,027
Western Australia ...	4,857	4,808	4,908	4,855	5,353	5,302	5,795	5,770	4,836	4,806
Tasmania ...	756	740	644	633	729	721	685	661	628	612
Northern Territory ...	34	34	80	80	61	61	64	64	158	158
Commonwealth ...	66,145	59,832	71,766	65,363	74,447	67,029	76,166	68,814	65,405	58,748

The number of convictions is, as might naturally be expected, almost identical with the number of cases. Victoria, however, is an exception, but in this State it is explained that offenders are generally discharged on a first appearance, and no conviction is recorded, a similar procedure being also adopted in the case of those arrested on Saturday and detained in custody till Monday. The logic of excluding these cases from the list of convictions is certainly open to doubt.

The convictions for drunkenness per 10,000 of the population during each of the years from 1911 to 1915 are given hereunder :—

CONVICTIONS FOR DRUNKENNESS PER 10,000, 1911 to 1915.
(COMMONWEALTH.)

State.	1911.	1912.	1913.	1914.	1915.
New South Wales ...	167.0	188.1	179.3	179.3	198.2
Victoria ...	56.8	54.9	55.1	52.2	49.7
Queensland ...	207.8	225.0	227.4	243.6	235.7
South Australia ...	112.5	128.4	137.5	119.1	91.5
Western Australia ...	167.7	161.1	168.9	178.4	149.1
Tasmania ...	38.9	33.0	36.8	33.3	30.7
Northern Territory...	102.4	238.1	166.6	170.6	358.8
Commonwealth ...	133.2	140.7	139.5	139.9	118.7

The convictions for drunkenness taken by themselves are not an altogether satisfactory test of the relative sobriety of the inhabitants of each State, inasmuch as several important factors must be taken into consideration. The age and sex constitution of the people, for example, is by no means identical in each State, Western Australia having by far the largest proportion of adult males. Owing to the smallness of the population the figures for the Northern Territory are, of course, abnormal. The avocations of the people affect the result, since persons engaged in strenuous callings are, on the whole, more likely to indulge in alcoholic stimulants than those employed in less arduous ones. The distribution of the population is also a factor, the likelihood of arrest or summons for drunkenness obviously being greater in the more densely populated regions, and lastly, allowance must be made for the attitude of the magistracy, the police, and the public generally in regard to the offence.

It is not unusual to supplement statistics of drunkenness by furnishing also the relative consumption of alcoholic beverages. Deductions drawn therefrom will be very misleading if they fail to take into account also the consumption of non-intoxicating beverages such as tea and coffee, and the general habit of the people. Throughout the greater part of Europe, tea and coffee are consumed but sparingly, while Australia, as is well known, is one of the greatest tea-drinking countries of the world.

The following table shewing the consumption of spirits, wine, and beer per head of the population has, with the exception of the figures relating to the Commonwealth, been compiled from returns prepared by the British Board of Trade. The figures quoted for the Commonwealth refer to the year 1915-16, and for the other countries mentioned cover the quinquennium 1907-11.

CONSUMPTION OF ALCOHOLIC BEVERAGES IN VARIOUS COUNTRIES.

Country.	Consumption per Head of Population.			Country.	Consumption per Head of Population.		
	Spirits.	Wine.	Beer.		Spirits.	Wine.	Beer.
United Kingdom...	Imp. Galls. 0.76	Imp. Galls. 0.27	Imp. Galls. 26.94	Canada ...	0.96	0.11	6.22
Commonwealth ...	0.78	0.5	12.41	German Empire	1.37	1.12	22.86
New Zealand ...	0.78	0.15	9.88	France ...	1.38	34.32	8.48
Union of South Africa ...	0.33	0.70	1.28	United States ...	1.04	0.54	16.72

9. Treatment of Drunkenness as Crime.—Though the problem of the correct method of dealing with dipsomania is by no means an easy one, it seems fairly clear that the present plan of bringing offenders before magistrates, and subjecting them to the penalty of imprisonment or fine, has little deterrent effect, as the same offenders are constantly reappearing before the courts. Further, the casting of an inebriate into prison, and placing him in his weakened mental state in the company of professional malefactors, doubtless tends to swell the ranks of criminals and certainly tends to lower his self-respect. Examination of the prison records in New South Wales some years ago disclosed the fact that over 40 per cent. of the gaol population had commenced their criminal career with a charge of drunkenness. During the last few years the dangers of moral contamination in this way have been more accurately appreciated, and a system of classification of prisoners has been adopted whereby the petty offender is as far as possible kept from association with the more evilly-disposed. With regard to drunkards, however, the Comptroller of Prisons in New South Wales advocates the entire abandonment of the system of repeated fine or imprisonment in favour of a course of hospital treatment, and this has to some extent been accomplished by the Inebriates Acts of 1900 and 1909, under which habitual drunkards may be detained for long periods. The Comptroller-General of Prisons in Queensland states in his report for the year 1907 that "the drunken habit in many cases is merely one of many symptoms which jointly indicate the existence of a graver condition than simple habitual drunkenness."

10. Remedial Treatment of Inebriates.—Legislation has been passed in each State providing for the commitment of inebriates to special Government institutions. The laws in the various States are as follows:—New South Wales, Inebriates Act 1900 and 1912; Victoria, Inebriates Act 1904; Queensland, Inebriate Institutions Act of 1896; South Australia, Inebriates Act of 1881 and 1913; Western Australia, Lunacy Act 1903, Pt. iv., Habitual Drunkards; Tasmania, Inebriates Act 1885, Inebriate Hospitals Act 1892. Curative work was first undertaken by the Government of New South Wales in 1907. The institutes are connected with the gaols, and, naturally, custodial measures are still a strong feature in their management; nevertheless the results so far have been encouraging. In Victoria an institute purporting to be wholly remedial was founded in 1907. It may be mentioned that there are private retreats in each State, but these are not officially subsidised or inspected.

11. Treatment of Habitual Offenders.—In New South Wales the Habitual Criminal Act of 1905 gives judges the power of declaring a prisoner, after a certain number of sentences, to be an habitual criminal, and as such to be detained until, in the opinion of the authorities, he is fit to be at large. At the end of 1915 there were twenty-five persons in prison under this Act. Since the passing of the Act sixty-three males and one female have been declared to be habitual criminals. Of the twenty-five habitual criminals released under section 7 of the Act up to the end of 1915, three have been re-committed to prison. The Indeterminate Sentences Act came into force in Victoria in July, 1908, and up to the end of June, 1915, 270 prisoners had been admitted to the three reformatory prisons, and 164 had been released on probation on the recommendation of the Indeterminate Sentences Board. Of these, thirty-five have completed their probation of two years and passed out of control by the Board, seventy-nine remain in various stages of probation, and fifty have again become delinquent. The provisions of the Habitual Criminals Amendment Act of 1907 were put into force in South Australia in 1909, and seventeen criminals had been declared to be habitual offenders up to the end of 1915. The Criminal Code Amendment Act of 1914, which makes provision for the detention and control of habitual criminals, was assented to in Queensland on the 3rd December, 1914, but up to the end of 1915 no prisoners had been brought under its provisions. Naturally it will be some time before the full effect of these measures on the prevalence of crime can be estimated. The Comptroller-General of Prisons in New South Wales states, however, that the system has exercised a wholesome deterrent effect on the criminal who is not a prisoner,

while the Indeterminate Sentence Board in Victoria states that it has become impressed with the advantages which this form of sentence offers, both from a reformatory and deterrent standpoint, over the ordinary sentence. During the seven years in which the Habitual Criminals and Offenders Act of 1907 has been in force in Tasmania, fifty-two men and one woman have been released under its provisions, and it is stated that, in view of the fact that only two out of the fifty-three persons have broken their parole, the working of the Act must be deemed eminently satisfactory.

12. **Treatment of First Offenders.**—In all the States and in New Zealand statutes dealing with first offenders have been in force for some years, the dates of passing the Acts being as follows: New South Wales, 1894; Victoria, 1890; Queensland, 1887; South Australia, 1887 and 1913; Western Australia, 1892; Tasmania and New Zealand, 1886. The method of procedure is practically the same in all cases, *i.e.*, with regard to most first offenders the magistrate or judge is empowered to allow the offender to go free on recognisances being entered into for his good behaviour for a certain period. In practice, this humane law has been found to work excellently, very few of those to whom its provisions have been extended having been found to relapse into crime.

13. **Children's Courts.**—Special courts for the trial of juvenile offenders have been established in New South Wales, Victoria, Western Australia, and New Zealand within the last few years, while Children's Courts, although not under that name, are practically provided for by the State Children's Acts of 1895 and 1900 in South Australia. The object of these courts is to avoid, as far as possible, the unpleasant surroundings of the ordinary police court.

14. **Committals to Superior Courts.**—In a previous section it has been pointed out that comparisons of criminality based on a consideration of the total returns from magistrates' courts are somewhat inadequate, seeing that the figures include numbers of cases which are merely technical breaches of laws having in some instances a purely local significance. The committals to higher courts give a better basis of comparison, although even in this connection allowance must be made for the want of uniformity in jurisdiction. The table below gives the number of committals in each year from 1911 to 1915, with the proportion of such committals per 10,000 of the population. The rates are shewn on a separate line.

COMMITTALS TO SUPERIOR COURTS (COMMONWEALTH), 1911 to 1915.

State.		1911.	1912.	1913.	1914.	1915.
New South Wales	No.	1,223	1,923	1,573	1,699	1,633
	Rate	7.4	11.1	8.7	9.2	8.7
Victoria	No.	564	571	611	571	634
	Rate	4.2	4.2	4.4	4.0	4.4
Queensland	No.	529	425	417	458	411
	Rate	8.6	6.7	6.4	6.8	6.0
South Australia	No.	99	121	141	135	105
	Rate	2.4	2.9	3.3	3.1	2.4
Western Australia	No.	204	162	150	147	116*
	Rate	7.1	5.4	4.8	4.5	3.6
Tasmania	No.	57	60	58	67	35
	Rate	3.0	3.1	3.0	3.4	1.8
Northern Territory	No.	...	8	2	2	1
	Rate	...	23.8	5.5	5.3	2.3
Commonwealth	No.	2,676	3,270	2,952	3,079	2,935
	Rate	6.0	7.0	6.1	6.3	5.9

* Exclusive of four extradited.

The above figures shew that the rate of committals for serious crime has decreased slightly during the last five years, but if the comparison be carried farther back, it will be found that, as compared with the earlier years, there has been a considerable improvement. This will be evident from an examination of the following figures, which shew the rate of committals per 10,000 persons in Australia at various periods since 1861:—

RATE OF COMMITTALS IN AUSTRALIA, 1861 to 1915.

Year	1861.	1871.	1881.	1891.	1901.	1915.
Committals per 10,000 inhabitants ...	22	14	12	11	8	6

The decline in proportion to population since 1861 has therefore been about 73 per cent.

§ 3. Superior Courts.

1. **Convictions at Superior Courts.**—The total number of convictions at superior courts, together with the rate per 10,000 of the population, is shewn below for each of the years 1911 to 1915:—

CONVICTIONS AT SUPERIOR COURTS (COMMONWEALTH), 1911 to 1915.

State.	1911.	1912.	1913.	1914.	1915.
New South Wales	{ No. 538	{ 620	{ 772	{ 810	{ 843
	{ Rate 3.3	{ 3.6	{ 4.3	{ 4.4	{ 4.5
Victoria	{ No. 477	{ 501	{ 506	{ 494	{ 533
	{ Rate 3.6	{ 3.7	{ 3.6	{ 3.5	{ 3.7
Queensland	{ No. 328	{ 384	{ 343	{ 382	{ 351
	{ Rate 5.3	{ 6.1	{ 5.3	{ 5.7	{ 5.1
South Australia	{ No. 74	{ 86	{ 86	{ 93	{ 74
	{ Rate 1.8	{ 2.0	{ 2.0	{ 2.1	{ 1.7
Western Australia	{ No. 98	{ 92	{ 92	{ 84	{ 66
	{ Rate 3.4	{ 3.1	{ 2.9	{ 2.6	{ 2.0
Tasmania	{ No. 38	{ 25	{ 28	{ 41	{ 19
	{ Rate 2.0	{ 1.3	{ 1.4	{ 2.1	{ 1.0
Northern Territory	{ No. 4	{ 3	{ 1	{ 1	{ 1
	{ Rate 12.0	{ 8.9	{ 2.7	{ 2.7	{ 2.3
Commonwealth	{ No. 1,557	{ 1,711	{ 1,828	{ 1,905	{ 1,887
	{ Rate 3.5	{ 3.7	{ 3.8	{ 3.9	{ 3.8

In considering the above figures allowance must be made for the various factors enumerated in a preceding paragraph. Tasmania, it will be noted, shews the smallest proportion of serious crime, while the figures available shew that the island State is relatively the smallest consumer of alcoholic beverages. That a definite causal relation exists between the figures shewn by the respective tables is not, however, obvious.

2. **Offences for which Convictions were Recorded at Superior Courts.**—In the following table will be found a classification of the principal offences for which persons were convicted at the higher courts during each year of the period 1911 to 1915. Owing to lack of uniformity in the presentation of the returns for the several States the information is confined to the chief offences against the person only. In the case of Victoria the information is incomplete regarding the convictions on summons committals. The figures quoted refer to convictions in the Commonwealth during the period dealt with.

CONVICTIONS FOR SERIOUS CRIME, SUPERIOR COURTS, 1911 to 1915.

(COMMONWEALTH.)

Offences.	1911.	1912.	1913.	1914.	1915.
Murder and attempts at	18	33	38	42	25
Manslaughter	15	16	14	15	15
Rape and attempts at	97	88	71	67	90
Other offences against the person	235	221	298	300	226

While the individual totals shew considerable fluctuations, the returns generally manifest considerable improvement. The general total of convictions for all offences against the person shews a decline since 1901 of about 2½ per cent.

3. **Capital Punishment.**—The table below gives the number of executions in each State during the period 1911 to 1915:—

EXECUTIONS (COMMONWEALTH), 1911 to 1915.

State.	1911.	1912.	1913.	1914.	1915.
New South Wales ... ..	...	1	...	...	...
Victoria ... ..	...	1	...	...	...
Queensland ... ..	...	...	2	...	...
South Australia ... ..	...	...	...	...	...
Western Australia	2	...	1	1	1
Tasmania ... ..	...	...	1	1	...
Commonwealth	2	2	4	2	1

In the early days of the history of Australia the penalty of death was attached to a large number of offences, many of which at the present time would be dealt with in the lower or magistrates' courts. With the growth of settlement, and the general amelioration in social and moral conditions, the list was, however, considerably curtailed, and the existing tendency is practically to restrict death sentences to cases of murder. It may be remarked that in cases of rape, which is a capital offence in some of the Australian States, the penalty has been but sparingly inflicted during the last few years. Juries are reputed to be loth to convict on this charge, owing to the uncertainty whether sentence of death will be pronounced.

During the period 1861 to 1880 the annual average number of executions in the Commonwealth was nine, from 1881 to 1900 the average was six, while for the period 1901 to 1910 the figure stood at four.

§ 4. Prisons.

1. **Prison Accommodation and Prisoners in Gaol.**—The table below shews the number of prisons in each State and the accommodation therein at the end of 1915:—

PRISONS AND PRISON ACCOMMODATION (COMMONWEALTH), 1915.

State.	Number of Prisons.	Accommodation in—		Prisoners at End of Year.
		Separate Cells.	Wards.	
New South Wales	31	2,652	...	1,579
Victoria	17	1,456	673	861
Queensland	13	586	380	450
South Australia	13	756	396	282
Western Australia	24	640	816	238
Tasmania	2	190	280	55
Northern Territory	1	3	48	12
Commonwealth	101	6,283	2,593	3,477

The figures for Western Australia and the Northern Territory are exclusive of aborigines.

The number of prisoners in gaol, exclusive of debtors, at the 31st December in each of the years 1911 to 1915, is given below. A separate line is added in each instance shewing the proportion per 10,000 of the population.

PRISONERS IN GAOL (COMMONWEALTH), 1911 to 1915.

State.	1911.	1912.	1913.	1914.	1915.
New South Wales ... {	1,173	1,257	1,456	1,643	1,579
... {	7.1	7.2	8.0	8.9	8.5
Victoria ... {	797	880	863	898	861
... {	6.0	6.5	6.2	6.3	6.1
Queensland ... {	514	529	450	518	450
... {	8.4	8.4	6.9	7.7	6.6
South Australia ... {	224	287	288	341	282
... {	5.4	6.8	6.6	7.7	6.4
Western Australia ... {	323	356	284	277	238
... {	11.3	11.8	9.0	8.6	7.5
Tasmania ... {	65	69	50	50	55
... {	3.4	3.6	2.6	2.6	2.7
Northern Territory ... {	...	12	7	8	12
... {	...	35.7	19.1	21.3	26.3
Commonwealth ... {	3,096	3,390	3,398	3,735	3,477
... {	6.9	7.3	7.1	7.6	7.0

From the preceding table it will be seen that the proportion to population of prisoners in gaol has varied only slightly during the last five years, but, if the comparison be carried farther back the position is seen to be more favourable, the prisoners in gaol in the Commonwealth numbering as much as 16 per 10,000 of the population in 1891.

2. Improvement of Penological Methods.—During recent years Australia, in common with most other civilised countries, has introduced considerable modifications and improvements in methods of prison management. Under the old *régime*, punishment partook more or less of the character of reprisal for wrongdoing, and the idea of constituting the prison as a reformatory agency was in the background. But of recent years there has been an earnest attempt at effecting a moral reformation in the unfortunate who lapse into crime. This aspect of prison management has been specially

prominent in New South Wales. A short account of the re-organisation of the prison system in this State appears in preceding Year Books (see No. V., p. 922), but considerations of space preclude its repetition here. At the present time it is found that good results have followed the principles of scientific classification and restricted association of prisoners, together with the provision of separate institutions for the treatment of inebriates. There are five principal gaols in which prisoners are classified according to history, etc. The large establishments at Goulburn, Bathurst, and Parramatta deal respectively with first offenders, previously convicted but hopeful cases, and incorrigibles. At Long Bay there is a well-designed reformatory institution for females, providing for effective classification, and a penitentiary used as a distributing centre and a place of detention for short-term prisoners from the metropolis. The first-class minor gaols at Albury, Armidale, Broken Hill, Grafton and Maitland, are convenient centres for the reception of country prisoners, and also for the treatment of special cases. There are also several second-class minor gaols and police gaols where short-sentenced prisoners from the surrounding districts are dealt with. In New South Wales the system of carrying on afforestation by prison labour, somewhat after the manner of that in vogue for several years in New Zealand, has been introduced, and in 1911 a site near Tuncurry, on the Manning River, was selected for the purpose of initiating the scheme. Pine trees of various kinds have been planted, the seedlings set out in 1915 numbering over 150,000. A maximum of twenty prisoners in occupation is maintained, but provision is being made for ten more. So far the scheme appears to be a great success, the prisoners being healthy, cheerful, well-behaved, and industrious. Each prisoner has his own comfortable hut, where he takes his meals and sleeps, and may, if he so desires, write his letters. There are no armed or night guards at the camp. During the year 1914 a property of 107 acres was purchased, near the Emu Plains railway station, for the purpose of establishing a prison farm, and this was opened in April, 1915, with ten prisoners. That there is some connection between mental and physical health and crime is proved by the condition in which many persons are received into gaol. In a large number of instances prisoners are found to be suffering from contagious diseases. Under the Prisoners Detention Act such persons may be kept in gaol until cured, but, unfortunately, the provisions of the Act do not apply to short-sentenced prisoners detained in lieu of paying fines, many of whom are known to be afflicted with disease. A further reform, introduced in 1915, was the provision of the Shaftesbury Inebriate Institution for the treatment of non-criminal inebriates.

In 1902 the system of finger-print identification of criminals was introduced, and by the year 1903 bureaux had been established in the various States for the exchange of records. Very successful results have attended the introduction of the system.

Space will not permit of more than a passing reference to the improvements brought about in prison management in the other States. In Victoria there is an excellent system of classification and allocation of prisoners to different gaols, while at the important penal settlement at Pentridge a careful segregation into no less than five distinct classes is carried out. It is proposed to make better provision at the Pentridge prison for the accommodation and classification of habitual offenders. In common with the other States the latest humane methods of accommodation and prison treatment have for some time been employed.

Queensland prisons have been considerably modernised during the last few years. The prison for females at Brisbane has been built on the radiating plan, and embodies the latest ideas in penological methods. Classification of prisoners has been fully carried out in the male and female divisions of Brisbane prison, at Rockhampton prison, and at the Stewart's Crock penal establishment. It is proposed to erect a new prison establishment at St. Helena, embodying the most modern features in design. Amongst recent reforms are the reduction of the period of separate treatment undergone by prisoners sentenced to hard labour or penal servitude, a remodelling of the remission clauses, and allowance of more liberal privileges in the way of correspondence and visits from friends. Electric light has been installed in the Brisbane prison, and prisoners are allowed to read up to 8 o'clock each evening.

Unusual circumstances have combined to keep crime at a low point in South Australia. In the first place there was never any transportation of criminals to the State, while in the earlier years of its history South Australian lawbreakers were transported elsewhere. The discovery of gold in the neighbouring colonies was also responsible for the drawing away of turbulent spirits who might later on have caused trouble. The present system was drafted mainly on English and European lines by the late W. R. Boothby, C.M.G., and has since been as far as possible adapted to modern penological procedure. It is proposed to establish an afforestation camp prison at the Bangham Forest Reserve on similar lines to that at Tuncurry in New South Wales. Excellent work for the benefit and assistance of discharged prisoners is performed by the Prisoners' Aid Association.

A Royal Commission in 1911 recommended the adoption of various reforms in connection with the prison system of Western Australia. The bulk of these were carried out, and included, amongst other things, an extension of the principle of separate treatment, improvement in prisoners' dietary scale, more satisfactory arrangements in regard to remission of sentences, and improvements in regard to hours of labour, leave of absence, etc., for the staff. The separate system has, however, been abolished. Amongst other improvements recently introduced may be mentioned the grant of an eight hours day to officers, enlargement and improved hygiene of cells, additional library facilities, assistance to discharged prisoners by provision of railway passes and monetary aid, appointment of committees to look after the welfare of discharged prisoners, and the remodelling of the "mark" system. The military method of control at Rottneest Island, coupled with considerable privileges to well-conducted prisoners, has proved very successful.

- § 5. Civil Courts.

1. Lower Courts.—The transactions of the lower courts on the civil side during each of the last five years are given in the table hereunder. As pointed out previously, the jurisdiction of the courts is by no means uniform in the various States.

LOWER COURTS.—CIVIL CASES (COMMONWEALTH), 1911 to 1915.

State.		1911.	1912.	1913.	1914.	1915.
New South Wales	Cases No.	29,570	32,531	40,265	37,472	39,828
	Amount £	74,461	93,592	106,809	107,810	110,229
Victoria	Cases No.	28,575	36,043	39,911	41,497	41,055
	Amount £	129,172	190,485	204,175	207,863	188,542
Queensland	Cases No.	12,511	14,962	15,716	16,015	15,729
	Amount £	48,374	61,047	64,518	66,226	68,337
South Australia	Cases No.	14,996	18,905	21,288	21,681	17,765
	Amount £	51,282	60,813	74,623	74,627	80,918
Western Australia	Cases No.	9,773	12,735	14,549	16,974	17,259
	Amount £	43,413	60,774	67,470	66,864	61,169
Tasmania	Cases No.	5,189	4,487	5,194	5,813	6,081
	Amount £	33,601	28,571	34,425	81,610	67,152
Commonwealth	Cases No.	100,614	119,663	136,923	139,452	137,717
	Amount £	380,303	495,282	552,020	605,000	576,347

The figures just given represent the returns from Petty Sessions Courts in New South Wales and Victoria, the Petty Debts cases in Queensland, the Local Courts of South Australia and Western Australia, and the Court of Requests in Tasmania.

2. **Superior Courts.**—In the next table will be found the transactions on the civil side in the Superior Courts during each of the years 1911 to 1915.

The New South Wales returns are to some extent defective, as the figures quoted for amount of judgments include, up to 1915, in the case of the Common Law jurisdiction of the Supreme Court, the total judgments signed, while in the case of the other States the figures refer to sums actually adjudged after trial. For New South Wales, also, the transactions of district courts refer to the total amounts sued for, and not the sums actually awarded after trial. Statistically the chief importance of the table consists in the fact that it shows a decline in litigiousness in Australia.

SUPERIOR COURTS.—CIVIL CASES, 1911 to 1915.

COMMONWEALTH.

State.		1911.	1912.	1913.	1914.	1915.
New South Wales	{ Causes No.	729	847	926	864	845
	{ Amount £	369,145	528,384	568,761	*328,429	*293,697
Victoria	{ Causes No.	561	637	617	710	713
	{ Amount £	54,552	75,886	91,428	91,903	93,695
Queensland	{ Causes No.	119	108	133	129	129
	{ Amount £	12,208	16,013	22,932	19,156	22,165
South Australia...	{ Causes No.	29	26	44	27	21
	{ Amount £	13,195	29,352	9,688	17,358	2,882
Western Australia	{ Causes No.	423	496	546	578	367
	{ Amount £	90,078	78,068	79,534	37,610	37,581
Tasmania	{ Causes No.	110	113	118	385	282
	{ Amount £	7,810	7,866	7,486	28,159	17,112
Commonwealth	{ Causes No.	1,971	2,227	2,384	2,693	2,357
	{ Amount £	545,988	735,569	779,829	522,615	467,132

* Exclusive of judgments signed, Supreme Court, the amount not being recorded.

3. **Divorces and Judicial Separations.**—The number of divorces and judicial separations in each State during the period 1911 to 1915 is shewn below:—

DIVORCES AND JUDICIAL SEPARATIONS, 1911 to 1915.

(COMMONWEALTH.)

State.	1911.		1912.		1913.		1914.		1915.	
	Divorces.	Judicial Separations								
New South Wales	210	12	349	12	317	9	297	6	349	6
Victoria	214	...	250	2	237	2	244	1	218	1
Queensland	27	1	17	1	31	1	29	1	27	...
South Australia	20	...	11	...	9	...	20	...	19	...
Western Australia	30	2	36	...	37	...	21	1	32	2
Tasmania	5	1	8	...	8	...	7	...	7	...
Northern Territory	1	...	1	...
Commonwealth	506	16	671	15	639	12	619	9	653	9

The average annual number of divorces and judicial separations in the Commonwealth at decennial periods from 1871 to 1910 and for the quinquennium 1911-15 is given hereunder :—

DIVORCES AND JUDICIAL SEPARATIONS, 1871 to 1915.

	1871-1880.	1881-90.	1891-1900.	1901-10.	1911-15.
Commonwealth ...	29	70	358	401	630

The bulk of the divorces and judicial separations refer, as the table shews, to New South Wales and Victoria, the Acts of 1892 and 1889 in the respective States making the separation of the marriage tie comparatively easy. In some statistical works it is customary to compare the divorces in any year with the marriages in the same year. The comparison is, however, quite valueless, as there is no necessary connection between the figures.

4. **Probates.**—The number of probates and letters of administration granted, together with the value of the estates concerned, is shewn below for each State for the period 1911 to 1915:—

PROBATES AND LETTERS OF ADMINISTRATION (COMMONWEALTH), 1911 to 1915.

State.		1911.	1912.	1913.	1914.	1915.
New South Wales ...	Number	3,589	3,648	3,679	4,438	5,088
	Value £	13,138,068	13,389,806	8,443,068	9,997,615	10,813,859
Victoria ...	Number	4,614	4,585	4,483	4,451	4,449
	Value £	8,469,163	8,533,502	8,367,862	8,481,720	8,759,728
Queensland ...	Number	729	755	765	765	896
	Value £	2,409,495	2,730,039	2,640,017	2,331,224	2,720,896
South Australia ...	Number	1,057	1,246	1,373	1,418	1,515
	Value £	2,855,089	2,353,238	2,214,241	3,050,075	2,894,517
Western Australia ...	Number	584	552	580	577	681
	Value £	844,151	841,800	607,972	1,009,677	1,263,670
Tasmania ...	Number	399	465	415	336	418
	Value £	596,870	983,618	680,477	727,126	793,106
Commonwealth ...	Number	10,972	11,251	11,295	12,035	13,047
	Value £	28,312,836	28,862,003	22,953,637	25,597,437	27,245,806

As may naturally be expected, the figures in the above table, giving the value of property left each year, shew considerable variations.

5. **Bankruptcies.**—The returns in bankruptcy during each of the last five years are given in the following table.

For several reasons comparisons drawn from the figures in the following table are of little value. In the first place, the statements of assets and liabilities are notably unsatisfactory, particularly in regard to the former. Then, again, there is wide dissimilarity in regard to the laws in force in the various States and the method of procedure thereunder in connection with bankruptcy. Further, there are no means of knowing how many persons in each State who were in a bankrupt condition made private arrangements with their creditors either personally or by intervention of a solicitor. The figures quoted in the table exclude the private arrangements in Victoria and South Australia, and the liquidations and compositions in Queensland and Tasmania.

BANKRUPTCIES (COMMONWEALTH), 1911 to 1915.

State.	1911.	1912.	1913.	1914.	1915.	
New South Wales ...	{ Number	331	395	351	405	448
	{ Liabilities £	109,359	210,504	208,755	323,111	428,700
	{ Assets £	49,390	153,633	144,038	141,068	166,748
Victoria ...	{ Number	306	404	455	450	436
	{ Liabilities £	112,748	265,046	440,318	273,582	414,439
	{ Assets £	55,374	159,723	237,868	171,295	273,805
Queensland ...	{ Number	227	246	232	210	238
	{ Liabilities £	41,261	45,508	60,385	53,947	65,716
	{ Assets £	9,286	17,020	21,720	36,293	35,533
South Australia ...	{ Number	106	154	185	187	135
	{ Liabilities £	75,347	188,483	169,516	184,220	204,089
	{ Assets £	47,314	135,771	104,622	115,621	136,420
Western Australia ...	{ Number	75	84	75	77	53
	{ Liabilities £	24,150	50,652	65,284	46,234	38,008
	{ Assets £	9,600	35,221	51,928	23,456	34,576
Tasmania ...	{ Number	19	38	46	30	40
	{ Liabilities £	7,066	7,013	16,673	13,476	15,548
	{ Assets £	5,654	2,635	9,831	4,251	9,461
Northern Territory ...	{ Number	1	3	4	1	1
	{ Liabilities £	348	1,123	724	119	106
	{ Assets £	66	44	18	...	39
Commonwealth ...	{ Number	1,065	1,324	1,348	1,360	1,351
	{ Liabilities £	370,279	768,329	961,655	898,689	1,166,606
	{ Assets £	176,684	504,047	570,025	491,984	656,582

6. High Court of Australia.—Under the provisions of section 71 of the Commonwealth Constitution Act, the judicial power of the Commonwealth is vested in a Federal Supreme Court, called the High Court of Australia, and in such other courts as the Parliament creates or invests with federal jurisdiction. The Federal High Court possesses both original and appellate jurisdiction. The powers of the court are defined in Chapter III. of the Constitution Act and in the Judiciary Acts of 1903-15. At present the court consists of a Chief Justice and six other judges. Sittings of the court are held in the capitals of the various States as occasion may require. The following statement shews the transactions of the High Court for the quinquennium 1911-15:—

COMMONWEALTH HIGH COURT TRANSACTIONS, 1911 to 1915.

Items.	1911.	1912.	1913.	1914.	1915.
I. ORIGINAL JURISDICTION.					
Number of writs issued ...	39	63	83	75	126
Number of causes entered for trial ...	7	7	9	6	12
Verdicts for plaintiffs ...	4	6	5	5	6
Verdicts for defendants ...	3	...	2	1	6
Otherwise disposed of ...	20	20	16	31	40
Amount of judgments ...	£133	£769	£6,556	£5,304	£4,966
II. APPELLATE JURISDICTION.					
Number of appeals set down for hearing ...	64	89	66	71	85
Number allowed ...	32	43	33	25	23
Number dismissed ...	23	36	26	38	39
Otherwise disposed of ...	9	10	7	8	23

COMMONWEALTH HIGH COURT TRANSACTIONS, 1911 TO 1915—continued.

Items.	1911.	1912.	1913.	1914.	1915.
III. AMOUNT OF FEES COLLECTED.					
Amount in each year...	£493	£590	£692	£656	£808

During the year 1915 the Court dealt also with other matters as follows:—

Appeals from Assessments under the Land Tax Assessment Act ...	13
Special cases stated for the opinion of the Full Court ...	9
Applications for Prohibition ...	2
Applications under the Trading with the Enemy Act ...	3

7. Commonwealth Court of Conciliation and Arbitration.—A more or less detailed statement regarding the operation of this Court, which was established under the provisions of the Commonwealth Conciliation and Arbitration Act of 1904-15 will be found in Section xxvii.

§ 6. Cost of Administration of Justice.

The table below shews the expenditure from Consolidated Revenue during each of the last five years in connection with the administration of justice in each of the States. Expenditure on police and prisons has been separately shewn. With regard to the figures quoted for "other" expenditure, a slight allowance has to be made for the fact that some extraneous expenditure has been included which it was found impossible to disentangle from the total, but the amount is in no instance large.

EXPENDITURE ON JUSTICE (STATES), 1911 to 1915.

State.	1911.	1912.	1913.	1914.	1915.
	£	£	£	£	£
New South Wales ...	515,569	578,767	593,406	593,694	603,347
{ Police	81,473	89,712	91,279	92,285	92,529
{ Gaols	260,217	262,174	276,043	282,716	286,924
{ Other					
Victoria ...	345,889	348,227	354,264	380,724	365,821
{ Police	50,822	50,952	54,776	57,272	57,791
{ Gaols	162,453	165,078	165,091	192,222	169,309
{ Other					
Queensland ...	258,538	306,431	304,817	302,633	302,209
{ Police	28,257	28,603	28,950	30,989	32,981
{ Gaols	109,507	100,156	101,011	101,687	136,619
{ Other					
South Australia ...	107,372	116,847	129,834	132,445	131,580
{ Police	17,678	17,776	19,159	23,436	22,177
{ Gaols	37,433	41,592	48,203	33,277	33,006
{ Other					
Western Australia ...	127,458	129,556	126,532	133,452	131,806
{ Police	23,755	22,291	21,403	22,339	23,265
{ Gaols	78,022	77,544	77,182	79,142	86,790
{ Other					
Tasmania ...	41,535	43,236	45,237	45,972	45,952
{ Police	5,320	5,664	6,103	7,071	7,261
{ Gaols	14,688	19,524	20,877	21,763	21,338
{ Other					
Northern Territory ...	9,708	10,609	10,614	10,307	10,216
{ Police	2,247	2,309	2,289	2,501	2,128
{ Gaols	555	2,513	2,136	1,941	1,453
{ Other					
Commonwealth ...	1,406,569	1,533,673	1,564,704	1,598,227	1,500,931
{ Police	209,552	217,307	223,959	235,893	238,132
{ Gaols	662,875	668,381	690,543	712,748	735,439
{ Other					

With the exception of that of the Northern Territory, the expenditure shewn in the foregoing table is that incurred by the State Governments only, and does not include expenditure in connection with the Federal High Court, which is shewn hereunder for the period 1911-12 to 1915-16:—

EXPENDITURE OF FEDERAL HIGH COURT, 1911-12 to 1915-16.

Year.			Amount.	Year.			Amount.
			£				£
1911-12	...	...	26,320	1914-15	...	...	31,037
1912-13	...	...	23,334	1915-16	...	...	31,447
1913-14	...	...	32,709				

Other items of federal legal expenditure also not included in the table are Arbitration Court £9,437, Crown Solicitor £10,078, and general £13,916. Excluding Patents and Copyrights, the total expenditure by the federal law authorities for the year 1915-16 was £64,878.

For the purposes of comparison the figures in the first table above have been reduced to a population basis, and the results are given in the table following:—

EXPENDITURE ON JUSTICE PER INHABITANT (COMMONWEALTH), 1911 to 1915.

State.		1911.	1912.	1913.	1914.	1915.
		s. d.	s. d.	s. d.	s. d.	s. d.
New South Wales	Police	6 3	6 8	6 7	6 4	6 6
	Gaols	0 11	1 0	1 0	1 0	1 0
	Other	3 2	3 0	3 0	3 0	3 2
Victoria	Police	5 2	5 2	5 1	5 4	5 2
	Gaols	0 9	0 9	0 9	0 10	0 10
	Other	2 5	2 4	2 4	2 8	2 5
Queensland	Police	8 2	9 8	9 4	9 0	8 11
	Gaols	0 11	0 11	0 11	0 11	1 0
	Other	3 7	3 2	3 1	3 0	4 0
South Australia	Police	5 3	5 7	6 0	6 0	6 0
	Gaols	0 10	0 10	0 11	1 1	1 0
	Other	1 9	1 11	2 3	1 6	1 6
Western Australia	Police	8 11	8 7	8 1	8 3	8 3
	Gaols	1 9	1 6	1 4	1 5	1 6
	Other	5 5	5 1	4 11	4 11	5 6
Tasmania	Police	4 4	4 6	4 7	4 7	4 7
	Gaols	0 7	0 7	0 7	0 8	0 9
	Other	1 6	2 0	2 2	2 2	2 1
Northern Territory	Police	58 6	63 2	58 0	52 0	44 9
	Gaols	13 6	13 9	12 6	12 7	9 4
	Other	3 4	15 0	11 8	9 9	6 4
Commonwealth	Police	6 3	6 7	6 6	6 6	6 6
	Gaols	1 0	0 11	0 11	0 11	1 0
	Other	2 11	3 0	3 0	3 0	3 0

Owing to the smallness of the white population, large area to be policed, and cost of supplies, transport, etc., the figures for the Northern Territory must necessarily appear somewhat abnormal.

The total expenditure in the Commonwealth in connection with the administration of justice in the various States has risen from ten shillings per inhabitant in 1901 to ten shillings and sixpence in 1915. Police expenditure has increased by about ninepence per head, the average for gaols is about threepence per head less, while the expenditure on courts and the remaining machinery of justice has slightly decreased during the same period. Including federal expenditure, the outlay in 1915-16 amounted to ten shillings and sevenpence per head.

SECTION XXIV.

PUBLIC BENEVOLENCE.

§ 1. Introductory.

1. **General.**—Charity and charitable effort in Australia may be classified under three headings, viz.:—(a) State; (b) public; (c) private. To the first belong all institutions wholly provided for by the State, such as the principal lunatic asylums in the various States, the Government hospitals in Western Australia, and the Government asylums for infirm in New South Wales. The second class comprises public institutions of two kinds, viz.:—(i.) Institutions partially subsidised by the State or State endowed, but receiving also private aid, and (ii.) those wholly dependent upon private aid. To the former division belong such institutions as the principal metropolitan hospitals. In the latter are included institutions established and endowed by individuals for the benefit of the needy generally. All charitable movements of a private character are included in the third group.

A more or less accurate statistical account is possible in classes (a) and (b), but in regard to (c) complete tabulation is, for obvious reasons, impossible. Moreover, public response to special appeals, and summary relief in kind, cannot be statistically recorded. Hospitals, orphanages, homes, benevolent asylums, etc., naturally attract the largest share of charitable aid; but there are numerous minor charities dependent upon private beneficence. In institutions which receive Government aid, management and finance are usually relegated to executive bodies.

The scope which economic and industrial conditions in Australia afford for the exercise of natural ability, and the comparatively wide distribution of wealth throughout the Commonwealth, operate to prevent the development of a permanent pauper class, and at the same time lessen in a dual way the burden of charity. This result is brought about by the increase, on the one hand, of the number of people whose prosperity enables them to relieve the indigent and unfortunate, and by the reduction, on the other, of the number who need assistance. Enactments of State Legislatures have decreed short hours and a liberal holiday allowance for large numbers of persons engaged in industrial and other pursuits, and, even in occupations not covered by Act of Parliament, the general conditions of employment often provide a considerable amount of leisure. This, coupled with an equable climate, enables the community to spend much of its time in the open air, with resultant advantages to its physique and general health. No poor-rate is levied in Australia, and Government aid without return is required only for the aged and disabled. Moreover, although Old Age Pensions, Invalid Pensions, and Maternity Allowances are paid by the Commonwealth, the payments are looked upon rather in the light of a citizen's right than as a charity. Reference to these matters will be found in § 4, *Miscellaneous*, chap. xxxiv.

To meet special and temporary conditions, various relief works have been started from time to time, in which the able-bodied who may be forced to seek official relief are required to make some return for the assistance afforded.

In each of the States there are Government asylums for the care of the insane, and the condition of these unfortunates has been steadily ameliorated by the general advance in psychiatry.

Young children deprived of parental training and control are cared for and educated in orphanages and industrial schools, and those who have been guilty of some specific offence, or who are beyond effective parental control, are committed to "reformatories."

From time to time relief funds have been organised for famine-stricken territories (*e.g.*, China, India, etc.), or for places where plague, flood, fire, or earthquake has shewn the need of urgent relief. Special funds are also raised for such as are disabled or bereaved through war. Complete statistical information in regard to these forms of charity is not, however, available. It may be mentioned that the daily Press frequently accepts the duties of collectorship in charity appeals. In regard to subscriptions to the various patriotic funds, which have been instituted in consequence of the war, the total for Australia, up to the end of July, 1916, has been estimated at £5,758,000.

2. Charity Reforms.—The evident overlapping of charitable effort has on various occasions led to discussion regarding methods of collection and distribution. The great desideratum in charity organisation is that the available aid should be relegated solely to the relief of distress and suffering. The true interests of the sick poor would thus be conserved, and the real intention of the donors fulfilled. With greater public attention, improved administration has been brought about. Societies to prevent overlapping have been formed, resulting in improved economical collection and distribution of charitable aid, and a better system of using the available accommodation.

Other proposed reforms aim at ascertaining the causes of poverty and crime, and finding the necessary palliative. Increased provision of better houses and workrooms and improved sanitation are advocated, together with more stringent legislative measures to enforce cleanliness and healthy modes of life. Further, factory legislation, Health Acts, etc., have enacted provisions for safeguarding dangerous machinery, and permitting only competent persons to be employed thereon.

3. Tabulation of Charities Statistics.—Differences in the organisation of charities prevent uniform tabulation of statistics for all the States, but certain of the larger features of the statistics of benevolence have been combined for the whole Commonwealth, and are shewn for a period extending over five years. Where the combination has been for dissimilar periods the nearest years have been taken. Satisfactory tabulation for other charities is not yet possible.

§ 2. The Larger Charities of Australia.

1. Hospitals.—All of the State capitals have several large and well-equipped hospitals, and there is at least one in every important town. In large centres there are hospitals for consumptives, women, children, infectious diseases, incurables, etc. The

number of hospitals in Australia, with the admissions, patients treated, deaths, and expenditure, is shewn in the following table. Only general hospitals are tabulated, since the working of "special" institutions is not properly comparable with those which treat every class of case.

HOSPITALS IN THE COMMONWEALTH, 1911 to 1915.

Particulars.	1911.	1912.	1913.	1914.	1915.
Number of institutions ...	355	368	381	389	398
Number of beds ...	13,732	14,574	15,235	15,345	16,374
Admissions during year ...	125,822	139,378	145,908	155,531	169,892
Indoor patients treated ...	133,652	144,692	152,077	164,349	179,829
Deaths ...	9,642	11,235	11,362	11,468	12,809
Expenditure ...	£ 916,984	1,102,134	1,264,605	1,255,658	1,280,461

In addition to those admitted to the institutions there are large numbers of out-patients. The exact number of these cannot be given, but a rough estimate of distinct cases for 1915 places the total at about 300,000.

Fuller details of hospital statistics are given for 1915 in the table below, the States and Northern Territory of the Commonwealth being shewn separately:—

GENERAL HOSPITALS.—NUMBER, STAFFS, AND ACCOMMODATION OF HOSPITALS IN THE COMMONWEALTH, 1915.

Particulars.	N.S.W.	Victoria.	Q'land.	S.A.	W.A.	Tas.	N.T.	C'with.
Number of Hospitals—								
Government ...	4	...	2	8	22	2	2	40
Other ...	147	61	87	19	31	13	...	358
Total ...	151	61	89	27	53	15	2	398
Medical Staff—								
Males ...	779	(a) 87	180 7	98 6	48	41	2	1,248
Females ...								
Total ...	779	87	187	104	48	41	2	1,248
Nursing Staff and Attendants—								
Males ...	82	18	254	75	99	2	2	532
Females ...	1,740	765	918	432	445	157	5	4,462
Total ...	1,822	(a) 783	1,172	507	544	159	7	4,994
Accommodation—								
Number of dormitories, etc. ...	988	575	546	179	205	131	9	2,633
Capacity in cubic ft. ...	7,088,666	5,374,807	3,467,019	1,474,663	2,037,975	788,762	51,500	20,293,392
Number of beds ...	5,937	4,160	3,138	1,073	1,509	522	35	16,374
Cubic ft. to each bed	1,194	1,292	1,105	1,374	1,351	1,511	1,471	1,238

(a) Figures relate to 50 hospitals only.

In addition to the accommodation provided in the ordinary wards, a considerable amount of accommodation for certain classes of cases is furnished in out-door or verandah sleeping places. Full particulars are not available for all States, but in New South Wales alone, the provision amounts to 323 beds.

**GENERAL HOSPITALS.—PATIENTS TREATED IN HOSPITALS IN THE
COMMONWEALTH, 1915.**

Particulars.	N.S.W.	Vic.	Qld.	S.A.	W.A.	Tas.	N.T.	C'with.
Indoor Relief: Distinct Persons								
Treated—								
Males	38,806	21,046	23,515	6,094	7,409	4,335	315	101,520
Females	34,377	19,917	12,169	4,586	3,917	3,306	37	78,309
Total	73,183	40,963	35,684	10,680	11,326	7,641	352	179,829
Inmates at beginning of Year—								
Males	2,175	1,876	1,184	396	508	230	13	6,182
Females	1,813	1,334	654	260	235	157	5	4,458
Total	3,988	3,010	1,838	656	743	387	18	10,640
Admissions and Re-admissions								
during Year—								
Males	36,631	19,370	22,331	6,060	6,901	4,105	361	95,759
Females	32,564	18,583	11,515	4,593	3,682	3,149	47	74,133
Total	69,195	37,953	33,846	10,653	10,583	7,254	408	169,892
Discharges—Recovered:								
Males	26,288	16,694	19,993	3,917	3,546	2,256	234	72,928
Females	25,660	16,995	10,456	3,150	2,105	2,002	33	60,401
Total	51,948	33,689	30,449	7,067	5,651	4,258	267	133,329
Relieved:								
Males	6,266	...	...	1,201	2,403	...	84	9,954
Females	4,163	...	...	854	1,990	...	9	6,121
Total	10,434	2 ...	2 ...	2,055	3,493	2 ...	93	16,075
Unrelieved:								
Males	896	176	414	316	370	35	3	2,210
Females	810	54	233	224	151	13	1	1,486
Total	1,706	230	647	540	521	48	4	3,696
Not stated:								
Males ... ..	...	561	115	3	6	1,543	2	2,230
Females ... ..	...	290	35	5	2	926	2	1,260
Total ... ..	...	851	150	8	8	2,469	4	3,490
Deaths—								
Males	3,003	2,058	1,673	641	558	259	37	8,220
Females	1,785	1,219	744	344	315	170	3	4,580
Total	4,788	3,277	2,417	985	873	429	40	12,809
Inmates at End of Year—								
Males	2,353	1,561	1,320	378	526	242	14	6,394
Females	1,954	1,355	701	276	254	195	3	4,738
Total	4,307	2,916	2,021	654	780	437	17	11,132
Average Daily Number Resident—								
Males	2,289	2,370	2,004	422	497	230	21	11,031
Females	1,935								307	261	192	3
Total	4,224	2,370	2,004	729	758	422	24	11,031

1. Including relieved. 2. Included in recovered. 3. Cases relieved are included in those recovered, in Victoria, Queensland, and Tasmania.

The revenue and expenditure of the institutions were as follows:—

GENERAL HOSPITALS.—REVENUE AND EXPENDITURE, 1915.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	N.T.	C'with.
Revenue—	£	£	£	£	£	£	£	£
Fees of patients, etc.	73,615	35,123	32,220	9,464	15,367	9,935	763	176,487
Government grants	265,580	84,935	132,199	63,010	68,239	24,768	4,864	643,595
Other	158,828	161,509	76,890	13,689	23,749	5,218	...	439,883
Total	498,023	281,567	241,309	86,163	107,355	39,921	5,627	1,259,965
Expenditure—								
Buildings	82,747	73,164	26,252	9,611	1,614	1,246	325	194,959
Salaries	182,923	236,723	87,595 ¹	30,243	51,956	14,538	2,392	1,041,700
Maintenance	203,441		124,072	42,819	45,262	17,586	2,147	
Other	38,880	4,335	9,832	3,606	8,191	7,424	...	72,318
Total	507,991	314,222	247,804	86,279	107,023	40,794	4,864	1,308,977

1. Including rent.

2. Principal Hospitals in each State.—The tables here given refer to general hospitals. In addition there are hospitals for "specials" (such as women's, children's, and infectious diseases hospitals), and institutions nearly allied to hospitals (such as consumptive sanatoria). Where the institutions carry on general hospital relief, they are still included with those establishments.

(i.) *New South Wales.* A Government hospital, with a staff of 13 medical officers and accommodation for 407 patients, is established at Little Bay, near Sydney. Altogether, there are four women's hospitals, one for women and children, and three children's hospitals in the metropolis. The Royal Prince Alfred Hospital, with a medical staff of 71, and with 396 beds, is the largest metropolitan endowed institution. Amongst other large metropolitan hospitals may be mentioned the Sydney Hospital, with a medical staff of 84 and with 334 beds, St. Vincent's with 51 doctors and 190 beds, and Lewisham with 23 medical attendants and 169 beds. In extra-metropolitan areas the Waterfall Hospital for Consumptives, which is a Government institution, provides accommodation for 300 patients. The Newcastle Hospital has 100 beds and a medical staff of 13. At the Carrington Convalescent Home at Camden, 110 patients may be admitted. The hospital in the Broken Hill district can accommodate 133.

(ii.) *Victoria.* There are several large metropolitan hospitals in Victoria. The largest of these, the Melbourne Hospital, has 318 beds; the Austin Hospital for Incurables has 230, the Alfred Hospital 192, St. Vincent's 138, and the Homœopathic 98. Amongst the country institutions, Bendigo has 218 beds, Geelong 205, and Ballarat 170.

(iii.) *Queensland.* Of the metropolitan hospitals, the largest is the Brisbane General, which can accommodate 316 patients. The Children's Hospital has 148 beds, the Diamantina 144, and the Mater Misericordiæ 112. Townsville Hospital, with 105 beds, is the largest of the country institutions, followed by Rockhampton with 100, Ipswich 94, Mackay 93, Charters Towers 92, and Mt. Morgan 71.

(iv.) *South Australia.* Including the Consumptive Home and Infectious Diseases Block, the Adelaide Hospital can accommodate a total of nearly 450 patients. The most important of the country hospitals are Port Augusta, Port Pirie, and Wallaroo, with 60, 49, and 43 beds respectively.

(v.) *Western Australia.* Information regarding the capacity of the Western Australian hospitals is not available, but some idea of their comparative importance may be gained from the figures relating to cases treated. In the metropolis, 3657 cases were treated at the Perth Hospital, and 1361 at the Perth Children's. Of the country hospitals, Kalgoorlie returned 1187 cases, Fremantle 983, and Coolgardie 435.

(vi.) *Tasmania.* There are well-equipped general hospitals in Hobart and Launceston. The former has a medical staff of 11 and can accommodate 175 patients, and the latter has 160 beds and a medical staff of three. Hospitals for women have been established in both centres, and there is a sanatorium for consumptives at Newtown. Outside the metropolitan area, the Devon Cottage Hospital has a medical staff of 10, and beds for 60 patients; the Lyell District Hospital can accommodate 34 patients, and there are nine other institutions in important country centres.

(vii.) *Northern Territory.* In addition to the hospitals at Darwin and Pine Creek, arrangements have been made for the supply of medicines and first aid to outlying stations. Great improvements have recently been made by the Public Health Department in the sanitation of Darwin. Close supervision is also exercised over the sanitary conditions at railway camps.

3. **Benevolent and Destitute Asylums.**—A marked increase has taken place in the amount of aid bestowed upon the aged. Two elements, each of them independent of the growth of population, have influenced this increase. One is, that the general age of the community has advanced—the large flow of immigration of fifty and sixty years ago having been mostly of persons in the prime of life; the other is the increased regard paid in all British communities to the well-being of the helpless. The result in Australia has been that numerous establishments have been founded for the housing and protection of such as are no longer able to care for themselves. The institutions are supported by Government and municipal aid, public subscriptions, charity performances, bequests, etc., and in many cases relatives of indigent and afflicted persons contribute to their maintenance.

The impossibility of an entirely satisfactory statistical tabulation in regard to all forms of charitable aid is especially marked in the case of benevolent institutions, since the conditions under which they have been established in the different centres in the Commonwealth have caused divergence in their development and in the classes of cases treated by them. For example, in Western Australia the Home for Destitute Women includes a maternity ward, for which the statistics are not separately kept. Since the predominating function of the institution is aid to the destitute, it has been included among benevolent asylums. In Victoria, nine of the hospitals are also benevolent asylums, and they are included wholly under the former. In South Australia, the Destitute Asylum includes lying-in and children's departments.

BENEVOLENT INSTITUTIONS.—REVENUE AND EXPENDITURE, 1915.

Particulars.	N.S. W.	Victoria.	Q'land.	S.A.	W.A.	Tas.	C'wlth.
Revenue—	£	£	£	£	£	£	£
Government aid	98,075	22,519	27,520	47,132	57,959	7,218	260,423
Municipal aid ... ..	...	876	...	...	...	...	876
Public subs., legacies, etc....	3,681	7,418	1,058	...	...	...	12,157
Fees	14,363	10,363	...	316	...	1,213	26,255
Other	401	1,799	5,872	170	...	239	8,481
Total... ..	116,520	42,975	34,450	47,618	57,959	8,670	308,192
Expenditure—							
Buildings	3,998	1,541	1,329	20,070	...	173	27,111
Maintenance	107,389	41,511	32,633	27,548	17,981	6,235	233,497
Other	6,790	315	129	...	39,978	2,262	49,374
Total... ..	118,177	43,267	34,291	47,618	57,959	8,670	309,982

(i.) *Government Asylums for the Infirm, New South Wales.* There were three asylum hospitals in New South Wales at the end of 1915. Rookwood, the largest of these, had an average number resident of 1384, Newington had 766, and Liverpool 594. At the Cottage Homes, situated at three separate localities in Parramatta, the average number resident was about 450. The State Labour Depot and Refuge at Randwick had 90 inmates at the end of 1915.

(ii.) *Benevolent Asylums, Victoria.* Besides the asylums attached to hospitals, there are eight institutions in Victoria. The Melbourne Benevolent Asylum had 686 inmates in 1915, the Victorian Home for Aged and Infirm 458, and the Convent of the Little Sisters of the Poor 222. Of the country benevolent asylums, Ballarat had 218 inmates, Bendigo 179, and Castlemaine 140.

(iii.) *Benevolent Asylums, Queensland.* There are four institutions in Queensland, with 939 beds. The most important of these is at Dunwich (Stradbroke Island) with 821 beds, while there are small institutions at Nundah, Rockhampton, and Toowoomba. At the end of 1915 the inmates of the four institutions numbered 1108.

(iv.) *Destitute Asylum, Adelaide.* Outside of hospitals and lunatic asylums the destitute of South Australia are dealt with and relieved at the Destitute Asylum, Adelaide. The institution includes lying-in and children's departments. In the asylum the number of inmates at the beginning of 1915 was 316.

(v.) *Homes for the Destitute, Western Australia.* There are two of these homes in Western Australia supported by public funds. The Old Men's Home at Claremont had 631 inmates at the beginning of 1915, and the Women's Home, Fremantle, which receives children also, had 100 adult inmates. The children admitted during the year numbered 65.

(vi.) *Charitable Establishments, Tasmania.* There are two principal Government charitable establishments in Tasmania. The New Town Infirmity and Consumptive Home, which has 231 beds, had 187 inmates at the end of June, 1916, and the Home for Invalids, Launceston, which has 20 beds, had 19 inmates on the same date.

4. *Orphanages, Industrial Schools, etc.*—The organisation of charitable effort varies greatly in regard to orphans and waifs. In many institutions shelter and some form of industrial training are offered to destitute children of all classes, whether orphans or not, while some of those styled orphanages do not confine their relief to orphans strictly so called. The figures in the next table are those for institutions where, it is believed, the principal effort is on behalf of those who are really orphans:—

ORPHANAGES IN COMMONWEALTH, 1911 to 1915.

Particulars.	1911.	1912.	1913.	1914.	1915.
Number of institutions	41	41	42	50	50
Admissions	1,760	1,563	1,514	2,340	2,376
Total number of inmates during year ...	5,465	5,057	4,720	4,344	4,503
Deaths	12	18	18	46	48
Expenditure ¹	£ 74,415	63,362	72,091	86,390	93,758

1. Incomplete. Expenditure is not available for some orphanages.

(i.) *New South Wales.* The care of destitute and neglected children is entrusted to the State Children's Relief Board, whose officers are charged with a strict supervision regarding the welfare of the children and the treatment of them by those to whom they are boarded out. Provision is made for instruction in various trades and callings, and many

of the children become useful members of society. The number of children under the board's supervision in 1915-16 was 12,391. The board's expenditure in that year was £150,274, or £12 3s. per child.

There are also fifteen orphanages, and various farm homes, country homes for children, etc., with upwards of 1000 children under care.

There are several reformatories and industrial schools maintained by the State. At the Parramatta Industrial School for Girls, to which a Training Home has lately been annexed, there was, during 1915, a gross enrolment of 209, with a daily average attendance of 146. At the Farm Home for boys, Gosford, the gross enrolment during 1915 was 171, the average attendance being 96.

(ii.) *Victoria*.—There are ten orphanages in Victoria, with 1639 beds. The total number under care in 1914-15 was 2144, of whom 1662 were inmates on 30th June, 1915. The expenditure in 1915-16 was £28,929. The Melbourne Protestant Asylum had 306 inmates on the 30th June, 1916, the Ballarat Asylum 231, Nazareth House, Ballarat, 227, Geelong Roman Catholic Boys 191, and Melbourne Roman Catholic Boys 189.

At the end of 1915 there were six schools for neglected children and seven reformatory schools in the State. Of these, two in each class are wholly controlled by the Government, being used merely as receiving and distributing depots. The children are sent thence to situations, foster homes, or other institutions dealing with State wards. The other schools are under private management, receiving an allowance for State wards. Many of the reformatory children are placed with friends, or licensed out. On 31st December, 1915, the wards of the State numbered 10,176—classed mostly as neglected children. There were also 35 children free from legal control, who, being incapacitated, were maintained by the State. The total expenditure for 1915 was £155,977, of which £149,324 was borne by the Government.

(iii.) *Queensland*.—There are ten orphanages in Queensland. The number under care on 31st December, 1915, was 1084, and the expenditure for the year £20,032.

There are also six industrial and reformatory schools, with 115 boys and 83 girls under detention at the end of 1915. The total number of children under State control at the end of 1915 was 5594. The gross cost was £80,579, of which £75,424 was borne by the Government.

(iv.) *South Australia*.—The State Children's Department exercises a supervision over the probationary and industrial schools and the reformatories. The total number of admissions into these institutions in 1914-15 was 217. The number of inmates on the 30th June, 1916, was 231, in addition to which 1538 were placed out, or had been adopted or apprenticed. There was one death amongst children in industrial schools, and of those placed out and in other institutions eleven died. The number of children under State control on 30th June, 1916, was 1769. The expenditure for 1915-16 was £33,464, of which the Government aid was £30,219.

There are three orphan asylums. The number under care during 1915 was 316, of whom 231 were inmates on 31st December, 1915. There was one death in the year, and the expenditure amounted to £3971.

(v.) *Western Australia*.—In Western Australia there were, at the end of 1915, four orphanages, three orphanages and industrial schools, and two industrial schools, containing 454 boys and 406 girls. There were also eight boys and thirteen girls at the Government Receiving Depot. The total number of children in charge of the State Children's Department at the end of 1915 was 1246, and the net cost £44,118.

(vi.) *Tasmania*.—There are three industrial schools and one orphanage under benevolent institutions in the State. Admissions in 1915-16 numbered twenty-eight, and total inmates during the year 195. No deaths occurred. The expenditure was £3312.

The New Town Training School for boys had 32 inmates at the end of June, 1916.

Under the boarding-out system upwards of 200 children are placed out. The total number of children under State control at the end of June, 1916, was 245, the gross cost to the State of children's relief being £3879, of which £382 represents parents' contributions.

(vii.) *Neglected Children*. The following table summarises the number of neglected children under State Departments. In New South Wales and Victoria a number of children are boarded out with their own mothers, the figures for the year in question being 7310 and 4681 respectively. Similar provisions are in force in some of the other States; the figures, however, are not available.

STATE RELIEF OF NEGLECTED CHILDREN.—TRANSACTIONS OF STATE DEPARTMENTS, 1915.

Particulars.	N.S.W. ¹	Vict.	Qld.	S.A. ²	W.A.	Tas.	Cwth.
Number of Children under State control at end of year—							
Males	7,415	5,271	2,946	970	636	142	17,380
Females	4,976	4,905	2,648	799	610	103	14,041
Total	12,391	10,176	5,594	1,769	1,246	245	31,421
	£	£	£	£	£	£	£
Gross cost to State of children's relief	156,631	155,977	80,579	32,464	44,696	3,379	474,226
Receipts, from parents' contributions, etc.	6,357	6,653	5,155	3,245	578	382	22,370
Net cost	150,274	149,324	75,424	29,219	44,118	3,497	451,856

1. For year ended 5th April following. 2. For the year ended 30th June, 1916.

5. *Lepers*.—Lazarets for the treatment of lepers have been established in New South Wales (Little Bay); Queensland (Peel Island, near Brisbane, and Dayman Island, Torres Strait); and the Northern Territory (Mud Island). Quarantine and isolation stations have also been used for the segregation of patients. A great deal of information concerning the beginning and progress of leprosy in Australia was collected and published by the late Dr. J. Ashburton Thompson, while Chief Government Medical Officer and President of the Board of Health, New South Wales, from whose reports the following table has been compiled, up to and including the year 1911:—

CASES OF LEPROSY RECORDED IN THE COMMONWEALTH, 1855 to 1915.

State.	1855 to 1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.
New South Wales	140	4	2	2	5	3	4	2	4	3
Victoria	127	...	...	...	...	...	1	...	1	1
Queensland	² 186	21	23	8	6	7	4	12	8	10
South Australia	37	1	...	...	...	...	...	...	...	...
Western Australia	4	...	3	4	3	2	...	...	...	5
Tasmania	1	...	...	...	...	...	...	...	...	...
Northern Territory ³ ... ..	...	...	...	...	...	...	...	1	...	...
Total	¹ ² 395	26	28	14	14	12	9	15	13	19

1. In addition, some Chinese.

2. In addition, many Kanakas.

3. As from the year 1911.

6. **Hospitals for the Insane.**—The method of compiling insanity statistics has been fairly uniform throughout the States, but the various methods of observing the early stages of the development of insanity introduce an element of uncertainty which considerably reduces the value of comparison. In the summary given below, licensed houses (except as regards expenditure) are included in the total for New South Wales and Victoria, but in the latter State the figures are exclusive of reception houses and observation wards in gaols:—

HOSPITALS FOR INSANE,¹ COMMONWEALTH, 1911 to 1915.

Particulars.	1911.	1912.	1913.	1914.	1915.
Number of institutions	33	35	35	35	34
Number of beds	15,825	15,911	16,115	16,432	16,417
Admissions	3,079	3,017	3,153	3,339	3,118
Discharged as recovered, relieved, etc. ...	1,404	1,365	1,415	1,574	1,491
Deaths	1,246	1,311	1,292	1,270	1,341
Expenditure	£616,302	693,772	772,984	755,697	815,200

1. Exclusive of receiving wards at two general hospitals and including six licensed houses for insane in Victoria.

The proportion of insane, as well as the total number returned as under treatment, has changed very little during recent years. In the next table the number of insane under official care in Australia is given, and in the table following, the proportion of insane to population.

The number of insane persons in institutions in Australia at the end of each of the years 1911-1915 was as follows:—

INSANE PERSONS IN THE COMMONWEALTH, 1911 to 1915.

State.	1911.	1912.	1913.	1914.	1915.
New South Wales	6,351	6,470	6,639	6,906	7,063
Victoria	5,340	5,470	5,631	5,729	5,767
Queensland	2,283	2,322	2,370	2,448	2,441
South Australia	1,084	1,082	1,082	1,080	1,137
Western Australia	842	876	933	981	1,009
Tasmania	521	534	526	537	522
Commonwealth	16,421	16,754	17,181	17,681	17,939

For the period embraced in the tables Victoria shows the highest rate of insanity, roughly one in 250 persons. It is stated that this is chiefly owing to the proportionately greater number of old persons in that State. On the other hand, in South Australia a considerably lower insanity rate has prevailed, averaging about one in 400, Tasmania following closely with an average of about one in 370.

PROPORTION OF INSANE, COMMONWEALTH, 1911 to 1915.

State.	1911.	1912.	1913.	1914.	1915.
PER 1000 OF THE POPULATION.					
New South Wales ...	3.79	3.64	3.62	3.71	3.78
Victoria ...	3.92	3.96	3.98	4.00	4.04
Queensland ...	3.67	3.65	3.60	3.62	3.55
South Australia ...	2.57	2.50	2.46	2.42	2.58
Western Australia ...	2.86	2.86	2.91	3.04	3.12
Tasmania ...	2.69	2.71	2.61	2.67	2.62
Commonwealth ...	3.59	3.54	3.53	3.58	3.62

Consequent upon the development of a more rational attitude towards the treatment of mental cases, a greater willingness is being shown to submit necessary cases to treatment at an earlier stage than formerly. Hence an increase in the number of recorded cases does not necessarily imply an actual increase in insanity. It is important to bear this in mind, because the small progressive increase in the numbers in the first of the immediately preceding tables is probably to be attributed largely, if not solely, to this circumstance.

The leading features in regard to institutions for the care of the insane are given below for 1915:—

HOSPITALS FOR THE INSANE.—NUMBER, STAFFS, ACCOMMODATION, COMMONWEALTH, 1915.

Particulars.	N.S.W.	Vict. ¹	Qld.	S.A.	W.A.	Tas.	C'with.
Number of Institutions—							
Government ...	9	9	3	1	1	1	24
Private ...	3	2 ⁶	...	...	1	...	10
Total ...	12	15	3	1	2	1	34
Medical Staff—							
Males ...	20	21	7	2	2	3	55
Females ...	1	...	...	...	1	...	2
Total ...	21	21	7	2	3	3	57
Nursing Staff & Attendants—							
Males ...	581	539	178	72	125	81	1,576
Females ...	492	510	109	57	60	57	1,285
Total ...	1,073	1,049	287	129	185	138	2,861
Accommodation—							
No. of dormitories ...	³ 346	1,423	495	°...	34	394	°...
Capacity in cubic feet ...	³ 3,548,975	3,773,900	1,415,913	°...	672,157	706,704	°...
No. of beds ...	³ 6,238	5,208	2,222	1,169	1,026	554	16,417
Cubic feet to each bed ...	⁶ 600 °1,000	725	1,889	°...	655	1,276	°...

1. Exclusive of Receiving House, Royal Park, and of the Receiving Wards at Bendigo and Geelong hospitals. * 2. There are six private licensed houses in Victoria, in which there were 95 cases at end of 1915. Other figures for these private asylums are not available. 3. Government hospitals only. 4. Ordinary dormitory. 5. Hospital dormitory. 6. Information not available.

HOSPITALS FOR THE INSANE.—PATIENTS TREATED, 1915.

Particulars.	N.S.W.	Vic. ¹	Q'ld.	S.A.	W.A.	Tas.	C'wlth.
Admissions & re-admissions during year—							
Males	809	434	272	166	115	31	1,827
Females	537	390	157	114	68	25	1,291
Total	1,346	824	429	280	183	56	3,118
Discharges—Recovered—							
Males	338	108	130	62	49	14	701
Females	230	110	85	47	32	13	517
Total	568	218	215	109	81	27	1,218
Relieved and unrelieved—							
Males	84	64	11	15	5	2	181
Females	44	39	8	10	5	5	111
Total	128	103	19	25	10	7	292
Absconders not retaken—							
Males	4	5	...	...	...	...	9
Females ... ..	...	...	...	...	...	...	...
Total	4	5	...	...	...	...	9
Deaths—							
Males	310	262	114	50	41	20	797
Females	179	199	88	39	22	17	544
Total	489	461	202	89	63	37	1,341
No. of patients on books at end of year—							
Males	4,153	2,882	1,547	637	720	269	10,208
Females	2,910	2,885	894	500	289	253	7,731
Total	7,063	5,767	2,441	1,137	1,009	522	17,939
Average daily number resident—							
Males	3,967	2,622	1,529	619	706	270	9,713
Females	2,643	2,509	900	495	275	259	7,081
Total	6,610	5,131	2,429	1,114	981	529	16,794
No. of patients on books at end of year per 1000 of population—							
Males	4.31	4.09	4.19	2.94	4.08	2.64	4.03
Females	3.20	4.00	2.81	2.24	1.98	2.60	3.20
Persons	3.77	4.04	3.55	2.58	3.13	2.62	3.62
Average number of patients resident in hospitals for insane per 1000 of mean population—							
Males	4.12	3.72	4.14	2.85	4.00	2.65	3.83
Females	2.91	3.48	2.83	2.22	1.89	2.66	2.93
Persons	3.53	3.60	3.54	2.53	3.04	2.65	3.39

1. Exclusive of inmates of the Receiving House, Royal Park, and of Receiving Wards attached to the hospitals at Bendigo and Geelong, and of five private licensed houses.

In some of the States it is the practice to allow persons well advanced towards recovery to leave the institutions and reside with their relatives or friends, but they are nevertheless under supervision of the asylum authorities and are kept on the books. The figures for admission, etc., include absconders captured and readmitted. Very few escapes succeed in avoiding capture.

The revenue of Government asylums is small in comparison with their cost; and consists chiefly of patients' fees. The proportion of expenditure borne by the State amounts to about 87 per cent.

HOSPITALS FOR THE INSANE (GOVERNMENT ONLY), REVENUE AND EXPENDITURE, 1915.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
Revenue (exclusive of Government Grants)—	£	£	£	£	£	£	£
Fees of patients ...	45,236	22,396	9,297	9,753	3,533	5,000	95,215
Other ...	2,144	...	2,244	524	1,052	524	6,488
Total ...	47,380	22,396	11,541	10,277	4,585	5,524	101,703
Expenditure—							
Salaries ...	148,700	109,753	46,009	17,598	27,630	14,569	364,259
Maintenance ...	126,547	117,669	54,163	25,956	23,577	19,122	367,033
Buildings ...	...	53,986	...	...	...	...	53,986
Other ...	23,478	...	1,973	170	2,553	1,748	29,922
Total ...	298,725	281,408	102,144	43,724	53,760	35,439	815,200

(i.) *New South Wales.* The latest return available shews that the average length of residence in the hospitals of persons who died was 4 years 8 months for males and 5 years 9 months for females; and that of persons who were discharged was 1 year 2 months for males and 1 year 7 months for females.

There are also two State reception houses, where suspected persons are confined for observation, being subsequently either discharged or transferred to lunatic asylums. In two of the gaols observation wards have been instituted, with similar functions.

(ii.) *Victoria.* The average residence in the hospitals of those who died was 8 years 3 months for males and 12 years 11 months for females; that of those discharged, 1 year 3 months for males and 1 year 9 months for females.

There are lunacy wards in two of the general hospitals; and also a State receiving house where persons are placed for observation, and subsequently discharged or transferred to asylums.

(iii.) *Queensland.* The average residence in the institutions of those who died was 6 years 3 months for males and 7 years 9 months for females; and of those who were discharged, 12 months for males and 18 months for females.

There are also three reception houses for insane, which act as depots to which patients are sent with a view to determining whether their mental illness is of a merely temporary character, readily to be relieved, or is of such a nature as to need further treatment at the State asylums.

(iv.) *South Australia.* The average residence of those who died was 7 years and 2 months for males and 7 years 5 months for females; of those discharged, 1 year and 10 months for males and 13 months for females.

(v.) *Western Australia.* The period of residence of those who died during the year averaged 2 years 9 months for males and 3 years 10 months for females; of those who were discharged, 1 year and 5 months for males and 10 months for females.

(vi.) *Tasmania.* The period of residence of those who died was 10 years 6 months for males and 9 years 7 months for females; that of those discharged, 2 years 2 months for males and 10 months for females.

(vii.) *Causes of Insanity.* The proportion of causes of insanity to the total of ascertained causes in Australia in the five years 1911-1915 shews that hereditary influences have been the chief factor, more than one-fifth of the total ascertained causes

coming under this head. Domestic troubles, adverse circumstances, etc., have also been a fruitful source. About one case in seven was due to intemperance in drink.

**PROPORTION OF ASCERTAINED CAUSES, Etc., OF INSANITY, COMMONWEALTH,
1911 TO 1915.**

Causes, Previous History, etc.	1911.	1912.	1913.	1914.	1915.
	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
Domestic trouble, adverse circumstances, mental anxiety	10.6	11.8	7.6	10.1	10.6
Intemperance in drink	15.0	16.3	16.3	12.9	11.6
Hereditary influence, ascertained; congenital defect, ascertained	18.7	21.7	22.6	16.6	22.9
Pregnancy, lactation, parturition and puerperal state, uterine and ovarian disorders, puberty, change of life	5.9	6.6	6.0	4.9	7.1
Previous attacks	9.3	9.5	8.7	10.8	13.0
Accident, including sunstroke	3.0	2.3	2.6	2.2	1.7
Old age	9.9	9.2	10.2	8.4	8.2
Other causes ascertained	27.6	22.6	26.0	34.1	24.9
All ascertained causes	100.0	100.0	100.0	100.0	100.0

7. Treatment of Inebriates.—The treatment of inebriates is referred to in the section dealing with Public Justice hereinbefore. (See page 853.)

8. Protection of Aborigines.—For the protection of the aboriginal Australian race there are institutions, under the supervision of Aborigines Boards, where the blacks are housed and encouraged to work, the children receiving elementary education. The work is usually carried on at mission stations, but many of the natives are nomadic in habit of life, and receive food and clothing when they call, whilst others but rarely come under the notice of the boards. The native race is extinct in Tasmania. The estimated average annual expenditure on maintenance, etc., for the last five years was—New South Wales, £25,000; Victoria, £4000; Queensland, £21,000; South Australia, £19,000; Western Australia, £25,000; Northern Territory, £3000; total for Commonwealth, £97,000. In New South Wales the average number receiving monthly aid in 1915 was 2121, of whom 917 were adults; in Victoria there were 283 under the care of the Aborigines Protection Board on the 30th June, 1915; in Queensland, at the end of 1915, there were 2497 aborigines at the mission stations; in South Australia, at the end of 1915, there were 753 inmates at mission stations, while in Western Australia the aborigines and half-castes in the native institutions numbered 350. At the mission stations in the Northern Territory about 300 were in residence, but casual assistance and medical attendance is given to large numbers of natives every year.

9. Other Charitable Institutions.—Owing to variety of name and function of other charitable institutions it has been found impracticable to give detailed results. The aid given in kind—food, clothing, tools of trade, etc.—is considerable, whilst the shelter and treatment afforded ranges from a bed for a night for casual callers in establishments ministering minor charity, to indoor treatment over long periods in those that exist for the relief of the aged and infirm. The institutions not so particularised include asylums for the deaf, dumb, and blind, maternity institutions and infant homes, homes for the destitute and aged poor, industrial colonies, night shelters, crèches, homes of hope, rescue homes, free kindergarten and ragged schools, auxiliary medical charities, free dispensaries, benevolent societies and nursing systems, ambulance and health societies, boys' brigades, humane and animals' protection societies, prisoners' aid associations, shipwreck relief societies, bush fires and mining accident relief funds, etc.

10. **State Expenditure on Charities.**—The table below gives the amount expended by Government on charities in each of the last five years, the figures for the various States being compiled, as far as possible, on the same basis :—

STATE EXPENDITURE ON CHARITIES, 1911 to 1915.

State or Territory.	1911.	1912.	1913.	1914.	1915.
	£	£	£	£	£
New South Wales	518,484	576,886	683,102	711,453	779,303
Victoria	436,859	446,332	468,588	485,018	541,668
Queensland	237,224	262,171	261,237	321,597	307,899
South Australia	98,236	118,931	117,204	129,281	167,272
Western Australia	177,743	184,940	201,215	222,417	228,064
Tasmania	43,245	45,166	62,205	70,387	78,092
Northern Territory ... ..	...	5,328	5,602	5,301	4,864
Commonwealth	1,511,791	1,639,754	1,799,153	1,945,454	2,107,162

11. **Total Charitable Expenditure.**—The expenditure in the Commonwealth in money on hospitals, charities, and all forms of relief publicly given, comprising the amounts furnished by Government and those raised by public subscription, etc., but excluding old-age pensions, exceeds £3,000,000 annually.

SECTION XXV.

GENERAL GOVERNMENT.

§ 1. Scheme of Parliamentary Government.

1. **General.**—The legislative power of the Commonwealth is vested in the Federal Parliament, which consists of the Sovereign, the Senate, and the House of Representatives. The Sovereign is represented throughout the Commonwealth by the Governor-General, who, subject to the Constitution of the Commonwealth, has such powers and functions as the Sovereign is pleased to assign to him. In each State there is a State Governor, who is the representative of the Sovereign for the State, and who exercises such powers within the State as are conferred upon him by the Letters Patent which constitute his office, and by the instructions, which inform him in detail of the manner in which his duties are to be fulfilled. The Legislature in each State is also bi-cameral, and consists of (a) a Legislative Council and (b) a Legislative Assembly, or House of Assembly, the legislative powers of these chambers being delimited by the Commonwealth and the State Constitutions. The latter chamber, which is the larger, is always elective; the qualification for the franchise varies in character. The former chamber is, in the case of New South Wales and Queensland, nominated by the Governor-in-Council, but in the other States it is elective, the constituencies being differently arranged and some property qualification for the electorate being required. In the Federal Parliament, however, the qualifications for the franchise are identical for both Houses. A brief account of the constitutional history of each of the States was given in previous issues of this book (see especially Year Book No. 4, pp. 27 to 32).

2. **Number of Members of the Legislatures.**—The following table shews the number of members in each of the legislative chambers in the Commonwealth and in each State at 31st August, 1917:—

MEMBERS OF PARLIAMENT OF AUSTRALIA, 1917.

Members in—	C'wealth.	N.S.W.	Victoria.	Q'land.	S. Aust.*	W. Aust.	Tas.	Total.
Upper House	36	72	34	37	20	30	18	247.
Lower House	75	90	65	72	46	50	30	428
Total ...	111	162	99	109	66	80	48	675

* By "Constitution Further Amendment Act 1913." the number of members in the Upper House was increased to 20, and in the Lower to 46, the previous numbers being 18 and 40 respectively.

The use of the expressions "Upper House" and "Lower House" in the above statement, though not justified constitutionally, is convenient, inasmuch as the legislative chambers are known by different names in the Commonwealth and in some of the States.

In the Commonwealth Parliament the Upper House is known as the Senate, and in the State Parliaments as the Legislative Council. The Lower House is known as follows:—In the Commonwealth Parliament as the House of Representatives, in the State Parliaments of New South Wales, Victoria, Queensland, and Western Australia as the Legislative Assembly, and in the State Parliaments of South Australia and Tasmania as the House of Assembly.

3. The Cabinet and Executive Government.—The sections of the Commonwealth Constitution Act dealing with the Executive Government are given on pages 28 and 29 herebefore. In both the Commonwealth and the State Legislatures the forms of government have been founded on their prototype, the Imperial Government, and the relations established between the Ministry and the representatives of the people are in accordance with those prevailing in Great Britain. The executive powers in the Commonwealth and in the State Governments are vested in the Governor-in-Council. The Executive Council in the Commonwealth and in the majority of the States is practically co-extensive with a group of departmental chiefs, who are usually spoken of as the Cabinet, and who change with the rise and fall of party majorities. In the Commonwealth Government, however, as well as in the States of Victoria and Tasmania, the Cabinet on leaving office remain members of the Executive Council, though they no longer attend its meetings, and it is in fact an essential feature of the Cabinet system of Government that they should not do so, except to assist the Governor in transacting purely formal business, or to advise on non-political questions.

(i.) *The Executive Council.* This body is composed of the Governor and the Ministers of State holding office for the time being. The latter are sworn both as Executive Councillors and as Ministers controlling the different administrative departments. It should be observed that all persons living who have held Ministerial office under former Governments are also technically members of the Executive Council, and are thus liable to be specially summoned for attendance at meetings of that body. The meetings are official in character; they are presided over by the Governor-General (or Governor) and are attended by the clerk, who keeps a formal record of its proceedings. At these meetings the decisions of the Cabinet are put into official form and made effective, appointments are confirmed, resignations accepted, proceedings ordered, and notices and regulations published.

The official members of the Executive Council in July, 1917, have been previously specified (see page 41). In addition, all living members of past Ministries (see following pages) are technically liable to be officially summoned to attend meetings of the Executive Council.

Particulars of previous Commonwealth Ministries are given on pages 38 to 41 herebefore, and on pages 882 and 883 following.

(ii.) *The Cabinet.* The meetings of this body are private and deliberative. No one is admitted but the actual Ministry of the day, no records of the meetings transpire, and no official notice is taken of the proceedings. The members of the Cabinet, being the leaders of the party in power in Parliament, control the bent of legislation, and must retain the confidence of the people and also of the Governor-General (or Governor), to whom they act as an advising body. They also in effect wield, by virtue of their seats on the Executive Council, the whole executive force of the community. In summoning, proroguing, or dissolving Parliament, the Governor-General (or Governor) is usually guided by the advice tendered him by the Cabinet, though legally in no way bound to accept such advice. The following statement gives the names of the Ministers of State for the Commonwealth who have held office since the inauguration of the Commonwealth Government:—

MINISTERS OF STATE FOR THE COMMONWEALTH OF AUSTRALIA FROM
1st JANUARY, 1901, to AUGUST, 1917.

HOME AND TERRITORIES. (Previous to 14/11/16 known as External Affairs.)			TRADE AND CUSTOMS.		
Name.	From	To	Name.	From	To
Rt. Hon. E. BARTON, P.C., K.C.*	1/1/01	23/9/03	Rt. Hon. C. C. KINGSTON, P.C., K.C.	1/1/01	24/7/03
Hon. A. DEAKIN*	23/9/03	26/4/04	Hon. Sir W. J. LYNE, K.C.M.G.	7/8/03	26/4/04
Hon. W. M. HUGHES † ¶	26/4/04	17/8/04	Hon. A. FISHER † †	26/4/04	17/8/04
Rt. Hon. G. H. REID, P.C., K.C. **	17/8/04	4/7/05	Hon. A. McLEAN	17/8/04	4/7/05
Hon. A. DEAKIN*	4/7/05	12/11/08	Hon. Sir W. J. LYNE, K.C.M.G.	4/7/05	29/7/07
Hon. E. L. BATCHELOR	12/11/08	2/6/09	Hon. A. CHAPMAN	29/7/07	12/11/08
Hon. L. E. GROOM	2/6/09	29/4/10	Hon. F. G. TUDOR	12/11/08	2/6/09
Hon. E. L. BATCHELOR	29/4/10	4/8/10/11	Hon. Sir R. W. BEST, K.C.M.G.	2/6/09	29/4/10
Hon. J. THOMAS	14/10/11	20/5/13	Hon. F. G. TUDOR	29/4/10	20/5/13
Hon. P. McM. GLYNN, K.C.	20/5/13	17/9/14	Hon. L. E. GROOM	20/5/13	17/9/14
Hon. J. A. ARTHUR	17/9/14	49/12/14	Hon. F. G. TUDOR	17/9/14	14/9/16
Hon. HUGH MAHON	14/12/14	14/11/16	Rt. Hon. Wm. HUGHES, P.C.	29/9/16	14/11/16
Hon. F. W. BAMFORD	14/11/16	17/2/17	Hon. W. O. ARCHIBALD	14/11/16	17/2/17
Hon. P. McM. GLYNN, K.C.	17/2/17	¶	Hon. J. A. JENSEN	17/2/17	¶
ATTORNEY-GENERAL.			TREASURER.		
Name.	From	To	Name.	From	To
Hon. A. DEAKIN	1/1/01	23/9/03	Rt. Hon. Sir G. TURNER, P.C., K.C.M.G.	1/1/01	26/4/04
Hon. J. G. DRAKE	23/9/03	26/4/04	Hon. J. C. WATSON*	26/4/04	17/8/04
Hon. H. B. HIGGINS, K.C.	26/4/04	17/8/04	Rt. Hon. Sir G. TURNER, P.C., K.C.M.G.	17/8/04	4/7/05
Hon. Sir J. H. SYMON, K.C.M.G., K.C.	17/8/04	4/7/05	Rt. Hon. Sir J. FORREST, P.C., G.C.M.G.	4/7/05	29/7/07
Hon. I. A. ISAACS	4/7/05	11/10/06	Hon. Sir W. J. LYNE, K.C.M.G.	29/7/07	12/11/08
Hon. L. E. GROOM	11/10/06	12/11/08	Hon. A. FISHER* † †	12/11/08	2/6/09
Hon. W. M. HUGHES † ¶	12/11/08	2/6/09	Rt. Hon. Sir J. FORREST, P.C., G.C.M.G.	2/6/09	29/4/10
Hon. P. McM. GLYNN	2/6/09	29/4/10	Rt. Hon. A. FISHER, P.C.*	29/4/10	20/5/13
Hon. W. M. HUGHES † ¶	29/4/10	20/5/13	Rt. Hon. Sir J. FORREST, P.C., G.C.M.G.	20/5/13	17/9/14
Hon. W. H. IRVINE, K.C. † † †	20/5/13	17/9/14	Rt. Hon. A. FISHER, P.C.*	17/9/14	27/10/15
Hon. W. M. HUGHES* † ¶	17/9/14	¶	Hon. W. G. HIGGS	27/10/15	27/10/16
			Hon. A. POYNTON	24/11/16	17/2/17
			Rt. Hon. Sir J. FORREST, P.C., G.C.M.G.	17/2/17	¶
WORKS AND RAILWAYS. (Previous to 14/11/16 known as Home Affairs.)			DEFENCE.		
Name.	From	To	Name.	From	To
Hon. Sir W. J. LYNE, K.C.M.G.	1/1/01	7/8/03	Hon. Sir J. R. DICKSON, K.C.M.G.*	1/1/01	¶10/1/01
Rt. Hon. Sir J. FORREST, P.C., G.C.M.G.	7/8/03	26/4/04	Rt. Hon. Sir J. FORREST, P.C., G.C.M.G.	17/1/01	7/8/03
Hon. E. L. BATCHELOR	26/4/04	17/8/04	Hon. J. G. DRAKE	7/8/03	23/9/03
Hon. D. THOMSON	17/8/04	4/7/05	Hon. A. CHAPMAN	23/9/03	26/4/04
Hon. L. E. GROOM	4/7/05	11/10/06	Hon. A. DAWSON	26/4/04	17/8/04
† Hon. T. T. EWING	11/10/06	23/1/07	Hon. J. W. McCAY	17/8/04	4/7/05
Hon. J. H. KEATING	23/1/07	12/11/08	Hon. T. PLATFORD	4/7/05	23/1/07
Hon. H. MAHON	12/11/08	2/6/09	Hon. Sir T. T. EWING, K.C.M.G.	23/1/07	12/11/08
Hon. G. W. FULLER	2/6/09	29/4/10	Hon. G. F. PEARCE	12/11/08	2/6/09
Hon. K. O'MALLEY	29/4/10	20/5/13	Hon. J. COOK † †	2/6/09	29/4/10
Hon. JOSEPH COOK* † †	20/5/13	17/9/14	Hon. G. F. PEARCE	29/4/10	20/5/13
Hon. W. O. ARCHIBALD	17/9/14	27/10/15	Hon. E. D. MILLEN	20/5/13	17/9/14
Hon. K. O'MALLEY	27/10/15	14/11/16	Hon. G. F. PEARCE	17/9/14	¶
Hon. P. J. LYNCH	14/11/16	17/2/17			
Hon. W. A. WATT	17/2/17	¶			
POSTMASTER-GENERAL.			VICE-PRESIDENT OF THE EXECUTIVE COUNCIL.		
Name.	From	To	Name.	From	To
Rt. Hon. Sir JOHN FORREST, P.C., G.C.M.G.	1/1/01	17/1/01	Hon. R. E. O'CONNOR, K.C.	1/1/01	23/9/03
Hon. J. G. DRAKE	5/2/01	7/8/03	Hon. T. PLATFORD	23/9/03	26/4/04
Hon. Sir P. O. FYSH, K.C.M.G.	7/8/03	26/4/04	Hon. G. McGRGOR	26/4/04	17/8/04
Hon. H. MAHON	26/4/04	17/8/04	Hon. J. G. DRAKE	17/8/04	4/7/05
Hon. S. SMITH	17/8/04	4/7/05	† Hon. T. T. EWING	4/7/05	11/10/06
Hon. A. CHAPMAN	4/7/05	29/7/07	Hon. J. H. KEATING	11/10/06	19/2/07
Hon. S. MAUGER	29/7/07	12/11/08	Hon. Sir R. W. BEST, K.C.M.G.	19/2/07	12/11/08
Hon. J. THOMAS	12/11/08	2/6/09	Hon. G. McGRGOR	12/11/08	2/6/09
Hon. Sir J. QUICK	2/6/09	29/4/10	Hon. E. D. MILLEN	2/6/09	29/4/10
Hon. J. THOMAS	29/4/10	14/10/11	Hon. G. McGRGOR	29/4/10	20/5/13
Hon. C. E. FRAZER	14/10/11	20/5/13	Hon. J. H. McCOLL	20/5/13	17/9/14
Hon. AGAR WENNE	20/5/13	17/9/14	Hon. A. GARDINER	17/9/14	27/11/16
Hon. W. G. SPENCE	17/9/14	27/10/15	Hon. W. G. SPENCE	27/11/16	17/2/17
Hon. W. WEBSTER	27/10/15	¶	Hon. E. D. MILLEN	17/2/17	¶

* Prime Minister. † Afterwards the Rt. Hon. Sir E. Barton, P.C., G.C.M.G., etc. ‡ Afterwards the Hon. Sir T. T. Ewing, K.C.M.G. § Afterwards the Hon. Sir N. E. Lewis, K.C.M.G. ¶ Still in office. † Died while holding office. ** Prime Minister, afterwards the Rt. Hon. Sir G. H. Reid, P.C., K.C.M.G., etc. † † Afterwards the Rt. Hon. A. Fisher, P.C. † † † Afterwards the Rt. Hon. J. Cook, P.C. † † † † Afterwards Sir W. H. Irvine, K.C.M.G., K.C. † † † † † Afterwards the Rt. Hon. W. M. Hughes, P.C.

MINISTERS OF STATE FOR THE COMMONWEALTH OF AUSTRALIA FROM
1st JANUARY, 1901, TO AUGUST, 1917—(Continued).
WITHOUT PORTFOLIO.

Name.	From	To	Name.	From	To
Hon. N. E. LEWIS† ...	1/1/01	23/4/01	Hon. W. H. KELLY ...	20/5/13	17/9/14
Hon. Sir P. O. FYSH, K.C.M.G. ...	23/4/01	7/8/03	Hon. H. MAHON ...	17/9/14	14/12/14
Hon. J. H. KEATING ...	5/7/05	11/10/06	Hon. J. A. JENSEN ...	17/9/14	12/7/15
Hon. S. MAUGER ...	11/10/06	29/7/07	Hon. E. J. RUSSELL ...	17/9/14	||
Hon. J. H. COOK ...	28/1/08	12/11/08	Hon. W. H. LAIRD SMITH ...	14/11/16	17/2/17
Hon. J. HUTCHISON ...	12/11/08	2/6/09	Hon. L. E. GROOM ...	17/2/17	||
Hon. A. DEAKIN* ...	2/6/09	29/4/10	THE NAVY.		
Col. Hon. J. F. G. FOXTON, C.M.G. ...	2/6/09	29/4/10			
Hon. E. FINDLEY ...	29/4/10	20/5/13			
Hon. C. E. FRAZER ...	29/4/10	14/10/11			
Hon. E. A. ROBERTS ...	23/10/11	20/5/13	Hon. J. A. JENSEN ...	12/7/15	17/2/17
Hon. J. S. CLEMONS ...	20/5/13	17/9/14	Right Hon. J. Cook, P.C. ...	17/2/17	||

See notes on previous page.

(iii.) *Constitution of Ministries.* The subjoined table shows the constitution of the Ministries in the Commonwealth and the State Governments at 31st August, 1917:—

CONSTITUTION OF MINISTRIES, 1917.

Ministers with Seats in—	C'wealth.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	Total.
The Upper House ...	3	2	4	1	2	2	2	16
The Lower House ...	8	10	7	8	4	7	4	48
Total ...	11	12	11	9	6	9	6	64

The names of the members of the Ministries in each State in August, 1917, are shewn in the following statement:—

MEMBERS OF STATE GOVERNMENT MINISTRIES, 1917.

NEW SOUTH WALES.—MINISTRY.

Premier and Colonial Treasurer—

HON. W. A. HOLMAN.

Colonial Secretary—

HON. G. W. FULLER.

Solicitor-General and Minister for Justice—

HON. J. GARLAND, K.C., M.L.C.

Secretary for Public Works and Minister for Railways—

HON. R. T. BELL.

Minister for Labour and Industry—

HON. G. S. BEBBY.

Attorney-General—

HON. D. R. HALL.

Minister for Public Instruction—

HON. A. G. F. JAMES.

Minister for Lands and Minister for Forests—

HON. W. G. ASHFORD.

Minister for Mines—

HON. J. C. L. FITZPATRICK.

Minister for Agriculture—

HON. W. C. GRAHAME.

Vice-President of the Executive Council and Minister for Public Health and Local Government—

HON. J. D. FITZGERALD, M.L.C.

Minister without Portfolio—

HON. D. STOREY.

VICTORIA.—MINISTRY.

Premier, Treasurer, and Min. of Labour—

HON. SIR A. PEACOCK, K.C.M.G.

Chief Secretary and Minister of Public Health—

HON. D. MCLEOD.

Minister of Railways and Water Supply—

HON. H. MACKENZIE.

Commissioner of Crown Lands and Survey—

HON. W. HUTCHINSON.

Minister for Mines and Forests—

HON. T. LIVINGSTON.

Commissioner of Public Works—

HON. W. A. ADAMSON, M.L.C.

Attorney-General and Minister of Public Instruction—

HON. H. W. S. LAWSON.

Minister of Agriculture—

HON. F. W. HAGELTHORN, M.L.C.

Ministers without Portfolio—

HON. W. BAILLIEU, M.L.C.

HON. J. C. MEMBREY.

HON. A. ROBINSON, M.L.C.

QUEENSLAND—MINISTRY.

<i>Premier, Vice-Pres. of Ex. Council, Chief Sec., and Attorney-General—</i> HON. T. J. RYAN.	<i>Secretary for Public Instruction—</i> HON. H. F. HARDACRE.
<i>Home Secretary—</i> HON. J. HUXHAM.	<i>Secretary for Mines—</i> HON. A. J. JONES.
<i>Secretary for Public Lands—</i> HON. J. MCE. HUNTER.	<i>Secretary for Agriculture and Stock—</i> HON. W. LENNON.
<i>Treasurer and Secretary for Public Works—</i> HON. E. G. THEODORE.	<i>Minister without Portfolio—</i> HON. J. A. FIBELLY.
<i>Secretary for Railways—</i> HON. J. H. COYNE.	

SOUTH AUSTRALIA.—MINISTRY.

<i>Premier, Chief Secretary, and Attorney-General—</i> HON. A. H. PEAKE.	<i>Commissioner of Crown Lands and Immigration—</i> HON. H. JACKSON.
<i>Treasurer and Minister for Railways—</i> HON. SIR R. BUTLER.	<i>Minister of Repatriation, of Agriculture and of Industry—</i> HON. R. P. BLUNDELL.
<i>Commissioner of Public Works and Minister of Mines and of Marine—</i> HON. J. G. BICE, M.L.C.	<i>Minister of Education—</i> HON. A. W. STYLES, M.L.C.

WESTERN AUSTRALIA.—MINISTRY.

<i>Premier and Minister for Lands and Agriculture—</i>	HON. H. B. LEFROY, C.M.G.
<i>Colonial Secretary and Minister for Education—</i> HON. H. P. COLEBATCH, M.L.C.	<i>Colonial Treasurer—</i> HON. J. GARDINER.
<i>Minister for Mines and Railways—</i> HON. C. A. HUDSON.	<i>Minister for Works and for Water Supply—</i> HON. W. J. GEORGE.
<i>Attorney-General and Min. for Industries—</i> HON. R. T. ROBINSON, K.C.	<i>Ministers without Portfolio—</i> HON. F. E. S. WILLMOTT. HON. C. F. BAXTER, M.L.C. HON. W. L. THOMAS.

TASMANIA.—MINISTRY.

<i>Premier, Chief Secretary and Minister for Education—</i>	HON. W. H. LEE.
<i>Attorney-General and Minister for Railways—</i> HON. W. B. PROPSTING, M.L.C.	<i>Minister of Lands and Works and Agriculture—</i> HON. J. B. HAYES.
<i>Treasurer and Minister for Mines—</i> HON. SIR N. E. LEWIS.	<i>Ministers without Portfolio—</i> HON. T. SHIELDS. HON. H. HAYS, M.L.C.

4. **The Appointment of Ministers and of Executive Councillors.**¹—Although it is technically possible for the Governor to make and unmake cabinets at his pleasure, under all ordinary circumstances his apparent liberty in choosing his Executive Council is virtually restricted by the operation of constitutional machinery. When a Ministry is defeated in Parliament or at the polls, the procedure both in the Commonwealth and the State Parliaments generally, though not invariably, follows that prevailing in the Imperial Parliament. The customary procedure in connection with the resignation or acceptance of office by a Ministry is described fully in previous issues of the Year Book. (No. 6, page 942.)

5. **Enactments of the Parliament.**—In the Commonwealth, all laws are enacted in the name of the Sovereign, the Senate, and the House of Representatives. The subjects with respect to which the Commonwealth Parliament is empowered to make laws are enumerated in the Constitution Act (see pp. 25-28 hereinbefore). In the States, laws are

1. See Jenks' "Government of Victoria," pp. 269 *et seq.*

enacted in the name of the Sovereign by and with the consent of the Legislative Council and Legislative Assembly or House of Assembly. The Governor-General or the State Governor acts as Viceroy as regards giving the Royal Assent to or vetoing Bills passed by the Legislatures, or reserving them for the special consideration of the Sovereign. In the States, the Councils and Assemblies are empowered generally, subject to the Commonwealth Constitution, to make laws in and for their respective States, in all cases whatsoever. Subject to certain limitations, they may alter, repeal, or vary their Constitution. Where a law of a State is inconsistent with a law of the Commonwealth the latter prevails, and the former is, to the extent of the inconsistency, invalid.

6. Powers and Functions of the Governor-General and of the Governors.—The Governor-General and the State Governors act under the authority of the Commissions by which they are appointed and the Letters Patent under the Great Seal of the United Kingdom, and according to instructions issued by the Colonial Office and passed under the Royal Sign Manual and Signet.

The office of Governor-General and Commander-in-Chief of the Commonwealth was constituted by Letters Patent issued on the 29th October, 1900, in pursuance of the provisions of the Commonwealth Constitution Act (see page 19 hereinbefore). The powers and duties of the Governor-General were further defined by Royal instructions passed on the same date. The principal and most important of his functions, legislative as well as executive, are expressly conferred upon him by the terms of the Constitution itself. He is the custodian of the Great Seal of the Commonwealth, and has the appointment of political officers to administer Departments of State of the Commonwealth.

His legislative functions are exercised with respect to proposed laws as finally passed by the Federal Houses of Parliament. Such Bills are presented to the Governor-General for his assent in the King's name, on receiving of which they become law throughout the Commonwealth. The Governor-General may, however, withhold his assent, or may reserve any Bill for the King's pleasure. He may return to the House in which it originated any proposed law with suggested amendments. The King may disallow any law within one year from the date on which it was assented to by the Governor-General.

The Governor-General's executive functions are, under ordinary circumstances, exercised on the advice of his responsible Ministers. Various specific powers are vested in him by the Constitution; he may summon or prorogue Parliament and may dissolve the House of Representatives. He is the Commander-in-Chief of the military and naval forces of the Commonwealth, and is invested by the Crown with the prerogative of mercy in cases of offences committed against the laws of the Commonwealth.

The Governor-General is also invested with authority in certain matters of Imperial interest, such as the control of the naval and military forces of the Commonwealth; the observance of the relations of foreign States to Great Britain, so far as they may be affected by the indirect relations of such States to the Commonwealth; and the treatment of neutral and belligerent ships in Commonwealth waters in time of war.

The Governor-General may not leave the Commonwealth without having first obtained leave from the Imperial Government, to whom alone he is responsible for his official acts. The powers and functions of the State Governors are, within their respective States, very similar to those exercised by the Governor-General for the Commonwealth, and are defined by the terms of their Commissions and by the Royal instructions accompanying the same. A State Governor is the official head of the State Legislature, and assents in the name of the Crown to all Bills passed by the Parliament, except those reserved for the Royal Assent. The latter include certain classes of Bills, which are regulated by the Constitution Acts and by the instructions issued by the Imperial Government. The Governors are, under ordinary circumstances, guided by their Executive Councils, the chief matters in which the exercise of discretion is required being the granting or withholding of a dissolution of Parliament when requested by a Premier; the appointment of a new Ministry; or the assenting to, vetoing, or receiving of Bills passed by the legislative chambers. The Governors are authorised, under certain restrictions, to administer the prerogative of mercy by the reprieve or pardon of criminal offenders within their jurisdiction, and to remit fines and penalties due to the Crown,

All moneys to be expended for the public service are issued from the Treasury under the Governor's warrant.

In a recent work in which the above matters are exhaustively discussed,* it is indicated that there are important functions in the hands of a Governor, and that his influence may extend beyond what is anticipated by those who are unfamiliar with the activities of actual government. This is, however, essentially a matter of individual character. A Governor is entitled to the fullest confidence of his Ministers, to be informed at once of any important decisions taken by his Cabinet, and to discuss them with the utmost freedom. He can point out objections, give advice, deprecate measures, and urge alterations, subject, however, to his remaining always behind the scenes. It should be remembered, moreover, that the State Executive Councils owe their existence to the Royal Letters Patent constituting the office of Governor and that, in law, the Governor is never bound to accept the advice of his Ministers. He cannot indeed do many things without their advice, for it is provided by law (either in the Constitution or Interpretation Acts, or by authoritative usage) that a Governor-in-Council must act on the advice of the Council. He cannot therefore perform any act in Council without a majority, though he can always refuse to act, and thus force his Ministers either to give way on the point at issue or to resign their posts. Even in the case of a ministerial act he can forbid a Minister to take any action on pain of dismissal. Nominally a Governor will, of course, be justified in accepting the advice of his Ministers as being a correct statement of the facts and law, but he is not bound to be so satisfied, and in matters of law he must exercise his own judgment if he be in doubt. A Governor is not, however, entitled to refuse to act on the advice of his Ministers because he personally does not approve of their action or policy; his duty is not to his own conscience, but to the people of the State which he governs, and he should execute that duty independently of every other consideration.

Although the above furnishes a brief *résumé* of the powers of a Governor from a legal point of view, in practice the exercise of his powers is generally limited by his ability to persuade his Ministers as to the desirability of any particular course of action. Disagreement with Ministers is only justifiable in extreme cases, and even then it involves the responsibility of finding other Ministers, who must either shew that they have as much support as any other party, or be prepared to administer during a dissolution, pending an appeal to the people. It may be remarked that a Governor who cannot work with Ministers possessing the support of the people must be recalled, unless he has acted on Imperial grounds, and the dispute is not one between him and Ministers, but between the Imperial and State Governments.

It may also be pointed out that a Governor, besides acting according to law, has, within the range of what is lawful, to act according to the instructions of the Secretary of State. He is called upon to do so by the instruments which create his office and appoint him Governor, and he obeys the Secretary of State as the mouthpiece of the Crown. Historically, there have been many cases in which these instructions have placed Governors in opposition to their Ministers.

The present Governor-General is the Right Honourable Sir Ronald Craufurd Munro Ferguson, P.C., G.C.M.G. He assumed office 18th May, 1914. Particulars of previous Governors-General are given on p. 38 hereinbefore.

The following is a list of the Governors of the various States of the Commonwealth:—

<i>New South Wales</i> ...	SIR GERALD STRICKLAND, Count Della Catena, G.C.M.G.
<i>Victoria</i> ...	The Hon. SIR ARTHUR LYULPH STANLEY, K.C.M.G.
<i>Queensland</i> ...	Major SIR HAMILTON JOHN GOOLD-ADAMS, G.C.M.G., C.B.
<i>South Australia</i> ...	Lieutenant-Colonel SIR HENRY LIONEL GALWAY, K.C.M.G., D.S.O.
<i>Western Australia</i> ...	The Rt. Hon. SIR WILLIAM GREY ELLISON-MACARTNEY, P.C., K.C.M.G.
<i>Tasmania</i> ...	SIR FRANCIS NEWDIGATE-NEWDEGATE, K.C.M.G.

* "Responsible Government in the Dominions," A. B. Keith, Oxford, Clarendon Press, 1912. Vol. I.

7. **Cost of Parliamentary Government.**—The following statement shews the cost of parliamentary government in the Commonwealth and in each State, as well as the cost per head of population, for the year ended the 30th June, 1916. In order to avoid any incorrect conclusions as to the cost of the Governor-General's or Governor's establishment, it may be pointed out that a very large part of the expenditure (with the exception of item "Governor's salary") under the head of Governor-General or Governor represents official services entirely outside the Governor's personal interests, and carried out at the request of the Government.

COST OF PARLIAMENTARY GOVERNMENT, 1915-16.

Particulars:	C'wth.	N.S.W.	Vict.	Q'ld.	S.A.	W.A.	Tas.	Total.
	£	£	£	£	£	£	£	£
1. Governor-General or Governor—								
Governor's salary ...	10,000	5,000	5,000	3,000	4,000	4,000	2,750	33,750
Official secretary's salary ...	650	400		300		343		
Governor's establishments ...	4,365	1,496	4,017	3,764		1,084	242	32,662
Repairs and maintenance of Governor's residences ...		1,653			716	877	368	
Miscellaneous ...	8,520	1,547	(d) 348	1,133	144	456	239	
Total ...	23,535	10,096	9,365	8,197	4,860	6,760	3,599	66,412
2. Executive Council—								
Salaries of officers ...	118		612	100		343		1,173
Other expenses ...	19		19	92		30		160
Total ...	137		631	192		373		1,333
3. Ministry—								
Salaries of Ministers ...	13,597	11,040	8,400	8,212	5,000	6,078	3,200	55,527
Other expenses ...	36	1,298	(d) ...			2,359	1,237	4,930
Total ...	13,633	12,338	8,400	8,212	5,000	8,437	4,437	60,457
4. Parliament—								
A. The Upper House:								
Allowances to members ...	21,000			1,500	3,587	9,317	3,165	38,569
Railway passes ...	a 10,458	6,070	(e) 5,000	(f)	800	(f)	750	(g) 23,078
Other expenses of members ...	(a) 350				145			495
B. The Lower House:								
Allowances to members ...	43,132	40,335	17,083	20,775	8,004	15,499	4,247	149,075
Railway passes ...	(b)	10,387	(d) ...		1,840	(f)	1,250	(g) 13,477
Other expenses of members ...	(b)	1,770		1,534	337		58	3,699
C. Miscellaneous:								
Salaries of officers and staff ...	15,157	21,454	14,967	3,784	5,353	3,503	2,982	67,200
Printing ...	12,964	14,967	2,156	2,731	6,140	643	2,400	42,001
Hansard ...	14,067	7,121	7,076	6,291	5,863	4,337		44,755
Library ...	6,048	677	370	1,083	668	395		
Refreshment rooms ...	1,214	(c) ...	1,781	1,175	1,228	1,092		
Water, power, light and heat ...	1,834	575	493	349	808	222	881	46,444
Postage and stationery ...	1,308	947	1,047	332	449	290		
Miscellaneous ...	10,621	9,564	235	705	486	1,567		
Total ...	138,153	113,867	50,208	40,359	35,708	36,865	15,733	430,793
5. Electoral Office—								
Salaries of officers and staff ...	40,187	1,123	1,096	1,644	3,367	2,112	4,863	132,890
Other expenses ...	43,655	4,974	16,917	3,504	2,876	(d) 6,572		
Total ...	83,842	6,097	18,013	5,148	6,243	8,684	4,863	132,890
6. Cost of Elections	j 22,695	h 51,517	2,294	3,603	66	1,807	(g)	81,932
7. Royal Commissions and Select Committees	8,255	4,114	1,984	2,174	2,719	1,964	1,403	22,613
GRAND TOTAL ...	290,250	198,029	90,895	67,785	54,596	64,890	30,035	796,480
Cost per head of population	1s. 2.1d.	2s. 1.4d.	1s. 3.3d.	1s 11.9d	2s. 5.8d.	4s. 0.9d.	2s 11.8d	3s. 2.7d.

* See paragraph preceding. (a) Including Lower House. (b) Included in Upper House. (c) Included in Miscellaneous. (d) Included in (e). (e) £5000 is paid to the Railway Department to cover issue of passes to State Governor and Staff, members of Parliament of Victoria and other States, and Executive Councillors. (f) Not available. Each member of both Houses has a pass for the whole of the State Railways. (g) Included in Electoral Office. (h) Including cost of Liquor Referendum. (i) Including cost of Licensing Referendum. (j) Including Referenda, £21,334.

§ 2. Parliaments and Elections.

1. **Qualifications for Membership and for Franchise.**—The summary on pages 896-7 gives particulars as to the legislative chambers in the Commonwealth and State Parliaments, and shows concisely the qualifications necessary for membership and for the franchise in each House. Persons who are otherwise eligible, either as members or voters, are generally disqualified on the usual grounds of being of unsound mind or attainted of treason, being convicted of certain offences, and, as regards membership, on the grounds of holding a place of profit under the Crown, being pecuniarily interested in Government contracts, or being an undischarged bankrupt.

2. **The Federal Parliament.**—The Senate consists of thirty-six members, six being returned by each of the original federating States. Members of this chamber are elected for a term of six years, but by a provision in the Constitution a certain number retire at the end of every third year, although they are eligible for re-election. In accordance with the Constitution the total number of members of the House of Representatives must be as nearly as possible double that of the Senate. In the House of Representatives the States are represented on a population basis, and the numbers stand at present as follows:—New South Wales, 27; Victoria, 21; Queensland, 10; South Australia, 7; Western Australia, 5; Tasmania, 5—total, 75. The Constitution provides for a minimum of five members in each original State. Members of the House of Representatives are elected for the duration of the Parliament, which is limited to three years. In elections for Senators each State is counted as a single electorate, but an elaborate scheme of subdivision had to be undertaken in order to provide workable electorates in each State for members of the House of Representatives. Members of both Houses are paid at the rate of £600 per annum. Further information regarding the Senate and the House of Representatives is given on pages 19 to 28 hereinbefore.

Particulars of Elections. There have been five complete Parliaments since the inauguration of Federation. The dates of the opening and dissolution of these Parliaments are given on page 37. The fifth Parliament, which was opened on the 9th July, 1913, was dissolved on the 27th June, 1914, in somewhat unusual circumstances. Under Section 27 of the Constitution, it is provided that, should the Senate fail to pass, or pass with amendments, any proposed law previously passed by the House of Representatives, and should the latter House, after a specified interval, again pass the proposed law, with or without the amendments of the Senate, and the Senate for a second time reject it or pass it with amendments to which the lower House will not agree, then the Governor-General may dissolve the two Houses simultaneously. For the first time in the history of the Commonwealth this deadlock between the Senate and the House of Representatives occurred in the second session of the Fifth Parliament, and in accordance with the section of the Constitution referred to above, both Houses were dissolved by the Governor-General. The first session of the seventh Parliament opened on the 11th July, 1917. Particulars regarding the number of electors enrolled and the number of electors to whom ballot-papers were issued at the last five elections may be found in the tables given hereunder:—

PARLIAMENTS AND ELECTIONS. 889
FEDERAL ELECTIONS OF 16th DECEMBER, 1903, 12th DECEMBER, 1906, 13th APRIL, 1910, 31st MAY, 1913, 5th SEPTEMBER, 1914, AND 5th MAY, 1917.

State.	Electors Enrolled.			Electors to whom Ballot Papers were Issued.			Percentage of Voters to Electors Enrolled.			
	Males.	Fem.	Total.	Males.	Fem.	Total.	Males.	Fem.	Total.	
THE SENATE.										
New South Wales	1903	360,285	326,764	687,049	189,877	324,964	52.70	41.16	47.31	
	1906	392,077	345,532	737,599	229,654	351,682	58.57	43.90	51.70	
	1910	444,269	390,393	834,662	301,187	411,635	67.79	54.21	61.44	
	1913	554,028	482,159	1,036,187	405,152	512,703	73.13	64.85	69.28	
	1914	576,909	506,820	1,083,729	407,464	519,939	70.70	59.19	64.85	
	1917	566,345	528,489	1,094,834	430,514	543,143	773,657	76.02	64.93	70.66
	1903	302,069	310,403	612,472	171,839	241,648	313,497	56.89	45.63	51.18
	1906	335,886	336,168	672,054	209,252	271,933	381,185	62.30	51.14	56.72
	1910	346,050	357,649	703,699	245,665	322,869	468,535	70.99	62.32	66.58
	1913	407,852	422,539	830,391	326,856	300,005	626,861	80.14	71.00	75.49
Victoria ...	1914	401,055	413,685	814,740	335,057	309,841	644,898	83.54	74.90	79.15
	1917	393,794	425,913	819,707	345,804	342,131	687,935	87.81	80.33	83.92
	1903	127,914	99,166	227,080	79,938	124,507	194,507	62.49	44.94	54.83
	1906	150,037	121,072	271,109	79,567	144,972	224,539	53.03	37.14	45.94
	1910	158,436	120,595	279,031	104,570	166,064	270,634	66.00	54.78	61.15
	1913	206,737	156,355	363,082	163,380	117,145	280,525	79.03	74.92	77.26
	1914	207,587	160,620	368,207	163,709	112,695	276,404	78.86	70.16	75.07
	1917	204,280	174,016	378,296	183,486	153,265	336,751	89.82	88.08	89.02
	1903	85,947	81,828	167,775	35,736	19,049	54,785	41.58	23.28	32.65
	1906	97,454	95,664	193,118	43,318	27,199	70,517	44.45	28.43	36.51
Queensland	1910	105,301	102,354	207,655	63,384	47,119	110,503	60.19	46.03	53.32
	1913	124,222	119,804	244,026	103,739	91,724	195,463	83.51	76.56	80.10
	1914	131,758	125,995	257,753	110,049	96,195	206,244	83.52	76.59	80.14
	1917	132,260	133,519	265,779	103,707	87,471	191,178	78.41	65.51	71.93
	1903	74,754	42,188	116,942	26,873	6,270	33,148	35.96	14.86	28.35
	1906	91,427	54,046	145,473	37,180	15,532	52,712	40.67	28.74	36.23
	1910	80,996	53,983	134,979	53,704	30,189	83,893	66.30	55.92	62.15
	1913	106,264	73,520	179,784	80,011	52,138	132,149	75.29	70.92	73.50
	1914	107,005	75,102	182,107	79,150	50,984	130,134	73.97	67.89	71.46
	1917	93,049	74,981	168,030	76,518	54,154	130,672	82.23	73.22	77.77
Western Australia	1903	43,515	38,753	82,268	23,729	13,292	37,021	54.53	34.30	45.00
	1906	47,306	42,903	90,209	29,164	19,715	48,879	61.65	45.95	54.18
	1910	51,731	46,725	98,456	33,539	24,070	57,609	64.83	51.51	58.51
	1913	54,856	51,890	106,746	43,539	36,559	80,398	79.37	71.03	75.32
	1914	54,754	51,325	106,079	44,504	37,749	82,253	81.28	73.69	77.61
	1917	54,405	54,276	108,681	44,634	37,974	82,608	82.04	69.96	76.01
	1903	994,484	899,102	1,893,586	527,997	359,315	887,312	53.09	39.96	46.86
	1906	1,114,187	995,375	2,109,562	628,135	431,033	1,059,168	56.38	43.30	50.21
	1910	1,186,763	1,071,692	2,258,455	802,030	601,946	1,403,976	67.58	56.17	62.16
	1913	1,453,949	1,306,357	2,760,306	1,122,677	810,574	2,033,251	77.22	69.71	73.66
1914	1,478,468	1,339,047	2,817,515	1,139,930	902,403	2,042,333	77.10	67.69	73.84	
1917	1,444,133	1,391,194	2,835,327	1,184,663	1,018,138	2,202,801	82.03	73.18	77.69	
THE HOUSE OF REPRESENTATIVES.*										
New South Wales	1903	303,254	274,763	578,017	164,133	118,981	282,514	54.12	45.08	48.55
	1906	363,723	314,777	678,500	216,150	141,227	357,377	59.43	44.87	52.67
	1910	431,702	379,927	811,629	294,049	207,868	501,917	68.11	54.71	61.84
	1913	554,028	482,159	1,036,187	405,152	312,703	717,855	73.13	64.85	69.28
	1914	491,086	429,906	920,992	351,172	257,581	608,753	71.51	59.92	66.10
	1917	484,854	447,437	932,291	370,618	292,925	663,543	76.44	65.47	71.17
	1903	241,134	247,089	488,223	142,460	120,329	262,789	59.08	48.70	53.83
	1906	335,886	336,168	672,054	209,252	171,999	381,255	62.30	51.16	56.73
	1910	346,050	357,649	703,699	245,665	222,869	468,535	70.99	62.32	66.58
	1913	407,852	422,539	830,391	326,856	300,005	626,861	80.14	71.00	75.49
Victoria ...	1914	321,655	326,781	648,436	272,622	256,752	529,379	84.76	76.24	80.10
	1917	340,025	366,135	706,160	299,173	295,044	594,577	87.99	80.68	84.20
	1903	114,550	88,375	202,925	74,042	41,689	115,731	64.64	47.17	57.08
	1906	150,037	121,072	271,109	79,540	44,942	124,482	53.01	37.12	45.92
	1910	158,436	120,595	279,031	104,570	66,064	170,634	66.00	54.78	61.15
	1913	206,737	156,355	363,082	163,380	117,145	280,525	79.03	74.92	77.26
	1914	163,836	138,534	302,370	132,782	98,074	230,856	81.05	70.79	76.35
	1917	204,280	174,016	378,296	183,485	153,265	336,750	89.82	88.08	89.02
	1903	23,856	25,789	49,645	12,394	7,728	20,122	51.95	29.97	40.53
	1906	42,065	38,578	80,643	19,850	12,669	32,519	47.19	32.84	40.32
Queensland	1910	59,581	61,594	121,175	37,189	29,852	67,041	62.42	48.47	55.33
	1913	90,009	85,301	175,313	74,316	65,704	140,020	82.57	77.02	79.87
	1914	116,594	111,372	227,966	97,183	84,956	182,138	83.35	76.28	79.90
	1917	116,565	114,749	231,317	91,642	75,540	167,092	78.61	65.75	72.23
	1903	41,500	28,324	69,824	16,824	4,409	21,233	40.54	15.57	30.41
	1906	91,427	54,046	145,473	36,976	15,740	52,716	40.44	29.12	36.24
	1910	80,996	53,983	134,979	53,704	30,189	83,893	66.30	55.92	62.15
	1913	87,570	62,088	149,658	65,754	44,310	110,064	75.09	71.37	73.93
	1914	89,824	64,736	154,560	66,221	44,456	110,677	73.72	68.67	71.61
	1917	74,340	61,940	136,310	61,531	45,112	106,643	82.74	72.83	78.24
Western Australia	1903	43,515	38,753	82,268	23,729	13,292	37,021	54.53	34.28	44.99
	1906	47,306	42,903	90,209	23,753	16,441	40,194	62.87	47.19	55.35
	1910	51,731	46,725	98,456	33,539	24,070	57,609	64.83	51.51	58.51
	1913	54,856	51,890	106,746	43,539	36,559	80,398	79.37	71.03	75.32
	1914	42,995	41,122	84,117	34,789	30,314	65,103	80.91	73.72	77.40
	1917	42,430	43,661	86,091	35,103	30,770	65,873	82.73	70.47	76.52
	1903	767,809	703,093	1,470,902	433,582	305,820	739,402	56.47	43.50	50.27
	1906	1,020,917	899,480	1,920,397	585,535	403,018	988,553	57.35	44.81	51.48
	1910	1,128,496	1,020,479	2,148,969	768,714	580,912	1,349,626	63.12	56.93	62.80
	1913	1,401,042	1,260,335	2,661,377	1,078,997	876,726	1,955,723	77.01	69.56	73.49
1914	1,225,990	1,122,451	2,348,441	954,768	772,138	1,726,906	77.88	68.79	73.51	
1917	1,262,527	1,207,938	2,470,465	1,041,552	892,926	1,934,478	82.50	73.92	78.30	

* For the House of Representatives the number of electors enrolled in contested divisions only is given.

In the Senate the figures for the year 1906 shew that ballot-papers were issued to 50.21 per cent. of the electors, and are a slight improvement on those for the year 1903, when only about 47 per cent. of the electors visited the polls. There was, however, a substantial increase in the number of electors who voted at the 1910 elections, 62.16 per cent. of the persons on the rolls exercising the franchise. The elections of 1913 shewed a gratifying increase over those of 1910, no less than 73.66 per cent. of the persons on the rolls exercising their right to vote, while in 1914, the percentage was almost as high, viz., 72.64 per cent. It will be seen from the foregoing table that the electors of the Commonwealth are setting a higher value on the privilege of the franchise. The percentage of female voters in 1914, while still considerably below that of the males, shews a marked increase on that of female voters in the earlier years of Federation. At the elections in 1917, the proportion of voters of both sexes was the highest yet recorded.

3. **Commonwealth Referenda, 26th April, 1911.**—Two proposed laws for the alteration of the Constitution were submitted to the people for acceptance or rejection on the 26th April, 1911. They were (A) The Constitution Alteration (Legislative Powers) 1910, and (B) the Constitution Alteration (Monopolies) 1910. If, in a majority of the States, a majority of the electors voting approve the proposed laws, and if a majority of all the electors voting also approve them; they are presented to the Governor-General for the King's assent. Particulars of the alterations proposed have already been given (see page 25).

Results of the Referenda of 1911 are given in the following table, which shews the number of electors enrolled, electors to whom ballot papers were issued, and the number of votes in favour of, and against, each of the proposed laws, and, as will be seen, neither of the proposed laws was approved by the people.

**COMMONWEALTH REFERENDA (LEGISLATIVE POWERS AND MONOPOLIES),
TAKEN ON 26th APRIL, 1911.**

State.	Electors Enrolled.			Electors to whom Ballot Papers were Issued.			Legislative Powers.		Monopolies.	
	Males.	Females	Total.	Males.	Females	Total.	Total Number of Votes given in favour of the Prop's'd Law.	Total Number of Votes given not in favour of the Prop's'd Law.	Total Number of Votes given in favour of the Prop's'd Law.	Total Number of Votes given not in favour of the Prop's'd Law.
N. S. W. ...	461,196	406,996	868,194	733,668	150,520	384,188	135,968	240,605	138,237	238,177
Victoria	355,381	367,996	723,377	236,194	212,372	448,566	170,288	270,390	171,453	268,743
Q'land ...	167,725	125,278	293,003	101,245	60,890	162,135	69,552	89,420	70,259	88,472
S. Aust. ...	110,217	105,810	216,027	72,761	61,041	133,802	50,358	81,904	50,835	81,479
W. Aust. ...	83,850	54,847	138,697	42,538	18,884	61,422	33,043	27,185	33,592	26,561
Tas. ...	54,008	48,318	102,326	33,103	24,950	58,053	24,147	33,200	24,292	32,960
Totals for C'wealth	1,232,377	1,109,247	2,341,624	719,569	526,657	1,248,226	483,356	742,704	488,668	736,392

4. **Commonwealth Referenda, 31st May, 1913.**—At the general elections that took place on 31st May, 1913, the question of altering the Constitution so as to extend the powers of the Commonwealth was again submitted to the people. The particulars of the

proposed laws have been given on page 25 hereinbefore. The results of the Referenda of 1913 are given below, and, as will be seen, none of the proposed laws was approved by the electors.

COMMONWEALTH REFERENDA (LEGISLATIVE POWERS) TAKEN ON 31st MAY, 1913.

State.	Electors Enrolled.			Electors to whom Ballot Papers were Issued.			Percentage of Voters to Electors Enrolled.		
	Males.	Fe-males.	Total.	Males.	Fe-males.	Total.	Males.	Fe-males.	Total.
New South Wales ...	554,028	482,159	1,036,187	405,152	312,703	717,855	73.13	64.85	69.28
Victoria ...	407,852	422,539	830,391	326,856	300,005	626,861	80.14	71.00	75.49
Queensland ...	206,727	156,355	363,082	163,380	117,145	280,525	79.03	74.92	77.26
South Australia ...	124,222	119,804	244,026	103,739	91,724	195,463	83.51	76.56	80.10
Western Australia ...	106,264	73,520	179,784	80,011	52,138	132,149	75.29	70.92	73.50
Tasmania ...	54,856	51,890	106,746	43,539	36,859	80,398	79.37	71.03	75.32
Totals for C'wealth	1,453,949	1,306,267	2,760,216	1,122,677	910,574	2,033,251	77.22	69.71	73.66

The following table shews the number of votes cast for and against each of the proposed laws in each of the States:—

COMMONWEALTH REFERENDA, 31st MAY, 1913.—RESULTS OF VOTING ON EACH PROPOSED LAW.

State.	Trade and Commerce.		Corporations.		Industrial Matters.		Railway Disputes.		Trusts.		Nationalisation of Monopolies.	
	Votes in Favour of Proposed Law.	Votes Not in Favour of Proposed Law.	Votes in Favour of Proposed Law.	Votes Not in Favour of Proposed Law.	Votes in Favour of Proposed Law.	Votes Not in Favour of Proposed Law.	Votes in Favour of Proposed Law.	Votes Not in Favour of Proposed Law.	Votes in Favour of Proposed Law.	Votes Not in Favour of Proposed Law.	Votes in Favour of Proposed Law.	Votes Not in Favour of Proposed Law.
N. S. W. ...	317,848	359,418	317,668	361,255	318,622	361,044	316,928	361,743	319,150	358,155	301,192	341,724
Victoria ...	297,290	307,975	298,479	308,915	297,892	309,804	296,255	310,921	301,729	305,268	287,379	298,326
Q'land ...	146,187	122,813	146,936	123,632	147,171	123,554	146,521	123,859	147,871	122,088	139,019	117,609
S. Aust. ...	96,085	91,144	96,309	91,273	96,626	91,361	96,072	91,262	96,400	90,185	91,411	86,915
W. Aust. ...	66,349	59,181	66,595	59,445	66,451	59,612	65,957	59,965	67,342	58,312	64,968	57,184
Tasmania	34,660	42,084	34,724	42,304	34,839	42,236	34,625	42,296	34,839	41,935	33,176	40,189
Totals ..	958,419	982,615	960,711	986,824	961,601	987,611	956,358	990,046	967,331	975,943	917,165	941,947

5. Commonwealth Referendum, 28th October, 1916.—A special referendum was held on the 28th October, 1916, when the following question with regard to military service was submitted to the people:—"Are you in favour of the Government having, in this grave emergency, the same compulsory powers over citizens in regard to requiring their military service, for the term of this War, outside the Commonwealth, as it now has in regard to military service within the Commonwealth?" In New South Wales, Queensland and South Australia the majority of voters were not in favour of the prescribed question, and in Victoria, Western Australia and Tasmania the majority of votes were cast in its favour, the net result being a majority of 72,476 votes not in favour of the prescribed question.

COMMONWEALTH REFERENDUM (MILITARY SERVICE) TAKEN ON

28th OCTOBER, 1916.

State.	Electors Enrolled.			Electors to whom Ballot Papers were issued.			Percentage of Voters to Electors Enrolled.		
	Males.	Fe- males.	Total.	Males.	Fe- males.	Total.	Males.	Fe- males.	Total.
New South Wales ...	556,187	499,799	1,055,986	475,669	382,730	858,399	85.52	76.58	81.29
Victoria ...	398,975	425,997	824,972	354,067	342,617	696,684	88.74	80.43	84.45
Queensland ...	199,602	166,440	366,042	173,448	136,473	309,921	86.90	81.99	84.67
South Australia ...	131,636	131,145	262,781	113,461	97,791	211,252	86.19	74.57	80.39
Western Australia ...	94,456	73,146	167,602	82,067	58,581	140,648	86.88	80.09	83.92
Tasmania ...	54,758	53,117	107,875	47,020	41,211	88,231	85.87	77.59	81.79
Federal Territories	3,296	1,276	4,572	2,576	892	3,468	78.16	69.91	75.85
Total ...	1,438,910	1,350,920	2,789,830	1,248,308	1,060,295	2,308,603	86.75	78.49	82.75

The following table shews the number of votes cast in each State in favour and not in favour of the prescribed question:—

COMMONWEALTH REFERENDUM, 28th OCTOBER, 1916, RESULTS OF VOTING
ON THE PRESCRIBED QUESTION.

State.	Votes given in Favour of the Prescribed Question.	Votes given Not in Favour of the Prescribed Question.	Percentage of Votes recorded in Favour of the Prescribed Question.	
			To Formal Votes.	To Electors Enrolled.
New South Wales ...	356,805	474,544	42.92	33.79
Victoria ...	353,930	328,216	51.88	42.90
Queensland ...	144,200	158,051	47.71	39.39
South Australia ...	87,924	119,236	42.44	33.46
Western Australia ...	94,069	40,884	69.71	56.13
Tasmania ...	48,493	37,833	56.17	44.95
Federal Territories	2,136	1,269	62.73	46.72
Total ...	1,087,557	1,160,033	48.39	38.98

6. The Parliament of New South Wales.—The Legislative Council in this State is a nominee chamber, the Legislative Assembly being an elective body. Theoretically the Legislative Council may contain an unlimited number of members, but in practice the number is restricted to about sixty, the members at the latest available date being seventy-two. The tenure of the seat is for life; four-fifths of the members must be persons not holding any paid office under the Crown, but this is not held to include officers of His Majesty's sea or land forces on full or half pay, or retired officers on pensions. The Legislative Assembly consists of ninety members, who hold their seats during the existence of the Parliament to which they are elected. The duration of any single Parliament is limited to three years.

Particulars of Elections. Since the introduction of responsible government in New South Wales there have been twenty-three complete Parliaments, the first of which opened on the 22nd May, 1856, and was dissolved on the 19th December, 1857, while the twenty-third opened on the 23rd December, 1913, and closed on the 21st February, 1917. The average duration of the Parliaments was two years and five months. The first session of the twenty-fourth Parliament was opened on the 17th April, 1917. Particulars of voting at the last nine elections are given below:—

LEGISLATIVE ASSEMBLY ELECTIONS, NEW SOUTH WALES, 1894 to 1917.

Date of Opening of Parliament.	Electors upon the Roll.	Members Returned.	Members Unopposed.	Contested Electorates.			
				Electors upon the Roll.	Votes Recorded.	Percentage of Votes Recorded.	Percentage of Informal Votes.
7th August, 1894	298,817	125	1	254,105	204,246	80.38	1.62
13th " 1895	267,458	125	8	238,233	153,034	64.24	0.88
16th " 1898	324,339	125	3	294,481	178,717	60.69	0.92
23rd July, 1901	346,184	125	13	270,861	195,359	72.13	0.79
23rd August, 1904	Males 363,062	90	2	304,396	226,057	74.26	0.59
	Females 326,428			262,433	174,538	66.51	
2nd October, 1907	Males 392,845	90	5	370,715	267,301	72.10	2.87
	Females 353,055			336,680	204,650	60.78	
15th Nov., 1910...	Males 458,626	90	3	444,242	322,129	72.53	1.78
	Females 409,069			400,139	262,154	65.52	
23rd Dec., 1913...	Males 553,633	90	3	534,379	385,838	72.20	2.10
	Females 484,366			468,437	302,389	64.55	
17th April, 1917	Males 574,308	90	8	525,681	328,030	62.40	0.94
	Females 535,522			487,585	295,354	60.57	

The franchise was extended to women (*Women's Franchise Act*) in 1902, and was exercised for the first time at a State election in 1904.

7. *The Parliament of Victoria.*—Both of the Victorian legislative chambers are elective bodies, but there is a considerable difference in the number of members of each House, as well as in the qualifications necessary for members and electors. The number of members in the Upper House in August, 1917, was 34, and in the Lower House, 65. In the Legislative Council the tenure of the seat is for six years, but one member for each province retires every third year, except in the case of a dissolution, when one half of the newly elected members hold their seats for three years only. Members of the Legislative Assembly are elected for the duration of Parliament, which is limited to three years. The franchise was extended to women by the *Adult Suffrage Act 1908*. An elector for the Legislative Assembly may only vote once, plurality of voting having been abolished in 1899; an elector, however, qualified in more than one district, may select that for which he desires to record his vote. A preferential system of voting (see Year Book No. 6, page 1182) was for the first time adopted in Victoria at the election held in November, 1911.

Particulars of Elections. Since the introduction of responsible government in Victoria there have been twenty-three complete Parliaments, the first of which was opened on the 21st November, 1856, and closed on the 9th August, 1859, while the twenty-third closed on the 4th November, 1914. The first session of the twenty-fourth Parliament opened on the 3rd December, 1914, and the fourth session opened on the 27th June, 1917.

Statistics regarding the elections that have been held since 1901 will be found below:—

PARTICULARS OF VICTORIAN ELECTIONS, 1902 to 1916.

Year.	Legislative Council.				Legislative Assembly.			
	Electors on Roll.	Electors in Contested Districts.	Voters in Contested Districts.	Per-centage.	Electors on Roll.	Electors in Contested Districts.	Voters in Contested Districts.	Per-centage.
1902 ...	134,087	*	*	*	290,241	216,063	141,471	65.47
1904 ...	172,526	104,865	66,182	63.11	264,709	223,600	149,192	66.72
1907 ...	180,738	78,512	27,152	34.58	261,088	191,131	117,098	61.26
1908 ...	185,234	*	*	*	263,876	164,919	88,461	53.64
1910 ...	240,520	136,479	40,053	35.21	487,661	*	*	*
1911 ...	249,481	*	*	*	701,451	619,644	394,189	63.61
1913 ...	270,175	99,646	47,719	47.89	670,775	*	*	*
1914 ...	284,089	*	*	*	810,026	593,334	319,950	53.92
1916 ...	300,321	92,421	34,853	37.71	767,378	*	*	*

* Not contested.

As the table shews, the proportion of voters for the Legislative Council is considerably less than that for the Legislative Assembly.

8. **The Parliament of Queensland.**—No limit is set by the Constitution Act to the number of members of the Legislative Council of Queensland, the total at the latest available date being thirty-seven. Members are appointed by the State Governor, and it is provided that not less than four-fifths of the members must consist of persons not holding any office under the Crown, except officers of His Majesty's sea or land forces on full or half-pay, or retired officers on pensions. The members are nominated for life. By the Electoral Districts Act of 1910 the Legislative Assembly is composed of seventy-two members, and the State is now divided into that number of electoral districts, and the General Election which took place in 1912 was in conformity with this new Act. A modified system of optional preferential voting is in operation in Queensland. (See Year Book No. 6, page 1183.)

Particulars of Elections. Since the establishment of responsible government in Queensland there have been nineteen complete Parliaments, the first of which opened on the 29th May, 1860, and dissolved on the 20th May, 1863, while the first session of the twentieth Parliament opened on the 12th July, 1915. At the elections held in May, 1915, the principle of compulsory voting was introduced for the first time in Australia. It will be seen that of the total number of electors enrolled, 88.14 per cent. went to the polls. Statistics regarding the last seven elections are given below:—

ELECTIONS FOR QUEENSLAND LEGISLATIVE ASSEMBLY, 1902 to 1915.

Year.	Number of Seats.	Number of Candidates Nominated.	Candidates sent to the Poll.	Electors Enrolled.			Electors who Voted.			Percentage of Electors Voting in Contested Electorates.		
				Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
				1902	72	159	154	108,548	...	108,548	80,076	...	80,076	78.88	...	78.88
1904	72	140	117	103,943	...	103,943	60,265	...	60,265	74.16	...	74.16
1907	72	185	179	125,140	95,049	220,189	*	*	152,049	73.42	68.64	71.61
1908	72	137	125	117,355	88,507	205,892	77,632	61,115	138,747	66.13	69.05	67.39
1909	72	145	133	135,841	106,913	242,754	89,609	66,809	156,418	75.34	69.36	73.67
1912	72	144	139	173,801	135,789	309,590	123,844	95,795	218,639	75.92	75.02	75.52
1915	72	148	138	184,627	150,568	335,195	140,396	125,844	266,240	86.46	90.09	88.14

* Incomplete. percentages based on available returns.

The election of 1907 was the first State election in Queensland at which women voted, the privilege being conferred under the *Elections Acts Amendment Act 1905*. Some of the returns did not separate the sexes in the figures respecting the number of electors who voted, and the percentage of males and females was therefore calculated on the total returns where the subdivision was made.

9. The Parliament of South Australia.—In this State there is a Legislative Council composed of twenty members and a House of Assembly with forty-six members, both chambers being elective. Under the Constitution Amendment Act 1908, the State of South Australia was divided into four Council Districts, of which one returned six members, and the others returned four members each, to the Legislative Council, but under the Constitution Further Amendment Act of 1913, the State is now divided into five districts, which return four members each, making a total of twenty members instead of eighteen as formerly. For the purpose of electing members of the House of Assembly the State was divided into twelve electoral districts, but under the Act of 1913 mentioned above, the State has been divided into nineteen districts, which return forty-six members instead of forty as formerly. The former districts returned five members from one district, four members from two, and three each from the balance. Under the new Act, eight districts return three members each, and eleven districts two members each.

Particulars of Elections. Since the inauguration of responsible government in South Australia there have been twenty-one complete Parliaments, the first of which was opened on the 22nd April, 1857, and dissolved on the 1st September, 1859, while the twenty-first was opened on the 19th March, 1912, and terminated on the 28th February, 1915. The first session of the new Parliament was opened on the 8th July, 1915. Particulars of voting at the different elections from the year 1900 are given below:—

PARLIAMENTARY ELECTIONS IN SOUTH AUSTRALIA, 1900 to 1915.

Year.	Electors on Rolls.			*Electors Who Voted.			*Percentage of Electors Voting.	
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.

LEGISLATIVE COUNCIL.

1900	...	38,688	9,854	48,542	21,403	3,907	25,310	55.32	39.65
1902	...	38,413	13,496	51,909	23,978	7,940	37,918	78.04	58.83
1905	...	39,011	13,873	52,884	28,820	8,328	37,148	73.88	60.03
1910	...	48,145	16,157	64,302	32,540	9,356	41,896	81.84	65.89
1912	...	59,228	19,985	79,213	40,709	13,016	53,725	80.91	72.56
1915	...	66,614	21,635	88,249	11,436	4,808	16,244	75.69	71.25

LEGISLATIVE ASSEMBLY.

1902	...	77,147	72,030	149,177	53,471	36,545	90,016	39.31	50.73
1905	...	95,396	92,249	187,645	64,330	50,246	114,576	67.43	54.47
1906	...	96,724	93,438	190,162	60,109	45,997	106,106	62.14	49.22
1910	...	94,656	88,762	183,418	73,464	56,830	130,294	77.61	64.03
1912	...	117,440	106,971	224,411	87,530	73,732	161,262	74.53	68.93
1915	...	128,594	124,797	253,391	70,898	65,157	136,055	77.22	72.64

* In contested districts.

It is interesting to note that South Australia was the first of the States to grant women's suffrage (under the *Constitution Amendment Act 1894*), the franchise being exercised for the first time at the Legislative Assembly election on the 25th April, 1896.

PARLIAMENTS AND ELECTIONS—

Particulars.	Commonwealth.	New South Wales.	Victoria.
1. Senate and Legislative Councils.			
<i>Number of Members</i> ...	36	About 72. May not be less than 21	34
<i>Qualification for Membership</i> ...	Adult British subjects natural-born or naturalised for 5 years, if (a) eligible to vote at the elections for the Senate, and (b) resident for at least 3 years within the Commonwealth	Male adult natural-born or naturalised British subjects	Male natural-born or naturalised British subjects of the age of 30 years or upwards, (a) if possessed of a freehold property of the annual value of at least £50 for one year previous to the election, and (b) in the case of naturalised subjects if a resident of the State for 10 years
<i>Period for which elected or nominated</i> ...	6 years	For life	6 years
<i>Allowance to Members</i> ...	£600 each per annum	None	None
<i>Qualification for Franchise</i>	Adult British subjects of either sex who have lived in Australia for 6 months continuously. Aboriginal natives of Australia, Asia, Africa, or the islands of the Pacific, except New Zealand, cannot vote at federal elections unless they have acquired a right to vote at elections for the Lower House of a State Parliament	(Nominated)	Adult British subjects of either sex, if either (a) the owner of a freehold of the annual value of £10 or of a leasehold of property rated at £15, or (b) a graduate of a British university, matriculated students of Melbourne University, qualified legal and medical practitioners, ministers of religion, certificated schoolmasters, and naval and military officers. Naturalised subjects must be of 3 years' standing, and must have resided in the State for 12 months
2. House of Representatives, Legislative Assemblies, etc.			
<i>Number of Members</i> ...	75	90	65
<i>Qualification for Membership</i> ...	The same as for the Senate	Male adult British subjects if qualified to vote at an election of members of the Legislative Assembly, unless disqualified under the Constitution Acts or the Federal Elections Act 1900	Male adult natural-born British subjects or aliens naturalised for the period of 5 years, if resident in the State for not less than 2 years
<i>Period for which elected</i> ...	Duration of Parliament, which is limited to 3 years	Duration of Parliament, which is limited to 3 years	Duration of Parliament, which is limited to 3 years
<i>Allowance to Members</i> ...	£600 each per annum	£500 each per annum	£300 each per annum
<i>Qualification for Franchise</i>	The same as for the Senate	Adult naturalised subjects of either sex, who have resided in the Commonwealth for 6 months and in the State continuously for 3 months after naturalisation, and adult natural-born subjects who have resided in the Commonwealth for 6 months and in the State for a continuous period of 3 months	Adult natural-born or naturalised subjects of either sex who have resided in the State for a continuous period of 6 months. An elector may be enrolled in (a) the electorate in which he resides, and (b) in an electorate in which he is a freeholder or holder of an unexpired lease, provided that no elector can be on more than 2 rolls. He may vote in which district he chooses, but not in both.

SUMMARY, MARCH, 1916.

Queensland.	South Australia.	Western Australia.	Tasmania.
<p>About 40</p>	<p>20</p>	<p>30</p>	<p>18</p>
<p>Male adult natural-born or naturalised British subjects</p>	<p>Male natural-born or naturalised British subjects if (a) of the age of 30 years or upwards, and (b) if resident in the State for 3 years</p>	<p>Male natural-born or naturalised British subjects of the age of 30 years or upwards, if (a) in the case of natural-born subjects, resident in the State for 2 years, and (b) in the case of naturalised subjects, if naturalised for 5 years previous to the election and resident in the State during that period</p>	<p>Male British subjects, either natural-born or for at least 5 yrs. naturalised, of not less than 30 years of age, qualified to vote at the election for the Legislative Council, and who have resided in Tasmania for any continuous period of 5 years, or for a period of 2 years immediately preceding the election</p>
<p>For life</p>	<p>6 years</p>	<p>6 years</p>	<p>6 years</p>
<p>* None</p>	<p>£200 each per annum</p>	<p>£300 each per annum</p>	<p>£200 each per annum</p>
<p>(Nominated)</p>	<p>Adult British subjects of either sex who are either (a) owners of a freehold of the clear value of £50, (b) owners of a leasehold of the clear annual value of £20, with at least 3 years to run or containing a right of purchase, (c) inhabitant, occupiers of a dwelling house, (d) registered proprietors of a Crown lease on which there are improvements to the value of at least £50. Claimants must have resided in State for 6 months prior to application for enrolment.</p>	<p>Adult British subjects of either sex who have resided in the State for 6 months, and who either (a) own a freehold estate to the value of £50, (b) occupy a house or own leasehold property rated at £17, (c) hold Crown leases or licenses to the value of not less than £10 per annum, or (d) are on the electoral list of a municipality or road-board district in respect of property of the annual value of £17. Aboriginal natives may only acquire the franchise in respect of a freehold qualification</p>	<p>Adult British subjects of either sex who have resided in the State for 12 months, if either (a) possessing freehold to the annual value of £10 or leasehold to the value of £30, or (b) graduates of a British university, qualified legal or medical practitioners, officiating ministers of religion, or retired naval or military officers</p>
<p>72</p>	<p>46</p>	<p>50</p>	<p>30</p>
<p>All persons qualified and registered to vote at the election of members of the Legislative Assembly are eligible as members</p>	<p>Any person qualified for the franchise of the House of Assembly is eligible for membership</p>	<p>Male adult British subjects, if resident in the State for 12 months. Naturalised subjects must have been naturalised for 5 years and have resided in the State for 2 years previous to the election</p>	<p>Male adult British subjects, either natural-born or for at least 5 years naturalised, qualified to vote at the election for the House of Assembly, and who have resided in Tasmania for any continuous period of 2 years immediately preceding the election.</p>
<p>Duration of Parliament, which is limited to 3 years</p>	<p>Duration of Parliament, which is limited to 3 years</p>	<p>Duration of Parliament, which is limited to 3 years</p>	<p>Duration of Parliament, which is limited to 3 years</p>
<p>£300 each per annum and £2 per month for postage and telegrams</p>	<p>£200 each per annum</p>	<p>£300 each per annum</p>	<p>£200 each per annum</p>
<p>Adult British subjects of either sex who either (a) have resided in Queensland for 12 months continuously and whose names are on the electoral roll, (b) own freehold estate of the value of £100, (c) have occupied a house of the annual value of £10 for at least 6 months, or (d) have a leasehold estate in possession of the annual value of £20 with not less than 18 months to run.</p>	<p>Adult natural-born or naturalised subjects of either sex who have resided in the State for 6 months.</p>	<p>Adult natural-born or naturalised subjects of either sex who have resided in the State for 6 months continuously and for a continuous period of 1 month in district</p>	<p>Adult natural-born or naturalised subjects of either sex who have resided in Tasmania for 6 months continuously.</p>

* The President is allowed £1,000 per annum, and the Chairman of Committees £500 per annum.

10. **The Parliament of Western Australia.**—In this State both chambers are elective. For the Legislative Council there are thirty members, each of the ten provinces returning three members, while the Legislative Assembly is composed of fifty members, one member being returned by each of the fifty electoral districts. At the expiration of two years from the date of election to a seat in the Legislative Council, and every two years thereafter, the senior member for the time being for each province retires. Seniority is determined (a) by date of election, (b) if two or more members are elected on the same day, then the senior is the one who polled the least number of votes, (c) if the election be uncontested, or in case of an equality of votes, then the seniority is determined by the alphabetical precedence of surnames and, if necessary, Christian names. Members of the Legislative Assembly are elected for three years.

Particulars of Elections. Since the establishment of responsible government in Western Australia there have been eight complete Parliaments, the first of which was opened on the 30th December, 1890, while the first session of the ninth Parliament commenced on the 3rd December, 1914. Women's suffrage was granted by the *Electoral Act* of 1899. The preferential system of voting in use in Western Australia is described in Year Book No. 6, page 1184. Particulars relating to the last six Assembly and four Council elections are given in the tables below:—

PARLIAMENTARY ELECTIONS, WESTERN AUSTRALIA, 1901 to 1916.

Year.	Electors on the Roll.			In Contested Districts.			Votes Recorded.			Percentage of Electors Voting.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
LEGISLATIVE ASSEMBLY.												
1901	74,874	16,648	91,522	67,967	14,775	82,742	29,832	8,255	38,087	44	56	46
1904	108,861	54,965	163,826	88,524	49,791	138,315	43,285	23,500	66,785	49	47	48
1905	79,025	42,697	121,722	65,296	36,706	102,002	33,482	19,435	52,917	51	53	52
1908	83,060	52,919	135,979	69,277	44,804	114,081	46,411	29,412	75,823	67	66	66
1911	91,814	60,831	152,645	71,675	50,700	122,375	53,355	38,281	91,636	74	75	75
1914	126,598	88,143	214,741	95,503	72,043	168,546	54,612	41,993	96,605	57	58	57
LEGISLATIVE COUNCIL.												
1908	29,255	6,543	35,798	19,233	4,506	23,741	10,210	2,283	12,493	53	51	52
1910	31,983	7,553	39,536	31,290	7,495	38,785	12,020	2,461	14,481	38	33	35
1912	36,716	10,437	47,153	33,490	9,818	43,308	20,733	5,552	26,285	62	57	59
1914	43,299	12,423	55,722	36,793	9,822	46,615	22,963	5,556	28,519	62	57	61
1916	45,325	13,683	59,008	19,950	4,877	24,827	10,672	2,464	13,136	53	51	53

11. **The Parliament of Tasmania.**—In Tasmania there are two legislative chambers—the Legislative Council and the House of Assembly, both bodies being elective. The Council consists of eighteen members, returned from fifteen districts, Hobart returning three, Launceston two, and the remaining thirteen districts sending one member each. For the Parliament which expired in March, 1909, there were thirty-five House of Assembly districts, each district returning one member, but, in accordance with the Constitution Amendment Act of 1906, upon the expiration of the last Assembly, either by dissolution or by effluxion of time, there are now five House of Assembly districts, viz., the Commonwealth electoral districts, each district returning six members, who are elected under a system of proportional representation which first came into force at the 1909 elections. (See Year Book No. 6, page 1185.) Women's suffrage was first granted in this State under the *Constitution Amendment Act 1903*.

Particulars of Elections. The first Tasmanian Parliament opened on 2nd December, 1856, and closed on 8th May, 1861. There have been nineteen complete Parliaments since the inauguration of responsible government. The first session of the twentieth Parliament opened on 16th May, 1916. Particulars of the voting at the last seven elections are given hereunder:—

ELECTIONS, HOUSE OF ASSEMBLY, 1900 to 1916.

Year.	Electors on Roll.		Electors in Con- tested Districts.		Votes Recorded.		Percentage of Electors Voting.	
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
1900 ...	39,002	...	29,022	...	18,872	...	65.02	...
*1903 ...	43,999	...	40,267	...	23,766	...	59.87	...
1906 ...	47,400	41,629	37,120	33,415	23,128	17,194	62.30	51.46
1909 ...	50,221	45,563	50,221	45,563	30,509	19,893	60.74	43.67
1912 ...	52,853	50,660	52,853	50,660	40,713	35,337	77.03	69.73
1913 ...	53,372	51,920	53,372	51,920	38,700	32,102	72.51	61.83
1916 ...	54,466	52,855	54,466	52,855	41,427	37,557	76.06	71.05

* Manhood suffrage, Act 64 Vic., No. 5. Universal adult suffrage, Act 3 Edward VII., No. 17, has been prescribed at all subsequent elections.

§ 3. Administrative Government.

In each State, as well as in the Commonwealth, the Government is administered by a number of chief departments, on lines similar to those on which administrative government is carried on in the United Kingdom. Reference has already been made to the creation of the Commonwealth Departments (see page 722). In the States the number and functions of the administrative departments vary considerably. This matter has also been referred to hereinbefore (see page 749). In many cases more than one department is under the control of a single Minister. The tabular statement given on this page and on the following pages shews the sub-departments, branches, etc., of each Ministerial Department in the Commonwealth and in each State, together with the principal Acts administered and other more important matters dealt with.

COMMONWEALTH ADMINISTRATIVE GOVERNMENT, 1917.

Departments, Sub-departments, Branches, etc.	Principal Acts Administered.	Matters dealt with or under Control.
<p>1. Prime Minister's— (a) Auditor-General. (b) Public Service Commissioner. (c) High Commissioner.</p>	<p>Arbitration (Public Service), Committee of Public Accounts, Commonwealth Public Works Committee, Commonwealth Public Service, Commonwealth Salaries, Meat Export Trade Commission, Ministers of State Act, Parliamentary Allowances, Petherick Collection, Royal Commissions, High Commissioner, Papua, Pacific Islands.</p>	<p>Auditor - General and Staff, Officers of the Parliament, Public Service Commissioner and Staff, Royal Commissions, the Federal Executive Council, Historic Memorials, Passports, Papua, External Affairs, Pacific Islands, Consular Appointments.</p>
<p>2. Attorney-General's— (a) Crown-Solicitor. (b) High Court. (c) Patents, Copyright, Designs, and Trade Marks.</p>	<p>Acts Interpretation, Amendments Incorporation, Bills of Exchange, Commonwealth Conciliation and Arbitration, Copyright, Crimes, Designs, Enemy Contracts Annulment, Evidence, Extradition, High Court Procedure, Judiciary, Parliamentary Papers, Patents, Trade-marks and Designs, State Law and Records Recognition, Statutory Declarations.</p>	<p>Bankruptcy and Insolvency, Bills of Exchange and Promissory Notes, Conciliation and Arbitration, Copyright, Crown Law Offices, Designs, Divorce and Matrimonial Causes, Foreign Corporations, Judiciary and Courts, Patents, Parliamentary Drafting, Trade-marks, Trading and Financial Corporations formed within the limits of the Commonwealth.</p>

COMMONWEALTH—(continued).

Departments, Sub-Departments, Branches, etc.	Principal Acts Administered.	Matters dealt with or under Control.
3. Defence—	Defence, War Precautions.	Administration of Territory in Military Occupation, Control of Railways with respect to transport for Naval and Military purposes, Land Defence of the Commonwealth, Naval and Military Defence, Naval and Military Factories and Workshops, Provision of Troops for Active Service Abroad, Royal Military College.
4. Navy—	Naval Defence, Naval Discipline, Wireless Telegraphy.	Construction and Repairs of Vessels for Commonwealth Departments, Naval Bases, Naval Defence, Dockyards, Naval Marine Works, Wireless Telegraphy.
5. Postmaster-General's—	Pacific Cable, Post and Telegraph, Telephone.	Postal, Telegraph and other like services.
6. Treasury— (a) Taxation Department. (b) Old Age Pensions. (c) Maternity Bonus. (d) Government Printer. (e) War Pensions.	Appropriation, Audit, Australian Notes, Bank Notes Tax, Coinage, Commonwealth Bank, Commonwealth Inscribed Stock, Constitution Alteration (State Debts), Estate Duty, Income Tax, Invalid and Old-Age Pensions, Land Tax, Life Assurance (Companies), Loan Acts, Marine Insurance, Maternity Bonus, Supply, Treasury Bills, War Loan, War Pensions.	Appropriation and Supply, Banking, Currency, Government Printer, Insurance, Invalid and Old-Age Pensions, Maternity Bonus, Pensions and Retiring Allowances, Public Loans, Public Moneys, State Debts, Taxation (other than duties of Customs and of Excise), War Pensions, Workmen's Compensation.
7. Trade and Customs— (a) Customs and Excise. (b) Fisheries. (c) Navigation. (d) Quarantine.	Australian Industries Preservation, Beer Excise, Bounties, Commerce (trade descriptions), Customs, Distillation, Excise, Interstate Commission, Iron Bounty, Lighthouse, Manufactures Encouragement, Quarantine, Sea-carriage of Goods, Seamen's Compensation, Secret Commissions, Shale Oils Bounties, Spirits, Sugar Purchase, Trading with the Enemy.	Bounties, Customs and Excise, Fisheries (other than Pearl Shell or Trepang) in Australian waters beyond territorial limits, Interstate Commission, Lighthouses, Beacons and Buoys, Quarantine, Trade and Commerce, Navigation and Shipping.
8. *Home and Territories— (a) Bureau of Census and Statistics. (b) Electoral Office. (c) Lands and Surveys. (d) Meteorological Office.	Census and Statistics, Commonwealth Electoral, Commonwealth Franchise, Compulsory Voting, Constitution Alteration (Senate Elections), Contract Immigrants, Emigration, Governor-General's Residences, Jervis Bay Territory Acceptance, Lands Acquisition, Meteorology, Naturalisation, Norfolk Island, Referendum (Constitution Alteration), Referendum (Military Service), Representation, River Murray Waters, Seat of Government, War Census.	Astronomy, Census and Statistics, Elections, Franchise, Lands, and Surveys. Meteorology, Representation of the People, Rivers, Seat of Government, Immigration and Emigration, Naturalisation and Aliens, Territories forming part of the Commonwealth.
9. *Works and Railways—	Kalgoorlie to Port Augusta Railway, Pine Creek to Katherine River Railway.	Public Works, Railways, Rivers.

* From 14th November, 1916, the Departments of Home Affairs and External Affairs were abolished, their functions being divided between the Prime Minister's Department and two new departments, Home and Territories, and Works and Railways.

NEW SOUTH WALES.—ADMINISTRATIVE GOVERNMENT, 1917.

Departments, Sub-Departments, Branches, etc.	Principal Acts Administered.	Matters dealt with or under Control.
<p>1. Premier's Office— (a) Governor's Establishment. (b) Agent-General. (c) Immigration & Tourist Bureau. (d) Immigration Department, London.</p>	<p>... ..</p>	<p>Is charged with—Correspondence with the Houses of Parliament, other Governments, foreign Consuls, the Agent-General, Immigration matters, matters of Government policy.</p>
<p>2. Chief Secretary— (a) Audit Dept. (b) Police Dept. (c) State Fisheries. (d) Aborigines Protection Board. (e) Board of Fire Commissioners. (f) Electoral Office. (g) Registry of Friendly Societies & Trade Unions. (h) Bureau of Statistics. (i) State Trawling Industry.</p>	<p>Electorates & Elections, Audit, Banks and Bank Holidays, Birds Protection, Bread, Building and Co-operative Societies, Sunday Closing, Constitution, Fire Brigades, Fisheries, Friendly Societies, Gaming and Betting, Totalisator, Metropolitan Traffic, Native Animals Protection, Native Dogs Destruction, Police Offences, Police Regulation, Printing, Sydney Corporation, Theatres and Public Halls, Vagrancy, Weights & Measures, Motor Traffic, Aborigines Protection.</p>	<p>Is charged with—the public seal, execution of capital sentences, appointment of magistrates, the police, theatrical, public entertainments and racecourse licenses, general elections, franchise, statistics, & all matters of business not expressly assigned to any other department, Lord Howe Island, etc.</p>
<p>3. Minister of Public Health— (a) Inspector-General of Insane. (b) Director-General of Public Health. (c) Master in Lunacy. (d) Dental Board. (e) Medical Board. (f) Board of Official Visitors Mental Hospital. (g) Meat Industry and Abattoirs Board. (h) Pharmacy Board.</p>	<p>Lunacy, Dentists, Public Health, Diseased Animals and Meat, Inebriates, Medical Practitioners, Public and Private Hospitals, Dairies Supervision, Pure Food, Cattle Slaughtering, Smoke Nuisance, Poisons.</p>	<p>Private hospitals, treatment of insane and inebriates, public vaccinators, hospitals and charitable institutions, public health, etc.</p>
<p>4. Treasury— (a) Stamp Duties Office. (b) Taxation Dept. (c) Government Printing Office. (d) Explosives Dept. (e) Shipping Offices, Sydney and Newcastle. (f) Navigation Dept. (g) Resumed Properties Office. (h) Stores Supply Department. The following departments are connected with the Treasury though administered by Commissioners— (a) Tramways. (b) Sydney Harbour Trust. (c) Government Savings Bank.</p>	<p>Stamp Duties, Land & Income Tax, Merchant Shipping, Wharfage and Tonnage Rates, Sydney Harbour Trust, Government Savings Bank, Explosives, Inflammable Liquids, Navigation.</p>	<p>The financial business of the Government generally, including the collection of the public revenue and the payment of all claims against the Government; the inscription and management of Government stocks, State fire insurance; State fidelity guarantees, the Harbour Trust Act, Government Savings Bank Act etc.</p>
<p>5. Dept. of Attorney-General and of Justice— (a) Prothonotary & Registrar in Divorce. (b) Master in Equity. (c) Sheriff. (d) Registrar in Bankruptcy. (e) Registrar of Probates, etc. (f) Crown Solicitor. (g) Parliamentary Draftsman. (h) Clerk of the Peace. (i) Registrar of Sydney District Court. (j) Registrar-General. (k) City Coroner. (l) Children's Court. (m) Petty Sessions. (n) Police Magistrates, Clerks of Petty Sessions and Registrars of District Courts. (o) Prisons Department. (p) Public Service Board. (q) Public Trustee.</p>	<p>Auctioneers, Bankruptcy, Companies, Contractors Debts, Coroners, Crimes, Courts of Justice, Fines and Penalties, Hawkers, Inebriates, Interstate Debts, Liens on Crops, Liquor, Lotteries, Marriage, Money-lenders, Newspapers, Pawn-brokers, Prisons, Public Service, Public Trustee, Real Property, Registration of Births, Deaths, and Marriages, of Deeds of Firms, Sheriff, Small Debts, Wills, Probate and Administration, Poor Prisoners' Defence, Influx of Criminals.</p>	<p>Is charged with—business relating to the offices of the Chief Justice and Puisne Judges, Supreme Courts, District Courts, Gaols and Penal establishments, Circuit Courts and Quarter Sessions, deals with all matters relating to remission of sentences, or of fines or estates or control of Court houses, etc., and advises the Govt. on all legal questions.</p>

NEW SOUTH WALES—(continued).

Departments, Sub-Departments, Branches, etc.	Principal Acts Administered.	Matters dealt with or under Control.
<p>6. Department of Lands— (a) Survey of Lands. (b) Local Land Boards. (c) Trigonometrical Survey. (d) Land Appeal Court. (e) Western Land Board. (f) Closer Settlement Advisory Boards. (g) Returned Soldiers' Settlement.</p>	<p>Crown Lands, Newcastle Pasturage Reserve, Public Roads, Public Parks, Public Gates, Public Trusts, Labour Settlements, Prickly Pear Destruction, Western Lands, Closer Settlement, Returned Soldiers' Settlement, rural tenants improvements.</p>	<p>All business arising from tenures created by Crown Lands Acts and other Acts mentioned, dedications and reservations, exchanges of land, proclamation of towns and villages, business connected with Land Appeal Court, local boards, district surveyors, and Crown land agents, survey of Crown lands, and triangulation survey of State, and making lands available for settlement.</p>
<p>7. Dept. of Public Works.— (a) Architects Branch. (b) Local Government and National Works. (c) Harbours and Drainage. (d) Survey Drafting. (e) Water Supply and Sewerage Construction. (f) Electrical Engineering. (g) Accounts. (h) Bonds and Contracts. (i) Testing and Inspection. (j) Government Dockyard, Newcastle. (k) The following Industrial Undertakings, viz.:—Building Construction I.U., Maroubra Quarry I.U., State Brickworks, Homebush Bay, State Metal Quarries, State Monier Pipe and Reinforced Concrete Works, State Motor Garage, State Power Station, Uhr's Point, State Timber Yards and Building Workshops, Uhr's Point. (l) Metropolitan Board of Water Supply and Sewerage. (m) Hunter District Water Supply and Sewerage Board, and (n) Country Towns Water Supply and Sewerage.</p>	<p>Public Works Act 1912, and all Acts authorising the carrying out of Public Works. Metropolitan Water and Sewerage Acts 1880-1916. Hunter District Water Supply and Sewerage Acts 1880-1905. Country Towns Water and Sewerage Acts, and such provisions of the Water Act 1912 as relate to drainage and flood prevention. Public Watering Places Act 1900 (except such sections as are administered by Municipal and Shire Councils), and certain Acts dealing with Main and Parish Roads, Bridges, Tolls, etc.</p>	<p>Construction of water supply works in Sydney and Newcastle and suburbs and in country towns. Construction of sewerage and drainage works in Sydney and Newcastle and suburbs in country towns. The erection, maintenance and repair of public buildings. The dredging and improvements of harbours and rivers, excepting such works as are vested in the Sydney Harbour Trust Commissioners. Construction and repair of wharves, basins and breakwaters, except such works as are vested in the Sydney Harbour Trust Commissioners. The construction and maintenance of docks and engineering establishments. The construction of land drainage works. The formation and maintenance of roads other than those vested in Shires and Municipal Councils. The construction and maintenance of national bridges and bridges outside municipalities in the western division. The management of national ferries and ferries outside municipalities in the western division. The maintenance of public watering places other than those under the control of Municipal and Shire Councils. The resumption of land for public purposes.</p>
<p>8. Department of Mines— (a) Ministerial Branch. (b) Registrar and Inquiry. (c) Account and Examining. (d) Lease. (e) Charting and Mining Survey. (f) Geological Survey. (g) Geological Survey Laboratory. (h) Inspectors of Mines and Drills. (i) Miners' Accident Relief Board. (j) Prospecting Board. (k) Mining Museum. (l) Sludge Abatement Board. (m) Coalfields. (n) Correspondence. (o) Records. (p) State Coal Mines.</p>	<p>Mining, Miners' Accident Relief, Mines Inspection, Coal Mines Regulation, State Coal Mines.</p>	<p>All matters relating to mining generally; geological and mining surveys; assays, inspection of mines, miners' accident relief, advances to prospectors.</p>

NEW SOUTH WALES—(continued).

Departments, Sub-Departments, Branches, etc.	Principal Acts Administered.	Other Matters dealt with or under Control.
<p>9. Dept. of Agriculture— (a) Administrative. (b) Accounts. (c) Stock. (d) Forestry. (e) Field Branch. (f) Fruit Expert. (g) Exports and Imports. (h) Library and "Agricultural Gazette." (i) Sheep and Wool Expert. (j) Dairy Expert. (k) Chemist. (l) Entomologist. (m) Viticultural Expert. (n) Poultry Expert. (o) Herd Master. (p) Biologist. (q) Tobacco Expert. (r) Botanic Gardens, Centennial Park, etc. (s) Hawkesbury Agricultural College. (t) Experiment Demonstration Farms. (u) Agricultural Museum.</p>	<p>Vine and Vegetation Diseases, Fruit Pests, Wine Adulteration, Fertilisers, Pastures Protection, Commons, Stock, Stock Diseases, Forestry, Trustees of Show Grounds Enabling, Fruit Cases.</p>	<p>Matters relating to agriculture, forestry, stock, including experiment and demonstration farms, viticultural stations and nurseries, experiment plots, Agricultural College, Farm Schools, Botanic Gardens, Centennial Park and Sydney Domain, Nursery Gardens, Campbelltown; irrigation farms; diseases of fruit and stock; publication of Agricultural Gazette and Bulletins; Agricultural Bureau.</p>
<p>10. Dept. of Public Instruction— (a) Ministerial Branch. (b) Chief Inspector's Branch. (c) School Architect's Branch. (d) Teachers' Training College. (e) Technical Education, including Technological Museum and Aviation School. (f) State Children's Relief. (g) Industrial Schools and Reformatories. (h) National Art Gallery. (i) Conservatorium of Music. (j) Public Library. (k) Australian Museum. (l) Observatory. (m) Schools of Arts, Literary Institutions, etc.</p>	<p>Public Instruction, Free Education, State Children's Relief, Children's Protection, Infant Protection, Neglected Children and Juvenile Offenders, Anatomy, Public Library and Art Gallery, Australian Museum, Schools of Arts, University and University Colleges, Sydney Grammar School, Bursaries Endowment, Trades Hall, School of Arts Trustees Enabling.</p>	<p>Education; high schools, district schools, continuation (junior, technical, commercial and domestic) schools, kindergarten and subsidised teaching, technical education, scholarships, medical inspection of school children, anthropometrical survey of school children, rural camp schools for city children, travelling schools, school agriculture, physical training, swimming, etc.</p>
<p>11. Department of Labour and Industry—</p>	<p>Early Closing, Factories and Shops, Shearers' Accommodation, Truck, Minimum Wage, Saturday Half Holiday, Industrial Arbitration, Gas, Clerical Workers, Workmen's Compensation Act.</p>	<p>Working conditions in factories and shops, early closing, industrial boards, industrial matters generally, and State Labour Branch, Women's Employment Agency, supply and quality of gas.</p>

VICTORIA.—ADMINISTRATIVE GOVERNMENT, 1917.

<p>1. Chief Secretary— (a) Board for the Protection of Aborigines. (b) Public Service Commissioner. (c) Registry of Friendly Societies. (d) Observatory. (e) Government Statist. (f) Marine Board. (g) Audit. (h) Lunacy. (i) Explosives. (j) Mercantile Marine. (k) Marine Board. (l) Neglected Children and Reformatory Schools. (m) Penal and Gaols. (n) Police. (o) Premier's Office. (p) Inspection of Stores. (q) Public Library. (r) Government Shorthand Writer. (s) Training Ships. (t) Fisheries and Game.</p>	<p>Aborigines, Animals Protection, Constitution, Crimes, Explosives, Fire Brigades, Friendly Societies, Gaols, Inebriates, Libraries, Licensing (part), Lunacy, Marine, Medical, Neglected Children, Poisons, Police Offences, Public Service, Registration of Births, Deaths and Marriages, Theatres, Weights & Measures, Dentists, Infant Life Protection, Statistics, Opium (part), Motor-car, Electoral, Preferential Voting, Workers' Compensation, Fisheries, Game.</p>	<p>Departmental business connected with the Houses of Parliament, execution of capital sentences, local option, prisons, the Govt. Gazette, Lotteries, Gaming and Betting, Public Library, Museum and Art Gallery, "Hansard," Police, Public and Bank Holidays, Fisheries, Game, and other matters as indicated in columns 1 and 2.</p>
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VICTORIA—(continued).

Departments, Sub-Departments, Branches, etc.	Principal Acts Administered.	Matters dealt with or under Control.
2. Attorney-General and Minister of Justice— (a) Supreme Court. (b) County Court. (c) Crown Law Offices. (d) Crown Solicitor. (e) Master in Equity and Lunacy. (f) Prothonotary. (g) Registrar of Titles. (h) Sheriffs.	Courts of Justice, Coroners, Licensing (part), Probate, Crimes, Children's Courts, Companies, Crown Remedies, Registration of Firms, Hawkers, Insolvency, Mines (part), Money-lenders, Pawnbrokers, Real Property, Transfer of Land, Stamps, Trusts, Book Debts.	Bankruptcy and insolvency, administration and probate, control of courthouses, etc., preparation of legal instruments, administration of justice generally, and advice to Government in all legal questions.
3. Treasury— (a) Land and Income Tax Office. (b) Printing Office. (c) Curator of Intestate Estates. (d) Charities. (e) Tender Board.	Auction Sales, Hospitals and Charities, Public Moneys, Savings Bank, Income Tax, Licensing (part), State Land Tax.	Conduct of finances, financial aid to charities, endowment to municipal institutions.
4. Public Instruction—	Education, Teachers, Registration of Teachers and Schools.	Education generally, supervision of the Training College, registration of teachers & schools.
5. Railways—	Railways and other Acts relating to specific railways and railway loans.	Management and maintenance of Government railways and electric trams.
6. Mines—	Mines, Gold Buyers, Boilers Inspection, Mines Development, Coal Mines Regulation.	Deals with applications for mining leases and licenses, water rights, prospecting.
7. Water Supply—	Water, Waterworks Construction, Water Supply, Loans Application.	Administration of various water works trusts, construction of water works and irrigation systems, boring for water.
8. Agricultural—	Agricultural Colleges, Vegetation Diseases, Stock Diseases, Milk and Dairy Supervision, Artificial Manures, Thistle, Vine Diseases, Sheep Dipping.	Agricultural colleges & experimental farms, lectures and demonstrations in practical and theoretical agriculture, etc.
9. Lands— (a) Survey. (b) Botanic Gardens and Domain. (c) Land Purchase & Management Board. (d) Advertising & Intelligence Department (Immigration).	Lands, Closer Settlement, Vermin Destruction, Local Government (part), Seed Wheat Advances, Bush Fires Loan, State Aid Abolition, Mines (part).	Survey, sale, and administration of Crown lands, including occupation for industrial, agricultural, and pastoral purposes, immigration, assisted and nominated passages.
10. Public Works— (a) Roads and Bridges and Local Govt. Brch. (b) State Schools. (c) Dredges and Snagging. (d) Ports and Harbours.	Local Government, Electric Lighting and Power, Pounds, Dog, Unused Roads and Water Frontages, Tramways, Drainage Areas, Municipal Grounds, Country Roads.	Construction of public works, railway construction, light-houses, and signal stations, Alfred Graving Dock, Government steamer, immigration, Labour Bureau.
11. Labour—	Factories and Shops, Servants, Registry Office.	Inspection of factories, work-shops and shops, wages boards, lifts.
12. Forests—	Forests.	
13. Public Health—	Health, Cemeteries, Pure Food.	Public health generally, inspection of food.

QUEENSLAND.—ADMINISTRATIVE GOVERNMENT, 1917.

Departments, Sub-Departments, Branches, etc.	Principal Acts Administered.	Matters dealt with or under Control.
<p>1. Chief Secretary— (a) Auditor-General. (b) Agent-General. (c) Bureau of Exchange of International Publications. (d) Govt. Residency, Thursday Island. (e) Immigration Dept. (f) Intelligence & Tourist Bureau. (g) S.S. <i>Lucinda</i>. (h) Pub. Library, Art Gallery, and Museum.</p>	<p>Constitution, Extradition, Immigration, Officials in Parliament, Public Service, Standard Time.</p>	<p>Commissions, etc., under Public Seal of State, foreign correspondence, immigration, justices of the peace, legislation, public service, communications with Governor and with States, Commonwealth, British, colonial, and foreign Governments.</p>
<p>2. Public Instruction—</p>	<p>University, Grammar Schools, State Education, Technical Instruction.</p>	<p>Primary education, inspection of denominational schools, medical inspection of schools, schools of art and technical colleges, grammar schools, naval schools, State high schools, Teachers' Training College, University of Queensland.</p>
<p>3. Railways—</p>	<p>Railways and Railway Construction.</p>	<p>Railways and tramways management and construction.</p>
<p>4. Home Secretary— (a) Government Advertising Office. (b) Electoral Department. (c) Department of Public Health. (d) Registrar-General. (e) Dental Board. (f) Local Auditors Board. (g) Medical and Pharmacy Board. (h) Aborigines. (i) Benevolent Asylum. (j) Police. (k) Prisons. (l) State Children. (m) Cemeteries. (n) Conciliation Boards. (o) Dalby Sanatorium. (p) Diamantina Hospital for Incurables. (q) State Children's Department. (r) Government Statistician.</p>	<p>Aboriginals, Holidays, Careless Use of Fire, Cemetery, Charitable Institutions, Children's Protection, Dental, Elections, Fencing, Fire Brigades, Hawkers, Health, Hospital, Industrial Schools, Inebriates, Influx of Criminals, Prevention, Insanity, Legitimations, Liquor, Local Govt., Medical, Native Labourers, Pharmacy, Police, Prisons, Religions, etc. Institutions, Registration, Births, etc., State Children, Statistics, Traffic.</p>	<p>Is charged with business connected with—aboriginals, cemeteries, elections, fire brigades, holidays, hospitals and charitable institutions, industrial and reformatory schools, infant life protection, insanity, lazarets, local Government, police, prisons, public health, quarantine, remission and execution of sentences and penalties, State children, State hotel, miscellaneous services, and all other matters of internal arrangement not confided to any other Minister.</p>
<p>5. Treasury— (a) Government Analyst. (b) Govt. Printing Office. (c) Government Stores. (d) Harbours and Rivers Department. (e) Land and Income Tax Office. (f) Marine Department. (g) Marine Board. (h) Water Supply Department. (i) Compr. of Central Sugar Mills. (j) State Fisheries.</p>	<p>Coast Survey, Explosive, Fisheries, Annuities, Auctioneers, Harbours, Income Tax, Land Tax, Irrigation, Loans, Shipping and Navigation, Port Dues Revision, Firms Registration, Water Conservation, Stock Inscription, Sugar Works, Treasury Notes and Bills, Tobacco, Water Authorities, Weights and Measures, Fish Supply.</p>	<p>Central sugar mills, dredges, fisheries, fish market, finance generally, harbour boards and improvements, navigation, ports and harbours, powder magazines, printing, public debt, taxation generally, trade and commerce, water supply, water conservation, weights and measures, wharves and jetties.</p>
<p>6. Attorney-General— (a) Crown Solicitor. (b) Supreme & District Courts. (c) Public Curator. (d) Registry of Friendly Societies. (e) Registry of Titles. (f) Com. of Stamps. (g) Police Magistrates. (h) Petty Sessions. (i) Public Service Superannuation. (j) Sheriff. (k) State Insurance.</p>	<p>Justiciary, Building Societies, Companies, Friendly Societies, Inquests, Insurance, Leases to Aliens, Printing, Real Property, Public Curator, Public Service Superannuation, Stamp, Succession and Probate, Totalisator, Trade Unions, Workers' Compensation.</p>	<p>Administration of justice generally, advising Government on all legal questions, judicial establishments, courts of petty sessions, preparation of all legal instruments and contracts.</p>
<p>7. Mines— (a) Geological Survey. (b) Mining Registries. (c) Mines Inspectrs. (d) Gold Wardens.</p>	<p>Gold Mining, Mineral Lands, School of Mines.</p>	<p>Geological survey, mineral fields, regulation of mines, Charters Towers School of Mines.</p>

QUEENSLAND—(continued).

Departments, Sub-Departments, Branches, etc.	Principal Acts Administered.	Matters dealt with or under Control.
<p>8. Public Lands—</p> <p>(a) District Land Offices. (b) District Survey Offices. (c) Survey Office. (d) Forestry.</p>	<p>Closer Settlement, Crown Lands, Pastoral Leases, State Forests and National Parks, Pub. Works Land Resumption, Rabbit, Marsupial-proof Fencing.</p>	<p>Destruction, etc., of rabbits and prickly pear, opening and closing roads, reserves, settlement of Crown lands, lands survey, forestry, public estate improvement, State stations.</p>
<p>9. Agriculture—</p> <p>(a) Agricultural College. (b) Inspectors of Stock and Brands & Registry of same. (c) Botanic Gardens. (d) State Farms and Nurseries. (e) Sugar Experiment Stations. (f) Stock Diseases Experiment Stations. (g) Chemical Laboratory.</p>	<p>Brands, Dairy, Diseases in Plants, Sheep and Stock, Game and Fish Acclimatisation, Fertilisers, Live Stock and Meat Export, Margarine, Marsupial Boards, Native Animals and Birds Protection, Slaughtering, State Forests, Sugar Cultivation, Sugar Cane Prices, Pure Seeds.</p>	<p>Agric. College, Botanic Gardens, brands and earmarks of stock, diseases in animals and plants, loans in aid of co-operative agric. production, marsupial destruction, slaughter of cattle for consumption, State farms and nurseries, stock and sugar experiment stations.</p>
<p>10. Public Works—</p> <p>(a) Under-Secretary for Works, Govt. Architect, and Engineer for Bridges. (b) Labour and Factories. (c) Inspection of Machinery and Scaffolding. (d) Court of Industrial Arbitration.</p>	<p>Metropolitan Water and Sewerage, Electric Light and Power, Factories and Shops, State Industrial Arbitration, Inspection of Machinery and Scaffolding, Workers' Accommodation, Labour Exchanges, Gas Trade Unions.</p>	<p>Construction of public buildings, State-school buildings, technical colleges, bridges, hospitals, prisons, court houses, police stations, Government Savings Banks.</p>

SOUTH AUSTRALIA.—ADMINISTRATIVE GOVERNMENT, 1917.

<p>1. Premier—</p> <p>(a) Government Reporting Dept. (b) Railways Standing Committee. (c) Royal Commissions. (d) Government Valuator. (e) State War Council. (f) Govt. Motor Garage.</p>	<p>Railways Standing Committee Act, War Funds Regulation Act.</p>	<p>Correspondence with Commonwealth, State, and other Governments and the Agent-General. Business relating to sub-departments.</p>
<p>2. Chief Secretary—</p> <p>(a) Statistical Dept. (b) Audit. (c) Public Actuary. (d) Sheriff. (e) Registrar-General. (f) Government Printer. (g) Police. (h) Central Board of Health. (i) Hospitals. (j) Mental Hospital. (k) Destitute Persons. (l) State Children. (m) Gaols and Prisons. (n) Public Service Commissioners. (o) Places of Public Entertainment.</p>	<p>Civil Service, Audit, Friendly Societies, Registration of Births, Deaths, and Marriages, Prisons, Police, Legitimation, Public Hospitals, Mental Defectives, State Children, Health, Vaccination, Places of Public Entertainment, Fire Brigades, Public Charities' Funds, Public Service.</p>	<p>Chamber of Manufactures, Civil Service exams, fire brigades, Government Gazette, public charities, Royal commissions, State printing, public houses, hospitals, public health, law and order, prisons, places of public entertainment.</p>
<p>3. Treasury—</p> <p>(a) Land and Income Tax Department. (b) Stamp Duty Department. (c) Motor Vehicles Branch. (d) Agent-General in London.</p>	<p>Seed Wheat, Unclaimed Moneys, Pawnbrokers, Appraisers, Auctioneers, Hawkers, Taxation, Stamp Duty, Motor Vehicles.</p>	<p>Banking, finance and taxation generally, Imperial and other Government pensions, Public Service Superannuation Fund, licenses.</p>

SOUTH AUSTRALIA—(continued).

Departments, Sub-Departments, Branches, etc.	Principal Acts Administered.	Matters dealt with or under Control.
<p>4. Attorney-General— (a) Law Officers. (b) Pub. Trustees. (c) Curator of Convicts' Estates. (d) Supreme Ct. (e) Registrars of Industrial Soc., etc., in Admiralty, of Probates, of Companies, and of Building Soc. (f) Insolvency Court. (g) Police and Local Courts. (h) Licensing Benches. (i) Registrar-General of Deeds. (j) Coroners. (k) Electoral Department. (l) Local Option. (m) Woods and Forests Department. (n) Tourist Bureau. (o) Intelligence Department.</p>	<p>Courts of Justice, Administration and Probate, Public Trustee, Legal Practitioners, Succession Duties, Companies, Insolvency, Police, Real Property, Bills of Sale, Deposit of Deeds, Coroners, Electoral, Licensing Acts in which magistrates have jurisdiction, Ancient Lights, Declarations, Woods and Forests, National Pleasure Resorts, Control of Advertisements.</p>	<p>Responsible for Government Parliamentary bills and administration of Local Option and Electoral Acts. Deals with issue of summonses and warrants and with preparing informations and plaints, licenses, franchise, appeals from courts, forest reserves.</p>
<p>5. Crown Lands and Immigration— (a) Crown Lands Office. (b) Roads Department. (c) Survey Department. (d) Photolithographic Department.</p>	<p>Corporations, District Councils, Manufacturing Districts, Blocker's Loan, Animal Protection, Game, National Park, Noxious Weeds, Roads, Pastoral, Vermin, Licensed Surveyors, Weights and Measures, Botanic Garden, Advances to Settlers, Immigration, Impounding, Travelling Stock, Waybills.</p>	<p>Matters affecting municipal corporations respecting the Acts under which they are constituted. Payment of main road grants, subsidies, and license fees. All matters affecting Crown lands, roads and bridges, immigration, surveys, botanic gardens, animals and birds.</p>
<p>6. Public Works— (a) Railways Department. (b) Engineer-in-Chief's Department. (c) Hydraulic Engineer's Department. (d) Works and Buildings. (e) Labour Exchange. (f) Supply and Tender Board Department. (g) Aborigines Department.</p>	<p>Railway Administration, South-eastern Drainage, Water Conservation, Waterworks, Sewers, Murray River Works, Adelaide Cemetery and Cremation, Renmark Irrigation Trust, Municipal Tramways Trust.</p>	<p>Railways, water conservation works and artesian boring, construction of roads outside district councils, town and country waterworks, weirs, locks, and other improvements River Murray, State Government buildings and Adelaide cemetery, aborigines, labour exchange.</p>
<p>7. Mines— (a) Department of Mines. (b) Geological Survey.</p>	<p>Mining, Gold Dredging, Mining on Private Property, Gold Buyers.</p>	<p>Administration of Mining Acts, records and statistics, geological reports, State batteries and cyanide works, metallurgical laboratories, inspection of mines and quarries, diamond drilling.</p>
<p>8. Education— (a) Education Department (b) Observatory. (c) Adelaide University. (d) Adelaide School of Mines. (e) Country Schools of Mines. (f) Public Library, Museum, and Art Gallery. (g) Institutes Association.</p>	<p>Education, Adelaide University, Degrees in Surgery, University Site, Public Library, Museum and Art Gallery, School of Mines, Country Institutes.</p>	<p>Education generally, including primary, secondary, technical, and university, institutes, astronomical (but not meteorological) work.</p>
<p>9. Department of Industry— (a) Chemistry Dept. (b) Factories' Dept. (c) Fisheries' Dept. (d) Women's Employment Bureau.</p>	<p>Industrial Arbitration, Factories, Early Closing, Scaffolding, Lifts, Shearers' Accommodation, Fisheries, Bird Protection, Registry Offices, Steam Boilers and Engine Drivers.</p>	<p>Factories, shops, early closing, industrial disputes, explosives, fish industry, industrial research, women's employment bureau, steam boilers and engine drivers.</p>
<p>10. Agriculture and Irrigation— (a) Department of Agriculture. (b) Advisory Board of Agriculture. (c) Agricultural College. (d) Dairy Department. (e) Poultry Department. (f) Horticultural Department. (g) Stock and Brands. (h) Fisheries. (i) Produce Department. (j) Irrigation. (k) Experimental Farms.</p>	<p>Bush Fires, Fertilisers, Fisheries, Vine, Fruit and Vegetable Protection, Commerce, Hay and Chaff, Insecticides, Phylloxera, Irrigation, Stock Diseases, Brands, Returned Soldiers' Settlement, Wheat Harvest, Sale of Fruit.</p>	<p>Scientific farming, agricultural colleges and experimental farms, agricultural instruction, handling, shipping and cold storage of produce, inspection of stock, registration of stock brands, reclamation and irrigation of land.</p>
<p>11. Marine— (a) Harbours Board. (b) Marine Board; (c) Life Saving Dept.</p>	<p>Harbour, Marine, and Navigation Acts.</p>	<p>Wharves, harbours, jetties, lighthouses, dredging, life saving.</p>

WESTERN AUSTRALIA.—ADMINISTRATIVE GOVERNMENT, 1917.

Departments, Sub-Departments, Branches, etc.	Principal Acts Administered.	Matters dealt with or under Control.
<p>1. Colonial Secretary— (a) Aborigines. (b) Fisheries. (c) Friendly Societies and Industrial Arbitration. (d) Gaols. (e) Government Gardens. (f) Harbour and Light. (g) Immigration and General Information. (h) Lunacy. (i) Medical, Public Health and Factories. (j) Early Closing. (k) Observatory. (l) Police. (m) Public Charities, State Children, and Government Labour Bureau. (n) Registry and Statistical. (o) State Steamship Service. (p) Lithography. (q) Printing. (r) Intestate Destitute Persons.</p>	<p>Aborigines, Adoption of Children, Bread, Bank Holidays, Protection of Property, Co-operative and Provident Societies, Dentists, Fire Brigades, Early Closing, Friendly Societies, Fisheries, Factories, Harbours and Rivers, Hospitals, Health, Industrial Arbitration, Lunacy, Inebriates, Marine Stores, Medical, Newspaper Libel, Prisons, Police, Pharmacy and Poisons, Registration of Births, Deaths and Marriages, Racing Clubs, Royal Commissioners' Powers, Statistical, State Children, Shearers' Accommodation, Seamen, Shipping, Trespass, Trades Unions, Truck, University Endowment, Vaccination, Whaling, Workers' Compensation, Work men's Wages.</p>	<p>Consuls, passports, fisheries, aborigines, actuarial, industrial arbitration, friendly, and other societies, trades unions, prisons, Government gardens, light-houses, harbours and rivers, immigration, and general information, immigration bureau, immigrants' home, hospitals, hospitals for insane, early closing, sanitation, factories, astronomical, police, poor relief, State children, infant life protection, labour bureau, births, marriages and deaths, statistics, children's courts, old men's home, old women's home, inebriates' homes, Sunday entertainments, ferries, State steamships, State dairy farm.</p>
<p>2. Treasury— (a) London Agency. (b) Savings Bank. (c) Government Stores. (d) Tender Board. (e) Premier's Office. (f) Workers' Home Board. (g) Public Service Commissioner.</p>	<p>Auctioneers, Wines, Beer and Spirits Sale, Gun Licensing, Govt. Savings Bank, Workers' Homes, Pensions, Audit, Public Service, Sale of Government Properties.</p>	<p>Finance generally, general stores, savings bank, pensions, public accounts.</p>
<p>Attorney-General— (a) Crown Law Offices. (b) Supreme Court. (c) Stipendiary Magistrates. (d) Land Titles Office. (e) Electoral Office. (f) Official Receiver. (g) Curator of Intestates' Estates. (h) Sheriff. (i) State Hotels and Inspection of Liquor.</p>	<p>Administration of Justice, Bankruptcy, Bills of Sale, Building Societies, Corporations, Companies, Conveyancing, Divorce, Death Duties, Extradition, Electoral, Firms' Registration, Intestate Estates, Life Assurance, Lunacy Estates, Libel, Licensing, Real Property, Superannuation, Truck Act, Transfer of Land, Workers' Compensation, Workmen's Wages, Usury, etc.</p>	<p>Criminal and civil law, conveyancing, parliamentary drafting, sheriffs, bankruptcy, intestacy, licensing, petty debts, petty sessions and police courts, land titles and registration of deeds and leases, elections, supreme courts, registration of companies, newspapers, corporations, extradition, sheriff.</p>
<p>4. Public Works— (a) Administrative and State Industries. (b) Engineering Division. (c) Architectural Division.</p>	<p>Public Works, Tramways, Railways (Special), Electric Light, Municipal Corporations, Roads, Dog, and Cart and Carriage.</p>	<p>Public buildings and works, abattoirs, freezing and cold storage works, railway and tramway construction, municipalities, roads and bridges, State saw mills and brickworks, implement and engineering works, quarries.</p>
<p>5. Water Supply, Sewerage and Drainage— (a) Goldfields Division. (b) Metropolitan " (c) Agricultural " (d) North-West "</p>	<p>Goldfields Water Supply, Water Boards, Metropolitan Water Supply, Sewerage and Drainage, Land Drainage, Rights in Water and Irrigation.</p>	<p>All State hydraulic, sewerage, land drainage and irrigation undertakings.</p>
<p>6. Agricultural— (a) Department of Agriculture. (b) Commissioner Wheat Belt. (c) Commissioner South-West. (d) Commissioner Fruit Industries. (e) Stock, Brands, Poultry, and Veterinary Inspection. (f) Rabbit and Vermin Board. (g) Markets, Refrigerating Works, Saleyards and Abattoirs. (h) Botanist, Pathologist, and Entomologist. (i) Traction Engine Clearing. (j) State Meat Stalls.</p>	<p>Rabbit, Stock Diseases, Scab, Brands, Plant Diseases, Noxious Weeds, Fertilisers and Feeding Stuffs, Contagious Diseases in Bees, Drovers, Abattoirs, Vermin, Veterinary Surgeons, Destructive Birds and Animals, Agricultural Bank, Cattle Trespass, Fencing and Impounding, Live Stock and Frozen Meat, Quarantine and Commerce, Industries Department.</p>	<p>Agricultural, horticultural, dairying and pastoral pursuits generally, abattoirs and refrigerating works, State markets, clearing by traction engines, encouragement of secondary industries, State farms and orchards, orchard and insect pests, Federal quarantine (fruit), veterinary inspection.</p>

WESTERN AUSTRALIA—(continued).

Departments, Sub-Departments, Branches, etc.	Principal Acts Administered.	Matters dealt with or under Control.
<p>7. Education— (a) Primary Education. (b) Secondary Education. (c) Training College for Teachers. (d) Technical Education.</p>	<p>Education.</p>	<p>Education generally, including primary, secondary, continuation and technical schools, inspection of schools, training of teachers.</p>
<p>8. Railways—</p>	<p>Government Railways and Tramways, Electric Light and Power Agreement, and Government Electric Light Works.</p>	<p>Management, maintenance and control of Govt. railways and tramways, control of electric works.</p>
<p>9. Mines— (a) Explosives and Analytical. (b) Inspection of Machinery. (c) Mining Engineers. (d) Geological Survey. (e) State Batteries. (f) Woods and Forests. (g) School of Mines. (h) State Smelter.</p>	<p>Mining, Sluicing and Dredging for Gold, Explosives, Inspection of Machinery, Mines Regulation, Coal Mines, Mining Development, Timber Regulations.</p>	<p>Mining generally, State batteries and reduction plants, woods and forests.</p>
<p>10. Lands— Lands and Surveys.</p>	<p>Land, Cemeteries, Bush Fires, Parks, Reserves, Agricultural Lands Purchase, Native Flora and Fauna, Opening and Closing of Roads under Lands Act.</p>	<p>All business in connection with holdings under the Land Acts, reserves, roads, land selection, district survey offices, land agencies.</p>
<p>11. Audit.</p>	<p>Audit.</p>	<p>Audits generally and as provided by special Acts.</p>
<p>12. Taxation. (a) Land Tax. (b) Income Tax. (c) Dividend Duty. (d) Totalisator Duty. (e) Totalisator Licenses.</p>	<p>Land and Income Tax Assessment, Land Tax and Income Tax, Stamp and Dividend Duties, Totalisator Duty and Regulations.</p>	<p>Direct taxation generally, totalisator licenses.</p>

TASMANIA.—ADMINISTRATIVE GOVERNMENT, 1917.

<p>1. Premier— (a) Governor's Establishment. (b) Premier's Dept. (c) Executive Council. (d) Agent-General.</p>	<p>...</p>	<p>Correspondence with State Federal, Colonial, British, and Foreign Governments, with Agent-General and Governor, etc.</p>
<p>2. Chief Secretary— (a) Houses of Parliament. (b) Electoral. (c) Audit. (d) Statistical & Registration. (e) Inspection of Machinery. (f) Fisheries. (g) Public Buildings. (h) Charitable Institutions. (i) Boys' Training School. (j) Home for Invalids. (k) Neglected Children's Department. (l) Medical Institutions. (m) Hospitals. (n) Public Health. (o) Public Service Board. (p) Industrial Education.</p>	<p>Audit, Bank Holidays, Cemeteries, Registration of Births and Deaths, Botanical Gardens, Charitable Institutions, Electoral, Fire Brigades, Factories, Fisheries, Hospitals, Inebriates, Museum & Art Gallery, Pensions, Pharmacy, Public Health, Public Service, Wages Boards, Midwifery, Shops Closing, Workers' Compensation, Industrial, Education.</p>	<p>Charitable institutions, cemeteries, public health, electoral, franchise, fisheries, machinery, statistics, training & industrial schools, public service, explosives, wages boards.</p>
<p>3. Treasury— (a) Taxes. (b) Printing. (c) State Savings Bank. (d) Agricultural Bank. (e) Merchant Ships' Officers' Exam. Board.</p>	<p>Suppression of Public Betting, Licensing, Stamp Duties, Auction, Pawnbrokers, Public Debts, Taxation, Assessment, Savings Bank, State Advances, Merchant Ships' Officers' Examination.</p>	<p>Finance generally, collection of internal revenue and of stamp duties, Government printing.</p>
<p>4. Mines—</p>	<p>Mining, Mining Companies, Mining Companies (Foreign), Magazine & Explosives.</p>	<p>All matters arising under Acts dealing with mining, registration of mining companies, magazines and explosives.</p>
<p>5. Lands— (a) Lands Branch Office, Launceston. (b) Agricultural and Stock Department.</p>	<p>Crown Lands, Closer Settlement, Game Protection, Stock, Diseased Animals, Rabbits Destruction, Vegetation Diseases.</p>	<p>Crown lands and surveys, agriculture and stock.</p>
<p>6. Public Works—</p>	<p>Public Works, Local Government.</p>	<p>Construction and control of public works, including railways.</p>
<p>7. Attorney-General— (a) Supreme Court. (b) Lands Titles. (c) Sheriff. (d) Magistracy. (e) Police. (f) Railways.</p>	<p>Probate, Stamp Duties, Foreign Companies, Real Property, Prisons, Bankruptcy, Local Courts, Infant Life Protection, Motor Traffic, Police, Railway Management, Newspapers.</p>	<p>Courts of law, gaols, justices of the peace and coroners, lands titles, police, registration of deeds, Supreme Court & Judges, Railways.</p>
<p>8. Education—</p>	<p>Education.</p>	<p>Primary & technical education, University of Tasmania.</p>

SECTION XXVI.

LOCAL GOVERNMENT.

§ 1. Introduction.

1. **Early History of Local Government.**—In previous issues of this book, a description was given of the systems of Local Government and their development in the several States of the Commonwealth, and at the same time a comparison was made between the Australian and Continental systems. The early history of Local Government in Australia was also dealt with. Owing, however, to considerations of space, these matters have been omitted from the present volume, and the reader is referred to Year Book No. 5, pages 972 to 975.

§ 2. Local Government Systems.

1. **New South Wales.**—(i.) *Development of Local Government.* The history of Local Government in New South Wales has been given in previous issues of this book (see No. 6, page 966). It is not intended to repeat the information in this issue.

(ii.) *Present System of Local Government.* The law relating to local government in New South Wales is now contained in the Acts of 1906, 1907, and 1908. Practically the whole of the State, with the exception of the Western Division, has been brought under the operation of these Acts.

(a) *Areas Incorporated.* Prior to the year 1907 the total area incorporated formed a very small part of the whole area of the State, as may be seen in the following statement:—

AREAS INCORPORATED IN NEW SOUTH WALES, 1860 to 1906

Year	...	...	1860.	1870.	1880.	1890.	1900.	1906.
Area incorporated—sq. miles	...	...	409	649	1,482	2,387	2,763	2,830

Total area of State (exclusive of Lord Howe Island), 310,367 square miles.

The areas incorporated in 1906 in each of the three territorial divisions of the State were as follows:—

NEW SOUTH WALES.—DISTRIBUTION OF INCORPORATED AREAS, 1906.

Division.			Incorporated Area.	Unincorporated Area.	Total Area.
Eastern	...	Sq. miles	1,977	93,742	95,719
Central	...	"	571	88,579	89,150
Western	...	"	282	125,216	125,498
Total	...	"	2,830	307,537	*310,367

* Total area of State, exclusive of Lord Howe Island, the area of which is 5 square miles.

The total area incorporated under the Local Government Act 1906, to the end of the year 1915, was 183,568 square miles, of which 180,655 square miles were comprised within shires and 2913 within municipalities. The areas incorporated comprise the whole of the eastern and central divisions of the State, with the exception of Lord Howe Island, the islands in Port Jackson, and the quarantine station at Port Jackson.

(b) *General.* The above Act came into operation on the 1st January, 1907; it provided for the continuation of existing shires and municipalities, for the creation of new ones, and for their reconstitution by uniting, dividing, altering, or converting areas. Each shire is divided into three ridings, and each municipality may be divided into wards by petition of the council or a majority of the ratepayers to the Governor. The councils

consist, in the case of shires, of either six or nine councillors, and in the case of municipalities, of from six to twelve aldermen. A summary of the functions of councils, their powers and duties, together with a detailed statement of rates, ratable property, and endowment, will be found in previous issues of the Year Book. (See Year Book No. 5, pages 977 to 979.)

(iii.) *Shires.*—The total area of the 136 shires constituted under the new system is 180,655 square miles, and the population on the 31st December, 1915, was 647,570.

The shires vary in area from 36 square miles in the case of Ku-ring-gai, immediately north of the metropolis, to 5730 square miles in the case of Lachlan in the Condobolin district.

(a) *Valuation and Rates Levied.* The unimproved capital value of the shires in 1915 was £104,745,633, as against £103,451,177 in the preceding year. It is not possible to give the improved capital value or the assessed annual value, as the shires are not compelled to make these valuations, and in many cases do not make them. The total amount of all rates levied was £626,514.

(b) *Revenue.* The principal heads of revenue for the last five years are shewn in the following table:—

NEW SOUTH WALES.—INCOME OF SHIRES, 1911 to 1915.

Particulars.*	1911.	1912.	1913.	1914.	1915.
<i>General Fund</i> —	£	£	£	£	£
General rates ...	463,501	517,025	561,378	608,009	610,407
Government endowment...	319,593	372,952	134,635	146,077	163,211
Public works ...	45,331	45,152	62,453	197,754	192,319
Health administration ...	3,998	4,886	4,864	4,889	4,620
Public services ...	8,769	9,232	10,305	10,069	9,711
Shire property ...	6,731	8,768	10,159	13,738	12,512
Miscellaneous ...	8,594	5,648	6,814	6,742	7,613
<i>Special and Local Funds</i> ...	24,516	35,835	45,903	57,714	65,293
Total revenue...	881,033	999,498	836,511	1,044,992	1,065,686

* The receipts for Public Works, Health Administration, Public Service, etc., include Government aid grants, total endowments, and special grants during 1915 amounting to £175,851.

(c) *Expenditure.* The following statement shews the expenditure of shires during the years 1911 to 1915 inclusive:—

NEW SOUTH WALES.—EXPENDITURE OF SHIRES, 1911 to 1915.

Particulars.	1911.	1912.	1913.	1914.	1915.
<i>General Fund</i> —	£	£	£	£	£
Administrative expenses ...	128,126	*83,721	*91,450	*95,760	*87,527
Public works ...	647,220	773,479	707,923	801,542	813,400
Health administration ...	5,724	7,199	7,699	8,064	8,049
Public services ...	15,410	15,809	14,751	14,757	17,935
Shire property ...	7,657	10,419	11,251	15,277	14,644
Miscellaneous ...	7,120	8,430	9,975	9,275	9,855
<i>Special and Local Funds</i> ...	20,949	34,268	43,041	51,796	67,025
Total expenditure...	832,206	933,325	886,090	996,471	1,018,435

* Exclusive of proportion of Administrative expenses payable from Special and Local Funds previously included under General Fund.

(d) *Assets and Liabilities.* The financial position of the shires at the end of the year 1915 was strong, as there was an excess of assets of £431,298. The following table gives particulars of assets and liabilities as at the 31st December, 1915 :—

NEW SOUTH WALES.—ASSETS AND LIABILITIES OF SHIRES, 1915.

Assets.			Liabilities.		
<i>General Fund—</i>			<i>General Fund—</i>		
Outstanding rates	...	£52,928	Temporary loans	...	£49,220
Stores and materials	...	13,087	Sundry creditors	...	32,099
Bank balance	...	117,252	Due on contracts	...	983
Sundry debtors	...	14,163	Due to trust fund	...	258
Land	...	15,909	Other	...	9,552
Buildings	...	96,500	<i>Special and Local Funds</i>	...	37,069
Plant and property*	...	177,671			
Furniture	...	15,817	Total	...	£129,181
Other	...	3,821	Excess of assets	...	431,298
<i>Special and Local Funds</i>	...	53,331			
Total	...	£560,479	Total	...	£560,479

* Including saleyards, pounds, baths, public watering-places, ferries, wharves, etc.

(iv.) *Municipalities.* Including the City of Sydney there were 185 municipalities in New South Wales at the end of 1915; of these, forty were in the suburbs of Sydney and eleven in the district of Newcastle and suburbs. Since the 1st January, 1908, under the Local Government Act 1906, suburban and country municipalities must levy a general rate on the unimproved capital value of all ratable land, and may levy additional general, special, local, or loan rates on either the unimproved or improved capital value. Municipal rates, for the year 1915, were charged on the annual value in the City of Sydney, and an additional rate was also levied on the unimproved capital value, but from 1916 the rates will be levied on the unimproved capital value only. The only rates based solely on the assessed annual value are, those charged by the Metropolitan and Hunter Water Supply and Sewerage Boards.

(a) *Capital Value, Area, Population, and Rates Levied.* The following table shews the improved capital value, the area, population, number of buildings, and amount of rates levied in municipalities for the years 1901 and 1911 to 1915 :—

NEW SOUTH WALES.—MUNICIPALITIES, IMPROVED CAPITAL VALUE, AREA, POPULATION, NUMBER OF BUILDINGS AND TOTAL RATES LEVIED, 1901 and 1911-15.

Year ended 31st Dec.*	Sydney and Suburbs.					Country.				
	Improved Capital Value.	Area.	Population.	Number of Dwellings.	Total Rates Levied.	Improved Capital Value.	Area.	Population.	Number of Dwellings.	Total Rates Levied.
	£	Acres.	No.	No.	£	£	Acres.	No.	No.	£
1901 ...	88,118,600	91,220	1487,900	94,907	277,457	36,429,600	1,732,302	371,330	73,862	127,564
1911 ...	119,375,694	95,259	641,960	§	726,712	47,484,486	1,832,821	431,500	§	340,075
1912 ...	124,875,964	95,259	683,780	§	770,879	48,814,203	1,826,795	444,190	§	373,765
1913 ...	137,795,263	95,259	713,260	§	880,906	50,451,471	1,769,155	456,050	§	401,594
1914 ...	158,764,693	95,259	739,210	§	1,038,224	55,682,063	1,769,155	457,150	§	450,140
1915 ...	169,778,544	95,259	748,940	§	1,076,885	57,949,558	1,769,155	456,000	§	464,511

* Prior to 1908 the municipal year ended on the first Monday in February, since when the municipal year closes on 31st December.

† Census, March, 1901.

§ Not available.

The following table gives a comparison of the unimproved and improved values for the years 1911 to 1915 inclusive:—

NEW SOUTH WALES.—MUNICIPALITIES, UNIMPROVED AND IMPROVED CAPITAL VALUES, 1911 to 1915.

Year.	Sydney.	Suburbs.	Metropolis.	Country.	Total.
UNIMPROVED VALUE.					
	£	£	£	£	£
1911 ...	23,940,030	25,942,704	49,882,734	19,961,743	69,844,477
1912 ...	23,988,480	27,193,577	51,182,057	20,352,473	71,534,530
1913 ...	23,837,157	28,240,971	52,078,128	20,807,126	72,885,254
1914 ...	27,395,826	31,979,353	59,375,179	22,573,671	81,948,850
1915 ...	27,226,283	33,403,223	60,629,506	22,843,195	83,472,701
IMPROVED VALUE.					
1911 ...	55,520,640	63,855,054	119,375,694	47,484,486	166,860,130
1912 ...	57,395,288	67,480,676	124,875,964	48,814,203	173,690,167
1913 ...	64,080,440	73,714,823	137,795,263	50,451,471	183,246,734
1914 ...	75,786,580	82,978,113	158,764,693	55,682,063	214,446,756
1915 ...	78,580,300	91,198,244	169,778,544	57,949,558	227,728,102

(b) *Revenue.* The Local Government Act 1906 prescribed that there should be a general fund in each local government area (municipality and shire), and also special funds for specified purposes. The regulations under the Act prescribed the system of accounts to be kept. This system differs materially from the old "cash" system of receipts (cash actually received) and disbursements (cash actually expended).

Prior to 1908 the municipal year ended on the first Monday in February; now it ends on the 31st December. In all statements of municipal accounts for the year 1908, therefore, the period referred to is from the 4th February to the 31st December, except in the City of Sydney, which does not come under the provisions of the Act of 1906 and where the accounts are kept for the calendar year. The first complete year for which financial particulars are available for the municipalities is the year 1909. Particulars of revenue for the year 1915 are given in the following table:—

NEW SOUTH WALES.—MUNICIPALITIES, REVENUE, 1915.

Particulars.	Sydney.	Suburbs.	Country.	Total.
	£	£	£	£
General fund	1,075,147†	708,841	473,070	1,181,911‡
Trading accounts ... ..		...	135,457	135,457‡
Special and local funds		54,855	282,984	337,839‡
Loan funds		71,111	68,469	139,580‡
Reserve and Renewals Account		5,012	27,616	32,628‡
Gross revenue	1,075,147†	839,819	987,596	2,902,562
Deduct transfers* ... ..	...	40,589	21,939	62,528
Net revenue	1,075,147†	799,230	965,657	2,840,034

* Transfers from various funds to loan funds for principal, interest, and capital expenditure.
 † The city of Sydney accounts were formerly kept on a cash basis, i.e., the actual receipts and disbursements were shown; but the figures since 1914 shew total revenue and expenditure for the year. Items of revenue and expenditure for the city of Sydney cannot be allocated to the different headings shewn for municipalities. ‡ Exclusive of Sydney.

(c) *Expenditure.* Reference has already been made to the system of accounts prescribed by the Local Government Act 1906 (see paragraph (b) hereof). The following table gives particulars of expenditure of municipalities for the year 1915 :—

NEW SOUTH WALES.—MUNICIPALITIES, EXPENDITURE, 1915.

Particulars.	Sydney.	Suburbs.	Country.	Total.
	£	£	£	£
General fund	970,191†	724,485	471,801	1,196,286†
Trading accounts ... ..		...	99,723	99,723†
Special and local funds		57,043	265,018	322,061†
Loan funds		97,332	49,999	147,331†
Reserve and Renewals Account		82	3,162	3,244†
Gross expenditure	970,191†	878,942	889,703	2,738,836
Deduct transfers* ... ..	...	40,589	21,939	62,528
Net expenditure	970,191†	898,353	867,764	2,676,308

* Transfers from various funds for principal and interest on loans. † See note † to preceding table. ‡ See note ‡ to preceding table.

(d) *Assets and Liabilities.* The financial position of the municipalities as at the 31st December, 1915, is shewn by the following statement of assets and liabilities of the various funds :—

NEW SOUTH WALES.—MUNICIPALITIES, ASSETS AND LIABILITIES, 1915.

Particulars.	Sydney.	Suburbs.	Country.	Total.
	£	£	£	£
<i>Assets—</i>				
General fund	9,124,125†	389,776	499,156	888,932†
Trading accounts ... ..		...	152,351	152,351†
Special and local funds... ..		36,965	1,425,174	1,462,139†
Loan funds		198,583	607,986	806,569†
Reserves and renewals account		4,930	24,499	29,429†
Total	9,124,125†	630,254	2,709,166	12,463,545
<i>Liabilities—</i>				
General fund	8,877,853†	183,362	89,113	272,475†
Trading accounts ... ..		...	85,165	85,165†
Special and local funds... ..		10,703	1,270,869	1,281,572†
Loan funds		856,840	662,388	1,519,228†
Reserves and renewals account		4,930	24,499	29,429†
Total	8,877,853†	1,055,835	2,132,034	12,065,722

† See note † to last table on previous page. ‡ See note ‡ to last table on previous page

2. *Victoria.*—(i.) *Development of Local Government.* In Victoria there are now two types of municipal institutions, (a) boroughs, including cities and towns, and (b) shires, and although they are now dealt with by the same Act, their origin was distinct, and in the early days of their development they were provided for by independent enactments. Melbourne and Geelong, the latter of which was for many years the second largest town in the State, having been incorporated under special statutes prior to the establishment of a general system of local government, are not subject to the provisions of the Local Government Acts except in a few comparatively unimportant details. Melbourne was incorporated as a town in 1842, and as a city in 1847; Geelong was incorporated as a town in 1849, and proclaimed a city on 14th December, 1910.

The earlier history of legislation in Victoria relative to Local Government, more especially with reference to the institution of Road Districts, their displacement by Shires, and the constitution of Urban Municipal Districts and Boroughs, has been fully dealt with in previous issues. (See Year Book No. 5, p. 992.)

(ii.) *Present System of Local Government.* Local government is now administered under the Act of 1903 throughout the whole of the State, with the exception of French Island.

(a) *Constitution of Municipalities.* Provision is made for the continuation of municipalities established under previous Acts and for the constitution of new ones.

Definitions of shires, boroughs, and townships have been given in previous issues of this book (see Year Book No. 6, page 978), together with the conditions necessary for their constitution.

(b) *Municipal Councils, etc.* Considerations of space prevent more than a passing reference to the following subjects, which were dealt with in previous issues of this book:—The constitution of municipal councils, their functions and powers, including the power of raising loans, the qualifications necessary for the exercise of the municipal franchise, and the definition of ratable and unratable property. (See Year Book No. 5, pp. 994 to 996.)

(c) *Endowment.* The legislation dealing with municipal endowment prior to 1907 is referred to in previous issues. (See Year Book No. 5, p. 996.) In 1907, under the Municipal Endowment and Reclassification of Shires Act of that year, a new classification was adopted under which the amount of the endowment is to be allocated. In addition to the endowment of £50,000, the municipalities received from the Government during the financial year 1915-16 a sum of ~~£75,154~~ out of the Licensing Act Fund as the equivalent for (a) fees for licenses, (b) fees for the registration of brewers and spirit merchants, and (c) fines, penalties, and forfeitures incurred under the Licensing Act 1915. Under the Act of 1907 the endowment is payable in equal moieties in March and September of each year. No city or town is entitled to receive any part of the endowment. The distribution amongst the boroughs and shires is based on the amount of general and extra rates received in the twelve months ending on the preceding 30th September according to the following scale:—

VICTORIA.—ENDOWMENT OF BOROUGHS AND SHIRES, 1915-16.

To every Borough or 1st Class Shire, 3s. in the £	To every 4th Class Shire, 8s. in the £
“ “ 2nd Class Shire 5s. “ “	“ 5th “ 10s. “ “
“ “ 3rd “ “ 6s. “ “	“ 6th “ 12s. “ “

For the three financial years commencing the 1st July, 1907, however, the amounts were definitely fixed by Act No. 2129, and for the six succeeding financial years by Acts No. 2267, 2334, 2407, 2475, 2562 and 2805 respectively.

(iii.) *Boroughs and Shires.—Number, Population, and Value of Ratable Property.*—The following table shews the number of cities, towns, boroughs, and shires, their estimated population, the number of ratepayers and dwellings, and the value of ratable property for the years 1901 and 1912-16 inclusive:—

VICTORIA.—PARTICULARS OF MUNICIPALITIES, 1901 and 1912-15.

Year ending 30th June.	Number of Municipalities.	Estimated Population.	Number of Ratepayers (both sexes).	Estimated Number of Dwellings.	Estimated Value of Rateable Property.	
					Total.	Annual.
CITIES, TOWNS, AND BOROUGHES.						
1901	58	627,237	153,793	130,358	£ 67,302,423	£ 4,765,632
1912	61	*742,070	194,391	160,246*	119,400,893	6,804,697
1913	61	777,696	200,272	160,246*	127,743,501	7,270,972
1914	61	802,479	203,773	178,195	137,649,219	7,790,654
1915	61	825,078	209,276	185,330	147,205,224	8,218,040
1916	52	824,170	208,759	186,740	149,235,137	8,335,553
SHIRES.						
1901	150	571,683	159,128	122,645	£ 106,839,331	£ 5,771,865
1912	146	*568,494	168,229	125,879*	155,677,624	7,969,963
1913	147	583,909	173,271	125,879*	160,128,933	8,152,473
1914	147	600,431	175,637	137,187	164,268,467	8,255,505
1915	147	608,828	181,480	138,462	167,405,523	8,517,938
1916	141	617,587	184,374	141,893	169,724,979	8,606,509

* Census figures.

(iv.) *Municipal Assets and Liabilities.*—The assets of municipalities may be classified under three heads—(a) the municipal fund, (b) the loan fund, and (c) property; the liabilities under two heads—(a) the municipal fund, and (b) the loan fund. The following table shews the amount of municipal assets and liabilities for the years 1901 and 1911 to 1915:—

VICTORIA.—MUNICIPAL ASSETS AND LIABILITIES, 1901 and 1911-15.

Items.	1901.	1911.	1912.	1913.	1914.	1915.
ASSETS.						
	£	£	£	£	£	£
MUNICIPAL FUND—						
Uncollected rates	187,205	105,241	111,405	108,686	120,200	147,886
Other assets	122,581	473,054	522,911	582,451	652,530	760,685
LOAN FUND—						
(a) Sinking funds—						
Amount at credit	675,310	893,528	896,185	924,952	878,322	839,951
Arrears due	1,391	1,182	1,759	438	1,327	1,326
(b) Unexpended balances	394,136	264,048	237,202	167,952	351,923	378,278
PROPERTY—						
Buildings, markets, etc.	2,507,441	3,246,854	3,365,638	3,534,691	3,799,038	3,863,556
Waterworks	197,675	207,365	182,835	184,842	180,485	175,267
Gasworks	63,732	72,274	86,872	96,963	103,435	99,107
Total	4,149,471	5,263,546	5,404,807	5,600,975	6,087,260	6,266,056
LIABILITIES.						
	£	£	£	£	£	£
MUNICIPAL FUND—						
Arrears due sinking funds	1,021	1,182	1,759	438	1,327	1,326
Overdue interest	9,413	11,997	15,619	18,006	19,771	13,776
Bank overdrafts	137,046	165,275	234,154	201,142	206,694	213,330
Temporary Government advances	20,901	...	...	...	...	...
Other liabilities	91,396	257,371	288,368	364,287	356,884	410,576
LOAN FUNDS—						
Loans outstanding	4,253,304	4,831,984	5,011,950	5,259,138	5,617,056	5,739,084
Due on loan contracts	52,826	92,363	102,135	128,051	69,181	237,765
Due on current contracts	51,134	100,351	73,768	74,770	74,451	71,729
Total	4,637,041	5,460,523	5,727,763	6,045,831	6,345,364	6,687,586

(v.) *Revenue and Expenditure of Municipalities.* The following table shews the revenue from various sources, and the expenditure under various heads, of municipalities during the years 1901 and 1911 to 1915:—

**VICTORIA.—REVENUE AND EXPENDITURE OF MUNICIPALITIES,
1901 and 1911-15.**

Items.	1901.	1911.	1912.	1913.	1914.	1915.
SOURCES OF REVENUE.						
	£	£	£	£	£	£
Taxation ...	732,346.	1,046,943	1,103,210	1,199,874	1,251,549	1,277,063
Licenses ...	104,499	100,845	102,297	103,528	108,106	104,634
Dog fees ...	14,965	19,833	20,438	21,463	21,807	20,158
Market and weighbridge dues ...	49,623	63,071	74,029	71,937	70,620	63,646
Government endowments and grants...	175,972	157,141	161,513	160,949	144,374	140,545
Contributions for streets, etc. ...	24,999	47,342	64,646	59,172	63,260	52,472
Sanitary charges ...	48,253	66,389	74,058	80,194	83,982	85,971
Rents ...	54,117	79,263	81,725	78,016	76,803	72,133
Other sources ...	89,210	237,601	263,600	324,496	354,427	388,850
Total ...	1,283,984	1,818,428	1,945,516	2,099,649	2,175,028	2,205,472

HEADS OF EXPENDITURE.

Salaries, etc. ...	139,270	168,303	176,489	187,180	192,066	199,872
Sanitary work, street cleaning, etc. ...	132,542	178,623	198,006	203,757	206,271	225,919
Lighting ...	86,059	87,341	84,410	87,395	89,926	93,381
Fire brigades' contributions ...	16,769	23,120	25,946	27,101	28,361	30,277
Public works { Construction ...	244,315	311,065	335,717	339,158	315,480	274,593
Maintenance ...	345,334	571,254	736,457	753,083	814,459	811,608
Formation of private streets, etc. ...	23,350	46,849	66,735	56,600	70,465	62,012
Redemption of loans ...	27,745	66,860	61,782	70,506	80,576	92,738
Interest on loans ...	197,810	213,752	217,933	224,479	239,737	252,912
Charities ...	13,407	15,785	18,441	16,429	18,026	19,406
Other expenditure ...	103,403	187,514	129,190	126,376	151,613	174,945
Total ...	1,330,004	1,870,466	2,051,106	2,092,064	2,206,980	2,237,663

3. *Queensland.*—(i.) *Development of Local Government.* The existing scheme of local government in the State of Queensland is regulated by the provisions of the Local Authorities Act 1902, with its amendments in 1903, 1905 and 1910. A summary of these Acts and of the earlier legislation under which the system of local government in Queensland was inaugurated and developed, will be found in previous issues of this book (see Year Book No. 5, p. 1013).

(ii.) *Present System of Local Government.* The principal features of previous enactments as to the division of the State into local areas are retained in the Acts of 1902 and 1910, but such areas are in future to be of two classes—(a) towns and (b) shires. All municipalities formerly constituted as boroughs become towns, except Brisbane, Rockhampton, and Townsville, which are declared to be cities, and all shires and divisions become shires. The Governor-in-Council may, after giving notice in the *Gazette*, constitute, unite, divide, or abolish areas for the purpose of forming new areas, and may by proclamation constitute a town or city.

The Municipal Councils. All local areas are governed by councils, the members of which are called aldermen in the case of cities and towns, and councillors in the case of shires. *City and town councils* are composed of either seven, nine, or eleven members, as declared by Order-in-Council, but if the local authority has wards, three members are assigned to each ward. *Shire councils* are composed of five, seven, or nine members, as declared by Order-in-Council, but if the shire is divided the number cannot be more than three for each division, and need not be the same for every division.

In previous Year Books allusion has been made at some length to the powers and duties of municipal councils, as well as to loans, valuation, rates and franchise. It is not proposed to repeat this information in the present issue.

(iii.) *Area, Population, Number of Dwellings, Rates, Assets and Liabilities of Cities, Towns and Shires.* The following table gives particulars of the area, population, number of inhabited tenements, assets and liabilities of cities and towns, and of shires, for each year from 1911 to 1915 :—

QUEENSLAND.—PARTICULARS OF CITIES AND TOWNS, AND SHIRES,
1911 to 1915.

Year.	Municipality.	Area.	Population.		Capital Value.	Assets.	Liabilities.		
			Square Miles.	No.			No. of Inhabited Dwellings.	Government Loans.	Other.	Total.
1911	Cities and Towns	364	232,083	46,310	14,305,268	1,425,403	214,903	794,733	1,009,636
	Shires ...	669,890	368,202	77,731	38,482,811	367,078	127,079	58,741	185,820
	Total	670,255	600,375	124,041	52,788,079	1,792,481	341,982	853,474	1,195,456
1912	Cities and Towns	366	250,743	48,932	14,626,306	1,439,226	218,948	850,031	1,068,979
	Shires ...	669,528	393,172	83,021	40,365,614	426,694	141,288	84,894	226,182
	Total	669,894	643,915	131,953	54,991,920	1,865,920	360,236	934,925	1,295,161
1913	Cities and Towns	404	273,874	56,632	15,708,680	1,515,104	231,458	919,973	1,151,431
	Shires ...	669,490	399,305	84,805	41,273,641	467,182	203,109	93,410	296,519
	Total	669,894	673,179	141,437	56,981,321	1,982,286	434,567	1,013,383	1,447,950
1914	Cities and Towns	418	279,794	59,398	16,075,729	1,635,685	240,319	1,047,739	1,288,058
	Shires ...	669,476	411,093	87,144	44,596,193	455,476	159,359	97,454	256,813
	Total	669,894	690,887	146,542	60,671,922	2,091,161	399,678	1,145,193	1,544,871
1915	Cities and Towns	400	289,441	61,140	16,401,175	1,691,800	249,675	1,132,546	1,382,221
	Shires ...	669,494	428,007	89,919	45,622,388	499,390	178,634	127,618	306,252
	Total	669,894	717,448	151,059	62,023,563	2,191,190	428,309	1,260,164	1,688,473

(iv.) *Receipts and Expenditure of Cities, Towns, and Shires.* The following table shows the receipts and expenditure (including loan moneys) of cities and towns and of shires, as well as the total receipts and expenditure of all municipalities, for each year from 1911 to 1915 :—

QUEENSLAND.—REVENUE AND EXPENDITURE OF CITIES AND TOWNS,
AND SHIRES, 1911 to 1915.

Year.	Municipality.	Receipts.				Expenditure.					
		From Govern- ment.	From Rates.	From other Sources.	Total.	On Public Works.	Loan Redemp- tion.	Office Expenses and Salaries.	Other Ex- penses.*	Total.	
		£	£	£	£	£	£	£	£	£	
1911	Cities and Towns	27,051	311,022	91,767	429,840	285,096	20,922	31,824	92,808	430,650	
	Shires ...	31,138	296,223	64,532	391,892	273,472	11,721	42,561	50,195	377,949	
	Total ...	58,189	607,244	156,299	821,732	558,568	32,643	74,385	143,003	808,599	
1912	Cities and Towns	32,891	341,469	83,827	458,187	365,439	22,368	30,542	74,447	492,816	
	Shires ...	30,969	322,049	54,201	407,219	311,580	12,020	51,612	56,771	431,983	
	Total ...	63,860	663,518	138,028	865,406	677,019	34,408	82,154	131,218	924,799	
1913	Cities and Towns	20,274	379,865	83,211	483,350	381,100	24,599	36,916	66,377	508,992	
	Shires ...	29,717	362,108	66,170	457,995	338,178	14,457	62,676	56,185	471,496	
	Total ...	49,991	741,973	149,381	941,345	719,278	39,056	99,592	122,562	980,488	
1914	Cities and Towns	31,725	421,329	92,203	545,257	495,067	21,210	38,766	89,707	644,750	
	Shires ...	41,413	394,373	64,760	500,546	387,021	16,496	64,789	48,876	512,183	
	Total ...	73,138	815,702	156,963	1,045,803	882,088	37,706	103,555	138,583	1,162,933	
1915	Cities and Towns	27,439	433,139	97,245	557,823	493,900	18,635	39,553	87,623	639,711	
	Shires ...	36,736	415,371	62,665	514,772	390,701	15,088	67,485	60,706	633,980	
	Total ...	64,175	848,510	159,910	1,072,595	884,601	33,723	107,038	148,329	1,173,691	

* Including interest on loans.

4. **South Australia.**—(i.) *Development of Local Government.* In the latter part of 1839 the first municipal law was passed in South Australia, which was thus the birthplace of municipal government in the Commonwealth. On the 31st October, 1840, the principles of self-government were practically adopted in Adelaide by the election of a mayor and council consisting of nineteen members, and the system has since been extended throughout the settled parts of the State by the formation of district councils and municipal corporations, which are the two types of local authorities now in existence.

(ii.) *District Councils.* The first District Councils Act was passed in 1858, was amended in 1862, and was further amended and consolidated by the District Councils Act of 1876, which provided for the continuation of existing districts and for the establishment of new ones by proclamation on the petition of the ratepayers. The revenue of the councils consisted of rents, profits, and income from lands vested in the councils or over which the councils had the control and management; fines and penalties enforced under the Act; fees for licenses; and general and special rates and loans. Provision was made for the election of councillors, their number, qualification, and retirement; for the election of auditors; the meetings, powers and functions of councils; the appointment of constables; revenue and expenditure; assessment of rates; and for making by-laws for various purposes. The Act of 1876 was amended from time to time, and was finally amended and consolidated by the Act which is now in force, namely, the District Councils Act 1887, which has in turn been amended in the years 1889, 1890, 1897, 1904, and 1905. These Acts were again amended by the Local Government Act 1910. The District Councils Consolidation Act 1914 embraces in one Act all the provisions of the above-mentioned Acts with emendations and additions. Subsidies of 25 per cent. on current rates collected are paid to corporations under Act 481 of 1899, and to district councils under Act 1182 of 1914. Votes are annually provided by Act of Parliament of about £180,000, for payment to corporations and district councils as a contribution towards the cost of main roads throughout the State and other roads in newly-settled areas.

The powers and duties of district councils, together with the qualification necessary for councillors and electors, have been given *in extenso* in previous issues.

(iii.) *Municipalities.* Municipalities were first established under the Municipal Corporations Act of 1861, which, after providing for the extension of the powers and duties of the Corporation of the City of Adelaide, authorised the Governor, on petition of a majority of not less than two-thirds of the property-owners, to constitute any town, district, or place within the province, as a municipality. This Act and its amendments were consolidated in the Municipal Corporations Act 1880, which was amended from time to time until the year 1890, when it was repealed and its provisions consolidated by the existing Act, the Municipal Corporations Acts of 1890, which was in turn amended in 1893, 1896, and 1903. These Acts were again amended by the Local Government Act 1910.

A brief description of the Municipal Corporations Act of 1890, as well as the functions of municipal councils, will be found in previous issues of this book.

(iv.) *Finances of District Councils and Corporations.* The subjoined tables shew the amounts of assessments and the revenue and expenditure of district councils and of corporations for the financial years 1901 and 1911 to 1915; the figures given are exclusive of the Main Roads Funds, particulars as to which may be found in the section of this book on "Roads and Bridges."

SOUTH AUSTRALIA.—ASSESSMENT, REVENUE AND EXPENDITURE OF LOCAL AUTHORITIES, 1901 and 1911-15 (EXCLUSIVE OF MAIN ROADS FUNDS).

Year.*	Amount of Assessment (Annual Value).	Revenue.				Expenditure.	
		From Rates.	From Subsidies.	Other Sources.	Total.	On Public Works.	Total.
DISTRICT COUNCILS.							
	£	£	£	£	£	£	£
1901	1,412,507	63,321	15,225	51,919	130,465	65,406	128,499
1911	2,146,580	106,963	28,017	29,195	164,175	120,369	161,125
1912	2,145,091	115,427	28,848	34,974	179,249	140,225	182,610
1913	2,295,546	123,317	29,589	36,000	188,906	150,997	196,190
1914	2,435,655	132,277	38,397	32,878	203,552	145,282	196,408
1915	2,601,298	128,859	34,999	27,574	191,432	152,951	204,358
CORPORATIONS.							
	£	£	£	£	£	£	£
1901	1,177,850	87,289	9,733	49,342	146,364	55,533	146,091
1911	1,499,012	133,550	16,420	62,536	212,506	105,738	217,313
1912	1,605,095	142,032	18,544	73,604	234,180	140,059	233,720
1913	1,777,623	157,014	19,948	64,701	241,663	186,246	264,528
1914	1,896,273	168,041	23,821	63,026	254,888	176,952	266,202
1915	1,918,256	173,941	22,669	66,887	263,497	169,926	288,629

* Up to and including the year 1903, the financial year for Corporations ended on the 31st December, but after that date ends on the 30th November. The financial year for district councils ends on the 30th June.

5. *Western Australia.*—(i.) *Types of Local Authorities.* In this State there are three forms of local authorities, namely:—(i.) Municipalities, (ii.) Road Districts, and (iii.) Local Boards of Health. The first Municipalities Act was passed in 1871, but only a few districts were incorporated under it. In 1895 a more comprehensive measure, the Municipal Institutions Act, was passed, and after being amended from time to time was consolidated by the Municipal Institutions Acts 1902 and 1904. In 1906 the most recent enactment, the Municipal Corporations Act, was passed, repealing and consolidating previous enactments. The whole area of the State outside incorporated municipalities is divided into road districts, which are administered under the Roads Act 1911. In municipalities the councils act as Health Boards for the purpose of administering the Public Health Act, while outside municipalities local Boards of Health may

be formed. In 1904, another local government measure, the Water Boards Act, was passed, under which Boards may be appointed for the control of waterworks, and rates may be levied for the purpose, the maximum being fixed at two shillings in the pound of ratable value.

(ii.) *Municipalities.* These are now regulated by the Municipal Corporations Act, which came into force on the 1st January, 1907. Provision is made for the continuation of existing municipalities, and the Governor is authorised to constitute new municipalities on petition signed by at least fifty property-holders of the district proposed to be incorporated; to unite adjoining municipalities on petition under their common seals; to sever any portion from a municipality on petition signed by a majority of the ratepayers, and to annex such portion to a contiguous municipality or road district.

(a) *Municipal Councils* consist of a mayor and councillors, the number of which depends upon the population of the municipality; if the population is less than 1000 there are six councillors, if from 1000 to 5000 there are nine councillors, and if the population is over 5000 there are twelve councillors, or three for each ward. Any male ratepayer of the age of twenty-one years, if a natural born or naturalised subject, is eligible for election as mayor or councillor, except ministers of religion, uncertificated bankrupts, prisoners, and certain other persons who may be disqualified on the ground of interest.

The duties and powers of municipal councils, the levying of rates, the qualification of voters and the classification of municipalities in Western Australia are fully referred to in previous issues. (Year Book No. 5, p. 1025.) Consideration of space prevents their inclusion in this edition.

(b) *Government Subsidies.* Amounts are granted annually to municipalities by way of subsidies on the amounts of rates collected. To entitle any council to participate in the allocation of the annual Parliamentary vote the council must have levied a minimum general rate of one shilling in the pound. The maximum subsidy payable to any one municipality is £3000, and the minimum is £75. Apart from the above, amounts voted by Parliament for special works in municipal districts are often entrusted to the councils for expenditure under approved conditions.

(iii.) *Area, Population, etc. of Municipalities.* Returns regarding the area, population, and valuation of municipalities are defective. They are shewn in the table hereunder:—

**WESTERN AUSTRALIA.—NUMBER, AREA, POPULATION, NUMBER OF DWELLINGS,
AND VALUATION OF MUNICIPALITIES, 1901 and 1911-15.**

Year ended the 31st October.	Number of Muni- cipalities.	Area.	Population.	Dwellings.			Amount Payable in respect of Rates.
				Occupied.	Unoc- cupied.	Total.	
				No.	No.	No.	
1901	42	71,721	*96,807†	†20,989	†967	†21,956	£ †
1911	42	75,430	\$143,808	\$31,064	\$1,652	\$2,716	144,745
1912	38	71,203	154,005	32,727	1,613	34,340	152,143
1913	33	76,290	153,673	32,082	1,609	33,691	156,537
1914	33	67,290	158,664	32,864	1,033	33,897	163,597
1915	31	67,290	155,334	†	†	33,542	172,720

* Census figures, 1901. † Returns for thirty-nine municipalities only. ‡ Not available.
‡ Census figures, 1911.

Complete particulars of improved or unimproved capital values are not available. In the year 1914 the capital value of ratable property in municipalities was £24,382,980, and in 1915, £24,921,422.

(iv.) *Revenue and Expenditure of Municipalities.* The following table gives particulars as to the revenue and expenditure of municipalities during the years 1901 and 1911 to 1915 :—

**WESTERN AUSTRALIA.—REVENUE AND EXPENDITURE OF MUNICIPALITIES,
1901 and 1911-15.**

Year ended the 31st October	Revenue.				Expenditure.			
	From Rates.	From Govt. Grants.	From other Sources.	Total.	Works and Improvements.	Disbursements in respect of Loans.	Other Expenses.	Total.
	£	£	£	£	£	£	£	£
1901*	78,021	66,860	82,228	227,109	111,241	23,809	79,365	214,415
1911 ...	144,993	27,944	252,743	425,680	75,697	69,896	283,402	428,995
1912 ...	148,538	25,902	†834,991	1,009,431	78,576	104,475	735,907	918,958
1913 ...	153,966	19,382	347,323	520,671	159,445	104,091	286,619	550,155
1914 ...	153,686	13,142	479,797	646,625	223,098	115,924	304,823	643,845
1915 ...	170,675	10,309	465,810	646,794	190,739	129,103	382,784	702,626

* Incomplete. † Including £525,000 loan, raised for purchase of electric light and gasworks.

(v.) *Assets and Liabilities of Municipalities.* The following table gives particulars respecting the assets and liabilities of municipalities at the end of each financial year 1901 and 1911 to 1915 :—

**WESTERN AUSTRALIA.—ASSETS AND LIABILITIES OF MUNICIPALITIES,
1901 and 1911-15.**

Year ended the 31st October	Assets.					Liabilities.		
	Balance in Hand.*	Value of Property owned by Municipalities.	Accrued Sinking Funds for Redemption of Loans.	Other Assets.	Total.	Outstanding Debts and Bonds.	Other Liabilities.	Total.
	£	£	£	£	£	£	£	£
1901† ...	37,259	214,984	42,311	13,432	307,986	321,000	19,762	340,762
1911 ...	19,570	703,044	195,892	48,884	967,390	893,064	55,615	948,679
1912 ...	108,162	1,154,568	221,477	53,032	1,537,239	1,459,282	50,814	1,510,096
1913 ...	78,066	1,188,068	249,376	66,271	1,581,781	1,468,780	55,887	1,524,667
1914 ...	78,790	1,221,891	223,855	90,768	1,675,304	1,606,966	76,647	1,683,613
1915 ...	16,732	1,280,912	268,911	103,409	1,669,964	1,690,074	74,392	1,764,466

* Including bank balance, cash in hand, and fixed deposit. † Incomplete.

(vi.) *Road Districts.* The whole area of the State, outside incorporated municipalities, is divided into districts, the executive powers being vested in elective boards. These districts were originally formed solely for the purpose of controlling roads and bridges, but their powers and duties have been extended, so that at the present time they correspond closely to the shires of the other States of the Commonwealth. The enactments at present governing the administration of the Road Boards are the Roads Act 1911, the Parks and Reserves Act, the Cattle Trespassing Act, the Width of Tyres Act, the Cart and Carriage Licenses Act, and the Dog Act. The general powers and duties of the Boards are described in previous issues of this book.

(vii.) *Boards of Health.* These may be established under the Public Health Act 1911, which came into force on the 1st June, 1911, either within or outside of municipal boundaries. In the former case the Act is administered by the municipal councils, while in the latter case districts whose borders are conterminous with road districts are administered by the local authorities. Those not conterminous with road districts are administered by special Boards. The revenue of these Boards consists chiefly of moneys received

from health rates and sanitary fees, and the largest item of expenditure is directly connected with the sanitary service. The following table shows particulars of the receipts and expenditure of the various Boards—both municipal and extra-municipal—during the years 1901 and 1911 to 1915:—

WESTERN AUSTRALIA.—RECEIPTS AND EXPENDITURE OF LOCAL HEALTH BOARDS, 1901 and 1911-15.

Year ended the 31st October.	Revenue.			Expenditure.		
	From Public Health Rate.	From other Sources.	Total.	On Sanitary Services.	Other Expenses.	Total.
	£	£	£	£	£	£
1901 ...	15,230	17,477	32,707	18,787	12,992	31,779
1911 ¹ ...	638,398	756,807	95,205	59,639	32,919	92,558
1912 ² ...	647,354	760,525	107,879	69,703	40,552	110,255
1913 ³ ...	655,637	762,931	118,568	72,286	41,874	114,160
1914 ⁴ ...	653,470	761,801	115,271	62,831	47,484	110,315
1915 ⁵ ...	642,904	761,393	104,297	70,963	36,890	107,853

1. Exclusive of 1 board which furnished no returns and 22 boards which were inactive. 2. Exclusive of 15 inactive boards and 1 that sent in no return. 3. Exclusive of 2 boards which did not furnish returns and 14 boards which were inactive. 4. Exclusive of 12 inactive boards. 5. Exclusive of 13 inactive boards. 6. Including sanitary rates. 7. Including sanitary fees and charges.

On the 31st October, 1915, there were thirty-one Local Boards of Health within municipalities, and on the 30th June, 1915, fifty-seven under control of Road Boards, and thirty-five extra-municipal Boards. In and after 1911, the financial year of Municipal Local Health Boards ended 31st October, and that of extra-municipal Boards, 30th June.

6. *Tasmania.*—(i.) *Development of Local Areas.* In this State the city of Hobart was incorporated by special Act in the year 1852, but it was not until 1858, when the Rural Municipalities Act was passed, that a general scheme for the establishment of municipalities was extended throughout the State. This Act was amended from time to time without, however, altering its chief characteristics. In 1869 a Roads Act was passed, and after being amended at various times was consolidated in 1884. Under the provisions of these Acts parts of the State were placed under the control of Town Boards and Road Trusts. The general rate under the Municipalities Act was limited to one shilling and sixpence in the pound of annual value, while special rates could be levied in rural districts, provided that the general and special rates together did not exceed one shilling and sixpence in the pound.

(ii.) *Acts now in Force.* In 1906 the whole of the Acts dealing with local authorities were amended and consolidated by the Local Government Act of that year. The whole State, with the exception of the urban municipalities of Hobart and Launceston, is divided into municipal districts, and every Rural Municipality, Town Board, Main Road District, Road District, Local Health District, Fruit District, Rabbit District, School District, and Public Recreation Ground District included in any municipality established by the Act is abolished. Each district is incorporated and is under the control of a warden and councillors, who, in addition to the specific duties and powers imposed and conferred by the Act of 1906, are vested with powers and authorities under the following Acts:—The Codlin Moth Act 1888, the Rabbits Destruction Act 1889, the Public Health Act 1903, the Education Act 1885, the Roads Act 1884, the Rural Municipalities Act 1865, the Police Act 1905, the Town Boards Act 1896, the Public Recreation Grounds Act 1888, the Cemeteries Act 1865, and the Californian Thistle Act 1883. The Governor is authorised to unite, subdivide, or abolish municipalities or wards on petition, and may

do so without petition if in any municipality there is at any time no council or an insufficient number of councillors to form a quorum. The Act of 1906 was amended in 1908, and again in 1911.

(a) *Formation of Councils.* In the case of municipalities not divided into wards, the council is to consist of the number of members, being a multiple of three, assigned to it by the Governor, while the councils of municipalities which are subdivided consist of three councillors for each ward. Any resident elector is eligible to act as a councillor unless he is disqualified as being an interested person, a bankrupt or convict, or as undergoing a sentence of imprisonment, or as insane. The warden is elected by the councillors from their own body.

The functions of councils, their borrowing powers, the levying of rates, and the constitution of local and water districts have been referred to in detail in previous issues.

(b) *Qualification of Electors.* Both owners and occupiers of property within a municipality are allowed plurality of votes according to the following scale:—

Annual Value of Property	Under £30.	£30 to £80.	£80 to £160.	£160 to £240.	£240 to £360.	£360 and upwards.
	1	2	3	4	5	6
Number of Votes	1	2	3	4	5	6

In the case of joint owners or occupiers the number of votes according to the above scale is equally divided as far as possible, and the vote or votes which cannot be so divided may be given by such one of the joint owners or occupiers as may be appointed by the others. The provisions of the Acts relating to voting by post at parliamentary elections may be made applicable to any municipal election on the petition of the council to the Governor.

(iii.) *Annual Value, Revenue, and Expenditure of Municipalities.* The following table shews the annual value, total receipts, and expenditure of municipalities for the years 1910 to 1915 inclusive:—

TASMANIA.—ANNUAL VALUE, REVENUE, AND EXPENDITURE OF MUNICIPALITIES, 1910 to 1915.

Year.	Number of Municipalities.	Annual Value of Ratable Property.	Revenue.				Expenditure.†
			From Rates.	From Govt.	From other Sources.*	Total.	
		£	£	£	£	£	£
1910	51	1,459,917	147,750	35,616	87,994	271,360	266,108
1911	51	1,492,533	150,233	35,215	88,365	273,813	307,334
1912	51	1,524,789	159,290	26,051	107,935	293,276	276,794
1913	51	1,583,739	173,749	17,510	114,046	310,305	336,509
1914	51	1,766,099	185,954	14,416	169,825	370,195	349,186
1915	50	1,654,654	190,491	14,651	172,006	377,148	394,374

* Including sums derived from loans. † Including repayments of loans.

According to the latest estimate made by the Commissioner of Taxes the capital value of ratable property in 1911 was £30,924,993.

(iv.) *Total Revenue and Expenditure of Local Bodies.* Particulars as to Road Boards and Road Trusts are given in the chapter of this book on "Roads and Bridges." In addition to the local authorities already mentioned, Marine Boards have been established at seven ports in Tasmania for the purposes of constructing and maintaining wharves and jetties and of controlling all matters relating to shipping in the respective ports. Twenty water trusts and forty cemetery trusts have also been established in connection with municipal bodies. The subjoined statement shews the total revenue and expenditure for all local bodies, exclusive of all amounts contributed by the general Government, during each financial year from 1911 to 1915 inclusive:—

TASMANIA.—REVENUE AND EXPENDITURE OF ALL LOCAL BODIES, EXCLUSIVE OF AMOUNTS CONTRIBUTED BY THE GENERAL GOVERNMENT, 1912 to 1916.

Particulars.	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.
*REVENUE.					
	£	£	£	£	£
Marine Boards and Lighthouses ...	72,676	72,671	73,805	77,732	93,488
Municipalities† ...	280,165	267,225	292,795	355,779	362,497
Cemetery Trusts ...	918	1,147	1,149	1,391	1,320
Water Trusts ...	2,272	2,805	2,934	2,508	2,364
Total ...	356,031	343,848	370,683	437,410	459,669
†EXPENDITURE.					
	£	£	£	£	£
Marine Boards and Lighthouses ...	68,529	78,322	63,304	103,202	144,805
Municipalities† ...	307,334	270,743	318,999	334,770	379,723
Cemetery Trusts ...	902	856	963	1,032	1,499
Water Trusts ...	1,834	2,065	2,228	2,228	1,966
Total ...	378,599	351,986	385,494	441,232	527,993

* Exclusive of amounts contributed by the general Government. † Exclusive of expenditure from Government contributions. ‡ Including Road and Bridge Trusts, and Town Boards.

§ 3. Water Supply, Sewerage and Drainage.

1. *New South Wales.*—(i.) *Sydney Metropolitan Board of Water Supply and Sewerage.* Prior to the year 1888 the main water supply and sewerage systems of Sydney and suburbs were under the control of the City Corporation, while several of the suburban councils had constructed local systems, but in that year the Government, with the object of placing the administration of both water supply and sewerage systems throughout the County of Cumberland under the control of an independent body, passed an Act authorising the establishment of the Metropolitan Board of Water Supply and Sewerage. This Board consists of seven members, three of whom are appointed by the Government, two by the City Council, and two by the suburban and country municipalities in the County of Cumberland. The Board is under the general supervision of the Minister for Works—a provision considered necessary since the loan expenditure of the Board forms part of the public debt of the State.

(a) *Present System.* In the year 1850 authority was given by the Legislative Council to the City Corporation to construct water and sewerage works. Under this authority a water supply scheme was adopted and carried out, at a cost of nearly £1,750,000, by which the waters of the streams draining into Botany Bay were intercepted and pumped into three reservoirs. This system has now been superseded, the metropolitan water supply being at present obtained from the watersheds of the Nepean, Cataract, and Cordeaux Rivers. The principal reservoirs in connection with the scheme are the "Cataract" and "Prospect" dams. A fuller description of these dams will be found in previous issues of this book (see Year Book No. 5, p. 984), but their dimensions are here given :—

SYDNEY WATER SUPPLY.—CATARACT AND PROSPECT DAMS.

Dam.	Height above Foundation.	Width at Top.	Thickness at Bottom.	Length.	Area of Reservoir.	Capacity of Reservoir.
	Feet.	Feet.	Feet.	Feet.	Acres.	Gallons.
Cataract ...	192	16½	150	811	2,104	20,743,200,000*
Prospect ...	85½	30	523	7,300	1,266½	11,029,200,000*

* Of which 5,527,000,000 gallons are available by gravitation.

(b) *Aqueducts and Mains.* The water is drawn off from the Prospect reservoir by a canal, five miles in length, to the Pipe Head Basin, situated 16½ miles from Sydney. It is then conveyed for a further distance of five miles to Potts' Hill reservoir, which has a capacity of 100,000,000 gallons, covers twenty-four and a half acres, and is designed to tide the city over any interruption of supply from Prospect, and to prevent fluctuation of pressure. Thence the water passes through a screening tank, and proceeds towards the city in two 48-inch cast-iron mains. A fuller description of the system of reticulation adopted will be found in previous issues.

(c) *Storage Reservoirs.* In connection with the water supply there are in all thirty-five service reservoirs, with a total maximum capacity of 55,693,000 gallons.

(d) *Revenue, Expenditure, and Capital Cost of Sydney Waterworks.* The following table gives particulars as to the revenue, expenditure, and capital cost of the metropolitan waterworks for 1901 and 1912-16.

SYDNEY WATERWORKS.—REVENUE, EXPENDITURE, AND CAPITAL COST, 1901 and 1912-16.

Year Ended 30th June.	Revenue.	Working Expenses.	Capital Cost exclusive of Items on which Interest is not charged.	Percentage of Working Expenses to Revenue.	Percentage of Revenue to Capital Cost.	Interest Payable on Capital Cost.	Net Profit after paying Working Expenses and Interest.
	£	£	£	%	%	£	£
1901 ...	203,348	49,270	4,300,552	24.22	4.72	152,333	1,745
1912 ...	329,605	112,958	5,606,268	34.27	5.87	198,443	18,204
1913 ...	361,187	126,795	5,907,125	35.11	6.11	200,918	33,474
1914 ...	410,823	145,948	6,257,976	35.52	6.56	223,144	41,730
1915 ...	441,966	159,687	6,644,289	36.13	6.65	235,949	46,329
1916 ...	470,744	165,210	7,192,472	35.09	6.54	261,335	44,199

* Rate reduced from 7d. to 6d. from 1/7/08, and meter rents abolished.

(e) *Quantity of Water, Number of Houses, and Population Supplied.* The following table gives various particulars for the years 1901 and 1912-16, shewing the increase in the supply of water in Sydney and suburbs:—

SYDNEY WATERWORKS.—NUMBER OF GALLONS, HOUSES, AND POPULATION SUPPLIED, 1901 and 1912-16.

Year Ended 30th June.	Number of Houses Supplied.	Estimated Population Supplied.	Average Daily Supply.	Total Supply for the Year.	Aver. Daily Supply.		Mains Laid.
					Per House.	Per Head of Estimated Population	
	No.	No.	1000 Gallons.	1000 Gallons.	Gallons.	Gallons.	Miles.
1901.	98,298	491,000	21,583	7,877,677	219	43.95	40
1912	146,236	731,180	30,522	11,141,700	208	41.74	74
1913	155,213	776,065	32,594	11,896,810	210	41.99	100
1914	166,112	830,560	36,540	13,337,000	220	44.00	102
1915	175,758	878,790	37,548	13,705,061	210	42.72	183
1916	183,598	917,990	39,380	14,374,000	214	42.89	183

(f) *Other Water Supply Systems under the Metropolitan Board.* In addition to the main metropolitan water supply system there are certain other systems within the County of Cumberland managed by the Metropolitan Board. (a) The Richmond waterworks are entirely unconnected with the Sydney supply. Water is supplied to the town by a small pumping station on the left bank of the Hawkesbury River, just below the confluence of the Grose and Nepean. (b) The Wollongong waterworks are also unconnected with the Sydney supply. The source of supply is the Cordeaux River and the catchment area is 2400 acres in extent. The total capacity of the reservoir is 173,000,000 gallons and the total length of the main about nineteen miles, exclusive of the extension to Port Kembla and Unanderra. (c) The Manly waterworks are supplied by a special catchment area of about 1300 acres, and are also connected with the metropolitan system by a 10-inch main from Mosman. (d) The water-supply for the districts of Campbelltown, Camden and Narellan, and Liverpool is not drawn from the main Sydney supply through Potts' Hill, but is received by gravitation from the upper canal at Prospect. For further details of these water-supply systems see previous issues.

(ii.) *Metropolitan Sewerage System.* The system which is now under the control of the Metropolitan Board of Water Supply and Sewerage will be found fully described in previous issues. (See Year Book No. 5, p. 986.)

(a) *Revenue, Expenditure, and Capital Cost of Sydney Sewerage Systems.* The following table gives particulars as to the revenue, expenditure, and capital cost of the metropolitan sewerage systems for 1901 and 1912-16:—

SYDNEY SEWERAGE SYSTEMS.—REVENUE, EXPENDITURE, AND CAPITAL COST, 1901 and 1912-16.

Year ended the 30th June.	Revenue.	Working Expenses.	Capital Cost, exclusive of Items on which Interest is not Charged.	Percentage of Expenditure to Revenue.	Percentage of Revenue on Capital Cost.	Interest Payable on Capital Cost.	Profit or Loss after Payment of Working Expenses and Interest.
	£	£	£	%	%	£	£
1901 ...	125,290	45,395	3,066,147	36.23	4.05	106,475	—26,580
1912 ...	250,826	82,246	4,769,449	32.78	5.25	166,771	1,809
1913 ...	266,292	91,094	5,083,263	33.95	5.27	171,957	3,241
1914 ...	297,840	104,543	5,448,968	35.10	5.46	193,389	— 92
1915 ...	344,489	111,809	5,775,094	32.45	5.96	205,928	26,752
1916 ...	363,799	120,244	6,114,072	33.05	5.95	224,551	19,004

Note.—The minus sign represents a loss.

(b) *Number of Houses Drained, Population, and Length of Sewers in Sydney Metropolitan Sewerage Systems.* The following table gives particulars as to the number of houses drained, the population, and the length of sewers within the Sydney metropolitan area for 1901 and 1912 to 1916:—

SYDNEY SEWERAGE SYSTEMS.—NUMBER OF HOUSES DRAINED, POPULATION, AND LENGTH OF SEWERS, 1901 and 1912-16.

Year ended the 30th June.	Number of Houses Drained.	Estimated Population Served.	Total Length of Sewers.	Total Length of Storm-water Drains.	Ventilating Shafts Erected.	Sewers Ventilated.
	No.	No.	Miles.	Miles.	Feet.	Miles.
1901 ...	75,416	370,000	515.62	25.91	194,667	450
1912 ...	110,737	553,685	863.29	49.63	382,654	809
1913 ...	114,690	573,450	890.53	52.24	401,944	853
1914 ...	118,643	593,200	930.06	53.15	408,778	871
1915 ...	124,759	623,795	972.14	53.65	427,552	915
1916 ...	129,650	648,250	1,022.15	54.08	443,134	953

(iii.) *The Hunter District Water Supply and Sewerage Board.* The waterworks of the Lower Hunter were constructed by the Government under the provisions of the Country Towns Water Supply and Sewerage Act of 1880. In 1892 a special Act was passed establishing an independent Board to control the water-supply works. Fuller reference is made to the constitution of this Board and to the municipalities and incorporated areas under its jurisdiction in previous issues of the Year Book. (See Year Book No. 5, p. 988.)

(a) *Description of Waterworks.* The water supply is pumped from the Hunter River about a mile and a half up stream from West Maitland into a settling-tank of 1,390,500 gallons capacity, and thence flows through filter beds into a clear water tank holding 589,500 gallons. It is then pumped from the clear water tank into two summit reservoirs, one of which supplies East and West Maitland, and Morpeth, while the other supplies Newcastle and suburbs, and the townships of South Maitland and Cessnock. There is also a storage reservoir of 172,408,100 gallons capacity, which is resorted to when the river water is too turbid. In these districts there are eleven service reservoirs, having a total capacity of nearly 4,852,000 gallons supplied by gravitation. On the hill at Newcastle there is also a high-level iron tank with a capacity of 20,000 gallons, which is supplied by a small pumping engine at Newcastle reservoir. The total length of water mains is 411 miles.

(b) *Water Supply, Capital Cost, Revenue, and Expenditure.* By the Act of 1892 referred to above and an amending Act of 1894 the capital debt of the Board was to be liquidated by annual instalments distributed over 100 years with interest at 3½ per cent. By a further amending Act of 1897 the repayment of expenditure on permanent works was abrogated, and the annual instalments were to be paid in liquidation of the cost of renewable works to be fixed by the Government from year to year. The capital debt of the Board to the Government at 30th June, 1916, was in respect of water supply £592,880, and £400,351 in respect of sewerage. In the subjoined table particulars are given as to the revenue and expenditure, and also as to the number of houses and population supplied in 1901 and 1912 to 1916:—

PARTICULARS OF THE HUNTER DISTRICT WATER SUPPLY, 1901 and 1912 to 1916.

Year ended 30th June.	Revenue.	Working Expenses (including Interest).	Houses Supplied.	Estimated Population Served.	Supply.	
					Daily Average.	Total.
	£	£	No.	No.	1000 Gallons.	1000 Gallons.
1901	27,405	30,948	9,086	45,400	1,005	366,889
1912	47,788	47,920	17,796	88,980	2,026	739,539
1913	53,673	49,043	18,405	92,025	2,366	863,692
1914	66,323	52,994	19,575	97,875	2,791	1,018,810
1915	68,611	55,382	20,709	103,545	2,859	1,043,546
1916	79,507	58,436	22,056	110,280	3,507	1,233,754

The average daily consumption of water for all purposes per inhabitant was 31.80 gallons during the year 1916, as against 27.61 gallons during the previous year.

(c) *Sewerage Works.* Considerable progress has been made by the Department of Public Works with the construction of the sewerage works for Newcastle and suburbs. The scheme is designed on the separate system, and will deal with the sewage partly by gravitation and partly by pumping. Up to the 30th June, 1916, about 84 miles of sewers,

connecting with 7240 separate properties, were under the control of the Board. For the financial year 1915-16 the revenue was £18,582 and the expenditure £23,937, the latter amount including a £3000 instalment to the sinking fund for the reconstruction of renewable works, and £2494 interest on works not transferred to the Board at 30th June, 1916, and therefore not revenue producing at that date.

(iv.) *Water Supply and Sewerage in Country Towns.* With the object of assisting municipalities to construct systems of water supply and sewerage, the Country Towns Water Supply and Sewerage Act of 1880 was passed, but has since been amended by the Acts of 1887, 1894 and 1905. The principal provisions of these Acts are more fully dealt with in previous issues of this book. (See Year Book No. 5, p. 989.)

(a) *Waterworks.* Up to the 30th June, 1916, fifty-four country municipalities had availed themselves of the privileges of the Acts as regards waterworks, all of which at that date had been completed and handed over by the Government. The capital debt of these works was £1,153,890, and the total of the sums payable annually for a period of 100 years was £42,548, including interest ranging from $3\frac{1}{2}$ per cent. to 4 per cent., the first repayments having become due at various dates, starting from the end of the year 1893. In the calculation of these repayments the interest on the sums actually expended has been added, and any payments by the councils, as well as sums remitted under the authority of the Act, have been deducted. Other schemes of water supply and extensions of existing works are in course of construction. A number of other municipalities have constructed works out of their own resources, and the water supply of Broken Hill with a capital debt of £462,511, was constructed under a special Act and administered by the Minister for Public Works.

(b) *Sewerage Works.* Only sixteen municipal councils have taken advantage of the Act providing for the construction of sewerage and storm water drainage works in country towns. On the 30th June, 1916, the capital debt of these systems was £338,313, the amount payable annually to the Government being £14,130. Other sewerage systems, as well as extensions to existing systems, are in course of construction.

2. *Victoria.*—(i) *The Melbourne and Metropolitan Board of Works.* This Board was established by an Act of 1890, and entered upon its duties in March, 1891. The Board consists of forty members, one of whom is chairman elected every four years by the other members. Nine members are elected by the Melbourne City Council, four by the South Melbourne Council, three by the Prahran, two each by the Fitzroy, Richmond, St. Kilda, and Collingwood, and one each by the other fifteen suburban municipal councils returning a representative. The sewerage area over which the Board exercises control consists of fifteen cities, five towns, one shire, and parts of four other municipalities, or twenty-five municipalities in all, comprising a total area of 90,821 acres. Control for water supply purposes is also exercised over 2949 acres in four municipalities. The Board further supplies water to the metropolitan farm at Werribee, and the outfall sewer area. Various other shires arrange for bulk supplies of water. The total estimated population on the 31st December, 1916, was 720,577. The waterworks for the supply of Melbourne and suburbs were originally carried out by the Government, which had for that purpose contracted loans amounting to £2,389,934; these works were vested in the Board in 1891. The primary object of the creation of the Board was not, however, to take over these works, but was to supply the long called for and pressing want of a sewerage system for the metropolis. To carry out its work the board is authorised to borrow £10,750,000, exclusive of the loans contracted by the Government for the purpose of waterworks and taken over by the Board. The liability on Government loans on the 30th June, 1916, was £1,559,786, and for loans raised by the Board was £10,573,160. The Board is still empowered to borrow £1,006,988 before reaching the limit of its borrowing powers.

(a) *Total Cost of Water Supply and Sewerage.* The subjoined table shews the total cost of construction and maintenance of water supply and sewerage from 1853 to 1916:—

MELBOURNE AND METROPOLITAN BOARD OF WORKS.—TOTAL COST OF CONSTRUCTION AND MAINTENANCE OF WATER SUPPLY AND SEWERAGE, 1853 to 1916.

Period ending 30th June.	Water Supply.			Sewerage.			Grand Total.
	Capital Cost.	Working Expenses.	Interest.	Capital Cost.	Working Expenses.	Interest.	
	£	£	£	£	£	£	
1853 to 1891	3,378,246	420,833	1,021,676	...	...	...	4,820,755
1891 to 1901	336,957	367,506	1,021,181	3,307,764	114,268	919,017	6,066,693
1901 to 1911	299,303	384,871	1,026,362	2,981,665	461,706	2,333,348	7,487,256
1911 to 1914	600,222	159,903	354,665	614,401	199,214	902,310	2,830,715
1914 to 1915	129,007	60,547	130,268	245,548	72,030	316,788	954,188
1915 to 1916	91,893	54,580	134,915	166,201	70,783	321,640	840,012
Total ...	4,835,628	1,448,240	3,689,067	7,315,580	918,001	4,793,103	22,999,619

(b) *Revenue and Expenditure of Melbourne and Metropolitan Board of Works.*

The following table shows the actual receipts and expenditure, and also the loan receipts and expenditure of the Board during 1901-2 and 1912 to 1916 :—

MELBOURNE AND METROPOLITAN BOARD OF WORKS.—REVENUE AND EXPENDITURE DURING EACH YEAR, 1901-2 and 1912 to 1916.

Particulars.	1901-2.	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.
ORDINARY RECEIPTS.						
Water supply	£ 171,956	£ 267,917	£ 295,963	£ 322,762	£ 356,155	£ 344,053
Sewerage, etc.	124,696	272,365	287,507	320,931	344,768	311,408
Live stock—Metropolitan farm	19,929	63,225	57,787	62,064	87,135	103,669
Interest { Water supply ... ..	...	953	2,277	1,890	1,576	1,718
{ Sewerage	17,448	8,885	8,695	9,125	8,296	8,694
Total	334,029	613,345	652,229	716,772	797,930	769,542
ORDINARY EXPENDITURE.						
General management	33,621	40,104	41,007	44,668	45,032	45,776
Live stock, etc.—Metropolitan farm	16,702	46,283	44,130	55,570	49,704	87,325
Maintenance { Water supply	22,205	30,234	34,508	34,125	41,521	41,457
{ Sewerage	24,396	47,797	50,433	49,198	53,465	54,748
Interest { Water supply	102,670	112,886	116,716	130,182	131,845	136,633
{ Sewerage	192,952	297,962	307,630	323,149	325,167	330,568
War expenditure: Safeguarding works, etc. ... ..	...	...	...	...	...	1,000
Patriotic and Belgian Relief Funds ... ..	...	...	...	...	2,000	10,721
Victorian Red Cross ... ..	...	...	...	...	...	30,000
Total	392,546	575,266	594,424	636,892	648,734	738,228
LOAN RECEIPTS.						
Water supply	1,636	5,982	12,315	10,803	10,138	18,500
Sewerage	88,425	59,907	61,315	46,620	42,950	53,326
Proceeds of loans	396,238	322,223	307,952	796,841	223,500	190,512
Miscellaneous ... ..	...	12,399	28,355	17,375	10,735	7,947
Total	486,299	400,511	409,937	871,639	287,323	270,285
LOAN EXPENDITURE.						
Water supply construction	17,058	133,149	339,753	160,107	140,102	109,440
Sewerage construction	410,760	245,911	259,461	242,849	288,582	235,458
Expenses in floating and redemption of loans	5,200	5,393	130,159	253,426	114	51,559
Miscellaneous	4,283	35,638	47,474	30,004	25,882	30,311
Total	428,725	420,091	776,847	686,386	454,680	426,768

* Excess of stock distribution (£7020) over purchases (£2727).

(ii.) *Melbourne Metropolitan Water Supply.* In December, 1857, the construction of the Yan Yean Reservoir system was completed. A description of the conditions that prevailed in Melbourne prior to that date is given in previous issues of the Year Book.

(a) *Development of System.* The following statement shews the development which has taken place in the water supply system of Melbourne during the fifty-nine years since its inception:—

MELBOURNE WATER SUPPLY SYSTEM.—1857 to 1916.

Year.	Population* Served.	Capital Cost. £	Charge per 1000 Gallons.	Rate in £	Reticulation, Mains, &c., Mileage.	Supply in Gallons, Average daily.
1857 ...	95,442	748,974	10/- and 6/-	1/-	104	3,250,000
1916 ...	720,577	4,835,628	1/-	6d.	1,659½	36,910,680

* On the 31st December.

(b) *Description of Water Supply Systems.* The water supply of Melbourne consists of three main systems—the Yan Yean* (including the high level main), the Maroondah, and the O'Shanassy systems.

A full description of the two former systems has been given in previous issues of this book (see No. 6, p. 983).

The three reservoirs at Preston, which are the main distributors of the central city supply, contain 13,500,000, 24,500,000, and 26,300,000 gallons respectively.

The work has been completed of diverting the waters of the O'Shanassy River, a tributary of the Yarra, by an open aqueduct and pipe line of an aggregate length of 48½ miles, delivering water to the eastern portion of the metropolis by way of Mitcham and Surrey Hills. The total capacity of the scheme is 20,000,000 gallons per day, but it has been completed in the tunnels and some other parts to a capacity of 60,000,000 gallons to provide for further diversions from the Upper Yarra and its tributaries. The scheme was estimated to cost £450,000, and up to 30th June, 1916, £444,621 had been expended, including the cost of an additional service reservoir not allowed for in the original scheme, and other incidental works. The watershed of the O'Shanassy River, containing 33,000 acres situated near Warburton, has been excised from the permanent forests area, and a Crown grant was issued to the Board on the 28th January, 1910.

(c) *Catchment Areas, Reservoirs, and Aqueducts.* (i.) *Drainage Areas.* The whole of the catchment areas are absolutely free from population, cultivation, or stock grazing, and are under the complete control of the Metropolitan Board of Works. The present drainage areas from which the water is delivered are as follows:—

MELBOURNE WATER SUPPLY.—CATCHMENT AREA IN ACRES, 1916.

Silver and Wallaby Creeks.	Plenty River and Jack's Ck.	Yan Yean Reservoir Catchment.	Maroondah Catchment.	O'Shanassy Catchment.	Total.
12,000	12,000	5,000	40,000	33,000	102,000

All the water is delivered by gravitation, no pumping being required in any portion of the area supplied.

(d) *Storage and Service Reservoirs.* There are two storage reservoirs, having a total capacity of 6,460,000,000 gallons, and thirteen service reservoirs having a total capacity of 131,300,000 gallons. The total daily quantity of water which can be sent into Melbourne is as follows:—

System ...	Yan Yean.	High Level Main.	Maroondah.	O'Shanassy.	Total Supply.
Gallons per day ...	33,000,000	9,000,000	28,000,000	20,000,000	90,000,000

(e) *Quantity of Water, Number of Houses, and Population Supplied.* The following table gives various particulars for the years 1901 and 1912-16, shewing the increase in the supply of water in Melbourne* and suburbs:—

**MELBOURNE WATERWORKS.—NUMBER OF HOUSES, POPULATION, AND
WATER SUPPLIED, 1901 and 1912-16.**

Year Ended 30th June.	Number of Houses Supplied.	Estimated Population Supplied.	Average Daily Supply.	Total Supply for the Year ended 30th June.	Average Daily Supply.		Rate Levied.	Assessments of Tenements Served by Metropolitan Water Supply.
					Per House.	Per Head of Estimated Population.		
	No.	No.	,000 Gallons.	,000 Gallons.	Gallons.	Gallons.		£
1901 ...	104,548	491,780	28,732	10,487,007	274.8	53.4	6d. in the £ 7d. in the £	3,479,721
1912 ...	133,122	594,250	38,507	14,093,509	289.3	64.8		5,382,101
1913 ...	140,351	614,300	39,380	14,373,761	280.6	64.1		5,670,801
1914 ...	147,442	639,700	43,644	15,930,104	296.0	68.2		6,217,841
1915 ...	150,825	662,500	36,989	13,501,051	245.2	55.8		6,577,338
1916 ...	155,203	693,978	37,069	13,567,184	238.0	53.4		6,905,842

(f) *Total Cost of Construction, Revenue, Expenditure and Net Profits, 1853 to 1915.* The following table shows the total cost of construction, the revenue, expenditure, and net profits for various periods up to 30th June, 1916 :—

**MELBOURNE WATERWORKS.—CONSTRUCTION, COST, REVENUE, EXPENDITURE,
AND NET PROFITS, 1853 TO 1915.**

Period.	Capital Cost.*	Revenue.†	Working Expenses.‡	Percentage of Working Expenses to Revenue.	Interest.§	Surplus.
	£	£	£	%	£	£
Total to 1890-1	3,378,246	3,150,055	420,833	...	1,021,676	1,707,546
1891-2 to 1900-1	336,957	1,686,025	367,506	21.80	1,021,181	297,338
1901-2 to 1910-11	299,303	2,054,355	384,871	18.73	1,026,362	643,122
1911-12 to 1913-14	600,222	897,577	159,903	17.81	354,665	383,009
1914-15 ...	129,007	350,549	60,547	17.27	130,268	159,734
1915-16 ...	91,893	334,181	54,586¶	16.33	134,915	144,686
Total ...	4,835,628	8,472,742	1,448,240	...	3,689,067	3,335,435

* Works commenced in 1853. † Revenue commenced in 1854. ‡ Returns for expenditure commenced in 1859. § First interest paid in 1856. ¶ Not including renewals (£7,349) and special war expenditure (£7,728).

(iii) *Melbourne Sewerage.* As stated above, the chief object of the creation of the Melbourne and Metropolitan Board was to carry out an efficient system of sewerage. The cost of removal of the sewage in 1894 was about £90,000, equal to a capital expenditure of £1,750,000. This movable pan system has been displaced by the water carriage system throughout the greater portion of the metropolis, and in other parts the work of reticulation is now proceeding.

(a) *Description of Sewerage Systems.* The whole of the sewage of the metropolis is being gradually collected by means of two principal main sewers and a subsidiary main leading to the pumping station at Spotswood. A description of the scheme may be found in previous issues. (See Year Book No. 5, p. 1007.)

(b) *Metropolitan Sewage Farm.* The farm originally contained 8847 acres, situated on the western side of the Werribee River. The price paid for the land was £17 10s. per acre (including compensation for severance), which in its virgin unimproved state cost the Board in 1892, £159,873. This sum included the purchase of a strip of land $11\frac{1}{2}$ miles long ($168\frac{1}{2}$ acres) on which the greater portion of the outfall sewer is constructed. Since 1911, 2306 acres have been purchased, making the total area of the farm 11,153 acres at 30th June, 1916, its total cost to that date being £553,668. About 29,170,233 gallons of sewage had to be disposed of every twenty-four hours during the year in irrigating the fields. It is spread over properly prepared and sown blocks of land by a series of mains and lateral carriers. The blocks are laid down with grass and lucerne, on which

sheep and cattle are depastured. During the financial year 1915-16, 7888 sheep were sold, the profit for the year being £5813. Cattle to the number of 5434 were sold, the profit for the year on cattle being £34,755.

(c) *Number of Houses Connected, Capital Cost, Revenue and Expenditure.* The following table gives particulars as to the number of houses connected to the sewerage system, the total capital cost, and the receipts and disbursements during 1901 and 1911-16:—

MELBOURNE SEWERAGE WORKS.—TENEMENTS CONNECTED, CAPITAL COST, REVENUE, MAINTENANCE AND WORKING EXPENSES, 1901-2 and 1911-16.

Year.	Number of Houses Connected.	Capital Cost.	Revenue.			Maintenance, Repairs and Renewals.
			From Rates.	From other Sources.	Total.	
	No.	£	£	£	£	£
1901-2 ...	47,172	3,610,225	126,725	10,968	137,693	24,336
1911-12 ...	118,350	6,487,517	271,682	18,042	289,724	47,881
1912-13 ...	125,103	6,695,534	285,721	17,655	303,376	51,804
1913-14 ...	131,168	6,903,831	319,817	18,642	338,459	49,615
1914-15 ...	138,108	7,149,379	342,312	40,146	382,458	54,558
1915-16 ...	143,737	7,135,580	307,625	50,487	358,112	52,402*

* Not including renewals (£3424) and special war expenditure (£2925).

(iv.) *Water Supply in Country Towns and Districts.* By the Water Act 1905 (now the Water Act 1915), which came into operation on the 1st May, 1906, the control and management of all Irrigation Trusts, with one exception, and of a number of waterworks and water supply districts were centralised, and their works and property vested in the State Rivers and Water Supply Commission. The powers and duties of this Commission were extended by the Water Act 1909 (now embodied in the Water Act 1915), the whole of the Water Supply Department being now merged in the Commission. Further information with regard to this Commission and to the works and districts under its control are given in the section in this book dealing with Water Conservation and Irrigation. There are, however, in different parts of Victoria a number of other waterworks which are concerned chiefly with domestic supply, and which are controlled by local authorities, i.e., by Waterworks Trusts or by municipal corporations. These works are constructed out of moneys either granted or lent by the State Government. The following table gives particulars as to the waterworks under the control of Trusts and municipal corporations for the years 1901 and 1912-16:—

VICTORIA.—COUNTRY WATERWORKS UNDER TRUSTS AND MUNICIPAL CORPORATIONS, 1901 and 1912-16.

Year.	Waterworks Trusts.				Municipal Corporations.			
	Number of Trusts.	Capital Cost.	Capital Indebtedness.	Interest Outstanding.	Number of Corporations.	Capital Cost.	Capital Indebtedness.	Interest Outstanding.
	No.	£	£	£	No.	£	£	£
1901 ...	76	823,418	748,089		24	*	470,041	*
1912 ...	88	1,046,394	843,806	15,970	22	653,510	418,673	9,349
1913 ...	89	1,083,390	866,594	12,461	22	655,702	415,678	6,635
1914 ...	90	1,114,727	889,905	10,858	22	656,200	417,937	1,213
1915 ...	94	1,144,095	911,786	14,071	22	689,925	447,347	2,005
1916 ...	95	1,169,520	929,561	13,128	22	700,832	450,513	2,050

* Returns not available.

Under the provisions of the Local Government Act 1903 (now embodied in the Local Government Act 1915), municipal councils are authorised to construct and maintain tanks, dams, and reservoirs, and must maintain existing works for the gratuitous supply

of water. They are also empowered to accept the management and control of new waterworks within their respective localities, and may, with the consent of the Governor, construct or purchase new works within or without their locality. Councils are also authorised to enter into contracts for the supply of water for any period not exceeding ten years with the owner of any waterworks. Every municipality may levy a special water rate for water supplied, or for the purpose of constructing waterworks or paying the interest on any loan contracted by the council for such purpose, but the amount of the rate must not exceed in any year the sum of two shillings in the pound, provided that a minimum of ten shillings may be fixed by the council to be paid in respect of any property to which water is supplied.

(v.) *Geelong Waterworks Trust.* This Trust was constituted under the Geelong Municipal Waterworks Act 1907, with borrowing power up to £300,000, afterwards increased by Act No. 2322, 1911, to £350,000, and by Act No. 2486 to £425,000. It was reconstituted under the Geelong Waterworks and Sewerage Act 1910, with power to borrow an additional £250,000 for the purpose of installing a sewerage system for Geelong and suburbs. These Acts have since been consolidated under the Geelong Waterworks and Sewerage Act No. 2661, and the borrowing power for sewerage purposes increased by Act No. 2766 to £325,000. The available storage capacity of the reservoirs is 1655 million gallons, and the Trust is authorised to supply water to (a) City of Geelong; (b) the suburbs thereof, and all places within a radius of five miles of the Geelong post office; and (c) any place within ten miles on either side of the main pipe from Stoney Creek to Geelong. The cost of the works (water and sewerage) to 30th June, 1916, was £695,364, the estimated population served is 33,500, and the number of assessments 11,346. The receipts for the year amounted to £36,845. The sewerage scheme provides for a main outfall sewer 4 ft. 3 in. × 3 ft. 3 in. to the ocean at Black Rock—a distance of about nine miles. The drainage area embraces an area of 8081 acres, including the city of Geelong, boroughs of Geelong West, Newton, and Chilwell, and the suburban areas in the shires of Corio, South Barwon, and Bellarine.

3. Queensland.—(i.) *The Metropolitan Water and Sewerage Board.* This Board was constituted by the Metropolitan Water and Sewerage Act 1909, which divested the then existing Water Board of its powers and duties and vested them in an extended form in the new Board. The Act further empowers the Board to carry out a sewerage and drainage system, and relieves the local authorities of their responsibilities in that matter. The district of the new Board comprises the cities of Brisbane and South Brisbane, the towns of Hamilton, Ithaca, Toowong, and Windsor, and the shires of Balmoral, Cooparoo, Enoggera (except division 3), Sherwood (except division 1), Stephens, Taringa, Toombul, and a portion of Kedron.

The Board consists of nine members, viz., the president and eight elected colleagues.

(a) *Brisbane Water Supply.* The supply is derived from the upper reaches of the Brisbane River, and from two storage reservoirs, known respectively as the Enoggera and the Gold Creek reservoirs.

(1) *The Brisbane River Supply.* About 75 per cent. of the total supply of water to the metropolitan area is derived from the pumping station situated at Mount Crosby. The catchment area above the pumping station is 4000 square miles. The water is pumped from the river into a reservoir 267 feet long, 100 feet wide, and 15 feet deep, and 463 feet above low water mark at Brisbane. The capacity of this reservoir is 2,500,000 gallons. A new reservoir and sedimentation basins have just been completed at a slightly lower level than the first-named reservoir, the capacity of which is 4,600,000 gallons. The Board have just completed the installation of three powerful pumping engines, each capable of pumping 6,000,000 gallons in 24 hours, the whole plant being one of the finest in Australia. In connection with this pumping plant the Board have just completed a huge storage reservoir at Cabbage Tree Creek, some five miles from the pumping station in a straight line, but by windings in the river some 15 miles; this reservoir holds some 5800 million gallons, and is a very valuable asset to the water supply in time of drought.

- (2) *The Enoggera Reservoir.* The Enoggera works are distant from Brisbane about eight miles by road. The catchment area is nearly thirteen square miles in extent, and the reservoir, which is formed by an earthen dam, holds 1,000,000,000 gallons, of which 600,000,000 are available by gravitation. The greatest length of the reservoir is 2600 yards, and its greatest breadth 700 yards. The supply from Enoggera is filtered through an intermittent sand filtration plant, comprising half an acre of sand beds, and a pure water reservoir with a capacity of 750,000 gallons.
- (3) *The Gold Creek Reservoir.* This reservoir is situated in the upper waters of Gold Creek, a branch of Moggil Creek, distant from Brisbane by road about thirteen miles. The supply is drawn from a catchment area adjoining that of Enoggera, and comprising an area of nearly four square miles. The total capacity is about 406,000,000 gallons, of which 400,000,000 gallons are available.
- (4) *Service Reservoirs.* Certain portions of the metropolitan area are supplied with water from service reservoirs, which are connected with one or other of the main reservoirs alluded to above. These service reservoirs are constructed at Highgate Hill, Wickham Terrace, and Bartley's Hill, and have a total capacity of over 4,000,000 gallons. A fuller description of the Brisbane water supply scheme may be found in previous issues.

(b) *Brisbane Waterworks : Cost, Revenue, Expenditure, and Interest.* The sub-joined table gives particulars as to the total capital cost, the revenue and expenditure, and amount of interest and loan redemption during 1901 and each of the years 1912 to 1916 :—

BRISBANE WATERWORKS.—COST, REVENUE, EXPENDITURE, INTEREST, AND REDEMPTION OF LOANS, 1901 and 1912-16.

Year.	Capital Cost.	Revenue from Rates and Sales of Water.	Working Expenses.	New Work Construction.	Interest and Redemption of Loans.
	£	£	£	£	£
1901 ...	694,973	60,120	17,462	7,535	42,426
1912 ...	1,134,815	64,367	39,124	119,539	26,780
1913 ...	1,255,898	76,922	43,135	121,083	31,498
1914 ...	1,489,720	97,366	44,549	233,822	39,194
1915 ...	1,852,622	103,530	50,078	361,765	52,704
1916 ...	2,136,699	111,066	53,879	284,078	53,995

(c) *Brisbane Waterworks : Length of Mains, Tenements and Population Served, and Water Consumption.* The following table shews the length of mains, the number of tenements connected, the population supplied, the total quantity of water supplied, the average daily supply, and the average daily supply per head of population supplied during 1901 and each year from 1912 to 1916 :—

BRISBANE WATERWORKS.—PARTICULARS, 1901 and 1912-16.

Year.	Length of Reticulation Mains.	Number of Tenements Connected.	Estimated Population Supplied.	Quantity Supplied.	Average Daily Supply.	Average Daily Supply per Head of Estimated Population.
	Miles.	No.	No.	,000 Gallons.	Gallons.	Gallons.
1901 ...	198	15,652	78,260	1,536,260	4,208,931	55
1912 ...	347	27,678	129,575	2,020,404	5,520,231	42.60
1913 ...	370½	28,301	139,925	2,099,590	7,752,302	41.05
1914 ...	389	29,612	148,060	2,293,920	6,284,712	42.44
1915 ...	405	31,442	157,210	2,655,440	6,541,430	41.60
1916 ...	414	33,850	169,250	2,629,108	7,183,354	42.44

The total length of the trunk mains is 97 miles.

A scheme of sewerage has been devised for Brisbane and its suburbs. It is intended to construct works for the provision of a population of 275,000, and work is now being carried on in connection with the main sewers, six contracts, comprising 77,000 feet of sewer, being in progress. The survey of 16,239 houses has been completed.

(ii.) *Country Towns Water Supply.* In addition to the city of Brisbane there were at the end of the year 1914 twenty-eight towns in Queensland provided with water supply systems, constructed by municipalities chiefly from Government loans. The sub-joined statement gives particulars of all the water supply systems—exclusive of Brisbane—for the year 1915:—

QUEENSLAND.—PARTICULARS OF COUNTRY WATER SUPPLY SYSTEMS, 1915.

Cost of construction to 31/12/15 ...	£ 834,562				
Receipts {	Rates and sales of water	88,494	Expenditure {	Office and salaries ...	£ 12,875
	Other ...	18,034*		Construction ...	16,995
				Maintenance ...	31,409
			Interest & redemption	24,087	
			Other expenses ...	14,917	
	Total receipts ...	106,528		Total ...	100,283
Assets ...		685,980	Liabilities ...		479,935

* Including £5,662 from Government loans and £10,000 from municipal debentures.

4. *South Australia.*—(i.) *Adelaide Water Supply System.* The water supply system of Adelaide is under the control of the Public Works Department. The supply is obtained partly from the catchment areas of the rivers Onkaparinga, Torrens, and Sixth Creek, and partly from springs and pumping stations. There are three storage reservoirs, situated at Happy Valley, Hope Valley, and Thorndon Park, having an aggregate capacity of 3,895,000,000 gallons, while the tanks used in connection with the springs and pumping stations have a further capacity of 4,824,000 gallons. A new reservoir is under course of construction at Millbrook, to be supplied from the River Torrens. The total capital cost up to the 30th June, 1916, was £2,003,249, the total revenue being £3,041,335 and the area served approximately 106,000 acres.

The following table gives various particulars relating to the water supply of Adelaide for the years 1911 to 1916 inclusive:—

ADELAIDE WATER SUPPLY.—LENGTH OF MAINS, REVENUE, EXPENDITURE, AND CONSUMPTION OF WATER, 1911 to 1916.

Year Ended 30th June.	Length of Mains.	Gross Revenue.	Working Expenses.	Net Revenue.	Percentage of Net Revenue on Capital Cost.	Total Consumption of Water.*
	Miles.	£	£	£	%	Million of Gals.
1911 ...	732	89,902	28,032	61,870	3.40	4,000
1912 ...	763½	94,280	26,384	67,896	3.68	4,600
1913 ...	802½	105,590	27,982	77,608	4.12	4,700
1914 ...	836	113,156	30,106	83,050	4.32	5,150
1915 ...	859	112,082	36,029	76,053	3.85	3,467
1916 ...	873	103,947	35,412	68,535	3.42	3,223

* In the Adelaide Water District there are no governing meters. The quantities shewn above are as recorded by gaugings taken at the reservoirs, and include evaporation and absorption.

(ii.) *Adelaide Sewerage System.* In connection with the sewerage system of Adelaide, which is also under the control of the Public Works Department, about 348 miles of sewers had been laid in the city and suburbs up to the 30th June, 1916. The sewage is

disposed of on a farm and filter-beds, the latter being used only during the winter months. A scheme of sewerage extension which includes a pumping station to deliver the sewage to the existing sewage farm is now nearing completion.

The following table gives particulars relating to the Adelaide sewerage system for the years 1911 to 1916 inclusive:—

ADELAIDE SEWERAGE SYSTEM.—REVENUE AND EXPENDITURE, 1911 to 1916.

Year Ended the 30th June.	Revenue.			Expenditure.			Net Revenue.	
	Rates and Interest.	Sewage Farm. Sales of Produce, etc.	Total.	Mainten-ance.	Sewage Farm. Working Expenses.	Total.	Total.	Per-centage on Capital Cost.
	£	£	£	£	£	£	£	%
1911 ...	37,938	7,189	45,127	8,462	7,681	16,143	28,984	4.26
1912 ...	41,449	6,984	48,383	9,376	5,039	14,415	33,968	4.88
1913 ...	45,373	8,392	53,765	9,803	6,392	16,195	37,570	5.01
1914 ...	49,507	9,588	59,095	10,242	5,629	15,871	43,224	5.55
1915 ...	52,348	10,040	62,388	9,688	6,948	16,636	45,752	5.74
1916 ...	56,606	21,207	77,813	11,410	14,432	25,842	51,971	6.39

The seaside town of Glenelg is served by a separate sewage disposal works, including a pumping station, septic tank, lucerne plots, and filter beds. The net revenue for the year ended 30th June, 1916, was £1773, being 3.91 per cent. on the capital cost. Up to the same date 15 miles of sewers had been laid.

(iii.) *Water Supply in Country Towns.* In South Australia there is a number of country waterworks under the control of the Public Works Department. There are large reservoirs at Barossa, Beetaloo, Bundaleer, and Yeldulknie, which supply sixty-one townships with water for domestic and stock purposes. The Warren Reservoir, situated on the South Para River, is nearing completion. The principal towns thus supplied are Gawler, Wallaroo, Moonta, Kadina, Port Pirie, Port Wakefield, Balaklava and Cowell. The following table shows the capacity of these reservoirs, together with particulars as to the townships supplied and the country lands reticulated:—

PRINCIPAL COUNTRY WATERWORKS, SOUTH AUSTRALIA, 1916.

Reservoirs.	Townships Supplied.			Country Lands Reticulated.		Capacity in Million Gallons.	
	Number.	Square Miles.	Miles of Main.	Square Miles.	Miles of Main.	Head-works.	Service Reserv'rs.
Barossa ...	23	40	70	1,007	543	993	10
Beetaloo ...	22	158	174	1,661	877	800	100
Bundaleer ...	14	8	32	1,088	477	1,319	16
Yeldulknie and Ullabadinie ...	2	3	6	500	96	288	...
Loxton ..	1	2	3	530	...	*	*

* Pumped from River Murray.

Fifteen township districts are supplied from smaller local reservoirs, the most important town served being Port Augusta. A new water supply scheme is in course of construction at the Baroota Creek to augment the supply of Port Augusta, Port Pirie and farming lands, while the construction of a large reservoir on the Tod River is under consideration for the supply of Port Lincoln and farming lands in Eyre Peninsula. A reservoir with leading and reticulation mains for supplying the towns of Port Victor, Port Elliot, Middleton and Goolwa is well on towards completion.

5. **Western Australia.**—(i.) *Water Supply, Sewerage and Drainage Department.* Prior to 1912, water supply, sewerage and drainage, in Western Australia, although under Governmental control, were nevertheless under the management of several distinct departments. In that year, however, the Government decided that these functions should be concentrated in one department with the Minister of Works as administrator, and on the 1st August, 1912, a new department with the above title assumed the management of the undermentioned water supplies:—(a) The Metropolitan Water Supply, Sewerage and Drainage Undertaking. (b) The Goldfields Water Supply Undertaking. (c) The Mines Water Supplies, boring and well-sinking in mining districts, formerly a branch of the Mines Department. (d) Water supply, sewerage, drainage, well-sinking, boring, etc., in agricultural districts, etc., formerly a branch of the Public Works Department. The total capital expenditure on works controlled by the Department was, at 30th June, 1916, £7,276,831.

The Acts of Parliament administered by the new department are:—“The Metropolitan Water Supply, Sewerage and Drainage Act 1909”; “The Goldfields Water Supply Act 1902” and amendment; “The Water Boards Act 1904”; “The Lands Drainage Act 1900” and amendment; “The Water Supply Act 1893”; and “The Rights in Water and Irrigation Act 1914.”

(ii.) *The Perth Metropolitan Water Supply, Sewerage, and Drainage.* The Perth Metropolitan Water Supply Works were first opened by a private company in October, 1890. Under the provisions of the Metropolitan Waterworks Act 1896, however, the works were purchased by the Government at a cost of £220,000, and were placed under the control of a Board, the functions of which have been exercised from 1904 to 1909 by the Minister for Works. By the Metropolitan Water Supply, Sewerage, and Drainage Act 1909, all water and sewerage works formerly vested in the Metropolitan Board were transferred to a Minister of Water Supply, Sewerage, and Drainage. In August, 1912, the administration was transferred to the new Water Supply Department.

(a) *Water Supply.* The supply of water is derived from four sources—(i.) the Victoria reservoir, (ii.) Bickley Brook reservoir, (iii.) the Mundaring reservoir, (iv.) Narrogin Brook, (v.) Walter's Brook, and (vi.) artesian bores. A description of the principal schemes is given in previous year books (see Year Book No. 7, page 887). For the year ending 30th June, 1916, the total consumption of water was 1929 million gallons, an increase of 143 millions over the previous year. The number of services at that date was 30,876, and the length of mains was 595 miles.

(b) *Financial Operations of Water Supply Department.* The following table gives particulars of the financial operations of the Metropolitan Water Supply Branch for each year ending the 30th June from 1911 to 1916 inclusive:—

PERTH METROPOLITAN WATER SUPPLY BRANCH.*—PARTICULARS OF FINANCIAL OPERATIONS, 1911 to 1916.

Year ended the 30th June.	Capital Cost of Works.	Depreciation.	Net Capital Cost.	Gross Revenue.	Cost of Maintenance and Management.	Ratio of Working Expenses to Revenue.
	£	£.	£	£	£	Per cent.
1911	645,023	92,351†	552,672	61,723	22,081	35.77
1912	701,852	107,388	594,464	66,892	25,082	37.49
1913	768,068	135,912	632,156	74,600	25,479	34.14
1914	892,434	167,326	725,108	89,115	31,483	35.33
1915	964,670	183,910	780,760	100,158	33,581	33.53
1916	997,650	201,834	795,816	103,788	37,987	36.60

* Perth, Fremantle, and Claremont combined. † £39,724 transferred from reserve account to depreciation.

(c) *Consumption of Water.* The following table shews the total annual supply, the average daily supply, and the average daily supply per house and per head of population during each financial year from 1911 to 1916 inclusive:—

METROPOLITAN WATER SUPPLY BRANCH.—CONSUMPTION OF WATER, 1912 to 1916.

Year.	Average Daily Supply in ,000 Gallons.			Water Supply for Years in ,000 Gallons.			Number of Houses Supplied.	Estimated Population supplied.	Average Daily Supply during Years.	
	From Reservoirs.	From Bores.	Total.	From Reservoirs.	From Bores, etc.	Total.			Per House.	Per Head of Population.

CENTRAL DISTRICT (INCLUDES PERTH, FREMANTLE, CLAREMONT AND GUILDFORD).

	Gals.	Gals.	Gals.	Gals.	Gals.	Gals.	No.	No.	Gals.	Gals.
1912	1,066	2,561	3,627	364,428	852,719	1,217,147	92,655	91,500	160	39.6
1913	1,285	3,026	4,311	469,311	905,960	1,375,171	94,150	100,000	156	39.7
1914	1,954	2,805	4,759	713,368	1,023,726	1,737,094	93,391	120,000	167	39.6
1915	1,171	3,723	4,893	427,598	1,353,199	1,785,797	29,721	127,000	164	38.5
1916	2,202	2,609	4,811	806,073	955,075	1,761,148	30,762	129,300	156	37.2

ARMADALE DISTRICT.

1915	28	...	28	10,220	...	10,220	83	300	*340	*93.0
1916	9	...	9	3,274	...	3,274	83	300	107	29.8

* Includes water supplied to Railways.

(d) *Sewerage and Drainage in Perth and Fremantle.* The work of providing a sewerage system for Perth and Fremantle was commenced in 1906, and has proceeded without interruption up to the present time. Up to 30th June, 1916, 11,862 houses had been connected to the sewers. The revenue of the Sewerage and Drainage undertaking for 1915-16 was £44,667, as against £41,487 for the preceding year. The maintenance expenditure amounted to £11,940, and interest and sinking fund charges to £43,631. A description of the method of sewage disposal adopted may be found in previous issues. (See Year Book No. 5, p. 1031.)

(iii.) *Goldfields Water Supply Undertaking.* The Act under which the works were constructed was introduced in Parliament by Sir John Forrest, G.C.M.G., then Premier of Western Australia, in September, 1896, and provided for an expenditure of £2,500,000, and a daily supply of 5,000,000 gallons. The works designed by the late Mr. C. Y. O'Connor, Engineer-in-Chief of the State, were originally known as the "Coolgardie Water Scheme," but are now officially called the "Goldfields Water Supply." Construction work in connection with the scheme was commenced early in 1898, and the water was delivered in Kalgoorlie in January, 1903. The source of supply is the Helena River, in the Darling ranges, where, at about 18 miles from Perth, an impounding reservoir, 760 acres in extent, with a catchment area of 569 square miles, has been constructed. A detailed description of the scheme will be found in previous issues of the Year Book (see Year Book No. 9, p. 924). The area of operations embraces 16,000 square miles, the total length of the water area being approximately 380 miles. The cost of the original works, including expenses of raising loans, was £2,866,454, and of supplementary works £522,447, making a total of £3,388,901. The Mundaring Reservoir cost £249,000. Its capacity is 4,650,000,000 gallons, and its surface area at full supply level 672 acres. The height of the wall above the river bed is 100 feet; length of wall, 755 feet; width of wall at bottom, 85 feet; at top, 11 feet; and when reservoir is full, the water extends back for the distance of 7 miles.

During the financial year 1915-16, the total consumption amounted to 1,198,000,000 gallons, a decrease on the previous year of 29,000,000 gallons. The gross revenue was £238,084, and the working expenses £87,633, leaving a surplus available towards interest and sinking fund of £150,391. The outlay for interest and sinking fund charges in respect of supplementary capital absorbed £32,756, leaving £117,635 payable to the State Treasury. During the financial year the State Treasury paid £168,813 interest and sinking fund on State loans in respect to these works, and the operations of the undertaking showed a net deficiency of £51,178. Reticulation figures are as follows:— Towns reticulation, 243 miles; supply mains to towns, 80 miles; supply mains to mining centres, 73 miles; agricultural extensions, 480 miles; total mains, including main conduit, 1227.

(iv.) *Water Supplies for Towns.* Under the Water Boards Act 1904, the following water undertakings are administered by the Department:—Albany, Cue, Day-Dawn, Derby, Geraldton, Leonora, Meekatharra, Menzies, Ora Banda, and Pingelly. Water supplies for Broome, Bunbury, Busselton, Carnarvon, Port Hedland, Roeburne, Sandstone, Wagin, and Wyndham are administered by local boards under the supervision of the Department.

(v.) *Mines Water Supplies.* At the present time the water stations under the control of the Department number about 1400, and are spread over an area of nearly 500,000 square miles. The principal works carried out by the branch are as follows:—(a) Domestic supplies for mining towns and the supply of water for battery and general mining purposes. (b) Opening up the very remote portions of the State by means of tracks, of which there are about 4000 miles. (c) The sinking of wells and borewells, also testing the country by means of boring to locate water, and thus enabling the mineral resources of the State to be systematically prospected. (d) Diamond drilling has also been carried out for the purpose of testing the country for minerals at depths unattainable with the ordinary boring plants. (e) Over 3000 miles of stock routes have been opened up, and wells have been sunk at easy stages, capable of watering mobs of 400 head of cattle. Tanks, dams, and reservoirs have been made on the goldfields for the conservation of surface water, their total storage capacity being over 200,000,000 gallons, and their cost over £400,000.

A very important adjunct of the branch is the camel farm established at Coolgardie, where the breeding of camels is undertaken, the number at present being about 240. These camels are used by parties from the Water Supply Branch in the arid regions of the interior, where water is scarce and the stages are long.

(vi.) *Water Supplies in Agricultural Areas.* Owing to the rapid development in agricultural districts in what a few years ago was practically unexplored country, and the consequent necessity for providing water for settlers, a large number of tanks were excavated, and wells sunk where suitable water had been proved by boring. Of 2504 shallow bores put down, fresh water was obtained in 425, stock water in 217, the others being salt or dry. The number of tanks excavated to 30th June, 1916, was 304, with an approximate capacity of 108,150,000 gallons, and the number of wells 275, the estimated capacity of which is 51,000,000 gallons. The capital expenditure for the financial year ending June, 1916, was £12,422.

(vii.) *Land Drainage.* Under the Land Drainage Act 1900 the drainage undertakings administered by the department are those for the districts of East Jandakot and Torbay-Grassmere. Undertakings controlled by Boards under the same Act are Lennox, Koriyek, Njookenbooroo, Sterling and Wangong.

6. *Tasmania.*—(i.) *Hobart Water Supply.* The original water supply of Hobart was obtained from a stream known as the Hobart Rivulet, flowing from Mount Wellington, the works being carried out in 1831 by the Imperial Government. These works consisted of an aqueduct and a line of cast-iron pipes, the water being distributed to several points known as "wells." By an Act of the State Parliament passed in 1860 the works were

transferred to the municipality. Under this Act certain additional streams flowing from Mount Wellington were acquired as sources of supply, and a storage reservoir containing 45,000,000 gallons was constructed. The catchment area on Mount Wellington at present comprises an area of 4200 acres, the sources of supply having been extended at various times as far as the North West Bay River, fifteen miles from Hobart.

(a) *Storage Reservoirs.* There are two storage reservoirs about 2½ miles from the city. One contains 68,000,000 gallons and is 502 feet above sea-level, while the other contains 45,000,000 gallons and is 447 feet above sea-level. The whole of the supply is by gravitation. The water is brought from the various streams by means of stone aqueducts and cast-iron pipes to the reservoirs, and thence by four 10-inch cast-iron mains, of which three lead to the distributing reservoirs and one direct to the shipping and southern portion of the city.

(b) *Capital Cost, Tenements Connected, Length of Mains, Revenue and Expenditure.* The total capital cost to the end of 1915 was £288,000, but a considerable amount of reticulation work has been done out of revenue and not charged to capital account. The outstanding loans at the end of 1915 amounted to £257,445. At the same date the number of tenements supplied in the city and suburbs was 8585, the population 39,948, and the length of reticulation mains 92½ miles. The revenue and expenditure for the last six years were as follows:—

HOBART WATERWORKS.—REVENUE AND EXPENDITURE, 1910 to 1915.

Particulars.	1910.	1911.	1912.	1913.	1914.	1915.
	£	£	£	£	£	£
Revenue	20,643	31,207	23,858	21,982	22,191	23,382
Expenditure	22,238	20,381	20,584	21,336	24,550	26,471

(c) *Proposed Extensions.* Parliamentary sanction to borrow £189,000 has been obtained for the purpose of improving the water supply of the city and suburbs of Hobart; £100,000 of this amount is to be spent on a new storage reservoir, and the construction of the dam is in hand.

(ii.) *Hobart Sewerage System.* A scheme for the construction of a sewerage system in Hobart was adopted in 1903. The sewage is discharged into the estuary of the River Derwent. Up to the end of the year 1915 about 72 miles of sewers had been laid at a cost of about £191,000, and 6926 tenements (out of a total of 7100) had been connected. The revenue for the year was £11,614. The scheme, which is intended to sewer over 2000 acres so as to serve an estimated population of about 80,000 people, is almost completed. The suburb of Queenborough has recently become incorporated with the city, and arrangements are now being made to extend the system to this district, the survey having just been completed.

§ 4. Harbour Trusts.

1. *Introduction.*—In the chief ports and harbours of the Commonwealth, administrative bodies have been created, in whom is vested the control and management of the port with respect to dredging, wharf and harbour accommodation, pilotage, harbour dues, etc.

Of these Trusts or Boards some are purely departmental, some are nominated by Government, while others are comprised of members appointed by the municipal and other associations connected with the port. In the latter case, the Government is usually represented on the Board by one or more nominated members. The Boards and Trusts mentioned hereunder are the only ones for which information is at present available.

2. **Sydney Harbour Trust.**—The Trust was established by an Act which came into force on the 11th February, 1901. Its powers and duties have been dealt with in previous issues of this book, together with some of the more important improvements carried out by the Commissioners. (See Year Book No. 5, p. 990.)

(i.) *Revenue, Expenditure, and Capital Cost.* The subjoined table gives particulars of the revenue and expenditure of the Trust, and also shows the total capital debt for properties, etc., vested in the Commissioners, the amount of interest payable on the debt, and the balance of revenue after deducting expenditure, interest, and the amount of the Commissioners' salaries:—

SYDNEY HARBOUR TRUST.—REVENUE, EXPENDITURE, CAPITAL DEBT, INTEREST AND BALANCE, 1901 and 1912-16.

Year ended the 30th June—	Revenue.				Expenditure.	Total Capital Debt.	Interest.†	Balance.
	Wharfage & Harbour Rates.	Tonnage Rates & Berthing Charges.	From Other Sources.	Total.				
	£	£	£	£	£	£	£	£
1901* ...	42,784	3,208	12,324	58,316	11,275	4,692,782	55,554	— 8,513
1912 ...	294,731	18,163	158,755	411,649	143,170‡	6,136,671	212,842	\$56,398
1913 ...	258,703	18,417	173,162	450,282	154,540‡	6,535,853	221,049	74,693
1914 ...	260,761	19,867	188,901	469,529	161,479	6,992,932	248,088	59,962
1915 ...	255,217	15,046	194,418	464,681	161,358	7,367,922	263,478	39,845
1916 ...	274,551	17,630	197,540	489,721	171,951	7,948,756	283,256	28,484

* For the period from 11th February to the 30th June, 1901. † The rate of interest charged each year is the average rate on the total capital debt of the State, which varies. ‡ Including expenditure for the renewal, replacement or reconstruction of wharves or buildings. § Including £761 repaid to previous revenue votes.

— Represents a loss.

(ii.) *Dredging and Towing.* The subjoined statement gives particulars of the dredging and towing done by the dredges and tug-boats owned by the Trust:—

SYDNEY HARBOUR TRUST.—PARTICULARS OF DREDGING AND TOWING, 1901 and 1912-16.

Year.	Dredging.			Towing Dredged Material.		
	Tons Dredged.	Total Expenditure.	Expenditure per Ton.	Miles run Towing.	Total Expenditure in Towing.	Expenditure per Mile Towing.
	Tons.	£	Pence.	Miles.	£	Pence.
1901 ...	317,500	3,696	2.79	29,277	2,849	23.35
1912 ...	1,671,540	24,036	3.45	30,163	6,636	52.80
1913 ...	1,875,925	28,104	3.59	28,317	5,976	48.22
1914 ...	1,852,500	29,079	3.77	45,724	8,271	43.41
1915 ...	1,561,500	27,937	4.29	48,982	9,949	48.06
1916 ...	2,092,918	28,253	3.24	46,581	11,268	58.05

3. **The Melbourne Harbour Trust.**—This Trust was constituted under an Act passed in 1876, as a result of public agitation and demands extending over a period of thirty-four years, to the effect that the cost of landing goods should be reduced, and the delays in receiving goods should be abolished. Both demands arose from the fact that vessels of a draught greater than twelve feet had to discharge in the bay into lighters.

(i.) *Constitution of the Trust.* The Harbour Trust Act was originally drafted on the lines of similar institutions in Great Britain, such as the Thames Conservancy, the Mersey Harbour Board, and the Clyde Trust. Under the Act of 1876, as amended in 1883, the number of Commissioners was fixed at seventeen. By an Act No. 2449 (1912), the constitution of the Trust was altered to a Commission of five members elected by the

Governor-in-Council, consisting of a chairman, who devotes his whole attention to the business of the Trust, and four others representing the interests of shipowners, exporters, importers, and primary producers.

(ii.) *Works Undertaken by Trust in the River and in the Port.* In 1890 a Consolidating Act was passed, and the borrowing powers of the Trust were increased to £2,000,000, and subsequently by the Act of 1913 to £3,000,000. The river was widened from Queen's Bridge to the bay to about 300 feet, while the depth has been gradually increased until at the present time it is twenty-six feet at low water. A total of 10 miles of wharves and piers are in use on the River, Victoria Dock, Williamstown and Port Melbourne. Most of these wharves in the river and dock carry sheds with a total length of 15,446 feet and covering an area of 763,570 square feet. The new pier in Victoria Dock, nearing completion, is not included in these figures.

(a) *The Cooke Canal.* In 1886 the canal across the flats below Fishermen's Bend was completed at a cost of £96,000. The length of the canal is 2002 yards, the distance from Queen's Bridge to the river entrance being thereby reduced from seven miles to five and three-quarter miles, and the navigation being greatly facilitated. This channel, which is called the Cooke Canal, has been widened 164 feet, thus making its total width 487 feet, and its width at low water 430 feet. At the present time there is a depth of 26 feet at low water for a width of 250 feet.

(b) *The Victoria Dock.* This dock, four miles up the river, and opened in 1892, has an area of ninety-one acres and a depth of thirty feet at low water. The entrance to the dock is 160 feet wide. There are 8500 feet of wharfage exclusive of new central pier, and the total cost, including wharves, sheds, approaches thereto and new pier was, to 31st December, 1916, £653,490. The sheds have a total length of 4868 feet, and cover an area of 265,600 square feet. A new central pier, 1631 feet long and 250 feet wide, with a 57 feet roadway in the centre, is nearing completion. It is proposed to erect on this pier six cargo sheds, each 486 feet by 60 feet. The expenditure on this work to 31st December, 1916, amounted to £126,343.

(iii.) *Works in the Bay.* Prior to 1889 all the mail steamers and vessels of heavy draught had to lie at anchor in the bay, and there discharge into lighters. One of the first works undertaken by the Commissioners was to make the railway piers at Williamstown available to these vessels. This work was completed at a cost of £256,160. In 1893 a channel over 8000 feet long and 600 feet wide was constructed, running in a southerly direction from Port Melbourne Railway Pier and having a navigable depth of thirty feet o.l.w. The cost of this work was £218,379. A new railway pier has just been completed at Port Melbourne. Its length is 1902 feet, with a width of 186 feet, and the average depth of water is 37 feet. Two shelter sheds provide accommodation, and there are ten travelling gangways to facilitate the landing of passengers so as to avoid crossing the railway lines on the pier level.

(iv.) *Dredging.* The total quantity of material raised by the dredging and excavation done in the improvement of the river and bay amounts to nearly 58 million cubic yards.

During the ten years ending 31st December, 1916, the average cost of dredging per cubic yard was 2.86 pence and the cost of towing and depositing 3.40 pence, not allowing for depreciation of plant. The Trust has expended £334,774 in reclaiming land within its jurisdiction. The amount of material raised annually is now about 3,711,000 cubic yards.

(v.) *Financial Operations.* The revenue of the Trust is obtained from wharfages, and tonnage rates, rents and license fees from lands and ferries, and other license fees. One-fifth* of the revenue of the Trust is paid to the consolidated revenue of Victoria. The following table gives particulars of the revenue and expenditure of the Trust from 1912 to 1916 inclusive:—

* Limited by Act 2449 to £60,000 per annum for five years from 1st January, 1913.

MELBOURNE HARBOUR TRUST.—REVENUE AND EXPENDITURE, 1912 to 1916.

Particulars.	1912.	1913.	1914.	1915.	1916.
REVENUE.					
	£	£	£	£	£
Rates, rents, etc.	337,626	336,037	349,461	306,034	311,395
Interest	2,375	665	2,284	1,293	170
Other receipts	1,071	1,949	9,172	7,957	11,109
Total	341,072	338,651	359,917	315,284	322,674
EXPENDITURE.					
	£	£	£	£	£
Management and general expenses	27,453	35,753	42,460	46,257	56,265
Interest	69,264	71,081	83,620	86,567	88,372
Total	96,717	106,834	126,080	132,824	144,637
Less standing charges added to works ... ..	...	18,718	21,936	23,823	21,135
Total	96,717	88,116	104,144	109,001	123,502
Wharfage and other refunds	1,457	1,112	1,531	1,620	1,140
Charges remitted on troopships ... ..	...	...	4,532	3,166	...
Consolidated revenue of Victoria	68,344	60,960	60,000	60,000	60,000
Flotation of loan expenses ... ..	...	...	5,289	5,011	...
Redemption of loans expenses ... ..	...	...	...	925	...
Maintenance... ..	62,734	63,911	50,661	55,520	53,375
Total expenditure	229,252	214,099	226,157	235,243	238,017
Surplus on revenue account	111,820	124,552	133,760	80,041	84,657
Less depreciation and renewals account and sinking fund	17,500	29,188	30,058	30,415	51,364
Net surplus on revenue account	94,320	95,364	103,702	49,626	33,293
CAPITAL EXPENDITURE.					
	£	£	£	£	£
Land and property	1,119	46,007	5,534	2,060	1,316
Deepening waterways	21,845	49,620	96,198	93,615	82,429
Wharves construction... ..	85,227	115,244	87,885	120,627	105,803
Approaches construction	9,854	16,354	7,029	10,921	8,960
Other harbour improvements	2,735	2,713	1,376	4,275	35,946
Floating plant	72,078	9,744	33,452	3,112	25,190
General plant	102	2,910	3,364	4,107	2,853
Stock account	14,543	44,572	32,070	25,451	21,784
Total	207,503	287,164	266,908	264,163	284,281

4. Fremantle Harbour Trust.—Under the provisions of an Act passed in 1902, a Harbour Trust was constituted for the general administration of Fremantle harbour, and since January, 1903, the Trust has had full control of all the affairs of the harbour,

and undertakes the duties of wharfingers, and the receiving, sorting, storing, delivering, and handling of all cargo between vessels and the owners of the goods. The works, which were commenced in 1892, were designed with the object of forming a safe and commodious harbour within the mouth of the Swan River, so as to admit vessels at all states of the tide, and thus enable cargo to be loaded and discharged at the quays and goods-sheds on the river banks. Two ocean moles have been thrown out from the north and south heads, the former being 3450 feet and the latter 2040 feet long. A channel, 450 feet wide and 30 feet deep at low water, has been blasted and dredged through the rock which formerly crossed the estuary to the river to give access to the harbour basin, which has a width of 1400 feet and a depth of 30 feet at low water, and wharves and goods-sheds have been constructed along the reclaimed foreshore on both sides of the harbour. The depth of water in the entrance channel and inner harbour is now being increased to 36 feet, and will eventually be made 40 feet below lowest low water datum. At the present time all the European mail boats and equally large vessels which make Fremantle the first and last port of call in Australia, are able to enter and leave the harbour in all weather and at all tides. For the year ended 30th June, 1916, the total revenue of the Trust was £187,345, and the expenditure £83,995. The gross amount paid to the Treasury for the year was £98,233, being interest £60,858, sinking fund £19,388, and surplus revenue account £17,987.

5. Hobart Marine Board.—The Hobart Marine Board was established in 1858, and consists of nine wardens, elected by the shipowners, importers and exporters of the port. To meet the requirements of the large steamers visiting the Commonwealth, extensive harbour improvements have been completed. The Ocean wharf and pier has a length of 1150 feet, with a depth of water from 36 feet at the inner to 60 feet at the outer end, while other piers afford accommodation for the largest vessels visiting Australia.

The total capital debt on properties in connection with the Harbour Trust vested in the Board is £97,400. The interest paid in 1916 amounted to £4007, and the contributions to sinking fund, £1000. The Board also purchased four debentures of £1000 each, and handed them over to the trustees of the sinking fund as security for the payment of interest thereon only. The receipts and expenditure of the Board for the last four years were as follows:—

HOBART MARINE BOARD.—RECEIPTS AND EXPENDITURE, 1912-16.

Year.	RECEIPTS.				EXPENDITURE.			
	General.	Harbour Improvements, Debentures, etc.	Light-house Fund.	Total.	General.	Harbour Improvements.	Light-house Fund.	Total.
	£	£	£	£	£	£	£	£
1912 ...	19,281	35,000	10,804	65,085	20,293	32,490	11,590	64,373
1913 ...	21,343	138,000	10,634	69,977	20,453	35,917	11,948	68,318
1914 ...	24,772	26,000	11,481	62,253	24,956	29,241	13,047	67,244
1915 ...	23,448	5,264	5...	28,712	23,096	6,983	5...	30,079
1916 ...	22,800	6,062	...	28,862	21,803	7,801	...	29,604

¹ Including £8000 from General Account. ² Including £4000 voluntary contribution to Sinking Fund. ³ Including £8000 transferred from the General Account to the Harbour Improvements Account. ⁴ Including £1500 transferred from General Account to Harbour Improvements. ⁵ The Commonwealth Government took over control of Ocean lights from 1st July, 1915. ⁶ Including £4000 debentures purchased.

6. Launceston Marine Board.—The Board was formed in 1858 and consists of thirteen members, elected on the Municipal franchise, with special residential conditions. The principal work of the Board is in connection with the straightening, deepening, and widening of the River Tamar, the distance from the wharves to the open sea being 40 miles.

Wharves to the length of 6702 feet have been constructed, the depth at some of them being 40 feet S.L.W. The total capital debt on 31st December, 1915, was £138,660, of which £91,421 was incurred on the Tamar Improvement Scheme. The revenue for 1915 was £17,753 and the expenditure £20,798.

7. Geelong Harbour Trust.—This Trust was incorporated in 1905, and consists of three Commissioners appointed by the Government of Victoria. To the 31st December, 1916, the Trust had borrowed £545,000. The sinking fund at the same date stood at £17,519. The revenue receipts for the year 1916 were £28,832 and the disbursements £45,039.

8. Rockhampton Harbour Board.—Under an Amending Act of Parliament, which came into force in 1915, the Board now consists of eleven members elected by the municipalities and shires of the Central Division of Queensland. The principal items of export in 1916 were—wool, 65,837 bales; preserved and frozen meats, 8447 tons; blister copper, 8762 tons; and gold, £469,366 in value. For the year 1916 the receipts were £47,690, of which £15,315 represented Government loans. The expenditure was £52,761, including £16,359 for redemption and interest. The total of the net registered tonnage entering the port in 1916 was 713,398.

9. Bundaberg Harbour Board.—The principal port in Queensland for the shipment of sugar is Bundaberg. The Harbour Board consists of nine members, representing the district shire councils and the shipowners and exporters, with one Government nominee.

The total exports for the year ending 31st December, 1916, amounted to 22,188 tons, as against 31,560 tons for the previous year, showing the heavy decrease of 9372 tons, mainly caused by the drought and industrial troubles. The principal items of export were:—Refined sugars, 15,353 tons; raw sugars, 240 tons; syrups and molasses, 1163 tons; rum and spirits, 2888 tons; copper ores, 963 tons. The revenue for 1916 amounted to £5202, as against £6699 for 1915; the expenditure for 1916 was £6114 as compared with £7266 for 1915. Dredging resulted in 75,000 tons being lifted, but only about three months of the year were occupied in this work.

10. Cairns Harbour Board.—The Cairns Harbour Board consists of twelve members, three representing the town of Cairns and the other nine the surrounding shire councils. For the year ended 31st December, 1916, the cash receipts from harbour, berthage and miscellaneous items amounted to £25,995, while the revenue from taxes and fixed rates was £23,630. The total income amounted to £28,007, including special loan refund receipts of £2012. The principal items of export were:—Raw sugar, timber, maize, and fruit in cases.

11. Bunbury (Western Australia) Harbour Board.—The Bunbury Harbour Board was constituted in 1909, and consists of five members appointed by the Government.

The capital expenditure for the year ending 30th June, 1916, was £31,447, making the total capital expenditure to that date £271,568. The revenue for the year was £12,788 and the expenditure £6226, the balance being paid into Consolidated Revenue to meet interest and sinking fund. The timber trade is the principal industry of the port, but owing to the shortage of shipping tonnage, due to the war, the shipments of timber for the year ending 30th June, 1916, decreased from 162,444 loads for the previous year to 86,922 loads. Other chief exports comprised coal, 6069 tons; wool, 3379 bales; and wheat, 50,000 sacks. The total import tonnage was 7627 tons, the total cargo tonnage dealt with during the year ended 30th June, 1916, amounting to 164,174 tons.

12. Burnie and Table Cape (Tasmania) Marine Board.—While the existing works accommodate steamers of 4000 to 5000 tons, which visit the port regularly, they are insufficient for the rapidly increasing traffic in produce and ores from the north-west and west coast district of Tasmania. A scheme is, therefore, being carried out by which the port will eventually be capable of taking any shipping trade in the Commonwealth. A breakwater is being constructed 1200 feet in length and with a depth of 40 feet at low water. On 31st March, 1917, 1010 feet of this breakwater had been constructed. It is intended later on to increase the length to 4000 feet and to enclose 300 acres of deep

water space, of which 100 acres will have a depth of nearly 45 feet. The expenditure on that portion of the scheme at present under construction will be £200,000, including a wharf 500 feet long, with a depth of 36 feet at low water. The revenue for the year 1916 was £8616, and the expenditure £7221, including £5312 interest on construction loan.

§ 5. Fire Brigades.*

1. **New South Wales.**—Reference has been made in the section of this book dealing with the subject of *Private Finance* (see page 795) to the constitution of the Board of Fire Commissioners of New South Wales, which has now superseded the Metropolitan and all other Fire Brigade Boards in that State.

(i.) *Receipts and Disbursements of Board of Fire Commissioners of New South Wales.* The subjoined table shews the actual receipts and disbursements of the Board for the past five years:—

NEW SOUTH WALES BOARD OF FIRE COMMISSIONERS.—RECEIPTS AND DISBURSEMENTS FOR SYDNEY FIRE DISTRICT, 1912-16.

Year.	Receipts.						Disbursements.
	From Government.	From Municipalities.	From Fire Insurance Companies.	From Firms.	From other Sources.	Total.	
	£	£	£	£	£	£	£
1912 ...	20,100	20,100	19,896	204	1,874	62,174	65,713
1913 ...	25,586	25,586	25,404	182	2,270	79,028	76,853
1914 ...	29,200	29,200	28,966	234	1,773	89,373	88,208
1915 ...	29,071	29,071	28,161	410	1,749	88,462	96,146
1916 ...	29,071	29,071	28,883	188	2,205	89,418	98,934

With reference to the preceding table, under the "Fire Brigades Act 1909," by which the New South Wales Board of Fire Commissioners was constituted and which came into operation on 1st January, 1910, insurance companies do not now, as formerly, return the amount of their risks, but give in lieu thereof the amount of premiums received, which forms the basis of their contribution towards the revenue of the Board. By this Act also, firms which effect insurances with companies not registered in New South Wales are likewise required to make contributions on account of the premiums paid to such companies, which is the first instance of this class of insurer being compelled to share the expense of local advantages, which had hitherto been available free of cost. A fuller description of the principal provisions of this Act will be found in previous issues of this book (see Year Book No. 5, page 990). The Sydney fire district includes the City of Sydney and suburbs, comprising a total area of 220 square miles. On the 31st December, 1916, the Board had under its control 62 stations, 320 permanent men, 169 partially paid firemen, 14 steam and 27 motor fire engines, 93 horses, 134,920 feet of hose, and 446 telephone fire-alarms. The length of wire used for telephone lines was 1106 miles.

2. **Victoria.**—Under the Fire Brigades Act of 1890 a metropolitan fire district and nine country fire districts were established, the former being placed under the control of a Metropolitan Fire Brigades Board, and the latter under the control of a Country Fire Brigades Board.

(i.) *Metropolitan Fire Brigades Board.* The metropolitan fire district originally comprised the area included in the several municipalities within a radius of ten miles from the Melbourne General Post Office, but this area has since being extended in certain directions so as to include the greater part of the Shire of Moorabbin and also the township of Mordialloc. The Board is composed of nine members, of whom three are appointed by the Governor-in-Council, three by the municipal councils, and three by the insurance companies. On the 31st December, 1915, the Board had under its control

* See § 6, Fire Insurance, p 795.

FIRE BRIGADES.

44 stations, 243 permanent men, 111 auxiliary firemen, 39 special service firemen, 10 steam fire engines, 3 gasolene engines, 4 petrol motor fire engines, 47 other petrol motor appliances, 29 horses, 126,069 feet of hose, and 293 fire-alarm circuits having 900 street fire alarms, of which 876 contained telephones. The Government, the insurance companies and the municipalities in which the Board operates contribute equally to the cost and maintenance of the brigade. The following table gives particulars as to the financial operations of the Board during each year from 1912 to 1916 inclusive:—

**VICTORIA.—REVENUE AND EXPENDITURE OF METROPOLITAN FIRE
BRIGADES BOARD, 1912 to 1916.**

Particulars.	1912.	1913.	1914.	1915.	1916.
ORDINARY RECEIPTS.					
	£	£	£	£	£
Contributions	63,775	66,238	66,954	77,794	84,583
Receipts for services	6,011	5,941	8,241	6,634	7,595
Interest and sundries	6,965	3,669	3,234	9,957	3,913
Total	76,751	75,848	78,429	94,385	96,091
ORDINARY EXPENDITURE.					
Salaries	45,613	47,210	50,966	51,304	59,184
Interest and sinking fund	9,681	8,357	9,432	11,442	13,330
Other expenditure	21,457	20,281	18,031	31,639	23,577
Total	76,751	75,848	78,429	94,385	96,091

(ii.) *The Country Fire Brigades Board.* This Board consists of nine members, of whom three are appointed by the Governor-in-Council, two are elected by the municipal councils of the districts where there are brigades registered under the Board, two by the fire insurance companies, and two by the registered fire brigades. At the end of the year 1916 there were 107 municipal councils, and sixty-four insurance companies included in the operations of the Act. All the brigades are volunteer brigades, but in the large towns permanent station-keepers and watchmen are employed. There were 129 registered brigades and 2871 registered firemen at the end of the year 1916.

For the year 1916 the receipts of the Country Fire Brigades Board amounted to £15,536, and the expenditure to £15,177.

3. *Queensland.*—In the year 1916 there were twenty-nine fire brigades organised in various towns in Queensland. The revenue of these brigades is derived chiefly from grants from the Government, from municipalities, and from the insurance companies, generally in equal proportions, and the following table gives these particulars for the year 1916:—

QUEENSLAND.—FIRE BRIGADES, 1916.

Receipts.	Amount.	Expenditure.	Amount.
	£		£
From Government	8,625	Salaries and wages	14,873
„ Local authorities	8,716	Building, repairs, etc....	491
„ Insurance companies	8,606	Plant, stores, clothing, etc.	4,501
„ Other sources	619	Other	5,298
Total	26,566	Total	25,163

At the end of the year 1916 the fire brigades staffs comprised 82 permanent men, 247 partly paid, and 104 volunteers. The Metropolitan brigade at Brisbane and the South Brisbane brigade protect an area of 9½ square miles; their joint staffs comprise 68 men. They have three steam engines, three motor turbines, one chemical motor, nine horse reels, and 23,155 feet of hose. There are 14 telephone fire alarms and 198 call points.

4. **South Australia.**—The fire brigades of South Australia are managed by a Board consisting of five members, one being nominated by the Government, one by the Adelaide city council, one by the other metropolitan and country municipalities, and the other two by the contributing insurance companies. The Board is incorporated under the Fire Brigades Act 1913. The revenue of the Board is derived by contributions of three-ninths by the Government, four-ninths by the insurance companies, and two-ninths by the city of Adelaide and the other municipalities subject to the Act, the contribution for 1916 amounting to £22,906. Brigades are established in the following municipalities, viz., Adelaide, Kensington and Norwood (including St. Peter's), Unley, Port Adelaide, Glenelg, Gawler, Kapunda, Moonta, Kadina, Port Pirie, Port Augusta and Thebarton. The strength of the brigades consists of 91 permanent firemen and 28 auxiliary firemen. The plant consists of five steam fire engines, one motor engine, four motor hose carriages, one floating fire engine, 11 hose reels, and 25 horses. The number of calls received during the year 1916 was 241, of which 12 were for fires of a serious nature. Of the total calls, 131 were in the metropolitan district.

5. **Western Australia.**—Under the Fire Brigades Act 1898, fire brigades were established in a number of the more important centres of population in the State. These brigades were under the control of local boards, and were in some cases municipal and in others volunteer.

An Act to make further provision for the protection of life and property from fire came into operation on the 2nd April, 1917, and is called the Fire Brigades Act 1916. It provides that every municipal or road board district shall be a fire district for the purposes of such Act, under the control of the Western Australian Fire Brigades Board. Formerly, under the District Fire Brigades Act 1909, which was repealed by the 1916 Act, the whole State was divided into two fire districts only. Provision is also made in the later Act for the amalgamation of two or more municipal or road board districts into one fire district. The Board is elected bi-annually and is constituted as follows:—Two members nominated by the Government, one of whom shall be the President; one member elected by the Council of the municipality of the City of Perth; one member elected by the municipal and road board districts between Fremantle and Midland Junction, excluding the City of Perth; one member elected by the municipal and road board districts between Southern Cross and Leonora (Eastern Goldfields district); one member elected by the remainder of the municipal and road boards districts in the State under the operation of the Act; two members elected by the insurance companies; and one member elected by the Volunteer Fire Brigades. The income of the Board is derived as follows:—Two-eighths by the Government, three-eighths by the local authorities and three-eighths by the insurance companies. In regard to the revenue derived from the local authorities it is provided that the local authority in each district shall only contribute three-eighths of the expenditure in such district. Under the 1909 Act the amount levied upon each local authority was a pro-rata proportion of the three-eighths of the total estimated expenditure in the State, based on the valuation of the property within each local authority's district. The receipts for the year 1916 amounted to £33,151, and the expenditure to £31,762.

The whole of the Brigades throughout the State are now controlled by this Board, and number two purely permanent, fourteen permanent and partially paid, three partly permanent and partly volunteer, two partially paid, and twenty purely volunteer brigades; making a total of forty-one. The staff includes a chief officer, deputy-chief officer, motor engineer, electrical engineer, 18 other officers, 73 permanent firemen, 46 partially-paid firemen, and 351 volunteer firemen.

6. **Tasmania.**—Under the present system, the Government, the City Council, and the Fire Insurance Companies contribute equally to the annual expenditure of the Hobart Fire Brigade. There are volunteer brigades under the control of local boards in most of the larger centres of population.

§ 6. Local Government Finance.

1. **Introduction.**—In the preceding parts of this section certain particulars have been given regarding local authorities in each individual State. It is proposed to give here in a comparable form for each State particulars regarding the financial operations of local governing bodies. The areas controlled by these bodies are variously known in the several States as cities, towns, boroughs, shires, municipalities, municipal districts, and road districts. The particulars given in the tables in the two next paragraphs relate to financial years ending as follow:—New South Wales: for the calendar year 1915. Victoria: 30th September, 1915, except Melbourne, 31st December, and Geelong, 31st August, 1915. Queensland: Calendar year 1915. South Australia: Corporations, 30th November, and district councils, 30th June, 1915. Western Australia: 31st October, 1915, except road districts, 30th June, 1915. Tasmania: Calendar year 1915.

2. **Number, Revenue, Expenditure, and Valuation of Local Authorities.**—The following table gives particulars of the number, revenue, expenditure, and valuation of local authorities in each State and in the Commonwealth during the year 1915. It may be noted that, excepting in Tasmania, the metropolitan water supply systems are not under municipal control; the particulars given of revenue and expenditure for the five States other than Tasmania do not, therefore, include revenue and expenditure on account of these systems.

NUMBER, REVENUE, EXPENDITURE, AND VALUATION OF LOCAL AUTHORITIES (a) IN EACH STATE, 1915.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wth.
No. of local authorities (a)	321	193	184	181	143	50	1,072
RECEIPTS.							
Rates—	£	£	£	£	£	£	£
General	1,829,022	1,277,063	606,442	212,973	197,178	46,637	4,169,315
Other (b)	336,177	271,377	242,068	89,827	62,066	143,854	1,145,367
Government grants	393,957	140,545	64,175	57,668	38,062	14,651	709,058
Loans (c) & other sources	958,005	516,487	159,911	94,461	513,381	172,006	2,414,251
Total	3,517,161	2,205,472	1,072,596	454,929	810,687	377,148	8,437,993
EXPENDITURE.							
Works, services, etc.	2,688,173	1,467,513	884,601	322,877	606,184	199,867	6,169,215
Interest on loans and over-drafts	338,504	252,912	16,536	14,779	75,109	68,970	977,808
Redemptions, sinking funds, etc.							
Administration	262,597	92,738	33,723	12,907	58,926	12,704	715,083
Other	199,872	199,872	107,039	55,025	57,671	32,879	715,083
Total	3,370,943	2,237,663	1,173,692	492,987	895,659	394,374	8,565,318
VALUATIONS.							
Capital value of property	£188,218,334	(f)	62,023,563	90,515,507	24,921,422	33,098,772	(f)
Annual value of property	(d) 3,391,759	(f)	(f)	4,519,554	1,537,625	1,654,654	(f)

(a) Including particulars for all areas controlled by local governing bodies responsible for the construction and maintenance of roads and streets, such areas being variously known in the several States as cities, towns, boroughs, shires, municipalities, road districts, etc. (b) Exclusive of rates for water supply and sewerage in metropolitan and most other principal towns, such rates being collected by special boards or general Government. (c) Exclusive of loans in connection with extraordinary works of construction. (d) City of Sydney only. (e) Unimproved capital value. (f) Not available.

3. **Local Government Loans, 1915.**—The following table gives particulars for each State of loans raised by local authorities during the year 1915, of loans current at the end of that year, of liability on account of interest and sinking fund, and of loans maturing during 1915 :—

PARTICULARS OF LOANS RAISED BY LOCAL AUTHORITIES, 1915.

Particulars.	N.S.W.	Victoria.	Q'land.	S.A.	W.A.	Tas.	C'wealth
	£	£	£	£	£	£	£
Loans from general Government—							
Raised during year ...	...	101,148	46,969	...	...	31,724	179,841
Current at end of year ...	...	263,072	426,309	...	85,132	593,823	1,370,336
Loans from other sources—							
Raised during year ...	699,892	359,080	5,000	55,850	170,445	211,866	1,502,133
Current at end of year ...	8,438,617	5,476,012	896,407	344,875	1,668,281	845,721	17,669,913
Total—							
Raised during year ...	699,892	460,228	51,969	55,850	170,445	243,590	1,681,974
Current at end of year ...	8,438,617	5,739,084	1,324,716	344,875	1,753,413	1,439,544	19,040,249
Current loans, exclusive of those obtained from general Government, raised within the C'wealth	7,613,418	5,476,012	(a)	344,875	1,171,041	301,530	14,906,876
Annual liability on account interest	328,941	246,077	17,312	14,091	75,453	68,843	750,717
Total sinking fund at end of year	586,009	841,277	84,365	23,112	257,970	169,817	1,862,550
Amount loans maturing during year							
Redeemed ...			(b)		68,257	83,452	} (a)
Renewed ...	58,019		(a)	11,573	...	400	

(a) Not available. (b) In the early Government loans, the periodical payments include interest and sinking fund.

SECTION XXVII.

INDUSTRIAL UNIONISM AND INDUSTRIAL LEGISLATION.

§ 1. Development of Trade Unions in Australia.

1. **Historical Development of Trade Unionism in Australia.**—A special article, reviewing the development of trade unionism from its inception, appeared in Year Book No. 9, pp. 937-41.

2. **Registration under Trade Union Acts.**—The benefits conferred by registering Trade Unions are not, in some of the States, held in much repute; consequently the statistics of registered trade unions of employees not only do not represent the position of unionism, but, in addition, the statistics themselves for past years are so defective as to be practically valueless. The particulars furnish no reliable indication of the numerical and financial position of Trade Unions. It will be seen that some of the registered unions fail to supply returns; this non-supply may lead to cancellation of the registration. Some of the unions have obtained the cancellation of their certificates of registration, the apparent reason being that they proposed registering under the Commonwealth Conciliation and Arbitration Act. In Queensland, some of the largest labour unions withdrew from registration during 1911, mainly on account of the necessity for closer restriction of their objects as set forth in their rules, consequent on legal decisions affecting trade unions. The following table shows the number of trade unions registered under Trade Union Acts at the end of 1915, where available, together with their financial condition:—

TRADE UNIONS REGISTERED UNDER TRADE UNION ACTS.—NUMBER, MEMBERSHIP, AND FINANCIAL POSITION, 1915.

State.	Number of Unions.			Membership of Unions.			Receipts, 1915.	Expenditure, 1915.	Funds at end of 1915.
	Employ-ers.	Em-ploy-ees.	Total.	Em-ploy-ers.	Em-ploy-ees.	Total.			
							£	£	£
New South Wales ...	14	206	220	2,919	227,684	230,603	267,060	257,297	205,020
Victoria ...	3	7*	10	120	1,422	1,542	131	114	378
Queensland† ...	7	36†	43	303	8,069	8,372	19,696	17,428	13,811
South Australia‡ ...	2	16	18	74	5,095	5,169	9,669	8,136	21,223
Western Australia§ ...	...	60	60	...	18,296	18,296	40,006	39,388	22,951
Tasmania|| ...	...	...	...	...	...	...	...	...	...

* Information regarding six of these Unions not available. † Information regarding eleven Unions not available. ‡ 1916. § 1912. || Not available.

3. **Registration under Industrial Arbitration Acts.**—Western Australia and New South Wales up to 30th June, 1908, were the only States with Industrial Arbitration Acts under which industrial associations could be, and actually were, registered. The number of registered unions in New South Wales shewed a gradual increase from 1902

to 1907, the figures in the latter year being 109 unions of employers, with 3165 members, and 119 unions of employees, with 88,075 members. Under the Industrial Disputes Act, which succeeded the Arbitration Act of 1901, it is not necessary to furnish the information. Since the Act of 1908 has operated, industrial organisation has proceeded rapidly, owing to a very evident general desire on the part of the workers to obtain the status necessary to entitle them to the advantages offered by the Act. The Act of 1908 was repealed by that of 1912, and in 1912 there were 117 industrial unions of employers and 192 industrial unions of employees on the register. On the 31st August, 1914, there were 105 industrial unions of employers and 160 industrial unions of employees registered. On the 21st April, 1917, there were 143 industrial unions of employers, and 211 industrial unions of employees on the register. Thirty-one employers' unions had been reported "defunct," but had not been formally removed from the register, while the names of 58 employees' unions had not been formally removed from the industrial register, although their registrations as trade unions had been cancelled. In Western Australia, the employers' unions numbered 45, with 441 members, in 1904; 59 unions, with 520 members, in 1905; 57 unions, with 534 members, in 1906; 56 unions, with 552 members, in 1907; 48, with 409 members, in 1908; 47, with 408 members, in 1909; 46, with 444 members, in 1910; 46, with 554 members, in 1911; 49, with 749 members in 1912; and 48, with 581 members in 1916. From 1904 to 1908 unions of employees were in a fairly stationary condition. Since 1909, however, there has been a rapid expansion. At the end of 1904 and 1905 there were 140 unions, with 15,743 and 15,461 members respectively; in 1906 there were 130 unions, with 16,015 members; in 1907, 121 unions, with 14,544 members; in 1908, 121 unions, with 15,187 members; in 1909, 122 unions, with 17,282 members; in 1910, 130 unions, with 20,429 members; in 1911, 152 unions, with 28,934 members; in 1912, 158 unions, with 30,453 members; and in 1916, 134 unions with 25,403 members. These figures include councils and associations. Registration under Commonwealth legislation began in 1906. In that and the four following years, there was but one union of employers; another was registered in 1911. The unions of employees registered were 20 in 1906, with 41,413 members; 24, with 57,306 members, in 1907; 37, with 69,536 members, in 1908; 7, with 14,161 members, in 1909; 10, with 3760 members, in 1910. Twenty-four unions of employees were registered in 1911. The membership given above is that at time of registration. At the end of 1912 there were 3 employers' organisations, with 351 members, and 96 employees' organisations, with 245,735 members, on the register under the Commonwealth Conciliation and Arbitration Act. On the 31st December, 1916, there were six organisations of employers with 1375 members, and 101 organisations of employees with 383,025 members on the register.

4. Types of Trade Unions in Australia.—The types of trade unions in Australia are very diverse in character, and range from the small independent association to the large interstate organisation, which, in its turn, may be merely a branch of a British or international union. Broadly speaking, there are four distinct classes of labour organisations, viz. :—(i.) the *local independent*, (ii.) the *State*, (iii.) the *inter-State*, and (iv.) the *Australasian or International*, but a number of variations occur from each of these classes. The leading characteristics of each of these types were briefly outlined in Labour Report No. 2 (pp. 7 to 9).

5. Total Number of Unions, 1916.—As already stated, the figures for trade unions registered under the Acts do not represent the position of unionism in Australia. In 1912 the Labour and Industrial Branch of the Commonwealth Bureau of Census and Statistics was established, and by the cordial co-operation of the officials of the labour organisations, comprehensive figures relating to the development of organised labour are now available. The following table gives particulars of the number of trade unions, the number of branch unions, and the number of members in each State, the Northern Territory and the Commonwealth at the end of 1916 :—

**TRADE UNIONS, BRANCH UNIONS, AND MEMBERS, STATES. NORTHERN
TERRITORY, AND COMMONWEALTH, 1916.**

State or Territory.	Number of Separate Unions.	No. of Branches.	No. of Members.
New South Wales	199	790	244,074
Victoria	151	361	147,614
Queensland	93	290	66,807
South Australia	86	102	42,537
Western Australia	107	170	33,900
Tasmania	66	72	10,263
Northern Territory	3	...	1,361
Total	705	1,785	546,556
Commonwealth*	392†	2,098	546,556

* Allowing for interstate excess. † Number of distinct organisations and interstate groups of organisations in the Commonwealth—not the total number of organisations, which are practically independent and self-governing. (See below.)

In the preceding table the number of separate unions in each State refers to the number of unions which are represented in each State, exclusive of branches within a State. That is to say, each union represented in a State is only counted once, regardless of the number of branches in that State. Except in the last line, the number of branches indicates the number of branches of State head offices, which may, of course, themselves be branches of an interstate or larger organisation. In taking the total number of separate unions in the Commonwealth (see last line but one), it is obvious that, in the case of interstate and similar unions, there will be duplication, since each such union is counted once in each State in which it has any branches. In the figures given in the last line allowance has been made for this duplication. State branches of interstate or federated unions, as well as sub-branches within a State, are included under the heading "Branches" in the third column—last line. It should be observed, however, that the scheme of organisation of these interstate or federated unions varies greatly in character, and the number of separate Commonwealth unions does not fairly represent the number of practically independent organisations in Australia. In some of these unions the State organisations are bound together under a system of unification with centralised control, while in others the State units are practically independent and self-governing, the federal bond being loose and existing only for one or two specified purposes. It may be seen, therefore, that there are 392 distinct organisations and interstate groups of organisations in the Commonwealth, having 2098 State branches and sub-branches, and a total of 546,556 members.

6. Number of Unions and Membership in Industrial Groups, 1916.—The following table shows the number of unions and members thereof in each State at the end of the year 1916. The number of unions specified for each State refers to the number of different unions represented in each State; that is to say, interstate or federated unions are counted once in each State in which they are represented, but sub-branches within a State are not counted. In order to avoid disclosing the affairs of individual unions, in cases where there are only either one or two unions in any group in a State, the membership is not given separately.

NUMBER OF UNIONS AND MEMBERSHIP IN INDUSTRIAL GROUPS IN EACH STATE AND NORTHERN TERRITORY, DECEMBER, 1916.

Industrial Groups.	N.S.W.	Vic.	Q'ld.	S.A.	W.A.	Tas.	Nth'n Ter.	Total.
NUMBER OF UNIONS.								
I. Wood, Furniture, etc. ...	3	5	2	3	4	3	...	20
II. Engineering, Metal Works, etc. ...	20	20	12	11	7	5	1	76
III. Food, Drink, Tobacco, etc. ...	18	17	5	9	13	8	...	69
IV. Clothing, Hats, Boots, etc. ...	9	7	2	3	3	4	...	28
V. Books, Printing, etc. ...	9	10	2	2	4	2	...	29
VI. Other Manufacturing ...	26	20	6	12	9	5	...	78
VII. Building ...	16	14	11	8	10	3	1	63
VIII. Mines, Quarries, etc. ...	14	3	2	2	3	2	...	26
IX. Railway and Tramway Services ...	7	4	4	3	6	4	...	28
X. Other Land Transport ...	9	4	4	2	2	2	...	23
XI. Shipping, etc. ...	17	7	17	8	8	8	...	65
XII. Pastoral, Agricultural, etc. ...	3	2	1	1	2	1	...	10
XIII. Domestic, Hotels, etc. ...	7	5	1	2	6	1	...	22
XIV. Miscellaneous ...	41	33	24	20	31	18	1	168
Total ...	199	151	93	86	107	66	3	705

NUMBER OF MEMBERS.

I. Wood, Furniture, etc. ...	5,496	4,359	*	1,161	1,407	597	...	†13,020
II. Engineering, Metal Works, etc. ...	24,522	13,434	4,660	4,552	2,495	567	*	49,230
III. Food, Drink, Tobacco, etc. ...	20,217	11,101	5,892	2,107	1,232	966	...	41,515
IV. Clothing, Hats, Boots, etc. ...	8,034	13,938	*	1,949	277	440	...	†23,938
V. Books, Printing, etc. ...	4,990	3,862	*	*	355	*	...	11,079
VI. Other Manufacturing ...	15,681	11,935	813	1,850	1,651	189	...	32,119
VII. Building ...	14,645	12,371	3,867	3,435	1,438	499	*	36,255
VIII. Mines, Quarries, etc. ...	19,998	3,462	*	*	4,819	*	...	33,515
IX. Railway & Tramway Services ...	38,232	17,639	7,365	4,712	6,962	986	...	75,896
X. Other Land Transport ...	5,670	5,635	2,110	*	*	*	...	15,719
XI. Shipping, etc. ...	20,986	13,337	4,682	4,754	1,212	897	...	45,868
XII. Pastoral, Agricultural, etc. ...	13,817	§	*	*	*	*	...	37,679
XIII. Domestic, Hotels, etc. ...	5,055	2,482	*	*	1,552	*	...	9,907
XIV. Miscellaneous ...	46,731	35,039	22,968	11,353	8,895	1,469	*	117,050
Total ...	244,074	147,614	65,807	42,537	33,900	10,263	†1,361	546,556

* Not available for publication separately; included in State and Commonwealth totals.
 † Incomplete, see footnote. ‡ Membership of Groups II., VII., and XIV. included in the South Australian numbers. § Membership included in total for Group XIV.

Particulars are given in Labour Report No. 7 (pp. 339-346) of the number of male and female members of unions and the percentage of such members on the total number of adult wage earners. Information is also given below as to the development of trade unionism since 1891. Other tables show the classification of unions according to number of members and the number of central labour organisations.

7. Development of Trade Unions in Australia, 1891 to 1916.—The following table shews for the years specified the total number of trade unions in the Commonwealth, and the number and membership of those unions for which returns are available. The estimated total membership of all unions for years prior to 1912 is shewn in the last line:

NUMBER AND MEMBERSHIP OF TRADE UNIONS IN COMMONWEALTH, 1891 to 1916.

Particulars.	1891.	1901.	1906.	1910.	1911.	1912.	1913.	1914.	1915.	1916.
Total number of unions	124	198	302	482	573	621	710	712	713	705
No. of unions for which membership available	72	139	253	442	542	621	710	712	713	705
Membership of these unions ...	31,871	68,218	147,049	277,047	344,999	433,224	497,925	523,271	528,031	546,556
Estimated total membership of all unions	54,888	97,174	175,529	302,119	364,732	...	...	...	...	...

Note.—Particulars for 1896, 1907, 1908, and 1909 are given in Labour Report No. 2, p. 13.

These figures shew that while the number of unions in 1916 was nearly six times the number in 1891, the estimated membership during the same period increased nearly ten times. During the last nine years the estimated annual increase in membership was greatest in the year 1912, when it amounted to no less than 68,492, and least in 1915, when it was only 4760.

8. **Interstate or Federated Unions, 1916.**—The following table gives particulars as to the number and membership of interstate or federated unions in 1916 :—

**NUMBER AND MEMBERSHIP OF INTERSTATE OR FEDERATED UNIONS
IN THE COMMONWEALTH, 1916.**

Particulars.	Unions Operating in—					Total.
	2 States.	3 States.	4 States.	5 States.	6 States.*	
Number of Unions ...	15	11	12	18	25	81
Number of Members ...	18,185	12,739	56,717	101,848	222,794	412,283

* Three unions in this group have, in addition to branches in each of the six States, a branch in the Northern Territory.

It appears, therefore, that 81 out of the 392 separate associations and groups of associations in the Commonwealth are organised on an interstate basis. The membership of these 81 unions amounts to 412,283, or no less than 75.4 per cent. on the total membership (546,556) of all unions.

9. **Central Labour Organisations.**—In each of the metropolitan towns, as well as in a number of other industrial centres, delegate organisations, consisting of representatives from a group of trade unions, have been established. Their revenue is raised by means of a per capita tax on the members of each affiliated union. In most of the towns where such central organisations exist, the majority of the local unions are affiliated with the central organisation, which is usually known as the Labour or the Trades Hall Council or the Labour Federation. In Western Australia a unified system of organisation extends over the industrial centres throughout the State. In this State there is a provincial branch of the Australian Labour Federation, having a central council and executive, and a metropolitan and branch district councils, to which the local bodies are affiliated. The central council, on which all district councils are represented, meets periodically. In the other five States, however, the organisation is not so close, and though provision usually exists in the rules of the central council at the capital town of each State for the organisation of district councils or for the representation on the central council of the local councils in the smaller industrial centres of the State, the councils in each State are, as a matter of fact, independent bodies.

The table below shews the number of metropolitan and district or local labour councils, together with the number of unions and branches of unions affiliated therewith, in each State at the end of the year 1916 :—

CENTRAL LABOUR ORGANISATIONS.—NUMBER, AND UNIONS AFFILIATED, 1916.

Particulars.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'w'th.
No. of Councils ...	4	5	4	4	10	1	28
No. of Unions and Branch Unions Affiliated ...	169	205	67	90	181	20	732

The figures given in the preceding table as to number of unions do not necessarily represent separate unions, since the branches of a large union may be affiliated to the local trades councils in the several towns in which they are represented.

Between the trade union and the central organisation of unions may be classed certain State or district councils, organised on trade lines and composed of delegates from separate unions, the interests of the members of which are closely connected by reason of the occupations of their members, such, for example, as delegate councils of bakers, bread carters and mill employees, or of unions connected directly or indirectly with the iron, steel, or brass trades, or with the building trades.

§ 2. Laws Relating to Conditions of Labour.

1. **Tabular Statement of Statutes affecting Labour.**—The statutes in force at the end of 1916 in the several States of the Commonwealth, which, more or less directly, affect the general conditions of labour, are shown in the table below. Where merely an incidental reference to labour conditions is made in a statute, as is the case with, e.g., the Hawkers and Pedlars Act 1892, of Western Australia, or the Firms Registration Act 1899, of South Australia, or the Health Acts generally, the statute is not included in the table.

LABOUR LAWS.—TABLE OF STATUTES IN FORCE IN AUSTRALIAN STATES, 1916.

New South Wales.	Victoria.	Queensland.	South Aust.	Western Aust.	Tasmania.
<i>1. General—</i>					
Factories & Shops Act 1912	Factories and Shops 1915	Factories and Shops 1900, 1908, 1914 and 1916	Factories 1907, 1908, 1910 and 1915	Factories 1904 (2) and 1911	Factories 1910 and 1911
Early Closing 1899, 1900, 1906, 1910 and 1915			Early Closing 1911 and 1912	Early Closing 1902, 1904 (2), 1911 and 1912 (Consolidated)	Cliffmyn's Sweepers 1882
Saturday Half Holiday 1910					Shops Closing 1911 and 1913
Clerical Workers 1910					
Eight Hours Act 1916					
Sunday Trading (Refreshment Rooms) 1916					
<i>2. Prevention of Strikes and Regulation of Rates of Wages—</i>					
Industrial Arbitration 1912, 1916	Factories and Shops (as above)	Industrial Peace Act 1912*	Factories Acts 1907-15	Industrial Arbitration Act 1912	Wages Boards 1910, 1911, 1913 and 1916
<i>3. Mining Industry—</i>					
Mines Inspection 1901, 1904	Mines 1915	Mining 1898, 1901	Industrial Arbitration Act 1912, 1915, 1916	Mines Regulation 1906 and 1911	Mining 1917
Coal Mines Regulation 1912	Coal Mines Regulation 1915	1902, 1912 (2) 1914, 1915	Mining 1893	Coal Mines Regulation 1902, 1915	Mines and Works Regulation 1915
Miners' Accident Relief 1912		Mines Regulation 1910 and 1912		Mining 1904	
<i>4. Security of Wages to Wage Earners—</i>					
Contractors' Debts 1897	Employers and Employees 1915	Contractors' & Workmen's Lien 1906	Workmen's Liens 1893-6	Workmen's Wages 1898, 1899, 1900, 1904	—
Attachment of Wages Limitation 1900	—	Wages 1870 and 1884	Wages Attachment 1898	—	Wages Attachment 1900
		Wages (as above)			

* The Industrial Arbitration Act 1916 came into force on 12th January, 1917.

LABOUR LAWS—TABLE OF STATUTES.—Continued.

New South Wales.	Victoria.	Queensland.	South Aust.	Western Aust.	Tasmania.
*Truck 1900 " 1901	—	Factories and Shops (as above)	Factories (as above)	*Truck 1899 * " 1900 * " 1904	—
Bankruptcy (preference to wages) 1896 to 1898	Insolvency 1915	Insolvency 1874 Insolvency 1876	Insolvency 1886 " 1887 " 1896 " 1915	Bankruptcy 1892 " 1898	Bankruptcy 1870 Bankruptcy 1899
5. Accommodation, Homes, etc.—					
Shearers' Accommodation 1901	Shearers' Hut Accommodation, 1915	Workers' Accommodation 1915	Shearers' Accommodation 1905 and 1916	Shearers' Accommodation 1912	—
—	Closer Settlement (Workers' Homes) 1915	Miners' Homestead Leases 1913	—	—	—
—	—	Workers' Dwelling 1909, 1912, and 1914.	—	Workers' Homes 1911 & 1912 (2) and 1914 Navigation 1904 " 1907 Merchant Shipping Act Application 1903	—
6. Inspection of Machinery, etc.—					
Scaffolding and Lifts Act 1912 Boiler Inspection Regulations (under Factories and Shops Act 1912)	Boilers' Inspection 1915 Lifts Regulation 1915	Inspection of Machinery 1915, and Inspection of Scaffolding 1915	Steam Boilers and Engine Drivers 1911 and 1913 Lifts Regulation 1905 Scaffolding Inspection 1907 and 1908	Inspection of Machinery 1904 and 1911	Inspection of Machinery 1902 " " 1903 " " 1913
7. Trade Unions—					
Trade Unions 1881	Trade Unions 1915	Trade Union 1915	Trade Unions 1876	Trade Unions 1902	Trade Unions 1889
8. Relations of Masters and Servants—					
Masters & Servants 1902 Apprentices 1901 Apprentices (Amendment) Act 1915	Employers and Employees 1915 Masters and Apprentices 1915 Servants' Registry Offices 1915	Apprentices 1828 " 1844 Master and Servants 1861	Masters & Servants 1878 Apprentices (War Service) Relief Act 1915 Employees' Registry Office Act 1915	Masters and Apprentices 1873 Masters & Servants 1892 Employment Brokers 1909 and 1912 (Consolidation)	Masters & Servants 1856 " " 1882 " " 1884 " " 1887
9. Liability in case of Accidents—					
Employers' Liability 1897	Employers and Employees 1915	—	Employers' Liability 1884-9	Employers' Liability 1894	Employers' Liability 1895, 1898 and 1903
Workmen's Compensation 1910	Workers' Compensation 1915	Workers' Compensation 1916	Workmen's Compensation 1911	Workers' Compensation 1912	Workers' Compensation 1910

* The "Truck" system, as applied to labour, was one by which the master obtained the labour of his servants in exchange for goods or commodities on which it is stated he generally secured a profit. The system is now almost entirely suppressed by the various statutes enacted. † New South Wales Acts unrepealed in Queensland after Separation in 1859.

2. **Provisions and Administration of the Acts.**—For information regarding the benefits sought to be conferred, and the provisions for the registration, administration, and record-keeping, etc., under these Acts, reference should be made to Year Book No. 9, pp. 949 to 952.

3. **Registered Factories.**—The number of establishments registered under Factories Acts is shown below:—

FACTORIES REGISTERED UNDER ACTS, 31st DECEMBER, 1916.

State.	No. of Registered Factories.	Numbers Employed.		
		Males.	Females.	Total.
New South Wales	8,065	63,895	28,757	92,652
Victoria	7,618	56,396	35,924	92,320
Queensland*	2,824	19,898	7,930	27,828
South Australia†	1,934	13,850	4,790	18,640
Western Australia†	1,117	7,919	2,865	10,784
Tasmania*	911	5,796	1,398	7,194
Commonwealth	22,469	167,754	81,664	249,418

* At 30th June, 1916.

† At 31st December, 1915.

4. **Comparative Statement of Factories Law in Australia.**—The tables on pp. 960-5 shew at a glance the chief provisions of the Factories and Shops Acts in the Commonwealth:—

5. **Mining Acts.**—Mining Acts regulate the working of mines. Generally the employment underground of all females and of boys under fourteen years is prohibited. A minimum age, usually seventeen, is fixed for employment as lander or braceman at plats and landing places; no lander, braceman, underground worker, or man in charge of motive power may be employed more than eight hours a day. A large number of scientific provisions for the protection of the lives and health of miners is also inserted in the Acts. Enginedrivers must hold certificates of competency. Persons may be licensed to certify to the condition of boilers. Provision is made to enable injured persons or the relatives of persons killed to recover damages if the injury or death results from a breach of the regulations referred to above. Inspection of mines is fully provided for. Sunday labour is forbidden. In New South Wales and (since 1st February, 1910) Victoria still more advanced mining legislation exists; numerous sections are designed to ensure the well-being of the workers, such as limitation of hours, etc.

6. **Employer's Liability and Workmen's Compensation Acts.**—In each of the States, Acts have been passed allowing compensation to workers who have been killed or injured while engaged in industrial occupations. In the Commonwealth, one Act provides for compensation to all workers employed by the Commonwealth, and another to all seamen working on ships registered in Australia. A conspectus of these Acts is given on pages 964 to 969.

A.—EMPLOYMENT IN FACTORIES.—COMPARATIVE VIEW OF

HEADING.	NEW SOUTH WALES.	VICTORIA.	QUEENSLAND.
<i>Principal Acts</i>	Factories and Shops 1912.	Factories and Shops 1915.	Factories and Shops 1900. " " 1908. " " 1914†
<i>Application of Acts—Limitations</i>	Whole State proclaimed factories district. Not applicable where all the workers are members of the same family. Not applicable to woolsheds, dairies, or ships. Governor may exempt any factory or class of factory.	Whole State. Not applicable to dairying, agricultural, horticultural, viticultural and pastoral occupations. Not applicable to laundries attached to prisons or religious and charitable institutions.	Only in areas proclaimed. Not applicable to prisons, reformatories, dairies, mines, agricultural buildings, and domestic workshops. Governor may exempt partially or wholly any factory or class of factories in a given district.
<i>Definition of Factory—By Nos. Employed</i>	Four or more.	Four or more.	Two or more (including occupier).
" Asiatics	One or more Chinese.	One or more Chinese.	One Asiatic.
" Power used	Steam or mechanical.	Steam or mechanical.	Steam or mechanical.
" Special classes included	Bakehouses. Laundries and dyeworks.	Bakehouses, laundries, dyeworks, quarries, clay-pits, furniture. Gas and electric light, etc., works.	Bakehouses, laundries.
<i>Administration</i>	Minister of Labour.	Minister of Labour.	Minister for Public Works.
<i>Inspectorate</i>	Inspectors with full powers of entry, examination and enquiry.	Inspectors with full powers of entry, examination and enquiry.	Inspectors with full powers of entry, examination and enquiry.
<i>Registration</i>	Seven days' prior notice.	Fourteen days' notice after occupation. Annual re-registration.	Seven days' prior notice.
<i>Outwork</i>	Occupier of factory to keep record, shewing places where work done and rates of payment.	Occupier to keep record of description, quantity, remuneration, names and addresses. Out-workers must register in clothing, wearing-apparel, or boot trades.	Sub-contractors' premises subject to factory regulations. Occupier to keep records shewing places, description, and quality of work; nature and amount of remuneration paid. Out-workers must register. Sub-letting forbidden.
<i>Meals in Workroom</i>	Minister may forbid while work is going on; he may require provision of a suitable eating-room.	Forbidden while work going on, unless Chief Inspector permits. Forbidden if dangerous trade conducted.	Inspector may forbid meals being taken in factories; he may require provision of suitable eating room.
<i>Sanitary, Health and Safety Provisions</i>	Factories to be clean, wholesome, and well ventilated. Over-crowding forbidden. Unhealthy persons under sixteen may be suspended from daily work. Avoidance of infection prescribed. Factories to be thoroughly cleaned once in fourteen months. Bakehouses and furniture factories not to be used as sleeping places. Seats to be provided for females. Proper necessary precautions to be taken against fire, and efficient fire escapes to be provided.	Factories to be clean, wholesome, and well ventilated. Over-crowding forbidden. Factories to be thoroughly cleaned once in fourteen months. Bakehouses to be washed once every six months Factories and bakehouses not to be used as sleeping places. Wet spinners must be protected. Efficient fire escapes to be provided, and fire appliances kept ready. Doors, etc., to be kept free from obstruction.	Factories to be clean, wholesome, and well ventilated. Over-crowding forbidden. Suspension of work by unhealthy persons may be enforced. Avoidance of infection prescribed. Fresh drinking water to be provided. Factories to be thoroughly cleaned once in twelve months. Bakehouses not to be used as sleeping places. Seats to be provided for females. Proper necessary precautions to be taken against fire.
<i>Dangerous Machinery</i>	Must be fenced. Employment of women and boys forbidden at certain machines.	Must be fenced. Employment of women and boys restricted. First-aid ambulance-chest to be kept on premises.	Must be fenced.*
<i>Minimum Wage per week</i>	4s. No premiums or bonus on behalf of apprentices in the making of wearing apparel is permitted.	2s. 6d. No premium is to be demanded from female apprentices and improvers in clothing trades, or any apprentice or improver employed in a shop.	5s. No premium is permitted from apprentices without permission of Inspector.

* See Machinery and Scaffolding Act 1915.

† Hairdressers' shops only.

LEADING FEATURES OF ACTS IN FORCE IN AUSTRALIA, 1915.

SOUTH AUSTRALIA.	WESTERN AUSTRALIA.	TASMANIA.
Factories 1907, 1908, 1910, and 1915.	Factories 1904. " 1911 (2).	Factories 1910 and 1911.
In metropolitan area and such other places as determined by Parliament. Not applicable to domestic servants and agricultural and pastoral pursuits.	In districts proclaimed. Not applicable to mines, dairies, ships, prisons, reformatories, domestic (other than Asiatic) workshops. Governor may exempt any factory or class of factories.	Whole State. Not applicable to mines, ships, prisons, reformatories, rural industries, charitable institutions. Governor may exempt any factory.
Any one person. Laundries, dyeworks.	Six or more. One Asiatic. Steam or mechanical. Bakehouses, laundries.	Four or more. One Asiatic. Steam or mechanical over 1 h.p. Bakehouses, quarries.
Minister of Industry.	Honorary Minister.	Chief Secretary.
Inspectors with full powers of entry, examination and enquiry.	Inspectors with full powers of entry, examination and enquiry.	Inspectors with full powers of entry, examination and enquiry.
Twenty-one days' after occupation.	Prior notice. Annual re-registration if Asiatics employed	Twenty-one days' prior notice and annual re-registration.
Occupier to keep record. Out-workers to register names and addresses.	Occupier to keep record of names and addresses, and quantity and description of work done. Sub-letting forbidden.	Occupier to keep record of names and addresses, and quantity and description of work done, also of hours worked and wages paid.
Minister may forbid meals in factories carrying on noxious trades; he may require provision of suitable eating-room.	Forbidden for women and boys, except with Inspector's written permission.	Forbidden where employees working. In certain factories meal room to be provided.
Factories to be kept wholesome, clean, and well ventilated. Over-crowding forbidden. Factories to be thoroughly cleaned once in fourteen months. Adequate protection to be made against fire.	Factories and connected yards to be clean, wholesome, and well-ventilated. Over-crowding forbidden. Unhealthy persons may be forced to suspend work. Goods, clothing, etc., to be disinfected where necessary. Fresh drinking water to be provided. Thorough cleaning to be regularly done. Bakehouses not to be used as sleeping places. Efficient fire escapes to be provided and other necessary protection to be made against fire.	Factories to be clean, wholesome, and well ventilated. Overcrowding forbidden. Interior walls and ceiling surfaces in factories may be required to be cleaned once in fourteen months. Factories not to be used as sleeping places. Doors, etc., to be kept clear of obstructions, and fire-prevention appliances kept ready for use. Doors to open outwards. Alternate means of escape to be provided.
Must be fenced. Employment of children under sixteen may be forbidden.	Must be fenced.* Inspector may prohibit as dangerous machine.* Employment of females and boys forbidden.	...
4s. No premium is to be paid by female apprentices in clothing trades.	...	4s. for first year at trade. No premium in respect to employment is permitted.

* See Inspection of Machinery Act 1904.

B.—RESTRICTIONS AS TO EMPLOYMENT OF WOMEN

HEADING.	NEW SOUTH WALES.	VICTORIA.	QUEENSLAND.
* <i>Ordinary Age of Admission to Factory</i>	14	Boys 14 years Girls 15 years	14
<i>Maximum Working Hours of Women and Young Persons</i>	Per week	Boys under 16 and all females 48 hours	Boys under 16 and all females, 48 hours
	.. day	...	...
	Maximum hours of continuous labour	Boys under 18 and all females 5 hours	Boys under 18 and all females, 5 hours
	Interval	Do., ½ hour	Do., ½ hour
<i>Prohibited Hours of Work</i>	Boys under 16 and all females 6 p.m. to 6 a.m.	Girls under 16, 6 p.m. to 6 a.m. Males under 16 and all females, after 9 p.m.	Girls under 18, 6 p.m. to 6 a.m. Boys under 16, 6 p.m. to 6 a.m. (Except by special exempt'n from Minister.)
<i>Overtime—</i>			
Limitation—Per day	Three hours	Ten hours per day not to be exceeded	Three hours
.. week	Three consecutive days	Fifty-seven hours per week not to be exceeded in more than eight weeks	(Two consecutive days Fifty-six hrs per wk. not to be exceeded. Forty days
.. year	Thirty days	...	
Continuous			
<i>Overtime Pay</i>	Time and a-half	Wage workers, time & a-half Piece workers, additional 1/3d. per hour	Time and a-half, but not below 6d. per hr.
<i>Prohibition of Employment after Childbirth</i>	4 weeks	...	...
<i>Restrictions and Prohibitions of Employment affecting Women and Young Persons in Dangerous Trades</i>	Type-setting	...	Boys under 14; girls under 15
	Dry grinding and match dipping	Persons under 16*	Persons under 16
	Manufacture of bricks and tiles	Girls under 18	Girls under 16
	Making and finishing of salt	Girls under 18	Girls under 16
	Melting or annealing of glass	Boys under 16; girls under 18	Girls under 18
	Silvering of mirrors by mercurial process; manufacture of white lead	Persons under 18	Persons under 18
	Cleaning of machinery in motion, mill gear-ing, etc.	All females; boys under 18†	All females; boys under 18
	Charge of lift	All females; boys under 16†	Persons under 18

* The ages given are those at which admission to factory labour is unrestricted. In some States younger children are admitted if having passed school standards, or by special permit from the Minister or inspector.

AND YOUNG PERSONS IN FACTORIES IN AUSTRALIA, 1915.

SOUTH AUSTRALIA.	WESTERN AUSTRALIA.	TASMANIA.
13	14	14
Boys under 16 and all females, 48 hours Do., 10 hours	Boys under 14 and all female, 48 hours Do., 8½ hours	Boys under 16 and all females, 48 hours Females, 10 hours
Do., 5 hours	Do., 5 hours	Boys under 18 and all females, 5 hours
Do., ½ hour	Do., ½ hour	Females & young persons, 1 hour
Females, after 9 p.m. Boys under 16, after 9 p.m.	Females, 6 p.m. to 8 a.m., and after 1 p.m. on one day wkly. Boys under 14, 6 p.m. to 7.45 a.m., and after 1 p.m. on one day weekly.	Boys under 16 and all females, after 9 p.m. ...
...	Three hours	55 hours per week not to be ex- ceeded. (Suspended in perishable material trades from December to April inclusive)
Seven hours per week	Two consecutive days	...
100 hours	Thirty days	200 hours
Time and a-quarter	Time and a-quarter	Time and a-quarter
...	4 weeks	...
Boys under 16 and all females not more than 8 hours per day, and not after 6 p.m. or before 6 a.m.	Girls under 15	Boys under 16 and all females not more than 8 hours per day, nor between 9 p.m. and 6 a.m.
Persons under 16	...	Persons under 16
Girls under 16	Girls under 16	Girls under 16
Girls under 16	Girls under 16	Girls under 16
Boys under 14; girls under 18	...	Females under 18
Persons under 18	All females; boys under 18	All females; boys under 18
All females; boys under 18	All females; boys under 18	...
All females; boys under 18	Females under 21; boys under 16	...

† In N.S.W. this restriction applies also to casting from molten lead. ‡ In N.S.W. this restriction applies also to persons in charge of or attending to any engine or boiler. § In N.S.W. this restriction applies also to any machinery classed as dangerous.

C.—EMPLOYMENT IN SHOPS.—COMPARATIVE VIEW OF LEADING

HEADING.	NEW SOUTH WALES.	VICTORIA.	QUEENSLAND.
<i>Acts</i>	As for factories Early Closing Act Minimum Wage Act	As for factories	As for factories
Statutory Maximum Hours of Employment.	(a) Male, adults	...	52 hours per week (Fourth Schedule Shops 58 hours)
	(b) Females and Boys	Girls under 18, boys under 16, 52 hours	52 hours (Fourth Schedule Shops 56 hours)
	per week	Girls under 18, boys under 16, 9½ hours (except 1 day, 11½ hours)	9 hours (except 1 day, 12 hours)
	per day	9½ hours (except 1 day, 11½ hours)	9 hours (except 1 day, 12 hours)
Maximum continuously	All females: 5 hours	All persons: 5 hours	Females and boys under 16, 9½ hours (except 1 day, 11½ hours)
Interval	All females: ½ hour	All persons: ½ hour	All persons: 5 hours
Maximum { per day. Overtime { per year	...	3 hours 25 days	3 hours 40 days
<i>General closing time</i>	4 days, 6 p.m.; 1 day, 10 p.m.; 1 day, 1 p.m.	4 days, 6 p.m. (outside Metropolitan district 4 days 7 p.m.); Saturdays, 1 p.m.; Fridays, 10 p.m.	4 days, 6 p.m.; 1 day, 9 p.m.; Saturdays (or other prescribed weekly holiday), 1 p.m.
<i>Exemption from closing time</i>	Certain shops	Businesses concerned with tobacco, books, stationery, confectionery, drugs and edibles, also pawnbrokers	Certain exempted shops
<i>Seats in Shops</i>	1 to 3 females	1 to 3 assistants	1 to 3 females

D.—CONSPECTUS OF WORKMEN'S

HEADING.	NEW SOUTH WALES.	VICTORIA.	QUEENSLAND.	SOUTH AUSTRALIA.
<i>Name of Act.</i>	Workmen's Compensation Act 1910.	Workmen's Compensation Act 1915.	The Workers' Compensation Act 1916.	The Workmen's Compensation Act 1911.
<i>Definition of Employer.</i>	A person who habitually employs at least four persons, and includes companies, corporations, etc.	Includes any body of persons, corporate or incorporate.	Includes persons, firms, companies and corporations employing workers.	Includes any body of persons, corporate or incorporate.
<i>Nature of Work to which Act applies.</i>	Manual labour in railway, tramway, factory, mine, quarry, wharf, vessel, engineering, or building work, and proclaimed dangerous employment.	Manual workers. Other workers with incomes up to £250.	Industrial, commercial, manufacturing, building, agricultural, pastoral, mining, quarrying, engineering, or hazardous work.	Manual only, with incomes up to £5 a week.
<i>Workers expressly excluded.</i>	Casuals. Miners coming under the provisions of the Miners' Accident Relief Act.	Workers other than manual earning over £250. Police, outworkers, members of employer's family.	Casuals, police, subscribers to superannuation fund, members of employer's family.	Persons earning over £5 a week. Outworkers, members of employer's family, seamen whose injury occurs outside jurisdiction, agricultural, horticultural, viticultural, dairying or pastoral workers where machinery is not used, clerks, domestic servants.

FEATURES OF ACTS IN FORCE IN AUSTRALIA, 1915.

SOUTH AUSTRALIA.	WESTERN AUSTRALIA.	TASMANIA.
Early Closing, 1911 and 1912	Early Closing, 1902, 1904 (2), and 1911	Factories, 1910, 1911, with amendments Shops Closing 1911, with amendments
...	56 hours per week	...
Boys and girls under 16, 52 hours Boys and girls under 16, 9 hours (except 11 hours on 1 day)	Boys under 16 & all females, 52 hours Boys under 16 & all females, 9 hours (except 10½ hours on 1 day)	Females and boys under 16, 52 hours Females and boys under 16, 9 hours (except 12 hours on 1 day)
...	One hour interval between noon and 3 p.m. If open after 6.30 p.m., 1 hour for tea	Females and boys under 16, 5 hours
...		Females and boys under 16, ½ hour
3 hours 40 days	3 hours 12 days per half-year	3 hours } With consent of Chief 40 days } Inspector of Factories
4 days, 6 p.m.; 1 day, 9 p.m.; 1 day, 1 p.m.	4 days, 6 p.m.; 1 day, 9 p.m.; 1 day, 1 p.m. (Opening hour not earlier than 8 a.m.)	4 days, 5 p.m.; 1 day, 10 p.m.; 1 day, 1 p.m.
Certain classes of shops	Shops such as hairdressers, newsagents, tobacconists, and those selling drugs and edibles	Shops registered as small shops, and certain shops such as tobacconists, newsagents and those selling edibles
...	...	1 to 3 females

COMPENSATION ACTS IN AUSTRALIA.

WESTERN AUSTRALIA.	TASMANIA.	COMMONWEALTH. (Employees.)	COMMONWEALTH. (Seamen.)
Workers' Compensation Act 1912.	The Workers' Compensation Act 1910.	Commonwealth Workmen's Compensation Act 1912.	Seamen's Compensation Act 1911.
Same as South Australia.	Same as South Australia.	The Commonwealth.	Same as South Australia.
Manual, clerical, or otherwise, with income up to £300 a year.	Manual in any railway, factory, mine, quarry or engineering work, or any other industry included by resolution of Parliament.	Manual, clerical, or otherwise.	Navigation or working of ships registered in Australia; Seamen shipped under Articles of Agreement in Australia while under Commonwealth law included.
Persons whose remuneration exceeds £300 a year. Casuals, police, outworkers, members of employer's family.	Casuals (defined as employed for not longer than 27 hours per week), manual workers earning over £156 a year.	Persons not employed in manual labour earning over £500 a year. Outworkers, naval and military forces on active service.	Seamen on vessels ordinarily propelled by oars, and those in naval or military service.

CONSPECTUS OF WORKMEN'S

HEADING.	NEW SOUTH WALES.	VICTORIA.	QUEENSLAND.	SOUTH AUSTRALIA.
<i>Employer not liable to pay compensation for</i>	Injury disabling for less than two weeks.	Injury incapacitating for less than a week.	Injury incapacitating for less than three days.	First week of injury if disabled for less than two weeks.
<i>In event of insolvency maximum amount of compensation admitted as first charge on assets per individual.</i>	Full amount.	£200.	Insurance compulsory in State Accident Insurance Fund.	£100.
<i>Compensation in case of Death.</i> If dependants left ...	3 years' earnings, or £200, whichever larger; maximum, £400.	3 years' earnings, or £200, whichever is the larger; maximum, £500.	3 years' earnings, or £300, whichever larger; maximum, £600.	3 years' earnings, or £200, whichever larger; maximum, £300.
If no dependants, maximum amount for medical attendance and funeral expenses.	£12, if not payable by a Friendly Society.	£50.	£50.	£20.
<i>Compensation in case of Incapacity</i> Weekly payment ...	Half average weekly earnings; maximum £1.	Half average weekly earnings; maximum, 30s.	Half average weekly earnings; maximum, £2, minimum, £1.	Half average weekly earnings; maximum, £1.
Maximum total liability ...	£200.	£500.	£750.	£300.
<i>Compensation of Workers over 60 years of age who have entered into an agreement.</i> Death, with Dependants—Minimum Incapacity—Minimum weekly payment ...	£50.	£50.	...	£50.
Maximum total liability ...	5s.	5s., or quarter of weekly earnings, whichever larger.	...	5s.
<i>Compensation for infirm workers who have entered into an agreement.</i> Death, Minimum payment...	£25, or 30 times average weekly earnings, whichever larger.	£50.	...	£50.
Incapacity—Minimum weekly payment	5s., or quarter of weekly earnings, whichever larger.	5s., or quarter of weekly earnings, whichever larger.	...	5s.
Maximum total liability ...	£50.	£50.	...	£50.
<i>Compensation for workers under 21 years of age earning less than 20s. weekly.</i> Weekly payment ...	Average weekly earnings; maximum, 10s.	Average weekly earnings; maximum, 10s.	...	Average weekly earnings; maximum, 10s.
<i>Waiting time</i> ...	Two weeks.	One week.	Three days. Compensation from date of accident if incapacity lasts over three days.	One week. No compensation for first week unless incapacity lasts over two weeks.

COMPENSATION ACTS IN AUSTRALIA—Continued.

WESTERN AUSTRALIA.	TASMANIA.	COMMONWEALTH. (Employees.)	COMMONWEALTH. (Seamen.)
Same as South Australia.	Same as South Australia.	...	Same as South Australia.
£150.	£100.	...	Full amount.
3 years' earnings, or £300, whichever larger; maximum, £400.	3 years' earnings, or £100, whichever larger; maximum, £200.	3 years' earnings, or £200, whichever larger; maximum, £500.	3 years' earnings, or £200, whichever larger; maximum, £500.
£100.	£30.	£30.	£30.
Medical attendance, up to £1. Half average weekly earnings; maximum, £2. £400.	Half average weekly earnings; maximum, 30s. £200.	Half average weekly earnings; maximum £2.	Half average weekly earnings; maximum, 30s.
£100.	£50.	...	(If seamen entitled to Commonwealth Old-age pension, amount of compensation and pension together not to exceed 30s. weekly.)
10s.	10s.	...	
£100.	£50.	...	
£100.	£25, or 39 times average weekly earnings, whichever larger.	...	...
10s.	5s., or quarter of weekly earnings, whichever larger.	...	...
£100.	£50.	...	...
Average weekly earnings; maximum, 20s.	Same as New South Wales.	Same as New South Wales.	Same as New South Wales.
Same as South Australia.	One week. No compensation paid for first week unless incapacity lasts two weeks.	None.	One week. No compensation for first week unless incapacity lasts two weeks.

CONSPECTUS OF WORKMEN'S

HEADING.	NEW SOUTH WALES.	VICTORIA.	QUEENSLAND.	SOUTH AUSTRALIA.
<i>Period after which lump sum can be substituted for weekly payment.</i>	Six months.	Six months.	Any time.	Six months.
<i>Tribunal, if claim not settled by agreement.</i>	District Court, if claim over £30. Stipendiary or Police Magistrate, if £30 or less.	Judge of County Court or Police Magistrate.	Insurance Commissioner, Industrial Referee, Supreme Court.	Arbitrator. If arbitrator not agreed on within one month, special Magistrate. Appeals to Supreme Court.
<i>Regulations for worker leaving the State in which he was injured.</i>	(No provision.)	Same as South Australia.	If permanent incapacity proved, 158 times weekly payments substituted for weekly payments in case of worker leaving Commonwealth.	If permanent incapacity likely, quarterly substituted for weekly payments in case of worker leaving State.
<i>Proceedings for compensation not maintainable unless commenced within</i>	Six months.	Six months.	Six months.	Six months.

7. **Other Acts.**—Other legislation regulating conditions of labour has been enacted by the States. The British *Conspiracy and Protection of Property Act* (38 and 39 Vic., c. 86) has been adopted in all the States except New South Wales and Queensland. Servants' registry offices are placed under administrative control, and the rates of commission chargeable are fixed by regulation. Power is given to workmen to attach moneys due to a contractor who employs them, in order to satisfy a claim for wages, such wages being made a first charge on moneys due to a contractor. Workmen are given a lien for wages over material whereon they are working, even if it becomes part of other property. This is in addition to the common law lien, which ceases when possession of the property is parted with. Workmen's wages are protected from attachment. In Victoria, provision is made for the compulsory resumption of suburban lands to provide workmen's homes.

8. **General Results of Industrial Legislation.**—The results of the Legislation described must be sought in the Reports of the Inspectors of Factories of the several States. Generally speaking, the perusal of these reports and of the reports of Royal Commissions which have inquired into the working of the Acts, affords satisfactory evidence that the Acts have, on the whole, effected their objects.

§ 3. Legislative Regulation of Wages and Terms of Contract.

1. **General.**—Two systems, based upon different principles, exist in Australia for the regulation of wages and general terms of contracts of employment. A "Wages Board" system exists in Victoria and Tasmania, and an Industrial Arbitration Court in Western Australia. In the industrial legislation of New South Wales, Queensland, and South Australia, both systems are embodied, Industrial or Wages Boards, as well as Industrial Courts, being instituted. In Victoria, Wages Boards' decisions may be reviewed by the Court of Industrial Appeals. In New South Wales, Industrial Arbitration Acts of 1901 and 1905 instituted an Arbitration Court. This court expired on 30th June, 1908, having delivered its last judgment on the previous day. Wages Boards were substituted under the Industrial Disputes Act 1908, and subsequent years; while the Act of 1912 introduced the mixed system. There is also the Arbitration Court of the Commonwealth, which has power, however, to deal only with matters extending beyond the limits of a single State.

COMPENSATION ACTS IN AUSTRALIA—Continued.

WESTERN AUSTRALIA.	TASMANIA.	COMMONWEALTH. (Employees.)	COMMONWEALTH. (Seamen.)
Six months.	Two weeks.	Six months.	Six months.
Local Court.	Commissioner (under Local Courts Act 1896) acting as Arbitrator.	Arbitrator or County Court.	Arbitrator or County Court.
Weekly payments continue in case of worker leaving State.	Same as South Australia.	If permanent incapacity likely, quarterly substituted for weekly payments in case of worker leaving Australia.	If permanent incapacity likely, quarterly substituted for weekly payments in case of worker leaving Australia.
Six months.	Six months	Six months.	Six months, or 18 months if ship lost at sea.

The chief aims of the Wages Board system are to regulate hours, wages, and conditions of labour and employment, by the determination of a Board usually brought into existence for any specified industry or group of industries by petition or application. Under the Industrial Arbitration Court system an industry does not technically come under review until a dispute has actually arisen. Most of the Acts, however, have given the President of the Court power to summon a compulsory conference. In Victoria, where the Wages Board system is in force, there is no provision against strikes, but in Tasmania, where that system has also been adopted, penalties are provided for a lock-out or strike on account of any matter in respect of which a Board has made a determination.

Particulars were given as to the historical development, mode of constitution and general provisions of Wages Boards and Arbitration Courts in Year Book.No. 9, pages 960 to 966. These refer to the regulation of wages and working conditions, and the prevention and settlement of industrial disputes.

2. Comparative Statement of Tribunals for Regulating Wages in Australia.—The table on pages 970 and 971 shews at a glance the Acts which operate in fixing wages, the constitution and function of tribunals enacted under them, and the effect and extent of the tribunals' decisions. It will be seen that in all the States there is machinery for the regulation of wages.

3. Movement Towards Uniformity.—The wide difference between the development in the several States of the Commonwealth of the regulation by State institutions of the remuneration and conditions of the workers has given rise to a desire on the part of the Commonwealth Government to secure uniformity throughout Australia by any suitable and constitutional action on the part of the Commonwealth. The provisions of States' wages laws vary considerably. In New South Wales, Victoria, and Western Australia, considerable experience has been gained of their working. The system is newer in South Australia, Queensland, and Tasmania. The desirability of uniformity has, as already mentioned, been recognised by the New South Wales Arbitration Court, which refused the Bootmakers' Union an award which would increase the wages of its members to amounts exceeding those paid in Victoria in the same trade, the express ground of the refusal being that New South Wales manufacturers would be handicapped by the payment of a higher rate of wage than that prevailing in Victoria.

TRIBUNALS FOR THE REGULATION OF

Particulars.	NEW SOUTH WALES.	VICTORIA.	QUEENSLAND.
<i>Name of Acts</i>	Industrial Arbitration Act 1912	Factories and Shops Act 1915	Industrial Peace Act 1912†
<i>Nature of Tribunals</i>	Court of Industrial Arbitration. Industrial Boards	Court of Industrial Appeals. Wages Boards*	Industrial Court. Industrial Boards
<i>How Tribunals are brought into existence</i>	Industrial Court (Judge) constituted by Act. Industrial Boards by the Minister on recommendation of Industrial Court.	Court constituted by Acts. Wages Boards by Governor-in-Council on resolution of Parliament	Industrial Court constituted by the Act. Industrial Boards, by Governor-in-Council on recommendation of Court
<i>Scope of Acts</i>	To industrial groups named in Schedule to Act, and those added by Proclamation. Includes Government servants	To any process, trade, business, or occupation specified in a resolution. Government servants are not included	To callings specified in Schedule to Act, and to those added by Governor-in-Council
<i>How a trade is brought under review</i>	Reference by Court or Minister, or by application to the Board by employers (having not less than 20 employees) or industrial unions	Usually by petition to Minister	By submission to the Court by (1) the Minister or the Registrar; (2) an employer employing not less than 20 employees in any calling; and (3) not less than 20 employees in any calling
<i>President or Chairman of Tribunal</i>	Appointed by Minister on recommendation of Court.	Appointed by Governor-in-Council on nomination of Board, or failing that on nomination by Minister	Any person elected by Board. If none elected, appointment is by the Governor-in-Council on recommendation of Court
<i>No. of Members of Tribunal</i>	Chairman, and 2 or 4 other members	Not exceeding 11 (including chairman)	Not less than 5 nor more than 13 (including chairman)
<i>How ordinary members are appointed</i>	Appointed by Minister on recommendation of Industrial Court	Nominated by Minister. But if one-fifth of employers or employees object, representatives are elected by them	By employers and employees respectively
<i>Decisions — how enforced</i>	By Registrar and Industrial Magistrate	By Factories Department in Courts of Petty Sessions before Police Magistrates.	By Inspectors of Factories and Shops, Department of Labour
<i>Duration of decision</i>	For period fixed by Tribunal, but not more than 3 years.	Until altered by Board or Court of Industrial Appeals	12 months and thereafter, until altered by Board or Court
<i>Appeal against decision</i>	To Industrial Court against decision of Boards	To the Court of Industrial Appeals	To Industrial Court
<i>If suspension of decision possible pending appeal?</i>	No; except by temporary variation of award by the Court	Yes; for not more than 12 months	Yes; for not more than 3 months
<i>Can Preference to Unionists be declared?</i>	Yes	No	No
<i>Provision against strikes and lockouts</i>	Strikes, penalty £50, registration as industrial union, and preference to unionists cancelled. Lockouts, penalty £1000, and registration as industrial union cancelled	Determination may be suspended by Governor-in-Council for any period not exceeding 12 months.	Strikes £50, lockouts £1000, unless notice of intention given to Registrar and secret ballot taken in favor. In the case of public utilities, compulsory conference also must have proved abortive
<i>Special provisions for Conciliation</i>	Special Commissioner.* Conciliation Committees for colliery and other districts. Registered agreements	None	Compulsory Conference. Registered agreements

* Functions not now in operation.

† The Industrial Arbitration Act 1916 came into force on the 12th January, 1917.

WAGES IN TRADES IN AUSTRALIA, 1915.

SOUTH AUSTRALIA.	WESTERN AUSTRALIA.	TASMANIA.	COMMONWEALTH.
The Factories Acts 1907, 1908, 1910 and 1915. Industrial Arbitration Act 1912. Industrial Arbitration Act Amendment Acts 1915 and 1916.	Industrial Arbitration Act 1912	Wages Boards Acts 1910, 1911, 1913 and 1915.	Conciliation and Arbitration Act 1904-14. Arbitration (Public Service) Act 1911
Industrial Court. Wages Boards	Arbitration Court	Wages Boards	Court of Conciliation and Arbitration.
Court constituted by Act of 1912. Wages Boards by the Governor-in-Council, pursuant to resolutions of Parliament	Constituted by the Act	By Governor-in-Council pursuant to resolutions of Parliament	Court of Record constituted by the Act
To processes, trades, etc., specified in Act, and such others as may be authorised by Parliament	All industrial occupations other than domestic service	To clothing and apparel trades and any other trades or groups or parts	Industrial disputes extending beyond limits of any one State or in Federal Capital or Northern Territories
Court—matters or disputes submitted by Minister, Registrar, employers or employees, or by report of Wages Board. Wages Boards by petitions, etc.	Industrial disputes referred by President or by an Industrial Union or Association	Usually by petition to Minister	Industrial disputes either certified by Registrar, submitted by organisation, referred by a State Industrial authority or by President after holding abortive Compulsory Conference
Court—President. Wages Board, appointed by Governor on nomination of Board, or falling nomination a Stipendiary Magistrate	A Judge of the Supreme Court	Any person elected by the Board. If none elected, appointment of a Justice of the Peace by the Governor-in-Council	President
Court, President only. Wages Board, not less than 5 nor more than 11 (inclusive of chairman)	Three, including president	Chairman, and not less than four nor more than ten	President only
By Governor on nomination of employers and employees respectively	Appointed by Governor, President directly, and one each on recommendation of unions of employers and workers respectively	By Governor-in-Council on nomination by employers and employees	President appointed by Governor-General from Justices of High Court for a term of 7 years.
By Factories Department	By Arbitration Court on complaint of any party to the award or Registrar or an Industrial Inspector	By Industrial Department.	By proceedings instituted, by Registrar, or by any organisation affected, or a member thereof
Until altered by Board or by order of Industrial Court.	For period fixed by Court, not exceeding 3 years, or for 1 year and thenceforward from year to year until 30 days' notice given	Until altered by Board.	For period fixed by award, not exceeding 5 years
Industrial Court	No appeal except against imprisonment or a fine exceeding £20	To Supreme Court against validity of determination only	No appeal. Case may be stated by President for opinion of High Court
Yes	No suspension. Court has power to revise an award after the expiration of 12 months from its date	Yes	No appeal
No	No	No	Yes; ordinarily optional, but mandatory if in opinion of Court preference is necessary for maintenance of industrial peace or welfare of society
Penalty £500, or imprisonment for 3 months	Employer or Industrial Union, £100 other cases, £10.	Organisations, £500; individuals, £20	Penalty, £1000.
Compulsory Conference. Industrial Court. Registered agreements	Compulsory Conference. Registered agreements	None	Compulsory Conference. Court may temporarily refer to Conciliation Committee, Registered agreements

4. **Constitution Alteration Proposals.**—Two proposed laws for the alteration of the constitutional powers of the Commonwealth in regard to industries and businesses were submitted to the people for acceptance or rejection on the 26th April, 1911. The first law proposed to amend section 51 of the Constitution Act (see pp. 25 and 26 hereinbefore) so as to give the Commonwealth Government increased powers to deal with (a) trade and commerce, (b) corporations, (c) industrial matters, and (d) trusts and monopolies. The second law proposed to insert, after section 51 of the Constitution Act, a section empowering the Commonwealth Government to make laws with respect to monopolies. Neither of the proposals was approved by the people. Fuller particulars are given on page 25 of this book. At the general elections, held on 31st May, 1913, these and other matters were again submitted by referendum and again rejected.

5. **The "New Protection."**—The opinion has been expressed that a manufacturer who benefits by the Commonwealth protective tariff should charge a reasonable price for the goods which he manufactures, and should institute a fair and reasonable rate of wage and conditions of labour for his workmen.

The above view is known as the "New Protection," a phrase which, though novel, is already firmly established in Australian economic discussions. The outcome has been the enactment of new laws, designed for the benefit of the workers, and for controlling monopolies and trusts which would otherwise exploit the necessities of life.

By the Customs Tariff 1906, increased duties were imposed upon certain classes of agricultural machinery, notably the "stripper-harvester," a machine invented in Australia, which has, to a great extent, replaced the "reaper and binder and thrashing machine" in the harvesting of wheat. By the same Act it was enacted that the machines scheduled should not be sold at a higher cash price than was thereby fixed, and that if that price should be exceeded, the Commonwealth Executive should have power, by reducing the Customs duties imposed by the Act, to withdraw the tariff protection.

By the Excise Tariff Act 1906 (No. 16 of 1906), an excise of one-half the duty payable upon imported agricultural machinery was imposed upon similar machinery manufactured in Australia. But it was provided that the latter should be exempt from excise if the manufacturer thereof complied with the following condition, namely, that the goods be manufactured under conditions as to the remuneration of labour, which—

- (a) Are declared by resolution of both Houses of the Commonwealth Parliament to be fair and reasonable ;
- (b) Are in accordance with the terms of an industrial award under the Commonwealth Conciliation and Arbitration Act 1904 ;
- (c) Are in accordance with the terms of an industrial agreement filed under the last-mentioned Act ;
- (d) Are, on an application made for the purpose to the President of the Court, declared to be fair and reasonable by him or by a judge of a State Court or a State industrial authority to whom he may refer the matter.

By the Excise Tariff Act 1906 (No. 20 of 1906), excise duties are imposed in respect of spirits, and it is provided that if any distiller (i.) does not, after the Act has been passed a year, pay his employees a fair and reasonable rate of wages per week of forty-eight hours

or (ii.) employs more than a due proportion of boys to men engaged in the industry, the Executive may on the advice of Parliament impose an additional duty of one shilling per gallon on spirits distilled by that distiller.

Exemptions have been claimed by the manufacturers of agricultural machinery in South Australia, New South Wales, Victoria, and Tasmania. These were granted in the two first-mentioned States in consequence of an agreement entered into between the employers and employees. In Victoria, "this whole controversial problem with its grave social and economic bearings" (to quote the words of the President of the Court) was discussed in a lengthy case upon the application for exemption by Victorian manufacturers, now widely known as the "Harvester Case," and in the report of that case may be found the legal interpretation of the Acts under consideration. The exemptions claimed were refused, and the court after discussing the meaning of the words "fair and reasonable," defined them by laying down what it considered to be a scale of fair and reasonable wages.

The High Court has pronounced that the legislation under these Excise Acts is unconstitutional as being an extension of Federal action beyond the powers granted, and a usurpation of the ground reserved to the States. It may be noted that the rejected measures were enacted with the consent of all parties in Parliament, having been placed upon the Statute Book whilst the Liberal party was in power, the Labour representatives strongly supporting the proposals.

§ 4. Operations under Wages Board and Industrial Arbitration Acts.

1. **General.**—Particulars regarding operations under the Commonwealth Arbitration Acts and the various State Acts for the regulation of wages and hours and conditions of labour, shewing the number of boards authorised, constituted, and in existence, and which had or which had not made any award or determination in each State; the number and territorial scope of awards or determinations, and the number of industrial agreements in force, were first compiled to the 31st December, 1913.¹

These particulars have from time to time been revised, and reviews to the end of approximately quarterly periods have been published in the periodical Labour Bulletins to the 31st December, 1916. Information has also been compiled and included in the later issues of the Labour Bulletin, respecting the estimated number of workpeople affected by awards or determinations and industrial agreements in each State. In addition, a brief quarterly epitome has been given of the number of awards and determinations made and industrial agreements filed under the Act in force in each State and the Commonwealth Conciliation and Arbitration and the Commonwealth (Public Service) Arbitration Acts. The following tabular statement gives particulars of the operations in each State and under the Commonwealth Statutes during each quarter of the years 1915 and 1916 respectively:—

1. Information as to the main provisions of the various Acts in force was given in Labour Bulletin No. 1, pp. 57 to 60.

**AWARDS AND DETERMINATIONS MADE AND INDUSTRIAL AGREEMENTS FILED IN
EACH QUARTER OF 1915 and 1916.**

State and Commonwealth.	1st Quarter.		2nd Quarter.		3rd Quarter.		4th Quarter.		Full Year.	
	Awards or Determinations made.	Agreements Filed.								
1915.										
N. S. Wales ...	28	9	40	6	38	6	39	4	145	25
Victoria ...	3	...	2	...	17	...	31	...	53	...
Queensland ...	1	1	7	...	13	2	14	7	35	10
S. Australia	1	2	...	6	4	8	5
W. Australia ...	1	7	4	6	2	5	11	3	18	21
Tasmania ...	1	7	8	...
Commonwealth ...	1	...	2	113†	2	18	2	51‡	7	182
Total ...	35	17	55	126	81	31	103	69	274	243
1916.										
N. S. Wales ...	28	7	53	14	53	14	66	14	200	49
Victoria ...	34	...	21	...	18	...	13	...	86	...
Queensland ...	11	2	26	27	18	8	14	5	69	42
S. Australia ...	5	3	7	2	10	...	7	1	29	6
W. Australia ...	3	2	6	3	1	3	4	5	14	13
Tasmania ...	3	...	7	...	3	...	1	...	14	...
Commonwealth	2	5	3	4	5*	5	11	14	21
Total ...	84	16	125	49	107	30	110	36	426	131

* Including 1 agreement varied in respect to wages only. † Of this number, 108 agreements were made between the Federated Engine Drivers' and Firemen's Association and various employers, in terms of an Award of the Commonwealth Court. ‡ Including 49 agreements made between the Federated Engine Drivers' and Firemen's Association and various employers, in terms of an Award of the Commonwealth Court.

Owing to the prevailing drought conditions and the advent of war during the year 1914, varying restrictive measures were introduced either for the suspension or curtailment of the operations of industrial tribunals in each of the States. These restrictions were apparently most effective in New South Wales, Victoria, and Queensland. New South Wales is the only State in which rates of wages, etc., are fixed, for a specified period, by industrial tribunals, and lapse by effluxion of time. In order, therefore, to assist in maintaining the legal minimum wage in New South Wales, a number of awards, extending for varying short periods the operation of expired awards, were made by Industrial Boards during the last quarter of 1914 and the first quarter of 1915. Notwithstanding these awards there were, during that period, at different times, upwards of 50 industries for which awards had expired and in which no legal wage was in force. During the second quarter of 1915 the restrictions referred to were somewhat relaxed in New South Wales and Queensland, and early in the third quarter operations gradually assumed normal conditions in all the States. During the third and fourth quarters of 1915 greater activity was evidenced in each State, and the number of awards

and determinations made by industrial tribunals exceeded those made during any similar period of the two years under review. This activity continued during the year 1916, when no less than 426 awards and determinations were made.

2. Boards Authorised, and Awards, Determinations, and Agreements in Force.—

In the following table particulars are given for all States, excepting Western Australia, of the number of boards authorised, constituted, and in existence, and including operations under the Commonwealth and the Western Australian Arbitration Acts, of the number of awards, determinations, and industrial agreements in force in all States at the 31st December, 1913, and at approximately quarterly intervals during the succeeding three years :—

PARTICULARS OF BOARDS AND OF AWARDS, DETERMINATIONS AND INDUSTRIAL AGREEMENTS IN FORCE AT 31st DECEMBER, 1913, AND AT APPROXIMATELY QUARTERLY INTERVALS TO 31st DECEMBER, 1916.

Dates.	Boards Authorised.	Boards Constituted.	Boards in Existence.	Boards which had made Awards or Determinations.	Awards or Determinations in Force.†	Industrial Agreements in Force.
31st December, 1913* ...	504	501	484	387||	575§	401
30th April, 1914* ...	525	509	492	422||	575	415
30th June, 1914 * ...	537	523	504	457||	584	429
30th September, 1914* ...	549	539	517	474	599	409
31st December, 1914* ...	553	544	522	478	576‡	369
31st March, 1915* ...	560	551	526	486	589‡	371
30th June, 1915* ...	568	557	532	495	638	481
30th September, 1915* ...	582	570	536	495	644	498
31st December, 1915* ...	573¶	554¶	546	498	663	546
31st March, 1916* ...	580	558	542	495	651	553
30th June, 1916* ...	589	571	555	512	678	581
30th September, 1916* ...	591	573	557	519	683	596
31st December, 1916 ...	594	572	554	525	706	609

* Details have already been published as follows :—To 31st December, 1913 (Year Book No. 7, pp. 931-3); to 30th April, 1914 (Labour Bulletin No. 5, pp. 66-8); to 30th September, 1914 (Labour Report No. 5, pp. 61-6); to 31st December, 1914 (Labour Bulletin No. 8, pp. 266-9); to 31st March, 1915 (Labour Bulletin No. 9, pp. 73-8); to 30th June, 1915 (Labour Bulletin No. 10, pp. 176-180); to 30th September, 1915 (Labour Bulletin No. 11, pp. 267-272); to 31st December, 1915 (Labour Bulletin No. 12, pp. 416-43); to 31st March, 1916 (Labour Bulletin No. 13, pp. 84-92); to 30th June, 1916 (Labour Bulletin No. 14, pp. 194-201), and to 30th September, 1916 (Labour Bulletin No. 15, pp. 304-310).

† Including awards made by Arbitration Courts. ‡ Owing to certain restrictions being imposed on the operations of Industrial Boards in each State, a number of awards which expired in New South Wales during these periods, were not immediately reviewed. § Excluding awards or determinations which expired in New South Wales (under the Act of 1908) on 31st December, 1913. ¶ Owing to a number of awards made under the N.S.W. Industrial Disputes Act (1908) being still in force, the Boards constituted for such industries under the Industrial Arbitration Act (1912) had not made any awards. ¶ See remarks with respect to re-authorisation of Boards in New South Wales, Labour Bulletin No. 12, p. 47.

It will be observed from the particulars set out in the above table that considerable expansion of the principle of the fixation of a legal minimum rate of wage and of working conditions took place during the three years ending 31st December, 1916. For the five States, exclusive of Western Australia, 70 additional boards were brought into existence, and including the operations under the Commonwealth Arbitration Acts* and of the Western Australian Industrial Arbitration Court, 131 additional awards or determinations were in force at the end of 1916. The number of industrial agreements† made and in force under the various Acts increased during the three years under review by 208.

* The Commonwealth Conciliation and Arbitration Act 1904-15, and the Commonwealth (Public Service) Arbitration Act 1911.

† The registration of Industrial agreements is not provided for under the Acts in force in Victoria and Tasmania, but such agreements may be registered and filed under the provisions of the Commonwealth Conciliation and Arbitration Act to operate in any or in all States.

976 OPERATIONS UNDER WAGES BOARD AND INDUSTRIAL ARBITRATION ACTS.

In the following table, particulars are given for each State and the Commonwealth of the number of Boards authorised, etc., etc., at the 31st December, of the years 1913 to 1916 inclusive:—

BOARDS AUTHORISED AND CONSTITUTED, AWARDS, DETERMINATIONS, AND AGREEMENTS IN FORCE AT 31st DECEMBER, 1913, 1914, 1915 and 1916.

Particulars.	At 31st Dec.	C'wth.	N.S.W.	Vic.	Q'ld.	S.A.	W.A.	Tas.	Total.
<i>Boards Authorised, etc.*</i>									
Boards authorised ...	1913 ...	...	216†	135	75	56	...	23	505
	1914 ...	...	230†	139	101	56	...	27	553
	1915 ...	...	226	147	112‡	56	...	32	573
	1916 ...	...	234	147	122	57	...	34	594
Boards constituted ...	1913 ...	...	223†	132†	74	51	...	21	501
	1914 ...	...	238†	135†	94	51	...	26	544
	1915 ...	...	226	142†	104	51	...	31	554
	1916 ...	...	234	143†	111	51	...	33	572
Boards in existence ...	1913 ...	...	207†	131	74	51	...	21	484
	1914 ...	...	217†	135	93	51	...	25	532
	1915 ...	...	226	141	98	51	...	30	546
	1916 ...	...	234	142	119‡	51	...	32	554
Boards which had made Awards or Determinations	1913 ...	...	123	123	74	47	...	19	386
	1914 ...	...	186	130	92	47	...	23	478
	1915 ...	...	196	133	96	47	...	26	498
	1916 ...	...	211	137	97	49	...	31	525
<i>Awards and Determinations—</i>									
Awards and Determinations in force ...	1913	17	265||	127	73	54	18	21	575
	1914	18	242	133	89	55	46	26	609
	1915	20	261	137	103	56	57	29	693
	1916	30	258	141	120	62	64	31	706
<i>State Awards and Determinations—</i>									
Applying to Whole State ...	1913 ...	...	32	8	3	...	...	15	58
	1914 ...	...	17	10	4	...	...	19	50
	1915 ...	...	26	12	7	...	...	20	65
	1916 ...	...	8	12	8	...	...	21	49
Applying to Metropolitan area	1913 ...	...	58	...	28	53	13	1	153
	1914 ...	...	63	...	30	54	25	1	173
	1915 ...	...	75	...	30	54	32	1	192
	1916 ...	...	74	1	33	58	37	2	235
Applying to Metropolitan and Country areas ...	1913 ...	...	49	105	1	...	1	5	161
	1914 ...	...	41	109	12	...	5	6	173
	1915 ...	...	38	111	17	...	7	8	181
	1916 ...	...	49	114	20	...	7	8	198
Applying to Country areas ...	1913 ...	...	126	14	41	1	4	...	186
	1914 ...	...	121	14	43	1	16	...	195
	1915 ...	...	122	14	49	2	18	...	205
	1916 ...	...	127	14	59	4	20	...	224
<i>Commonwealth Awards—</i>									
Awards in force in each State	1913 ...	...	13	17	15	16	9	13	...
	1914 ...	...	16	17	15	15	8	12	...
	1915 ...	...	17	19	15	16	10	14	...
	1916 ...	...	25	25	18	22	13	18	...
<i>Industrial Agreements—</i>									
In force ...	1913 ...	228	75	...	5	11	82	...	401
	1914 ...	173	78	...	10	17	85	...	369
	1915 ...	361	73	...	15	16	83	...	548
	1916 ...	374	85	...	49	18	83	...	609
Commonwealth Agreements in force in each State ...	1913 ...	...	132	129	68	62	57	61	...
	1914 ...	...	96	76	28	34	29	30	...
	1915 ...	...	119	229	29	36	30	33	...
	1916 ...	...	125	236	32	40	37	39	...
Number of Persons working under State Awards and Determinations (estimated)	1916	...	260,000	150,000	90,000	25,000	32,000	12,000	569,000

* The figures for New South Wales are exclusive of demarcation boards. † Including boards which were subsequently dissolved, owing to alteration to the sectional arrangement of industries and callings. ‡ Including one board subsequently superseded by three boards. § Including six boards, the authorisation of two of which was subsequently rescinded and four others were superseded for the purpose of varying the jurisdiction. ¶ Omitting a number of awards which expired on the 31st December, 1913. †† All Boards (with certain exceptions) appointed under the Industrial Peace Act 1913, were dissolved on the 23rd February, 1917. The Industrial Arbitration Act of 1916 came into force on the 12th January, 1917. Under the new Act all Boards will be reconstituted.

From the particulars set out in the above table, ready comparison can be made with respect to the progress in each of the States during the years 1913, 1914, 1915 and 1916, as to the number of Boards operating, and the number of Awards and Determinations, and Industrial Agreements in force at the end of each annual period.

SECTION XXVIII.

DEFENCE.

§ 1. Military Defence.

1. **Development of State Military Systems.**—Prior to 1870, the main defence of Australia was entrusted to small garrisons of British troops quartered in the leading cities, whose primary purpose was to serve as a convict guard. From time to time, rumours of wars and of attacks upon Australia deemed imminent as a result of European entanglements, caused the raising of local companies and batteries, which were generally disbanded upon the cessation of hostilities or the quietening of the rumours. The first of such bodies was the "Loyal Association" formed in 1801 as a volunteer corps, on account of the Napoleonic wars, and at the express invitation of the Governor. Half a century later, and at other later dates, fear of Russian aggression drove the colonists to measures of self-defence. Efforts to permanently establish a defence force, however, failed until 1870. In that year, the withdrawal of the last Imperial regiment from Australia, and the sense of insecurity which the Continental wars had engendered, resulted in a definite basis for colonial defence being settled. Small detachments of permanent soldiery were established to act generally as a nucleus about which the citizen soldiery should be shaped, and, generally, to look after the forts and defence works, which had then begun to be erected. The system rested upon a volunteer basis, training and service being freely and enthusiastically given by the citizens, the Governments supplying arms and accoutrements and sometimes uniforms. Reward for five years' service frequently took the shape of grants of land. About 1880, Imperial experts advised that the purely volunteer system should be replaced by a "militia" or partially-paid system. The provision of a small annual allowance, generally £10 or £12 per annum for the gunner or private, with a sliding scale for higher ranks, together with arms, accoutrements, ammunition, and all military necessaries free, enabled the "militia" system to be introduced about 1883-4. The expenditure was thereby increased, but it was held that the efficiency was greatly enhanced. With reductions in the rates of pay the system remained till the introduction of compulsory military training. The "permanent" forces were from time to time augmented. Cadet corps were also instituted in the larger schools. A detailed historical account of the Australian defence forces prior to federation will be found in the Official Year Book No. 2, pp. 1075-1080.

The strength of the military forces of the several States prior to federation was generally nearly up to establishments. On 31st December, 1900 (the eve of federation), it was:—New South Wales, 9338; Victoria, 6335; Queensland, 4028; South Australia, 2932; Western Australia, 2696; Tasmania, 2024; total for Commonwealth, 27,353. Cadets, reservists, and rifle club members are excluded.

2. **Development of Commonwealth System from 1901 to 1915.**—Under the terms of the Constitution Act 1900, the Commonwealth took over control of defence matters in March, 1901. For four years from that date the land forces were administered by a general officer commanding, under the ministerial headship of the Minister for Defence. Early in 1905, a Council of Defence (since enlarged) was constituted to deal with questions of policy; also a Military Board, to supervise the administration of the forces. The principal aims in view were:—(i.) continuity of policy and administrative methods; (ii.) effectual parliamentary responsibility; (iii.) continuous inspection by an independent officer, the Inspector-General; (iv.) development of an

efficient citizen force; (v.) decentralisation of authority by developing the independence of district commands. The Commonwealth has been divided into six military districts, roughly conterminous with boundaries of the States.

The citizen soldiery, or militia, makes up the main portion of the land forces of the Commonwealth. For administration at central and district headquarters, and for instruction of the citizen forces, and assistance in the administration of units, an administrative and instructional staff of professional soldiers, numbering 1324, exists. Other permanent troops are the regiment of Royal Australian Garrison Artillery, which provides the garrison (with citizen troops as reliefs) for strategic positions and defended ports, and maintains the forts and armament in connection with them; three batteries of Royal Australian Field Artillery; the Royal Australian Engineers; and small detachments of Army Service, Medical, Veterinary and Ordnance Corps. These form a nucleus, each in its own arm, for instruction and administration of the citizen forces. In addition to the active forces, officers who have retired after having passed through a course of training, and members of rifle clubs, who each year fire a prescribed musketry course, are classed as reserves.

The mobile field force, which absorbs the great bulk of the citizen army, consists of two light horse divisions, and six divisions besides two regiments of light horse, two field artillery brigades and two infantry brigades, four companies of engineers, two companies of army service corps and three field ambulances which are not allotted in divisional organisation. The garrison troops find the necessary garrisons for the defended ports. Fuller particulars regarding administration and organisation will be found in Official Year Book No. 6, page 1046.

3. The Present Military System.—The defence of Australia at the present time is enacted and prescribed by the Defence Acts 1903-15 of the Federal Parliament. The provisions of the Acts of 1903 and 1904 and the regulations under them contain the main working principles of Australian defence, the necessary expansion being provided for in the amendments of 1909, 1910, 1911, 1912, 1914, and 1915. The main provisions of the Acts up to 1912 inclusive will be found in Official Year Book No. 6, pp. 1050 *et seq.* The principal provision of the Act of 1909 is the enactment of compulsory military or naval training, with regulations for registration, enrolment, and exemption. Statutes were passed subsequently, extending or modifying the legislative provisions, removing obstacles and difficulties, and, where necessary, providing machinery.

(i.) *Peculiar Position of Australia.* The Acts of 1909 and later years were the direct outcome of the feeling existing in a large majority of the citizens of the community, that Australia was insecure under the voluntary system. Recently, a Minister of State for Defence referred to the fact that if on a map of the world all the countries stained with blood were to be marked, Australia would be the only white spot. It is the national policy to effect a guarantee, by thorough preparation for war, that this exemption shall continue.

(ii.) *Military Population.* In connection with the numbers available, the figures of male population are of interest. The total number at cadet age, *i.e.*, between 12 and 18, at the Census of 1911 (3rd April) was about 260,000; at citizen soldier age, *i.e.*, between 18 and 26, 366,000; these latter, with 330,000 at ages between 26 and 35, give 696,000 as the total males at the best period for military service. In addition, there were about 614,000 between 35 and 60.

(iii.) *Record for Anthropometric Purposes.* In connection with the medical inspection, it has been arranged that the colour and character of hair, and the colour of eyes of those examined, shall be recorded for statistical purposes.

A systematic record of height, weight and chest measurement of each trainee is also made.

It is possible that later the recommendations of the British Anthropometric Committee will be adopted.

The object of the investigation is to study the development of the Australian nation, the necessary statistic for military identification purposes affording a unique opportunity. A possibility exists of co-ordinating anthropometric work in the schools with that done in connection with compulsory military service.

(iv.) *Compulsory Training.* By the Defence Acts of 1903 and 1904 all male inhabitants of Australia between the ages of 18 and 60 years were made liable to serve in the defence forces *in time of war*. The more recent Acts make training and service compulsory *in time of peace*. By the Act of 1909 the principle of universal liability to be trained was made law for the first time in any English-speaking community. It prescribed Junior Cadet training for lads 12 and 13 years of age, followed by Senior Cadet training for lads from 14 to 18 years of age; and thereafter adult training for two years in the citizen forces, to equal 16 days annually, followed by registration (or a muster parade) each year for 6 years. Arrangements for registration, enrolment, inspection, and medical examination of persons liable to be trained were made. The latter acts introduced necessary modifications, the principal being the extension of adult service to eight years. On 1st January, 1911, by proclamation, compulsory training was established. The already existing militia (voluntarily enlisted) were free to complete the three years for which they had engaged to serve, but conformity to the new system was essential. Officers and non-commissioned officers might re-engage. All male inhabitants of Australia, who are British subjects, and have resided in the Commonwealth for six months, are liable to serve. Exemptions (see *infra*, p. 981) exist for certain individuals and classes of people, and may be granted in the case of unpopulated and sparsely populated areas. The training is as follows:—

- (a) From 12 to 14 years of age, in the junior cadets.
- (b) From 14 to 18 years of age, in the senior cadets.
- (c) From 18 to 26 years of age, in the citizen forces.

(v.) *Visit and Report of Viscount Kitchener.* At the end of 1909 and before the Act of that year came into operation, Field-Marshal Lord Kitchener visited Australia at the invitation of the Government, and after inspection of the military forces and the forts and defence works erected or in course of erection, reported upon the whole scheme of land defence. His scheme was based on the provisions of the Defence Acts 1903-9. The trend and purport of the published report are given in the Official Year Book No. 4, pp. 1085-1088. The adoption of some of Lord Kitchener's recommendations necessitated further amending Acts. The proposed organisation is based upon necessary considerations of (a) the numbers available; (b) the length of service demanded; (c) the proportion of the various arms required. It differs in some of its details from the scheme propounded by Lord Kitchener and includes—

28 regiments of light horse;
56 batteries of field artillery;
92 battalions of infantry;

and a due proportion of engineers, army service, and army medical corps, troops for forts, and other services.

(vi.) *Junior Cadets.* Junior cadet training, lasting for two years, consists of 90 hours each year, and begins on the 1st July in the year in which the trainee reaches the age of 12 years. No registration is made, but when the cadet presents himself for registration

in the senior cadets in the year in which he attains the age of 14 years, he is required to shew that he has completed the necessary training in his 13th and 14th years. This training is aimed at developing the cadet's physique. It consists principally of physical training for at least 15 minutes on each schoolday, and elementary marching drill. The following subjects are also taught, viz. :—Miniature rifle shooting ; swimming ; running exercises in organised games ; first aid ; and (in schools in naval training areas) mariners' compass and elementary signalling. The junior cadets are not organised as military bodies, and do not wear uniform. The Commonwealth Government maintains a staff of special instructors of physical training, by whom classes are held for school teachers in all districts throughout the Commonwealth. The school teachers, in turn, impart the lessons to the boys. The Inspectors of Schools supervise the training and inspect the cadets on behalf of the Defence Department. The instructors of physical training are also employed in the training of women teachers ; but the instruction of girl scholars rests wholly with the States' Education Departments.

(vii.) *Senior Cadets.* Senior cadet training, lasting for four years, begins on the 1st July of the year in which the trainee reaches the age of 14 years. It consists of 40 drills each year, of which four are classed as whole days of not less than four hours, 12 as half-days of not less than two hours, the remainder being night drills of not less than one hour. To meet special cases (including extremity of weather) modifications and substitutions are permitted, but the minimum efficient service required of senior cadets is invariably 64 hours per annum. Registration of every male born in 1894 or subsequently, and who has resided for six months in the Commonwealth, must; if his *bonâ fide* place of residence is within five miles of the nearest place appointed for training, be effected in the first two months of the calendar year in which he completes his 14th year. The four years' training covers the foundation work necessary for service in any arm. It comprises marching, handling of arms, musketry, physical drill, first aid, guards and sentries, tactical training as a company in elementary field work, and elementary battalion drill. Discipline is strongly inculcated. Senior cadets are not required to attend camp.

Schools containing at least 60 senior cadets may form separate units, and may arrange their parades to suit school time tables, but battalion parades must be attended.

(viii.) *Adult Forces.* Training in the citizen forces, lasting for eight years, begins on 1st July of the year in which the soldier reaches the age of 18 years. Except in the last year of this service (when only one registration muster parade is necessary in normal peace time) the work consists of continuous training in camp for 17 days in the case of the naval forces, artillery, and engineer arms, and eight days for other arms, and eight days (or equivalent) home training for all arms. The total service is thus 25 days per annum for the specialist and technical corps, and 16 days per annum for other corps, the main body of whom are light horse and infantry (see table on p. 983 *infra*). The home training (total eight days) is divided into whole days, half-days, and nights, the respective minimum duration of these being six, three, and one and a-half hours ; two half-days or four nights counting as one whole day.

(ix.) *Allotment to Arms.* Trainees to the number required are first allotted to the naval forces. There is no allotment during senior cadet training to particular branches of the military service. Upon transfer to the citizen soldiery, cadets with special educational or technical qualifications are drafted as recruits to one or other of the specialist or departmental corps to the required number ; the bulk go to infantry. All other arms, except light horse, are maintained by annual quotas transferred from the senior cadets, as laid down in annual establishments. In the light horse, enrolment is not compulsory, since each recruit is required to provide his own horse ; and, while every encouragement is given to eligible trainees to enrol, voluntary enlistment by those not liable for compulsory service is continued for the present.

Persons who are forbidden by the doctrines of their religion to bear arms are, as far as possible, allotted to non-combatant duties, as stretcher-bearers in infantry companies, or as members of the Army Medical Corps.

(x.) *Exemptions.* Status, condition, employment, or place of abode, may exempt from service. In time of war the exemptions are as follows:—Aliens and non-Europeans; persons certified as medically unfit; members and officers of Commonwealth and State parliaments; judges and police magistrates; clergymen and theological students; police and prison officials; lighthouse-keepers; medical practitioners and nurses in public hospitals; and persons having conscientious objections to bear arms. Medical practitioners, non-Europeans, and conscientious objectors are not exempt from non-combatant duties.

In time of peace the exemptions are:—Persons whose *bona-fide* place of residence is more than five miles from the nearest place appointed for training; those certified as medically unfit; aliens; non-Europeans (exempt from combatant duties only); school-teachers qualified as instructors of drill; members of the permanent naval or military forces. Theological students may be exempted from training. Prior to the passing of the Defence Act 1915, all male inhabitants of Australia who had resided therein for six months were required to register for military or naval training in the year in which they became 14 years of age, but the 1915 Act requires only those to register who reside within five miles of a place of training.

Burden of proving exemption rests upon the person claiming it, a final appeal lying to the civil courts. Any person convicted by a court of a disgraceful or infamous crime, or who is of notoriously bad character, is permanently disqualified.

(xi.) *Penalties for Prevention or Evasion.* Employers, parents and guardians may not, under a heavy penalty, prevent or attempt to prevent any employee, son or ward, who is a trainee, from rendering service; nor may any employer penalise or prejudice any employee in his employment, or attempt to do so, because of the latter's service or liability for service; but the employer is not compelled to pay the trainee's wages for the time he is away from work.

A heavy penalty is enacted for evasion of service as required under the Act by those liable to serve. Penalties take the form of money fine, or detention in military custody under enforced training and discipline. Non-efficient must attend additional training for each year they are non-efficient. Evasion renders the person evading or failing to serve ineligible for employment of any kind in the Commonwealth Public Service.

Children's courts are used where possible for the prosecution of cadets under the age of 16 years.

(xii.) *Efficiency.* Each trainee must be efficient in each year. Parades, as ordered, must be attended, and a standard of efficiency, based on the number of years' training and the work performed, must be attained.

Parades are classed as compulsory, alternative, and voluntary. The former make up the exact amount of training required (25 days per annum for technical arms, 16 days for others), and may not be missed without leave formally given. Alternative drills are appointed for those absent with leave from compulsory parades, and are allowed to count for pay and efficiency. Voluntary parades are held for those desiring further proficiency, and for candidates for promotion. Any trainee failing to qualify as efficient in any year must do an extra year's training for each failure. Thus, there must be 12 annual entries of efficiency or exemption in each soldier's record before he receives his discharge, four as a senior cadet, and eight as a citizen soldier.

(xiii.) *Pay.* In addition to the remuneration of professional soldiers, pay is provided for all members of the militia. Citizen soldiers who voluntarily enlisted under the old system receive the same rates of pay as formerly, the basis being 8s. per day for gunner, sapper, or private. Trainees under the compulsory system receive 3s. per day during the first year, and 4s. per day during the subsequent years of their training. Higher ranks are paid higher rates. For corporals the daily pay is 9s., for sergeants 10s., for

sergeants-major 10s. 6d. and 11s. Light horse trainees receive in addition £4 per annum for keep of horse. In the commissioned ranks the daily rates of pay are 15s. for lieutenants, 22s. 6d. for captains, 30s. for majors, 37s. 6d. for lieutenant-colonels, and 45s. for colonels. Mounted officers also receive horse allowance.

(xiv.) *Uniform and Equipment.* The uniform is simple and inexpensive, but suitable. It is free, and the principal articles are issuable every second year. The clothing is of universal pattern, and, beyond distinguishing corps' badges and a coloured hat-band, there is no distinction (except rank marks). Uniform is worn on all parades and drills, but its wearing is forbidden when not on military duty. Except in the case of the younger cadets, rifles and free ammunition are provided. Citizen soldiers have their rifles on issue, but arms for senior cadets are stored in local depôts, and are issued as required for drill and musketry. An allowance of free ammunition is made to commanders of units to encourage rifle shooting. The uniform issued to each citizen soldier is such as to enable him to parade (upon notice) with two woollen shirts, two pair breeches, hat, sleeping cap, puttees or leggings, military boots, and kit bag.

The task of fully equipping the rapidly expanding Australian Army has been undertaken. Some of the required technical stores have been indented; but the Commonwealth itself has established factories for the supply of cloth and clothing, small arms, cordite, and harness and saddlery.

(xv.) *Reserves.—Rifle Clubs.* No new reserves are created under the recent Acts. The present reserves consist of (a) certain officers; (b) members of rifle clubs. The reserve of officers numbered 1318 on 31st December, 1916. It consists of officers who have been fully trained, and are still capable of serving, but who, being unable to continue on the active list through business engagements, removal to rural districts and such like causes, have joined the reserve, and officers of the Australian Army Medical Corps for whom no vacancies exist in active units, but who are required for medical duties with units and in areas. On 31st December, 1916, there were 1569 rifle clubs in the Commonwealth with a membership of 90,423. An annual course of musketry is fired by these members, but they do not undergo any systematic drill. It is estimated that 60 per cent. of the members are fit for active service, and are available for allotment to units on mobilisation to make these units up to war strength. Rifle clubs have been established in connection with many of the citizen units, thus encouraging the citizen soldiery to enhance its shooting efficiency by practice outside the compulsory drill and musketry. These clubs are well supported. Commonwealth teams competing at the British Rifle Association's meetings have been very successful.

(xvi.) *Allotment of Units to Divisional Brigade, Battalion, and Training Areas.* The organisation is territorial, and the divisions based upon infantry units. There are 92 battalion areas, forming 23 brigades. The areas are approximately equal in number of males of citizen soldier age (about 1300), and each furnishes a battalion of infantry, and a proportion of other troops. For administrative purposes, areas are subdivided into two or three training districts. Three brigades will form a division. Two brigade areas will each provide four battalions of infantry, one field artillery brigade (with proportion of divisional ammunition column), one field company of engineers, one company army service corps, and one field ambulance. The other brigade area of the division provides four battalions of infantry, two squadrons of divisional light horse, one howitzer brigade, one divisional signal company of engineers, one company army service corps, and one field ambulance. Light horse and field artillery units for light horse brigades will also be furnished by some of the areas. *Personnel* for garrison artillery and submarine and electric engineers for garrison forces will eventually be supplied in the areas nearest to such localities. The average annual contingent of recruits will be about 155 for each battalion area, plus such additions as are required for light horse and field artillery units raised therein. The figures shewn in the following tables are approximate, and include the recruits (18-19 year), but not the 25-26 year men.

ULTIMATE ALLOTMENT OF UNITS TO BRIGADE, BATTALION, AND TRAINING AREAS.

State.	Brigade Areas.	Battalion Areas.						Training Areas.	
	No.	No. of Battalions.	Providing the undermentioned units.				Total Nos. in Training Areas.	No.	
			Infantry and Proportion of Engineers, A.S.C. and A.M.C.	Light Horse.		Field Artillery.			
				Nos.	Squadrons.	Nos.			Batteries.	Nos.
I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	
N. S. Wales ...	8	33	32,901	40	4,490	20	3,220	40,611*	75
Victoria ...	7	29	28,913	36	4,041	19	3,059	36,013†	65
Queensland ...	3	11	10,967	16	1,796-	7	1,127	13,890‡	28
S. Australia ...	2	9	8,973	12	1,347	5	805	11,125§	24
W. Australia ...	2	6	6,979	4	449	3	483	7,911||	20
Tasmania ...	1	4	3,988	4	449	2	322	4,759¶	12
Totals ...	23	92	92,721	112 28 Rgts.	12,572	56	9,016	114,309**	224

* Also 766 for forts. † Also 327 artillery and 227 engineers at Geelong and Queenscliff for forts. ‡ Also 79 garrison artillery and 13 engineers for Lytton. § Also 86 artillery for forts. || Also 156 artillery and 32 engineers for forts. ¶ Also 86 artillery and 32 engineers for forts. ** Also 1804 for forts.

(xvii.) *Instructional Staff.* The instructors provided for training consist of 170 officers and 766 warrant and non-commissioned officers of the instructional staff (permanent), and 214 area officers (temporary). They supervise the training of light horse, infantry, and senior cadet units, and instruct in the non-technical duties of specialist corps. Additional officers and non-commissioned officers in the permanent troops instruct in technical work.

The officers of the instructional staff act as Brigade-Majors, and as such, represent the Commandant in the brigade area. They are responsible for the instruction of officers of the existing citizen forces, conduct local schools of instruction, supervise and instruct the area officers, and allot the non-commissioned officers of their detail to various duties. Assistant Brigade-Majors are also furnished from the instructional staff. The duties of area officers vary both in nature and extent, and comprise registration and organisation of those to be compulsorily trained, and clothing, arming, equipping, and training the senior cadets. They also perform the duties of Adjutant to senior cadet battalions.

The staff instructors (warrant and non-commissioned officers) assist in carrying out the administrative work of their areas or units, and instruct cadets and recruits in light horse and infantry drill.

(xviii.) *Higher Training.* At present there is no institution in Australia corresponding to the staff colleges at Camberley, England, or Quetta, India, for the higher training of officers.

Officers of the permanent forces who pass the required examinations are sent to these institutions from time to time, and on return to Australia are appointed to positions on the General Staff, etc.

The higher training of officers of the citizen forces is, as far as possible, carried out in special schools of instruction, and staff tours held in the various military districts.

Government aid is also furnished to United Service Institutions, which have been established in the larger centres. Lectures of great value are delivered by specialists, and war games, manoeuvres, etc., carried out. Some of the institutions have large and well-selected libraries.

Schools of instruction are also conducted for junior officers, and a military journal is published.

(xix.) *The Royal Military College, Duntroon*, Federal Territory, is established for the purpose of providing trained junior officers for the permanent forces. Admission is by open competitive examination, a definite number of vacancies being allotted to each State of the Commonwealth on a population basis. About 30 staff-cadets are thus admitted annually, and, in addition to these, ten staff-cadets from New Zealand are nominated yearly by the Dominion Government, which pays £200 per annum for each. The age for admission is between 16 and 19 years, though there is a provision in the regulations by which members of the citizen forces over 19 years of age who pass the prescribed examination, and are approved by the Governor-General-in-Council, may be admitted. The college was opened in June, 1911.

The normal college course lasts for four years, and is followed by a tour of duty in England or India, after which graduates will be appointed to staffs or permanent troops in Australia and New Zealand.

During the war the course has been temporarily modified. Over 113 staff-cadets have already (June, 1916) been specially graduated, and appointed to units serving at the front with the Australian and New Zealand forces. Schools for the training of junior citizen officers for service with the Australian Imperial Force are also being held at the college as a special measure.

No fees are charged for maintenance and instruction, each staff-cadet being credited with an allowance of 5s. 6d. per diem to meet expenses of necessary uniform, books, instruments, etc.

The full establishment of cadets is 150, but owing to special graduations for active service the strength (31st March, 1917) is at present 126.

The course of instruction comprises both educational and military work, the former being mainly completed in the first two years. Cadets are prepared for light horse, artillery, engineer, and infantry duties.

In March, 1917, the staff numbered—military, 38 ; civil, 20.

(xx.) *Railways and Defence*. A War Railway Council, consisting of military and railway officers, was instituted in 1911. Its chief duties are to furnish advice and information regarding railway transport for military purposes, and to secure co-operation between the Commonwealth Defence Department and the States' Railway Departments in regard to concentration and mobilisation of troops. To prevent delay in the transport of troops, particularly that caused by the transhipment of baggage and implements of war, the Council has recommended the adoption of a uniform railway gauge on lines linking up the States' capitals. An Engineer and Railway Staff Corps has been instituted, and numbered 55 officers on 1st April, 1917. Fuller details will be found in Official Year Book No. 6, pp. 1070-1.

(xxi.) *The Universal Training System in Operation*.—(a) *Special Instructional Staff*. The first work in the active carrying out of the scheme commenced with the training of 200 non-commissioned officers for the instruction of the projected army in a six months' camp. Area officers were chosen from the citizen forces, and underwent a six weeks' course of instruction. With the year 1911 came the active enrolment of the new cadets, who commenced training on the 1st July following. These comprised all males in training areas who were born in 1894, 1895, 1896, and 1897.

(b) *Stages*. The stages are as follows :—

First stage, January to June, 1911.—Existing junior and senior cadets continued to 30th June, 1911, but all equipment returned by that date ; registration, inspection, and medical examination of lads whose 14th, 15th, 16th, and 17th birthdays occurred in 1911 ; preparations made to clothe and equip the new senior cadets.

Second stage, July, 1911, to June, 1912.—Registration, etc., in January and February, of lads whose 14th birthday occurred in 1912 ; new junior and senior cadet training from 1st July, 1911. About 17,000 of the latter passed as recruits upon completion of this period, inaugurating the new citizen forces in the third stage (1st July, 1912).

Third stage, July, 1912, to June, 1913.—Registration, etc., in January and February, of lads whose 14th birthday occurred in 1913; new citizen forces:—training began with about 17,000 recruits (18-year-old persons allotted from the new senior cadets). During the third, fourth, and subsequent stages the new senior cadet force, numbering about 90,000, continues. Upon expiry of this period, the second quota of senior cadets (1895 lads) to the number of 17,000 passed as recruits to the citizen forces (1st July, 1913).

Fourth and subsequent stages, after July, 1913 (and each year to 1919).—Registration, etc., of lads whose 14th birthday occurred in 1914, and so on. In the fourth and subsequent stages to the tenth, the new citizen forces will also be increased by eighteen-year-old recruits from senior cadets, numbering about 17,000 each year. In 1919, the 1894 quota, being in their 25th year, will be liable for one registration or muster parade, and will in the following year be free of compulsory service.

(c) *Summary of Working of the System in 1911-12 (Second Stage).* On 31st December, 1911 (six months after commencement of the new senior cadet training), the total registrations in training areas numbered 155,132. Of these, 105,133 had been medically examined, and 93.2 per cent. passed as fit. Exemptions in training areas (generally cases so far from places of training that attendance would involve great hardship) numbered 57,949. Of the total number liable for service 89,138 were actually in training.

The junior cadets do not register, but are medically examined. On 31st December, 1911, 33,767 had been examined, and 97.8 certified as fit.

(d) *Summary of the Working of the System in 1913-14-15 (Third, Fourth and Fifth Stages).* The numbers up to 31st December, 1915, include the 1894, 1895, 1896 and 1897 quotas, who, on 1st July, 1912, 1st July, 1913, 1st July, 1914, and 1st July, 1915, passed to the citizen forces. They are shewn hereinafter.

(xxii.) *Success of the System.* A slight amount of opposition has been manifested to the system. Though principally from shirkers, there are also a small number of persons who oppose military service on religious grounds. As already stated, however, conscientious objectors are allotted duties of a non-combatant nature. The prosecutions and penalties for evasion, etc., though not wholly, are mainly operative against shirkers. It is claimed that the scheme, both before its inception and since its successful inauguration, has had the support of leading statesmen of all political views, as well as the vast majority of the citizens of the Commonwealth. In general, the trainees are alert and well disciplined while on parade; and the interest and enthusiasm of the lads is shewn by the large number of candidates seeking promotion at competitive examinations (practical and oral), after courses of lectures, demonstrations, and special parades. Another evidence of enthusiasm is the fact that the applicants for enrolment in the technical arms, where the total service is considerably greater than the absolute minimum of 16 days annually required from infantry and light horse, is always greatly in excess of the requirements of those arms. Further, a great deal of voluntary service is rendered in all branches of the service, and the rifle clubs of the citizen units are well patronised. Many of the regiments have athletic, gymnastic, and swimming clubs, and sports meetings are frequently held. Patriotic citizens in local centres have contributed generously to funds for establishing bands, regimental clubs, annual sports gatherings, etc. Moreover, a marked improvement has quite lately become apparent in the general conduct and bearing of the youths of Australia, and it is claimed that this is the effect of the system of universal training. As a result of inquiries made in 1914, the police authorities in all the States concurred in the opinion that the behaviour of the youths who are subject to the training is vastly improved. It is stated that both mentally and morally, as well as physically, the benefits are very definite, and that "the principal

effects of a beneficial nature are increased self-respect, diminution of juvenile cigarette smoking and 'larrikinism,' and generally a tendency towards a sense of responsibility and a desire to become good citizens." In regard to opposition to the system, the figures for prosecutions are interesting:—Percentage of prosecutions to number liable for training was 5.38 in 1914; the average percentage for previous years was 6.90. Thus a marked improvement is shewn. It must be remembered that the figures include persons prosecuted more than once, and that all prosecutions are not against those actually liable for service, but include cases against employers (for penalising in employment, contrary to section 134 of the Act) and parents and guardians (failing to register sons, etc.). The percentages would be substantially reduced if only those liable for training were shewn (parents, employers, and those prosecuted more than once being deducted). Further, a prosecution follows shortage of drills, which, in many cases, is not the result of active opposition.

4. **Strength of Military Forces.**—(i.) *Strength in each District, 1901 to 1916.* There was little alteration in the numbers serving in the Australian military forces from the institution of the Commonwealth to the year of the introduction of the compulsory training system. From 1913, however, the annual increase has been considerable. The following table shews the development:—

STRENGTH OF MILITARY FORCES, 1901 to 1916.

*District.	1901. †1/3/01.	1910. 30/6/10.	1911. 30/6/11.	1912. 30/6/12.	1913. 30/6/13.	1914. 30/6/14.	1915. 30/6/15.	1916. 30/6/16.
Headquarters ...	...	37	†141	†140	†277	†330	†416	†360
1st Queensland ...	4,310	3,202	3,371	3,357	4,625	5,844	7,734	9,379
2nd New South Wales ...	9,772	7,899	8,206	8,163	12,105	16,365	21,661	24,761
3rd Victoria ...	7,011	6,876	6,905	6,896	10,840	14,326	18,823	23,830
4th South Australia ...	2,956	2,019	1,990	1,869	3,228	4,708	6,527	8,154
5th Western Australia ...	2,283	1,608	1,600	1,451	1,685	2,046	3,004	4,197
6th Tasmania ...	2,554	1,868	1,986	1,820	1,777	2,026	2,807	3,446
Total ...	28,886	23,509	24,199	23,696	34,537	45,645	60,972	74,127

* Approximately coterminous with boundaries of States. † Date of Commonwealth taking over the military forces from States. ‡ Including cadets at Royal Military College of Australia, Duntroon.

(ii.) *Strength of the Various Arms.* The numbers of the different arms of the service on the 30th June, 1916, were as follows:—

ARMS OF THE COMMONWEALTH DEFENCE, 1916.

Light Horse ...	9,932	Aust. Flying Corps	3	Administrative and Instructional Staff	1,220
Field Artillery ...	3,975	Army Nurs'g Service	261	Pay Department, Rifle Ranges, Rifle Clubs, Officers, etc.	289*
Garrison Artillery ...	1,353	Army Veterinary Corps ...	25	Royal Military College	148*
Engineers ...	3,977	Ordnance Department (including Armament Artificers) ...	335		
Infantry ...	46,522	Area Officers ...	204	Grand Total ...	72,596†
Intelligence Corps	5				
Army Service Corps	1,690				
Army Medical Corps	2,657				

* Includes civilians. † Excluding Engineer and Railway Staff Corps.

(iii.) *Classification of Land Forces.* The following table shews the strength of the land forces in each State, classified according to nature of service, on the 30th June, 1916:—

CLASSIFICATION OF LAND FORCES, 1916.

Branch of Service.	Head-quarters	1st Military District.	2nd Military District.	3rd Military District.	4th Military District.	5th Military District.	6th Military District.	Total.
Permanently employed ...	360*	417	1,063	797	271	370	184	3,462
Citizen Soldiers ...	...	8,892	23,624	22,951	7,819	3,686	3,182	70,154
Engineer and Railway Staff Corps ...	6	10	9	10	5	10	5	55
Army Nursing Service ...	...	32	26	8	16	115	64	261
Area Officers ...	...	28	39	64	43	17	11	202
Rifle Clubs ...	...	17,608	34,558	25,564	9,622	11,048	5,789	104,184
Senior Cadets ...	...	11,141	31,971	26,655	8,905	5,169	3,118	86,959
Unattached List of Officers	...	44	69	39	22	17	15	206
Reserve of Officers ...	...	151	208	112	116	49	31	667
Chaplains ...	...	50	79	71	39	37	18	294
Grand Total ...	366	38,368	91,646	76,271	26,858	20,518	12,417	266,444

* Including cadets at Royal Military College of Australia, Duntroon.

(iv.) *Numbers Serving under Compulsory Provisions.* The next table shows those registered and training under the compulsory system, distinguishing citizen forces, senior cadets, and junior cadets.

UNIVERSAL TRAINING.—REGISTRATIONS, MEDICAL EXAMINATIONS, EXEMPTIONS, AND NUMBERS SERVING, CITIZEN FORCES, 31st DECEMBER, 1916 (1894, 1895, 1896, 1897 and 1898 QUOTAS).

Military Dist.	Total Registrations.	Total Medically Exam'd.	Number Medically Fit.	P'centage Medically Exam'd who are Fit.	Number Unfit and Temporarily Unfit	P'centage Medically Exam'd who are Unfit and Temporarily Unfit	Total Ex-emption's Granted in Training Areas.	Total No. Liable for Training	Total Number Actually in Training.
1898 QUOTA.									
1st ...	2,796	2,712	1,964	72.5	748	27.5	774	2,022	1,964
2nd ...	8,345	6,666	5,170	77.6	1,496	22.4	2,503	5,842	4,563
3rd ...	6,313	5,843	4,491	76.9	1,352	23.1	1,357	4,819	4,392
4th ...	1,903	1,844	1,529	82.9	315	17.1	315	1,588	1,531
5th ...	951	925	793	85.7	132	14.3	401	518	757
6th ...	772	707	541	76.5	166	23.5	190	582	524
Total	21,080	18,697	14,488	77.5	4,209	22.5	5,540	15,671	13,731

1894, 1895, 1896, AND 1897 QUOTAS.

Military Dist.	Total Registrations in Training Areas.					Exemptions Granted.					Number Liable for Training.
	Quota 1894.	Quota 1895.	Quota 1896.	Quota 1897.	Total.	Quota 1894.	Quota 1895.	Quota 1896.	Quota 1897.	Total.	
1st ...	5,709	6,340	6,114	6,256	24,419	3,444	3,889	3,946	4,112	15,391	9,028
2nd ...	12,577	13,439	13,401	13,489	52,906	5,834	6,830	7,034	6,891	26,589	26,317
3rd ...	10,779	11,444	11,629	11,087	44,939	5,424	6,051	6,047	5,746	23,268	21,671
4th ...	3,370	3,723	3,702	3,412	14,207	1,479	1,535	1,519	1,727	6,260	7,947
5th ...	1,508	1,602	1,682	1,678	6,470	802	800	944	890	3,436	3,034
6th ...	1,517	1,630	1,662	1,499	6,308	753	805	869	862	3,289	3,019
Total	35,460	38,178	38,190	37,421	149,249	17,736	19,910	20,359	20,228	78,233	71,016

UNIVERSAL TRAINING.—REGISTRATIONS, MEDICAL EXAMINATIONS, AND EXEMPTIONS TO THE 31st DECEMBER, 1916 (1899 to 1902 QUOTAS).

SENIOR CADETS.

Military District.	Total Registrations in Training Areas.	Total Medically Examined.	No. Medically Fit.	Percentage Medically Exam'd who are Fit.	Number Unfit and Temporarily Unfit.	Percentage Medically Exam'd who are Unfit and Temporarily Unfit.	Total Exemptions Granted in Training Areas.	Total No. Liable for Training.	Total No. Actually in Training.
1st ...	14,403	14,272	12,241	85.7	2,031	14.3	2,085	12,241	12,209
2nd ..	37,303	36,473	32,835	90.0	3,638	10.0	4,175	32,835	32,050
3rd ...	31,457	31,147	27,920	89.6	3,227	10.4	3,357	27,927	27,434
4th ...	10,217	10,195	9,252	90.7	943	9.3	943	9,274	9,242
5th ...	6,312	6,292	5,829	92.6	463	7.4	472	5,829	5,622
6th ...	3,928	3,748	3,178	84.7	570	15.3	722	3,178	3,147
Total ...	103,620	102,127	91,255	89.4	10,872	10.6	11,754	91,284	89,704

UNIVERSAL TRAINING.—MEDICAL EXAMINATIONS TO THE 31st DECEMBER, 1916.

JUNIOR CADETS.

Military District.	Total No. Medically Examined.	Number Medically Fit.	Percentage Medically Examined who are Fit.	Number Unfit and Temporarily Unfit.	Percentage Medically Examined who are Unfit & Temporarily Unfit.
1st ...	6,471	6,269	96.9	202	3.1
2nd ...	19,759	19,332	97.8	427	2.2
3rd ...	14,212	13,935	98.0	277	2.0
4th ...	4,236	4,135	97.6	101	2.4
5th ...	3,916	3,823	97.6	93	2.4
6th ...	1,688	1,618	95.9	70	4.1
Total ...	50,282	49,112	97.7	1,170	2.3

(v.) *Total Number in Training under Compulsory System.* From these tables it will be seen that there are now more than 70,000 citizen soldiers and 89,000 senior cadets undergoing compulsory training, and that nearly 50,000 junior cadets are certified for physical training.

§ 2. Naval Defence.

1. *Naval Defence under the States.*—(i.) *Independent State Systems.* Prior to 1890, when arrangements were made with the British Government for the maintenance of an Australian squadron, provision for naval defence had been instituted in New South Wales, Victoria, Queensland, and South Australia, where gunboats, torpedo boats, or small cruisers were commissioned and naval volunteers raised. A fuller historical account of the Australian naval forces under the States is given in the Official Year Book No. 2, pp. 1084-1085.

(ii.) *The Naval Agreement with the British Government.*—(a) *The Original Compact.* The naval defence of Australasia and its trade was entrusted primarily to ships of the Imperial Navy, maintained under an agreement entered into between the British Government and the Governments of the Commonwealth and New Zealand, and at their

joint charge. This agreement was embodied in Acts passed by the several Legislatures some ten years prior to Australian federation. According to its terms, a naval force, additional to the vessels of the Australian Naval Station, which were to be maintained at their normal strength, was to act as an auxiliary squadron. It consisted of five fast third-class cruisers and two torpedo gunboats, and its special function was the protection of the floating trade in Australasian waters. The agreement was made for ten years, and was then, or at the end of any subsequent year, to be terminable only upon two years' notice being given. On its termination, the vessels were to remain the property of the Imperial Government. Three cruisers and one gunboat were to be kept continuously in commission, and the remainder in reserve in Australasian ports, but ready for commission whenever occasion might arise. The vessels were to remain within the limits of the Australasian station, and were to be employed, in times of peace or war, within such limits, in the same way as the Sovereign's ships of war, or employed beyond those limits only with the consent of the Colonial Governments. The first cost of the vessels was paid out of Imperial funds, but the Colonial Governments paid interest on the prime cost at 5 per cent. (up to a maximum of £35,000 per annum), and a sum not exceeding £91,000 for annual maintenance of the vessels, or a total annual contribution of £126,000. In times of emergency or actual war, the cost of commissioning and maintaining the three vessels kept in reserve during peace was to be borne by the Imperial Government, and, in every respect, the vessels were on the same status as the ships of war of the Sovereign, whether in commission or not. The officers and men of those in commission were subject to a triennial change. The tenth annual contribution, which was payable in advance on 1st March, 1900, apportioned on a population basis, was as follows:—New South Wales, £37,973; Victoria, £32,749; New Zealand, £21,304; Queensland, £13,585; South Australia, £10,439; Western Australia, £4816; Tasmania, £4776.

(b) *The Agreement of 1903.* The agreement was not dissolved by the union of six of the contracting colonies; but during the negotiations for its renewal, conducted in England between Sir E. Barton (then Prime Minister) and the Admiralty, it was completely reshaped. The auxiliary squadron for local defence, paid for by Australia and New Zealand, altogether disappeared. The Admiralty guaranteed to maintain on the Australian station during peace time a squadron of a certain strength, and to train in one or two of its vessels a certain number of Australian seamen. The colonial contribution, considerably increased, became a direct subsidy to Imperial defence. The total payment into Imperial funds was now to be £240,000, of which New Zealand was responsible for £40,000, and the Commonwealth for the balance. The agreement, like the earlier one, was for ten years.¹ By a subsequent arrangement the strength of the squadron was established at one first-class armoured cruiser, three second-class cruisers, and five third-class cruisers.

2. **Development of Commonwealth System from 1901 to 1914.**—The floating trade of the Commonwealth exceeds £200,000,000 per annum, and (quite apart from any Imperial service) its adequate protection involves corresponding naval provision, with such naval war material as will permit the principal lines of sea communication being kept open, and ensure that Australian ports are fully defended. Australian defence, in both its branches (military and naval), passed to the Commonwealth in 1901. Prior to 1905 a naval officer commanding administered the naval forces under the Minister. When the Council of Defence was established in that year, the Naval Board was constituted and took over the administration of the Commonwealth naval forces, thereby ensuring continuity of policy and administration; whilst efficiency and uniformity were provided for in the scheme of inspection and report by an officer who, as Director of Naval Forces, was appointed to deal with the training of the *personnel*, and the condition of the *matériel*, of naval forces and works.

3. **The Present System.**—(i.) *Australian Naval Policy.* An outline of the development of Australian naval policy will be found in Official Year Book No. 3, pp. 1060-1061. For the more effective coastal defence of the Commonwealth it was decided in

1. Since modified; see page 992, *infra*.

1909 to create an Australian naval force, to replace the squadron previously maintained under the naval agreement with the British Government. It was agreed at the Imperial Defence Conference in 1909 that Australia should provide a fleet unit, consisting of an armoured cruiser* of the *Indomitable* class, three unarmoured cruisers of the *Bristol* class, six destroyers of the improved "River" class, and three submarines of "C" class†; also the necessary auxiliaries, such as docks and depot ships. The cost of construction at English prices would be about £3,700,000, and the estimated annual cost about £750,000. Of this sum the Imperial Government offered to contribute £250,000, but the Commonwealth Government decided to bear the whole cost.

(ii.) *The Building of the Australian Fleet.* The building of the fleet and the training of the crews were immediately begun. Skilled artisans were despatched from Australia to gain practical experience in navalshipbuilding, construction proceeding both in Britain and Australia. Sailors of all ratings were also trained for the Commonwealth service. The first instalment of the Australian fleet unit consisted of two torpedo boat destroyers, of British construction, commissioned in September 1910, and named *Parramatta* and *Yarra*. A third destroyer, the *Warrego*, was shipped to Sydney in parts, and was re-erected at the Commonwealth dockyard, Cockatoo Island, Sydney, and commissioned on 1st June, 1912. A description of these and the other vessels of the fleet will be found in Official Year Book No 6, pp. 1066-7. Three other destroyers (to be named *Torrens*, *Swan*, *Dervent*) were to be built at the Commonwealth dockyard in Sydney.

The battle cruiser *Australia* was commissioned in June, 1913, and arrived in Australian waters in the following September. Two smaller cruisers, the *Melbourne* and *Sydney*, arrived in Australian waters in 1913. The third cruiser, the *Brisbane*, was built at the Commonwealth dockyard, Sydney. The two submarines arrived in Australian waters in May, 1914. Pending completion of the *Brisbane*, the *Encounter* was lent from the Royal Navy for service in the Royal Australian Navy. The Admiralty also presented the Commonwealth Government with the cruiser *Pioneer*. This vessel was taken over by the Naval Board on 1st March, 1913, and recommissioned with the crew of the *Protector* (augmented as necessary) for service as a naval reserve training ship, the *Protector* being used for service as a tender to the Gunnery School. A tabulated statement of the ships of the Australian Navy, in being and building on 1st April, 1915, is given on page 993.

The vessels of the Australian Navy are participating in the European war. Both submarines have been lost.

(iii.) *Modifications Adopted and Proposed.* Certain modifications have been made in the original scheme. These have been prepared in tabular form, and are as follows:—

FLEET UNIT.—ORIGINAL ESTIMATED COST.

(Imperial Defence Conference, 1909.)

1 Battle cruiser	...	...	...	£2,000,000
3 Protected cruisers, £350,000 each	...	...	...	1,050,000
6 Destroyers (including 3 ordered before the Conference), £80,000 each	...	...	...	480,000
3 Submarines, "C" class, £55,000 each	...	...	...	165,000
Total	...	...	...	<u>£3,695,000</u>

AMENDED ESTIMATED COST.

(Consequent on Alteration of Type of Vessels on Admiralty Recommendation.)

1 Battle cruiser	...	...	...	£2,000,000
3 Protected cruisers, £450,000 each	...	...	...	1,350,000
6 Destroyers, £80,000 each	...	...	...	480,000
2 Submarines, "E" class, £105,000 each	...	...	...	210,000
Total	...	...	...	<u>£4,040,000</u>

* Now called "battle cruiser." † Since altered to two submarines of "E" class.

LATER ESTIMATED COST OF FLEET UNIT, TOGETHER WITH COST OF VESSELS NOT INCLUDED IN ORIGINAL FLEET UNIT.

1 Battle cruiser	...	...	...	...	£1,705,000
†3 Protected cruisers	...	...	...	...	1,400,000
†6 Destroyers	...	...	...	...	653,000
2 Submarines	...	...	...	...	233,500
Auxiliaries—					
1 Submarine depôt ship	...	...	...	£160,000	
1 Oil tank vessel	...	...	...	120,000	
4 Oil fuel storage vessels (building in Australia)...	...	...	...	75,766	
4 Hulks	...	...	...	25,000	
					390,766
Total					£4,372,266
The following additional amount has been approved for new construction outside the original fleet unit					535,000
Total					£4,907,266*

(iv.) *Expenditure on Fleet Construction for the Royal Australian Navy.* The following is a statement of expenditure out of sums appropriated for construction of fleet:—

EXPENDITURE OUT OF SUMS APPROPRIATED FOR CONSTRUCTION OF FLEET.

Year.	Appropriation.	Expenditure.
		£
1908-9	Act No. 19 of 1908	24,855
1909-10	Act No. 19 of 1908	223,959
1909-10	Division No. 11A, New Works, etc.	60,000
1910-11	Act No. 18 of 1910	285,863
1910-11	Division No. 12, New Works, etc.	850,000
1911-12	Act No. 18 of 1910	1,108,494
1912-13	Act No. 18 of 1910	524,037
1912-13	Division No. 10, New Works, etc.	
1913-14	Division No. 12, New Works, etc.	637,606
1914-15	Division No. 13, New Works, etc.	467,296
1915-16	Division No. 13, New Works, etc.	396,073
1916-17†	Division No. 14, New Works, etc.	400,000
Total		4,978,183

† Estimate.

(v.) *Visit and Report by Sir Reginald Henderson.** At the invitation of the Government, Admiral Sir Reginald Henderson visited Australia to advise upon naval matters generally. A summary of his report will be found in Official Year Book No. 6, pp. 1067-8. It provided for 52 vessels and 15,000 men; expenditure on construction, works, etc., £40,000,000, with an ultimate annual naval vote of £4,794,000. Six naval bases, and eleven sub-bases, were recommended. The 52 vessels would consist of 8 armoured cruisers, 10 protected cruisers, 18 destroyers, 12 submarines, 3 depôt ships, 1 fleet repair-ship, and the construction would extend over 22 years. The annual cost of *personnel* would be £601,000 in 1913-14, and would increase to £2,226,000 in 1933-4. Annual cost of maintenance of ships in commission would be £262,000 in 1913-4, rising to £1,226,000 in 1933-4. Annual expenditure on construction and maintenance of ships would increase from £2,349,000 in 1913-4 to £4,824,000 in 1932-3.

* The appropriation by Parliament has exceeded this sum, and the actual expenditure out of sums appropriated is shown in (iv.) hereof.

† Extra cost of building certain of these vessels in Australia is responsible for increase.

The strength of the fleet would be 23 ships in 1918, 42 ships in 1923, 48 ships in 1928, and 52 ships in 1933. In the earlier years portion of the crews would be obtained from Great Britain, but this would cease in the period 1923-8.

(vi.) *The Compact with the Imperial Government.* The Australian Government is building its navy according to the terms of an official paper (cd. 5746-2) submitted to the Imperial Conference held in London in 1911, and on the plan formulated by Admiral Henderson (after an inspection of Australia's capitals and other ports and coast line, in 1911). There is no formal contract or agreement between the British and the Commonwealth Governments. The last actual agreement was that of 1903, already described on p. 989. Before the expiration of the time for which this agreement was made, the Commonwealth began the work of fleet construction. Up to the year 1911-12, £200,000 was annually paid. For 1912-13, £175,000 was set down in the estimates, and £166,600 paid. The Commonwealth Parliament amended the *Naval Agreement Act 1903*, by No. 10, of 1912 (*Naval Agreement Act 1912*), providing that the Governor-General may, from time to time, arrange with the Imperial Government for the reduction of the Australian squadron, and for reduction in the naval subsidy. No amount under "Naval Agreement Act" will be found in the estimates for 1913-14 and later years. Some departures are made from Admiral Henderson's recommendations, but generally they have been adopted, so far as they relate to the work of the next few years. The Commonwealth is now fulfilling the larger obligation of fleet-building, and is maintaining its own vessels. The establishment of naval bases and sub-bases required for the fleet unit is also proceeding.

As already stated, the present situation is not governed by a formal contract or agreement. The Commonwealth Government has, by regulations and orders, given effect to some, and intends giving effect to others, of the items submitted to the Conference.

(vii.) *Naval College.* A naval college has been established at Captain's Point, Jervis Bay, consisting of numerous buildings necessary for the training of naval officers. The course is similar to that carried out in Naval Colleges in England. In April, 1917, there were 113 cadet midshipmen under training. Thirty will be entered next year, bringing the college to its full complement. There are also 17 officers, including naval instructors, and 68 members of the ship's company in residence at the college. A boy whose thirteenth birthday falls in the year in which the entrance examination is held, is eligible to compete provided he is the son of natural-born or naturalised British subjects. From amongst those qualified the Selection Committee chooses the number required. The Commonwealth Government bears the whole expense of uniforms, victualling, travelling, as well as that of the educational course.

(viii.) *Training Ships.* H.M.A.S. *Tingira*, moored in Rose Bay, Sydney, was commissioned in April, 1912, to train boys for the *personnel* of the Royal Australian Navy. The age of entry is 14½ to 16 years. Only boys of very good character and physique are accepted, after a strict medical examination. The boys must engage to serve until they reach the age of 25. The training lasts about one year, and then they are drafted to a sea-going warship of the Australian fleet. Recruiting has been good, and in February, 1917, there were 214 boys on board, the utmost capacity of the ship being 300.

(ix.) *The Naval Station of the Commonwealth of Australia.* The following are the limits of the Naval Station which, since 1st July, 1913, have been controlled by the Commonwealth Government, acting through the Naval Board:—On the North: From 95 degrees East longitude by the parallel of 13 degrees South to 120 degrees East longitude; thence North to 11 degrees South latitude; thence to the boundary with Dutch New Guinea, on the South coast, in about longitude 141 degrees East; thence along the coast of British New Guinea (Papua) to the boundary with German New Guinea, in latitude 8 degrees South; thence East to 155 degrees East longitude. On the East: By the meridian of 155 degrees East longitude to 15 degrees South latitude; thence to 28 degrees South latitude on the meridian of 170 degrees East longitude; thence South to

30 degrees South latitude; thence west to the meridian of 160 degrees East longitude; thence south. On the South: By the Antarctic Circle. On the West: By the meridian of 95 degrees East longitude.

4. **Vessels and Personnel of the Australian Navy.**—(i.) *Ships.* The following table shews the vessels of the Royal Australian Navy, completed and building on 1st April, 1915. No later information may be published:—

LIST OF SHIPS OF THE ROYAL AUSTRALIAN NAVY, APRIL, 1915.

Vessel.	Description.	Displace-	Power.	Position.
		ment.		
		Tons.		
<i>Australia</i> ...	Battle cruiser ...	19,200	44,000 h.p.	Commissioned
<i>Brisbane</i> ...	Light cruiser ...	5,600	22,000 h.p.	Building, Sydney
<i>Childers</i> ...	1st class torpedo boat	...	...	Commissioned
<i>C'nless of Hopetoun</i>	" "	...	...	"
<i>Derwent</i> ...	Torpedo boat destroyer	700	12,000 h.p.	Building, Sydney
<i>Encounter</i> ...	Light cruiser ...	5,880	12,500 h.p.	Commissioned
<i>Gayundah</i> ...	Gunboat ...	360	400 h.p.	"
<i>Karumba</i> ...	Oil supply ship ...	3,000	...	Building, Eng.
<i>Melbourne</i> ...	Light cruiser ...	5,600	22,000 h.p.	Commissioned
<i>Parramatta</i> ...	Torpedo boat destroyer	700	12,000 h.p.	"
<i>Pioneer</i> ... ¹	Light cruiser ...	2,200	7,000 h.p.	"
<i>Platypus</i> ...	Submarine depôt ship	3,100	...	Building, Scotl'd
<i>Protector</i> ...	Gunboat ...	920	1,641 h.p.	Commissioned
<i>Swan</i> ...	Torpedo boat destroyer	700	12,000 h.p.	Building, Sydney
<i>Sydney</i> ...	Light cruiser ...	5,600	22,000 h.p.	Commissioned
<i>Tingira</i> ...	Boys' training ship ...	1,800	...	"
<i>Torrrens</i> ...	Torpedo boat destroyer	700	12,000 h.p.	Building, Sydney
<i>Una (late Komet)</i> ...	Gunboat ...	980	1,350 h.p.	Commissioned
<i>Warrego</i> ...	Torpedo boat destroyer	700	12,000 h.p.	"
<i>Yarra</i> ...	" "	700	12,000 h.p.	"
<i>A E 2</i> ...	Submarine ...	800	1,750 h.p.	"

(ii.) *Personnel.* The fleet is manned, as far as possible, by Australians, supplemented by Imperial officers and men. It is intended that there shall be interchangeability with the Royal Navy of officers and men, and also of ships. Recruiting centres have been established in the Commonwealth with excellent results. The naval reserves comprise (a) members of the Australian branch of the Royal Naval Reserve, (b) members of the Citizen naval forces, and (c) Senior naval cadets. The navy has first choice from amongst the trainees under the compulsory system. The following table shews the strength of the naval forces in April, 1915, the latest date for which the information is available:—

STRENGTH OF THE NAVAL FORCES (PERMANENT AND RESERVES), APRIL, 1915.

Classification.		Officers.	Ratings.	Total.
Permanent Forces (Sea-going)	...	440	3,290	3,730
Administrative and Instructional Staff	...	35	113	148
Reserve (M)*	...	27	437	464
Reserve (O) Adult section†	...	34	1,540	1,574
Senior Cadets†	...	...	3,332	3,332
R.N. Reserve (Sea-going)	...	18	157	175
Total	...	554	8,869	9,423

* Late militia. † Under universal training regulations.

Little more than five years ago the total personnel of the Commonwealth naval forces was but 240. Last year the total was nearly 10,000, the sea-going forces alone numbering 3700.

§ 3. Expenditure on Defence.

1. Expenditure, 1911-12 to 1916-17.—The following table gives the expenditure of the Department of Defence from 1911-12 to 1915-16, and the estimate for 1916-17:—

EXPENDITURE ON DEFENCE, 1911-12 TO 1916-17.

Branch or Department.	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.	1916-17. Estimate
Administrative—Central Administration	£ 289,558	£ 245,918	£ 217,804	£ 211,327	£ 367,967	£ 311,623
Naval Forces	246,738	608,955	1,005,649	1,383,030	1,447,068	1,481,539
Military Forces	1,174,912	1,401,246	1,538,544	1,125,949	983,787	1,589,801
Rent, Repairs, and Maintenance	46,257	53,746	70,471	79,665	94,146	105,190
Additions, New Works, Lands, etc.	244,736	327,988	275,765	258,061	390,774	391,763
Defence Arms, Equipment, etc.	561,596	551,895	416,842	265,252	242,527	356,325
Audit Office	1,180	1,296	1,362	2,397	6,652	12,200
Pensions and Retiring Allowances	2,269	1,121	1,103	1,427	1,262	1,800
Supervision of Public Works by State Officers	2,965	4,935	7,773	6,119	4,573	2,550
Naval Agreement	200,000	166,600	...	...	...	...
Fleet Unit	1,108,171	585,342	753,633	568,204	396,072	400,000
Naval Works Armament	38,696	268,393	218,839	362,782	789,400	1,016,875
Interest and Sinking Fund on Transferred Properties	162,132	122,561	94,858	177,741	128,499	129,880
Miscellaneous	638	1,307	252	3,320	5,798	34,000
Sites for Defence purposes ... ..	...	...	136,497	66,364	120,658	91,735
Machinery, etc., Cockatoo Is. ... ..	...	...	...	42,782	66,840	£
Proportion Public Works Staff Salaries	...	...	19,908	13,881	21,320	20,500
Total (ordinary)	4,081,848	4,346,305	4,752,300	4,568,321	5,072,183	5,945,489
War Expenditure† ... ..	...	...	...	15,011,335	41,201,946	59,239,363
Total Expenditure on Defence...	4,081,848	4,346,305	4,752,300	19,579,656	46,274,129	65,184,852

* Includes establishments under the control of the Central Administration. † Ceased on 30th June, 1913. ‡ Details of war expenditure will be found on page 1000. † Included in naval forces above.

2. Appropriation for Defence Purposes, 1901-2 to 1916-17.—In the following table the Defence expenditure for the whole Commonwealth period, 1901-2 to 1916-17, is given:—

ANNUAL DEFENCE EXPENDITURE.

Year.	Naval.				Total Naval.	Military.				Total Defence Expenditure.
	Under Ordinary Votes and Appropriations.	Works, Arms, Equipment, &c. (Provided under Estimates for New Works and Buildings).	Loan Expenditure.			Under Ordinary Votes and Appropriations.	Works, Arms, Equipment, &c. (Provided under Estimates for New Works and Buildings).		Total Military.	
1901-2 ...	£ 178,819	...	...	...	£ 178,819	£ 777,620	£ 2,640	£ 780,260	£ 959,079
1902-3 ...	149,701	...	...	...	149,701	595,115	5,537	600,652	750,353
1903-4 ...	240,005	86	...	...	240,091	502,517	113,156	615,673	855,764
1904-5 ...	200,394	5,394	...	...	205,788	533,945	194,865	728,810	934,598
1905-6 ...	250,273	1,743	...	...	252,016	548,439	169,890	718,329	970,345
1906-7 ...	255,120	652	...	...	255,772	585,516	194,507	780,023	1,035,795
1907-8 ...	259,247	250,958	...	...	510,205	634,579	189,960	824,539	1,394,744
1908-9 ...	263,207	4,055	...	...	267,262	686,365	96,965	783,330	1,050,592
1909-10 ...	289,051	60,688	...	...	329,739	928,393	277,273	1,205,666	1,535,405
1910-11 ...	303,493	1,161,541	...	...	1,465,034	1,092,305	448,687	1,540,992	3,006,026
1911-12 ...	461,546	1,172,920	...	...	1,634,466	1,667,103	780,279	2,447,382	4,081,848
1912-13 ...	806,881	853,735	...	...	1,660,616	1,805,806	879,833	2,685,689	4,346,305
1913-14 ...	1,006,424	980,677	...	...	1,987,101	1,944,297	820,902	2,765,199	4,752,300
1914-15 ...	5,991,776	936,061	42,782	...	6,970,639	12,024,415	584,602	12,609,017	19,579,656	
1915-16 ...	7,501,565	1,216,637	66,340	...	8,785,042	36,765,044	724,043	37,489,087	46,274,129	
1916-17 * ...	7,145,700	1,534,432	...	...	8,680,132	55,752,899	752,121	56,504,720	65,184,852†

* Estimate. † An amount of £552,800 is estimated to remain unexpended.

Note.—In the year 1900-1 the approximate Defence Expenditure made by the States was:—

Ordinary Services	£200,000
Works, Arms, Equipment, etc.	200,000
Total	£1,000,000

3. **Special War Expenditure.**—The special war expenditure during the present war will be found on page 1000.

4. **Expenditure in Various Countries.**—The total expenditure on defence and the expenditure per inhabitant in various countries according to estimates made immediately prior to the present war, are as follows:—

ESTIMATED EXPENDITURE ON DEFENCE.—VARIOUS COUNTRIES.

Country.	Year.	Army.	Navy.	Total.	Per Inhabitant.	
		£	£	£	s.	d.
Great Britain ...	1913-14	28,220,000	46,309,000	74,529,000	32	3
Germany ...	1913-14	73,833,000	24,012,000	97,845,000	30	2
France ...	1913	38,286,000	18,452,000	56,738,000	28	7
Italy ...	1913-14	14,546,000	9,068,000	23,614,000	13	7
Austria-Hungary ...	1913	16,500,000	3,100,000	19,600,000	7	8
Switzerland ...	1913	1,772,000	...	1,772,000	9	1
Russia ...	1913	64,136,000	22,817,000	86,953,000	10	5
Spain ...	1913	6,391,000	2,827,000	9,218,000	9	3
Portugal ...	1913-14	2,190,000	851,000	3,041,000	10	3
Norway ...	1913-14	867,000	337,000	1,204,000	9	11
Sweden ...	1913	3,063,000	1,447,000	4,510,000	16	0
Denmark ...	1913-14	1,081,000	544,000	1,625,000	11	5
Holland ...	1913	2,780,000	1,678,000	4,458,000	14	6
Belgium ...	1913	3,260,000	...	3,260,000	8	7
United States ...	1913-14	35,073,000	29,464,000	64,537,000	14	0
Canada ...	1912-13	1,872,000	...	1,872,000	5	2
Japan* ...	1913-14	7,815,000	4,224,000	12,039,000	3	6
Australia† ...	1914-15	2,062,396	2,505,885	4,568,281	18	6

* Excluding extraordinary expenditure. † Total excluding special war expenditure.

§ 4. Industrial Establishments and Remount Depot.

1. **Commonwealth Factories.**—There are five factories established under the authority of the Defence Act in connection with the Defence Department. The Commonwealth Harness, Saddlery, and Leather Accoutrements Factory at Clifton Hill, Victoria, was opened in September, 1911. On 31st March, 1917, there were 218 persons employed, including 86 females. A large quantity of harness and saddlery, and leather and canvas equipment has been turned out for the Defence and Postmaster-General's Departments. The factory is now able to cope with practically the whole of the peace requirements of these departments in the way of leather and canvas equipment. At the Cordite Factory at Maribyrnong, Victoria, cordite is manufactured for the cartridges required for military purposes. On 31st March, 1917, the employees numbered 178. The Clothing Factory at South Melbourne, Victoria, commenced operations on 3rd January, 1912. Since 1st July, 1912, a satisfactory output has been maintained. The number of employees on 31st March, 1917, was 509, of whom 437 were females. The establishment is able to supply the whole of the uniform clothing required for the Defence Forces and the Postmaster-General's Department. The Small Arms Factory at Lithgow, N.S.W., was opened on 1st June, 1912. The first instalment of Australian arms was delivered in May, 1913. Employees numbered 1300 on 31st March, 1917. A fifth Commonwealth factory has been established at Geelong, Victoria, for uniform materials and woollen fabrics, and commenced operations the latter part of 1915. 245 persons were employed on 31st March, 1917, including 121 females.

2. **Expenditure.**—The value on 30th June, 1916, of land, machinery and plant, factory fittings, and furniture in connection with the factories now in operation, was approximately as follows:—

Small Arms Factory...	...	...	...	...	£175,000
Cordite Factory	...	...	...	...	125,000
Clothing Factory	...	...	...	...	24,000
Harness Factory	...	...	...	...	17,000
Woollen Cloth Factory	...	...	...	...	160,000

3. **Remount Depot.**—The Act of 1910 authorised the establishment and maintenance of horse depots, farms, and stations for the breeding of horses. Up to the present nearly 2000 remounts have been purchased. They are primarily to supply the requirements of the Field Artillery Batteries, but are also available for the use of other mounted units. Remount depots have been purchased or are leased in each of the military districts, and veterinary hospitals have also been established in the larger States. In Victoria and South Australia stables have been built. A remount section of the Army Service Corps has been formed for the purpose of breaking, training and looking after remounts generally.

§ 5. Australian Contingents.

1. **New Zealand and Sudan Campaigns.**—Many colonists served with the Imperial forces in the New Zealand war. Fuller particulars will be found in Official Year Book No. 6, p. 1071. In 1885 a field battery, an infantry battalion, and an ambulance corps, numbering in all 770, with 218 horses, left New South Wales to take part in the Suakin campaign.

2. **South African War.**—In 1899 the outbreak of war with the Boers led to the several colonies offering contingents. This service was continued when, on 1st March, 1901, the control of the defence forces passed over to the Commonwealth. Besides the troops officially organised, many Australians served as members of units raised in Great Britain and South Africa. The following table shews the strength of the military contingents sent at various times from Australia to South Africa:—

STRENGTH OF MILITARY CONTINGENTS SENT FROM AUSTRALIA TO SOUTH AFRICA.

State.	State Troops at State Expense.			State Troops at Imperial Expense.			Commonwealth Troops.			Grand Total.		
	Officers.	Other Ranks.	Horses.	Officers.	Other Ranks.	Horses.	Officers.	Other Ranks.	Horses.	Officers.	Other Ranks.	Horses.
New South Wales	160	3,217	3,135	76	1,308	1,443	78	1,271	1,294	314	5,796	5,873
Victoria	47	751	830	77	1,569	1,877	69	1,052	1,118	193	3,372	3,825
Queensland	39	694	868	73	1,346	1,603	37	699	736	149	2,739	3,207
South Australia	20	326	253	46	644	696	23	467	490	89	1,437	1,444
Western Australia	18	331	269	34	540	606	15	291	306	67	1,162	1,183
Tasmania	6	173	58	17	358	422	13	290	303	36	821	783
Total	290	5,492	5,418	323	5,765	6,649	235	4,070	4,247	848	15,327	16,314

There were, in addition, several special service officers attached, at the request of the colonial Governments, to the British forces; these officers served with the Imperial troops with a view to aiding the development of the Commonwealth forces, particularly in regard to the routine and administration of troops on service.

3. **The China War.**—The Home Government also accepted the offer of contingents from Australia on the outbreak of the Boxer rebellion in China. Naval volunteers were furnished by New South Wales and Victoria, and South Australia equipped a gunboat for the Imperial service. The strength of the New South Wales contingent was 260, and that of the Victorian 200, of all ranks.

4. **The European War, 1914.**—Upon the imminence of war between Great Britain and Germany, but prior to its actual outbreak, viz., on 3rd August, 1914, the Commonwealth Government notified Great Britain of its readiness, in the event of war, to place the vessels of the Australian Navy under the control of the British Admiralty when desired, and to despatch an expeditionary force of 20,000 men of any suggested composition to any destination desired by the Home Government, cost of despatch and maintenance to be borne by the Commonwealth. On 10th August, war having meanwhile been declared on the 4th August, all vessels and all officers and seamen of the Royal Australian Naval Forces were transferred to the King's Naval Forces. The transfer is to continue in force until proclamation is issued that war no longer exists. Upon the suggestion of the Imperial authorities it was decided that the composition of the expeditionary force of 20,000 should be a division, on the basis of the Imperial Army (of staff, three brigades, and divisional troops, but without howitzer brigade and heavy battery), and one light-horse brigade. After this force had been raised, the Commonwealth notified the Home Government that a further body of troops, comprising lines of communication units, supply units, and hospitals (about 2000), first reinforcements (about 3000), two additional light-horse brigades (about 4000), an additional infantry brigade (about 4500), and certain veterinary units, would be despatched. The first convoy left the rendezvous in Australian waters on 1st November, and landed in Egypt on 5th December, for the defence of that country—which had been proclaimed a British protectorate—and to undergo war training in the vicinity of Cairo. The second convoy left Australia late in December. After the departure of the second convoy, the system of despatching troops in convoys was discontinued.

(i.) *Australian Imperial Force.* Up to 31st March, 1917, the troops despatched from Australia for active service numbered 292,969. These were organised chiefly into the undermentioned units, some of which have since been disbanded or absorbed into other units:—

Army Corps Troops—

- 2 Corps Cyclist Battalions.
- 2 Corps Cavalry Regiments
- 3 Army Field Artillery Brigades (12 Batteries).
- 3 Army Field Artillery Ammunition Columns.

Anzac Mounted Divisions—

- 4 Light Horse Brigades (12 Regiments).
- Machine Gun Corps (4 Squadrons).
- 1 Field Squadron Engineers.
- 1 Signal Squadron Engineers.
- 4 Signal Troops Engineers.
- 1 Mounted Divisional Train (A.S.C.).
- 4 Light Horse Field Ambulances.
- 4 Mobile Veterinary Sections.
- 2 Depot Units of Supply.

5 Divisions—

- 15 Infantry Brigades (60 Battalions).
- 5 Pioneer Battalions.
- 15 Machine Gun Companies.
- 10 Divisional Artillery Brigades (40 Batteries).

5 Divisional Ammunition Columns.
 45 Trench Mortar Batteries.
 15 Field Companies Engineers.
 5 Divisional Signal Companies.
 5 Divisional Trains (20 A.S.C. Companies)
 5 Field Bakeries.
 5 Field Butcheries.
 25 Depot Units of Supply.
 1 Motor Ambulance Workshop.
 5 Mobile Veterinary Sections.
 15 Field Ambulances.
 5 Sanitary Sections.
 5 Infantry Base Depots.

Miscellaneous Units—

Siege Artillery Brigade (3 Batteries).
 4 Flying Squadrons.
 Aeroplane Squadron ($\frac{1}{2}$ Flight) for service in Mesopotamia.
 Mining Corps (3 Companies).
 3 Tunnelling Companies.
 Naval Bridging Train.
 Divisional Ammunition Park.
 2 Divisional Supply Columns.
 Reserve Park.
 3 Auxiliary Mechanical Transport Companies (A.S.C.).
 Armoured Motor Car Section.
 5 Railway Sections.
 Railway Supply Detachment.
 2 Remount Units (8 Squadrons).
 Wireless Signal Squadron (Headquarters and 2 Troops) for service in Mesopotamia.
 3 Battalions Imperial Camel Corps (12 Companies).
 Camel Brigade Field Ambulance.
 Other Administrative, Training and Departmental Units.
 4 General Hospitals.
 2 Stationary Hospitals.
 3 Casualty Clearing Stations.
 Contagious Diseases Hospital.
 Other Miscellaneous Hospitals.
 Dental Services.
 Nursing Service.
 Naval and Military Expeditionary Force (for service in German New Guinea).

Troops in Training.—In addition to the above units, on the 31st March, 1917, there were 18,662 troops in training throughout Australia in preparation for despatch to the front.

Reinforcements.—The approximate number of troops despatched monthly as reinforcements for all units is 12,000. Reinforcements for the Australian units serving under the Government of India are despatched from time to time as required.

(ii.) Towards the end of April, 1915, a body of Australian troops left Egypt for the Dardanelles, and on the 25th April came under fire. Acting in conjunction with British, Indian, and French troops, and under the command of General Sir Ian Hamilton, who, as Inspector-General of Oversea Forces, had visited Australia shortly before the outbreak

of war (see Official Year Book No. 7, p. 1067), they attacked positions on the Gallipoli Peninsula (Dardanelles). The operation is regarded as having been exceedingly difficult, but the allied troops effected a landing in the face of determined resistance. Towards the end of December, 1915, it was decided to evacuate the Gallipoli Peninsula. This difficult operation was successfully carried out, and the main portion of the Australian Imperial Force has since been transferred to other spheres of activity. The number of casualties announced by the Defence Department to 4th May, 1917, are as follows:—

CASUALTIES TO AUSTRALIAN IMPERIAL FORCES TO 4th MAY, 1917.

Particulars.	Officers, Chaplains and Nurses.	Other Ranks.	Total.
Died*	1,020	21,749	22,769
Wounded	773	28,555	29,328
Missing	112	3,122	3,234
Sick	1,446	23,684	25,130
Prisoners of War	39	993	1,032
Nature of casualty unknown... ..	49	258	307
Total	3,439	78,361	81,800

* Killed in action, died of wounds, illness, etc.

(iii.) Upon suggestion of the Imperial Government, the Commonwealth also despatched an expeditionary force against certain German possessions in the Pacific Ocean. The force contained both naval and military details, and consisted of six companies of the Royal Australian Naval Reserve, one battalion (eight companies) of infantry, two sections of machine guns, a signalling section, and army medical details.

The main objects of the expedition were to seize German wireless stations in the Pacific, to occupy German territory and hoist the British flag, and to arrange for temporary administration.

A complete self-contained force of the above-named units, fully armed and equipped, left Sydney on 19th August, 1914, under escort of vessels of the Royal Australian Navy.

The Naval Board, besides distributing the orders and instructions of the Admiralty, under whose control the Royal Australian Navy was placed, arranged for the supply of coal, oil, stores, munitions, etc., and for the dissemination of intelligence. The task of the Australian Navy was of a three-fold nature: (a) to police the seas and ensure that they should be uninterruptedly free to commerce; (b) to co-operate in ridding the seas of the enemy's cruisers and in destroying his bases and sources of supply; (c) to assist in conveying the expeditionary forces to Europe and to the German Pacific possessions.

The operations against the German colonial troops resulted, within two months, in the capture of the whole of the enemy's possessions in the Pacific. The German Pacific wireless chain was broken. Several of her ships were captured. Samoa was occupied by a force from New Zealand. The German Pacific Protectorate (*Das Deutsche Südsee Schutzgebiete*) was terminated. It comprised German New Guinea, the Bismarck Archipelago, the two northernmost islands of the Solomon group (Bougainville and Buka), the choicest island of the Samoan group (now occupied by New Zealand), the Marshall Islands, the Carolines, Pelew, and the Ladrões (except Guam, which belongs to America). Of these groups, the Bismarck Archipelago is the most important. It includes New Britain, New Ireland, New Hanover, and several small islands—the Admiralty, Natty, Exchequer, Hermit, Anchorite, French, Gervit Denys, Sir Charles Hardy, St. John, St. Mathias, Squally Islands, and others.

For the various actions in which the Australian Navy was thus employed, and in order to make possible the efficient patrolling of the vast sea-area involved, it was necessary that ample supplies of coal and oil should be available at the various advanced bases. It is stated that the large chartered fleet of colliers and oilers conducted their operations without any delay. From 30th July, 1914, to 31st December, 1914, the ships of the Australian Navy steamed in the aggregate upwards of 100,000 miles. It was necessary, to enable them to do so, to convey, over great distances of ocean, 76,000 tons of coal, and 12,000 tons of oil.

Further, not a single British merchant vessel was captured by the enemy in Australian waters. No Australian port was attacked, nor were coastal towns terrorised. But 19 German steamers, aggregating 89,000 tons; one Austrian steamer of 3530 tons; and five German sailing vessels, aggregating 12,200 tons—in all 25 vessels, aggregating 104,730 tons—were interned. Also, 11 vessels, aggregating 12,000 tons, and including the German Government's vessels *Komet*, *Nusa*, etc., were captured.

During 1915 the battle cruiser *Australia* joined the Grand Fleet in the North Sea, and was made flagship of a battle cruiser division. The other ships of the Australian Navy, with the exception of Submarine AE2, which was lost during the operations at the Dardanelles, are taking their part in the war as and where the Imperial authorities find them most useful.

(iv.) *War Expenditure, 1914-17.* The special war expenditure shewn in the annual estimates, 1916-17, is shewn below. The war expenditure for the two previous years is also given. Reference to War Finance will be found in Section XIX., Commonwealth Finance, pp. 739 and 744, and also in the Appendix to this book.

SPECIAL WAR EXPENDITURE, 1914-17.

Particulars.	1914-15.	1915-16.	1916-17. Estimated.
Special expenditure on Australian forces—	£	£	£
Naval	3,527,904	5,093,530	4,250,000
Military	9,474,537	31,938,864	45,561,000
Expeditionary force—Naval	760,349	155,636	197,826
Military	758,250	535,476	585,790
Interest on loan from British Government for war purposes	36,489	843,893	2,082,300
Interest on Commonwealth War Loan ... ..	...	999,976	2,822,600
Interest on Treasury Bills in aid of Revenue	78,656	14,845	14,845
Sinking Funds on Loans for War Purposes ... ..	...	200,777	1,170,854
Grant to Australian Soldiers' Repatriation Fund ... ..	...	250,000	...
War Pensions	437	139,460	1,231,204
War Census ... ..	...	57,444	11,000
Referendum Military Service ... ..	...	...	80,000
Trading Vessels	153,973	318,285	700,000
Miscellaneous	219,305	643,170	511,944
Premiums on Life Assurance policies of Commonwealth public servants who are members of Expeditionary forces	1,435	10,590	20,000
Total	15,011,335	41,201,946	59,239,363

SCALE OF PENSIONS PAYABLE.

(i.) To widow on death of member of forces, or to member upon total incapacity :—

Rate of Pay of Member per day at date of Death or Incapacity.	Pension Payable to Widow per fortnight.	Pension Payable to Member upon Total Incapacity per fortnight.	Rate of Pay of Member per day at date of Death or Incapacity.	Pension Payable to Widow per fortnight.	Pension Payable to Member upon Total Incapacity per fortnight.
s. d.	£ s. d.	£ s. d.	s. d.	£ s. d.	£ s. d.
6 0	2 0 0	3 0 0	13 0	2 19 6	3 14 0
7 0	2 3 0	3 2 0	17 6	3 10 0	4 0 0
9 0	2 9 0	3 6 0	22 6	3 17 6	4 5 0
10 0	2 12 3	3 8 0	30 0	4 9 0	4 15 0
10 6	2 13 9	3 9 0	37 6	5 0 9	5 5 0
11 6	2 16 0	3 11 0	45 0	5 12 3	5 15 0
12 0	2 17 3	3 12 0	50 0	6 0 0	6 0 0
			and upwards		

(ii.) To each child (son, daughter, stepson, stepdaughter, or adopted child of member of forces, under 16) :—Twenty shillings per fortnight for the first child, fifteen shillings per fortnight for the second child, and ten shillings per fortnight for the third and each subsequent child.

(iii.) To other dependents (dependent members of family of deceased or incapacitated member of forces) :—Rates as assessed by Commissioner or Deputy-Commissioner, but not exceeding for one person the rate specified in the second column above as payable to the widow, and not exceeding in the aggregate that sum, plus £2 per fortnight.

(iv.) To wife of member of forces upon his total incapacity :—50 per cent. of rate payable to husband.

(v.) To each child of member upon his total incapacity :—Same as (ii.) above.

(vi.) To member upon partial incapacity :—Loss of leg or foot or hand or arm—maximum rate for six months, thereafter three-fourths of the maximum rate. Loss of one eye—half the maximum rate. Loss of both legs or both feet, or both arms or both hands, or arm and leg or hand and foot, or both eyes, or one eye together with loss of leg, foot, hand or arm—the maximum rate.

§ 6. Special Defence Legislation.

1. **War Precautions Act 1914.**—On the outbreak of war in Europe, the Federal Parliament passed an Act to enable the Governor-General to make regulations and orders for the safety of the Commonwealth during the state of war. The provisions of this Act, which was assented to on 29th October, 1914, will be found in Official Year Book No. 8, page 1092. Particulars of the *Enemy Contracts Annulment Act* will be found in the same issue of the Year Book, page 1095.

2. **War Precautions Acts 1914-16 and War Precautions Regulations 1915.**—The *War Precautions Act 1914* abovementioned, as amended by the *War Precautions Act 1915*, the *War Precautions Act No. 2 1915*, and the *War Precautions Act 1916*, empower the Governor-General to make regulations and orders for securing the public safety and the defences of the Commonwealth. Any person who contravenes or fails to comply with any provision of any regulation or order is guilty of an offence, the punishment for which is, if prosecuted summarily, a fine not exceeding £100, or imprisonment for a term not exceeding six months, or both; if the offence is prosecuted by indictment, a fine of any amount or imprisonment for any term, or both;

or if the offence is prosecuted by Court Martial, the same punishment as if the person had been subject to military law, and had on active service committed an offence under section 5 of the Army Act.

Under the powers conferred by the above Acts, the *War Precautions Regulations 1915* have been made. These regulations provide for the appointment of competent naval or military authorities to exercise certain powers under the regulations. The principal provisions of the regulations are as follows:—

Regulation 3. The ordinary avocations of life and the enjoyment of property are to be interfered with as little as may be permitted by the exigencies of the measures required to be taken for securing the public safety and the defence of the Commonwealth, and ordinary civil offences are to be dealt with by the civil tribunals in the ordinary course of law.

4. The competent authorities are authorised to take possession of land, buildings, equipment, and warlike stores, to construct works, to destroy buildings, and to do any act involving interference with private rights of property which may be necessary for securing the public safety or defence of the Commonwealth.

5. Competent authorities are given the right of access to any land or buildings.

6. Land may be used for training the forces.

7. Roads may be stopped up.

8. The removal of vehicles, boats, vessels, aircraft, animals, foodstuffs, equipment, and warlike stores from any area may be ordered.

9. A census may be taken of all goods, animals, and other commodities.

10 and 11. The Minister may requisition the output of factories manufacturing arms, ammunition, etc., and may take possession of such factories.

12 and 12A. Premises licensed for the sale of intoxicating liquor may be closed.

13 and 14. The extinguishment or obscuring of lights in any area may be ordered.

15. Inhabitants may be ordered to remove from any area if necessary for naval or military reasons.

15A. Persons may be removed from the vicinity of military camps, forts, hospitals, or posts if their presence is prejudicial to the maintenance of discipline or to the health, training, or administration of the troops.

16. Inhabitants may be required to remain indoors.

17. Ships may be removed from specified areas.

17A. Entrance to British merchant ships in harbours or alongside wharves without permission is forbidden.

17B. Entrance to enclosed wharves without permission is forbidden.

17D. Members of the forces may be prevented from entering any premises specified in an order of the competent authority.

18. Harbour authorities may be required to prepare schemes for destruction of harbour works.

19. The obtaining and communicating of naval and military information without permission is prohibited.

19A. Communication with spies is prohibited.

19B. Postal articles intended for enemy countries to bear endorsement that they are so intended.

19C. The unlawful possession, etc., of official documents is made an offence.

20. The photographing of naval or military works without permission is prohibited.

21. Tampering with telegraphic apparatus is prohibited.

21A. Telephone conversations not in the English language are prohibited.

22. The possession of carrier pigeons in any area prescribed by order of the competent authority is prohibited.

23. The possession of wireless telegraphic apparatus without the permission of the Minister for the Navy is prohibited.

23A. The possession of ciphers, codes, or other means of secretly communicating naval or military information is prohibited, unless intended and used solely for commercial or other legitimate purpose.

24. The embarkation of persons suspected of communicating with the enemy may be prohibited.

25. The transmission of letters to or from the Commonwealth otherwise than through the post is prohibited.

25A. The conveyance of letters to or from interned persons without the authority of the officer commanding the place of internment is prohibited.

25B. Persons carrying on the business of receiving for reward letters or postal packets for delivery to other persons are required to register with the censor.

26. The use of searchlights, semaphores, or other apparatus intended for signalling is prohibited.

27. The display of fireworks or the lighting of fires in such a manner as would serve as a signal, guide, or landmark is prohibited.

28. The spreading of false reports, or the making of false statements, or reports or statements likely to cause disaffection to His Majesty, or public alarm, or to interfere with the success of His Majesty's forces by land or sea, or to prejudice His Majesty's relations with foreign powers, and the spreading of reports or making of statements likely to prejudice the recruiting, training, discipline, or administration of His Majesty's forces, is prohibited.

28A. Power is given to require newspapers to submit to the Censor matter relating to the war before printing or publication.

28AA. Power is given to require writers of pamphlets to submit to the Censor before publication matter relating to recruiting.

28B. Newspapers and other publications published in foreign languages may be suppressed.

28C. Alterations made by the censorship in matters submitted to it are not to be shewn in print without permission.

28D. The submission of cinematograph films relating to the war may be required before they are exhibited.

29. Trespassing on or loitering in the vicinity of tunnels, viaducts, or culverts, and injuring or being upon railways, or on, under, or near railway works with intent to injure them, is prohibited.

30. Approaching military works in respect of which orders prohibiting approach have been issued is an offence.

31. The manufacture or sale of firearms, ammunition, or explosives within any specified area may be prohibited.

32. The importation of firearms, ammunition, or explosives without permission is prohibited.

33. Any person who, by discharging firearms or otherwise, endangers the safety of any member of the forces, is guilty of an offence.

34. Any person who, without permission, is in possession of firearms, explosives, or inflammable liquids in the vicinity of any railway, dock, or harbour, or in the vicinity of any specified area, is guilty of an offence.

35. Restrictions are placed on the storage of inflammable liquids in any area specified in an order of the competent authorities.

36. The possession of celluloid or cinematograph films in any prescribed area without permission is prohibited.

37. Masters of vessels are required to comply with any directions given for navigation in harbours.

38. Vessels are required to comply with any directions as to navigation issued by the Naval Board.

39. Vessels may be prohibited from entering dangerous areas.

40. The Naval Board may issue orders as to pilotage.

40A. Any person who by act or default endangers the safety of any vessel is guilty of an offence.

40B. Seamen on ships chartered, etc., by the Commonwealth Government who desert, etc., are declared guilty of an offence against the Act.

41. The supplying of intoxicants to members of His Majesty's forces, when on duty or when not on duty, with intent to elicit information, is prohibited.
- 41A. Intoxicating liquors in camps, forts, hospitals, or military posts are prohibited.
42. The unauthorised use of naval or military uniforms is prohibited.
- 42A. The sale of uniforms or parts of uniforms without permission is prohibited.
- 42B. Use, without permission of Minister, of badges, etc., intended to indicate that the wearer is a person rejected for active service, is forbidden.
- 42C. Sale of phosphorus without permission is prohibited.
- 42D. Dyeing military clothing is prohibited.
43. Persons attempting to cause mutiny, sedition, or disaffection among the forces or the civil population are guilty of an offence.
44. Persons obstructing, misleading, or interfering with or withholding information from officers or persons carrying out the orders of the competent authorities, are guilty of an offence.
45. Falsifying reports, etc., is an offence.
- 45A. The making of untrue statements in applications for separation allowances, etc., is made an offence.
- 45B. Falsely pretending to be a returned soldier or sailor is made an offence.
46. The forging of certain official documents, and personating persons to whom such documents have been issued, is an offence.
- 46A. Assisting the escape of prisoners of war is an offence.
47. Persons in possession of false passports or letters of safe conduct, and alien enemies passing under assumed names, are guilty of an offence.
- 47A. The right of any relative or dependant of a soldier to receive allotments of his pay or separation allowance is made incapable of assignment.
48. All persons affected by any orders issued under the Regulations are required to comply therewith.
49. Attempting to commit an offence, aiding or abetting an offence, or harbouring any person who has committed an offence, is forbidden.
- 49E. The sale of sugar at a price exceeding 3½d. per lb., plus such sum as represents the cost of delivery to the seller, is forbidden.
- 50, 50A, and 50B. Powers are given to search premises and persons, and to seize articles found thereon.
51. Power is given to stop and search vehicles.
52. Power is given to require answers to questions relative to any matter affecting the public safety or the defence of the Commonwealth, and to require the production of documents, books, and papers relative to any such matter.
53. Powers are given for preventing the conveyance of letters into or out of the Commonwealth otherwise than through the post.
54. Powers of arrest are given.
- 54A. The embarkation of suspected persons may be prohibited.
55. The Minister is authorised to direct the detention, in military custody, of any naturalised person who is disaffected or disloyal.
56. The Minister is authorised to direct the detention, in military custody, of any natural-born British subject, one at least of whose parents was, or is, a subject of a State which is at war with the King.
- 56A. The Minister is authorised to direct the detention, in military custody, of any person if, in his opinion; for securing the public safety and the defence of the Commonwealth, it is expedient, in view of the hostile origin or association of such person, that he should be so detained.
- 56B. Male British subjects between the ages of 17 and 45 years are prohibited from leaving the Commonwealth, unless in possession of a passport issued by the Department of External Affairs.
- 56C. Persons detained in military custody, under the warrant of the Minister, are declared to be subject to the rules of discipline applicable to prisoners of war.

57 and 58. Provision is made for trial of offences.

58A. Provision is made for the punishment of offences by corporate bodies.

59. Provision is made for forfeiture of goods in respect of which an offence has been committed.

59A. The burden of proof of lawful authority for any act, which, if done without such authority is an offence, is placed upon the accused.

59B-59D. Provision is made for the proof in legal proceedings of orders or instruments issued by competent authorities under the regulations, of printing or publication or authorship of printed matter, and of certain formal matters.

60. The powers conferred by the regulations are declared to be in addition to, and not in derogation of, any other powers exercisable for securing the public safety and the defence of the Commonwealth.

61. Provision is made for the giving of notices pursuant to the regulations.

62. Persons claiming to act under any permit granted under the regulations are required to produce such permit when directed.

63. The Naval Board and the Military Board are authorised to appoint competent authorities to carry out the regulations.

63A. Competent authorities and senior officers of police are authorised to extend to any natural-born subject, whose father or whose father's father was a subject of a sovereign or State at war with His Majesty, all or any of the restrictions imposed on aliens or on alien enemies by any order made under the Act.

63B. The provisions of the Aliens Restriction Order 1915, with reference to alien enemies, are declared to apply to any British subject who is also a subject of a sovereign or State which is at war with His Majesty.

64. Persons born in the British dominions, who, by birth, became by the law of any State which is at war with the King subjects of that State, are declared to be subject to the same restrictions with reference to departure from Australia as are imposed on naturalised persons by any order made under the Act.

64A. The payment of moneys to persons interned on the warrant of the Minister is prohibited, except with the permission of the Minister, or of the Secretary or Acting-Secretary of the Department of Defence.

64B. The remitting of money from the Commonwealth without the written permission of the Minister, or of the Secretary or Acting-Secretary of the Department of Defence, to any enemy subject, or to any naturalised British subject who has at any time been the subject of a State at war with the King, is prohibited.

The Aliens Restriction Order 1915, made under the authority of the *War Precautions Act*, contains restrictions as to aliens entering and leaving the Commonwealth, and as to alien enemies resident in the Commonwealth. The principal provisions are as follows:—

Aliens are permitted to enter and leave the Commonwealth only at Darwin, Thursday Island, Brisbane, Newcastle, Sydney, Melbourne, Port Adelaide, Albany, Fremantle, Broome, and Hobart.

The deportation of any alien may be ordered by the Minister.

Masters of ships about to sail from a Commonwealth port may be required to give passages to aliens.

Alien enemies and naturalised subjects of enemy origin are forbidden to leave the Commonwealth without permission.

Aliens entering and leaving the Commonwealth are required to have passports.

Alien enemies may be required to reside in any specified area, and may be forbidden to enter prohibited areas.

Alien enemies are required to register with the police, and to report at such intervals as may be required. They are forbidden to change their places of residence or travel without permission, and are required to report on arrival at a new place of residence.

Naturalised subjects of enemy origin may be required to report themselves to the police, and may be forbidden to change their place of residence or travel unless they first give notice to the police.

Alien enemies and naturalised subjects of enemy origin are forbidden to enter British ships, or wharves, or docks.

Alien enemies are forbidden to be in possession of firearms or other weapons, ammunition, or explosives suitable for use in war.

They are also forbidden, without permission of the police, to be in possession of other firearms, ammunition, or explosives, of inflammable liquids in quantities exceeding three gallons, of signalling apparatus, carrier or homing pigeons, motor vehicles or boats, ciphers or codes, telephones, photographic apparatus, or military or naval maps, charts, or handbooks.

Naturalised subjects of enemy origin are forbidden, without permission of the police, to be in possession of firearms, ammunition, or explosives.

The circulation among alien enemies of any newspaper published in Australia wholly or mainly in the language of a State at war with His Majesty is prohibited, unless permission has been obtained.

Alien enemies are prohibited from carrying arms.

Alien enemies and naturalised subjects of enemy origin are prohibited from changing their names without permission.

Provision is made for exempting from certain provisions of the Order subjects of enemy powers who belong to races opposed to the rule of such powers.

The competent authorities may direct that any of the provisions of this Order as to alien enemies or naturalised subjects of enemy origin shall, in particular cases, be applicable to other aliens or naturalised subjects.

The competent authorities may also direct that any restrictions imposed on aliens or on alien enemies by the Order shall apply to any naturalised subject of enemy origin.

The War Precautions (Aliens Registration) Regulations 1916 provide that all aliens entering Australia, and all aliens in Australia over the age of 16 years, shall register with the police. In their applications for registration they are required to state their name in full, nationality, birth-place, date of birth, place of residence, place of business (if any), occupation and date of entry to the Commonwealth. On registration they receive a certificate which states the nationality claimed by them, their date of birth and place of abode, and contains a personal description.

Aliens resident in the Commonwealth are required to inform the police before they change their place of abode, and to report to the police on taking up a new place of abode.

Aliens who wish to change their names are required to give notice to the police.

The keepers of hotels, inns, boarding-houses and lodging-houses are required to keep registers of aliens staying on their premises, containing the name, nationality, date of arrival, previous place of abode, date of departure, destination on departure, and other particulars of aliens.

The War Precautions (Passports) Regulations 1916 provide that persons over the age of 16 years entering or leaving the Commonwealth must be in possession of passports issued or renewed not more than two years previously, containing a personal description and having a photograph attached. The following classes of persons are exempt from the regulations :—

- (a) Members of the Naval or Military Forces entering or leaving the Commonwealth on duty.
- (b) Crews of ships if signed on in the Commonwealth.
- (c) Crews of ships if entering and leaving the Commonwealth on the same ship.
- (d) Persons going to New Zealand and other adjacent British possessions, subject to certain limitations.
- (e) Holders of certificates of exemption from the dictation test under the Immigration Acts 1901-1912.
- (f) Holders of emergency permits to leave the Commonwealth.
- (g) Persons entering or leaving the Commonwealth in the custody of the law.
- (h) Persons ordered by the Government of the Commonwealth or by any State to leave the Commonwealth.

- (i) Aboriginal native of Asia or of any island in the East Indies or in the Indian or Pacific Ocean leaving the Commonwealth.

All persons entering the Commonwealth are required to give up their passports before landing. If they subsequently leave, their passports are returned to them on departure.

Other regulations made under the Act are:—

The War Precautions (Active Service Moratorium) Regulations 1916, which provide for the postponement until six months after the expiration of the War of payment of principal money (but not interest) secured by mortgages, and payments of purchase money under agreement for the purchase of land, due by members of Forces serving abroad or their female dependents.

These Regulations also contain a provision that chattels used by any female dependent of a soldier to support or assist in supporting herself or any of the family of the soldier, and furniture or wearing apparel belonging to any such soldier or female dependent, not exceeding £50 in value, shall be protected from distress, or seizure under a bill of sale, writ of execution or other process of a Court or under the provisions of hire purchase agreements.

The War Precautions (Coal Tar) Regulations 1916, which provide for the supervision of the distillation of coal tar, and forbid the use of crude tar except with the permission of the Minister.

The War Precautions (Coaling Battalions) Regulations 1916, which provide for the raising of Coaling Battalions to coal Transports.

The War Precautions (Coinage) Regulations 1916, which forbid the defacing or destroying of gold coins.

The War Precautions (Companies, Firms and Businesses) Regulations 1916, which restrict the issue of new capital by Companies, Associations, etc., prohibit the voluntary liquidation of Companies without the consent of the Treasurer, and provide that the consent of the Treasurer must be obtained for the erection of buildings for amusement purposes.

The War Precautions (Enemy Shareholders) Regulations 1916, which restrict the holding of shares in companies by persons of enemy descent.

The War Precautions (Glycerine) Regulations 1916, which provide for the requisitioning of glycerine.

The War Precautions (Hides) Regulations 1916, which give power to regulate the purchase or sale of hides.

The War Precautions (Land) Regulations 1916, which restrict the acquisition of land by persons who are not natural-born British subjects.

The War Precautions (Land Transfer) Regulations 1916, which restrict the transfer of land to persons of enemy descent.

The War Precautions (Moratorium) Regulations 1916, which restrict the right of mortgagees to enforce payment of mortgages.

The War Precautions (Patents) Regulations 1916, which provide for the establishment of a Patents Inquiry Board to investigate applications for patents, publication of which might be detrimental to the public safety or the defence of the Commonwealth.

The War Precautions (Prices) Regulations 1916, which provide for the regulation of the price of commodities.

The War Precautions (Rabbit Skins) Regulations 1916, which give power to regulate the purchase or sale of rabbit skins.

The War Precautions (Sheep Skins) Regulations 1916, which give power to regulate the purchase or sale of sheepskins.

The War Precautions (Shipping) Regulations 1916, which restrict the departure of shipping from the Commonwealth without the permission of the Comptroller-General of Customs.

The War Precautions (Supplementary) Regulations 1916, which contain provisions:—

- (a) Prohibiting the use in trade of the word "Anzac" and similar words.
- (b) Restricting actions on contracts in cases in which the defendant is supplying munitions.
- (c) Giving power to Clubs to suspend or cancel the membership of persons of enemy origin.
- (d) Giving power to requisition goods for munitions.
- (e) Giving power to requisition vessels for the carriage of foodstuffs.
- (f) Restricting proceedings for defamation by persons alleged to be enemy subjects.
- (g) Restricting proceedings arising out of the refusal of any person to employ or work with persons alleged to be enemy subjects.
- (h) Restricting the manufacture or sale of buttons, etc., for Patriotic purposes without the consent of a State War Council.
- (i) Prohibiting the use of the word "Repatriation" in connection with any fund without the authority of the trustees appointed by the Australian Soldiers' Repatriation Fund Act 1916, or a State War Council.
- (j) Prohibiting the raising of funds for patriotic purposes in relation to the war without the consent of a State War Council.
- (k) Giving power to refer disputes relating to the Colliery Industry to Arbitration.
- (l) Prohibiting the mortgaging or pledging of goods, etc., advanced, or provided by a State War Council under the powers conferred by the Australian Soldiers' Repatriation Fund Act 1916.
- (m) Prohibiting the transmission of parcels to British prisoners of war abroad.
- (n) Giving power to extend contracts for the supply of goods or services to any Department of the Commonwealth, the supply of which is affected by circumstances arising out of the war.

The War Precautions (Tin Plates) Regulations 1916, which give power to regulate the use of tin plates.

The War Precautions (Wool) Regulations 1916, which give power to regulate the purchase or sale of wool.

§ 7. Persons of Enemy Birthplace.

The following table shews the estimated number of males of enemy birthplace (natives of Germany, Austria-Hungary, Turkey, and Bulgaria, whether naturalised or otherwise, but exclusive of persons of British parentage), in each State at the 31st July, 1915, and the estimated number naturalised. While the States and military districts are not quite coterminous, they approximate sufficiently to admit of the comparison:—

MALES OF ENEMY BIRTHPLACE IN THE COMMONWEALTH AT 31st JULY, 1915.

State and Military District.		Male Enemy Subjects.*	Number Naturalised.*	Number not Naturalised.*
Queensland	1st Military District	8,080	6,640	1,440
New South Wales	2nd " "	6,460	4,330	2,130
Victoria	3rd " "	4,920	3,300	1,620
South Australia	4th " "	3,270	2,630	640
Western Australia	5th " "	3,190	1,280	1,910
Tasmania	6th " "	380	320	60
Total		26,300	18,500	7,800

* These figures are based on Census returns, and can only be considered as a rough approximation.

The number of females of enemy birthplace in the Commonwealth at 31st July, 1915, is estimated at about 12,000.

SECTION XXIX.

PAPUA (BRITISH NEW GUINEA).

§ 1. New Guinea.

1. **Geographical Situation of New Guinea.**—New Guinea, frequently described as the largest island in the world, lies to the north-east of Australia, between $0^{\circ} 25'$ and $10^{\circ} 40'$ S. latitudes, and between $130^{\circ} 50'$ and $150^{\circ} 35'$ E. longitudes. Its estimated area exceeds 300,000 square miles, the greatest length being 1490 miles and the greatest breadth 430 miles.

2. **Discovery.**—The island was probably sighted by Abreus in A.D. 1511. The first visit by Europeans was apparently either that by the Portuguese Don Jorge de Menesís on his way from Goa to Ternate in 1526, or that by the Spaniard Alvaro de Saavedra in 1528. In 1606 Torres, having parted company with De Quiros at the New Hebrides, sailed, on his way to the Philippines, through the strait which separates the island from Australia, and which now bears his name.

3. **Colonisation.**—Little progress was made for many years in exploration and settlement. First the Portuguese, and afterwards the Dutch, who to a great extent replaced them as the principal European traders in the East, seem to have jealously excluded other traders and adventurers, and to have kept the knowledge of their discoveries to themselves. The coasts were visited by Roda, Schouten, Lemaire, Tasman, Dampier, Torres, Bougainville, and Cook; but the difficulties of navigation, the savagery of the islanders, and the tempting fields for enterprise in the more temperate regions further south, diverted the energy of traders and voyagers. Forrest describes a voyage by himself in 1774. In 1793, New Guinea was annexed by two commanders in the East India Company's service. Since that date the Dutch have made extensive surveys of the western portion, and the British and Germans have occupied and colonised the eastern. In September, 1914, German New Guinea was seized and occupied by Great Britain by means of a force raised and despatched by the Australian Government.

4. **Partition.**—The three colonising powers agreed to the partition of New Guinea, each having suzerainty over islands adjoining its own territory. The whole of the portion west of the 141st degree of latitude, comprising about 150,000 square miles, or nearly half the island, belongs to the Dutch. The eastern half was divided in almost equal portions between Great Britain and Germany, the area possessed by each (with adjacent islands) being about 90,000 square miles. An Anglo-German boundary commission, appointed for the purpose of defining the boundary between the territories of the two nations, started operations on 26th December, 1908, and completed the field-work on 27th October, 1909. The total length of boundary delimited was $66\frac{1}{2}$ miles. The work was both important and difficult. For a considerable portion of the survey, the country was exceedingly rough and mountainous, and the natives hostile. In one instance, the line was carried over a range at an elevation of 11,110 feet. The Dutch colony forms part of the residency of Ternate in the Moluccas, and has not been extensively developed. The German protectorate, where considerable commercial development had taken place, included the northern part of the eastern half of the mainland, known as Kaiser Wilhelm Land, and the large islands of the Bismarck Archipelago and the Solomon Group, as well as nearly 200 smaller islands. The south-eastern portion of New Guinea, nearest Australia, is a dependency of the Commonwealth of Australia. The German Pacific protectorate was terminated in 1914.

§ 2. The Australian Dependency of Papua.

1. **Australian Dependency of Papua.**—Surveys of the east coast of New Guinea by Stanley, Yule, Blackwood, Moresby, and others, brought home to Queensland, and to Australia generally, the danger to her commerce which would result from foreign possession of the islands and coasts opposite to Cape York, and from the holding by a hostile power of the entrance to the splendid waterway inside the Barrier Reef. The mainland opposite the shores of Queensland east of the 141st meridian was therefore annexed by that colony in 1883; but the action was disallowed by the British Government. In 1884, however, a British protectorate was authoritatively proclaimed by Commodore Erskine over the region lying east from the 141st meridian as far as East Cape, with the adjacent islands as far as Kosman Island. In the year following, an agreement with Germany fixed the boundaries between the possessions of the two countries, and to Great Britain was assigned the portion now known as Papua, lying between the extreme limits of 5° and 12° S., and 141° and 155° E. The British protectorate was subsidised by Queensland, New South Wales, and Victoria, and lasted till 4th September, 1888, when it was proclaimed a possession of the Empire. Its constitution was then that of a Crown colony, in association, however, with Queensland. Administration was in the hands of a Lieutenant-Governor, aided by an Executive and a Legislative Council, and advised by a Native Regulation Board. Port Moresby, on the south coast, was made the headquarters of the official establishment; a supreme court was established there, and magisterial courts in the districts; and an armed native constabulary force (numbering 321 on 30th June, 1916), under a European officer, was instituted for the maintenance of order. There were also, on the same date, 730 native village constables employed by the Crown.

2. **Annexation by Commonwealth.**—The territory was placed under the authority of the Commonwealth on 1st September, 1906, by proclamation issued in pursuance of Letters Patent of the 18th March, 1902, and was accepted by the Commonwealth by the Papua Act 1905, which came into force by virtue of the proclamation aforesaid. The transfer was made under the authority of section 122 of the Constitution (see p. 35 hereinbefore). The territory is now under the administration of the Commonwealth, but not included within it, and is divided into eleven magisterial districts.

3. **Physical Characteristics.**—Papua lies wholly within the tropics. The northernmost point touches 5° S. latitude; its southernmost portion, comprising Sudest and Rossel Islands, lies between 11° S. and 12° S. latitude. It is separated from Australia by Torres Strait. The length of Papua from east to west is upwards of 800 miles; towards either end the breadth from north to south is about 200 miles, but about the centre, it is considerably narrower. The territory comprises also the islands of the Trobriand, Woodlark, D'Entrecasteaux, and Louisiade groups. The length of coast-line is computed at 3664 miles—1728 on the mainland, and 1936 on the islands. The total area is about 90,540 square miles, of which 87,786 are on the mainland and 2754 on the islands. From the eastern end of the territory rises a chain of mountains, which forms a great central ridge and attains its greatest altitude, as it extends westwards, in the Owen Stanley Range, the highest points of which are Mount Victoria (13,200 feet), Mount Scratchley, the Wharton Range, and Mount Albert Edward. The western end of the possession is for nearly 300 miles generally low and swampy for some distance along the coast. The whole territory is well watered. The great mountains and a great portion of the lower country are covered with forest. The islands are mountainous, and, with the exception of the low coral islands of the Trobriand Group, part of Murua, and a few others of small dimensions, principally of volcanic formation. The highest is Goodenough Island, 8000 feet. The largest rivers of the mainland flow into the Gulf of Papua. The Fly River, with its tributaries, drains an extensive area of the territory of the Netherlands, as well as the British. Its length in British territory is about 620 miles, and it is navigable by a steam launch for over 500 miles. Other important rivers are the Turama and the Purari. There are many excellent harbours.

§ 3. Population.

The total white population of Papua on 30th June, 1916, was 992, made up of 647 adult males and 216 adult females (adults being persons over 16 years of age), and 64 male and 65 female children. The following table gives the population of Papua for the last five years :—

WHITE POPULATION OF PAPUA, 1912 to 1916.

YEAR ENDED 30TH JUNE.

1912.	1913.	1914.	1915.	1916.
1,064	1,219	1,186	1,037	992

The chief occupations of adult male Europeans were :—Planters (including managers and assistants), 115 ; miners, 108 ; Government officials and employees, 105. The number of missionaries is stated as 75.

It is not possible to make a reliable estimate of the number of natives, owing to the fact that much of the interior country is unexplored. It is generally assumed to be somewhere between 400,000 and 500,000. These speak many languages and dialects. The coloured population, other than Papuans, numbered on 30th June, 1916, 351, of whom 245 were mission teachers principally from Samoa, Raratonga, and other South Sea Islands. On the same date, half-castes, including Papuan half-castes, totalled 341. An Immigration Restriction Ordinance prohibits the immigration into the territory of persons who fail to pass the dictation test, or who are persons of bad character, or likely to become a charge upon the public. Exemptions may, however, be granted by the Lieutenant-Governor to persons of special skill whom it is desired to employ as overseers or foremen.

§ 4. Native Labour.

The rights of both employer and labourer are conserved by the Native Labour Ordinances. Service on the part of the native is voluntary, and he must be justly treated, and properly housed and fed. Employers may recruit personally, or obtain their natives through a licensed recruiter. Contracts of service must be in writing, entered into before a magistrate or other qualified officer, and the natives must be returned to their homes on completion of engagement. The labour question is complicated by the communistic system which prevails in the villages. Native custom demands that the friends or fellow-clansmen of the returned labourer receive a share-in whatever he gets. The result is that the stimulus of individual interest is largely absent. During the period of service the recruiter or employer is personally responsible for the native's welfare. Refusal to work after engagement, or desertion from service, renders the labourer liable to imprisonment. On the other hand, a magistrate may terminate an engagement where unjust or harsh treatment by the employer is proved. The term of indenture must never exceed three years, and in the case of miners and carriers eighteen months is the limit, but re-engagements may be made. The magistrate must satisfy himself that the remuneration is fair, that the native is willing to undertake the service, and that there is no probability of unfair treatment or detention. Wages must be paid in the presence of an officer. A medicine chest, stocked with necessary drugs and first aid instruments, must be kept by all employers.

Just treatment, good food, and satisfactory remuneration for his labour have made the Papuan savage an excellent servant. With considerable natural aptitude and intelligence, he is able to understand readily what is required by his employer ; consequently native labour is very largely engaged by the Administration for the construction of roads and public works, and by the private employer for the clearing and upkeep of plantations. In some districts, however, the natives manifest a marked unwillingness to work. Actual ill-treatment of native employees may be said to be non-existent.

The number engaged under contract of service during the year ended 30th June, 1916, was 6686. In addition, there were 1290 natives employed who were not under contract of service, and 1606 employed as boat crews, on public works, plantations, etc., making a total employed of 9582 for the year, as against 10,271 in the preceding year.

§ 5. Production.

1. **Papuan Products.**—The products of the territory are obtained from its agricultural, forestal, fishing, mining, and manufacturing industries. There is a Papuan Court at the Imperial Institute, London, where, beside maps, handbooks and reports, a representative collection of products is shewn, additions being made to the exhibits from time to time. Displays of Papuan produce are also made at exhibitions held in the Commonwealth. The industries of Papua are not numerous, but they are becoming more diversified. In many cases, some years must elapse before the raw material is available for commerce.

2. **Agriculture.**—(i.) *Soil and Rainfall.* The physical features of Papua are favourable to agriculture. Rich soils at varying elevations, and heavy and evenly-distributed rainfall, have ensured success in cultivating almost every tropical product of value. The territory comprises immense areas of rich alluvial and volcanic soils along the coast, and equally fertile land at elevations up to 6000 feet. Splendid rainfalls are recorded, except over a belt of country which runs back from the coast to the hills, and which has its dry season from May to November. This "dry" area is admirably suited for the production of tobacco, fibres, cotton, etc. There are 22 meteorological-stations throughout the territory. An economic museum and agricultural library have been established. By anticipating and removing many of the pioneering difficulties, the Government has made the task of the colonist an easy one. The feature of recent years has been the steady investment of capital in the development of large areas previously acquired. One of the principal difficulties of planters is the heavy growth of weeds, and the Government has undertaken experiments with the planting of grasses to take the place of weeds, and so keep down rank vegetation.

(ii.) *Plantations.* On 30th June, 1916, there were 243 plantations. Agricultural settlement has been mostly in the Central and Eastern Divisions, though plantations are rapidly spreading in other districts. The total area planted was 47,506 acres, or an average of 195 acres for each plantation. The principal plantation industries entered upon up to the present are coconuts, rubber, sisal hemp, and tobacco. Secondary agricultural industries are the cultivation of bowstring hemp, coffee, vanilla, kapok, cocoa, tapioca, cinnamon, tea, and maize. The natives are compelled by an ordinance to plant coconuts for food supply, and over a quarter of a million of nuts have been planted in the last three years. The following table shews the areas under the different cultures on 30th June, 1916:—

Coconuts	...	...	...	...	...	...	Acres.
Rubber	...	...	...	...	...	...	34,016
Hemp	...	...	...	...	...	...	7,671
Cotton	...	...	...	...	...	...	4,812
Tobacco	...	...	...	...	...	...	13
Maize	...	...	...	...	...	...	200
Other cultures (including fruit trees)	...	...	...	...	...	...	71
							723
Total	...	...	...	...	...	...	47,506

It is estimated that over £1,000,000 has been expended in plantations, and, with the exception of two large British companies, practically the whole of the capital has been subscribed in Australia and locally.

(iii.) *Government Plantations and Experimental Stations.* There are six Government plantations with a total area under cultivation of 1515 acres. The table hereunder shews their distribution. The expenditure on these from loan funds to the 30th June, 1916, was £21,361.

PAPUAN GOVERNMENT PLANTATIONS AND EXPERIMENTAL STATIONS.

Locality.	Nature of Cultivation.	Area.
Orangerie Bay	Coconuts	Acres. 621
Kemp-Welch River	Rubber, coconuts, etc.	420
Milne Bay	Coconuts, etc.	57
Hombrom Bluff	Rubber, etc.	157
Kapari	Rubber, coconuts	45
Nari Island	Coconuts	215

Sylvicultural nurseries have been established in connection with the plantations with the object of supplying settlers with seeds and plants, which have been imported from the East and West Indies, Central America, tropical Australia, Ceylon, the Malay States, and the Solomon Islands. At the experimental stations, the suitability of the soil and climate for different products is tested, and correct methods of cultivation demonstrated. Large quantities of plants and seeds have been distributed to planters. A Government orchard, for supplying fresh fruit and vegetables, has been established at one of the stations, and yields considerable quantities of European fruit-foods.

(iv.) *Indigenous Products.* There are many indigenous plants of great economic value. These comprise sandalwood and other timber trees, sugar-cane, cotton plants, rubber-both vine, nutmegs, ginger, bamboos, palms, bananas, bread-fruit, edible nuts, sago-palms, fruits, and vegetables.

3. *Live Stock.*—On 30th June, 1916, the live stock in the territory consisted of 406 horses, 5 donkeys, 1162 head of cattle, 128 mules, 39 sheep, 747 goats, 458 pigs, and 7925 fowls. A Government stud farm has been established for the breeding of horses, and the stock at the end of June, 1916, numbered 68, including 1 stallion and 20 mates. The introduction of rabbits, foxes, hares, and monkeys is prohibited.

4. *Forest Products.*—There is a large diversity of useful timbers in Papua. Of 120 varieties that have been catalogued, 16 are adapted to resisting heavy strains, and are suitable for girders, railway waggons, etc.; 10 for railway carriage and coach building; 15 for joinery, lining, flooring, etc.; 14 for butter boxes; 5 for boat building; 4 for piles, and 15 for cabinet work. Sandalwood is indigenous. It is largely used for cabinet work, and santal oil is distilled from its roots. Ebony is also produced for export. Rubber is a promising industry. There are considerable areas of native rubber (*Ficus Rigo*); but the planters generally prefer the imported Pará rubber. Guttapercha is obtained from a species of *palaquium*, which grows on the hills. Drugs, dyewoods, and spices are also obtained from indigenous plants. Saw mills have been established, but the output has not been sufficient to supply the local demand for building and other timber, and large quantities of sawn timber have been imported from Australia. Contracts have been made by residents to ship timber to Great Britain. The timber licenses in force during 1916 covered 41,000 acres.

5. *Fisheries.*—Pearl-shell fishing occupies an important place in the industries of Papua. A considerable number of luggers is licensed, but the returns are mostly credited to Queensland, whose boundary approaches to within a few miles of the Papuan coast. The species of tortoise which supplies the commercial tortoise-shell is also a native of the territory. Bêche-de-mer and trochus are found along the shores and reefs. There is a dugong fishery on the coast of the Western Division. The value of fisheries exports in 1914-15 was over £14,000, and in 1915-16 about £11,000, the latter figure including trochus shell to the value of £6770.

6. *Mining.*—(i.) *Variety of Minerals.* Minerals have been discovered in many places, and over an extremely wide range. Those discovered so far are—gold, copper, tin, lead, zinc, cinnabar, iron, osmiridium, gypsum, manganese, sulphur, graphite, and petroleum.

With regard to the last-mentioned mineral it may be noted that petroleum of good quality has been secured at Vailala, and a small quantity was raised in 1915. Boring operations are still in progress. Of precious stones, only the topaz and beryl have been obtained. Large beds of apparently good coal also exist. A geologist was added to the Government service at the beginning of the year 1911.

(ii.) *Gold.* In 1888 the first gold was discovered. The search has now spread over every division, and finds have been recorded wherever the explorers have gone. Prospecting parties are subsidised by the Government. There are 111 white miners and 1218 indentured labourers; the majority of the whites are working the Murua goldfield. The quantity and value of the gold yield for five years are given below:—

GOLD YIELD, PAPUA, 1911-12 to 1915-16.

1911-12.		1912-13.		1913-14.		1914-15.		1915-16.	
Quantity.	Value.								
ozs.	£								
17,047	60,608	18,247	64,115	14,666	50,110	15,290	51,221	10,930	43,248

Most of the rivers, with the exception of those flowing into the Gulf of Papua, have been declared open to gold-dredging, and good yields have been obtained from many of the rivers thus dredged. The total quantity of gold won to 30th June, 1916, was 398,717 ounces, valued at £1,436,249.

(iii.) *Copper.* Rich and extensive deposits of cupriferos ore have been located, and prospecting is still in progress. Owing to heavy transport charges, only the richest ore is, at present, shipped. The Astrolabe, Dubuna, and Mount Diamond were the principal mines exporting during 1915-16. Only 864 tons, valued at £9971, were exported, as compared with 1150 tons, valued at £19,700 in 1913-14. The total amount shipped to date is 5443 tons, valued at £85,730.

(iv.) *Other Minerals.* Some good samples of galena (sulphide of lead) have been obtained. Small quantities of cinnabar (sulphide of mercury), graphite (or plumbago), osmiridium (or iridosmine), zinc, native sulphur and other minerals are also found.

A mineral laboratory and museum has been fitted up, and is available to prospectors and others interested.

§ 6. Statistical Summary.

1. **Revenue and Expenditure.**—The revenue and expenditure for 1915-16, under principal heads, are given below; also a summary covering a period of five years. In addition to the revenue collected during the year, amounting to £49,311, a sum of £30,000 was granted by the Commonwealth Government.

REVENUE AND EXPENDITURE OF PAPUA, 1915-16.

REVENUE.			EXPENDITURE.		
Customs and Excise ...	...	£33,931	Lieutenant-Governor and Civil list	£2,950	
Post Office ...	...	1,355	Government Secretary ...	34,706	
Native labour fees ...	...	1,995	Treasury ...	10,857	
Hospital fees ...	...	588	Lands and Agriculture ...	7,857	
Mining receipts ...	...	1,613	Public Works ...	11,500	
Land leases ...	...	1,258	Medical ...	6,476	
Harbour dues ...	...	1,543	Department of Native Affairs ...	1,685	
Miscellaneous receipts ...	...	7,028	Central Court ...	1,493	
			Legislative Council ...	222	
			Defence ...	167	
Total ...	...	£49,311	Total ...	...	£77,913

REVENUE AND EXPENDITURE OF PAPUA, 1911-12 to 1915-16.

Item.	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.
	£	£	£	£	£
Revenue	51,035	52,335	54,704	51,960	49,311
Expenditure	85,636	89,170	81,095	82,535	77,913

2. Imports and Exports.—The value of imports and exports for the last five years is shewn in the table below:—

VALUE OF IMPORTS AND EXPORTS OF PAPUA, 1911-12 to 1915-16.

Particulars.	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.
	£	£	£	£	£
Imports	235,369	218,323	212,134	202,055	223,040
Exports	99,990	128,016	123,140	94,354	125,428
Total trade	335,359	346,339	335,274	296,409	348,468

As in all new countries, the imports consist chiefly of articles necessary for the primal needs of the community. Thus in 1915-16 the imports of foodstuffs came to £75,000; drapery, £30,000; hardware, ironmongery and machinery, £38,000; tobacco, £15,000; kerosene and other oils, £11,000. The chief items of export during the last five years are as follows:—

EXPORTS OF PAPUA, 1911-12 to 1915-16.

Article.	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.
	£	£	£	£	£
Gold	49,316	62,332	47,233	50,889	43,249
Copra	19,368	16,912	26,063	12,693	19,051
Rubber	935	517	1,536	1,501	14,846
Hemp	720	3,039	3,633	1,269	11,999
Copper Ore	9,681	18,997	19,733	5,607	9,971
Pearl Shell and Trochus Shell...	2,442	8,512	11,212	4,292	7,072
Pearls	9,605	9,284	4,602	6,113	1,000

The development of the plantations is reflected above in the increased exports of rubber and hemp, and as greater areas come into bearing, these figures will, of course, increase. Up to the end of 1914-15 the copra exports were almost wholly native products.

3. Postal and Shipping.—Considerable development has been shewn in means of communication—the postal returns, and the tonnage of vessels entered and cleared at ports, having largely increased. Particulars regarding postal matter are given hereunder:

POSTAL STATISTICS OF PAPUA, 1911-12 to 1915-16.

Year.	Letters.		Packets.		Newspapers.		Parcels.	
	Received.	Des-patched.	Received.	Des-patched.	Received.	Des-patched.	Received.	Des-patched.
1911-12 ...	124,603	97,783	23,433	5,336	88,873	36,107	2,769	949
1912-13 ...	136,585	111,574	23,088	5,338	112,931	37,030	2,935	1,049
1913-14 ...	158,760	124,353	24,458	8,347	130,620	35,011	3,305	1,367
1914-15 ...	144,193	98,158	23,878	7,215	111,011	37,393	3,220	1,004
1915-16 ...	157,218	112,572	30,054	2,460	100,464	13,302	2,904	876

The value of money orders issued in 1911-12 was £7449; of those paid, £664. In 1915-16, the respective values were £6411 and £1078.

The following table shews the number, tonnage, and nationality of vessels entered and cleared at ports during the years 1911-12 to 1915-16:—

**SHIPPING—FOREIGN-GOING VESSELS ENTERED AND CLEARED AT PORTS OF
PAPUA, 1911-12 to 1915-16.**

Nationality.	Vessels.									
	Number.					Tonnage.				
	1911-12	1912-13	1913-14	1914-15	1915-16	1911-12.	1912-13.	1913-14	1914-15	1915-16.
British... ..	291	1,721	863	610	166	135,015	182,676	159,776	262,897	96,753
Foreign	64	56	66	33	48	140,788	123,802	198,730	99,729	151,134
Total... ..	355	1,777	929	643	214	275,803	306,478	358,506	362,626	247,887

The preponderance in number of British vessels in 1912-13 was caused by the inclusion in the returns, for that year only, of small fishing and recruiting vessels. Throughout, the figures are exclusive of ships of war and Government vessels.

§ 7. Land Tenure.

1. **Method of Obtaining Land.**—(i.) *The Land Laws.* The broad principles upon which the land laws of Papua are based are:—(a) No land can be alienated in fee simple; (b) the rental of the land leased is assessed on the unimproved value of the land, and is subject to reassessment at fixed periods.

A detailed account of the method of obtaining land was given in Official Year Book No. 6, pp. 1083-4.

(ii.) *The Leasehold System.*—With a view of attracting pioneer settlers, an ordinance was passed in 1906 under which leases were granted on very liberal terms. No rent was payable for the first ten years, the heavy expense of survey was borne by the Government, and no charge was made for the preparation and registration of the leases; that is to say, no payments whatever had to be made to the Government for 10 years. Under this system, the area under lease increased in four years from 2089 acres to 363,425 acres; about 140 plantations were started, and nearly 1000 acres planted during that period.

After allowing free survey for three years, it was decided that all future applicants for agricultural leases exceeding in area 100 acres should be required to pay the cost of survey. It was also found desirable to check a tendency amongst a proportion of land applicants to obtain areas so great that the improvement conditions could not be carried out. It was therefore enacted that no leases should be granted after 1st June, 1910, exceeding 5000 acres in extent, and that rent at the rate of 3d. per acre must be paid from the commencement on all leases exceeding 1000 acres in area. As a result of these enactments, several leases have been forfeited. On the other hand, a stricter enforcement of improvement conditions has resulted in a substantial raising of the standard.

2. **Land Tenures.**—On 30th June, 1916, the lands of the territory were held as follows:—

	Acres.	
Area of land held by the natives	57,099,064	
Area of Crown land	595,438	
Area of freehold land	23,085	
Area of leasehold land	228,013	
Area of territory	57,945,600	

Private sales of land in the territory have now practically ceased. The Government buys from the natives, and then leases to planters, who are forbidden to have direct dealings in land with Papuans. The position as regards leasehold tenures may be seen from the following table:—

AREA HELD UNDER LEASE IN PAPUA, 1911-12 to 1915-16.

Year ended 30th June.	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.
Land held under lease ... acres (as recorded).	332,422	290,936	230,879	235,072	228,013

Of the total area of 228,013 acres shewn above, over 200,000 acres were agricultural leases, and 27,000 acres were held under pastoral lease.

In 1915-16, the area of leases granted was 6639 acres; that of leases surrendered, revoked, and forfeited was 14,928 acres. The area of land acquired by the Crown from the natives was 4991 acres.

The total area surveyed in the Territory is 22,523 acres of freehold, and 246,128 acres of leasehold.

§ 8. Progress of the Territory.

1. Statistical View of Ten Years' Progress.—As already stated (§ 2, *supra*) the territory was placed under Commonwealth control on 1st September, 1906. The following table indicates the progress that has been made since that date:—

STATISTICAL SUMMARY, PAPUA, 1907-1916.

Items.	Year ended 30th June.	
	1907.	1916.
White population	690	992
Native labourers employed (exclusive of Crown servants) ...	2,000	7,976
Number of white civil servants	65	105
Armed constabulary	185	321
Village constables	401	730
Territorial revenue	£ 21,813	49,311
Territorial expenditure	£ 45,335	77,913
Value of imports	£ 87,776	223,040
Value of exports	£ 63,756	125,428
Area under lease acres	70,512	228,013
Tonnage of ocean-going vessels entered and cleared at ports ...	159,177	247,887
Area of plantations acres	1,467	47,506
Meteorological stations established	3	22
Gold yield ounces	16,103	10,930
Copper ore shipped tons	137	864
Live stock in territory—		
Horses	173	406
Cattle	648	1,162
Mules	40	128

SECTION XXX.

PUBLIC HYGIENE.

§ 1. Introduction.

1. **General.**—Though the safeguarding of the public health as an organised department of administration is of comparatively modern growth, few branches of law have expanded more rapidly than the one relating to that subject. The loss of potential wealth incurred through preventable diseases and deaths is of grave concern to the nation, and is a matter which has recently received an increased amount of attention both from the Commonwealth and State Governments and from the Health and other authorities in Australia. Numerous Acts of Parliament have been passed dealing with various aspects of the subject of public hygiene.

2. **State Legislation.**—In the first place there is a number of statutes, passed by the State Legislatures, such as Public Health Acts, Pure Food Acts, and Milk and Dairy Supervision Acts, providing, *inter alia*, for the constitution of Central Health Authorities, vested with definite powers, and furnishing the machinery necessary to enforce these powers. The general effect of this legislation has been to place local sanitary regulations and the execution of the Acts in the hands of the local authorities, subject to a general superintendence by a Government department.

3. **Commonwealth Legislation.**—Secondly, by the enactment of the Commerce (Trade Descriptions) Act 1905, the Quarantine Act 1908-1912, and the Customs Act 1910, the Commonwealth Government has taken the first steps towards the exercise of its constitutional powers for the protection of the public health. All these Acts are administered by the Department of Trade and Customs.

4. **Scope of Enquiry.**—In addition to the statutes already referred to, account should be taken of a large body of legislation which relates more or less indirectly to the subject of public hygiene. It deals with a great variety of subjects and matters, such as factories, conditions of employment, mines, merchant shipping, prevention of fire, buildings, dangerous performances, contagious diseases, and other matters. There is also a number of statutes which have been passed with the object of protecting and supervising infant life. Owing to exigencies of space it is not possible in this section to do more than give a brief description of the scope and results of the legislation relating to public hygiene in its more important aspects.

§ 2. The Public Health Acts.

1. **General.**—The most important statutes relating generally to the subject of public hygiene are the Health Acts which have been passed in each State. While the scope of these Acts differs considerably in some of the States, there is a general similarity in their chief provisions and range of operation. The administration of the Acts is carried on by either a Central Board or a Commissioner of Health under Ministerial control, while their actual execution is imposed on local Boards of Health or on the local authorities constituted under the various Local Government Acts. Ordinarily the central authority has general supervisory powers over local Boards and authorities, and also has power to act in case of default by or in the absence of a local Board or authority as to any duty under the Act, and to recover all expenses incurred. The central authority may also make regulations, and the central and local Boards may make by-laws for various purposes generally specified in the Health Acts. Generally it may be said that the chief

functions of the Central Health Authorities are :—(a) the collection and dissemination of useful information relating to health and the prevention of disease, and (b) to control, stimulate, and, where necessary, to supplement the efforts of the local authorities.

Inspectors are sent to make reports on the hygienic conditions of country towns or districts with a view to assisting the local authorities with advice, and keeping the central department posted as to the activity or otherwise of these various bodies.

Rating powers for sanitary purposes are conferred on local authorities by the Local Government Acts.

The general powers of local authorities under the Acts extend to a variety of subjects and matters, including:—sewers and drains, sanitary conveniences, scavenging, cleansing, privies and cesspools, abatement of nuisances generally, offensive trades, public buildings, dwelling-houses and lodging-houses, hospitals, mortuaries, cemeteries, and burial grounds, prevention of adulteration of food and drugs, unsound food, pollution of water, supervision of abattoirs and dairies, prevention of infectious diseases, and infant life protection.

2. New South Wales.—The Department of Public Health is controlled by the Minister of Public Health. The Director-General of Public Health is the chief executive officer, and is assisted by various staffs—medical, bacteriological, chemical, veterinary, dairy inspection, meat inspection, sanitary, pure food, and clerical. Briefly put, the work of the Department extends over the whole of the State, and embraces all matters relating to public health and the general medical work of the Government; the Director-General of Public Health holding the position of Chief Medical Officer of the Government as well as being permanent head of the department.

The Board of Health has certain statutory duties imposed upon it by various Acts of Parliament, and the Director-General is President of the Board. These duties consist largely in supervision of the work of local authorities (Municipal and Shire Councils), so far as that work touches upon public health matters connected with the following Acts:—Public Health Act 1902, Public Health (Amendment) Act 1915, Dairies Supervision Act 1901, Noxious Trades Act 1902, Cattle Slaughtering and Diseased Animals and Meat Act 1902, Pure Food Act 1908, and Private Hospitals Act 1908. The Board further possesses certain powers connected with public health matters under the Local Government Act 1906. It may be mentioned that the Board of Health is a nominee Board, created in 1881 and incorporated in 1894.

The Director-General of Public Health acts independently of the Board of Health as regards the State hospitals and asylums, and the various public hospitals throughout the State which receive subsidies from the Government.

3. Victoria.—In this State the Public Health Acts are administered by a Board composed of two members nominated by the Governor-in-Council and of seven members elected by the municipal councils. The medical and sanitary staffs of the Board consist of (a) the medical inspector, who is also chairman, (b) one assistant medical inspector, (c) two engineering inspectors, (d) three building inspectors, and (e) six health inspectors. The main function of the Board is to enforce the execution of the Health Acts by the local municipalities, but it has been found advisable to supplement this supervisory function by an active policy of inspection as to the sanitary condition of various districts and the sampling of articles of food. The supervision of the sanitary condition of milk production is under the Dairy Supervision Branch of the Department of Agriculture, but distribution is supervised by the Board of Health. Acts administered by the Department of Public Health are :—The Health Acts, the Cemeteries Act, and the Meat Supervision Act. The Consolidated Health Act 1915 includes the Adulteration of Wine Act and also the Pure Food Act. The Cremation Act is now included under the Cemeteries Act 1915. The Department administers the Midwives Act also.

4. **Queensland.**—The Public Health Acts 1900 to 1917 are administered by the Commissioner of Public Health under the Home Secretary. The executive staff of the Department includes a health officer, an assistant health officer, a medical officer for the tuberculosis bureau, twelve food and sanitary inspectors, in addition to rat squads in Brisbane. Northern offices, in charge of inspectors, are located at Rockhampton, Townsville, and Cairns. A laboratory of microbiology and pathology, in charge of a medical director, is controlled by the Department, and performs a wide range of microbiological work for the assistance of medical practitioners and the Department.

One function of the Department is to stimulate and advise local sanitary authorities on matters pertaining to the Health Acts, and, where necessary, to rectify or to compel rectification, at the cost of the local authority, of sanitary evils produced by local inefficiency or apathy. Its powers and responsibilities were widely increased by the Health Act of 1911-17.

A scheme for the limitation of venereal disease in the metropolitan area is in operation in Brisbane under statutory powers. It includes compulsory notification, free treatment, and the free supply of salvarsan and allied remedies to all public hospitals. Compulsory segregation of venereally infective persons, of either sex, may be effected on occasion. The Health Acts Amendment Act 1917, has extended the venereal clauses to the whole State.

5. **South Australia.**—The Central Board of Health in South Australia consists of five members, three of whom (including the chairman) are appointed by the Governor, who is permanent head of the Department, while one each is elected by the city and suburban local Boards and the country local Boards. The Health Act 1898 provides that the municipal and district councils are to act as local Boards of Health for their respective districts. There are 182 of these local Boards under the general control and supervision of the Central Board. A chief inspector and two inspectors under the Health, Food, and Drugs Acts, periodically visit the local districts, and see generally that the Boards are carrying out their duties. There is also a chief inspector of food and drugs (under the Food and Drugs Act 1908), who, in company with an analyst, visits country districts, and takes samples of milk, which are analysed on the spot. There are two nurse inspectors employed in advising and assisting local Boards in connection with outbreaks of infectious diseases. In the outlying districts there are fourteen inspectors directly responsible to the Board.

6. **Western Australia.**—The legislation in this State is the Health Act 1911, with three amending Acts 1912 (2) and 1915. The central authority is the Department of Public Health, controlled by a Commissioner, who must be a qualified medical practitioner. The local authorities constitute:—(a) Municipal Councils, (b) Road Boards which may be appointed as such, (c) Local Boards of Health, composed of persons appointed by the Governor for a certain period. These Local Boards are only utilised where neither Municipal Councils nor Road Boards are available. Generally speaking, the Act is administered by the local authorities, but the Commissioner has supervisory powers, also power to compel local authorities to carry out the provisions of the Act. In cases of emergency the Commissioner may exercise all the powers of the local health authorities throughout the State.

All the usual provisions for public health legislation are contained in the Act, and in addition, provision is made for the registration of midwifery nurses, and the medical examination of school children.

The amending Act of 1915 deals exclusively with venereal diseases. The main features are:—(1) that none but qualified medical practitioners shall treat these diseases; (2) that all patients shall promptly place themselves under skilled treatment; and (3)

that advertisements of medicines and appliances for the treatment of these diseases, of sexual infirmities, etc., shall no longer be published. For the carrying out of these objects, the Act provides, *inter alia*—

- (a) For the notification (without name and address) of cases to the Commissioner of Public Health ;
- (b) For the notification to the Commissioner, of patients who discontinue treatment before receiving a certificate of cure ;
- (c) For the exercise by the Commissioner, in certain circumstances, of compulsory powers against persons who neglect treatment ;
- (d) For the provision of free treatment at hospitals, and at the hands of salaried or subsidised medical practitioners.

A penalty of £50, or imprisonment with hard labour for six months, is provided for any person who knowingly infects any other with any venereal disease, or does anything likely to lead to that result.

7. **Tasmania.**—The Public Health Act 1903 vests central control in the Chief Health Officer, who is the permanent head of the Department of Public Health. He is charged with very wide functions and powers, and in the event of the appearance of dangerous infectious disease (smallpox, plague, etc.) in the State, is vested with supreme power, the entire responsibility of dealing with such an outbreak being taken over by him from the local authorities. Local executive is vested in local authorities, who possess all legal requirement for the efficient sanitary regulation of their districts. Controlling and supervisory powers over these bodies are possessed by the Department of Public Health, whereby many of the powers conferred upon them may be converted into positive duties. One function of the Department is to advise local authorities on matters pertaining to the Health Act, and, where necessary, to rectify sanitary evils produced by local inefficiency or apathy. The department has three full-time inspectors, who assist and instruct the local sanitary inspectors, but full-time district health officers are not provided for. The number of local authorities under the Public Health Act has been reduced to fifty-one since the Local Government Act 1906 came into force. All parts of Tasmania are now furnished with the administrative machinery for local sanitary government.

The Public Health Act 1917 deals with venereal diseases. Medical practitioners are required to notify persons suffering from such diseases, but such notification, however, does not disclose the names or addresses of the patients.

§ 3. Inspection and Sale of Food and Drugs.

1. **Introduction.**—The importance of securing a pure and wholesome supply of food and drugs is recognised by both the Commonwealth and State Parliaments. Under the Acts referred to later, and the regulations made thereunder, the importation of articles used for food or drink, of medicines, and of other goods enumerated, is prohibited, as also is the export of certain specified articles, unless there is applied to the goods a "trade description" in accordance with the Act. Provision is made for the inspection of all prescribed goods which are imported, or which are entered for export.

2. **Commonwealth Jurisdiction.**—Under Section 51 (i.) of the Commonwealth Constitution Act 1900, the Commonwealth Parliament has power to make laws with respect to trade and commerce with other countries and among the States. By virtue of that power, the Commerce (Trade Descriptions) Act 1905, and the Customs Act 1910, to which reference has already been made in another part of this book (see pp. 539, 540), were passed.

3. **State Jurisdiction.**—The inspection and sale of food and drugs is also dealt with in each State, either under the Health Acts or under Pure Food Acts. There is, in addition, in the several States, a number of Acts dealing with special matters, such as the adulteration of wine and the supervision of meat. The sanitary condition of the milk supply is also subject to special regulations or to the provisions of special Acts.

(i.) *General Objects of Acts.* The general objects of the Acts dealing with the inspection and sale of food and drugs are to secure the wholesomeness, cleanliness, and freedom from contamination or adulteration of any food, drug, or article, and for securing the cleanliness of receptacles, places, and vehicles used for their manufacture, storage, or carriage. The sale of any article of food or any drug which is adulterated or falsely described is prohibited, as also is the mixing or selling of food or drugs so as to be injurious to the health. A more detailed account of the various State Acts and of their administration and enforcement is given in previous issues of the Year Book (see No. 6, p. 1090).

(ii.) *Inspection and Analysis.* Power is given to any authorised officer to enter any place for the purpose of inspecting any article intended to be used as a food or drug and also to inspect articles being conveyed through the streets, by water or by rail. He may take samples for examination or analysis, and may seize for destruction articles which are injurious to health or unwholesome. Chemical analyses and bacteriological examinations are made by qualified officers. Special provision is generally made in the Acts with regard to the sale of preservatives and disinfectants.

(iii.) *Advisory Committees.* In New South Wales, Victoria, and South Australia Advisory Committees have been appointed for the purpose of prescribing food standards and for making recommendations generally with a view to carrying out the provisions of the Acts. The duty of enforcing these regulations is entrusted to the local authorities, but it is stated that up to the present comparatively few of the local councils seem to have realised the importance of guarding the food supplies of the people.

4. **Food and Drug Standardisation.**—With the object of securing uniformity of food and drug standards of the principal manufactured products sold in the Commonwealth, a conference, which was attended by representatives of the Commonwealth and all the individual States except Western Australia, was opened in Sydney on 8th June, 1910. The result of this conference was that several adoptions of standards of food and drugs, and labelling of articles for consumption were made, so as to obtain uniformity in the several States. In June, 1913, a second conference of the principal Health Officers of the Commonwealth and States was held in Melbourne. Emphasis was laid on the importance of fixing uniform standards throughout the Commonwealth for food and drugs, and of also securing uniformity of administration of the laws relating thereto. It was also urged that, as the uniform enforcement of standards throughout the Commonwealth depends to a great extent on the methods of analysis, the Commonwealth and State analysts should prepare standard methods for determination of the chemical standards adopted. The resolutions of the conference were submitted to the Premiers' Conference held in Melbourne in March, 1914, when it was determined to introduce uniform legislation or regulation with respect to the preparation and distribution of food and drugs.

5. **The Sale of Poisons.**—In Victoria, New South Wales, Western Australia, and Tasmania, the enactments for regulating the sale and use of poisons are administered by the Pharmacy Boards in the respective States. In South Australia, the sale of poisons is provided for by regulations under "The Food and Drugs Act 1908," administered by the Central Board of Health. In Queensland, the Poisons Act was formerly administered by the Police, but a transfer of the administration to the Health Department is now proposed.

In all the States the necessity of responsible control of poisons has been realised. The preamble to the Victorian Act, which State alone retains it, emphasises this necessity, and contains the key to the objects sought to be obtained. The preamble is as follows:—

“Whereas the unrestricted sale of poisons often leads to fatal accidents and the commission of crime: And whereas large quantities of arsenic, strychnine, and other poisons are used in Victoria for pastoral, agricultural, and other purposes, and fatal accidents occur by reason of the careless custody and use of such poisons by the owners thereof, or persons in their employ: And whereas it is expedient for the safety of the public to regulate the sale of poisons, and to make provision for the exercise of proper precautions in the use of same: Be it therefore enacted, etc., etc.”

Generally, the poison legislation throughout the Commonwealth seeks to protect the public, and aims at the prevention and detection of crime by restricting the class of persons allowed to deal in poisons, and by imposing conditions of sale. No persons, other than legally qualified medical practitioners and registered pharmaceutical chemists, are permitted to sell poisons without special license from the bodies administering the legislation in the respective States. Licenses are issued for the sale of poisons on production of certificates from Medical Practitioners, Police, or special Magistrates or Justices as to the applicant's character and fitness to deal in poisons. Annual license fees, ranging from 5s. to 20s., are charged in the several States.

Special conditions are imposed which must be observed by sellers of poisons, namely:—special labelling, the use of special containers, entry in the poisons book of sales of the more dangerous poisons, presentation of a doctor's order by the purchaser where hypnotic and narcotic drugs are required, colouring of arsenic and strychnine, prohibition of sale of certain poisons to persons unknown to the seller. In South Australia, the regulations provide that vendors other than legally qualified medical practitioners, wholesale dealers, and registered pharmaceutical chemists, shall keep all poisons in a cupboard or room with the word “poisons” printed on the door. In Victoria, such vendors must keep poisons in the original package or container. The South Australian regulations also provide that poisons are to be delivered in bottles distinguished by touch from ordinary medicine bottles or from bottles ordinarily used for beverages.

Poisons may be sold by correspondence. In such cases the letter ordering the poisons shall be preserved by the vendor and a memorandum of the date of the letter, by whom it is written, and the quantity and particulars of the poison therein ordered shall be entered in the poisons book, and no person shall sell any such poison so ordered to any person with whose signature he is not acquainted, unless such signature has been witnessed or purports to have been witnessed by a Justice, Clergyman, or Public Officer, or is authenticated by some person known to the vendor.

In Victoria and New South Wales, arsenic and strychnine or uncoloured preparations thereof are not permitted to be sold unless—in the case of arsenic or such preparation thereof—it is before the sale mixed with soot or indigo in the proportion of at least one ounce of soot in Victoria, and one ounce of soot or half an ounce of indigo in New South Wales, to one pound of arsenic—and in the case of strychnine or such preparation thereof—it is before the sale mixed with Armenian bole or other coloring matter.

Exemptions from the regulations are made in some States in the case of sales of poisons for agricultural, horticultural and photographic purposes in so far that any person may sell them subject to the restrictions as to the class of container and the manner in which they may be sold. The sale of what is generally known as industrial poisons, such as sulphuric acid, nitric acid, hydrochloric acid, soluble salts of oxalic acid, etc., is governed by regulations, as also is the sale of poisons for the destruction of rats, vermin, etc.

In each State provision is made for the infliction of stringent penalties in all cases of non-observance of the law.

§ 4. Milk Supply and Dairy Supervision.

1. **Introduction.**—Milk is pre-eminently the food which needs most careful protection at each successive stage of its production, carriage, storage, and delivery, from exposure to infection from extraneous matter. The problem of obtaining a pure and clean milk supply has accordingly, during the last few years, demanded an increasing amount of attention from the Health authorities, and in each State special laws and regulations have been passed governing the supervision of dairy farms and dairies.

(i.) *General Provisions of Acts and Regulations.* In general, it may be said that it is not lawful to sell or offer for sale any milk which is not fresh or wholesome, or which has been watered, adulterated, reduced, or changed in any respect by the addition of water or any other substance, or by the removal of cream. Regulations made under the Acts provide for the carrying-on of dairy farms, dairies, factories, and creameries, under proper and wholesome conditions; and supervisors and inspectors are appointed to enforce these provisions. Generally, the execution and enforcement of the Acts are left to the local authorities.

(ii.) *Registration of Dairymen and Milk Vendors.* Dairymen, milk vendors, and dairy-factory or creamery proprietors are required, under penalty, to be registered. In some States registrations must be applied for before commencing to trade; in other States they must be applied for within a specified time after the premises are first used.

(iii.) *Inspection of Premises.* Dairy inspectors employed by the central departments traverse the principal dairying districts, and inspect dairy premises, dairy herds, appliances, and utensils, and ascertain in what fashion the various local authorities carry out the duties imposed on them. Regulations and instructions are issued by the central departments for the information and guidance of local authorities, dairymen, milk vendors, and others, as to precautions to be observed in order to protect milk from contamination, and to ensure cleanliness as to the structural arrangements, dimensions and ventilation of premises, and as to the care and health of dairy cattle. If an inspector is satisfied that any premises or apparatus used therein are unclean, or unfit for the purposes of dairy produce, he may require the owner to put the same in a proper and wholesome condition.

(iv.) *Notification of Diseases.* Every dairyman or milk vendor is required to report immediately any case of certain prescribed infectious diseases occurring in any human being engaged at or residing on his premises. It is the duty of the local authority to take care that communication between all persons belonging to the infected household and the milk business in all its details is prevented. Cases of notifiable diseases occurring in animals at a dairy farm or dairy must also be reported immediately, and the owner must at once isolate the diseased animal. The sale of milk from an infected cow is prohibited, and, under certain circumstances, an inspector may order an infected animal to be branded or destroyed.

(v.) *Analysis of Dairy Produce.* The local authority generally has power to enter premises and to take away samples of the milk, cream, butter, or cheese there found, and of the water supply therein, for the purpose of examination or analysis.

2. **Number of Dairy Premises Registered.**—The following table shews the number of dairy premises registered and the number of cattle thereon in four of the States during the year 1915-16.

NUMBER OF DAIRY PREMISES REGISTERED AND CATTLE THEREON, 1915-16.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.
Premises registered ...	†20,000	†	10,262	1,033	400	629
Cattle thereon ...	†650,000	†	226,285	7,040	6,086	6,053

† Not available. ‡ Estimated.

3. **New South Wales.**—The provisions of the Dairies Supervision Act 1901 extend to the whole of the Eastern and Central Divisions of this State and to all important dairying districts further inland. Other districts are brought under the operation of the Act by proclamation from time to time. Every dairyman, milk vendor, and dairy factory or creamery proprietor is required, under penalty, to apply for registration to the local authority for the district in which he resides, and also to the local authority of every other district in which he trades. Registrations must be applied for before commencing to trade and must be renewed annually. The Chief Veterinary Inspector is in charge of all inspectorial work under the Dairies Supervision Act 1901, and has assisting him one assistant veterinary inspector and 14 qualified dairy inspectors, each in charge of a district.

4. **Victoria.**—The inspection and supervision in Victoria of dairies, dairy farms, dairy produce, milk stores, milk shops, milk vessels, dairy cattle and grazing grounds are provided for by the Milk and Dairy Supervision Act 1905, administered by the Minister of Agriculture. Under the Health Act 1890 and the Pure Food Act 1905, however, the Department of Public Health is empowered to take samples of food (including milk, cream, butter, cheese, and other dairy products) for examination or analysis, to institute prosecutions in case of adulterated or unwholesome food, and to carry out inspection of dairies, etc., in districts not yet proclaimed under the Act. By the end of the year 1914, 110 municipal districts, comprising about one-fourth of the area of the State, had been brought under the operation of the Milk and Dairy Supervision Act. The municipal councils have the option of carrying out the execution of the Act themselves or of electing for execution by the Department of Agriculture; up to the present all but one of the municipalities in which the Act has been proclaimed have elected for Departmental execution.

5. **Queensland.**—The control and supervision of the milk supply and of dairies and the manufacture, sale, and export of dairy produce in Queensland are provided for by the Dairy Produce Acts 1904 and 1911, administered by the Department of Agriculture and Stock. These Acts and the regulations made thereunder apply only to prescribed districts, which comprise the whole of the coastal district from Rockhampton down to the New South Wales border, and the Darling Downs, Maranoa, Mackay, and Cairns districts.

6. **South Australia.**—The Food and Drugs Act 1908, and the Regulations made thereunder, provide for the licensing of vendors of milk and the registration of dairies, milk stores and milk shops. The Metropolitan County Board carries out the requirements of the metropolitan area. In the country, the majority of local authorities have not made statutory provision for the licensing of vendors of milk and the registration of dairy premises; and, in consequence, the Central Board of Health provides for such under the Act.

7. **Western Australia.**—Control of dairies throughout the State is in the hands of the Public Health authorities under the provisions of the Health Act. The inspectors under the Act supervise all sanitary conditions of the premises, the examination of herds

being carried out by officers of the Department of Agriculture for the Health Department. This inspection of herds is regularly carried out, and in the case of such animals as arouse suspicion, the tuberculin test is applied. Regular inspection of premises from a sanitary point of view is also maintained.

8. **Tasmania.**—Local authorities are responsible for the dairies in their respective districts. By-laws for the registration and regulation of dairies have been drafted by the Public Health Department, and in the majority of cases have been adopted by the local authorities. By the Food and Drug Act, which came into force March, 1911, milk sampling is carried out by the local authorities. During 1913, attention was drawn by circular to the requirements of local authorities with regard to dairies, and a special report is now required before licenses are granted. An Act also provides for the registration and inspection of dairies and other premises where dairy produce is prepared, and regulates the manufacture, sale, and export of dairy produce.

§ 5. Prevention of Infectious and Contagious Diseases.

1. **General.**—The provisions of the various Acts as to precautions against the spread and the compulsory notification of infectious diseases may be conveniently dealt with under the headings—(a) Quarantine; (b) Notifiable Diseases; and (c) Vaccination.

2. **Quarantine.**¹—Under the Commonwealth Quarantine Act 1908, the systems of State quarantine formerly in operation were abolished, and a branch of the Department of Trade and Customs, under the immediate control of a Director of Quarantine, was created on 1st July, 1909. Amending Quarantine Acts were passed in 1912 and 1915, correcting certain imperfections in the original Act, and conferring additional powers. As far as is at present practicable, uniformity of procedure has been established throughout the Commonwealth in respect of all vessels, persons, and goods arriving from oversea ports or proceeding from one State to another, and in respect of all animals and plants brought from any place outside Australia. In regard to interstate movements of animals and plants, the Act becomes operative only if the Governor-General be of opinion that Federal action is necessary for the protection of any State or States; in the meantime the administration of interstate quarantine of animals and plants is left in the hands of the States.

(i.) *Transfer of Quarantine Stations.* The transfer from the States to the Commonwealth of the quarantine stations, for the purposes of human quarantine, at the following places, has been effected:—(a) *New South Wales.* North Head (near Sydney). (b) *Victoria.* Point Nepean (near Melbourne). (c) *Queensland.* Colmslie and Lytton (near Brisbane), and Thursday Island. (d) *South Australia.* Torrens Island (near Adelaide). (e) *Western Australia.* Woodman's Point (near Fremantle) Albany, and Broome. Animal quarantine stations in each of the States have also been transferred, and steps are being taken for the taking over by the Commonwealth of other stations. New buildings and improvements are in course of construction at several of the transferred stations.

(ii.) *Administration of Act.* The administration of the Act in respect of the general division, *i.e.*, vessels, persons, and goods, and human diseases, is under the direct control of the Commonwealth in all States except Tasmania. A medical chief quarantine officer, with assistant quarantine officers, has been appointed in each State. This

1. From information furnished by the Federal Director of Quarantine.

officer is charged with responsible duties, and is under the control of the Director of Quarantine. In Tasmania, the chief health officer of the State acts as chief quarantine officer, and payment is made to the State for his services. The administration of the Act in Northern Territory has been combined with that of Queensland under the chief quarantine officer for the North-eastern Division. The administration of the Acts and regulations relating to oversea animal and plant inspection and quarantine is also carried out by the officers of the State Agricultural Departments acting as quarantine officers.

(iii.) *Chief Provisions of Act.* The Act provides for the inspection of all vessels from oversea, for the quarantine, isolation, or continued surveillance of infected or suspected vessels, persons, and goods, and for the quarantining and, if considered necessary, the destruction of imported goods, animals, and plants. The obligations of masters, owners, and medical officers of vessels are defined, and penalties for breaches of the law are prescribed. Power is given to the Governor-General to take action in regard to various matters by proclamation, and to make regulations to give effect to the provisions of the Act. Quarantinable diseases are defined as small-pox, plague, cholera, yellow fever, typhus fever, leprosy, or any other disease declared by the Governor-General, by proclamation, to be quarantinable. "Disease" in relation to animals means certain specified diseases, or "any disease declared by the Governor-General, by proclamation, to be a disease affecting animals." "Disease" in relation to plants means "any disease or pest declared by the Governor-General, by proclamation, to be a disease affecting plants." The term "plants" is defined as meaning "trees or plants, and includes cuttings and slips of trees and plants and all live parts of trees or plants and fruit."

(iv.) *Proclamations.* The proclamations so far issued specify the diseases to be regarded as diseases affecting animals and plants; appoint first ports of landing for imported animals and plants and first ports of entry for oversea vessels; declare certain places beyond Australia to be places infected, or as places to be regarded as infected with plague; prohibit the importation (a) of certain noxious insects, pests, diseases, germs, or agents, (b) of certain goods likely to act as fomites, and (c) of certain animals and plants from any or from certain parts of the world; and fix the quarantine lines in certain ports of Australia.

(v.) *Regulations.* Regulations have been made prescribing the quarantine signal; the hours of clearance of vessels; forms of notices, orders, reports, and bonds to be used by masters, medical officers, quarantine officers, and importers; the period of detention of vaccinated and unvaccinated persons in quarantine; the conditions of removal of goods and mails; the method of disinfection of persons, animals, and infected or suspected articles; the notification of certain diseases, including venereal diseases; the conditions under which certain animals not prohibited may be imported; the sustenance charges for quarantine animals; the conditions of importations of hides, skins, wool, hair, bones, and animal manure; the method of carrying out the quarantining, disinfection, fumigation, and treatment of plants and packages. Regulations have also been made with the object of preventing the ingress to and the egress from vessels of rats and mice, and for the destruction of rats, mice, and other vermin.

(vi.) *General.* The procedure has already been greatly simplified. Instead of all oversea vessels being examined in every State, as was formerly the case, those arriving from the south and west are now examined only at the first port of call, and pratique is given for the whole of the Commonwealth, except in cases of suspicious circumstances, while vessels arriving from the northern routes are examined only at the first and last ports. It is expected that the restrictions placed upon oversea vessels will be further removed as the machinery of quarantine is improved. The present freedom from certain

diseases which are endemic in other parts of the world, would, however, appear to justify the Commonwealth in adopting precautionary measures not perhaps warranted in the already infected countries of the old world.

3. **Notifiable Diseases.**—Provision exists in the Health Acts of all the States for precautions against the spread and for the compulsory notification of infectious diseases. When any such disease occurs, the Health Department and the local authorities must at once be notified. In some States notification need only be made to the latter body. The duty of giving this notification is generally imposed, first, on the head of the house to which the patient belongs, failing whom on the nearest relative present, and on his default on the person in charge of or in attendance on the patient, and on his default on the occupier of the building. Any medical practitioner visiting the patient is also bound to give notice.

(i.) *Notifiable Diseases Prescribed in each State.* In the following statement those diseases which are notifiable in each State are indicated by a cross:—

DISEASES NOTIFIABLE UNDER THE HEALTH ACTS IN EACH STATE.

Particulars.	N.S.W.	Vic.	Q'land.	S.A.	W.A.(d)	Tas.(e)
Anthrax ... ..	...	+	...	+	...	...
Ankylostomiasis ... ..	...	...	+	...	...	...
Beri-beri ... ..	...	...	...	...	+	...
Bilharziosis ... ..	...	...	...	+	+	+
Bubonic plague	+	+	+	+	+	+
Cerebro-spinal fever ... ..	+	+	+	+	...	...
Cerebro-spinal meningitis	+	+	+	+	+	+
Chancroid (soft chancre) ... ..	...	+(b)	+	...	+	...
Cholera ... ..	...	+	+	+	+	+
Continued fever ... ..	...	+	+	...	+	...
Diphtheria	+	+	+	+	+	+
Dysentery ... ..	...	...	+(c)	...	...	...
Enteric fever	+	+	+	+	+	+
Erysipelas ... ..	...	+	+	+	+	...
Favus ... ..	...	...	...	+	...	...
Gonorrhœa ... ..	...	+(b)	+	...	+	...
Infantile paralysis	+	+	+	...	+	+
Infective granuloma of the pudenda ... ..	...	+(b)	+	...	+	...
Leprosy	+	+	+	+	+	+
Malarial fever	+	+	+	+	+	...
Measles ... ..	...	+	...	+	...	...
Membranous croup	+	+	+	+	+	...
Ophthalmia neonatorum ... ..	...	+(b)	...	...	+	+
Poliomyelitis anterior acuta	+	+	+	...	+	+
Puerperal fever ... ..	...	+	+	+	+	+
Pulmonary tuberculosis(phthisis)	+(a)	+	+	+	+	+
Relapsing fever ... ..	...	+	+	+	+	...
Scarlet fever	+	+	+	+	+	+
Scarlatina	+	+	+	+	+	+
Septicæmia ... ..	...	+	...	...	+	...
Small-pox	+	+	+	+	+	+(f)
Syphilis ... ..	...	+(b)	+	...	+	...
Trichinosis ... ..	...	+	...	+	...	...
Typhoid	+	+	+	+	+	+
Typhus fever ... ..	...	+	+	+	+	+
Whooping cough ... ..	...	+	...	+	...	...
Yellow fever... ..	...	+	+	+	+	...

(a) In metropolitan and certain proclaimed districts. (b) Under the Venereal Diseases Acts. (c) Thursday Island area only. (d) Other diseases enumerated as notifiable under "The Health Act 1911" of this State are pyæmia, and Malta, dengue, low and Colonial fevers. (e) Venereal diseases are notifiable under The Public Health Act 1917. (f) Chicken-pox has been declared a notifiable disease to render certain its differential diagnosis from small-pox.

(ii.) *Duties of Authorities.* As a rule the local authorities are required to report from time to time to the Central Board of Health in each State as to the health, cleanliness, and general sanitary state of their several districts, and must report the appearance of certain diseases. Regulations are prescribed for the disinfection and cleansing of premises, and for the disinfection and destruction of bedding, clothing, or other articles which have been exposed to infection. Bacteriological examinations for the detection of plague, diphtheria, tuberculosis, typhoid, and other infectious diseases within the meaning of the Health Acts are continually being carried out. Regulations are provided in most of the States for the treatment and custody of persons suffering from certain dangerous infectious diseases, such as small-pox and leprosy.

(iii.) *New South Wales.* The proclamation and notification of infectious diseases are dealt with in Part III. of the Public Health Act 1902. Special provision is made by that Act for the notification of small-pox and leprosy, and for the custody and treatment of lepers. Special reports dealing with outbreaks and the ætiology of plague, leprosy and smallpox have been published.

(iv.) *Victoria.* Under Part VI. of the Public Health Act 1915, the notification of cerebro-spinal fever or meningitis, continued, enteric and scarlet fever, diphtheria, infantile paralysis, membranous croup, poliomyelitis anterior acuta, pulmonary tuberculosis, scarlatina, and typhoid is compulsory. An infectious disease cannot be declared notifiable unless it is prevalent; hence smallpox, cholera, etc., are not notifiable diseases. An Act, passed in 1907, requires medical practitioners and registrars to report all cases of notifiable diseases coming under their notice in any proclaimed district, and not merely those cases which occur in the district in which the practitioner or registrar is resident.

(v.) *Queensland.* Under Part VII. of the Health Act 1900-1917, all cases of infectious diseases must be notified; special provision is made for notification of small-pox. No case of plague has occurred since 1908. Provision is made for the diagnosis of leprosy, and lepers are sent to Peel Island, Moreton Bay.

(vi.) *South Australia.* In this State cases of infectious diseases must be reported to the local Board, under the provisions of Part VIII. of the Health Act 1898. The onus of notification is placed primarily on the head of the family, and, failing him, the nearest relative, the person in charge, or the occupier of the house; in any case, notification must be given by the medical practitioner attending.

(vii.) *Western Australia.* Regulations made under the Health Act 1911 provide for the compulsory notification to local Boards of infectious diseases. The local Board must report to the central authority. The necessity for providing hospital treatment for infectious cases has been recognised by the Boards of Health, and in several instances wards for the treatment of these cases have been erected. See also § 2. 6 *ante*.

(viii.) *Tasmania.* Provisions regarding the prevention and notification of infectious diseases are contained in the Public Health Act 1903, as amended in 1908.

4. **Vaccination.**—In the State of New South Wales there is no statutory provision for compulsory vaccination, though such exists in all the other States of the Commonwealth. With the exception of Victoria, the Vaccination Acts are, however, not generally enforced. The Calf Lymph Depot of the State of Victoria was transferred to the Commonwealth in October, 1911. It is now designated "The Commonwealth Vaccine Depot," and is under the control of the Director of Quarantine. Lymph is prepared in this depot to meet the requirements of the Quarantine Service and of all the States. A considerable demand exists for lymph in the State of Victoria, where infantile vaccination is compulsory, but in the other States the normal requirements are small. During the years 1912, 1913, and 1914, the output of lymph in doses from the depot was respectively 65,000, 570,000, and 146,000. The number of doses issued in 1913 was, however, abnormal, and was due to the epidemic of small-pox which broke out in Sydney

at the end of June, this being followed by large numbers of vaccinations in each State. The following table shews, so far as particulars are available, the number of persons vaccinated in each State from 1911 to 1916 inclusive:—

NUMBER OF PERSONS VACCINATED IN EACH STATE, 1911 to 1916.

Year.	N.S.W.*	Victoria.†	Q'land.	S. Aust.	W. Aust.	Tasmania.
1911 ...	20	20,562	‡	1,431	‡	‡
1912 ...	...	21,548	‡	‡	‡	‡
1913 ...	520,000	24,562	33,500	‡	12,000	3,204
1914 ...	6,629§	23,536	30,000	940	3,017	‡
1915 ...	4,080§	24,186	58||	854	‡	‡
1916 ...	2,618	20,916	‡	531	‡	‡

* By officers of the Health Department and at public depots. † Children only, who were vaccinated under the Act, see (ii.) below. ‡ Returns not available. § Exclusive of the military. ¶ At Health Department, Brisbane.

(i.) *New South Wales.* Although there is no provision for compulsory vaccination in this State, public vaccinators have been appointed. The large number of vaccinations in 1913 was due to the epidemic of small-pox in New South Wales, 1073 cases of the disease being recorded. No statistics are available as to the proportion of the population who have been vaccinated, but a report of the Principal Medical Officer of the Education Department states that out of 94,918 children medically examined during 1914, 33,109, or 35 per cent., had been vaccinated.

(ii.) *Victoria.* Compulsory vaccination is enforced throughout the State, under Part IX. of the Health Act 1890. From the year 1873 up to the present time, it is estimated that 72 per cent. of the children whose births were registered have been vaccinated. Free lymph is provided. As a result of the small-pox epidemic in New South Wales in 1913, it is estimated that, exclusive of the vaccinations of children given in the above table, about 40 per cent. of the adult population were vaccinated or re-vaccinated in 1913.

(iii.) *Queensland.* Although compulsory vaccination is provided for in this State, under Part VII. of the Health Act 1900-1917, its operation has not been gazetted in force. Vaccination thus being purely voluntary, medical practitioners do not notify vaccinations. In the early part of 1912, the Queensland Government sent a medical expedition to the islands in Torres Straits. Over 1200 natives were vaccinated with a view to reducing the risk of the introduction of small-pox from New Guinea. As a result of the small-pox epidemic in Sydney, approximately 33,500 people were vaccinated in Queensland during 1913.

(iv.) *South Australia.* The Vaccination Act 1882, which applies to South Australia and the Northern Territory, is enforced by the vaccination officer of the State and by the Police Department. Under this Act vaccination was compulsory, but in 1901 an Act to abolish compulsory vaccination was passed. This latter Act was subsequently amended, and the present law is that no parent is liable to any penalty if, within 12 months from the birth of the child, he makes a declaration that he conscientiously believes that vaccination would be prejudicial to the health of the child, and within seven days thereafter delivers the declaration to the vaccination officer. It is estimated that about 15 per cent. of the children born are vaccinated.

(v.) *Western Australia.* In this State vaccination is compulsory under the Vaccination Act 1878, which, however, remains almost a dead letter. Under the Health Act 1911, however, a "conscientious objection" clause was inserted, which is availed of by the majority of parents, so that the number of children vaccinated is very small. All district medical officers are public vaccinators, but they receive no fee for vaccinations.

Owing to the outbreak of small-pox in Sydney during 1913, it is estimated that not less than 12,000 children and adults were vaccinated in that year, while nearly 3000 vaccinations were effected during 1914 at Bunbury owing to an outbreak of small-pox, which occurred there in May of that year.

(vi.) *Tasmania.* All infants in Tasmania are nominally required, under the Vaccination Act 1898, to be vaccinated before the age of 12 months, unless either (a) a statutory declaration of conscientious objection is made, or (b) a medical certificate of unfitness is received. The Act has not been enforced, and up to June, 1913, practically no vaccination of infants had been performed since the small-pox outbreak in Launceston in 1903, when 66 cases occurred with 19 deaths. During that year 24,857 were vaccinated in Tasmania. In 1913, owing to the outbreak of small-pox in New South Wales, there were 3204 cases of vaccination by public vaccinators.

§ 6. Tropical Diseases.

1. **Introduction.**—The remarkable development of parasitology in recent years and the increase in knowledge of the part played by parasites in human and animal diseases have shewn that the difficulties in the way of tropical colonisation, in so far as these arise from the prevalence of diseases characteristic of tropical countries, are largely removable by preventive and remedial measures. Malaria and other tropical diseases are coming more and more under control, and the improvements in hygiene, which science has accomplished, lend an entirely new aspect to the question of white settlement in countries formerly regarded as unsuitable for colonisation by European races. In Australia the most important aspect of this matter is at present in relation to such diseases as filariasis, malaria, and dengue fever, which, although practically unknown in the southern States, are of common occurrence in many of the tropical and sub-tropical parts of the Commonwealth.

2. **Queensland.**—(i.) *Transmission of Disease by Mosquitoes.* The existence of filariasis in Queensland was first discovered some thirty-three years ago. The parasite of this disease (and probably of dengue fever also), is transmitted by *Culex fatigans*, the mosquito most prevalent in Queensland. The *Stegomyia fasciata*, conveyer of yellow fever, is another common domestic mosquito throughout Eastern Queensland during the summer, but so far has never been infected from abroad. Occasional limited outbreaks of malaria occur in the northern parts of the State; one at Kidston, in 1910, resulted in 24 deaths. The infection was traced to newcomers from New Guinea. For many years several efforts were made to deal with the mosquito question in the larger centres, but owing to the absence of the statutory powers, these had only limited success. Special provisions of the Health Act Amendment Act of 1911 remedied this defect, and extensive operations, involving oiling, drainage, tank screening, the use of larvivorous fish, and other measures were organised by the Department of Public Health. The actual cost of the work during 1913 amounted to £795, of which the metropolitan local authorities contributed £420. Some 50,000 square yards of natural breeding places were attended to weekly by a special mosquito squad, over 2000 street gullies were oiled, and tank screening with fine wire gauze was steadily enforced on owners and occupiers. The work was continued through the winter, in order to reach the eggs and larvæ at their period of lowest vitality. Operations have been, however, partly discontinued from May, 1914, owing to the unwillingness of the municipal councils to incur the expenditure entailed. It is hoped, however, by the Health Department, that a rigorous campaign will again be conducted against this pest, not only in Brisbane, but in every other closely inhabited part of the State, as it is considered that closer communication between the State and other countries, brought about

through war conditions, is resulting in the return to Queensland of soldiers and sailors suffering from malaria.

(ii.) *Institute of Tropical Medicine, Townsville.* In January, 1910, the Australian Institute of Tropical Medicine was inaugurated by the Commonwealth Government at Townsville. A special staff was appointed to carry out both the hospital and research work necessary. Owing to the scarcity of suitable laboratory animals for experimental purposes, and also to the absence of any systematic scheme of collaboration with other medical men throughout the tropical parts of Queensland, the initial difficulties confronting the director were considerable. These difficulties are, however, being overcome, and much valuable research has been made, particularly on the bacteriology of mosquitoes. At the present time an important examination is being carried out of the blood conditions of children born and reared in North Queensland, with a view of proving whether the blood of the children was normal as far as the formed elements are concerned, or whether deterioration had taken place, effecting an anemia which could be attributed to climatic conditions only. It is hoped that the result of the work of the institute on these lines will decide the question of the climatic influence on the white man in the tropics, and will indicate whether the great experiment of populating tropical Australia with a white working community can be accomplished.

3. **Northern Territory.**—While the Territory is conspicuously free from most of the diseases which cause such devastation in other tropical countries, a slight amount of malaria exists, and, although such cases as occur very rarely end fatally, the Administrator is taking measures for the destruction of mosquito larvæ wherever settlements or permanent camps are formed, while precautions are being taken to prevent the collection of stagnant water in such localities.

4. **Other States.**—In Western Australia it is stated that malaria is not known to exist south of the 20th parallel, while filariasis has not been discovered at all. No mosquito-borne diseases are known to exist in Victoria, South Australia or Tasmania, and it is stated that filariasis is uncommon in New South Wales, the only cases known being imported ones. Kerosene and petroleum have been successfully used to destroy mosquitoes at various places in these States, both by municipalities and private individuals.

§ 7. Supervision of Infant Life.

It has been frequently stated in recent years that when the social, climatic, and industrial conditions are taken into consideration, the infantile mortality of Australia, particularly in the large towns, is much higher than it should be. It is now generally recognised, however, that infant mortality is largely attributable to parental ignorance and neglect, and that, in particular, improper feeding is accountable for perhaps the majority of infant deaths. In all the States of the Commonwealth, Acts have been passed with the object of generally supervising the conditions of infant life and of reducing the rate of infantile mortality, and in many of the large towns measures have been adopted by private individuals to spread among the mothers a knowledge of the best methods of feeding and caring for their infants. Milk institutes have also been established after the manner of the *Gouttes de Lait* in Europe, with the object of reducing the number of deaths of infants from milk poisoning in the summer months. Reference has been made in a previous part of this book (see page 185) to the number of infantile deaths and the rates of infantile mortality in each State, and it will be convenient to here shew corresponding particulars for the year 1916, classified according to metropolitan and other districts in each State:—

1. Organised action in this direction commenced in 1894 in Belgium. The original Belgian Society is known as the "*Société des Gouttes de Lait*." The movement has become an international one, and branches of the Society have been founded all over Europe. Similar philanthropic work was commenced in the United States of America before 1894.

INFANTILE DEATHS AND RATES OF INFANTILE MORTALITY FOR METROPOLITAN AND OTHER DISTRICTS, 1916.

Districts.	N.S.W.	Victoria.	Queensland.	S.A.	W.A.	Tasmania.	C'wealth.
NUMBER OF INFANTILE DEATHS.							
Metropolitan	1,444	1,520	452	485	290	121	4,312
Other ...	2,053	1,035	877	383	277	302	4,931*
RATE OF INFANTILE MORTALITY,†							
Metropolitan	68.04	85.82	82.51	82.43	71.02	89.83	77.38
Other ...	66.53	62.64	65.28	64.12	61.83	70.82	65.14

* Including 4 in Commonwealth territories.

† i.e., the number of deaths of infants under one year of age per thousand births.

It may be seen that in each State the rates of mortality are higher in the metropolitan than in other districts. The causes of "preventable" deaths may generally be attributed to milk poisoning, want of knowledge on the part of mothers, inability to nurse, and lack of the necessary medical facilities.

The figures in the foregoing table do not, however, completely represent the hygienic aspect of the question. For every infant death recorded there are probably three or four survivors who have sustained more or less serious permanent physical damage, quite apart from injuries at birth or congenital causes. It is stated that the far-reaching influence of the first year or two of life upon the whole subsequent physical welfare of the individual cannot be recognised too clearly, and it has been alleged that many serious defects and diseases occurring in later life may be credited to results ensuing from infantile disease. This is particularly the case in respect of digestive diseases.

The conditions regulating the employment of boys and girls in shops and factories are referred to in the section of this book dealing with *Industrial Unionism and Industrial Legislation* (Section XXVII.). Certain particulars have also been given in Section XXIV. (pages 871 to 873) of this book regarding Orphanages, and Industrial and Reformatory Schools in Australia. In previous issues a short account has been given of the principal Acts which have been passed in each State dealing with the subject of child-life, and of the principal functions of the States' Children's Departments. (See Year Book No. 6, p. 1101.)

§ 8. Medical Inspection of State School Children.

1. **Introduction.**—For many years medical officers of health and many others concerned in education generally have, from time to time, suggested the desirability of a medical inspection of school children. The State, which enforces school attendance under penalties, is also under the obligation of securing a satisfactory hygiene for the child during such attendance. Moreover, efficiency in education demands several things, viz., that the conditions under which the studies are made shall be physically and hygienically satisfactory; that there shall be no undue concentration of nervous effort on school work, and that the child shall be reasonably safeguarded against infection, etc. Only by an adequate scheme of medical supervision can these results be attained. It appears certain, from the results of the work so far undertaken in the several States by the Medical Inspectors, that, had the supervision of the children's health, more particularly with regard to dental and optic defects, been commenced some years previously, the number of rejects by the military authorities since the outbreak of war would have been very materially reduced.

Several limited and isolated surveys of the physical proportions of Australian children have been made during the past 30 years in the various States. The first important systematic survey, however, was made in Sydney in 1901, and the results were reported by the Government Statistician of New South Wales to the Australasian Association for the Advancement of Science Conference in Hobart in 1902, and shewed that the Sydney boy was taller than the English boy, but that his chest expansion was small in comparison with European figures.

A series of measurements on 500 boys took place concurrently but independently in Hobart during 1901, which also gave similar results. It was recognised that the figures were based on limited numbers, but they at least challenged attention. The 1901 survey in Sydney, though small, was a valuable and suggestive contribution to anthropometric research in Australia, and may be regarded as the beginning of a systematic attempt to ascertain what characteristics of bodily form are exhibited in Australia. This enquiry roused considerable interest in the other States, and series of measurements have since been made in Western Australia, Tasmania, and South Australia, by various authorities, and in Victoria by the Education Department's medical officers. Each year since 1907 the Department of Education of New South Wales has carried out regular anthropometric measurements of the height and weight of school children, and now possesses records of over 100,000 children, the results being detailed in the Department's annual reports. A card for each child allows his measurements for successive years to be recorded. The department perambulated the apparatus, each set serving about 20 schools, and the visits recur in the same month of each succeeding year.

2. Co-ordination of Effort.—So far as it has been carried out, the medical inspection of school children goes to shew that in Australia, as in other lands, the hygiene, both of the schools and of the pupils therein, is more defective than is ordinarily recognised, and that not only preventable physical injury to the rising generation from school conditions can be avoided, but also instruction itself can be made more efficient by a proper regard to the demands of a good school hygiene. With a view to securing uniformity of procedure in the several States, the Commonwealth Government in 1907 formulated a scheme and communicated with the States asking their co-operation in obtaining measurements of school children with a view to establishing the relations between age, weight and height, chest measurement, etc. Delays occurred from various causes, but in a paper read at the Science Congress in Sydney in 1911, the subject was again brought under notice, and this led to the appointment by the congress of a committee of experts to encourage anthropometric research and to consider the organisation of a systematic survey of school children throughout Australia. The scheme was essentially identical with the former proposal of the Federal Government, but in the interim the report of the British Anthropometric Committee became available, thus making possible a method uniform with that of Great Britain, and making the results immediately comparable with those of Europe.

The Australian Anthropometric Committee has drawn up a memorandum setting forth the importance and object of the survey, and suggestions as to method for the use of teachers, physical trainers and others interested.

A description of the proposed survey will be found in previous issues of the Year Book (see No. 6, p. 1104).

On the coming into operation of the Defence Act of 1910, military training became compulsory in the Commonwealth, and advantage has been taken of the prescribed medical examination to make a systematic record of the height, weight and chest measurement of each trainee. There can be no doubt that these anthropometric records will in time furnish valuable data for the study of Australian physical development. Further reference is made to this subject in the section dealing with "Defence."

3. New South Wales.—In this State, arrangements were made in May, 1907, for the medical inspection of school children in Sydney, and later in the year the work was extended to Newcastle.

In 1913, the scheme of school medical inspection was re-organised so as to embrace every pupil in the State whose parents desired such medical inspection of their children. The employment of part-time medical officers was discontinued, and a staff consisting of a principal Medical Officer and nine full-time Medical Officers was appointed. Arrangements have been made to provide facilities whereby all school children found physically defective will have an opportunity of being treated by the Department's officers. With the proposed additions, the staff of the medical branch will consist of twenty full-time Medical Officers, three part-time Medical Officers, seven full-time and six part-time dentists, besides nurses, dental assistants, and clerks. The work now being carried on by the medical branch may be classified under the following heads:—

(1) The medical inspection of all school children in the State, whether attending public or non-State schools; (2) The investigation of epidemics of infectious diseases affecting school children; (3) Inspection of school buildings; (4) Delivering of systematic courses of lectures at the training college; (5) Delivering lectures to the senior girls in all metropolitan schools on the care of babies, personal cleanliness, home hygiene, sick nursing, etc.; (6) Delivering lectures to parents; (7) The medical examination of candidates for admission to the teaching service; (8) Giving first treatment in the back country schools to the eyes of scholars suffering from ophthalmia, and instructing the children and parents regarding future treatment and prevention; also supplying those children with sufficient drugs to carry on the treatment; (9) Visiting the parents of defective children by nurses to better secure the treatment of those children.

During the year 1915, 76,875 children were medically examined, exclusive of the number examined by the Travelling Hospital and Travelling Clinics, referred to hereafter. Of these children, 45,049, or 53.6 per cent., were found suffering from physical defects, and of these, 19,367 were treated.

During the year 1914 a Travelling Hospital and a Travelling Ophthalmic Clinic were inaugurated, being followed by the Metropolitan Dental Clinic and the Travelling Dental Clinic in 1915. The Travelling Hospital works in those parts of the State where there are no resident doctors or dentists. The number of children treated by the Department's treatment schemes during 1915 was as follows:—Travelling Hospital, 2358 children; Travelling Dental Clinic, 2934 children; Metropolitan Dental Clinic, 1834 children; and Travelling Ophthalmic Clinic, 4479 children, or a total of 11,605.

The Sydney University has established a special course for the training of school medical officers. It is expected that a supply of school medical officers, trained to meet the special requirements, will always be available in the future.

4. **Victoria.**—In Victoria three medical inspectors have been appointed by the Education Department, and a commencement was made towards the end of 1909 by the examination of the pupils attending the Melbourne Continuation School. During the year 1909-10 the chief work of the inspectors consisted in carrying out a preliminary investigation of the health of the pupils in various schools in town and country. During the year ending 30th June, 1911, many of the ideas and intentions outlined in the previous Annual Education Report were initiated, and the foundations laid for a proper and systematic scheme of medical school instruction in future. In the year 1914-15, 9688 children attending elementary schools were examined, of whom 4434 were attending metropolitan schools. In addition, 2264 high school pupils were examined, making a total of 11,952 children. Two special schools for feeble-minded children, and a third for epileptics have been established in Melbourne.

During 1915 the scope of the medical inspection of school children was temporarily curtailed by the enlistment of two members of the school medical staff. The measure of inspection accomplished, however, and the dissemination of information on personal and domestic hygiene have quickened the interest of parents and teachers in the physical well-being of the children. The appointment of bush nurses has proved a boon to some remote localities beyond the reach of medical aid.

5. **Queensland.**—In this State a systematic scheme for the inspection of State school children has recently been prepared and came into operation on 1st January, 1911, under which a Medical Branch of the Department of Public Instruction was created, consisting of a Medical Inspector of Schools, a School Nurse, and a Dental Inspector. To this staff have been added an assistant Medical Inspector, an Ophthalmic Inspector and two assistant Dental Inspectors. There are in addition three part-time Medical Inspectors. Under the present scheme the children are examined, and, if found defective, notices are sent to the parents. The children are treated either by their own doctors, or if they cannot afford private treatment, at the hospital. During the year 1915, 8243 in the Brisbane and surrounding districts were examined, and 11,344 in the Northern and Southern districts of the State. More than 20,000 examinations were made by the dental inspectors, and 1333 by the Ophthalmic Inspector.

While adenoids and enlarged tonsils appear to be the principal defect throughout all the State schools, the children in the Northern and Western districts suffer largely from defective vision and trachoma. The work of the Ophthalmic Inspector is chiefly confined to these districts. The conclusion has been arrived at, as a result of the examinations, that such climatic conditions as dust, glare, heat, etc., so prevalent in the Western districts, which are often looked upon as the direct cause of serious blight or trachoma, are only predisposing causes, and can be safely ignored, provided elementary precautions are taken. The report of the Dental Inspectors, while still disclosing an appalling percentage of defects in the teeth of the children, shews, even in the short time in which the scheme has been in existence, a marked improvement in the schools that were examined twelve months previously.

6. **South Australia.**—In 1909, at the desire of the Government, Dr. Rogers examined 1000 school-going children in different parts of the State. No children under seven years nor over 15 years of age were examined. Investigations were made with regard to personal appearance, cleanliness, height, weight, chest measurements, teeth, eyesight, hearing, nose and throat, etc., and the report was presented to the Minister for Education in September, 1910, the results being, on the whole, satisfactory. A summary of this report, which contains statistical details exhibiting many interesting comparisons between various States in the Commonwealth and other parts of the world, was given in a previous issue of this book (see vol. No. 5, pp. 1132 to 1138).

No State medical supervision of its school children was, however, undertaken in South Australia until 1913, when a medical officer, a fully trained nurse, and a health inspector were appointed for the work. Under the system adopted, the children are weighed and measured, their sight and hearing tested, and their chests, throats, and teeth examined. After examination, a notice is sent to the parents of any child who is found defective to an extent likely to interfere with its educational progress. No treatment is undertaken by the State. During the year 1915, 2646 children were examined. Of these, there were 551, or 21.15 per cent., with defects of sight, hearing, and adenoids, sufficiently serious to interfere with their educational progress. In addition, the teeth of 1897 children required attention, 490 having teeth in so bad a condition as to affect their general health. It was found that, while teeth were bad in all the schools examined, the other defects mentioned were exhibited in a considerably greater degree among the city children as compared with those living in country districts.

7. **Western Australia.**—Until the year 1911 no general scheme for school medical inspection existed in Western Australia, although examination in a few metropolitan schools had been intermittently carried on. During the latter part of 1906 and the first half of 1907, an extended examination of about 3300 children was conducted by the Department of State Medicine and Public Health with the co-operation of the Education Department. Many physical defects among the children were detected, and the co-operation of the Inspector-General of Schools resulted in steps being taken, where possible, to provide better hygienic conditions. The system followed during 1909 was that, wherever

possible, a visit was made to a school, the teacher bringing up all children who appeared to be suffering from any physical defects or bodily ailments. The exact condition of the child having been determined, a notice was sent to the parents calling attention to the necessity of obtaining treatment for the defect. Under the Health Act 1911, Medical Officers of Health become medical officers of schools and school children. Unfortunately, during 1915, the necessity for reducing expenditure has led to the curtailment of the medical inspections of schools by these officers. During the year 38 schools, including about 4200 children, were inspected.

In the Metropolitan District the members of the Dental Society have carried out a regular system of examination of children's teeth. In connection with this, and also in connection with the general system of medical inspection, free treatment is provided for those children whose parents are unable to pay.

8. **Tasmania.**—The credit of being the first State in the Commonwealth to provide for the medical inspection of schools and school children in a systematic way rests with Tasmania, where, under the direction of the Chief Health Officer and the Director of Education, about 1200 children attending schools in Hobart were inspected in 1906.

Medical inspection of school children as now existing in Tasmania is carried out by four medical officers, each controlling respectively one of four areas, which for medical inspection purposes are known as Hobart District, Launceston District, the Southern Country and Northern Country districts of the State. Additional assistants in the persons of school nurses have been appointed to follow up the work of the Medical Inspectors. Reports on the physical condition of the children are furnished, and parents advised when medical attention is considered necessary, and in the case of parents unable to pay for such attention, orders are given for free treatment at the hospital. The system of medical inspection of school children was extended during 1916 to the pupils of private primary schools, where the teacher makes application for such inspection to be made. Under the scheme in operation, practically all of the primary school children of the State come under medical examination at least once in every two years. During 1915, 4128 children were medically examined in the Southern Country districts; of these, pupils suffering from adenoid growths numbered 427; enlarged tonsils, 102; defective vision, 80; and defective hearing, 141. In the Northern districts, of the 4582 children examined, there were 121 cases of neglected post-nasal growths and 241 cases of enlarged tonsils. Eye defects numbered 127, and cases of marked defective hearing 37. In the Hobart schools, of the 1850 children examined, 225 suffered from adenoids, and 127 from eye defects. During 1916 school dental clinics were established in Hobart and Launceston, and it is hoped that this movement will prove of inestimable value among the growing children of the State.

SECTION XXXI.

THE COMMONWEALTH SEAT OF GOVERNMENT.

1. **Introductory.**—In Year Books Nos. 4 and 5, information was given in this section as to the events leading to the selection of the Federal Capital Territory, and as to the necessary legislation and the progress of operations in connection with the establishment of the capital city. The physiography of the Territory was dealt with *in extenso*, and topographical and contour maps accompanied the letterpress, as well as reproductions of the premiated designs for the laying out of the city. Considerations of space, however, preclude the repetition of this information. On the 12th March, 1913, the official ceremony to mark the initiation of operations in connection with the establishment of the Seat of Government was carried out. At this ceremony the selection of "Canberra" as the name of the capital city was announced.

2. **Progress of Work.**—The design for the laying out of the capital city having been approved, the survey of the main axial lines has been well advanced, and the marking on the ground, grading, and construction of portion of the roads are proceeding. Considerable progress has been made with the nursery in connection with the afforestation scheme, and the horticultural work undertaken includes cultivating plants for the Continental Arboretum, red park plantation for Narrabundah, pink park plantation for Mount Ainslie, yellow park plantation for Mount Black, and white forest on Mugga-Mugga, for the extensive redwood, pinetum, cedar, and cork oak economic forests. In addition, the previous pine, wattle, and eucalypt plantations have been maintained, and the propagation of native trees in quantities for parkway embellishment undertaken. The power plant is supplying current to all the important points. Active progress with construction has been restricted for the present, and operations are practically being confined to maintenance works.

The following figures indicate the actual work done in road development since the roads were taken over:—

Forming and finishing ...	...	...	...	93½ miles
Gravelling and metalling ...	...	...	...	95½ miles
Clearing out, repairing culverts, etc. ...	...	...	...	162½ miles
General road repairs ...	...	...	...	178½ miles
Cutting water tables, drains, etc. ...	...	...	...	146½ miles

3. **Lands in the Territory.**—As a considerable portion of the Commonwealth lands within the Territory is not required in connection with the establishment of the city, such areas are being made available for leasing under certain conditions. A large number of leases have been disposed of under conditions requiring the extermination of rabbits, and the lessees are proceeding with the erection of rabbit-proof fencing in a satisfactory manner. Seven thousand two hundred sheep and 174 head of large stock are on agistment on land that will be required for departmental use at a later date. Reference has already been made on page 289 to the area of alienated, acquired and leased land within the Territory. The valuation of lands within the Territory is being proceeded with. All areas valued are classified into three classes of agricultural and three classes of grazing lands, and all improvements are located.

4. **Lands at Jervis Bay.**—A Bill to provide for the transfer to the Commonwealth of sovereign rights over certain lands, comprising about 18,000 acres, and water, at Jervis Bay, to be used for the Naval College and other Federal purposes, has been passed by the New South Wales Legislature.

5. **Railways.**—The line from Queanbeyan to Canberra, 4 miles 75 chains long, was opened for goods traffic on 25th May, 1914, and is being worked by the New South Wales Railway Commissioners. The construction of a tramway for the carriage of material from the depot yards and power house into the city area is proceeding. The trial survey of the Canberra-Jervis Bay line has been completed, and plans have been prepared sufficient to enable an estimate of the cost of the line to be arrived at. The trial survey from Canberra to the boundary of the Federal Territory (towards Yass), a distance of 11 miles, has been completed, as well as the survey of the line by the New South Wales Government from Yass to the Territory boundary, 32 miles.

6. **Population and Live Stock.**—A complete count of the population was taken on 31st December, 1915, when a total of 1925 was enumerated. It is estimated that 508 persons were absent from the Territory on the date in question. The live stock in the Territory, according to the latest returns, comprises:—horses, 1146; cattle, 4931; sheep, 161,234; and pigs, 393.

7. **Educational Facilities.**—As the result of a conference between the Administrator of the Territory and the New South Wales Education Department, it is proposed that the latter shall, for the time being, continue the administration of education in the Territory, the expenditure involved to be refunded annually by the Commonwealth to the State. Schools have been opened at the Cotter River works and at the Royal Military College, Duntroon. (See also paragraph 3, page 816.)

8. **Revenue and Expenditure.**—The expenditure in the Federal Territory subsequent to the passing of the "Seat of Government Acceptance Act 1909," and up to the 30th June, 1917, was for 1910-11 £20,319, 1911-12 £64,772, 1912-13 £135,270, 1913-14 £251,669, 1914-15 £212,505, 1915-16 £166,052, 1916-17 £105,971, making a total of £956,559.

The following table shews the particulars of expenditure for the year ended 30th June, 1917, and also the total expenditure on each item since 30th June, 1910:—

Item.	Expenditure, 1916-17.	Total Expenditure to 30th June, 1917.
	£	£
Afforestation	2,646	12,977
Bridges, Roads and Culverts	15,089	80,183
Buildings, Repairs, etc.	4,974	113,526
Brickworks	5,133	46,130
Cement and Quarrying	684	5,086
Electric Lighting (Mains and Plant only)	6,759	77,374
Fire Brigade ... ..	...	1,268
Fencing ... ..	...	3,632
General Expenditure (including Administrative Charges)	12,030	140,830
Manufacturing Accounts	4,492	5,494
Maintenance Accounts	1,442	1,880
Motor Cars and Upkeep... ..	1,525	8,461
Medical Services	2,419	10,378
New South Wales Government (Services Rendered)	753	12,209
Plant, Instruments, etc.	4,571	19,828
Railways	14,914	62,409
Rabbit Destruction	9,666	18,118
Stock (Material)	5,704	38,159
Sewerage, Mains, etc.	2,576	39,002
Water Supply	10,595	253,145
Wire Netting Lessees ... ..	...	6,470
Total	105,972	956,559

The revenue of the Federal Territory for the year ended 30th June, 1916, was as follows:—

From lands in process of alienation	...	...	£421
" Crown lands held under State laws (leases)	...	...	413
" leases of acquired lands	...	...	19,299
" agistment	...	...	1,601
" rates	...	...	825
			£22,559
		Total revenue	... £22,559

9. **Military College.**—In June, 1911, a Military College was opened at Duntroon for occupation by the cadets and staff. Particulars regarding the establishment of this College may be found in Year Book No. 4 (p. 1159). Previous reference has been made to it in the section of this book dealing with Defence (see page 984).

10. **Naval College at Jervis Bay.**—See section of this book dealing with Defence, page 992.

SECTION XXXII.

THE NORTHERN TERRITORY.

§ 1. Area and Population.

1. **Introductory.**—Upon the extension of New South Wales westward to the 129th meridian in 1827, the Northern Territory was comprised within that colony (see Year Book No. 4, page 16), and in 1863 was annexed by Royal Letters Patent to the province of South Australia. With the adjacent islands, it was transferred to the Commonwealth on 1st January, 1911.

2. **Area and Boundaries.**—The total area of this Territory is 523,620 square miles, or 335,116,800 acres. Its length from north to south is about 900 miles, while its breadth from east to west is 560 miles. Its eastern boundary, dividing it from Queensland, is the 138th meridian of east longitude; and its western boundary, separating it from Western Australia, the 129th meridian. Its southern boundary is the 26th parallel of south latitude, dividing it from South Australia. The northern boundary is the coast line of those parts of the Indian Ocean known as the Timor and Arafura Seas. Near the mouth of the Wentworth River, in the Gulf of Carpentaria, the coast line is met by the eastern boundary; at Cape Domett, near Cambridge Gulf, the western boundary cuts the northern coast line. The length of coast line is about 1040 miles, or 503 square miles of area to one mile of coast line; an exact survey has, however, not yet been made.

3. **Population.**—(i.) *Character.* In 1881 there were 670 Europeans in the Territory, and at the end of 1913 the number was estimated at 2143. The Chinese population, at its maximum during the years of railway construction, 1887 and 1888, has gradually dwindled, the estimate for 1914 being 1033. Japanese, first recorded in 1884, increased up to the year 1898, falling again after five years. The highest recorded population, excluding aborigines, was 7533 in 1888; the estimate for 1916 was 4767. The year 1911 was the first in which the population was dominated by the European race. A thirty years table of population, distinguishing races, will be found on page 1156 of the Commonwealth Official Year Book, No. 5. Subsequent to the Census of 1911, a revision of the estimates, back to 1901, was made. The results are incorporated in the following table:—

POPULATION OF NORTHERN TERRITORY (EXCLUSIVE OF ABORIGINES), 1901 to 1916.

Year ended 31st December.	Male.	Female.	Total.	Year ended 31st December.	Male.	Female.	Total.
1901 ...	3,999	674	4,673	1909 ...	2,927	576	3,503
1902 ...	3,847	627	4,474	1910 ...	2,738	563	3,301
1903 ...	3,582	652	4,234	1911 ...	2,662	586	3,248
1904 ...	3,514	692	4,206	1912 ...	2,854	621	3,475
1905 ...	3,368	678	4,046	1913 ...	2,995	677	3,672
1906 ...	3,248	656	3,904	1914 ...	3,252	721	3,973
1907 ...	3,095	642	3,737	1915 ...	3,687	876	4,563
1908 ...	2,963	609	3,572	1916 ...	3,839	928	4,767

The census population (3rd April, 1911) was 2734 males, 576 females; total, 3310. The estimate for 31st December, 1916, gives 3839 males, 928 females, a total of 4767.

(ii.) *Movement of Population.* The following is a summary of movement of population in 1916 (excluding overland migration):—

MOVEMENT OF POPULATION, NORTHERN TERRITORY, 1916.

Europeans—		Europeans—		Excess of Immigration over emigration	
Inwards ...	1,257	Outwards ...	1,049	Europeans ...	208
Births ...	58	Deaths ...	77	Others ...	44
Others—		Others—		Excess of deaths over births	
Inwards ...	132	Outwards ...	88	Europeans ...	19
Births ...	16	Deaths ...	45	Others ...	29
Increase ...	1,463	Decrease ...	1,259	Net gain ...	204

The immigration and emigration of the Territory in five-year periods from 1881 to 1910, and for each of the years 1911 to 1916, are shewn in the following table:—

MIGRATION, NORTHERN TERRITORY, 1881 to 1916.

Year.	Immigration.	Emigration.	Year.	Immigration.	Emigration.	Year.	Immigration.	Emigration.
1881-5	3,683	3,787	1901-5	2,211	2,932	1913	1,033	824
1886-90	9,208	7,250	1906-10	2,559	3,125	1914	1,102	778
1891-5	1,958	2,353	1911	412	431	1915	1,904	1,278
1896-1900	2,538	2,259	1912	846	585	1916	1,389	1,137

(iii.) *The Aborigines.* An account of the Australian aborigines, by Dr. W. Ramsay-Smith, was given in Year Book No. 3 (pp. 158-176). The interior of the continent is the most thickly populated by the natives, but it is believed that they are rapidly dying out. In these regions, remote from contact with other races, the native has maintained his primitive simplicity, and furnishes an interesting subject of study to the anthropologist and ethnologist. At the census of 1911, full-blooded aborigines in the employ of whites, and those who were living in a civilised or semi-civilised condition in the vicinity of European settlements, were enumerated—the males being 743, females 480; total, 1223. Estimates of the total black population of the Territory vary from 20,000 to 50,000.

§ 2. Legislation and Administration.

1. *Transfer to Commonwealth.*—(i.) *The Northern Territory Acceptance Act.* A short historical sketch is given in Year Book No. 6, pp. 1113-4. On 1st January, 1911, the Territory was transferred by South Australia to the Commonwealth, upon terms previously agreed upon by the respective cabinets, and ratified by the Commonwealth *Northern Territory Acceptance Act* (No. 20 of 1910). It is enacted that laws and courts of justice remain in operation, powers and functions of magistrates and officials remain vested; estates and interests continue upon the same terms; trade with Australian States is declared free. The Commonwealth assumes responsibility for the State loans in respect of the Territory, paying the interest yearly to the State, providing a sinking fund to pay off the loans at maturity, and paying off the deficit in respect of the Territory. It also purchases the Port Augusta to Oodnadatta railway, and agrees to complete the construction of the transcontinental railway from Port Darwin to Port Augusta.

(ii.) *The South Australian Surrender Act.* The State Act approves and ratifies the agreement surrendering the Territory.

(iii.) *The Northern Territory (Administration) Act 1910.* The Act provides for Government authorising the appointment of an administrator and officials. South Australian laws are declared to continue in force as laws of the Territory, and certain Commonwealth Acts to apply. Power is given to the Governor-General to make Ordinances having the force of law.

(iv.) *Administration.* A Resident Administrator, vested with supreme authority in internal affairs, was appointed in the Department of the Minister for External Affairs in February, 1912. Many other important administrative offices have also been filled.

(v.) *Legislation.* The main provisions of the Ordinances passed are as follows:— The powers and duties of the Administrator vested in the appointee, include custody of the public seal, appointment and suspension of officials, and execution of leases of crown lands. A Supreme Court with original and appellate jurisdiction is instituted, the method of appointment of the Judge is prescribed, and provision is made for trial by jury, and for the registration and summoning of jurors. A Sheriff, a Registrar-General, and a Health Officer are provided for, also the registration of births, marriages and deaths, and of deeds and documents. Custody and control of aborigines, with extensive powers of supervision, are vested in the Chief Protector. Provision is made for the control of fisheries. Birds protected during the whole or part of the year are scheduled. Crown lands are classified, and their mode of acquisition, entry and holding defined. Shop assistants are to have a weekly half-holiday, and the establishments must be closed at a certain time. A town council has been constituted for Darwin, and provision made for assessments, rates, etc. Mining is encouraged by the provision of rewards for the invention of new processes, and the discovery of valuable deposits and of new mineral fields; subsidisation of the industry and the issue of prospecting licenses are also provided for. Licenses to search for mineral oil, and leases for working, are available. A Board is constituted for the purpose of making advances to settlers who intend to improve and stock their holdings, to purchase farm implements, plant, etc., or to pay off mortgages, the rate of interest and terms of repayment being set out. Reference to the Liquor Ordinance will be found hereunder.

(vi.) *Liquor Traffic.* By the Liquor Ordinance of 1915, the Commonwealth Government assumed the control of the importation, manufacture, and sale of liquor in the Territory. The hotels in Darwin and Pine Creek have been taken over, and a supervisor of hotels has been appointed to oversee the liquor business generally.

(vii.) *Schedule of Ordinances.* A schedule of the ordinances promulgated up to the end of 1915 is given hereunder:—

- 1911.—1, Northern Territory Government; 2, Council of Advice; 3, Sheriff; 4, Tin Dredging; 5, Marine; 6, Registration of Births, Marriages, and Deaths; 7, Interpretation; 8, Stamp Duties Abolition; 9, Supreme Court; 10, Registration; 11, District Council Assessment; 12, Registration; 13, Fisheries; 14, Lands Acquisition; 15, Interpretation; 16, Aborigines.
- 1912.—1, Native Birds Protection; 2, District Council Assessment; 3, Crown Lands; 4, Supreme Court; 5, Health; 6, Thorngate Estate; 7, Jury; 8, Crown Lands; 9, Early Closing.
- 1913.—1, Mineral Oil; 2, Birds Protection; 3, Registration of Births; 4, Encouragement of Mining; 5, Advances to Settlers; 6, Public Service; 7, Crown Lands; 8, Marriage Validating.
- 1914.—1, Brands; 2, Crown Lands.
- 1915.—1, Licensing; 2, Birds Protection; 3, Roads; 4, District Council; 5, Health; 6, District Council Amendment; 7, Darwin Town Council; 8, Liquor.

§ 3. Physiography.

1. **Tropical Nature of the Country.**—The Territory is within the torrid zone, with the exception of a strip $2\frac{1}{2}$ degrees wide, which lies south of the Tropic of Capricorn.

2. **Contour and Physical Characteristics.**—The low flat coast line seldom reaches a height of 100 feet. Sandy beaches and mud flats, thickly fringed with mangroves, prevail. Sandstone, marl, and ironstone form the occasional cliffy headlands. The sea frontage of more than 1000 miles is indented by bays and inlets and intersected by numerous rivers, many of which are navigable for considerable distances from their estuaries.

The principal features of the coast line are enumerated in Year Book No. 1, p. 66; the rivers in Year Book No. 2, p. 76; the mountains in Year Book No. 3, p. 67; the lakes in Year Book No. 4, p. 77; the islands in Year Book No. 5, pp. 71, 72, and the mineral springs in Year Book No. 6, p. 65.

Inland, the country generally is destitute of conspicuous landmarks. From the coast there is a general rise southwards to the vicinity of the 17th or 18th parallel of south latitude, where the higher lands form the watershed between the rivers that flow northwards to the sea, and those that form the scanty supply of the interior systems. Towards the centre of the continent, the land over a wide area is of considerable elevation, and there are several mountain ranges, generally with an east and west trend.

§ 4. Climate, Fauna and Flora.

1. **The Seasons.**—There are two main climatic divisions—the wet season, November to April; and the dry season, May to October; with uniform and regular changes of season. Nearly the whole of the rainfall occurs in the summer months. Fuller particulars will be found in Year Book No. 6, p. 1116.

2. **Fauna.**—The ordinary types of native Australian fauna inhabit the territory. As elsewhere on the continent, the higher *Theria* are rare, but marsupials, birds, crocodiles, fresh-water tortoises, snakes (mostly non-venomous), and frogs abound. There are many varieties of freshwater fish and littoral mollusca. Butterflies and beetles are strongly represented. The white ant is a pest, anthills in the Territory sometimes attaining great dimensions. Mosquitoes and sandflies are very troublesome, particularly in the wet season. Native fauna are in some cases protected. The domesticated animals have been introduced, and buffalo also exist in large herds.

3. **Flora.**—The vegetation is North Australian in type, but a number of the forms belong to the Malayan and Oceanic regions. The timber trees are not of great commercial value, but in the coastal regions tropical vegetation grows luxuriantly to the water's edge. On the wide expanses of plain country of the interior, there is little vegetation. The principal orders represented in the Territory are:—*Euphorbiaceæ*, *Compositæ*, *Convolvulaceæ*, *Rubiaceæ*, *Goodeniaceæ*, *Leguminosæ*, *Urticææ*.

Fuller particulars regarding fauna and flora are given in Year Book No. 6, pp. 1116-7.

§ 5. Production.

1. **Agriculture.**—Up to the present, agriculture has made little progress in the Territory, although it has been demonstrated that rice may be grown as an ordinary crop suitable for chaff as fodder, and in certain situations for milling; while maize, cowpeas, sorghum, amercane, millets of various kinds, and sugar-cane can also be cultivated. The drawbacks to success at the present are lack of suitable labour, and deficient means of communication. Purely tropical products such as cotton, tea, coffee, sisal hemp and cigar tobacco can also flourish, but their profitable cultivation depends on a supply of cheap labour which is unobtainable. The Commonwealth Government has established demonstration farms at Daly River and Batchelor.

2. **Stock.**—(i.) The spacious, well-grassed "runs" of the Territory are, with adequate water supply, suitable for horse and cattle breeding. Large numbers of cattle are overlanded to neighbouring States, which also take considerable quantities of horse hides.

The Government has a small experimental sheep station at Mataranka on the head waters of the Roper River, the flock consisting of about 2000 merino sheep. The estimated number of stock on 31st December, 1915, is given in the appended statement:—

LIVE STOCK, NORTHERN TERRITORY, 31st DECEMBER, 1915.

Horses.	Cattle.	Sheep.	Pigs.
19,957	483,961	57,827	500

The dairying industry has not been developed, although it has been shewn that it is possible to make butter of good quality. Fresh milk is procurable in Darwin from the Government dairy, which was leased to a private supplier in 1914. It is found that the rank indigenous grasses in some localities are greatly improved by constant stocking, and become largely replaced by shorter and sweeter varieties.

Herds of wild buffaloes are found on the mainland and on Melville Island, and are descendants of swamp buffaloes, introduced in the early part of last century. They have no value beyond that of their hides, of which large quantities are exported annually.

(ii.) *Freezing Works.* Extensive freezing works capable of dealing with all the stock available for export have been established in the vicinity of Darwin. Although the works are privately owned, the Government has arranged reasonable terms under which the proprietors have agreed to treat with stock owners. The works commenced operations in April, 1917, and several hundred cattle are now slaughtered daily for export.

3. Mining.—Small quantities of the precious and commercial metals are mined. The discovery of gold and tin in various localities, and the measure of success that has attended their working, indicate scope for development. An important discovery of tin at Maranboy Springs was made in 1913, and this field is now the most productive in the Territory.

(i.) *Mineral Production.* Both alluvial and reef gold are found, and there are several batteries and cyanide plants. Other minerals are also raised. The following table shews the total mineral production for the last five years:—

VALUE OF MINERAL PRODUCTION, NORTHERN TERRITORY, 1911 to 1915.

Year.	Gold.	Tin Ore.	Wolfram.	Silver Lead Ore.	Copper Ore.	Total Value.
	£	£	£	£	£	£
1911	30,910	22,900	4,048	...	1,470	59,353*
1912	22,671	27,001	3,330	820	3,998	57,820
1913	13,250	25,526	3,140	2,228	482	44,626
1914	10,757	15,200	4,025	545	4,860	35,807†
1915	4,182	13,245	5,278	1,073	10,710	34,498‡

* Includes bismuth valued at £25. † Includes mica valued at £420. ‡ Molybdenite, £10.

(ii.) *Employment of Miners, 1911 to 1915.* The following table shews average number employed in mining annually for five years, distinguishing Chinese:—

MINERS, NORTHERN TERRITORY, 1911 to 1915.

Year.	Europeans.	Chinese.	Total.
1911	101	575	676
1912	84	542	626
1913	90	530	620
1914	136	462	598
1915	112	364	476

(iii.) *Mining Accidents, 1900 to 1915.* In 1911 five mining accidents were recorded, four resulting in death. There were no serious accidents in 1910, 1912, and 1913, and only one, resulting in death, in 1914, and one in 1915. During the nine years preceding (1901-1909), nine fatal accidents and seven cases of serious injury were recorded. The majority of the victims were Chinese.

4. *Pearl Fishing.*—In 1884 mother-of-pearl shell was discovered in the harbour of Port Darwin. Difficulty in working, principally through heavy tides and muddy water, retarded the development of the industry for many years. Latterly, however, the opening up of new patches led to a revival, but the outbreak of war has given the industry a setback for a time. In 1915, 25 boats were engaged, valued, with their equipment, at about £6250; 150 men were employed. Forty-two tons of pearl shell were obtained, valued at £6135. The value of pearls produced was not stated. About 100 lbs. of tortoise-shell, valued at £50, and bêche-de-mer, valued at £160, were also raised. The above figures give only a partial view of the value of the fishing industry, as large quantities of pearlshell and bêche-de-mer are sent away unrecorded.

§ 6. Commerce and Shipping.

1. *Trade.*—The following table shews the total trade of the Territory for 10 years from 1901 to 1910:—

VALUE OF TOTAL IMPORTS AND EXPORTS, NORTHERN TERRITORY, 1901 to 1910.

Items.	1901.	1902.	1903.	1904.	1905.	1906.	1907.	1908.	1909.	1910.
	£	£	£	£	£	£	£	£	£	£
Imports ...	108,886	107,217	125,244	113,461	86,878	74,659	78,996	68,905	57,994	52,398
Exports ...	302,331	191,558	178,256	235,650	216,279	254,222	345,721	241,023	278,535	269,063
Total Trade	411,817	298,775	303,510	349,111	303,157	328,881	424,717	309,933	336,549	321,461

No record is now kept of the direction of trade between the Commonwealth States and Territories. It is, therefore, impossible to give the total imports and exports of the Northern Territory for years later than 1910. The value of the direct oversea trade for 1901, and for each of the years 1911 to 1914-15 is given hereunder:—

VALUE OF DIRECT OVERSEA TRADE, NORTHERN TERRITORY, 1901 and 1911 to 1915-16.

Items.	1901.	1911.	1912.	1913.	1914-15.	1915-16.
	£	£	£	£	£	£
Imports ...	37,589	14,284	18,130	20,977	83,708	74,424
Exports ...	29,191	44,662	59,106	67,911	13,319	20,953
Total ...	66,780	58,946	77,236	88,888	97,027	95,377

The principal items of oversea export were tin, £12,316, and pearlshell £6,135.

2. *Shipping.*—The Territory's oversea commerce is carried chiefly in British bottoms, but the Royal Dutch Packet Co. steamers now call each month. One of the lines maintains a monthly service, others are irregular. The following table shews the shipping of the Territory:—

SHIPPING, NORTHERN TERRITORY, 1881 to 1915.

Period.	Arrivals.		Departures.	
	No. of Vessels.	Tonnage.	No. of Vessels.	Tonnage.
1881—1885 (Annual Average)	72	71,814	72	71,692
1886—1890	95	94,452	103	94,724
1891—1895	75	81,128	73	81,090
1896—1900	71	88,284	70	88,244
1901—1905	63	93,751	63	91,556
1906—1910	87	128,502	88	128,408
1911	71	130,178	71	130,178
1912	74	138,052	74	138,052
1913	83	171,504	84	171,594
1914	82	173,943	81	172,482
1915	91	208,441	91	208,441

§ 7. Internal Communication.

1. **Railways.**—Under the agreement ratified by the Act, the Commonwealth is to construct the Northern Territory portion of the transcontinental railway line (connecting Adelaide and Darwin, *via* Port Augusta).

The Northern line from Adelaide terminates at Oodnadatta, about 100 miles south of the southern boundary of the Territory. The only line at present in the Territory is one from Darwin to Katherine, a length of 200 miles, of 3 ft. 6 in. gauge. Pine Creek is distant about 1100 miles from Oodnadatta. The line to connect Katherine River with Oodnadatta (about 1030 miles) is in course of survey, the work having been completed as far south as Daly Waters Telegraph Station. It is stated that this transcontinental railway would bring London within seventeen days of Adelaide. The Commonwealth also acquired on 1st January, 1911, the property in the line from Port Augusta to Oodnadatta (478 miles).

2. **Posts.**—The principal mail services are as follows:—

(i.) *Marine.* Postal communication is maintained between Sydney, Melbourne, and Adelaide, *via* North Queensland ports. The service extends to China and Japan. There is also a regular service between Darwin and Boroloola by Government auxiliary vessel, calling at Roper River; and a service every two months between Darwin and Wyndham, on the estuary of Ord River, in the north-east of Western Australia, by the Western Australian Government steamers.

(ii.) *Inland.* Posts are also despatched into the interior of the Continent. One route is from the Katherine Telegraph Station southwards as far as Alice Springs; others are from Katherine to Boroloola, from Camooweal to Boroloola, from Katherine to Victoria River and Wave Hill, and from Oodnadatta to Alice Springs.

3. **Telegraphs.**—The transcontinental telegraph line, covering a length of 2230 miles, was completed on 2nd August, 1872, at a cost of nearly half-a-million sterling. The line runs in a northerly direction from Adelaide to Darwin, whence telegraphic communication is provided with Asia and Europe, *via* Banjoewangie (Java), Singapore and Madras.

Between Darwin and Banjoewangie the submarine cable is duplicated.

§ 8. Finance.

1. Revenue and Expenditure, 1915-16.—In the Commonwealth finance statement for 1915-16, separate accounts are given for Northern Territory Administration. The following shews the receipts and expenditure for the financial year named:—

REVENUE AND EXPENDITURE, NORTHERN TERRITORY, 1915-16.

REVENUE.	£	EXPENDITURE (CHIEF ITEMS.—cont.)	£
Customs and Excise... ..	21,282	Port Augusta Railway Loans (Interest)	78,604
Postal, Telegraph & Telephone	7,366	New Works	51,518
Railways	29,150	Railways and Transport—	
Territorial	13,778	Salaries, etc.	52,395
Land and Income Tax	7,032	Gold Fields and Mining—	
Miscellaneous	14,820	Salaries, etc.	21,506
Quarantine	11	Land and Surveys—Salaries, etc.	14,624
Lighthouses and Light Dues... ..	1,374	Loss on Railway Working	29,339
Port Augusta - Oodnadatta Railway	2,368	Postal Department... ..	18,315
Deficiency on year's transactions	649,518	Interest and Sinking Fund on Stock and Treasury Bills in aid of Loans and Railways	52,421
	746,699	Redemption of Loans	22,750
EXPENDITURE (CHIEF ITEMS).	£	Miscellaneous	27,140
Northern Territory Loans (excluding Port Augusta Railway)	311,203	Total	746,699
Administrator's Office	66,884		

In addition, the following expenditure was made from the Loan Fund during the year:—

Railway—Pine Creek to Katherine River	£126,592
Redemption of Port Augusta Railway Loans	923
Redemption of Northern Territory Loans	400,000
Total	£527,515

2. Loans.—The first loan on Northern Territory account was floated in London in 1876; the nominal amount was £75,000, at 4 per cent., due date 1st January, 1916. The public debt on 30th June, 1916, was £2,778,266. The following is a summary:—

PUBLIC DEBT, NORTHERN TERRITORY, 30th JUNE, 1916.

Principal.	Rate.	Annual Interest.
£	%	£
27,216	3	816
154,992	3½	5,425
1,399,758	3¾	52,491
1,196,300	4	47,852
Total ... 2,778,266	—	106,584

§ 9. Land Tenure.

1. Present Policy.—A description of the system of land settlement in force in the Territory will be found in the chapter "Land Tenure and Settlement," see pages 256, 257 *supra*. Prior to the transfer of the Territory to the Commonwealth on 1st January, 1911, the sale and occupation of lands were regulated by the South Australian Legislature in Statutes applying particularly to the Territory. Under the Commonwealth Government, a complete reorganisation was effected, and the system adopted was embodied in the Crown Lands Ordinances of 1912, 1913, and 1914. A leasehold system only is provided for, and no further alienation of Crown lands is permitted, except in pursuance of existing agreements. The land is classified and appraised, and leased in blocks, the maximum areas ranging from 300 square miles of first class pastoral, to 1280 acres of first class agricultural land. The terms of pastoral leases are for Class 1, 21 years; Classes 2 and 3, 42 years; and for any miscellaneous lease, 21 years. All other leases are to be in perpetuity, making them almost equivalent to freeholds, but with re-appraisal of rent values every 14 years in the case of town lands, and every 21 years in the case of agricultural and pastoral lands. The conditions are of a very favourable nature, with low rents and elastic conditions of tenure. In order to provide for cases where allottees on inspection of their blocks have reasonable grounds for preferring another block, the Administrator is empowered to revoke leases, under certain conditions. Under the Advances to Settlers Ordinance 1913, provision was made for giving settlers financial assistance in the pioneering years. Repayment of loans can be extended over a period of 30 years. Owing to the high evaporation rate, the surface waters in the Territory dwindle rapidly during the dry season, and, except in favoured localities, sub-artesian supplies must be resorted to where obtainable. In order to encourage the provision of water supply, it is proposed, in granting leases, to allow minimum rentals in the case of lessees who make satisfactory provision by means of bores, wells, or dams.

2. Number of Holdings.—The table on page 257 *supra* shows the total area under lease, license, and permit in 1901 and in each year from 1912 to 1916. At the end of 1916 there were in existence, under South Australian Acts, 226 pastoral leases covering over 58,000,000 acres, and 85 pastoral permits covering 8,300,000 acres. Under the Crown Lands Ordinance of 1912, there were 102 grazing licenses covering 18,600,000 acres, and 52 pastoral leases covering 7,200,000 acres.

SECTION XXXIII.

LABOUR AND INDUSTRIAL STATISTICS.

§ 1. Introductory.

1. **General.**—In Year Book No. 7 (pages 992-3), a *résumé* was given of the functions and scope of the Labour and Industrial Branch of the Commonwealth Bureau of Census and Statistics. Owing to considerations of space, that information is not repeated in the present issue of the Year Book.

§ 2. Fluctuations in Employment and Unemployment.

1. **General.**—In Australia, but few of the trade unions pay any form of unemployment benefit, and consequently accurate and complete records of unemployment are difficult to obtain. For that reason the investigation for past years was advisedly limited to a record of the numbers unemployed at the end of each year. The results are, therefore, subject to certain limitations, inasmuch as they do not take into account variations in employment and unemployment throughout the year due to seasonal activity and other causes.

For the above reasons it is not safe to conclude that the actual percentage returned as unemployed in past years by trade unions at the end of each year is equal to the average percentage unemployed during the year. Nevertheless, for the purpose of making comparisons and shewing tendencies over a period of years, the percentages returned as unemployed, though not exact, are the most satisfactory figures available, and the average percentages and index-numbers computed for the several States and groups of unions may be taken as denoting the true course of events with substantial accuracy.

It may be mentioned that, in order to overcome the difficulties alluded to in regard to seasonal fluctuations, returns as to numbers unemployed have been collected from trade unions for each quarter since the beginning of the year 1913.

2. **Number Unemployed in Various Industries, 1891 to 1916.**—The following table shews for each of the years specified :—

- (a) The number of unions for which returns as to unemployment are available.
- (b) The number of members of such unions.
- (c) The number of members unemployed, and
- (d) The percentage of members unemployed on the total number of members of those unions for which returns are available.

The information given in this table obviously does not furnish a complete register of unemployment. In the first place, with the exception of the years 1913 to 1916 it relates only to the number unemployed at the end of the year (see preceding paragraph hereof), and, secondly, it does not cover more than a part of the industrial field. And attention should here be drawn to the fact that the value of the comparisons which can be made is, to some extent, vitiated by the fact that returns are not available for the same unions throughout. For most of the important industries, returns have been available for a considerable number of unions and members since 1912. It is not unlikely, however, that particulars of unemployment are, on the whole, more generally available for those trades in which liability to unemployment is above the average

of skilled occupations. Thus the building and engineering industries are heavily represented in the returns, while such comparatively stable industries as railway service are hardly represented at all. On the other hand, unskilled casual labour cannot, in the nature of the case, be well represented in the returns, which relate mainly to skilled workmen.

Thus, for some reasons, the percentage given is likely to be greater, and for other reasons less, than the true average percentage unemployed throughout the country.

UNEMPLOYMENT.—NUMBER OF UNIONS AND MEMBERS REPORTING AND NUMBER AND PERCENTAGE UNEMPLOYED, 1891 to 1916 (4th QUARTER).

Particulars.	Unions.	Membership.	Unemployed.	
			Number.	Percentage.
1891	25	6,445	599	9.3
1896	25	4,227	457	10.8
1901	39	8,710	574	6.6
1906	47	11,299	753	6.7
1907	51	13,179	757	5.7
1908	68	18,685	1,117	6.0
1909	84	21,122	1,223	5.8
1910	109	32,995	1,857	5.6
1911	160	67,961	3,171	4.7
1912	464	224,023	12,441	5.5
1913, 1st Quarter*	451	237,216	15,234	6.4
2nd	458	243,523	17,854	7.3
3rd	472	252,325	17,698	7.0
4th	465	251,207	13,430	5.3
1914, 1st	462	262,133	15,541	5.9
2nd	467	279,318	15,856	5.7
3rd	466	283,584	30,367	10.7
4th	439	250,716	27,610	11.0
1915, 1st	476	279,388	33,465	12.0
2nd	456	273,190	26,015	9.5
3rd	484	279,133	24,682	8.8
4th	465	273,149	18,489	6.8
1916, 1st	475	291,525	17,178	5.9
2nd	476	298,675	15,741	5.3
3rd	472	278,047	14,649	5.3
4th	470	292,051	19,562	6.7

* For years prior to 1913 the figures refer to the end of the year only, and not to separate quarters. The quarterly figures shew the number of persons who were out of work for three days or more during a specified week in each quarter; they do not include persons out of work through strikes or lockouts.

The figures shew that the percentage of unemployment was higher in the fourth than in the third quarter of the current year, but slightly lower than in the corresponding quarter of last year.

3. Unemployment in Different Industries, 1916.—The following table shews the percentages unemployed in several of the fourteen industrial groups. It may be observed that for those industries in which unemployment is either unusually stable or, on the other hand, exceptionally casual, information as to unemployment cannot ordinarily be obtained from trade unions. Hence, certain industries such as railways, shipping,

agricultural, pastoral, etc., and domestic, hotels, etc., are insufficiently represented in the returns. Particulars are not, therefore, shewn separately for these groups, such returns as are available being included in the last group, "Other and Miscellaneous."

UNEMPLOYMENT IN DIFFERENT INDUSTRIES AT THE END OF YEAR 1916.

Industrial Group.	Number Reporting.		Unemployed.	
	Unions.	Members.	Number.	Percentage.
I. Wood, Furniture, etc. ...	20	13,711	581	4.2
II. Engineering, Metal Works, etc.	56	43,117	3,119	7.2
III. Food, Drink, Tobacco, etc. ...	61	24,702	1,876	7.6
IV. Clothing, Hats, Boots, etc. ...	25	25,925	747	2.9
V. Books, Printing, etc. ...	25	9,601	288	3.0
VI. Other Manufacturing ...	77	30,701	1,971	6.4
VII. Building ...	57	33,696	3,568	10.6
VIII. Mining, Quarrying, etc. ...	25	30,642	1,560	5.1
X. Other Land Transport ...	12	9,837	285	2.9
IX., XI., XII., XIII. and XIV., Other and Miscellaneous ...	112	70,119	5,567	7.9
All Groups ...	470	292,051	19,562	6.7

From the above figures it may be seen that the degree of unemployment varies considerably in different industries, ranging from 2.9 per cent. in Group IV. (Food, Drink, Tobacco, etc.) to 10.6 per cent. in Group VII. (Building).

4. **Unemployment in each State, 1916.**—Any deductions which can be drawn from the data collected as to the relative degree of unemployment in the several States are subject to certain qualifications (in addition to those already stated on page 1050), inasmuch as the industries included in the trade union returns are not uniform for each State. In comparing the results for the individual States, it must therefore be borne in mind that, to some extent, at least, comparisons are being drawn between different industries and not only between different States. Nevertheless, since the industrial occupations of the people vary considerably in the several States, all comparisons between the States based on comprehensive data as to unemployment must, to some extent, suffer from the defect indicated.

UNEMPLOYMENT IN DIFFERENT STATES AT THE END OF YEAR 1916.

State.	Number Reporting.		Unemployed.	
	Unions.	Members.	Number.	Percentage.
New South Wales ...	139	135,436	7,707	5.7
Victoria ...	107	86,154	7,878	9.1
Queensland ...	53	27,914	1,873	6.7
South Australia ...	56	18,783	869	4.7
Western Australia ...	73	18,664	1,094	5.9
Tasmania ...	42	5,100	121	2.4
Commonwealth...	470	292,051	19,562	6.7

§ 3. Variations in Nominal and Effective Wages.

1. Variations in Wage Index-Numbers in Various Industries, 1901 to 1916.—The total number of different occupations for which particulars as to wages are available back to 1891 is 652. In 1913 the number of occupations was increased to 3948. These wages relate generally to union rates, but in a few cases, more especially for the earlier years, when there were no union rates fixed, predominant or most frequent rates have been taken. The occupations have been distributed over the fourteen industrial groups already specified, and index-numbers computed for each group for the whole Commonwealth. The wages refer generally to the capital town of each State, but in industries such as mining and agriculture, the rates in the more important industrial centres have been taken.

The following table shews wage index-numbers for the whole Commonwealth in each of the fourteen industrial groups during the years specified. Rates of wages for females are not included. The index-numbers are "weighted" according to the number of persons engaged in different industrial groups in each State and the Commonwealth (see Report No. 5, page 45). In the tables of index-numbers given in this Section, the weighted average wage in 1911 for all States or industries, as the case may be, is taken as base (= 1000). The result is that the index-numbers are comparable in all respects, that is to say, they shew not only the variations in wages from year to year in each State or industrial group, but they also furnish comparisons as to the relative wages in each State or industry, either in any particular year, or as between one year and another, and one State or industry and another.

VARIATIONS IN NOMINAL WAGE INDEX-NUMBERS IN DIFFERENT INDUSTRIES IN THE COMMONWEALTH, 1901 to 1916. (WEIGHTED AVERAGE FOR ALL GROUPS IN 1911 = 1000).

Particulars.	No. of Occupations included.		1901.	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.
	1901 to 1912.	1913-16.											
I. Wood, Furniture, etc.	27	270	1,019	1,049	1,051	1,055	1,097	1,125	1,144	1,142	1,161	1,174	1,245
II. Engineering, Metal Works, etc. ...	101	636	945	971	989	995	1,006	1,064	1,104	1,113	1,127	1,174	1,211
III. Food, Drink, etc. ...	34	576	871	902	905	914	928	991	1,038	1,074	1,085	1,127	1,194
IV. Cloth'g, Hats, Boots, etc. ...	13	124	708	856	867	935	976	981	990	1,019	1,034	1,037	1,104
V. Books, Printing, etc.	25	205	986	1,010	1,021	1,070	1,102	1,149	1,188	1,234	1,246	1,259	1,328
VI. Other Manufactur'g	102	875	907	905	915	923	947	1,013	1,037	1,076	1,093	1,125	1,203
VII. Building	67	190	1,050	1,105	1,114	1,180	1,163	1,213	1,245	1,270	1,276	1,285	1,359
VIII. Mining, Quarries, etc.	71	161	1,067	1,117	1,116	1,120	1,168	1,194	1,216	1,270	1,272	1,299	1,420
IX. Rail & Tram Serv'ce	68	224	1,021	1,027	1,031	1,064	1,074	1,113	1,164	1,165	1,165	1,187	1,236
X. Other Land Transp't	9	70	795	813	836	836	889	910	933	996	1,026	1,041	1,128
XI. Shipping, etc.	74	198	751	787	787	856	857	871	942	953	972	1,026	1,153
XII. Agriculture, Pastoral, etc. ...	8	72	627	730	736	787	798	839	944	965	965	969	1,073
XIII. Domestic, Hotels, etc.	17	114	598	608	626	727	743	887	894	918	935	948	995
XIV. Miscellaneous	36	233	759	812	820	843	889	929	1,015	1,045	1,054	1,065	1,137
All Groups* ...	652	3,948	848	893	900	923	955	1,000	1,051	1,076	1,085	1,102	1,184

NOTE.—The figures in the above table are comparable both horizontally and vertically. * Weighted average: see graph on page 1065 hereof. † The decrease in this group is due to a reduction in the award rates in the Furniture trade resulting from an appeal made by employers.

It may be seen that the index-numbers increase during the whole period under review. The wage index-number increased from 848 in 1901 to 1000 in 1911, 1051 in 1912, and to 1184 in 1916.

It was pointed out in Report No. 2 (see pages 25 and 26) that the index-numbers given in the preceding table are readily *reversible*, that is to say, any year other than the year 1911 can be taken as base, and an example was given, shewing the amount of wages payable in 1901, 1911 and 1912 in each industrial group for every £1 payable in 1891.

2. **Variations in Wage Index-Numbers in Different States, 1901 to 1916.**—The following table shews the progress in rates of wages for all industries in each State, the weighted average wage for the Commonwealth in 1911 being taken as the base (= 1000). These results are based generally upon rates of wages prevailing in the capital town of each State, but in certain industries, such as mining, rates are necessarily taken for places other than the capital towns.

These index-numbers are, of course, also reversible, and an illustration was given in Report No. 2 (see page 27).

**VARIATIONS IN NOMINAL WAGE INDEX-NUMBERS IN DIFFERENT STATES,
1901 to 1916.**

(WEIGHTED AVERAGE WAGE FOR COMMONWEALTH IN 1911=1000.)

States.	No. of Occupations included.		1901.	1907.	1908.	1909.	1910.	1911.	1913.	1913.	1914.	1915.	1916.
	1901 to 1912.	1913-15.											
New South Wales	158	874	858	910	913	943	968	1,003	1,058	1,088	1,096	1,124	1,208
Victoria ...	150	909	796	857	871	887	924	985	1,038	1,058	1,065	1,078	1,148
Queensland ...	87	627	901	914	925	946	960	997	1,010	1,027	1,042	1,060	1,177
South Australia ...	134	567	819	858	868	905	951	1,013	1,048	1,061	1,062	1,067	1,151
Western Australia	69	489	1,052	1,053	1,061	1,068	1,116	1,152	1,191	1,214	1,226	1,236	1,272
Tasmania ...	54	482	719	725	725	732	772	799	934	1,025	1,028	1,039	1,112
Commonwealth*	652	3,948	848	893	900	923	955	1,000	1,051	1,076	1,085	1,102	1,184

* Weighted average.

NOTE.—The figures in the above table are comparable both horizontally and vertically.

The significance of the above figures since 1906 can be better appreciated by reference to the graph on page 1065, which shews, of course, not only variations in wages in each State from year to year, but also the difference in wage level as between the several States. From this graph it is clearly seen that, excluding Western Australia, the difference between nominal wages in the several States has decreased very considerably since 1906. This difference is shewn at any point by the vertical distance between the graphs. Wages in Queensland increased since 1914 at a higher rate than in any other State, and the general level in that State is now higher than in Victoria, South Australia, or Tasmania. The graphs for Victoria and South Australia lie very close together throughout the period. In Tasmania the first determination under the Wages Boards Acts 1910 and 1911 came into force in 1911. Since then wages in that State have increased rapidly, and their general level is now not far below those of the other States, except Western Australia.

3. **Variations in Effective Wages.**—In order to obtain an accurate measure of the progress of wage-earners, regard must be had to the purchasing power of wages, and the index-numbers based merely upon records of rates of wages must consequently be

subject to some correction, inasmuch as they take no account of variations in purchasing-power of money. In computing these effective wage index-numbers, the nominal wage index-numbers given in paragraph 2 hereof have been divided by the purchasing-power-of-money index-numbers in Section IV., paragraph 5 of Report No. 7, p. 358. The resulting index-numbers shew for each State and for the Commonwealth for the years specified the variations in *effective* wages.

The following table shews the effective wage index-numbers for each State for each of the years indicated from 1901 to 1916.

VARIATIONS IN EFFECTIVE WAGES IN EACH STATE AND COMMONWEALTH, 1901 to 1916.*

Particulars.	1901.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.
New South Wales	961	949	983	926	952	973	973	922	924	909	850	867
Victoria	915	919	979	941	980	981	1,037	981	1,007	964	844	877
Queensland	1,172	1,165	1,151	1,081	1,112	1,095	1,090	1,032	1,060	1,045	913	891
South Australia	948	934	960	911	914	943	957	906	947	929	847	886
Western Australia	1,024	1,029	1,068	1,060	1,081	1,091	1,023	1,032	1,076	1,073	1,011	1,005
Tasmania	827	833	818	788	769	812	838	896	976	943	843	870
Commonwealth...	964	960	996	946	974	985	1,000	955	975	952	862	894

* As to the effect in abnormal periods, see Labour Report No. 6, pp. 20-2, Section IV., par. 3.

The figures in the above table from the year 1906 onwards are shewn in the graph on page 1066. A comparison between this graph with that on the opposite page shews that the difference between nominal and effective wages is very marked. In the first place, the whole nature of the graphs is entirely different. Instead of having a series of lines shewing a practically continuous and rapid upward trend, the effective wages shew (except for Tasmania) a series of fluctuating points, in which no very marked tendency is immediately discernible. It will be seen that, generally speaking, the years 1907, 1909, 1910, 1911, 1913, and 1916 were marked by increases in effective wages, but that in each of the years 1908, 1912, 1914 and 1915, there were rapid decreases. In each of these years in which effective wages declined there was a rapid increase in cost of food and groceries. In 1914 wages increased 0.9 per cent., but the purchasing-power-of-money index-number went up 3.1 per cent., with the result that effective wages decreased 2.3 per cent. In 1915 the nominal wage index-number increased 1.6 per cent., while the purchasing-power-of-money index-number increased 12.1 per cent., resulting in a decrease of 9.5 per cent. in the effective wage. In 1916 the nominal wage index-number increased 7.4 per cent., and the purchasing-power-of-money index-number only 3.6 per cent., which resulted in the effective wage index-number, shewing an increase of 3.7 per cent.

One important feature common to both graphs (nominal and effective wages) is the manner in which the graphs for the individual States have, on the whole, approached more closely together. With the adoption of differential rates of wages fixed according to the relative purchasing-power of money, it appears probable that this tendency will continue in the future.

4. Variations in Effective Wages and Standard of Comfort, 1901 to 1916.—In the preceding paragraph particulars are given as to variations in effective wages in each State, due allowance having been made for variations in purchasing-power of money, though not for unemployment. Attention has also been drawn to the limitations to which they are subject in abnormal times.

If 48 hours per week be the time for which a given wage is paid, say 60s., then for the purpose of estimating the aggregate average earnings, account must be taken of the proportion of time spent in unemployment. For example, if the working days be 300 per year, and the time unemployed be 6 per cent., the actual proportion of working time is 94 per cent., i.e., 18 days are idle in every 300, or 6 per cent. of the period. Similarly if of the employable an average of only 94 per cent. are employed, the measure of unemployment is again 6 per cent., and the employment index-number is 940, i.e., 940 in 1000, or 94 per cent.

For years prior to 1913 the data available as to unemployment are so meagre that comparative results allowing for variations both in purchasing-power of money and in unemployment cannot be accurately computed for the several States. In the subjoined table, however, the percentage of unemployment for the whole Commonwealth at the end of the years specified has been used in order to obtain results shewing the variations in unemployment upon effective wages. Column I. shews the nominal rate of wage index-numbers, and Column II. the relative percentages unemployed. Applying these percentages to the numbers shewn in Column I., and deducting the results from each corresponding index-number, so as to allow for relative loss of time, the figures in Column III. are obtained. These figures are then re-computed with the year 1911 as base, and are shewn in Column IV. In Column V. the purchasing-power-of-money index-numbers is shewn, and in Columns VI. and VII. the effective wage index-numbers are given, firstly, for full work, and, secondly, allowing for lost time. These are obtained by dividing the figures in Columns I. and IV., respectively, by the corresponding figures in Column V. The resulting index-numbers shew for the Commonwealth for the years specified the variations in *effective* wages or in what may be called the "standard of comfort."*

A comparison between the figures in Columns I. and VI. shews the relation between the nominal rates of wages and the purchasing efficiency of these rates. The figures in Column VII. shew variations in *effective* wages after allowing not only for variations in purchasing-power of money, but also for the relative extent of unemployment.

UNEMPLOYMENT, PURCHASING-POWER-OF-MONEY AND NOMINAL AND EFFECTIVE WAGE INDEX-NUMBERS, 1901 to 1916.†

Year.	I. Nominal Wages Index- Numbers.	II. Percentage Unem- ployed.	Rate of Wages Index- Numbers, allowing for Lost Time.		V. Purchas- ing-power- of-money Index- Numbers.	Effective Wage Index-Numbers.	
			III. Actual.	IV. Re-com- puted. (1911 =1,000).		VI. Full Work.	VII. Allowing for Unemploy- ment.
1901 ...	848	6.6	793	832	880	964	945
1906 ...	866	6.7	808	848	902	960	940
1907 ...	893	5.7	842	884	897	996	986
1908 ...	900	6.0	846	888	951	946	934
1909 ...	923	5.8	870	913	948	974	963
1910 ...	955	5.6	901	945	970	985	974
1911 ...	1,000	4.7	953	1,000	1,000	1,000	1,000
1912 ...	1,051	5.5	993	1,042	1,101	955	946
1913 ...	1,076	5.3	1,021	1,071	1,104	975	970
1914 ...	1,085	11.0	966	1,014	1,140	952	889
1915 ...	1,102	6.8	1,027	1,078	1,278	862	844
1916 ...	1,184	6.7	1,105	1,159	1,324	894	875

† As to the effect in abnormal periods, see Section iv., par. 3, of Labour Report No. 6.

* This expression must not be confused with "standard of living." A change in the standard of living necessarily involves a change in regimen (see Labour Report No. 1), that is, a change in the nature or in the relative quantity of commodities purchased, or both. A change in the "standard of comfort" merely implies a variation in effective wages, which variation may, or may not, result in, or be accompanied by, a change in the "standard of living."

It may be seen that the nominal wage index-number has steadily increased, and that the increase has been at a somewhat greater rate (except in the years 1908, 1912, 1914 and 1915) than the increase in the cost of food, groceries and house rent. Owing to the decreases in these years the effective wage index-numbers (both "Full Work" and "Allowing for Unemployment") do not, on the whole, shew any general increase, but fluctuate between a range which reached its maximum in 1911, and its minimum in 1915. In 1907 there was a large decrease in unemployment, which is reflected in the effective wage index-number for that year. The rise in the cost of commodities in 1908, which was a drought year, caused a considerable fall in effective wages. From that year, however, until the year 1911, the effective wage index-number steadily increased from 934 to 1000, but this increase was almost counterbalanced by the fall in 1912, which was due to the large increase in cost of commodities and the smaller increase in unemployment. In 1913 the purchasing power of money index-number was practically the same as that for 1912, while nominal wages increased and unemployment decreased, with the result that the effective wage index-numbers, both for full work and allowing for unemployment, shew an increase. The effective wage index-numbers for 1914 both shew a decrease since the preceding year. This decrease is particularly marked in the case of the index-numbers in which allowance is made for unemployment. In 1915 there was a decrease in unemployment when compared with the preceding year, but on the other hand the cost of food and groceries shews a very substantial increase, so that while nominal wages increased slightly, effective wages index-numbers, both for full work and allowing for unemployment, shew a large decrease, and are, in fact, lower than for any other year covered by the investigation. In 1916, the effective wage-index-numbers both for full work and allowing for unemployment exhibit an increase. This is due to the fact that the increase in the nominal wage index-number has been greater than the increase in the index-number, which embraces cost of food, groceries, and house rent.

§ 4. Changes in Rates of Wage:

1. **General.**—The collection of information regarding changes in rates of wage throughout the Commonwealth dates from the 1st January, 1913.

(i.) *Definition of a Change in Rate of Wage.* For the purpose of these statistics a change in rate of wage is defined as a change in the weekly rates of remuneration of a certain class of employees, apart from any change in the nature of the work performed or apart from any revision of rates due to increased length of service or experience. It is obvious that under this definition certain classes of changes are excluded, such, for example, as (a) changes in rates of pay due to promotion, progressive increments, or, on the other hand, to reduction in pay or grade to inefficient workers, and (b) changes in average earnings in an occupation due to a change in the proportions which higher paid classes of workers bear to lower paid classes.

(ii.) *Sources of Information.* Primary information merely as to the fact that a change in rate of wage has occurred is obtained through the following channels:—(a) the Industrial Registrar or Chief Inspector of Factories in each State; (b) Reports from Labour Agents and Correspondents; (c) Quarterly reports from Secretaries of Trade Unions; (d) Returns relating to industrial disputes which resulted in changes in rates of wage; (e) Reports in newspapers, labour and trade reviews, and other publications.

(iii.) *Collection of Particulars concerning Changes.* On the occurrence of a change in rate of wage, forms* (prescribed under the Census and Statistics Act 1905) are issued to employers and employers' associations (if any) and also to the secretaries of the trade unions, the members of which are affected by the change. In certain cases forms are also issued, if necessary, to individual employers. The particulars which have to be inserted in these forms furnish information regarding the occupations of the workers affected, the number of workers in each occupation, the rates of wage paid before and

* Since these forms are issued under the authority of the Census and Statistics Act 1905, it is compulsory upon prescribed persons to furnish the information required.

after the change, the locality affected, and the date on which the change took effect. Information must also be furnished regarding employers and employers' associations concerned (if any), and the method by which the change was effected.¹

When the forms are returned from the various persons who are required to fill them in, the returns are checked and compared with each other and with copies of awards, determinations, and agreements. In all cases when the information furnished on the forms is incomplete or unsatisfactory, further inquiries are made, and the figures checked by reference to Census results, industrial statistics, factory reports, etc.

2. Comparative Summary of Changes in Rates of Wage in each State during 1915 and 1916.—The following table gives particulars of changes which occurred in each State of the Commonwealth during the years 1915 and 1916 respectively. As regards the number of persons affected, the particulars given refer to the total number of persons ordinarily engaged in the various industries. The results as to the amount of increase in wages are computed for a full week's work for all persons ordinarily engaged in the several industries and occupations affected, and in cases of changes in existing minimum rates under awards or determinations of industrial tribunals, it has ordinarily been assumed (in the absence of any definite information to the contrary) that the whole of the employees in each occupation received the minimum rates of wage before and after the change.

It should be clearly understood that *the figures given in the third division of the following table (amount of increase per week) do not relate to the increase each week, but only to the increase in a single week on the assumption that the full number of persons ordinarily engaged in the particular trade or occupation affected by the change were employed during that week.* It is obvious, therefore, that the aggregate effect per annum cannot be obtained without making due allowance for unemployment and for occupations in which employment is seasonal or intermittent. It is also obvious that since unemployment and activity in all branches of industry may vary from year to year, and in many branches from season to season also, no accurate estimate of the actual effect of the changes in the total amount of wages received or paid *per annum* can be made, until the determining factors have been investigated. These factors are (a) the amount of unemployment, and (b) the period of employment in seasonal industries.

**CHANGES IN RATES OF WAGE IN EACH STATE.—SUMMARISED RESULTS
FOR YEARS 1915 and 1916.**

State.	No. of Changes.		No. of Persons Affected.		Total Net Amount of Increase per Week.		Average Increase per Head per W'k.	
	1915.	1916.	1915.	1916.	1915.	1916.	1915.	1916.
New South Wales...	169	377	109,260	242,564	£ 29,525	£ 56,835	s. d. 5 5	s. d. 4 8
Victoria ...	87	168	39,087	119,878	8,078	30,566	4 2	5 1
Queensland ...	60	134	22,864	72,079	6,398	40,451	5 7	11 3
South Australia ...	31	98	10,206	40,925	3,539	9,930	6 11	4 10
Western Australia ...	25	42	2,661	5,848	- 562	1,440	4 3	4 11
Tasmania ...	24	37	3,147	7,232	778	1,980	4 11	5 6
N. Territory ...	3	4	185	258	87	88	9 5	6 10
F. C. Territory ...	...	4	...	157	...	40	...	5 1
Commonwealth...	401	†870	*197,410	†492,487	*51,905	†142,923	*5 3-	†5 10

* Including two changes (common to all States) which resulted in an increase in wages of £2938 per week to 10,000 workpeople. The particulars relating to the numbers of workpeople who were affected and the net amount of increase per week in each State were not ascertainable.

† Including six changes (common to all States), which resulted in an increase in wages of £1593 to 3546 workpeople. The particulars relating to the numbers of workpeople who were affected by these changes, and the net amount of increase per week in each State were not ascertainable.

Included in the particulars contained in the foregoing table are those relating to seven decreases during the year 1915 and eight during the year 1916. The States in which these decreases were recorded were, in 1915: New South Wales two, Tasmania

1. In each of the Quarterly Bulletins since the beginning of the year 1915 a summary is included, giving the following particulars with respect to each change in rate of wage:—(a) Locality, industry and occupations affected; (b) date from which change took effect; (c) approximate number of workpeople affected (male and female separately); (d) method by which change brought about; and (e) brief information as to the extent of the change.

two, and in Victoria, South Australia and Western Australia one each, affecting in all 494 workers to the extent of a decrease of £81 per week; and in 1916, New South Wales six, Victoria, and Western Australia one each, affecting in all 1730 workers to the extent of a decrease of £286 per week. It may be observed that not only were the changes in rates of wage recorded greater in number in 1916 than in 1915, but were also of greater magnitude in the average number of persons affected and in the average increase per head per week.

3. Number and Magnitude of Changes in Rates of Wage in the Commonwealth, Classified according to Industrial Groups, 1915 and 1916.—In the following table particulars are given of the number of changes, the number of persons affected, the total amount of increase per week, and the average increase per head per week, classified according to Industrial Groups throughout the Commonwealth during the years 1915 and 1916.

CHANGES IN RATES OF WAGE IN COMMONWEALTH CLASSIFIED IN INDUSTRIAL GROUPS, 1915 and 1916.*

Industrial Groups.	No. of Changes.		No. of Persons Affected.		Total Net Amount of Increase per week.		Average Increase per Head per week.	
	1915.	1916.	1915.	1916.	1915.	1916.	1915.	1916.
I. Wood, Furniture, Timber, etc.	18	35	4,912	16,111	£ 1,131	£ 4,255	s. d.	s. d.
II. Engineering, Metal Works, etc.	51	74	32,322	27,412	8,835	6,594	5 6	5 0
III. Food, Drink, Tobacco, etc. ...	48	107	18,214	38,171	4,204	16,383	4 7	8 7
IV. Clothing, Hats, Boots, etc. ...	7	21	1,023	30,918	339	6,853	6 8	4 5
V. Books, Printing, etc.	7	27	1,724	10,210	539	2,270	6 3	4 5
VI. Other Manufacturing	61	108	15,451	34,037	2,921	9,172	3 9	5 5
VII. Building ...	13	37	6,616	37,536	1,173	12,400	3 7	6 7
VIII. Mines, Quarries, etc.	37	63	19,925	63,308	5,507	17,827	5 6	5 8
IX. Rail and Tramway Services...	19	64	27,140	83,526	4,629	17,450	3 5	4 2
X. Other Land Transport	15	31	5,468	19,232	2,083	5,282	7 7	5 6
XI. Shipping, etc.	21	44	13,154	12,898	3,702	3,411	5 8	5 3
XII. Pastoral, etc.	3	11	2,300	16,266	852	16,858	7 5	20 9
XIII. Domestic, Hotels, etc.	11	13	5,011	9,882	1,095	2,016	4 4	4 1
XIV. Miscellaneous	54	186	44,150	92,980	14,896	21,847	6 9	4 8
Total, Commonwealth	365	821	197,410	492,487	51,905	142,923	5 3	5 10

* In this table an Industrial Award or Agreement under the Commonwealth Conciliation and Arbitration Act is counted as one change only, although such Award or Agreement may be operative in more than one State.

In point of number of persons affected by changes in 1916, Group XIV. (Miscellaneous), with 186 changes, affecting 92,980 persons, comes first. This is followed in the order named by IX. (Rail and Tramway Services); VIII. (Mines, Quarries, etc.); III. (Food, Drink, Tobacco, etc.); VII. (Building); VI. (Other Manufacturing), down to Group XIII. (Domestic, Hotels, etc.), with thirteen changes, affecting 9882 persons only. In point of individual increase per head per week, Industrial Group XII. (Pastoral, Agricultural, etc.) with an average increase of 20.9 per week, comes first, followed by Group III. (Food, Drink, Tobacco, etc.) 8s. 7d. per week. Other increases above 5s. per week per worker were recorded for the following Groups:—I., II., VI., VII., VIII., X., and XI. respectively.

4. Changes in Rates of Wage in Female Occupations.—Number and Effect of Changes in each State, 1915-1916.—Included in the changes in rates of wage recorded in the tables on pages 1065-6 are those which in the whole or part thereof affected female occupations. Particulars in respect to these changes in so far as they relate to the numbers of female workers affected, etc., are set out hereunder.

(i.) *Changes in Rates of Wage according to States.* In the following table, particulars are given of the effect of changes in rates of wage to female workers, as recorded for each State during the years 1915 and 1916 inclusive:—

**CHANGES IN RATES OF WAGE.—FEMALE OCCUPATIONS.—EFFECT OF
CHANGES IN EACH STATE, 1915 and 1916.**

Year.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'wealth.
NUMBER OF PERSONS AFFECTED.							
1915 ...	11,588	3,065	1,033	399	73	360	16,518
1916 ...	16,915	20,211	3,954	*1,348	179	347	42,954
NET AMOUNT OF INCREASE PER WEEK.							
	£	£	£	£	£	£	£
1915 ...	2,550	506	148	108	17	48	3,377
1916 ...	3,480	3,689	577	*162	26	43	7,977
AVERAGE INCREASE PER HEAD PER WEEK.							
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
1915 ...	4 5	3 4	2 10	5 5	4 8	2 8	4 1
1916 ...	4 1	3 8	2 11	2 5	2 11	2 6	3 9

* Including effect of one change which affected nine female employees in the Northern Territory.

It will be seen that during the past two years the greatest movement in any State in wages in female occupations has taken place in New South Wales. In view of the chief industries (millinery, dressmaking, and whitework) in which females are employed not being subject to any award of an industrial board in this State, the results are notable.

(ii.) *Changes in Rates of Wage in Female Occupations according to Industrial Groups.* The particulars set out in the immediately preceding table are further analysed and classified according to the industrial groups in which the changes took place in each State.

**CHANGES IN RATES OF WAGE IN FEMALE OCCUPATIONS IN EACH STATE,
CLASSIFIED ACCORDING TO INDUSTRIAL GROUP, 1915 and 1916.**

PARTICULARS.	INDUSTRIAL GROUP.							All Groups
	III. Food, Drink, etc.	IV. Cloth- ing, Hats, Boots, etc.	V. Books, Print- ing, etc.	VI. Other Manu- factur- ing.	XIII. Dom- estic, Hotels, etc.	XIV. Miscel- lane'us		
1915.								
NEW SOUTH WALES—								
Number of Persons affected ...	992	...	48	120	3,659	6,769	11,588	
Amount of Increase per week £	136	...	8	7	833	1,566	2,550	
VICTORIA—								
Number of Persons affected ...	940	...	90	1,643	...	*392	3,065	
Amount of Increase per week £	83	...	18	271	...	134	506	
QUEENSLAND—								
Number of Persons affected ...	30	...	...	20	8	975	1,033
Amount of Increase per week £	7	...	...	3	1	137	148
SOUTH AUSTRALIA—								
Number of Persons affected ...	...	150	...	...	145	†104	399
Amount of Increase per week £	...	52	...	...	15	41	108
WESTERN AUSTRALIA—								
Number of Persons affected ...	...	...	...	...	67	6	73
Amount of Increase per week £	...	...	...	...	16	1	17
TASMANIA—								
Number of Persons affected ...	329	23	...	...	8	...	360
Amount of Increase per week £	41	6	...	...	1	...	48
COMMONWEALTH—								
Number of Persons affected ...	2,291	173	138	1,788	4,287	7,846	16,518	
Amount of Increase per week £	267	58	26	281	1,026	1,719	3,377	

* Including 300 workers in Group XII. (Fruit Harvesters). Amount of weekly increase £120.

† Including 100 workers in Group XII. (Fruit Harvesters). Amount of weekly increase, £40.

CHANGES IN RATES OF WAGE IN FEMALE OCCUPATIONS IN EACH STATE, CLASSIFIED ACCORDING TO INDUSTRIAL GROUP—Continued.

PARTICULARS.	INDUSTRIAL GROUP.						
	I. Wood, Furniture, etc.	II. Engineering, Metal Works, etc.	III. Food, Drink, etc.	IV. Clothing, Hats, Boots, etc.	V. Books, Printing, etc.	VI. Other Manufacturing.	
1916.							
NEW SOUTH WALES—							
Number of Persons affected	...	125	...	540	4,510	2,030	843
Amount of Increase per week	£	38	...	91	761	342	145
VICTORIA—							
Number of Persons affected	...	198	29	1,344	12,864	1,440	1,482
Amount of Increase per week	£	25	3	198	2,808	203	190
QUEENSLAND—							
Number of Persons affected	340	436	...	...
Amount of Increase per week	£	41	54	...	...
SOUTH AUSTRALIA—							
Number of Persons affected	...	40	20	110	195	225	...
Amount of Increase per week	£	6	5	7	26	28	...
WESTERN AUSTRALIA—							
Number of Persons affected	40	...	...
Amount of Increase per week	£	8	...	...
TASMANIA—							
Number of Persons affected	...	30	...	...	300	...	6
Amount of Increase per week	£	7	...	...	33	...	1
NORTHERN TERRITORY—							
Number of Persons affected
Amount of Increase per week	£
COMMONWEALTH—							
Number of Persons affected	...	393	49	2,334	18,345	3,695	2,331
Amount of Increase per week	£	76	8	337	3,690	573	336

PARTICULARS.	INDUSTRIAL GROUP.						All Groups
	IX. Rail and Tram Services.	XI. Shipping, etc.	XII. Pastoral, Agricultural, etc.	XIII. Domestic, Hotels, etc.	XIV. Miscellaneous		
1916 (continued).							
NEW SOUTH WALES—							
Number of Persons affected	...	9	13	...	1,781	7,064	16,915
Amount of Increase per week	£	2	1	...	456	1,644	3,480
VICTORIA—							
Number of Persons affected	100	40	2,714	20,211
Amount of Increase per week	£	22	7	233	3,689
QUEENSLAND—							
Number of Persons affected	200	2,978	3,954
Amount of Increase per week	£	20	462	577
SOUTH AUSTRALIA—							
Number of Persons affected	...	3	...	...	400	346	1,339
Amount of Increase per week	£	1	...	...	39	44	156
WESTERN AUSTRALIA—							
Number of Persons affected	120	19	179
Amount of Increase per week	£	15	3	26
TASMANIA—							
Number of Persons affected	11	347
Amount of Increase per week	£	2	43
NORTHERN TERRITORY—							
Number of Persons affected	9	...	9
Amount of Increase per week	£	6	...	6
COMMONWEALTH—							
Number of Persons affected	...	12	13	100	2,550	13,132	42,954
Amount of Increase per week	£	3	1	22	543	2,388	7,977

5. **Methods by which Changes were Effected.**—In the following table particulars are given for the Commonwealth of the number of changes in rates of wage, the number of workpeople affected, and the total net amount of increase to the weekly wage distribution, brought about either without, or after, stoppage of work, during the years 1915 and 1916 respectively, as a result of the application of one or other of the methods set out in the tables:—

**CHANGES IN RATES OF WAGE.—METHODS BY WHICH EFFECTED,
1915 and 1916.**

Methods by which Changes were Effected.	Without Stoppage of Work.			After Stoppage of Work.			All Changes.		
	No. of Changes.	No. of Work-people Affected.	Total Net Amount of In-crease per week.	No. of Changes.	No. of Work-people Affected.	Total Net Amount of In-crease per week.	No. of Changes.	No. of Work-people Affected.	Total Net Amount of In-crease per week.
1915.									
By voluntary action of employers	21	17,727	3,941	...	...	...	21	17,727	3,941
By direct negotiations	38	9,969	2,415	25	1,624	457	63	11,593	2,872
By negotiations, intervention or assistance of third party	10	784	207	10	1,803	386	20	2,587	593
By award of court under Commonwealth Act	8	16,236	4,239	1	150	78	9	16,386	4,317
By agreement registered under Commonwealth Act	13	10,680	2,812	1	940	268	14	11,620	3,080
By award or determination under State Acts	201	128,251	34,244	1	280	46	202	128,531	34,290
By agreement registered under State Acts	31	5,937	2,469	5	3,029	343	36	8,966	2,812
Total	322	189,584	50,327	43	7,826	1,578	365	197,410	51,905
1916.									
By voluntary action of employers ...	51	55,560	10,831	...	...	...	51	55,560	10,831
By direct negotiations ...	133	40,174	9,645	42	6,459	2,469	175	46,633	12,114
By negotiations, intervention or assistance of a third party ...	4	3,698	984	5	1,286	534	9	4,984	1,518
By award of court under Commonwealth Act ...	15	40,787	14,922	2	191	43	17	40,978	14,965
By agreement registered under Commonwealth Act ...	28	24,990	6,773	2	91	27	30	25,081	6,800
By award or determination under State Acts ...	461	302,828	93,370	6	2,512	635	467	305,340	94,005
By agreement registered under State Acts ...	64	6,303	1,813	8	7,608	877	72	13,911	2,690
Total	756	474,340	138,338	65	18,147	4,585	821	492,487	142,923

Of the results set out in the above table, the most notable is the increase in the number or changes in rates of wage which were granted voluntarily by employers, or brought about by direct negotiations between representatives of employers and employees without the assistance of any third party.

§ 5. Current Rates of Wage in Different Occupations and States.

1. **Comparative Table of Time Rates of Wage, 31st December, 1916.**—The particulars of wages given hereafter relate to some only of the principal industries and occupations which comprise the basis upon which weighted average wages are computed, and are obtained primarily from awards, determinations and agreements under Commonwealth and State Acts, and therefore shew the minimum rates prescribed. In cases where no award, determination, or agreement was in force, particulars are given, where possible, of the ruling union or predominant rate as furnished by employers or Secretaries of Trade Unions. All particulars obtained from this source are marked with an asterisk. It will be seen that for convenience of comparison *the wages are in nearly all cases presented as a weekly rate*, though in many industries they are actually based on daily or hourly rates, as specified in awards, determinations, or agreements. This caution is necessary, in view of the fact that it is often in those industries and occupations in which employment is of an exceptionally casual or intermittent nature that wages are fixed or paid at a daily or hourly rate. Hence the average weekly earnings in such occupations will probably fall considerably short of the weekly rates specified in the table.

The rates specified refer generally to the capital town of each State, but in industries, such as mining and agriculture, rates are necessarily taken for places other than the capital towns. *The figures given in the first part of the table relate to adult male workers, and in the second part to adult female workers, and in each case represent (except where otherwise specified in the footnotes) the amounts payable for a full week's work of 48 hours.* In every case where the hours of labour constituting a full week's work are other than 48, the number of hours is indicated in the footnotes.

2. **Weighted Average Nominal Rate of Wage Payable to Adult Male Workers in each State, 31st December, 1916.**—The following table shows the weighted average nominal weekly rate of wage payable to adult male workers for a full week's work in each State and the Commonwealth. Taking the average for the whole Commonwealth as the base (=1000), index-numbers for each State are also shewn. The number of occupations upon which these results are based amounts in the aggregate to no fewer than 3948.

WEIGHTED AVERAGE NOMINAL WEEKLY RATE OF WAGE PAYABLE TO ADULT MALE WORKERS FOR A FULL WEEK'S WORK, AND WAGE INDEX-NUMBERS IN EACH INDUSTRIAL GROUP, 31st DECEMBER, 1916.

Particulars.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'wlth.
Number of Occupations included ...	874	909	627	567	489	492	3,948
Weighted Average Weekly Rates of Wages ...	61s. 11d.	68s. 10d.	60s. 4d.	59s. 0d.	65s. 2d.	57s. 0d.	60s. 8d.*
Index-Numbers ...	1,021	970	996	973	1,075	940	1,000*

* Weighted average.

The results shew that the weighted average nominal rate of wage was highest in Western Australia, followed in the order named by New South Wales, Queensland, South Australia, Victoria, and Tasmania.

3. **Weighted Average Nominal Weekly Rate of Wage Payable to Adult Male Workers in each Industrial Group, 31st December, 1916.**—The following table gives similar particulars in regard to the several industrial groups and to the weighted average for all groups combined. In computing the index-numbers the weighted average for all groups is taken as base (=1000).

WEIGHTED AVERAGE NOMINAL WEEKLY RATE OF WAGE PAYABLE TO ADULT MALE WORKERS FOR A FULL WEEK'S WORK, AND WAGE INDEX-NUMBERS IN EACH INDUSTRIAL GROUP, 31st DECEMBER, 1916.

Industrial Group.	No. of Rates Included.	Weighted Aver. Weekly Wage (for Full Week's Work).		Index-Numbers.
		s.	d.	
I. Wood, Furniture, etc.	270	63	10	1,053
II. Engineering, Metal Works, etc.	636	62	1	1,024
III. Food, Drink, etc.	576	61	2	1,009
IV. Clothing, Boots, etc.	124	56	7	933
V. Books, Printing, etc.	205	68	1	1,123
VI. Other Manufacturing	875	61	8	1,016
VII. Building ...	190	69	8	1,148
VIII. Mining, etc.	161	72	9	1,200
IX. Rail and Tram Services, etc.	224	63	5	1,045
X. Other Land Transport ...	70	57	10	954
XI. Shipping, etc.	198	59	1†	974
XII. Agricultural, Pastoral, etc.	72	55	0‡	908
XIII. Domestic, Hotels, etc.	114	51	0§	841
XIV. Miscellaneous ...	233	58	3	961
All Groups ...	3,948	60	8	1,000*

* Weighted average. † Including the value of victualling and accommodation (estimated at 4s. per month) where supplied. ‡ Including the value of Board and Lodging where supplied as follows:—In Sydney 15s. and 18s. according to the rates of wage, in Melbourne 14s., in Perth 22s., and in Brisbane, Adelaide, and Hobart 15s. ‡ Including the value of Board and Lodging where supplied as follows:—In the agricultural industry 14s. per week in Victoria, and 15s. in the remaining States; in the pastoral industry, 19s. in New South Wales, 22s. in Queensland, 15s. in West Australia, and 17s. in Victoria, South Australia and Tasmania.

From the above table it may be seen that the highest weighted average wage was that paid in Group VIII. (Mining), 72s. 9d. per week, or approximately 20 per cent. above the weighted average for all groups. The rates of wage range from 72s. 9d. per week down to 51s. 0d. per week, the lowest being in Group XIII. (Hotels, etc.), which is nearly 16 per cent. below the average of all groups.

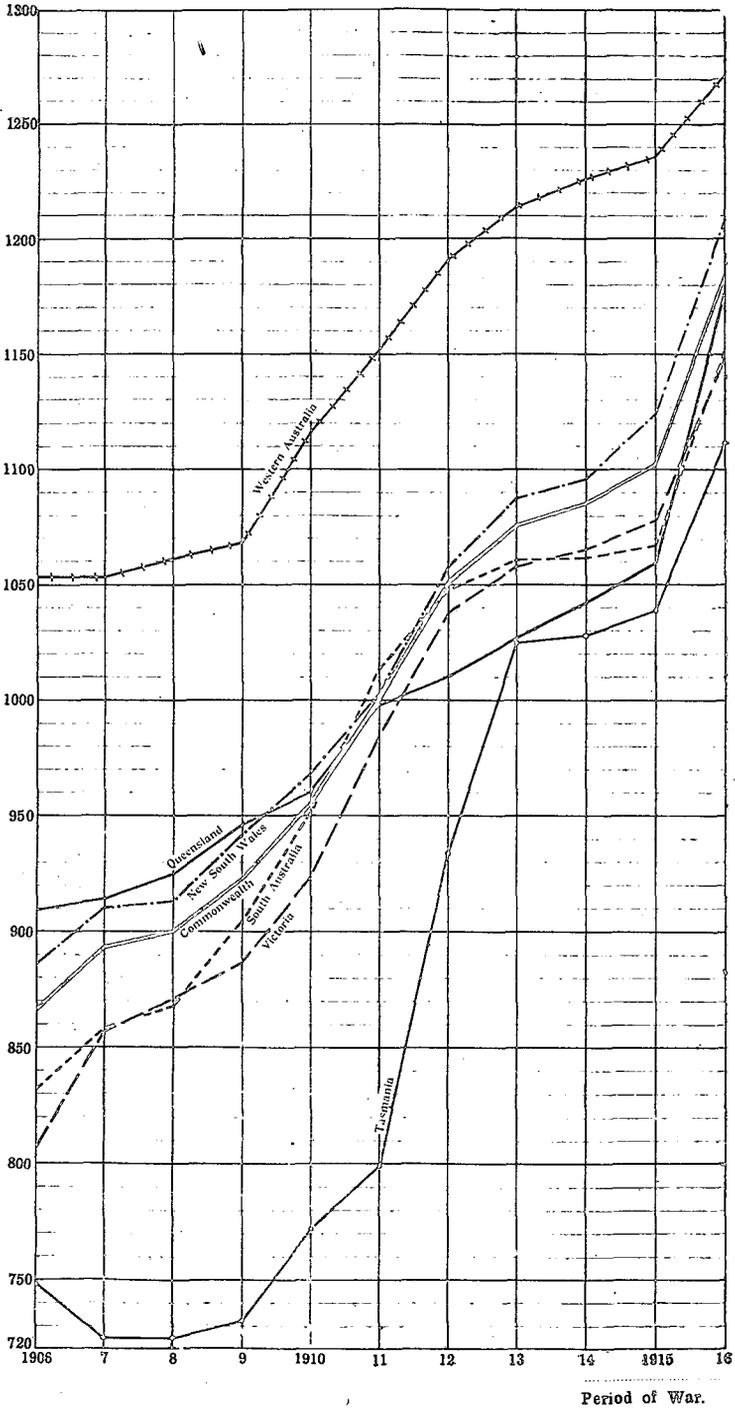
4. **Weighted Average Nominal Rate of Wage Payable to Adult Female Workers in each State, 31st December, 1916.**—The following table shows the weighted average nominal weekly rate of wage payable to adult female workers for a full week's work in each State and the Commonwealth. Taking the average for the whole Commonwealth as the base (=1000), index-numbers for each State are also shown:—

WEIGHTED AVERAGE NOMINAL WEEKLY RATE OF WAGE PAYABLE TO ADULT FEMALE WORKERS FOR A FULL WEEK'S WORK, AND WAGE INDEX-NUMBERS IN EACH STATE AND COMMONWEALTH, 31st DECEMBER, 1916.

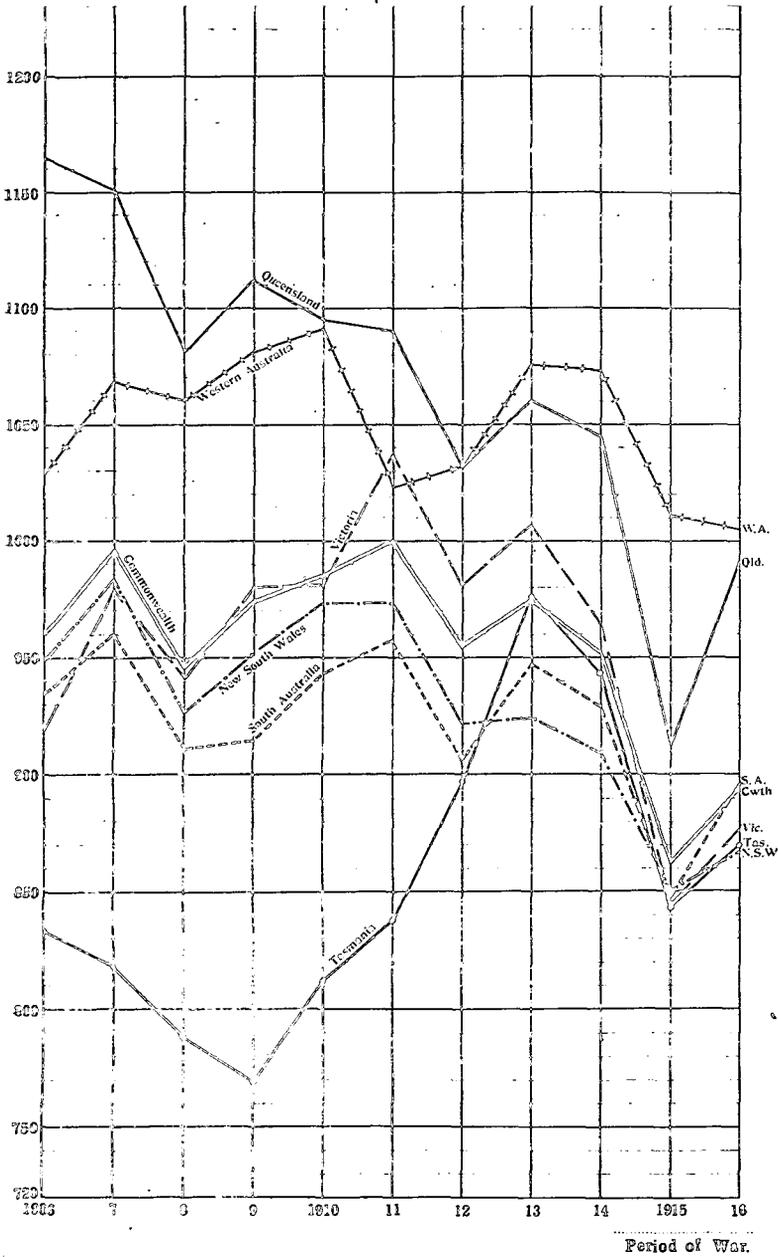
Particulars.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'wlth.
Number of Occupations included ...	85	87	37	47	24	28	308
Weighted Average Weekly Rate of Wage ...	28s. 7d.	28s. 6d.	27s. 4d.	24s. 11d.	38s. 10d.	28s. 4d.	28s. 6d.*
Index-Numbers ...	1,003	1,000	959	873	1,364	994	1,000*

* Weighted average.

NOMINAL WAGE INDEX-NUMBERS IN EACH STATE, AND COMMONWEALTH, 1906 to 1916.



EFFECTIVE WAGE INDEX-NUMBERS IN EACH STATE, AND COMMONWEALTH,
1906 to 1916.



It will be seen that the weighted average nominal rate of wage for adult female workers was highest in Western Australia, followed in the order named by New South Wales, Victoria, Tasmania, Queensland and South Australia.

5. Weighted Average Nominal Rate of Wage Payable to Adult Female Workers in Industrial Groups, 31st December, 1916.—The following table gives separate particulars regarding the weighted average nominal rates of wage of females in the chief industrial groups in which they are employed, and also shews the weighted average for all groups combined. Index-numbers based on the average for the Commonwealth as the base (=1000) are also given :—

WEIGHTED AVERAGE NOMINAL WEEKLY RATES OF WAGE PAYABLE TO ADULT FEMALE WORKERS FOR A FULL WEEK'S WORK, AND WAGE INDEX-NUMBERS IN INDUSTRIAL GROUPS, 31st DECEMBER, 1916.

Industrial Groups.	No. of Rates Included.	Weighted Average Weekly Wage (for Full Week's Work).		Index-Numbers.
		s.	d.	
III. Food, Drink, etc.	35	25	4	888
IV. Clothing, Boots, etc.	114	26	11	946
I., II., V., VI., All Other Manufacturing combined	84	29	5	1,034
XIII. Domestic, Hotels, etc.	57	31	2*	1,094
XIV. Shop Assistants, Clerks, etc.	18	29	10	1,048
All Groups	308	28	6	1,000†

* Including the value of Board and Lodging (estimated at 15s. per week for Sydney, Brisbane, Adelaide, and Hobart, and 14s. and 22s. per week for Melbourne and Perth respectively), where supplied, in order that the results may be comparable with the rates paid in other industries.
† Weighted average.

6. Relative Hours of Labour and Hourly Rates of Wage, 1914, 1915 and 1916.—The rates of wage referred to in the preceding paragraphs of this section relate to the minimum rates payable for a full week's work. It should be observed, however, that the number of hours which constitutes a full week's work differs in many instances, not only as between various trades and occupations in each individual State, but also as between the same trades and occupations in the several States. In order to secure what may be for some purposes a more adequate standard of comparison, it is desirable to reduce the comparison to a common basis, viz., the rate of wage per hour. Particulars are given in the following table, classified according to States, for male and female occupations separately, at 30th April and 31st December, 1914, at 31st December, 1915, and at 31st December, 1916.† These particulars relate to (a) the weighted average nominal weekly wage, (b) the weighted average number of working hours constituting a full week's work, and (c) the weighted average hourly wage. It should be observed that the weighted average weekly wage relates to all industrial classes combined, and includes the value of board and lodging, where supplied, in land occupations, and the value of victualling in marine occupations,§ whereas the number of working hours and

† Details with respect to particulars in industrial classes have been published as follows:—To 30th April, 1914 (Labour Report No. 5, pp. 49-50); to 31st March, 1915 (Labour Bulletin No. 9, pp. 72-3); to 30th June, 1915 (Labour Bulletin No. 10, pp. 175-6); to 30th September, 1915 (Labour Bulletin No. 11, pp. 264-5); to 31st December, 1915 (Labour Bulletin No. 12, pp. 413-4); to 31st March, 1916 (Labour Bulletin No. 13, pp. 81-2); to 30th June, 1916 (Labour Bulletin No. 14, pp. 189-90); to 30th September, 1916 (Labour Bulletin No. 15, pp. 299-300); and to 31st December, 1916 (Labour Report No. 7, pp. 423-4). § In Sydney, Brisbane, Adelaide, and Hobart the value of board and lodging has been assessed by Awards and Determinations at 15s. per week. In Melbourne it has been determined by a Wages Board at 14s. per week and in Perth by the Court of Arbitration at 22s. per week. The value of victualling in ships has been assessed by the Commonwealth Arbitration Court at 45s. per month.

the hourly wage relate to all industrial classes other than Groups XI. (Shipping), and XII. (Agricultural, Pastoral, etc.). Owing to the fact that many of the occupations included in these two groups are of a casual or seasonal nature, and that the hours of labour in these occupations are not generally regulated either by awards or determinations of industrial tribunals or otherwise, the necessary data for the computation of the average number of working hours are not available.

The general effect of reducing the rates of wage to a common basis (*i.e.*, per hour) is to decrease the amount of the difference shown when comparing the weekly wage in the several States.

WEIGHTED AVERAGE NOMINAL WEEKLY AND HOURLY RATES OF WAGE PAYABLE TO ADULT WORKERS, AND WEEKLY HOURS OF LABOUR, 30th APRIL, 1914, 31st DECEMBER, 1914, 1915, and 1916.

Date.	Particulars.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'with.
MALE WORKERS.								
		s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
30th April, 1914.	{ Weekly Wage* ...	55 9	54 3	52 8	54 4	62 2	52 6	55 1
	{ Working Hours† ...	49.42	48.80	48.78	48.60	47.78	48.62	48.93
	{ Hourly Wage‡ ...	13.93d.	13.68d.	13.45d.	13.84d.	15.33d.	13.02d.	13.96d.
31st Dec., 1914.	{ Weekly Wage* ...	56 2	54 7	53 5	54 5	62 10	52 8	55 7
	{ Working Hours† ...	49.35	48.66	48.64	48.59	48.18	48.62	48.87
	{ Hourly Wage‡ ...	14.11d.	13.82d.	13.75d.	13.86d.	16.37d.	13.07d.	14.09d.
31st Dec., 1915.	{ Weekly Wage* ...	57 7	55 3	54 4	54 8	63 4	53 2	56 6
	{ Working Hours† ...	49.28	48.50	48.56	48.50	48.12	48.56	48.77
	{ Hourly Wage‡ ...	14.50d.	14.05d.	14.07d.	13.98d.	16.50d.	13.20d.	14.38d.
31st Dec., 1916.	{ Weekly Wage* ...	61 11	58 10	60 4	59 0	65 2	57 0	60 8
	{ Working Hours† ...	48.51	48.22	48.27	48.14	48.11	48.55	48.33
	{ Hourly Wage‡ ...	15.73d.	14.99d.	15.32d.	15.01d.	16.84d.	14.11d.	15.43d.
FEMALE WORKERS.								
		s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
30th April, 1914.	{ Weekly Wage ...	26 9	27 4	26 11	24 1	37 4	25 10	27 2
	{ Working Hours ...	49.34	48.54	49.32	49.33	48.69	50.76	49.08
	{ Hourly Wage ...	6.51d.	6.78d.	6.48d.	5.85d.	9.20d.	6.11d.	6.64d.
31st Dec., 1914.	{ Weekly Wage ...	26 10	27 9	27 1	24 1	37 4	25 10	27 5
	{ Working Hours ...	49.34	48.54	49.82	49.33	49.44	50.76	49.11
	{ Hourly Wage ...	6.53d.	6.87d.	6.53d.	5.85d.	9.06d.	6.11d.	6.70d.
31st Dec., 1915.	{ Weekly Wage ...	27 5	26 11	26 11	24 6	37 5	28 0	27 4
	{ Working Hours ...	49.45	48.46	49.84	49.35	49.86	50.14	49.12
	{ Hourly Wage ...	6.65d.	6.67d.	6.48d.	5.96d.	9.01d.	6.71d.	6.68d.
31st Dec., 1916.	{ Weekly Wage ...	28 7	28 5	27 3	24 10	38 10	28 3	28 5
	{ Working Hours ...	49.44	48.36	49.85	49.02	49.08	49.83	49.02
	{ Hourly Wage ...	6.93d.	7.06d.	6.58d.	6.08d.	9.50d.	6.82d.	6.96d.

* Weighted average weekly wage in all industrial classes combined. † Weighted average working hours per week, and computed hourly rates of wage for all industrial classes excepting Classes XI. (Shipping, etc.), and XII. (Agricultural, Pastoral, etc.). Working hours have not been generally regulated by industrial tribunals for occupations classified in industrial Classes XI. and XII.

From the foregoing table it may be seen that with the exception of Western Australia, there has been a steady diminution in the number of working hours constituting a full week's work in male occupations. On the other hand, excepting in Victoria, South Australia, and Tasmania, the hours of work in female occupations have shown a slight increase. The effect of these changes on the hourly rate of wage as compared with the general increase in the weekly wage is readily seen from the comparative index-numbers given in the following table. In each instance (male and female occupations separately) the basis taken is the weighted average for the Commonwealth at the 30th April, 1914, as base (=1000).

**RELATIVE INDEX-NUMBERS FOR WEEKLY AND HOURLY WEIGHTED AVERAGE
WAGE, 30th APRIL, 1914, 31st DECEMBER, 1914, 1915, and 1916.**

NOTE.—Weighted Average for the Commonwealth at 30th April, 1914, as base (=1000).

Date.	Particulars.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'w'lt'h
MALE WORKERS.								
30th April, 1914 ...	Weekly Wage ...	1,011	984	955	966	1,128	952	1,000
	Hourly Wage ...	998	980	963	991	1,170	933	1,000
31st Dec., 1914 ...	Weekly Wage ...	1,019	990	969	988	1,140	956	1,008
	Hourly Wage ...	1,010	990	985	933	1,173	936	1,009
31st Dec., 1915 ...	Weekly Wage ...	1,044	1,002	986	992	1,149	965	1,023
	Hourly Wage ...	1,039	1,006	1,008	1,001	1,182	946	1,030
31st Dec., 1916 ...	Weekly Wage ...	1,123	1,067	1,095	1,071	1,182	1,034	1,100
	Hourly Wage ...	1,127	1,074	1,097	1,075	1,206	1,011	1,105

FEMALE WORKERS.

30th April, 1914 ...	Weekly Wage ...	984	1,006	989	885	1,373	950	1,000
	Hourly Wage ...	980	1,021	976	881	1,386	920	1,000
31st Dec., 1914 ...	Weekly Wage ...	987	1,022	996	885	1,373	950	1,008
	Hourly Wage ...	983	1,035	983	881	1,364	920	1,009
31st Dec., 1915 ...	Weekly Wage ...	1,007	990	990	901	1,376	1,031	1,005
	Hourly Wage ...	1,002	1,005	976	898	1,357	1,011	1,006
31st Dec., 1916 ...	Weekly Wage ...	1,050	1,047	1,004	915	1,429	1,041	1,047
	Hourly Wage ...	1,044	1,063	991	916	1,431	1,027	1,048

Comparing the index-numbers for the Commonwealth for the weekly and hourly wage at the 30th April, 1914, and at the 31st December, 1916, in male occupations, it may be seen that the former increased 10 per cent. in contrast with the latter, which increased 10.5 per cent.; the difference, 0.5 per cent., being due to the effect of the shorter working hours.

7. Rates of Wage of Adult Males and Females.—In the tabular statement on pages 1070 *et seq.* particulars are shown for adult males and females separately of the minimum rates of wage fixed by awards, determinations, or agreements, at 31st December, 1916. (See paragraph 1 of this section.)

MINIMUM RATES OF WAGE FOR ADULT MALE WORKERS IN THE MAIN OCCUPATIONS IN THE CAPITAL TOWN OF EACH STATE FOR A FULL WEEK'S WORK, AT 31st DECEMBER, 1916.

NOTE.—Ruling or predominant rates of wage are distinguished from Award, Determination, or Industrial Agreement rates of wage by an asterisk (*). Except where otherwise specified by a numerical prefix in small type, the hours of labour constituting a full week's work are forty-eight. Award, Determination, or Agreement rates are quoted from the latest Awards, Determinations, or Agreements made, but which were not invariably in force on the 31st December, 1916. It is found, however, that in those States in which Awards, Determinations, or Industrial Agreements are made for a specified period, that pending further review of the rates of wage and hours of labour, those previously determined or agreed upon are usually maintained. Where two or more Award, Determination, or Agreement rates are quoted, the reason for such is that different rates of wage have been fixed for various classes or grades of work. It will be seen that in certain cases of this nature the wages are shewn in the form, say, 60s. to 57s., indicating that in addition to the two rates specified, there are also certain intermediate rates in force. In other cases the rates are shewn in the form 54s. and 60s., indicating that there are only two minimum or standard rates in force for different classes and grades of work, and that there are, of course, no intermediate minimum or standard rates.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
GROUP I.—WOOD, FURNITURE, SAWMILLS AND TIMBER YARD.						
Coopers	s. d. 80 0	s. d. 72 0†	s. d. *67 6 & 72 0	s. d. 66 0	s. d. 80 0	s. d. 70 0
Furniture and Bedding.						
Bedding Makers	63 0	60 0	*60 6	62 6	66 0	52 6
Boult's Carver Operator	*69 0	69 0	*68 9	*61 6	75 0	66 0
Cabinet Makers	67 0	65 0	*68 9	65 0	69 0	60 0
Carpet Cutters	84 0	70 0	...	...	...	60 0
" Layers	70 0	65 0	60 0	*56 0	...	60 0
" Planners	70 0	70 0	...	...	...	60 0
Chair Makers	67 0	65 0	*68 9	65 0	69 0	60 0
Drape Cutters	84 0	65 0	...	...	...	...
" Fitters ... ..	...	65 0	...	...	...	...
French Polishers	67 0	65 0	*65 1	65 0	66 0	60 0
Upholsterers	67 0	65 0	*65 1	65 0	66 0	60 0
Wood Carvers	67 0	65 0	*68 9	65 0	75 0	60 0
" Machinists	67 0	63 0	*56 10 to 66 11	65 0	72 0	54 0 to 60 0
" Turners	67 0	65 0	*68 9	65 0	69 0	60 0
Mattress Making (Wire).						
Finishers	57 6	58 0	*60 6	48 0	...	52 6
Makers	57 6	58 0	*60 6	50 0	66 0	52 6
Varnishers	57 6	58 0	*60 6	43 0	...	52 6
Organ Building.						
Journeyman	72 0	58 0	...	...	...	...
Overmantels and Mantelpieces.						
Journeyman	67 0	65 0	...	65 0	...	60 0

† Coopers employed in Breweries, 78s.

Various numbers of hours constituting a full week's work.

(1) 18 hours. (2) 30 hours. (3) 33 hours. (4) 36 hours. (4a) 41½ hours. (5) 42 hours. (5a) 43 hours. (5b) 43½ hours. (5c) 43¾ hours. (6) 44 hours. (7) 44½ hours. (8) 45 hours. (9) 45½ hours. (10) 46 hours. (11) 46½ hours. (12) 47 hours. (12a) 47½ hours. (13) 47½ hours. (14) 49 hours. (15) 49½ hours. (16) 49¾ hours. (17) 50 hours. (18) 51 hours. (18a) 51½ hours. (19) 52 hours. (20) 52½ hours. (21) 52¾ hours. (22) 53 hours. (23) 53½ hours. (24) 53¾ hours. (25) 54 hours. (26) 54½ hours. (27) 55 hours. (28) 56 hours. (29) 56½ hours. (30) 57 hours. (31) 58 hours. (32) 59 hours. (33) 60 hours. (33a) 62 hours. (34) 63 hours. (35) 65 hours. (36) 70 hours. (37) 73 hours. (38) 77 hours. (38a) 88 hours per fortnight. (39) 7 nights. (39a) 96 hours per fortnight. (39b) 98 hours per fortnight. (39c) 112 hours per fortnight. (40) 116 hours per fortnight. (41) 136 hours per fortnight. (42) 144 hours per fortnight. (42a) 156 hours per fortnight. (43) 50 hours (summer), 46 hours (winter). (43a) 50 hours (summer), 48 hours (winter). (44) 52 hours (summer), 45 hours (winter). (44a) 52 hours (day), 48 hours (night). (45) 54 hours (summer), 48 hours (winter). (46) 54½ hours (summer), 52½ hours (winter). (47) 55 hours (summer), 46 hours (winter). (47a) 55 hours (summer), 50 hours (winter). (47b) 55 hours (summer), 52 hours (winter). (48) 55 hours (summer), 54 hours (winter). (49) 56 hours (summer), 48 hours (winter). (49a) 56 hours (summer), 52 hours (winter). (49b) 56 hours (summer), 53 hours (winter). (50) 57 hours (summer), 44 hours (winter). (50a) 57 hours (summer), 48 hours (winter). (50b) 57 hours (summer), 52½ hours (winter). (51) 58 hours (summer), 46 hours (winter). (52) 58 hours (summer), 50 hours (winter). (53) 58 hours (summer), 56 hours (winter). (54) 59 hours (summer), 58 hours (winter). (55) 60 hours (summer), 56 hours (winter). (56) 60 hours (summer), 58 hours (winter). (57) 84 hours and 72 hours alternate weeks. (58) 48 hours, 51 hours, 54 hours four months each in each year. (59) 56 hours and 59 hours within certain radius. (60) 56 hours and 60 hours within certain radius. (61) 58 hours (summer), 54 hours (winter).

WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
GROUP I.—WOOD, FURNITURE, SAWMILLS AND TIMBER YARD—Continued.						
Piano Making.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Cabinet Makers ...	67 0	65 0	...	...	...	...
Framemakers, Iron ...	72 0	66 0	...	...	...	...
" Wood ...	67 0	65 0	...	...	...	...
French Polishers ...	67 0	65 0	...	...	...	...
Veneerers ...	67 0	50 0 & 60 0	...	...	...	...
Wood Carvers ...	67 0	60 0	...	...	...	...
" Turners ...	67 0	60 0	...	...	...	...
Picture Framing.						
Compo. Workers ...	58 0	53 0	...	...	...	...
Fitters Up ...	56 0	53 0	...	...	...	...
General Hands ...	55 0	52 0	*50 0	...	...	...
Gilders ...	65 0	57 6	...	60 0*	...	...
Joiners ...	65 0	57 6	*53 0	...	...	...
Mount Cutters ...	65 0	57 6	*53 0	...	...	...
Sawyers (Band or Jig) ...	58 0	58 0 & 64 0	...	...	...	...
Saw Milling and Timber Yards.						
Box and Case Makers ...	60 0	59 0	64 0	57 0	...	46 6
Labourers... ..	57 0	53 0	63 0	53 0	54 0	46 6
Machinists—						
Box Printing ...	57 0	55 0	...	55 6	...	...
Boult's Carver ...	69 0	69 0	70 0	...	...	66 0
Buzzer or Jointer ...	63 0	63 0	65 0	57 0	57 0	54 0
General Joiner ...	69 0	66 0	...	...	72 0	51 0
Mortising or Boring ...	57 0	56 0	65 0	60 0	57 0	51 0
Moulding ...	62 0	63 0	70 0	63 0	60 0 & 66 0	53 0
" own Grinder ...	68 0	68 0	...	67 6	...	63 0
Nailing ...	57 0	59 0	64 0	55 6	...	...
Planing... ..	63 0	63 0	65 0	55 6	72 0	54 0
Sandpapering ...	57 0	57 0	65 0	60 0	54 0 & 60 0	51 0
Shaping ...	69 0	69 0	84 0	63 0	75 0	66 0
Tenoning ...	63 0	63 0	65 0	60 0	60 0	57 0
Ordermen... ..	58 0	60 0	66 0	60 0	*60 0 to 72 0	54 0
Pullers or Tailers Out ...	57 0	50 0 & 54 0	63 0	51 0 & 57 0	57 0	49 6
Saw Doctors ...	78 0	75 0	80 0	75 0	*80 0	69 0
Saw Sharpeners ...	66 0	63 0	71 0	66 0	*72 0	54 0
Sawyers—Band or Jig ...	68 0	63 0	73 0	60 0	63 0	51 0
" Circular ...	57 0	59 0	69 0	60 0	60 0	53 0
" Gang Frame ...	to 66 0	57 0	63 0	66 0	& 66 0	& 57 0
" Re-Out Band ...	57 0	63 0	70 0	69 0	63 0	51 0
Stackers ...	to 66 0	66 0	60 0	*73 4	*77 0	57 0
Tallymen ...	58 0	60 0	69 0	60 0	57 0	51 0
Wood Turners ...	69 0	65 0	73 0	62 0	*72 0	57 0
Undertaking. †						
Coachmen ...	2 46 6	1 56 0	1 62 6	1 75 0	...	*50 0
Coffin Makers or Trimmers ...	72 0	60 0 & 64 0	*57 6 & 62 6	64 0	...	*50 0
Venetian Blind Making.						
Journeyman ...	60 0	*54 0	*60 6	...	...	57 0

† Rates for Hobart are in addition to quarters. See also explanatory notes on page 1070.

WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
GROUP II.—ENGINEERING, METAL WORKS, ETC.						
Agricultural Implements.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Assemblers	54 0	55 0	...	48 0	57 0	...
Blacksmiths	64 0	64 0	...	60 0	& 58 6 69 0	...
Bulldozermen	52 6	61 0	...	...	to 78 0 69 0	...
Carpenters	72 0	64 0	...	60 0	...	...
Drillers	52 6	55 0	...	48 0	57 0	...
Engine Drivers	68 0	48 0	...	54 0	to 60 0	...
Fitters	& 70 0 56 0	to 63 0 58 0	...	60 0	72 0	...
Grinders	to 64 0 52 6	& 64 0 58 0	...	48 0	...	...
Labourers (Unskilled)	52 6	52 0	...	45 0	54 0	...
Machinists, Iron	52 6	58 0	...	48 0	...	...
„ Wood	to 56 0 52 6	61 0	...	to 54 0 48 0	...	...
Painters (Brush)	to 56 0 54 0	55 0	...	& 57 0 51 0	...	...
„ (Scroll)	63 0	64 0	...	60 0	...	...
Patternmakers	74 0	70 0	...	66 0	81 0	...
Sheet Iron Workers	52 6	58 0	...	54 0	...	...
Storemen	52 6	52 0	...	45 0	...	...
Strikers	54 0	55 0	...	48 0	57 0	...
Turners	64 0	64 0	...	60 0	to 60 0 72 0	...
Wheelwrights	63 0	64 0	...	60 0	...	...
Bedstead Making (Metallic).						
Blacksmiths	54 6	58 0	60 6	48 0	...	...
Chillfitters (Modellers)	& 65 0 *67 6	73 0	74 3	*60 0	...	...
„ (Other)	60 0	61 0	57 9	56 0	...	...
Chippers	55 0	55 0	to 66 0 56 3	43 0	...	...
Cutters, etc.	55 0	56 0	56 3	48 0	...	...
Electroplaters	60 0	69 0	60 0*	63 0	...	...
Fitters-up	56 0	58 0	57 9	51 0	...	...
Foundry Hands	55 0	& 61 0 56 0	54 0	*58 6	...	...
Frame Setters	58 0	59 0	& 56 3 63 3	54 0	...	...
Furnacemen	60 0	56 0	58 6	*60 0	...	...
Japanners	54 6	58 0	55 0	43 0	...	...
Lacquerers	59 0	56 0	55 0	& 51 0 48 0	...	...
Mounters	54 6	58 0	55 0	43 0	...	...
Polishers	57 0	56 0	49 6	& 51 0 48 0	...	...
Boiler Making.						
Journeymen	78 0	72 0	*66 0 & 71 6	72 0	72 0	69 0
Railway Men	78 0	63 0	*64 6	*72 0	72 0	69 0
		to 72 0	to 70 6	to 78 0		to 72 0

WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
GROUP II.—ENGINEERING, METAL WORKS, ETC.—Continued.						
Brass Working.†	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Coremakers ...	68 0 & 72 0	63 0	64 0	48 0	*72 0 to 84 0	...
Dressers ...	59 0	57 0	64 0	43 0	...	...
Finishers ...	70 0	69 0	60 6	*75 0	72 0	51 0
Furnacemen ...	63 0	59 6	64 6	43 0	66 0	42 0
Moulders ...	68 0 & 72 0	69 0	64 0	60 0	*72 0 to 84 0	60 0
Polishers ...	60 0	62 0	...	45 0	...	...
Cycles and Motors.						
Assemblers ...	58 0	57 6 & 60 0	...	...	*58 6	52 0
Cleaners ...	56 0	57 6	...	...	...	52 0
Filers ...	53 0	57 6	...	...	*57 0	52 0
Fitters ...	60 0	60 0	...	...	*72 0	65 0
Frame Builders ...	56 0 & 60 0	57 6 & 62 6	...	...	...	55 0
Repairers ...	56 0 & 60 0	57 6 & 60 0	...	...	...	50 0 & 52 0
Turners (Cycle) ...	60 0	...	...	...	*72 0	65 0
„ (Motor) ...	70 0	70 0	...	...	...	65 0
Wheel Builders ...	53 0	57 6	...	...	...	55 0
Electrical Installation.						
Armature Winders ...	82 0	66 0	81 0	66 0	72 0	69 0
Cable Jointers ...	82 0	81 0	78 0	60 0	...	66 0
Fitters ...	82 0	66 0	81 0	66 0	72 0	69 0
Linemen ...	74 0	74 0	69 0	60 0	63 0	57 0 & 62 0
Mechanics ...	74 0	74 0	78 0	60 0	72 0	69 0
Patrolmen ...	...	63 0	...	60 0	...	66 0
Wiremen ...	74 0	74 0	69 0	51 0	66 0	60 0
„ Assistant ...	...	63 0	57 0	...	...	54 0
Other Adults ...	...	63 0	57 0	48 0	54 0	54 0
Electrical Supply.						
Armature Winders ...	82 0	54 0 & 63 0	81 0	66 0	72 0	69 0
Cable Jointers ...	82 0	63 0	78 0	60 0	...	66 0
Carboner (Arc Lamp Attend.)	62 0	54 0	63 0	48 0	...	60 0
Instrument Makers ...	70 0	63 0	81 0	60 0	*72 0	69 0
Linemen ...	74 0	60 0	69 0	60 0	63 0	57 0 & 62 0
Meter Fixers ...	*78 0	55 6	...	51 0	...	54 0
„ Testers ...	72 0	63 0	81 0	60 0	...	69 0
Patrolmen (Night) ...	*60 0	66 0	...	60 0	...	66 0
Shift Electricians ...	82 0	66 0	71 0 to 85 0	...	...	...
Sub-Station Attendants ...	...	60 0	...	...	...	68 0
Switchboard Attendants ...	60 0	54 0	57 0	48 0	...	56 0
Switchmen ...	...	52 6	...	54 0	...	...
Other Adults ...	*62 0	51 0	57 0	48 0	...	54 0
Electrical Trades.						
Fitters ...	82 0	66 0	81 0	66 0	72 0	69 0
Mechanics ...	74 0	63 0	78 0	60 0	72 0	69 0
Wiremen ...	74 0	63 0	69 0	51 0	66 0	60 0

† Melbourne rates from 18th January, 1917. See also explanatory notes on page 1070.

WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
GROUP II.—ENGINEERING, METAL WORKS, ETC.—Continued.						
Electroplating.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Makers-up	58 0	52 0	...	*51 0	...	...
Platers	66 0	70 0	*60 6	66 0	66 0	60 0
Polishers	58 0	60 0	*52 3	*48 0	...	...
	& 61 0					
Engineering. ††						
Blacksmiths	80 0	74 0	675 2	63 0	78 0	69 0
				& 69 0		
Bolt and Nut Machinists	62 0	62 0	...	...	*72 0	...
Borers and Slotters	68 0	74 0	666 0	66 0	66 0	69 0
	& 76 0			& 72 0		
Brass Finishers	78 0	69 0	671 6	60 0	72 0	69 0
Coppersmiths	80 0	74 0	671 6	69 0	78 0	69 0
Drillers (Radial) ... ..	...	*59 0	660 6	58 0	60 0	69 0
				to 63 0*		
„ (Other)	59 0	59 0	660 6	58 0	60 0	69 0
Drophammer Smiths	74 0	74 0	671 6	...	72 0	...
Fitters	78 0	74 0	671 6	75 0	72 0	69 0
Lappers and Grinders	59 0	62 0	671 6	72 0	...	...
Millers (Universal) ... ..	...	74 0	...	75 0	72 0	69 0
„ (Other)	68 0	62 0	671 6	72 0	66 0	69 0
	& 76 0					
Oliversmiths	74 0	74 0	671 6	...	72 0	...
Pattern Makers	82 0	80 0	677 0	78 0	81 0	69 0
Planers (Rail and Plate Edge)	68 0	62 0	660 6	60 0	66 0	...
	& 76 0					
„ (Other)	68 0	74 0	666 0	66 0	66 0	69 0
	& 76 0					
Shapers	68 0	62 0	666 0	66 0	66 0	69 0
	& 76 0	& 74 0				
Springsmiths	72 0	74 0	...	...	*78 0	...
Turners	78 0	74 0	671 6	75 0	72 0	69 0
Farrying.						
Firemen	76 0	66 0	1260 0	60 0	*66 0	*45 0
Floormen	70 0	61 0	1260 0	54 0	*60 0	*40 0
Shoingsmiths... ..	76 0	66 0	1260 0	60 0	*66 0	*45 0
Ironworkers' Assistants.						
Boilermakers' Helpers	57 0	58 0	655 0	51 0	57 0	54 0
					to 60 0	
„ Labourers	54 0	52 0	655 0	51 0	54 0	48 0
Engineers' Labourers	54 0	52 0	655 0	51 0	57 0	48 0
Furnacemen (Assistant)	57 0	55 0	655 0	50 0	*57 0	...
General Labourers	54 0	48 0	655 0	51 0	54 0	48 0
					to 60 0	
Moulders' „	54 0	48 0	655 0	48 0	54 0	48 0
Strikers	59 0	54 0	655 0	51 0	57 0	54 0
Moulding, Iron. §						
Coremakers (Machine)	72 0	60 0	646 9	72 0	66 0	66 0
„ (Other)	72 0	66 0	646 9	72 0	66 0	66 0
		& 72 0				
Dressers and Fettleers	56 0	56 6	655 0	57 0	*57 0	48 0
Furnacemen	62 0	58 0	662 4	64 0	*66 0	48 0
	to 68 0					
Moulders (Machine)	68 0	60 0	666 0	68 0	66 0	66 0
„ (Other)	72 0	66 0	666 0	72 0	66 0	66 0
		& 72 0				

† In Melbourne the current Wages Board Determination provides for special rates of wage for night shifts. † Melbourne rates from 12th January, 1917. § Adelaide rates from 25th January, 1917. See also explanatory notes on page 1070.

WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
GROUP II.—ENGINEERING, METAL WORKS, ETC.—Continued.						
Moulding, Piano Frames.	s. d. 62 0 & 67 0	s. d. 66 0	s. d. ...	s. d. ...	s. d. ...	s. d. ...
Moulding, Pipe (Bank).						
Casters and Finishers ...	60 0	57 0	...	*66 0	66 0 to 84 0	...
Coremakers ...	60 0	66 0 & 72 0	...	...	60 0	...
Footmen (4-in. and under) ...	66 0	60 0	*60 6	*60 0	66 0	...
" (5 and 6-ins.) ...	68 0	63 0	*60 6	*60 0	72 0	66 0
Headmen (4-in. and under) ...	72 0	66 0	*66 0	*66 0	72 0	...
" (5 and 6-ins.) ...	74 0	72 0	*66 0	*66 0	78 0	66 0
Moulding Pipes (Machine).						
Coremakers (Faucet) ...	60 0	66 0 & 72 0	*51 4 & 58 8	...	...	...
" (Spigot) ...	60 0	60 0 & 63 0	*45 10 & 49 6	...	...	...
Finishers and Casters ...	60 0	66 0 & 72 0	*55 0	...	...	...
Moulding, Pipe (Vertical).						
Casters ...	60 0	57 0	*57 9	...	66 0	66 0
Coremakers ...	60 0	57 0	*46 9	*66 0	66 0	66 0
Corers ...	60 0	57 0	*57 9	...	60 0	...
Rammers ...	60 0	57 0	*52 3	*60 0	66 0	66 0
Moulding, Steel. †						
Coremakers ...	72 0	60 0 to 72 0	*55 0	72 0	*72 0 & 75 0	...
Moulders ...	72 0	60 0 to 72 0	*71 6	63 0 & 72 0	*72 0 & 75 0	...
Moulding, Stove.						
Moulders ...	62 0 to 67 0	66 0	*55 0	60 0	*66 0	...
Ovenmaking.						
Blacksmiths ...	60 0	58 0	*52 0	...	...	...
Grinders and Polishers ...	58 0 & 60 0	60 0	*54 0	...	...	...
Ovenmakers ...	62 0	60 0	*52 0	...	...	...
Sheet Metal Working.						
Canister Makers ...	54 0	56 0 & 63 0	60 0	63 0	57 6	...
Japanners (Coating or Brush-work) ...	...	56 0	60 0	56 0	...	...
Japanners (Grainers, Liners, etc.) ...	...	60 0	60 0	60 0	...	...
Japanners (Ornamental) ...	...	66 0	60 0	66 0	...	...
Machinists ...	54 0 & 56 0	62 0	60 0	56 0 & 62 0	57 6	...
Solderers ...	54 0	59 0 & 63 0	60 0	55 0	57 6	51 0
Tinsmiths ...	66 0	66 0	60 0	*66 0	68 0	*54 0
Wireworking (Barbed Wire). †						
Toolsharpeners or Machinists ...	54 0	57 0	...	...	...	...

† Melbourne rates from 1st January, 1917. † Adelaide rates from 25th January, 1917.
See also explanatory notes on page 1070.

WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
GROUP II.—ENGINEERING, METAL WORKS, ETC.—Continued.						
Galvanising.†	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Galvanisers	60 0	66 0	88 0	*54 0	...	...
Picklers	60 0	61 0	60 0	*54 0	...	...
„ (Assistant)	60 0	56 0	...	...	...	...
Nailmakers.†						
Case Wirers	48 0	51 0	...	...	...	...
Labourers	57 0	51 0	...	...	...	...
Setters Up	55 0	60 0	...	...	...	...
Storemen	57 0	56 0	...	...	...	...
Toolmakers	60 0 & 64 0	63 0	...	...	...	...
Wire Netting Workers.						
Hand-Loom Weavers	64 0	57 6	...	50 0	...	...
Power-Loom „	55 6	57 6	...	50 0	...	...
Strikers	48 0	48 0	...	...	...	...
Wire Working.						
Journeymen	64 0	57 6	...	45 0	...	...

GROUP III.—FOOD, DRINK, TOBACCO, ETC.

	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Aerated Waters and Cordials.						
Bottlers	60 0	54 0	*50 0	54 0	58 0	45 0
Bottle Washers	58 0	50 0	*40 0	54 0	54 0	*49 0
Drivers (Motor)	61 0 & 63 0	*760 0	60 0	*65 0	...	...
„ (One Horse	56 0 & 58 0	*755 0	*655 0	*54 0	59 0	47 0
„ (Two Horses)	61 0	*757 6	*660 0	*55 0	59 0	52 0
Grooms or Stablemen	56 0 & 58 0	*5050 0	*355 0	*54 0	*54 0	...
Loaders	58 0	50 0	*60 0	54 0	54 0	45 0
Packers	58 0	50 0	*50 0	54 0	58 0	45 0
Wirers	58 0	50 0	*45 0	54 0	54 0 & 58 0	45 0
Baking (Bread)						
Board Hands	70 0	76 0	60 0 & 65 0	67 6	67 6	52 6
Carters (One Horse)	*560 0	*156 0	*457 6 & 60 0	*54 0	*560 0	*547 0
„ (Two Horses)	*560 0	*156 0	*462 6 & 65 0	*54 0	*560 0	*552 0
Doughmen	72 6 & 75 0	76 0	60 0 & 65 0	67 6	67 6	52 6
Fore Hands	75 0 & 80 0	84 0	70 0 to 75 0	67 6	68 0	66 0
Ovenmen	75 0	76 0	65 0 & 70 0	67 6	68 0	52 6
Single Hands	75 0	84 0	70 0	67 6	68 0	66 0

† Melbourne rates from 1st January, 1917. See also explanatory notes on page 1070.

WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
GROUP III.—FOOD, DRINK, TOBACCO, ETC.—Continued.						
Baking (Biscuits and Cakes).	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Adult Males	54 0	48 0	40 0	...	...	...
Bakers	62 6	58 0	63 0	...	...	65 0
Brakesmen	55 0	51 0	45 0	...	...	48 0
Mixers	54 0	54 0	60 0	...	...	55 0
Oven Firemen	& 55 0	51 0	45 0	...	...	52 6
Storemen	60 0	51 0	50 0	...	...	...
Brewing. †						
Adult Males	60 0	60 0	60 0	60 0	60 0	57 0
Bottle Packers	60 0	60 0	60 0	60 0	60 0	57 0
Bottlers and Washers	60 0	60 0	60 0	60 0	60 0	57 0
Cellarmen	53 0	63 0	63 0	63 0	60 0	60 0
Drivers (One Horse)	1 960 0	1 960 0	1 960 0	1 763 0	60 0	1 957 0
" (Two Horses)	1 963 0	1 960 0	1 960 0	1 763 0	60 0	1 957 0
" (Motor under 3 tons)	1 963 0	1 963 0	1 963 0	1 763 0	...	60 0
" (" 3 tons & over)	1 966 0	1 966 0	1 966 0	1 766 0	& 70 0	63 0
Engine Drivers	72 0	66 0	66 0	72 0	* 75 0	* 69 0
Firemen	69 0	60 0	64 0	66 0	63 0	* 63 0
Greasers and Trimmers	60 0	54 0	58 0	60 0	* 63 0	* 63 0
Malt Hands	63 0	63 0	63 0	63 0	60 0	57 0
Stablemen and Grooms	1 960 0	1 960 0	1 960 0	1 760 0	2 860 0	1 957 0
Towermen	63 0	63 0	63 0	63 0	60 0	57 0
Butchering (Carcase).						
Carters (One horse)	2 562 6	...	1 953 0	1 960 0	3 355 0	2 547 0
" (Two horses)	2 570 0	1 960 0	1 955 0	1 960 0	3 355 0	2 552 0
Chilling Room Hands	54 0	66 0	1 957 6	...	1 960 0	...
Labourers (Beef)	80 0	1 260 0	1 952 6	1 260 0	60 0	52 6
" (Mutton)	60 0	1 260 0	1 952 6	1 260 0	60 0	52 6
Scalders	1 660 0	70 0	1 955 0	70 0	70 0	2 752 6
Slaughtermen (Beef)	100 0	1 280 0	75 0	1 280 0	80 0	65 0
" (Mutton)	†	1 280 0	75 0	1 280 0	80 0	65 0
Butchering (Retail).						
Carters (Cash Cutting)	72 6	1 970 0	1 970 0	...	1 960 0	2 560 0
" (One Horse)	55 0	1 960 0	1 953 0	1 960 0	1 950 0	2 547 0
" (Two Horses)	55 0	1 960 0	1 955 0	1 960 0	1 950 0	2 552 0
General Hands	60 0	70 0	1 970 0	70 0	1 960 0	2 752 6
Salts	72 6	70 0	1 960 0	70 0	1 970 0	2 752 6
Shopmen	65 0	70 0	1 960 0	70 0	2 760 0	2 752 6
Smallgoodsmen	& 72 6	70 0	& 70 0	& 70 0	& 70 0	& 60 0
" (Assistant)	65 0	70 0	60 0	70 0	1 960 0	2 752 6

† Piece Work Rates.

‡ Hobart rates from 1st January, 1917.

See also explanatory notes on page 1070.

WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
GROUP III.—FOOD, DRINK, TOBACCO, ETC.—Continued.						
Butter Making.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Buttermaker ...	63 0	52 6	...	...	...	...
	& 68 0					
Cream Grader ...	60 0	57 6	...	...	...	...
Cream or Milk Tester ...	55 0	55 0	...	...	...	...
Machinists (Milk, Drying, etc)	...	50 0	...	...	...	...
Machinists (Pasteurizer) ...	54 0	48 0	...	...	...	...
„ (Separator, Weighing, etc.)...	54 0	48 0	...	...	...	...
Other Adults ...	54 0	45 0	...	...	...	...
Storemen or Packers ...	54 0	48 0	...	...	...	...
Cheesemaking.						
Journeymen ...	...	²⁵ 54 0	...	...	...	...
Other Adults ...	...	²⁵ 45 0	...	...	...	...
Cold Storage and Ice.						
Carters (Motor) ...	⁴⁵ 61 0	50 0	²⁵ 47 6	...	...	...
	& 63 0					
„ (One Horse) ...	⁴⁵ 56 6	⁵⁰ 55 0	⁴⁹ a55 0	¹⁹ 48 0	¹⁷ 54 0*	47 0
	& 58 6					
„ (Two Horses) ...	⁴⁵ 59 0	⁵⁰ 60 0	⁴⁹ a60 0	¹⁹ 50 0	¹⁷ 60 0*	52 0
	& 61 0					
Chamber Hands ...	64 0	66 0	⁴⁶ 62 6	...	...	...
	& 67 0					
Pullers and Stackers ...	58 0	⁵¹ 60 0	...	...	...	...
Rabbit Packers ...	60 0	56 0	...	...	...	...
Confectionery.						
Journeymen ...	60 0	63 0	57 6	60 0	60 0	*50 0
Labourers ...	48 0	55 0	48 0	50 0	50 0	...
Storemen (Head) ...	*54 0	55 0	60 0	56 0	60 0	...
	to 67 6		to 84 0			
„ (Other) ...	50 0	55 0	57 6	50 0	50 0	...
Ham and Bacon Curing.†						
Casing Cleaners (Foreman) ...	58 0	68 0	79 0	68 0	...	60 0
Curers (First Hand) ...	75 0	72 6	79 0	72 6	...	57 6
„ (Assistant) ...	65 0	62 6	63 6	62 6	...	...
Cutters-up (First Hand) ...	67 6	72 6	73 0	72 6	...	52 6
„ (Assistant) ...	60 0	65 0	65 6	65 0	...	52 6
Ham Baggers ...	...	56 0	68 0	56 0	...	...
Lardmen ...	50 0	56 0	68 0	56 0	...	52 6
		& 67 6		& 67 6		
Rollers and Trimmers ...	60 0	65 0	60 0	65 0	...	52 6
Scalders ...	55 0	65 0	70 6	65 0	56 0	52 6
Shavers ...	55 0	65 0	60 0	65 0	...	52 6
Slaughtermen ...	65 0	72 6	79 0	72 6	56 0	55 0
„ (Assistant) ...	55 0	65 0	73 6	65 0	...	52 6
Smallgoodsmen (First Hand) ...	65 0	72 6	79 0	72 6	...	57 6
„ (Assistant) ...	54 0	60 0	60 0	60 0	...	52 6
Smokers (First Hand) ...	60 0	67 6	73 0	67 6	...	52 6
„ (Assistant) ...	54 0	56 0	60 0	56 0	...	...
Washers (First Hand) ...	60 0	...	62 6	56 0	...	52 6
„ (Assistant) ...	54 0	56 0	60 0	...	...	...

† Brisbane rates from 1st January, 1917. See also explanatory notes on page 1070.

WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
GROUP III.—FOOD, DRINK, TOBACCO, ETC.—Continued.						
Jam Making and Preserving.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Adult Males	54 0	54 0	*50 0 to 60 0	52 6	...	48 0
Solderers	57 0	54 0	*60 0 to 65 0	55 0	...	51 0
Malting.						
Maltsters	56 0	60 0	63 0	...	60 0	56 0
Meat Packing						
Cappers	64 0	57 0	58 0	...	...	...
Fillers and Podgers	54 0	56 0	52 6	...	...	...
Guillotine Hands	54 0	56 0	58 0	...	...	...
Jokermen	64 0	56 0	61 0	...	...	...
Lacquerers	64 0	56 0	52 6	...	...	...
Margarine Makers	56 6	70 0	...	...	...	...
Packers	54 0	56 0	52 6	...	...	...
Seamers	64 0	57 0	65 0	...	...	...
Milk Delivery.						
Carters (One Horse)	¹ 962 0	⁷ a55 0	² 57 6	¹ 750 6	³ 60 0	² 847 0
„ (Two Horses)	¹ 961 0	⁴ 7a60 0	...	¹ 750 6	...	² 852 0
Milling (Condiments)						
Grinders	67 0	66 0	...	66 0	...	...
Mixers or Blenders	60 0	66 0	...	66 0	...	...
Other Adults	60 0	57 6	...	57 6	...	...
Stone Dressers	67 6	63 0	...	63 0	...	...
Milling (Flour).§						
Engine Drivers	65 0 & 70 0	64 6 to 73 6	66 0 to 82 0	66 0 to 76 0	*66 0 to 75 0	50 0 & 65 0
Firemen	59 0 to 67 0	57 0 to 63 0	64 0	59 5 to 66 0	*57 0	50 0
Millers (Head)	83 6	73 6	80 0	77 0	74 0	70 0
„ (Shift)	74 6 to 82 6	68 0 to 73 6	62 6 to 70 0	69 4 to 77 0	...	55 0
Millwrights	77 6	69 6	...	72 7	*66 0	65 0
Packermen	61 0	57 6	61 0	56 1	51 0 to 60 0	48 0
Purifiermen	62 6	59 0	61 0	57 9	54 0	48 0
Silksmen	62 6	59 0	61 0	57 9	*54 0	48 0
Smuttermen	61 0	57 6	61 0	56 1	54 0	...
Storemen (Head)	62 6 & 66 6	59 0 & 63 0	62 6 & 65 0	54 3 & 61 7	63 0	52 6
Topmen	62 6	59 0	61 0	57 9	...	48 0
Truckers and others	61 0	57 6	...	56 1	54 0	48 0
Wheat Carriers	†84 0	†72 0	†72 0	†72 0	†72 0	†84 0
Milling (Oatmeal).						
Kilnmen	62 0	60 0	...	60 0	...	48 0
Millers (Head)	73 0	66 0	...	66 0	...	70 0
Milling (Rice).						
Dryingroom Hands	66 0	57 6	...	57 6	...	...
Millers (Head)	73 0	66 0	...	63 0	...	...
Other Adults	60 0	57 6	...	57 6	...	...
Stonedressers	67 6	63 0	...	63 0	...	...

† Computed on the hourly rate for 48 hours. § Brisbane rates from 2nd January, 1917.
See also explanatory notes on page 1070.

WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
GROUP III.—FOOD, DRINK, TOBACCO, ETC.—Continued.						
Pastrycooking.†	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Carters ...	25 52 6	19 50 0	19 57 6	48 0	...	25 42 0
Packers ...	52 0	45 0	...	...	...	...
	to 63 0					
Pastrycooks ...	63 0	66 0	70 0	67 6	61 6	66 0
					& 69 0	
„ (Assistant) ...	18 48 0	60 0	60 0	...	...	52 6
Poulterers.						
Bench Hands (1st Rate) ...	65 0	57 6	...	...	...	...
„ (2nd Rate) ...	60 0	50 0	...	...	...	...
Foremen ...	72 6	65 0	...	...	...	...
Tea Packing.						
Foremen ...	*65 0	62 6	...	...	...	...
Headmen ...	*60 0	56 6	...	...	...	...
Other Adults ...	*58 6	50 0	...	...	...	...
	to 60 0					
Tobacco Working (Cigars).						
Sorting and Packing ...	†	54 0	...	...	...	...

GROUP IV.—CLOTHING, HATS, BOOTS, ETC.

Bootmaking.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Bootmakers ...	66 0	66 0	66 0	66 0	66 0	66 0
Dyeing and Cleaning.						
Clothes Cleaners ...	*50 0	50 0	...	...	...	...
	to 60 0					
Dyers (Black) ...	*70 0	55 0	...	...	...	...
„ (Colour) ...	*70 0	55 0	...	...	...	...
Dye-house Labourers ...	*45 0	45 0	...	...	...	...
Hatmaking (Straw).						
Bleachers ...	...	50 0	...	...	...	...
Blockers ...	10 55 7	56 0	...	...	...	...
Foremen ...	10 60 0	63 0	...	...	...	...
Stiffeners ...	10 55 7	56 0	...	...	...	...
Tailoring (Order).						
Cutters ...	75 0	75 0	70 0	70 0	70 0	*70 0
Pressers ...	64 0	60 0	52 6	55 0	60 0	60 0
Tailors ...	64 0	65 0	55 0	60 0	70 0	65 0
						& 70 0
Trimmers... ..	65 0	57 6	50 0	51 0	...	60 0
Tailoring (Ready-made).						
Brushers ...	54 0	50 0	42 6	36 0	...	50 0
Cutters ...	65 0	65 0	57 6	60 0	70 0	65 0
Folders ...	54 0	50 0	42 6	45 0	...	50 0
Machinists ...	...	60 0	50 0	50 0	65 0	60 0
Pressers (Coat Hands) ...	64 0	60 0	52 6	55 0	60 0	55 0
						& 57 6
„ (Trousers & Vest Hands) ...	64 0	60 0	52 6	50 0	60 0	55 0
						& 57 6
Tailors ...	60 0	65 0	65 0	60 0	70 0	65 0

† Piecework rates. † Melbourne rates from 20th January, 1917.
See also explanatory notes on page 1070.

WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
GROUP IV.—CLOTHING, HATS, BOOTS, ETC.—Continued.						
Tailoring (Ready-made)—cont.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Trimmers... ..	65 0	57 6	50 0	50 0	...	57 0
Under Pressers (Coat Hands)	54 0	50 0	42 0	36 0	60 0	55 0
" " (Trouser and Vest Hands)	54 0	48 0	42 0	36 0	50 0	55 0
Textile Working (Woollen Mills).						
Carders	55 6	52 0	*45 0	*52 0 to 60 0	...	37 6
Dyehousemen	57 0	52 0	*45 0	...	...	47 6
Foremen	67 6	60 0	...	*60 0	...	55 0
to 72 6						to 60 0
Labourers (General)	55 6	52 0	*45 0	*52 0	...	42 6
" (Willyhouse)	55 6	52 0	*45 0	*52 0 & 54 0	...	42 6
Milling Hands	55 6	52 0	*45 0	*52 0 & 54 0	...	...
Other Adults	55 6	52 0	*45 0	*52 0 & 54 0	...	42 6
Pattern Weavers	58 0	52 0	...	...	...	...
& 55 0						
Scourers	55 6	52 0	*45 0	*52 0 & 54 0	...	42 0
Spinners	55 6	53 0	...	...	...	45 0
Tuners	60 0	52 0	*70 0	*52 0	...	55 0
to 71 0		& 56 0		to 60 0		
Twisters in	59 0	52 0	...	...	...	45 0
Warpers	55 6	52 6	...	...	...	52 6
Tiemaking.						
Cutters (Lining) ... ..	...	40 0	...	...	...	...
" (Silk) ... ..	...	47 6	...	...	...	...
Waterproof Clothing.						
Cutters (Rubber Material) ... ..	...	60 0	...	...	...	...
" (Other) ... ..	...	50 0	...	...	...	...
Garment Makers ... ..	...	45 0	...	...	...	...

GROUP V.—BOOKS, PRINTING, BINDING, ETC.

	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Bookbinding. §						
Feeders	*30 0	52 6	56 0	50 0	...	...
Finishers	70 0	71 0	68 0	62 0	*65 0	*63 0
to 70 0						to 70 0
Journeyman Bookbinders	70 0	71 0	68 0	62 0	*65 0	*63 0
Marblers	70 0	71 0	68 0	62 0	*65 0	*63 0
Paper Rulers	70 0	71 0	68 0	62 0	*65 0	*70 0
to 82 6						
Engraving (Process). †						
Engravers	*67 6	*65 0	...	...	...	...
Etchers (Half-tone)	*70 0	*70 0	...	...	...	...
& 72 6						
" (Line)	*67 6	*65 0	^s a65 0*	...	...	...
& 68 0						

† Other than in newspaper offices. Higher rates quoted for Sydney are paid in newspaper offices.
 § Sydney rates from 12th January, 1917; Brisbane rates from 29th January, 1917.
 See also explanatory notes on page 1070.

WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
GROUP V.—BOOKS, PRINTING, BINDING, ETC.—Continued.						
Engraving, (Process)—cont.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Mounters	60 0	45 0	52 6*	...	...	...
Operators	70 0 & 72 6	65 0	65 0*	...	...	...
Printers	65 0 & 67 6	55 0	55 0*	...	...	...
Routers	60 0	55 0	...	...	...	...
Lithographing.||						
Printers	70 0	73 0	73 0	62 0	...	...
Rotary Machinists...	75 0	77 0	73 0	62 0	*56 0	...
Stone Polishers ...	30 0 to 60 0	56 0	56 0	50 0	...	...
Printing (Daily Newspapers).						
Compositors ... Day	88 0	90 0	77 0	80 0	67 6	*63 0
" " Night	104 0	100 0	77 0	84 0	80 0	*670 0
Linotype Attendants Day	70 0	60 0	*60 0	55 0	*55 0	*50 0
" " Night	470 0	62 0	*60 0	60 0	*60 0	*60 0
Linotype Operators Day	†	†	95 4	*72 0	80 0	†
" " Night	†	†	95 4	†	90 0	†
Machinists, 1st Hand Day	75 0	1077 0	*84 4	75 0	65 0	*70 0
" " Night	85 0	83 4	*84 4	80 0	65 0	*570 0
Publishers	57 6 & 60 0	60 0 & 66 8	51 4 to 84 4	60 0	*60 0	*572 6
Readers Day	80 0	85 0	65 0 & 77 0	80 0	75 0	*63 0
" " Night	100 0	90 0	65 0 & 77 0	84 0	85 0	*570 0
Reader's Assistant ... Day	45 0	52 3	45 0	50 0	57 0	*45 0
" " Night	55 0	60 0	45 0	55 0	57 0	*550 0
Stereotypers (1st Class) Day	67 6	1071 9	78 6	63 0	70 0	*70 0
" " Night	72 6	78 4	78 6	67 6	*70 0 to 80 0	*570 0
Stereotypers (Assists.) Day	60 0	1061 3	51 4 & 55 0	50 0	*55 0	*50 0
" " Night	65 0	68 4	51 4 & 55 0	55 0	*55 0	*550 0
Printing (Jobbing Offices).||						
Compositors	65 0	73 0	68 0	65 0	*65 0	*63 0
Electrotypers	70 0	73 0	60 0	*65 0	...	...
General Hands	48 0	52 6	56 0	50 0	*55 0	...
Linotype Operators ...	75 0	81 0	73 0 & 81 4	75 0	*80 0 & 90 0	†
Machinists	56 0 & 70 0	73 0	56 0 & 68 0	62 0	*65 0	*68 0
Monoline Operators ...	71 3	81 0	73 0 & 81 4	75 0	*80 0	†
Monotype Operators ...	63 9	81 0	68 0 & 74 0	75 0	*77 6	†
" Casting Machinists	*48 0	52 6	56 0	56 0	...	...
Readers	65 0	77 0	68 0	65 0	*75 0	*63 0
Stereotypers	70 0	73 0	56 0 & 68 0	65 0	*70 0	*70 0
Typograph Operators ...	75 0	81 0	73 0 & 81 4	75 0	*65 0	...

† Piece-work rates. || Brisbane rates from 29th January, 1917.
See also explanatory notes on page 1070.

WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
GROUP VI.—OTHER MANUFACTURES.						
Asphalting.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Layers (Cold Work) ...	*66 0	60 6	...	...	...	...
,, (Hot Work) ...	*66 0	66 0	...	...	...	...
Mastic Boilers ...	...	³ 80 0	...	...	...	...
Potmen ...	*66 0	55 0	...	...	...	...
Rubbers Down ...	...	60 6	...	...	...	...
Yardmen and Labourers ...	*66 0	55 0	...	...	...	...
Boatbuilding.						
Boatbuilders ...	76 0 & 80 0	*72 0	¹ 260 6*	...	84 0	*72 0
Brickmaking.						
Burners ...	67 6 & 69 0	³ 77 6	² 867 8 & 70 0	³ 75 0	² 70 0	55 6
Carters (One Horse) ...	² 51 0	² 55 0	⁵ 647 6	¹ 50 0	54 0	² 542 0
,, (Two Horses) ...	² 56 0	² 60 0	⁵ 652 0	¹ 52 0	60 0	² 547 0
Clayholemen ...	68 0	60 0	56 0	60 0	60 0	49 6
Drawers ...	69 6	70 0	56 0	66 0	†	55 6
Labourers ...	64 0	57 0	52 0	54 0	56 0	49 6
Loaders Out ...	64 0	...	54 0	...	...	55 6
Loftsmen ...	61 0	57 0	52 0	57 0	52 0	54 0
Machinemen ...	66 0	¹ 64 10	¹ 60 8	59 0	58 0	54 0
Panmen ...	64 0	¹ 62 8	52 0	¹ 59 0 & 62 0	58 0	54 0
Pit Foremen ...	74 6	80 0	60 0	67 0	66 0	*60 0
,, Men ...	68 0	63 0	56 0	60 0	60 0	54 0
,, Shooters ...	71 0	67 0	60 0	67 0	66 0	57 0
Setters ...	69 6	66 0	54 0 & 56 0	66 0	62 0 & 64 0	54 0 & 60 0
Truckers ...	...	57 0	52 0	57 0	56 0	54 0
Wheelers ...	64 0	57 0	52 0 & 56 0	57 0	60 0	54 0
Yardmen ...	64 0	57 0	52 0	54 0	56 0	55 6
Broom-making (Millet).						
Sorters (Head) ...	63 0	72 6	...	...	...	...
,, (Other) ...	51 0	62 6	...	...	...	...
Varnishers Ringers and Sizers	per 1000	to 55 0 2 7	2 6	...	...	...
Brushmaking.						
Bass Broom Drawers ...	66 0	52 6	...	52 6	...	...
Finishers ...	66 0	60 0	...	60 0	...	...
Machinists (Boring) ...	66 0	60 0	...	60 0	...	...
,, (Boults Carver) ...	*69 0	64 0	...	64 0	...	...
Paint Brush Makers ...	70 0	67 6	...	67 6	...	...
Pan Workers (Hair & Bass) ...	66 0	55 0 & 60 0	...	55 0	...	...
Candle Making.						
Acidifiers ...	57 0	63 0	*58 0	63 0	...	...
General Hands ...	55 0	57 6	45 0	57 6	...	...
Glycerine Distillers ...	59 6	63 0	...	63 0	...	...
Moulders ...	55 0	61 6	48 0	61 6	...	...
Press Room Gangers ...	57 0	60 6	47 0	63 6	...	...
Stillmen ...	60 0	63 0	50 0	63 0	...	...

† Piece-work rates. See also explanatory notes on page 1070.

WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
GROUP VI.—OTHER MANUFACTURES—Continued.						
Cardboard Box Makers.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Guillotine and other Cutters...	*54 0	64 0	...	...	...	...
	to 60 0					
Other Adults ...	50 0	52 0	...	...	...	...
Coachmaking (Road). †	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Bodymakers ...	67 6	63 0	⁶ 62 4	66 0	63 0	60 0
Labourers ...	54 0	42 0	⁶ 51 4	51 0	...	*45 0
Painters ...	67 6	63 0	⁶ 62 4	66 0	63 0	60 0
" Labourers...	54 0	42 0	⁶ 51 4	54 0	*54 0	...
Smiths ...	67 6	63 0	⁶ 62 4	66 0	63 0	60 0
" Strikers ...	54 0	42 0	⁶ 44 0	51 0	60 0	...
Trimmers ...	67 6	63 0	⁶ 62 4	66 0	63 0	60 0
Vycemen ...	58 6	48 0	...	54 0	*60 0	45 0
Wheelmaking Machinists	67 6	63 0	⁶ 62 4	66 0	63 0	*64 0
Wheelwrights ...	67 6	63 0	⁶ 62 4	66 0	63 0	60 0
Coachmaking (Axlemaking.)						
Centre Turners ...	67 6	45 0	...	66 0	...	...
Faceplate Workers...	67 6	54 0	...	66 0	...	...
Coachmaking (Springmaking)						
Fitters ...	67 6	60 0	...	66 0	...	...
Spring Makers ...	67 6	60 0	...	66 0	...	...
Fellmongering.						
Bate Hands ...	57 0	52 0	55 6	...	...	...
Green Hands ...	55 6	52 0	57 0	...	...	...
Labourers ...	55 6	52 0	55 6	53 0	...	...
Limepit Men ...	57 0	52 0	60 0	51 0	...	...
Machinists (Burring)	60 0	54 0	63 0	...	...	...
" (Fleshing)	60 0	54 0	63 0	...	...	...
" (Scouring)	55 6	55 0	57 0	...	...	...
" (Setting Out)	60 0	54 0	55 6	...	...	...
Soakhole Men ...	60 0	52 0	63 0	...	...	...
Sweathouse Men ...	57 0	52 0	63 0	...	...	...
Wool Sorters ...	60 0	59 0	57 0	*53 0	...	...
Fibrous-Plaster Working.						
Fixers' Assistants ...	*54 0	⁶ 54 1	...	...	...	...
Other Adults ...	*54 0	54 0	...	...	...	...
Shop Hands ...	...	66 0	...	...	...	...
Gas Making and Supply. †						
Blacksmiths ...	*80 0	71 0	⁶ 75 2	*63 0	*78 0	67 6
Coke Trimmers ...	67 6	²⁸ 66 5	*54 0	...	65 0	*52 6
Engine Drivers ...	68 6	*69 0	56 0	²⁸ 75 0	*72 0	*69 0
	to 76 6		to 72 0			
Gas Fitters ...	72 0	⁶ 73 4	⁶ 60 6	62 0	78 0	*69 0
Labourers ...	61 6	56 0	²⁸ 56 0	54 0	60 0	52 6
		& 57 6				
Mainlayers ...	76 6	...	¹⁰ 56 10	...	72 0	...
	& 84 0		to 66 0			
Metermakers ...	66 0	72 0	...	...	72 0	...
Meter Testers ...	54 0	60 0	...	...	...	...
	& 60 0					

† Brisbane rates from 8th January, 1917. † Working hours per week for main and service layers and yardsmen are 44 in North Brisbane and 48 in South Brisbane.
See also explanatory notes on page 1070.

WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
GROUP VI.—OTHER MANUFACTURES—Continued.						
Masons (Marble and Stone).	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Carvers	6110 0	82 6	71 6	84 0	...	...
Machinists (Carborundum) ...	64 0	62 0	671 6	64 0	*78 0	...
„ (Other) ... ..	...	70 0	671 6	64 0	*78 0	...
Masons	6 77 11 & 81 7	671 6	673 ±	68 0	*78 0	66 0
Polishers (Machine—Granite)	64 0	62 0	671 6	54 0	...	...
„ („ Marble)	64 0	62 0	671 6	54 0	...	...
„ (Other—Granite) ...	64 0	*60 0	671 6	54 0	*60 0	...
„ („ Marble) ...	64 0	*58 1	671 6	54 0	to 66 0 *60 0 to 66 0	...
Masons, Monumental Workers.						
Carvers	688 11	677 0	671 6	84 0	*78 0	66 0
Fixers	81 0	60 0	671 6	64 0	*72 0	66 0
Labourers	57 0	58 0	647 8	54 0	*57 0	48 0
Letter Cutters	676 1	669 8 & 71 6	671 6	74 0	*78 0	66 0
Masons	674 3	666 0	671 6	68 0	*78 0	66 0
Opticians.						
Journeymen	1168 0	62 0	...	60 0	...	...
Paper Bag Making.						
Guillotine Cutters	48 0	57 6	...	...	...	...
Machinists	62 6	57 6 & 68 6	...	...	...	...
Paper Making.						
Beatermen	76 0	72 0	...	...	...	...
„ (Assistant)	58 0	51 0	...	...	...	...
Breakermen	57 6	60 0	...	...	...	...
Cutters	58 0	54 0	...	...	...	...
Guillotine Men	58 0	54 0	...	...	...	...
Machinists	76 0	72 0	...	...	...	...
„ (Assistant)	55 0	51 0	...	...	...	...
Packers	57 6	51 0	...	...	...	...
Ragboilermen	60 0	54 0	...	...	...	...
Rippers	57 6	54 0	...	...	...	...
Other Adults	55 0	51 0	...	...	...	...
Polish Making.						
Foremen ... ..	...	60 0	...	...	...	...
Grinders ... ..	...	60 0	...	60 0	...	...
Millhands ... ..	...	60 0	...	...	...	...
Mixers ... ..	...	60 0	...	60 0	...	...
Other Adults ... ..	...	57 6	...	57 6	...	...
Portmanteau Making.						
Journeymen	66 0	66 0	66 0	...	...	66 0
Potteries (General).						
Burners (Head)	64 0	375 6	2860 8	...	...	52 6
„ (Assistant)	59 0	370 0	2860 8	...	...	49 6
Hollowware Pressers	69 0	56 9	54 0	...	...	55 6
Labourers	59 0	54 0	52 0	...	...	49 6
Sagger Makers	61 6	54 0	...	...	...	...
Sanitary Pressers	74 0	58 9	54 0	...	...	55 6
Throwers (1st Class)	74 0	63 0	70 0	...	...	58 6
„ (2nd Class) ... ..	...	52 6 to 57 9	62 0	...	...	49 6
Turners	66 0	56 9	...	...	...	...

WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
GROUP VI.—OTHER MANUFACTURES—Continued.						
Potteries (Pipemaking).	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Burners (Head) ...	69 0	³ 75 6	² 70 0	³ 60 0*	...	58 6
„ (Assistant) ...	...	³ 70 0	² 63 0	...	...	49 6
Drawers ...	64 0	55 0	52 0	*54 0	...	...
Junction Stickers ...	66 0	56 3	54 0	...	...	52 6
Moulders ...	70 0	58 3	52 0	...	...	54 0
Mould Makers ...	64 0	68 0	56 0	*66 0	...	...
Setters ...	68 0	58 3	54 0	...	...	52 6
Potteries—Tile Making, (other than Roofing).						
Labourers ...	59 0	50 6	52 0	...	...	49 6
Moulders or Pressers ...	60 0	51 6 & 55 6	52 0	...	...	...
Setters (Head) ...	65 0	53 6	54 0	...	...	...
„ (Other) ...	60 0	50 6	52 0	...	...	...
Quarrying.						
Borers (Hand or Machine)...	68 0	*60 0	68 0	*57 0 & 60 0	...	57 0
„ (Assistant)...	60 0	*64 0	61 6	*54 0	...	54 0
Dressers ...	⁶ 73 4	*66 0	61 6	...	...	54 0
Facemen ...	70 0	*60 0	68 0	...	...	54 0
Gutterers ...	⁶ 73 10	...	72 0	...	...	54 0
Hammermen ...	66 0	*69 0	68 0	*57 0	...	54 0
Labourers or Strippers ...	60 0	*64 0	61 6	*54 0	...	50 0
Loaders, Pluggers or Truckers ...	60 0	*64 0	61 6	*54 0	...	50 0
Machine Feeders ...	72 0	*64 0	67 6	*57 0	...	54 0
Quarrymen ...	⁶ 73 4	...	72 0	*57 0	*66 0	*66 0
Spallars ...	64 0	*60 0	66 0	*57 0	...	54 0
Rope Making.						
Clothes Line Lappers ...	54 0	52 0	42 0	...	...	...
Feeders for First Spreader ...	54 0	54 0	42 0	...	...	...
Foremen (Head) ...	66 0	60 0	60 0	...	...	...
„ (Jenny) ...	& 69 0	& 65 0	48 0	...	...	...
Knockers Out and Dampers						
Down ...	54 0	52 0	42 0	...	...	...
Oilers ...	54 0	54 0	...	...	...	...
Packers ...	54 0	52 0	42 0	...	...	...
Reelers (Hand) ...	54 0	54 0	42 0	...	...	...
„ (Steam) ...	54 0	55 0	...	...	...	...
Rubber Working.						
Calender Hands ...	70 0	70 0	...	...	...	...
Compound Weighers ...	60 0	61 0	...	...	...	...
Cycle Tyre Makers ...	56 0	61 0	...	...	...	...
Dough Mixers ...	60 0	61 0	...	...	...	...
Forcing Machinists ...	57 0	58 0	...	...	...	...
Heaters ...	59 0	60 0	...	...	...	...
Hosemakers ...	60 0	61 0	...	...	...	...
Mechanical Lathe Hands ...	60 0	61 0	...	...	...	...
Mill Hands ...	63 0	64 0	...	...	...	...
Moulders (Other) ...	59 0	60 0	...	...	...	...
Other Adults ...	53 0	54 0	...	...	...	...
Press Hands ...	59 0	60 0	...	...	...	...
Spreaders ...	60 0	61 0	...	...	...	...

WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
GROUP VI.—OTHER MANUFACTURES—Continued.						
Rubber Working—cont.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Surgical Packing and other Makers...	60 0	61 0	...	...	...	...
Textile Cutters ...	57 0	58 0	...	...	...	...
Tube Repairers ...	60 0	61 0	...	...	...	...
„ Joiners ...	55 0	57 0	...	...	...	...
Tyre Moulders ...	62 6	65 0	...	...	...	...
Vulcanisers ...	59 0	54 0	...	...	...	...
Wrappers... ..	55 0	57 0	...	...	...	...
Saddlery and Harnessmaking.						
Collarmakers ...	66 0	66 0	66 0	66 0	65 0	66 0
Harnessmakers ...	66 0	66 0	66 0	66 0	60 0	66 0
Machinists ...	66 0	66 0	66 0	66 0	60 0	66 0
Saddlers ...	66 0	66 0	66 0	66 0	60 0	66 0
Sail Making.						
Sailmakers ...	68 0	58 6	*60 0	...	...	...
Ship Workers.						
Carpenters and Joiners ...	80 0	*73 4	*66 0	*72 0 to 84 0	...	*72 0
Dockers ...	72 0 & 80 0	*66 0	*66 0	...	...	*72 0
Painters ...	79 0 & 87 0	*66 0	*66 0 & 73 4	52 0	...	*72 0
Shipwrights (New Work)	80 0	*82 6	*69 8	84 0	78 0	*72 0
„ (Old Work)	84 0	*82 6	*73 4	84 0	84 0	*72 0
Soap Making.						
Foremen ...	62 0	64 6	*65 0	64 6	...	...
General Hands ...	55 0	57 6	*44 0	57 6	...	...
Mixers ...	55 0	62 6	...	62 6	...	...
Soap Makers ...	67 0	67 0	*65 0	67 0	...	...
„ (Assistant)	57 0	66 6	*60 0	66 6	...	...
Tallow Making.						
Tallowmen ...	66 6	60 0	60 0	*48 0 to 53 0	70 0	*752 6
Tanning and Currying.†						
Beamsmen ...	63 0	63 0	63 0	60 0	60 0	*65 0
Curriers ...	68 0	68 0	68 0	65 0	65 0	*68 0
Fancy Leather Finishers	58 0	58 0	58 0	55 0	55 0	...
Japanners or Enamellers	58 0	58 0	58 0	55 0	55 0	...
Jiggers and Grainers (Book-binding Leather)	61 0	61 0	61 0	58 0	58 0	*61 0
Labourers ...	54 0	54 0	54 0	51 0	51 0	...
Limemen and Yardmen	55 0	55 0	55 0	51 0	52 0	...
Machinists (Fleshing)	63 0	63 0	63 0	60 0	60 0	*63 0
„ (Scouring)	56 0	56 0	58 0	...	...	...
„ (Scudding)	58 0	58 0	58 0	55 0	55 0	*58 0
„ (Shaving)	61 0	58 0	61 0	58 0	58 0	*63 0
„ (Splitting)	68 0	68 0	68 0	65 0	65 0	*68 0
„ (Unhairing)	58 0	58 0	58 0	55 0	55 0	*58 0
„ (Whitening)	61 0	61 0	61 0	65 0	65 0	*61 0
„ (Other)	56 0	56 0	56 0	...	52 0	...
Rollers and Strikers	60 0	60 0	60 0	57 0	57 0	*60 0
Tablemen ...	58 0	58 0	58 0	55 0	55 0	*58 0

† In Melbourne, the current Wages Board Determination provides weekly rates of wage for night shifts equivalent to time and a quarter daily rates for each occupation.
See also explanatory notes on page 1070.

WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
GROUP VI.—OTHER MANUFACTURES—Continued.						
Tent and Tarpaulin Making.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Cutters (1st Hand)...	60 0	70 0	1 ³ 60 0*	*60 0.	...	1 ² 70 0*
„ (2nd „)...	50 0	50 0	1 ³ 50 0*	...	...	1 ² 50 0*
Dressers ...	54 0	50 0	...	...	...	...
Machinists ...	52 6	50 0	1 ³ 60 0*	...	...	...
Sewers (Hand) ...	60 0	58 6	1 ³ 60 0*	*60 0	57 0	...
Tentmakers ...	60 0	58 6	96 0*	*60 0	...	...
Wickerworking.						
Bamboo or Wickerworkers ...	66 0	60 0	66 6	55 0	64 0	52 6
Basket Makers and Repairers...	69 0	58 6	66 6*	55 0	...	...
	& 72 0					
Upholsterers ...	*67 0	56 0	66 6*	50 0	...	...
GROUP VII.—BUILDING.						
Bricklaying.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Bricklayers (Surface) ...	78 0	77 0	679 9	*672 0	*84 0	72 0
„ (Sewer & Tunnel)	84 0	82 6	679 9	*672 0	*84 0	78 0
Carpentering.						
Carpenters ...	80 0	73 4	671 6	78 0	72 0	72 0
Joinery.						
Machinists (1st Class) ...	63 0	63 0	671 6	57 0	...	54 0
„ (2nd „)	60 0	60 0	666 0	51 0	...	51 0
„ (3rd „)	54 0	53 0	660 6	49 6	...	48 0
Labouring (Builders).†						
Bricklayers' Labourers ...	66 0	58 8	664 2	60 0	*54 0 to 60 0	66 0
Carpenters' „	60 0	56 10	664 2	60 0	*60 0	66 0
Concrete Workers ...	60 0	58 8	664 2	60 0	*60 0	66 0
Earth Excavators ...	60 0	58 8	664 2	54 0	*60 0	66 0
Gear Workers ...	62 0	58 8	664 2	66 0	*72 0	66 0
Masons' Labourers ...	62 0	58 8	664 2	60 0	*54 0 to 60 0	66 0
Plasterers' „	62 0	58 8	664 2	60 0	*54 0 to 60 0	66 0
Scaffold Hands ...	62 0	58 8	664 2	66 0	*72 0	66 0
Lathing and Ceiling.						
Lathers ...	*78 0	*672 0	*664 2	*72 0	*78 0	*68 0
Metal Ceilings ...	68 0	*684 0	...	...	...	*48 0
Masonry.						
Masons ...	677 11 to 81 7	*671 6	673 4	60 0	*78 0	66 0
Painting (House) and Glazing.						
Glaziers ...	75 0	66 0	671 6	66 0	72 0	54 0
Painters ...	75 0	66 0	671 6	66 0	72 0	54 0
Paperhangers ...	75 0	66 0	671 6	66 0	72 0	54 0
Signwriters ...	83 0	66 0	671 6	66 0	72 0	60 0

† The rates of wages quoted for Builders' Labourers for Sydney, Melbourne, and Adelaide are those payable under State Determinations or Awards. The rates quoted for Perth are the ruling or predominant rates, while those for Brisbane and Hobart are the rates fixed by the Award of the Commonwealth Arbitration Court, which also awarded the following:—Sydney, Melbourne, and Adelaide, 66s. per week of 44 hours. See also explanatory notes on page 1070.

WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
GROUP VII.—BUILDING—Continued.						
Plastering.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Fibrous Plaster Fixers ...	78 0	66 6	71 6	...	...	...
Plasterers (Surface) ...	78 0	75 2	77 0	72 0	78 0	68 0
,, (Sewer or Tunnel)	84 0	84 4	86 2	...	...	...
			to 90 9			
Plumbing and Gasfitting.						
Galvanised Iron Workers ...	72 0	73 4	73 4	76 0	78 0	*60 0
						to 70 0
Gasfitters ...	72 0	73 4	73 4	69 8	78 0	*72 0
Plumbers ...	72 0	73 4	73 4	73 4	78 0	*72 0
Roofing.						
Shinglers ...	78 0	77 0	...	...	...	...
Slaters ...	78 0	77 0	...	*72 0	*72 0	*66 0
Tilers ...	78 0	77 0	...	*72 0	*72 0	*66 0
Tile Laying.						
Tile Layers ...	72 0	*84 0	*79 9	...	...	...
Tuckpointing.						
Tuckpointers ...	72 0	64 2	*79 9	*72 0	*72 0	...
Water Supply and Sewerage.						
Carpenters ...	72 0	*73 4	...	...	72 0	...
Concretors ...	63 0	60 0	66 0	*57 0	60 0	...
			to 73 4			
Labourers ...	58 6	60 0	60 0	*54 0	54 0	...
Miners (Sewer) ...	68 0	68 0	75 2	*60 0	63 0	...
	& 81 0	to 72 0	to 82 6			
Pipejointers and Setters ...	60 0	68 0	66 0	*60 0	63 0	...
	& 66 0				& 78 0	
Timbermen ...	66 0	*68 0	75 2	*57 0	63 0	...
	& 72 0	to 72 0	& 82 6			
Toolsharpeners ...	66 0	68 0	72 0	*57 0	63 0	...

GROUP VIII.—MINING.

Coal Mining.†	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Blacksmiths ...	70 0	77 4	84 4	...	...	65 0
	to 84 0	to 80 6	& 87 0			to 79 6
Bracemen ...	72 0	64 9	71 3	Not mined.	...	...
	to 73 9	to 77 5				
Carpenters ...	72 0	77 4	78 7		...	...
	to 88 0	82 9	& 81 0			
Deputies ...	84 0	92 10	91 0		...	83 0
	to 97 6	to 104 6				& 84 0

† The rates of wage quoted are those awarded by the War Precautions Coal Board. The rates came into force on the 1st January, 1917. The tribunal increased the existing hewing rate for miners and all customary rates paid to them by 15 per cent. The existing rates of pay for off-hand labour were increased 20 per cent. The hours of labour for coal miners in the Commonwealth were fixed by the tribunal, as follows:—Eight hours bank to bank, inclusive of one half hour for meal time, on Monday, Tuesday, Wednesday, Thursday and Friday, and six hours bank to bank, inclusive of one half-hour for meal time on Saturday, Sundays and holidays. The customary number of shifts per fortnight is eleven, the collieries not working on pay Saturday. See also explanatory notes on page 1070.

WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	N.S.W.	Victoria.	Q'land.	Sth. Aust.	W. Aust.	Tasmania.
GROUP VIII.—MINING—Continued.						
Coal Mining—continued.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Engine Drivers (Winding and Loco.) ...	76 0	75 5	984 0		1281 0 & 84 0	...
Engine Drivers (Other) ...	to 84 0 69 0	to 84 0 69 0	975 10		...	69 0
Labourers (Surface) ...	to 80 0 65 5	62 1	65 4		60 6	to 81 0 60 0
„ (Underground) ...	to 69 0 65 6 to 72 0	to 64 9 64 9	67 6		...	to 65 0
Miners (Machine) ...	†	†	†		†	...
„ (Manual, Dry Work)	†	†	†		†	†
„ („ Wet Work)	†	†	†		...	†
Platmen or Banksmen ...	72 0	79 0	67 6		71 6	60 0
Shaftsinkers (Dry Work) ...	to 75 6 †	to 85 1	& 91 3 91 0		...	†
„ (Wet Work) ...	†	†	99 0		...	†
Shiftmen (Dry Work) ...	65 6	79 0	83 0		83 6	77 6
„ (Wet Work) ...	to 93 0 65 6 to 93 0	to 85 1 86 5	91 0	Not Mined.	...	...
Shotfirers ...	78 0	...	83 0		83 6	...
Shovellers ...	to 96 0 66 0	64 9	...		72 6	...
Skip Repairers ...	to 68 7 65 6	61 6	...		...	65 0
Strikers ...	to 73 0 60 0	to 64 9 61 6	...		...	...
Timbermen ...	to 68 6 78 8	to 64 9 79 2	83 0		84 6	...
Weighmen ...	to 85 6 73 2	to 90 0 69 7	...		71 6	72 0
Wheelers ...	to 80 0 63 0 to 75 6	to 86 4 72 0 to 75 6	72 0		71 6 & 78 6	61 6
Gold and Other Mining (except Coal).††						
Battery Feeders ...	54 0	54 0	55 11	...	1265 0	45 0
Bracemen ...	to 67 6 57 0	59 0	to 77 0 63 3	72 6	to 80 0 1270 0	to 54 0 48 0
Engine Drivers (Stationary)	to 72 0 66 0	60 0	to 82 6 62 4	to 79 0 94 6	to 81 0 85 0	to 66 0 60 0
„ (Winding & Loco.)	to 78 0 78 0	to 72 0 66 0	to 96 3 77 0	to 99 0 110 0	89 0	to 78 0 72 0
Firemen ...	to 90 0 60 0	to 75 0 51 0	to 107 3	82 6	72 0	& 84 0 60 0
Labourers ...	to 78 0 to 67 6	to 69 0 54 0	to 88 0 55 11	to 90 6 68 0	to 80 0 1265 0	to 66 0 48 0
			to 71 6	to 72 6	to 75 0	to 63 0

† Piece-work rates. †† The number of working hours constituting a full week's work in Queensland have been fixed either by industrial agreement or award, as follows:—Mount Morgan and Cooktown, 48 hours; Gympie and Cloncurry, 44 hours. South Australian rates include a bonus, paid on a sliding scale regulated according to the price of copper, to workers engaged in copper mining. South Australian rates from the 1st January, 1917. In Victoria the hours of labour in quartz mines for underground workers are 44 per week. See also explanatory notes on page 1070.

WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
GROUP VIII.—MINING—Continued.						
Gold and Other Mining (except Coal).—Cont.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Miners (Dry Work) ...	³⁸ a66 6 to 76 6	⁶ 58 0 to 63 0	75 2 to 82 6	†	¹² 74 0 to 90 0	50 0 to 78 0
„ (Machine) ...	³⁸ a66 6 to 90 0	⁶ 64 0 to 73 6	80 8 to 90 9	†	¹² 80 0 & 96 0	60 0 to 69 0
„ (Wet Work) ...	³⁸ a72 6 to 76 6	⁶ 60 0 to 67 6	75 2 to 90 9	†	¹² 80 0 to 95 0	60 0 to 84 0
Platmen ...	³⁸ a57 0 to 72 0	⁶ 55 0 to 59 0	63 3 to 82 6	72 6 to 79 0	¹² 70 0 to 81 0	48 0 to 66 0
Shaftsinkers (Dry Work) ...	³⁸ a66 0 to 84 0	⁶ 62 0 to 74 0	75 2 to 82 6	†	¹² 80 0 to 95 0	60 0 to 72 0
„ (Wet Work) ...	³⁸ a72 0 to 90 0	⁶ 68 0 to 80 0	80 8 to 90 9	†	¹² 85 0 to 102 0	66 0 to 75 0
Shift Bosses ...	³⁸ a66 0 to 84 0	⁶ 64 0 to 70 0	80 0 to 96 3	93 6 to 104 6	¹² 90 0 to 120 0	66 0 to 80 0
Timbermen ...	³⁸ a66 0 to 82 6	⁶ 60 0 to 69 10	75 2 to 90 9	83 0 to 87 0	¹² 80 0 to 90 0	54 0 to 75 0

GROUP IX.—RAILWAY AND TRAMWAY TRANSPORT.

Railways. †							
Engine Drivers (Loco.)—§	s. d.						
„ (1st class) ...	96 0	87 0	84 0 to 93 0	96 0	90 0	79 6	
„ (2nd „) ...	90 0	81 0	79 6 to 85 6	90 0	84 0	73 6 to 76 6	
„ (3rd „) ...	84 0	69 0 to 75 0	72 0 to 78 0	84 0	78 0	70 6 & 73 6	
„ (4th „) ...	78 0	69 0	67 6 to 73 6	78 0	72 0	67 6	
„ (5th „) ...	72 0	...	63 0 to 69 0	75 0	66 0	64 6	
Firemen (1st class)§	66 0	60 0	58 0 to 66 0	72 0	66 0	57 0	
„ (2nd „)...	60 0	57 0	54 0 to 60 0	67 6	60 0	54 0	
„ (3rd „)...	57 0	54 0	49 6 to 52 6	63 0	57 0	51 0 & 54 0	
Guards (1st class) ...	75 0	72 0	78 0 to 90 0	75 0	60 0 to 75 0	²⁵ 69 0 & 72 0	
„ (2nd „) ...	60 0 to 72 0	60 0 to 69 0	66 0 to 81 0	63 0 to 72 0		60 0 to 75 0	²⁵ 63 0 & 66 0
„ (3rd „) ...	58 6 to 66 0	54 0	54 0 to 69 0	57 0 to 60 0			60 0 to 75 0	^{25}57 0 & 60 0
Porters ...	55 6 to 58 6	54 0 to 60 0	49 6 to 55 6	54 0	54 0			^{25}48 0 to 57 0

† Contract work.

‡ The hours of labour for Railway Employees are 48 per week (in N.S.W. 96 per fortnight) except in the following cases:—VICTORIA—Porters, 54 hours per week; SOUTH AUSTRALIA—Porters and Signalmen, 48 to 57 hours per week; and TASMANIA—Guards, Porters, Shunters and Signalmen, 54 hours per week. Owing to the difference in the classification of grades of Railway Employees in the various States, only minimum and maximum rates are quoted, excluding those for Foremen. § In N.S.W. the rates of wage for 1st class Locomotive Drivers correspond to those fixed for Drivers driving express passenger or mail trains; 2nd to 5th class correspond to the rates of wage fixed for different lengths of service. The classification of Locomotive Drivers and Firemen employed in the Victorian Railway Service fixes different rates of wage for the following grades of service:—(1) Country Passenger Service; (2) First-grade Suburban Passenger Service; (3) Second-grade Passenger Service; and (4) Goods or Switching Service. The rates of wage for these services have been taken as corresponding to the 1st, 2nd, 3rd, and 4th class classification in the other States, with the exception that firemen for only three classes of service are graded. See also explanatory notes on page 1070.

WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation,	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
GROUP IX.—RAILWAY AND TRAMWAY TRANSPORT—Continued.						
Railways—Cont.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Shunters (1st class) ...	75 0 to 84 0	72 0 & 75 0	73 6 to 90 0	69 0 to 75 0	69 0 to 75 0	²⁵ 57 0
„ (2nd „) ...	66 0 to 72 0	66 0 & 69 0	63 0 to 75 0	66 0 to 75 0	63 0 & 66 0	²⁵ 54 0
„ (3rd „) ...	57 0 to 63 0	60 0 & 63 0	57 0 to 66 0	63 0 to 66 0	...	²⁵ 51 0
„ (Ordinary) ...	55 6 to 60 0	57 0 to 60 0	52 6 to 61 6	60 0 to 61 6	57 0 & 60 0	...
Signalmen (Special) ...	...	72 0 & 75 0	78 0	...	78 0 & 81 0	...
„ (1st class) ...	75 0 & 78 0	66 0 & 69 0	66 0 to 75 0	78 0 to 75 0	69 0 to 75 0	²⁵ 57 0 & 60 0
„ (2nd „) ...	72 0	63 0	60 0 to 69 0	66 0 to 72 0	63 0 & 66 0	²⁵ 51 0 & 54 0
„ (3rd „) ...	69 0	60 0	54 0 to 63 0	60 0 to 60 0	57 0 & 60 0	...
„ (4th „) ...	66 0	57 0	...	57 0	54 0 & 57 0	...
Tramways (Electric and Cable)††						
Car Washers or Cleaners ...	55 6	¶51 0 & 56 0	55 0	54 0	54 0 to 60 0	48 0
Conductors—1st year ...	55 6	¶51 0 & 57 0	50 0 & 55 0	52 0	54 0	45 0
„ 2nd year ...	57 6	¶54 0 & 60 0	55 0	54 0	57 0	48 0
„ 3rd year ...	60 0	¶57 0 & 63 0	60 0	54 0	60 0	51 0
Firemen (four fires) ...	66 0	¶66 0	68 0	60 0	*63 0	...
„ (less than four fires) ...	59 0 & 66 0	¶63 0	64 0	...	*60 0	...
Horse Drivers ...	55 6	¶60 0	56 0	55 6	²⁵ 60 0	48 0
Labourers... ...	55 6	¶51 0 & 54 0	56 0	54 0	54 0 & 57 0	48 0
Lamp Trimmers ...	55 6	60 0	...	...	...	...
Maintenance men ...	55 6	¶51 0 & 60 0	56 0	51 0 & 60 0	54 0 & 57 0	48 0
Motormen or Gripmen—						
1st year ...	60 0	¶51 0 & 57 0	50 0 & 55 0	54 0	54 0	51 0
2nd year ...	63 0	¶54 0 & 60 0	55 0	56 0	57 0	54 0
3rd year ...	66 0	¶57 0 & 63 0	60 0	58 0	60 0	57 0
Night Watchmen ...	56 0	54 0	²⁵ 57 6	*54 0	²⁵ 54 0 to 67 6	50 0
Overhead Wiremen (Leading)	*80 0	63 0	72 6	*60 0	66 0	...
„ „ (Other) ...	*57 0 to 66 0	57 0 to 62 0	65 0 to 65 0	*54 0	57 0	48 0
Pitmen†† ...	68 0	60 0	60 0 to 75 6	54 0	57 0 & 60 0	*48 0
Signalmen ...	66 0 to 72 0	¶63 0 & 66 0	57 6 to 63 0	54 0 to 58 0	...	...
††Tower Wagon Drivers (Horse)	²⁵ 61 6	51 0	57 0	54 0	²⁵ 60 0	*57 0
„ „ (Motor)	²⁵ 66 0	...	...	*54 0	...	...
Track Cleaners ...	55 6	¶51 0 & 54 0	50 6	54 0	54 0 & 57 0	48 0
Trimmers or Fuel Men ...	55 6 & 59 0	...	58 0	*54 0	*54 0	...

† For Sydney the wages quoted are those determined by State Awards. For Melbourne, Perth, Adelaide, and Hobart the rates are those specified in agreements registered under the Commonwealth Conciliation and Arbitration Act. For Brisbane rates recently agreed to are quoted. † In addition to the rates quoted, employees of the Tramway Board and the Northcote Council receive a bonus of 6d. per day. †† Sydney rates from 26th January, 1916.
See also explanatory notes on page 1070.

WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
GROUP X.—OTHER LAND TRANSPORT.						
Carrying (Merchandise).	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Carriers (One Horse) ...	4 ⁹ 58 0a	2 ¹ 55 0	2 ² 55 0	1 ⁷ 50 0	54 0	2 ⁵ 47 0
„ (Two Horses) ...	4 ⁹ 63 0a	2 ¹ 60 0	2 ² 60 6	1 ⁷ 52 0	60 0	2 ⁵ 52 0
„ (Three Horses) ...	4 ⁹ 67 0a	2 ¹ 63 0	2 ² 62 6	1 ⁷ 53 0	...	...
Corporation Carters—						
(One Horse) ...	57 0	2 ¹ 55 0	55 6	50 0	60 0	47 0
(Two Horses) ...	...	2 ¹ 60 0	55 6	52 0	66 0	52 0
			& 57 6			
Jinkers (One Horse) ...	2 ² 54 0	2 ¹ 60 0	2 ² 55 0	1 ⁷ 50 0	65 0	2 ⁵ 53 0
„ (Two Horses) ...	2 ² 59 0	2 ¹ 65 0	2 ² 60 0	1 ⁷ 52 0	65 0	2 ⁵ 58 0
Sanitary Carters ...	62 0	2 ¹ 55 0	2 ² 62 6	...	72 0	52 0
						& 57 0
Stable Hands ...	2 ² 57 6	2 ⁵ 55 0	...	1 ⁹ 55 0	...	...
	& 62 6					
Tip Dray Drivers ...	2 ² 56 0	2 ¹ 54 0	...	...	60 0	52 0
	& 62 6					& 57 0
Motor Lorries and Waggon—						
Under 3 tons carrying capacity ...	1 ⁸ 62 0a	60 0	60 0	57 0	...	52 0
	to 71 0		to 70 0			
3 tons carrying capacity...	1 ⁸ 75 0a	65 0	70 0	57 0	...	55 0
Carrying (Passenger).						
Bus or Coach Drivers (Horse) ...	...	2 ⁵ 57 0	...	54 0	...	3 ⁰ 42 0
						& 47 0
Chauffeurs ...	5 ⁷ 45 0	3 ² 55 0	2 ² 60 0	...	...	...
Lift Attendants.						
Goods ...	1 ⁷ 52 6	1 ⁷ 48 0	1 ⁷ 45 0	50 0*	...	3 ² 45 0*
Passenger...	1 ⁷ 52 6	3 ¹ 45 0	...	2 ⁵ 50 0*	...	3 ² 45 0*

GROUP XI.—SHIPPING, WHARF LABOUR, ETC.

Shipping (Ferry Boats).	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Deck Hands ...	48 0	...	2 ⁵ 52 6	...	...	3 ² 40 0b
	to 57 6					
Engineers ...	67 6	...	2 ⁵ 67 6	...	...	3 ² 65 0c
	to 97 6					
Firemen ...	50 0	...	2 ⁵ 60 0	...	...	3 ² 42 0c
	to 69 0					
Masters ...	67 6	...	2 ⁵ 67 6	...	1 ² 70 0	3 ² 60 0a
	to 97 6				to 80 0	
Shipkeepers ...	3 ² 47 6	...	...	...	...	...
	to 57 6					
Towing (Tug Boats).						
Engineers...	3 ⁶ 55 0	...	2 ⁵ 75 0	2 ⁵ 64 6	...	...
	to 83 5			to 80 0		
Firemen ...	57 6	56 6	2 ⁵ 60 0	2 ⁴ 69 0	...	...
		& 57 8				
Masters ...	3 ⁶ 55 0	78 6	2 ⁵ 75 0	2 ⁵ 64 6	1 ² 75 0	...
	to 83 5	to 87 8		to 80 0		
Waterside Working.						
Coal Lumpers per hour	2 0	1 9	1 9	1 10	1 9	1 9
Lightermen ...	66 0	*55 0	2 ⁵ 59 0	66 0	1 ² 60 0	*50 0
Wharf Labourers‡ per hour	1 9	1 9	1 9	1 9	1 9	1 9

* Rate of wage quoted is for other than special cargo. † Under 25 cwt. carrying capacity.
 ‡ Over 25 cwt. carrying capacity. See also explanatory notes on page 1070.

WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
GROUP XI.—SHIPPING, WHARF LABOUR, ETC.—Continued.						
Passenger Vessels (Intra-state).†	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Cooks (Chief) ... per month	185 0	310 0	240 0	...	240 0	160 0
to 295 0		& 340 0				
„ (Second) ... „	155 0	*220 0	140 0	...	140 0	130 0
to 195 0						
„ (Third) ... „	155 0	*170 0	100 0	...	100 0	...
„ (Ship's) ... „	195 0	*200 0	...	...	...	...
Passenger Vessels (Interstate).†		s.			s.	
Bakers ... per month		240			260	
Barmen ... „		170			170	
Butchers ... „		180			200	
Cooks (Chief) ... „		310			340	
„ (Second) ... „		220			220	
„ (Third) ... „		170			170	
„ (Ship's) ... „		200			200	
Pantrymen ... „		190			190	
„ (Assistant) ... „		160 & 170			160 & 170	
Chief Saloon Steward ... „		180			180	
Second ... „		210			210	
Second Saloon ... „		210			210	
Fore Cabin ... „		190			190	
Bedroom and other ... „		170			170	
All Vessels (Interstate).†			s.			
A.B. Seamen ... per month	...	...	185			
Boatswains ... „	...	...	205			
Donkeymen ... „	...	...	245			
Firemen ... „	...	...	225			
Greasers ... „	...	...	225			
Lamp Trimmers ... „	...	...	205			
Fuel ... „	...	...	185			
			LOWEST CLASS.		HIGHEST CLASS.	
			<i>Under 100 N.H.P.</i>		<i>600 or more N.H.P.</i>	
Marine Engineers.††		s. d.			s.	
Chief ... per month		506 0			782	
Second ... „		402 6			506	
Third ... „		356 6			414	
Fourth ... „		...			345	
5th, 6th, 7th, 8th ... „		...			276	
			INTERSTATE		INTERSTATE	
			PASSENGER VESSELS.		CARGO VESSELS.	
			<i>Lowest Class, 125 tons & under.</i>	<i>Highest Class, over 10,000 tons.</i>	<i>Lowest Class, 60 tons & under.</i>	<i>Highest Class, over 4000 tons.</i>
Merchant Service.†††			460s.	1360s.	380s.	780s.
Masters ... per month			360s.	520s.	300s.	420s.
Officers, Chief ... „			300s.	460s.	260s.	360s.
„ Second ... „			...	400s.	...	320s.
„ Third ... „			...	260s.	...	260s.
„ Fourth & Fifth ... „			...	260s.	...	260s.

† Rates of wages quoted are in addition to victualling. † Minimum rates under the Industrial Agreement are classified according to nominal horse-power of vessels; the lowest and highest classes are here specified. †† Minimum rates under the Commonwealth Award are classified for Interstate vessels, and for vessels within a State according to tonnage; the lowest and highest classes for Interstate passenger and cargo vessels are here given.

See also explanatory notes on page 1070.

WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	N.S.W.	Victoria.	Q'sland.	S. Aust.	W. Aust.	Tas.
GROUP XII.—AGRICULTURAL, PASTORAL, ETC.						
Farming:	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
General Hands*§	20 0 to 25 0	20 0 to 25 0	20 0 to 25 0	25 0 to 39 0	20 0 to 25 0	20 0 to 25 0
Harvesters*§	30 0 to 40 0	30 0 to 40 0	30 0 to 40 0			
Milkers*§	15 0 to 25 0	15 0 to 25 0	15 0 to 25 0			
Ploughmen*§	20 0 to 30 0	20 0 to 30 0	20 0 to 30 0	20 0 to 37 6	20 0 to 30 0	20 0 to 30 0
Chaff Cutters (Portable)	...	56 0	...	...	...	3 ⁰ 60 0
„ (Stationary)	...	56 0	...	...	...	3 ⁰ 56 0
Thresher (Feeders)	...	...	...	...	...	3 ⁰ 65 0
„ (Machinists)	...	...	...	...	...	3 ⁰ 56 0
Gardening.						
Gardeners	65 0	48 0	54 0 to 60 0	2 ⁵ 48 0*	60 0	*60 0
„ (Labourers)	48 0	45 0	55 6	2 ⁵ 48 0*	60 0	*48 0 to 54 0
Nurserymen	54 0	48 0	*60 0	2 ⁵ 48 0*	60 0	*60 0
„ (Labourers)	48 0	42 0	*50 0	2 ⁵ 42 0*	*54 0	*48 0 to 54 0
Pastoral Workers.						
Cooks§	60 0	60 0	60 0	60 0	*60 0	60 0
Shearers per 100	28 0	28 0	28 0	28 0	25 0	28 0
Shed Hands§	55 0	55 6	55 0	55 0	50 0	50 0
Wool Pressers§	65 0	65 0	65 0	65 0	*65 0	60 0
Rural Workers.						
Fruit Harvesters per hour	...	1 3½	...	1 3½	...	...

§ Rates of wage quoted are in addition to board and lodging provided.

NOTE.—Except where otherwise specified the rates of wages specified for Employees in Clubs, Hotels, and Restaurants represent the weekly cash payment where Board and Lodging are provided. If Board and Lodging are not provided, payment has to be made, in lieu thereof, upon an estimated value, fixed by Industrial Tribunals for the Capital Towns as follows: Sydney, 15s. and 18s.; Melbourne, 14s.; Brisbane, 15s.; Adelaide, 15s.; Perth, 22s.; and Hobart, 15s. per week. Of this sum 10s. per week is allocated as value of Board in each instance.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
GROUP XIII.—DOMESTIC, HOTELS, ETC.						
Clubs (Residential).	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Barmen	4 ⁰ 27 0	2 ⁵ 41 0	3 ³ 30 0 & 35 0	1 ⁹ 55 0*	2 ⁵ 65 0†*	3 ¹ 35 0
Billiard Markers	4 ⁰ 24 0	3 ¹ 28 6	3 ³ 50 0	2 ⁸ 25 0 & 30 0	...	3 ¹ 30 0
Cooks (Hotels, Clubs, etc.).						
Chefs	4 ⁰ 52 6 to 100 0	3 ¹ 41 0 to 56 0	3 ⁴ 55 0 to 70 0	2 ⁸ 47 6 to 80 0	2 ⁸ 45 0* to 65 0*	3 ¹ 40 0 to 80 0
Cooks (Second)	4 ⁰ 42 6 to 70 0	3 ¹ 33 6 to 41 0	3 ⁴ 45 0 to 50 0	2 ⁸ 45 0 & 55 0	2 ⁸ 40 0* & 45 0*	3 ¹ 27 6 to 60 0
„ (Third)	4 ⁰ 35 0 to 57 6	3 ¹ 33 6 to 36 0	3 ⁴ 45 0 & 47 6	2 ⁸ 40 0 & 45 0	2 ⁸ 35 0* to 45 0	3 ¹ 27 6 to 45 0
Kitchenmen	4 ⁰ 26 6	3 ¹ 26 0	3 ³ 25 0	2 ⁸ 25 0 & 30 0	2 ⁸ 25 0*	3 ¹ 20 0
Lift Attendants	3 ¹ 22 6	3 ¹ 45 0†	2 ⁸ 20 0	2 ⁸ 25 0	...	...
Porters (Day)	4 ⁰ 25 0	3 ¹ 26 0	3 ³ 35 0	2 ⁸ 30 0	2 ⁸ 25 0*	3 ¹ 20 0
„ (Night)	4 ⁰ 25 0	3 ¹ 26 0	3 ³ 25 0	2 ⁸ 25 0	2 ⁸ 32 0*	3 ¹ 22 6

† Not in addition to Board and Lodging. See also explanatory notes on page 1070.

WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
GROUP XIII.—DOMESTIC, HOTELS, ETC.—Continued.						
Hairdressing.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Full Hands ...	2760 0	1970 0	...	...	...	...
Hairdressers ...	2755 0	1960 0	1960 0	1955 0	2260 0	3555 0*
Hotels.						
Barmen ...	2541 0	2541 0	3330 0 to 42 6	2555 0*	2565 0†	3130 0 & 35 0
Billiard Markers ...	3125 0	3128 6	3325 0	2825 0 & 30 0	...	3122 6
Handy Men ...	3336 0	3121 0	3322 6	2825 0 to 30 0	2825 0	3115 0 to 20 0
Kitchenmen ...	3341 0	3126 0	3325 0	2825 0 & 30 0	2825 0	3120 0
Lift Attendants ...	3141 0	3145 0†	3325 0	...	...	...
Porters (Day) ...	3141 0	3126 0	2820 0	2830 0	2825 0	3120 0
Porters (Night) ...	3141 0	3126 0	3325 0	2825 0	2832 0	3122 6
Waiters (Head) ...	2845 0	3136 0	3335 0	2842 6 & 45 0	...	3125 0 to 40 0
Waiters (Other) ...	2841 0	3131 0	3320 0	2830 0	2837 6	3120 0 to 30 0
Restaurants.						
Pantrymen ...	3132 6 & 37 6	3126 0	2830 0	27 6 & 30 0	2832 0	3125 0
Waiters ...	3135 0 & 40 0	3131 0	2840 0	30 0 & 32 6	2837 6	3120 0

GROUP XIV.—MISCELLANEOUS AND GENERAL LABOUR.

Bill Posting.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Billposters ...	57 6	56 0	*50 0	*48 0	...	*50 0
Factory Engine Driving.						
Engine Drivers (Stationary)						
1st class ...	70 0	66 0	82 0	*72 0	72 0	*63 0
2nd class ...	70 0	60 0	74 0	*66 0	66 0	*60 0
3rd class ...	65 0	57 0	66 0	*60 0	60 0	*57 0
Firemen (1st Class)	63 0 & 67 0	60 0	64 0	*66 0	*60 0	*54 0
Firemen (2nd Class)	59 0	57 0	...	*60 0	*54 0	*51 0
Greasers ...	59 0	54 0	64 0	*54 0	*54 0	*42 0
Trimmers ...	59 0	54 0	58 0	*54 0	*54 0	*45 0
Fuel Distribution (Coal & Coke).						
Baggers and Loaders	59 0	64 0	...	48 0	...	*54 0
Carters (One Horse)	59 0	1955 0 & 56 0	3157 6	48 0	60 0	1947 0
Carters (Two Horses)	64 0	1960 0 & 61 0	3162 6	50 0	60 0	1952 0
Trimmers ...	59 0	...	...	48 0	...	*54 0

† Not in addition to Board and Lodging. See also explanatory notes on page 1070.

WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobarf.
GROUP XIV.—MISCELLANEOUS AND GENERAL LABOUR—Continued.						
Fuel Distribution (Firewood).	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Carters (One Horse) ...	59 0	2 ^s 55 0	1 ^s 55 0	48 0	54 0	1 ^s 47 0
„ (Two Horses) ...	64 0	2 ^s 60 0	1 ^s 60 0	50 0	54 0	1 ^s 52 0
Other Adults ...	*59 0	1 ^s 52 0	1 ^s 40 0*	49 0	...	...
Sawyers ...	*59 0	60 0	48 0	57 6	...	*60 0
Yardmen ...	59 0	1 ^s 52 0	1 ^s 40 0*	48 0	...	*51 0
			to 60 0			
Lamp Lighting.						
Lamp Lighters ...	2 ^s 63 0	...	1 ^s 48 9 & 52 0	...	55 0	...
Marine Stores.						
Bottle Washers ...	54 0	54 0	...	57 0	60 0	...
Foremen ...	*59 0	60 0	...	63 0	...	...
General Hands ...	54 0	50 0	...	57 0	60 0	...
Municipal.						
Labourers... ..	62 0 & 64 0	*57 0	55 6	*54 0	60 0	*51 0
Street Sweepers ...	57 0	*57 0	55 6	*54 0	60 0	*51 0
Musicians.						
Orchestral ...	160 0 & 80 0	160 0	160 0 to 66 0	*160 0	160 0	*160 0
Shop and Other Assistants.						
Boot Salesmen ...	54 0 to 62 6	46 0 to 60 0	1 ^s 40 0 to 60 0	1 ^s 57 6	57 6	1 ^s 40 0* to 60 0
Chemists' Assistants ...	70 0	...	2 ^s 40 0 to 70 8	...	...	...
Clerks ...	55 6 & 58 6	52 0 & 56 0	1 ^s 40 0 to 60 ^s 1 ^s 0	...	...	...
CLOTHING (MEN'S).						
Collectors, Doormen, and Travellers ...	54 0 to 62 6	60 0	...	...	...	...
Departmental Managers ...	1 ^s 765 0	60 0	...	...	...	...
Parcels Officemen ...	...	1 ^s 745 0	...	...	...	...
Salesmen ...	54 0 to 62 6	1 ^s 742 6 to 60 0	1 ^s 44 0 to 60 0	1 ^s 57 6	57 6	1 ^s 40 0* to 60 0
Confectionery Salesmen ...	2 ^s 52 6	...	1 ^s 40 0 to 60 0	...	57 6	...
Drapery Salesmen ...	54 0 to 62 6	60 0 to 65 0	1 ^s 44 0 to 60 0	1 ^s 57 6	57 6	1 ^s 40 0 to 70 0
Fruit Salesmen ...	2 ^s 52 6	...	1 ^s 40 0 to 60 0	...	...	...
Furniture Salesmen ...	54 0 to 62 6	60 0	1 ^s 44 0 to 60 0	1 ^s 60 0*	62 6	1 ^s 40 0* to 70 0
Grocery Salesmen ...	55 6 to 61 0	1 ^s 755 0 to 60 0	1 ^s 44 0 to 60 0	1 ^s 55 0*	57 6	52 0
Newsagents' Assistants ...	2 ^s 48 0 to 57 6	...	1 ^s 44 0 to 60 0	...	...	...
Railway Bookstall Assistants ...	2 ^s 48 0 to 57 6	...	1 ^s 44 0 to 60 0	...	...	...
Tobacconists' Salesmen ...	56 0	...	1 ^s 44 0 to 60 0	...	...	...

WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
GROUP XIV.—MISCELLANEOUS AND GENERAL LABOUR—Continued.						
Shop & Other Assistants (cont.)						
HARDWARE.						
Managers (Branch) ...	s. d. 1775 0	s. d. 1780 0	s. d. ...	s. d. 17100 0	s. d. ...	s. d. ...
„ (Departmental) ...	1765 0	1780 0	...	1785 0	...	1590 0
		& 90 0		& 90 0		
Salesmen (Junior) ...	1735 0	1740 0	...	1742 6	...	1540 0
	to 50 0	to 55 0		to 57 6		to 55 0
„ (Outside) ...	...	1770 0	14 40 0	to 1750 0	...	...
			to 60 0	to 1750 0		
„ (Senior) ...	1754 0	1760 0	60 0	1760 0	62 6	1560 0
	to 62 6		& 63 0			
Storemen—Packing, Cleaning, etc.						
Night Watchmen ...	255 0	3757 0	3742 0	2856 0	56 0	3740 0*
						& 45 0
Office Cleaners, ...	53 6	1742 0	...	...	...	...
Packers (General) ...	1856 0	56 6	1255 0	1750 0	57 6	48 0
	to 60 0					
Storemen (General) ...	1854 6	56 6	1255 0	1750 0	57 6	48 0
	to 60 0					
WHOLESALE GROCERY.						
Packers (Head) ...	59 6	60 0	1259 0	1755 0	*60 0	57 6
	to 81 0	to 75 0	to 84 0			
„ (Other) ...	56 0	55 0	1255 0	55 0	57 6	*50 0
Storemen (Head) ...	59 0	65 0	1259 0	1755 0	*70 0	*57 6
	to 81 0	to 85 0	to 84 0			
„ (Other) ...	54 6	62 6	1255 0	55 0	57 6	*50 0
WHOLESALE HARDWARE.						
Packers ...	1360 0	1747 6	1440 0	50 0	57 6	1545 0
			to 55 0			to 55 0
Storemen ...	1358 6	1747 6	1440 0	50 0	57 6	1545 0
	to 60 0		to 55 0			to 55 0
Surveying.						
Surveyors (Cooks for 7 days)	51 0	...	...	...	63 0	...
					& 70 0	
„ (Foremen) ...	57 0	...	...	...	72 0	...
„ (Labourers) ...	51 0	...	...	...	60 0	...

MINIMUM RATES OF WAGE FOR ADULT FEMALE WORKERS IN THE MAIN OCCUPATIONS IN THE CAPITAL TOWN OF EACH STATE FOR A FULL WEEK'S WORK, AT 31st DECEMBER, 1916.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
GROUP III.—FOOD, DRINK, TOBACCO, ETC.						
Biscuitmaking ...	s. d. 23 0	s. d. 25 0	s. d. *25 0	s. d. ...	s. d. ...	s. d. ...
			to 30 0			
Buttermaking ...	...	30 0	...	...	...	...
Cheesemaking ...	...	30 0	...	...	...	...
Confectionery—Chocolate Dippers	24 0	22 0	22 0	22 0	20 0	...
					to 22 6	
„ Other Adults ...	20 0	20 0	20 0	21 0	20 0	...
	to 24 0				to 22 6	
Jam Making and Preserving—						
Fillers ...	25 0	31 6	*17 6	25 0	...	27 0
	& 33 0					
Other Adults ...	23 0	25 0	*17 6	25 0	...	22 6

See also explanatory notes on page 1070.

WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
GROUP III.—FOOD, DRINK, TOBACCO, ETC.—Continued.						
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Pastrycooks	22 0	25 0	20 0	...	...	...
	to 43 0					
Tea Packing—Headwomen ...	*27 6	31 6	...	...	...	...
	to 30 0					
" Other Adults ...	*24 0	25 6	...	...	...	...
Tobacco Working (Cigars)—						
Ringers	25 0	24 0	...	...	...	...
Wrapper Leaf Strippers...	25 0	25 0	...	...	...	..
GROUP IV.—CLOTHING, HATS, BOOTS, ETC.						
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Bootmaking—						
Machinists (Wax Thread) ...	38 6	38 6	31 0	33 0	...	35 0
Other Adults	31 0	31 0	31 0	30 0	31 0	28 0
Dressmakers	*20 0	21 6	*20 0	16 0	*25 0	12 25 0*
	to 25 0		to 25 0		to 30 0	to 30 0
Dyers and Cleaners	*30 0	25 0	...	...	...	...
Hatmaking (Straw)—Finishers	10 25 0	*25 0	...	...	...	...
Machinists	10 30 0	*30 0	...	...	...	...
Milliners "	*25 0	25 0	*25 0	*20 0	*25 0	8*25 0
					to 30 0	
Shirtmakers	30 0	27 6	*20 0	16 0	...	...
Tailoring (Order)—†						
Machinists (Coat Hands) ...	28 6	30 6	26 0	25 6	40 0	*25 0
						to 47 6
" (Trouser, Vest Hands)	24 0	30 6	26 0	25 6	40 0	25 0
						to 47 6
Tailoresses (Coat Hands) ...	30 0	32 6	26 0	26 0	45 0	32 6
	& 35 0					to 39 6
" (Trouser, Vest Hands)	25 0	30 6	23 6	24 0	35 0	30 6
	& 29 0					
Tailoring (Ready Made)—						
Machinists (Coat Hands) ...	25 0	29 6	24 0	22 6	40 0	5 ^b 25 0
" (Trouser, Vest Hands)	23 0	29 6	21 6	22 6	40 0	5 ^b 25 0
Tailoresses (Coat Hands) ...	25 0	29 6	21 0	22 6	45 0	5 ^b 25 0
" (Trouser, Vest Hands)	23 0	28 0	21 0	20 0	35 0	5 ^b 23 6
Textile Working (Woollen Mills)						
Comb Minders	31 0	22 6	*15 0	20 0	...	22 6
				to 22 6*		
Drawers and Menders ...	35 0	22 6	*22 0	20 0	...	22 6
	& 40 0			to 22 6*		
Gillbox Minders	31 0	22 6	*17 6	20 0	...	22 6
				to 22 6*		
Other Adults	31 0	22 6	...	*22 0	...	22 6
Warpers	35 0	30 0	20 0	25 0	...	22 6
	& 40 0		to 25 0*	to 30 0*		
Weavers, Loom	40 0	30 0	25 0	22 0	...	22 6
Tiemaking—						
Machinists	*22 6	20 0	...	...	...	...
		& 22 6				
Needlewomen	*25 0	22 6	...	...	...	...
		& 25 0				
Pressers, Boxers and others ...	*20 0	20 0	...	...	...	...
Underclothing	*20 0	20 0	*20 0	16 0	*25 0	*6 20 0
	to 25 0					

† The higher rates quoted in Tasmania are for treadle machinists.
on page 1070.

See also explanatory notes

WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
GROUPS I., II., V. AND VI.—PRINTING AND OTHER MANUFACTURES.						
Waterproof Clothing—						
Garmentmakers, ...	s. d. *20 0	s. d. { 27 6	s. d. ...	s. d. ...	s. d. ...	s. d. ...
Needlewomen	to 30 0	{ 22 6	...	...	...	...
Bedding and Furniture—						
Bedding Machinists	... 30 0	30 0	⁶ 27 6	28 6	...	32 0
Mattress (Wire) Workers	... 36 0	36 0	...	25 6	...	32 0
Picture Frame Workers	... ⁶ 30 0	⁶ 26 0	...	...	...	...
Bookbinding†—Folders	... ⁶ 28 0c	28 6	25 0	22 0	25 0	...
„ Sewers	... ⁶ 30 0c	31 0	25 0	22 0	30 0*	25 0*
„	& 35 0			& 26 0		
Brassworking—Coremakers	... 37 0	30 0	...	...	...	...
„ Other Adults	... 20 0	20 0	...	...	...	...
„		to 25 0				
Brushmaking—						
Bass Broom Drawers	...	...	...	21 0	...	...
Bench Drawers	...	21 0	...	21 0	...	...
Machinists (Treadle Knot)	...	21 0	...	21 0	...	...
Candlemaking—Forewomen	... 30 0	32 6	21 6	32 6	...	...
Cardboard Box Making—						
Box Makers	... *27 6	28 0	...	20 0	...	...
„		& 32 6		to 25 0*		
Other Adults	... 20 0	26 0	...	20 0	...	...
„	to 22 6*			to 22 6*		
Jewellers—						
Chainmakers	... 36 0	35 0	...	35 0	...	...
„	to 40 0					
Enamel Fillers	... 20 0	...	...	35 0	...	...
„	to 30 0					
Gilders	... 36 0	45 0	25 0*	35 0	...	...
Polishers	... 36 0	45 0	...	35 0	...	...
Scratch Brushers	... 35 0	35 0	...	35 0	...	...
Workers, n.e.i.	... 40 0	55 0	...	35 0	...	...
Leather Small Goods—						
Hand Stitchers	... 30 0	30 0	...	...	...	...
Other Adults	... 30 0	30 0	...	...	...	...
Paper Makers	... 22 6	24 0	...	...	...	...
Paper Bag Makers	... 22 6	25 0	...	...	...	...
„		& 28 0				
Polish Makers	... 32 6	...	...	32 6	...	...
Pottery—Adults	... 20 0	25 0	...	...	...	...
Printing—†						
Jobbing Office Assistants	... ⁶ 26 0c	28 6	25 0	25 0	...	...
Lithographic Feeders	... ⁶ 28 0c	28 6	25 0	25 0	...	...
Rubber Workers	... 28 0	30 0	...	...	...	...
Saddlery and Harness Makers	... 30 0	30 0	30 0	30 0	30 0	30 0
Sail Makers	... 30 0	29 0	⁶ 20 0	...	...	...
„			to 28 6*			
Soap Makers	... 21 0	32 6	...	32 6	...	...
Tent and Tarpaulin Making—						
Machinists	... ¹² 27 6	29 0	¹³ 21 0*	...	...	...
„	to 32 6		to 30 0			

† Brisbane rates from 29th January, 1917. See also explanatory notes on page 1070.

WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
GROUP XIII.—DOMESTIC, HOTELS, ETC.						
NOTE.—Except where otherwise specified the rates of wage mentioned herein for Employees in Hotels and Restaurants represent the weekly cash payment where Board and Lodging are provided. If Board and Lodging are not provided, payment has to be made in lieu thereof, upon an estimated value, fixed by Industrial Tribunals for the Capital Towns as follows: Sydney, 15s.; Melbourne, 14s.; Brisbane, 15s.; Adelaide, 15s.; Perth, 22s.; and Hobart, 15s. per week. Of this sum 10s. per week is allocated as value of Board in each instance.						
Hotels—	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Barmaids	17 26 0	17 26 0	27 25 0	25 55 0*	25 65 0†	31 20 0 & 25 0
Housemaids	3 14 0	2 16 0	3 15 0	2 18 6 & 20 0	1 20 0	3 12 0 & 15 0
Laundresses	3 20 0	2 21 0	20 0	*30 0	...	...
Waitresses (Head) ...	2 20 0	2 16 0	...	2 20 0 & 25 0	...	3 120 0 & 25 0
„ (Other)	2 17 6	2 15 0	2 15 0	2 18 6 & 20 0	1 22 6	3 15 0 & 20 0
Laundries—						
General Hands	21 0	*24 0	*20 0	20 0	36 0	*24 0
Machinists (Shirt and Collar)	25 0	28 0	*21 0	20 0	42 0	*24 0
Sorters	25 0	*25 0	20 0	22 0	36 0	*24 0
			to 25 0*			
Starchers	25 0	*24 0	*20 0	20 0	36 0	*24 0
Washers	25 0	*24 0	24 0	20 0	36 0	*24 0
			to 36 0*			
Office Cleaners	3 21 0	2 22 6	...	1 20 0*	...	...
Restaurants—Pantry Maids	3 18 0 & 21 0	3 15 0	2 16 0	22 6	1 20 0	3 15 0
„ Waitresses	3 17 6 to 24 0	3 15 0	2 16 0	20 0 & 25 0	1 22 6	3 15 0

GROUP XIV.—SHOP ASSISTANTS, CLERKS, ETC.

	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Clerks, etc.—						
Cashiers	25 0 to 34 0	32 0	22 6 to 35 0	...	...	...
Clerical Assistants ...	25 0 to 34 0	36 0	22 6 to 35 0	...	...	...
Saleswomen—						
Boot	17 25 0 to 36 0	27 6 to 35 0	22 6 to 35 0	17 22 6* to 27 6	34 6	...
Drapery	17 25 0 to 36 0	32 0	22 6 to 35 0	17 22 6 to 27 6	34 6	...
Fruit and Confectionery	2 20 0	...	22 6 to 35 0	...	34 6	...
News Agent and Bookstall	2 25 0 & 32 6	...	22 6 to 35 0	...	...	...
Tobacconist	2 37 6	...	22 6 to 35 0	...	...	...

† Not in addition to Board and Lodging. † Brisbane rates from 29th January, 1917.
See also explanatory notes on page 1070.

§ 6. Industrial Disputes.

1. **General.**—Information with regard to the collection of particulars and methods of tabulation of industrial disputes has appeared in previous issues of the Year Book, and is also given in the Annual Reports of the Labour and Industrial Branch of this Bureau.

In the following tabulations particulars are included only with respect to the industrial disputes which commenced during any calendar year.† This course requires the elimination of such data as relate to disputes which commenced during an earlier

† Any tabulations as to causes, duration, etc., based on disputes which were in existence in any given year, and not on those which commenced in that year, would inevitably result in confusion, seeing that particulars relating to the same dispute would probably occur in two successive years

period, but which remained unsettled during some portion of the succeeding year. On the other hand it necessitates the inclusion of the number of working days and wages lost during the following year in connection with disputes commenced during the calendar year to which the statistics relate.

2. **Comparative Summary of Disputes in 1913 to 1916.**—The systematic collection of information as to industrial disputes throughout the Commonwealth was first undertaken as from the 1st January, 1913, and particulars concerning disputes occurring during the year 1913 were published in Labour Report No. 5. The following table gives particulars of the number of industrial disputes which began in the years 1913, 1914, 1915, and 1916 respectively, together with the number of workpeople involved, the number of working days lost, and the total estimated loss in wages in each State and Territory comprising the Commonwealth:—

INDUSTRIAL DISPUTES IN EACH STATE AND TERRITORY.—COMPARATIVE PARTICULARS FOR 1913 to 1916.

State or Territory.	Year.	No. of Disputes.	Establishments Involved in Disputes.	No. of Workpeople Involved.			No. of Working Days Lost.	Total Estimated Loss in Wages.
				Directly.	Indirectly.	Total.		
N. S. Wales	1913	134	466	25,647	14,364	40,011	468,957	216,368
	1914	235	908	33,955	22,326	56,281	836,948	419,656
	1915	272	694	47,006	22,608	69,614	464,343	240,322
	1916	336	717	91,762	31,638	123,400	1,145,222	674,064
Victoria	1913	29	63	4,151	2,026	6,177	85,212	35,744
	1914	44	164	5,699	1,352	7,051	84,106	39,619
	1915	33	154	5,434	809	6,243	64,873	28,476
	1916	55	449	13,576	2,092	15,668	223,269	114,683
Queensland	1913	17	20	1,781	225	2,006	55,288	28,374
	1914	18	42	1,280	406	1,686	25,703	11,747
	1915	17	39	1,477	589	2,066	19,934	9,505
	1916	64	252	17,367	2,951	20,318	170,690	96,976
South Australia	1913	9	13	272	16	288	2,412	1,029
	1914	13	45	616	575	1,191	15,275	7,677
	1915	15	25	1,314	169	1,483	19,877	14,442
	1916	21	45	1,037	605	1,643	10,583	6,004
W. Australia	1913	9	324	967	...	967	6,772	3,515
	1914	18	19	1,117	3,292	4,409	124,175	70,552
	1915	6	20	578	68	646	4,068	2,294
	1916	24	35	4,318	4,782	9,100	102,357	64,325
Tasmania	1913	8	30	444	20	464	987	434
	1914	6	22	288	25	313	3,286	1,459
	1915	2	2	922	...	922	4,308	2,174
	1916	6	36	366	63	434	21,389	11,207
Fed. Cap. Terr.	1913	1	1	100	100	200	1,400	600
	1914	1	1	50	...	50	350	170
	1915	1	1	20	...	20	80	55
	1916	...	...	...	...	...	...	...
Nth. Territory	1913	1	4	131	39	170	2,500	1,675
	1914	2	2	68	...	68	552	348
	1915	7	7	254	44	298	5,237	2,365
	1916	2	2	120	...	120	420	345
Commonwealth	19	208	921	33,493	16,790	50,283	623,528	287,739
	1914	337	1,203	43,073	27,976	71,049	1,090,395	551,228
	1915	358	942	57,005	24,287	81,292	583,225	299,633
	1916	508	1,536	128,546	43,137	170,683	1,678,990	967,604

† These figures do not include establishments affected by the anti-conscription stop-work meetings, as definite particulars as to the number of establishments were not ascertainable.

During the year 1914 a very protracted dispute occurred in the Northern Colliery area in New South Wales. The employees demanded the abolition of the afternoon shift, which involved 2930 workers in a loss of 522,967 working days, and an estimated loss of £258,750 in wages. It should be observed that a complete stoppage of work at the collieries did not occur, but the refusal of the miners and others to work the afternoon shift materially affected the output of coal. The presence of these abnormal figures

precludes any direct comparison of the results for the year 1914 with either the preceding or the succeeding year.

In November, 1916, employees in the coal-mining industry in New South Wales, Victoria, Queensland and Tasmania, were again involved in a dispute which was responsible for approximately 24 per cent. of the total loss in working days caused by disputes commenced during that year.

It may be seen, however, from the foregoing table that industrial disputes throughout the Commonwealth were more frequent during 1916 than during any of the three preceding years. In point of magnitude, *i.e.*, average number of persons involved in each dispute, the disputes which occurred during the year 1914 averaged 211 persons involved, whereas those which occurred during 1915 and 1916 averaged 227 and 336 persons involved respectively.

The number of workpeople involved increased considerably during the year 1916, while the losses in working days and wages were considerably in excess of such losses during any previous yearly period. It must be mentioned, however, that the figures for 1914 and 1916 include particulars of abnormal disputes which occurred in the coal mining industry during these years.

The prevalence of industrial disputes in New South Wales as compared with the other States is best expressed in percentage of the aggregates recorded for all States and Territories. Thus the disputes in New South Wales represented no less than 70 per cent. in 1914, 76 per cent. in 1915 and 66 per cent. in 1916. The disputes in Victoria equalled 13, 11 and 11 per cent., and Queensland 5, 5 and 13 per cent. of the total industrial disputes in the respective years. In the remaining States and Territories the numbers form but a small proportion of the aggregate.

The position which New South Wales occupies in comparison with the other States is practically wholly due to the prevalence of disputes in connection with coal mining. Apart from these the number of disputes in all other industries, whilst still in excess of that for each of the other States, does not compare unfavourably when the number of workpeople in each State is taken into consideration.

3. Number and Magnitude of Industrial Disputes in the Commonwealth, Classified according to Industrial Groups.—Comparative Particulars for 1915 and 1916.—The following table gives particulars of disputes in the Commonwealth during the years 1915 and 1916, classified according to industrial groups. The system of classification selected is similar to that adopted in connection with labour organisations, unemployment, rates of wage, etc. (see Report No. 5, Labour and Industrial Branch, page 6).

INDUSTRIAL DISPUTES IN THE COMMONWEALTH, CLASSIFIED ACCORDING TO INDUSTRIAL GROUPS, 1915 and 1916.

Industrial Group.	No. of Disputes.		No. of Work-people involved in Disputes.		No. of Working Days Lost.		Total Estimated Loss in Wages.	
	1915.	1916.	1915.	1916.	1915.	1916.	1915.	1916.
I. Wood, Furniture, Timber, etc.	7	4	620	117	14,382	1,396	£ 7,444	£ 895
II. Engineering, Metal Wks., etc.	23	33	3,016	6,251	35,983	312,968	19,314	162,005
III. Food, Drink, etc. ...	14	26	3,756	5,123	31,312	55,416	10,881	26,951
IV. Clothing, Hats, Boots, etc. ...	2	4	565	194	8,742	1,156	2,315	391
V. Books, Printing, etc. ...	...	...	...	...	...	...	...	...
VI. Other Manufacturing ...	21	32	7,223	3,792	38,950	40,463	18,805	24,818
VII. Building ...	8	15	301	751	801	25,053	462	13,707
VIII. Mines, Quarries, etc. ...	204	240	54,315	95,512	337,757	920,105	192,948	570,278
IX. Rail and Tramway Services ...	33	40	474	214	44,982	70,865	25,871	33,934
X. Other Land Transport ...	7	5	474	214	2,453	2,563	1,130	1,241
XI. Shipping, Wharf Labour ...	14	40	2,345	4,085	13,550	29,851	6,243	15,907
XII. Pastoral, Agricultural, etc. ...	4	16	213	3,062	1,611	75,063	683	20,814
XIII. Domestic, Hotel, etc. ...	2	1	94	36	4,553	720	1,354	200
XIV. Miscellaneous ...	19	52	2,639	46,474	28,149	143,310	12,183	76,553
Commonwealth, All Groups	358	508	81,292	170,683	583,225	1,678,930	299,633	967,604

Comparison as to the frequency of industrial disputes in classified industries can only be reasonably made after omitting those which are recorded for mining, quarrying, etc. (Group VIII.). For the year 1914 the proportion of disputes in those industries represented practically 55 per cent. of the total number recorded. During the year 1915 this proportion rose to 57 per cent. and in 1916 the percentage was 47. Attention has frequently been drawn to the preponderating influence contributed in this direction by the coal-mining industry in New South Wales. In making any comparison as to the number of disputes in this industrial class in each State, it should be observed that the number of workers engaged in the mining industry is very much larger in New South Wales than in any of the other States. The number of disputes recorded are, however, in excess of a similar proportion.

4. **Industrial Disputes, Classified as to Causes and Results.**—The following table shows the number of disputes, number of workpeople involved, and the total number of working days lost in disputes which commenced in a State or Territory of the Commonwealth during the years 1914, 1915, and 1916, classified according to principal cause and result:—

INDUSTRIAL DISPUTES, CLASSIFIED ACCORDING TO CAUSES AND RESULTS.

PARTICULARS.	No. of Disputes.				No. of Workpeople involved in Disputes.				Total No. of Working Days Lost by Disputes.			
	In Favour of Workpeople.	In Favour of Employer.	In Compromise.	Indefinite.	In Favour of Workpeople.	In Favour of Employer.	In Compromise.	Indefinite.	In Favour of Workpeople.	In Favour of Employer.	In Compromise.	Indefinite.
1914.												
Wages—												
(a) For increase	21	16	13	...	3,468	1,733	2,161	...	44,602	18,674	36,175	...
(b) Against decrease	3	...	...	...	534	...	...	...	32,965	...	...	...
(c) Other wage questions ...	18	18	29	2	1,765	2,975	10,274	229	6,130	36,696	124,431	2,590
Hours of Labour—												
(a) For reduction	...	1	...	...	...	220	...	...	...	9,240	...	...
(b) Other disputes 72 hours ...	...	5	7	1	...	1,192	2,015	30	...	3,726	11,809	1,320
Trade Unionism—												
(a) Against employment of non-unionists	10	1	1	1	2,607	70	3,039	91	5,963	70	85,030	1,657
(b) Other union questions ...	5	3	3	...	676	607	310	...	1,636	1,630	3,702	...
Employment of particular classes or persons ...	34	27	19	3	6,336	6,111	2,344	72	14,349	28,966	17,518	3,534
Working conditions	20	21	31	...	4,392	4,086	8,575	...	21,376	19,141	543,772	...
Sympathy ...	...	...	...	3	...	...	...	675	...	...	...	2,125
Other causes ...	7	6	7	1	1,446	1,248	1,678	90	2,974	1,676	6,828	90
TOTAL ...	118	98	110	11	21,224	18,242	30,396	1,187	129,995	119,819	829,265	11,316

INDUSTRIAL DISPUTES, CLASSIFIED ACCORDING TO CAUSES AND
RESULTS—Continued.

PARTICULARS.	No. of Disputes.				No. of Workpeople involved in Dispute.				Total No. of Working Days Lost by Disputes.			
	In Favour of Workpeople.	In Favour of Employer.	In Compromise.	Indefinite.	In Favour of Workpeople.	In Favour of Employer.	In Compromise.	Indefinite.	In Favour of Workpeople.	In Favour of Employer.	In Compromise.	Indefinite.
1915.												
Wages—												
(a) For increase	44	15	9	5	13,879	1,452	2,238	1,224	142,321	30,283	16,613	1,428
(b) Against decrease	4	...	6	...	525	...	588	...	4,230	..	8,325	...
(c) Other wage questions	24	9	12	1	5,431	2,835	3,696	28	41,483	31,862	60,233	28
Hours of Labour—												
(a) For reduction	2	...	...	1	522	...	...	374	462	...	...	374
(b) Other disputes re hours	1	2	2	1	50	510	593	1,500	12	510	3,352	19,500
Trade Unionism—												
(a) Against employment of non-unionists	15	3	1	...	3,521	330	22	...	7,503	23,422	220	...
(b) Other union questions	8	2	6	...	1,335	301	2,103	...	1,703	325	5,406	...
Employment of particular classes of persons	39	21	13	3	6,542	3,397	2,856	1,039	16,425	24,287	32,375	4,775
Working conditions	42	16	16	2	9,667	3,968	2,359	120	24,756	34,551	22,175	840
Sympathy	2	2	...	2	259	305	...	386	3,386	1,460	...	1,158
Other causes	9	8	3	7	2,409	2,229	415	2,294	3,344	8,959	2,845	2,294
TOTAL	190	78	68	22	44,140	15,327	14,860	6,965	245,625	155,659	151,544	30,397

1916.

1916.												
Wages—												
(a) For increase	60	40	24	1	21,083	2,752	6,208	150	301,355	46,904	243,916	450
(b) Against decrease	3	2	2	...	330	314	407	...	825	3,444	1,923	...
(c) Other wage questions	50	28	16	2	13,024	6,307	3,492	684	66,855	17,899	54,310	2,184
Hours of Labour—												
(a) For reduction	8	7	1	...	14,288	5,379	4,814	...	379,587	63,859	139,606	...
(b) Other disputes re hours	2	2	1	...	60	242	277	...	182	308	1,108	...
Trade Unionism—												
(a) Against employment of non-unionists	11	2	1	...	805	330	43	...	12,398	34,290	2,193	...
(b) Other union questions	3	1	3	1	246	24	893	4	511	120	8,505	1,140
Employment of particular classes of persons	47	28	8	...	12,002	3,421	487	...	55,054	13,323	2,075	...
Working Conditions	29	39	21	1	5,769	9,551	5,186	10	30,917	35,057	15,477	60
Sympathy	2	9	1	8	1,580	1,748	240	623	33,980	27,234	2,880	11,353
Other Causes	8	20	6	10	1,401	6,602	1,249	38,658	2,346	10,646	4,309	48,347
TOTAL	233	178	84	23	70,588	36,670	23,296	40,129	886,010	253,064	476,302	63,534

In the above table it will be seen that 223 of the 508 disputes, recorded during the year 1916, were classified as terminating in favour of the workpeople involved; 178 in favour of the employers; while 84 resulted in a compromise. In New South Wales the results as between employers and employees were practically equal; in the other States, with the exception of Victoria, the greater proportion of the disputes resulted in favour of the employees. In Victoria, however, the results were in favour of the employers, 25 disputes being classified as ending in favour of the employers, as against 17 in favour of the employees.

§ 7.—Retail Prices, House Rents, and Cost of Living.

1. **Introduction.**—In Report No. 1, issued in December, 1912, the results of certain investigations into the subjects of Prices, Price-Indexes and Cost of Living in past years were published, and some account was given of the methods employed for the collection of the data and of the technique adopted in the computation of the results. An important discussion of the theory upon which the calculation of the index-numbers is based was given, but being necessarily too technical for the ordinary reader, was relegated to Appendixes. In Reports Nos. 2, 5, 6 and 7, results of further investigations were given, and in those Reports, and in Labour Bulletins Nos. 1 to 16, information was given as to variations in retail and wholesale prices, house-rent, and purchasing-power of money up to the end of 1916.

It must here suffice to state that the method adopted for the computation of the index-numbers is what may very properly be called the "aggregate expenditure" method. The first process is, of course, to work out the average price of each commodity included, and numbers (called "mass-units") representing the *relative* extent to which each commodity was on the average used or consumed are then computed. The price in any year of each commodity multiplied by its corresponding "mass-unit" represents, therefore, the relative total expenditure on that commodity in that year *on the basis of the adopted regimen*. It, follows, therefore, that by taking for any year the sum of the price of each commodity multiplied by its corresponding "mass-unit," a figure is obtained which represents the relative aggregate or total expenditure of the community in that year on all the commodities, etc., included. By computing these aggregate expenditures for a series of years and taking the expenditure in any desired year as "base," that is, making the expenditure in that year equal to 1000 units, the relative expenditure in any other year, that is to say, the "index-numbers," are readily ascertained. A numerical example of the technique and methods adopted for the computation of index-numbers was given in Report No. 2 (pp. 44 and 45).

2. **Scope of Investigation.**—It was pointed out in Report No. 1, that, in any investigation into the question of change in cost of living of a community, a careful distinction must be drawn between two things, viz:—

- (a) Variations in the *purchasing-power* of money, and
- (b) Variations in the *standard of living*.

In Report No. 2, attention was drawn to the fact that the second element (b) can be limited, at any rate to some extent, by the exercise of self denial and thrift, and that such

limitation is at the disposal of each individual; the former (a) is not subject to this possibility. Thus, from this aspect, social economics are concerned *primarily* with an accurate estimation of variations in the purchasing-power of money and only secondarily with the question of the general standard of living which has been reached. The first desideratum demands that we shall select a suitable list of commodities, the quantities of each being taken in due proportion to their relative average consumption, and, keeping this list with the quantities constant, ascertain what it costs to purchase the whole group. In this way we can compare the cost in different areas or districts at the same time, as well as the variation in any one place from time to time. This is the "aggregate expenditure" method explained above.

As explained in Report No. 1, special steps were taken to conduct the investigation back as far as 1901 for the capital towns only. The collection of current monthly returns as to prices and of quarterly returns of house rents commenced in thirty of the more important towns of the Commonwealth in January, 1912.

3. Commodities and Requirements Included.—The 47 items of expenditure included are divided into four groups, viz.:—(i.) groceries and bread, (ii.) dairy produce, (iii.) meat, and (iv.) house rent. These items cover about 60 per cent. of the total expenditure of a normal family. There are very cogent reasons for the restriction of the enquiries to the items mentioned. If the comparisons made are to be satisfactory, no confusion must arise between changes in the standard of living and changes arising from a variation of the purchasing-power of money. In order to avoid such confusion the items selected are such as are sensibly identical and identifiable in the various localities. The most important group of expenditure which is not included is clothing, the cost of which amounts to about 13 per cent. of the total expenditure. Owing to influences of individual taste, fashion, and the enormous variety of production, articles included in this group are practically not comparable and identifiable. As regards fuel and light, the cost of which amounts to about 4 per cent. of the total expenditure, while these commodities are comparable and identifiable, the usage or relative consumption in the towns included in the inquiries varies to such an extent that their inclusion on an assumed constant regimen would tend to produce a fictitious result in so far as variations in the purchasing-power of money are concerned.

In Report No. 7 (page 356), a tabular statement was given furnishing particulars of the commodities and items included, the units of measurement for which prices are collected, and the mass-units shewing the relative extent to which each item is used or consumed.

4. Variations in the Purchasing-Power of Money in each Metropolitan Town, 1901 to 1916.—In Reports Nos. 1, 2, 5, 6 and 7, and Labour Bulletins Nos. 1 to 16, index-numbers were given for each of the four groups, and for all groups combined, for each capital town since 1901, the expenditure in 1911 being taken in each case as base (=1000). In this section only summarised results are given. Firstly, for food and groceries; secondly, for house rent; and thirdly, for all groups combined—the weighted average expenditure for all capital towns in 1911 being taken in each case as base (=1000). The index-numbers in each table are fully comparable with each other, that is to say, they shew not only the variations from year to year in each capital town, but also the relative cost as between the towns.

(i.) *Food and Groceries.* The index-numbers thus computed for the three groups comprising groceries and food are shewn in the following table:—

**RETAIL PRICES IN METROPOLITAN TOWNS.—INDEX-NUMBERS FOR GROCERIES
AND FOOD (GROUPS I., II. AND III.), 1901 and 1905 to 1916.**

Town.	1901.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.
Sydney ...	917	972	964	936	1,030	1,012	1,000	989	1,124	1,131	1,156	1,396	1,520
Melbourne ...	965	952	945	925	995	949	960	935	1,082	1,024	1,091	1,411	1,462
Brisbane ...	965	945	959	947	1,023	983	1,000	1,018	1,102	1,042	1,073	1,373	1,426
Adelaide ...	1,028	993	982	951	1,010	1,025	1,001	1,020	1,154	1,119	1,215	1,487	1,532
Perth ...	1,184	1,258	1,237	1,197	1,226	1,212	1,251	1,346	1,345	1,267	1,302	1,483	1,542
Hobart ...	1,011	1,030	1,047	1,010	1,055	1,093	1,073	1,058	1,190	1,164	1,212	1,445	1,523
Weighted Average*	972	986	980	955	1,031	1,006	1,005	1,000	1,129	1,095	1,144	1,416	1,495

* For all capital towns.

The above figures are directly comparable in every respect; thus it will be seen that the same quantity of food and groceries, which cost £1000 in the capital towns considered as a whole in 1911, would have cost £917 in Sydney in 1901, £1346 in Perth in 1911, or £1462 in Melbourne in 1916.

(ii.) *House Rent.*—In the following table, index-numbers are given computed for the weighted average house rent in each of the capital towns from 1901 to 1916, taking the average rent for the six capital towns in 1911 as the base (= 1000). The average rent has been obtained for each town separately by multiplying the average predominant rent for each class of house (*i.e.*, houses having less than 4 rooms, 4 rooms, 5 rooms, 6 rooms, 7 rooms, and over 7 rooms) by a number ("weight") representing the relative number of houses of that class in the particular town. The sum of the products thus obtained, divided by the sum of the weights, gives the weighted average for all houses. The number of houses in each class for each town was obtained from the results of the 1911 census. It should be observed, therefore, that these index-numbers are based on the weighted average rents for all houses, and that they do not refer to any particular class of houses. The actual predominant rents for each class were given in appendixes to Reports Nos. 1, 2, 5, 6 and 7, and an examination of these figures shews that for some classes of houses the increase has been greater, and in some less, than the general increase indicated in the following table:—

**HOUSE RENTS IN METROPOLITAN TOWNS.—INDEX-NUMBERS SHEWING WEIGHTED
AVERAGE RENTS (GROUP IV.), 1901 and 1905 to 1916.**

Town.	1901.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.
Sydney ...	558	887	891	911	922	955	988	1,090	1,183	1,246	1,279	1,220	1,212
Melbourne ...	733	771	782	804	828	842	916	970	1,016	1,089	1,126	1,085	1,089
Brisbane ...	488	519	524	575	616	662	700	767	804	863	882	859	847
Adelaide ...	629	702	761	812	872	940	1,013	1,112	1,160	1,125	1,040	932	930
Perth ...	801	739	716	684	678	667	696	810	880	928	914	848	869
Hobart ...	667	681	686	708	727	749	776	805	829	887	914	928	928
Weighted Average*	751	782	793	816	839	867	919	1,000	1,063	1,118	1,135	1,081	1,081

* For all capital towns.

NOTE.—The above figures are directly comparable in every respect.

It may be seen that, except in Adelaide, where rents remained constant from 1901 to 1904, and in Perth, where they decreased from 1903 to 1909, there was a uniform increase in each metropolitan town from 1901 to 1914. The increase was greater in

Adelaide (where the average rent in 1901 was only 629, compared with 1112 in 1911, and 1125 in 1913), and in Brisbane than in the other towns. It should be observed, however, that at the commencement of the period, rents were exceptionally low in Brisbane, and were comparatively low in Adelaide (see Appendix IV. to Report No. 1). The index-numbers for Perth presents features entirely different from those for the other towns; the fall in rents commencing in 1903 and lasting until 1907, is followed, after another temporary decline in 1909, by a rapid rise. In 1914 rents fell slightly in Adelaide and Perth, but rose in the other towns. During 1915, there was a decrease in house rents in all the capital towns except Hobart, and in 1916 rents increased slightly in Melbourne and Perth, and decreased slightly in Sydney, Brisbane, and Adelaide. The index-number for Hobart was the same in 1916 as in 1915.

(iii.) *Food, Groceries, and House Rent combined.* The weighted averages for all four groups are of importance, as indicating the general results of this investigation so far as the purchasing-power of money is concerned. The following table shews the index-numbers for groceries, food, and house rent for each metropolitan town, the weighted average cost for the six capital towns in 1911 being taken as base (= 1000):—

PURCHASING-POWER OF MONEY IN METROPOLITAN TOWNS.—INDEX-NUMBERS SHEWING WEIGHTED AVERAGE RESULTS FOR ALL GROUPS (GROCERIES, DAIRY PRODUCE, MEAT, AND HOUSE RENT), 1901 and 1905 to 1916.

Town.	1901.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.
Sydney ...	893	937	934	926	986	989	995	1,031	1,148	1,178	1,206	1,323	1,394
Melbourne	870	878	878	875	926	905	942	950	1,055	1,051	1,105	1,277	1,309
Brisbane	769	770	780	794	856	851	877	915	979	969	997	1,162	1,188
Adelaide	864	873	891	894	953	990	1,008	1,058	1,157	1,121	1,143	1,259	1,285
Perth ...	1,027	1,045	1,023	986	1,001	988	1,023	1,126	1,154	1,128	1,143	1,222	1,266
Hobart ...	869	886	899	886	920	952	951	954	1,042	1,050	1,090	1,233	1,278
Weighted Average*	880	901	902	897	951	948	970	1,000	1,101	1,104	1,140	1,278	1,324

* For all capital towns.

NOTE.—The above figures are directly comparable in every respect.

Generally speaking, prices were low in 1904, high in 1902 and 1908, and rose steadily each year since 1909. The general trend of the index-numbers for Perth is different from that for the other towns, owing mainly to the decline in house rents in that place, which occurred from 1903 to 1907, and again in 1909.

The general result for all the six towns shews that the index-number was only 0.3 per cent. higher in 1913 than in 1912. The index-number for 1914 was 3.3 per cent. higher than for 1913. There was a further increase in 1915 in each of the towns, the weighted average index-number shewing an increase of 12.1 per cent. compared with 1914. There was a further increase in each of the towns in 1916, the weighted average index-number for 1916 shewing an increase of 3.6 per cent. compared with the year 1915.

5. *Relative Cost of Food, Groceries, and House Rent in Different Towns, 1916.—*The index-numbers given in the preceding paragraphs shew changes in the cost of food, groceries, and house rent separately for each capital town during the years 1901 to 1916. The figures given in the table below shew the relative cost of food, groceries, and house rent in 1916 in the thirty towns for which particulars are now being collected. The weighted aggregate expenditure for the six capital towns for the year 1911 has been taken as base and made equal to 1000, hence the columns are comparable both horizontally and vertically.

1916.—INDEX-NUMBERS, SHEWING RELATIVE COST IN EACH OF THIRTY TOWNS, OF FOOD AND GROCERIES AND HOUSE RENT (INCLUDING 4, 5, AND 6 ROOMED HOUSES, AND ALL HOUSES), COMPARED WITH WEIGHTED AVERAGE EXPENDITURE ON GROCERIES, FOOD, AND RENT IN THE SIX CAPITAL TOWNS IN 1911 AS BASE (= 1000).

Town.	Groceries and Food.	HOUSE RENT.				FOOD, GROCERIES, AND RENT, INCLUDING HOUSES HAVING—			
		4-r'm'd Houses only.	5-r'm'd Houses only.	6-r'm'd Houses only.	All Houses Weightd Average.	4 Rooms.	5 Rooms.	6 Rooms.	All Houses Weightd Average.
N. S. WALES—									
Sydney ...	895	387	472	540	499	1,282	1,367	1,435	1,394
Newcastle ...	888	244	331	412	320	1,132	1,219	1,300	1,208
Broken Hill*	1,066	194	257	306	216	1,260	1,323	1,372	1,282
Goulburn ...	902	316	407	506	448	1,218	1,309	1,408	1,350
Bathurst ...	864	211	285	378	314	1,075	1,149	1,242	1,178
Weighted Average	801	364	448	517	469	1,265	1,349	1,418	1,370
VICTORIA—									
Melbourne ...	861	316	409	506	448	1,178	1,270	1,367	1,309
Ballarat ...	864	143	204	308	262	1,007	1,068	1,172	1,126
Bendigo...	856	168	225	321	262	1,024	1,081	1,177	1,118
Geelong...	862	221	326	423	371	1,083	1,188	1,285	1,233
Warrnambool ...	863	233	305	369	322	1,096	1,168	1,232	1,185
Weighted Average	861	290	378	475	418	1,151	1,239	1,336	1,279
QUEENSLAND—									
Brisbane ...	840	225	294	378	348	1,065	1,134	1,218	1,168
Toowoomba ...	843	181	230	278	290	1,024	1,073	1,121	1,133
Rockhampton ...	901	197	253	328	315	1,098	1,154	1,229	1,216
Charters Towers	942	192	254	300	240	1,134	1,196	1,242	1,132
Warwick ...	838	148	220	277	264	986	1,058	1,115	1,102
Weighted Average	855	212	278	354	327	1,067	1,133	1,209	1,182
S. AUSTRALIA—									
Adelaide ...	902	290	381	466	385	1,192	1,283	1,366	1,285
Moonta, etc. ...	933	175	230	360	271	1,109	1,213	1,292	1,204
Port Pirie*	945	275	334	389	316	1,220	1,279	1,334	1,261
Mt. Gambier ...	864	216	274	367	301	1,080	1,138	1,231	1,165
Petersburg ...	938	237	316	369	313	1,175	1,254	1,307	1,251
Weighted Average	905	281	369	452	370	1,186	1,274	1,357	1,275
W. AUSTRALIA—									
Perth ...	909	301	370	456	357	1,210	1,279	1,365	1,266
Kalgoorlie, etc. ...	1,074	351	444	525	344	1,425	1,518	1,599	1,418
Mid. Junct., etc. ...	925	241	318	382	301	1,166	1,243	1,307	1,226
Gunbury ...	981	221	269	331	238	1,202	1,250	1,312	1,214
Geraldton ...	973	364	474	570	399	1,337	1,447	1,543	1,372
Weighted Average	947	308	383	466	350	1,255	1,330	1,413	1,297
TASMANIA—									
Hobart ...	897	301	361	437	381	1,198	1,258	1,334	1,278
Launceston ...	886	257	353	419	367	1,143	1,239	1,305	1,253
Zealan ...	973	129	164	201	122	1,102	1,137	1,174	1,095
Beaconsfield ...	949	72	85	105	85	1,021	1,034	1,054	1,034
Queenstown ...	978	236	342	375	282	1,274	1,320	1,353	1,260
Weighted Average	905	269	336	403	346	1,174	1,241	1,307	1,251
Commonwealth									
Weighted Average...	887	308	391	472	414	1,195	1,278	1,359	1,301

* See remarks on page 367 of Labour Report No. 7, with reference to House Rents.

6. Variation in Purchasing-Power of Money, 1901 to 1916.—The tables in paragraph 4 give the relative cost of food, groceries, and house rent in the six capital towns from 1901 to 1916 in the form of index-numbers. In the following tables similar information is given as regards variations in cost of food, groceries, and house rent, the base being taken as 20s. for the weighted average in the six capital towns in 1911. The figures therefore shew the sums which would have to be paid in each town and in each year in order to purchase such relative quantities (indicated by the mass-units) of the several commodities, and to pay such sums for house-rent as would in the aggregate cost £1, according to the weighted average prices and rents in the six capital towns, in 1911.

PURCHASING-POWER OF MONEY.—AMOUNT NECESSARY ON THE AVERAGE IN EACH YEAR FROM 1901 TO 1916 TO PURCHASE IN EACH CAPITAL TOWN WHAT WOULD HAVE COST ON THE AVERAGE £1 IN 1911 IN THE AUSTRALIAN CAPITALS REGARDED AS A WHOLE.

Year.	Sydney.		Melb'ne.		Brisbane.		Adelaide.		Perth.		Hobart.		Weighted Average of 6 Capital Towns	
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
1901	17	10	17	5	15	5	17	3	20	6	17	5	17	7
1902	19	7	18	1	16	0	17	3	21	7	17	10	18	7
1903	19	2	17	7	15	9	16	9	21	8	17	11	18	2
1904	17	5	17	1	14	8	16	3	20	10	17	1	17	2
1905	18	9	17	7	15	5	17	6	20	11	17	9	18	0
1906	18	8	17	7	15	7	17	10	20	5	18	0	18	0
1907	18	6	17	6	15	11	17	11	19	9	17	9	17	11
1908	19	9	18	6	17	1	19	1	20	0	18	5	19	0
1909	19	9	18	1	17	0	19	10	19	9	19	0	19	0
1910	19	11	18	10	17	6	20	2	20	6	19	0	19	5
1911	20	7	19	0	18	4	21	2	22	6	19	1	20	0*
1912	22	11	21	1	19	7	23	2	23	1	20	10	22	0
1913	23	7	21	0	19	5	22	5	22	6	21	1	22	1
1914	24	1	22	1	19	11	22	10	22	10	21	10	22	10
1915	26	6	25	6	23	3	25	2	24	5	24	8	25	7
1916	27	10	26	2	23	9	25	8	25	4	25	7	26	6
1916 { 1st Quarter	28	4	26	9	25	2	25	11	24	10	26	4	27	0
1916 { 2nd "	27	10	26	5	24	1	26	2	25	7	25	11	26	8
1916 { 3rd "	27	9	26	0	22	11	25	7	25	9	25	2	26	4
1916 { 4th "	27	6	25	7	22	10	25	2	25	1	24	10	26	0

* Basis of Table.

(i.) *Groceries and Food only.* The following table has been computed in the same manner as that indicated above, but relates to *groceries and food* (46 items) only. The average expenditure for the six capital towns in 1911 has again been taken as the basis of the table (= 20 shillings) and the figures are, of course, comparable throughout.

PURCHASING-POWER OF MONEY.—GROCERIES AND FOOD ONLY.—AMOUNT NECESSARY ON THE AVERAGE IN EACH YEAR FROM 1901 TO 1916 TO PURCHASE IN EACH CAPITAL TOWN WHAT WOULD HAVE COST ON THE AVERAGE £1 IN 1911 IN THE AUSTRALIAN CAPITALS REGARDED AS A WHOLE.

Year.	Sydney.		Melb'ne.		Brisbane.		Adelaide.		Perth.		Hobart.		Weighted Average of 6 Capital Towns.	
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
1901	18	4	19	4	19	4	20	7	23	8	20	3	19	4
1902	21	4	20	4	20	4	20	6	25	6	21	0	21	1
1903	20	7	19	6	19	9	19	8	25	8	21	1	20	4
1904	17	6	18	4	17	10	18	10	24	3	19	8	18	5
1905	19	5	19	1	18	11	19	10	25	2	20	7	19	8
1906	19	3	18	11	19	2	19	8	24	9	20	11	19	7
1907	18	9	18	6	18	11	19	0	23	11	20	2	19	1
1908	20	7	19	11	20	6	20	2	24	6	21	1	20	7
1909	20	3	19	0	19	8	20	6	24	3	21	10	20	1
1910	20	0	19	2	20	0	20	0	25	0	21	6	20	1
1911	19	9	18	8	20	4	20	5	26	11	21	2	20	0*
1912	22	6	21	8	22	0	23	1	26	11	23	10	22	1
1913	22	8	20	6	20	10	22	5	25	4	23	3	22	11
1914	23	1	21	10	21	7	24	4	26	0	24	3	22	11
1915	27	11	28	3	27	6	29	9	29	8	28	11	28	4
1916	30	5	29	3	28	6	30	8	30	10	30	5	29	11
1916 { 1st Quarter	31	4	30	2	31	0	31	0	30	1	31	10	30	10
1916 { 2nd "	30	4	29	8	29	1	31	6	31	3	31	1	30	2
1916 { 3rd "	30	2	29	0	27	1	30	5	31	7	29	9	29	7
1916 { 4th "	29	8	28	2	26	10	29	8	30	5	29	1	28	11

* Basis of Table.

(ii.) *House Rent only.* The following table gives similar particulars for *house rent only*, the average for the six capital towns in 1911 being again taken as the basis of the table (= 20 shillings).

PURCHASING-POWER OF MONEY.—HOUSE RENT.—AMOUNT PAYABLE ON THE AVERAGE IN EACH YEAR FROM 1901 TO 1916 FOR HOUSE RENT IN EACH CAPITAL TOWN, COMPARED WITH A RENT OF £1 IN 1911 IN THE AUSTRALIAN CAPITALS REGARDED AS A WHOLE.

Year.	Sydney.	Melb'ne.	Brisbane.	Adelaide.	Perth.	Hobart.	Weighted Average of 6 Capital Towns.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
1901	17 3	14 8	9 9	12 7	16 0	13 4	15 1
1902	17 3	14 11	9 10	12 7	15 11	13 5	15 2
1903	17 4	14 11	10 1	12 7	16 0	13 6	15 3
1904	17 5	15 3	10 2	12 7	16 0	13 6	15 4
1905	17 10	15 5	10 5	14 0	14 9	13 7	15 8
1906	17 11	15 8	10 6	15 3	14 4	13 9	15 11
1907	18 4	16 1	11 6	16 3	13 8	14 2	16 4
1908	18 7	16 7	12 4	17 5	13 7	14 7	16 10
1909	19 2	16 10	13 3	18 10	13 4	15 0	17 5
1910	19 10	18 4	14 0	20 4	13 11	15 6	18 5
1911	21 10	19 5	15 4	22 3	16 3	16 1	20 0*
1912	23 8	20 4	16 1	23 2	17 7	16 7	21 3
1913	24 11	21 10	17 3	22 6	18 7	17 10	22 4
1914	25 7	22 6	17 8	20 10	18 3	18 3	22 8
1915	24 5	21 8	17 2	18 8	17 0	18 7	21 7
1916	24 3	21 9	17 0	18 7	17 4	18 7	21 7
1916 { 1st Quarter	24 2	21 9	16 10	18 7	17 5	18 5	21 6
2nd " "	24 3	21 8	16 11	18 7	17 5	18 6	21 7
3rd " "	24 3	21 9	17 0	18 7	17 4	18 7	21 7
4th " "	24 3	21 11	17 2	18 8	17 4	18 10	21 8

* Basis of Table.

7. Monthly Fluctuations in Retail Prices of Food and Groceries, July, 1914, to July, 1917.—The following table has been prepared in order to shew the variations in retail prices of food and groceries since July, 1914, the last month prior to the outbreak of war. Particulars for each town are given in the form of index-numbers for food and groceries in each of the months specified. In the last column the percentage increase or decrease is shewn for each town in July, 1917, compared with July, 1914.

The aggregate result for the thirty towns covered by the investigations shews that prices were 26.3 per cent. higher in July, 1917, than in July, 1914.

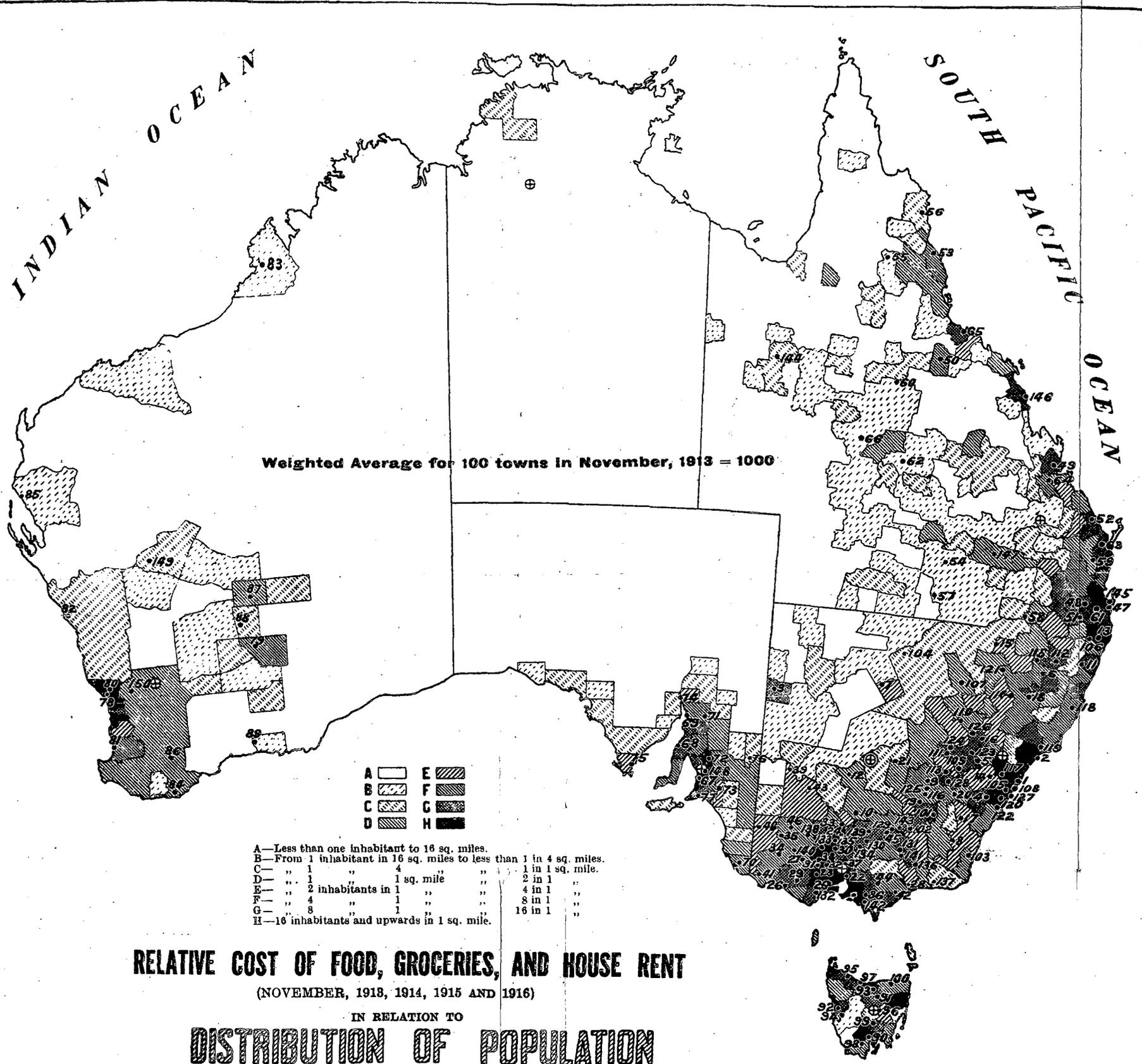
RETAIL PRICES INDEX-NUMBERS (FOOD AND GROCERIES) FOR EACH OF THIRTY TOWNS FOR THE MONTHS SPECIFIED, WITH WEIGHTED AVERAGE FOR SIX CAPITAL TOWNS IN 1911 AS BASE (= 1000).†

Particulars.	1914.		1916.				1917.				Per cent. increase from July, 1914, to July, 1917
	July.	April.	May.	June.	July.	April.	May.	June.	July.		
NEW SOUTH WALES—										%	
Sydney	1,153	1,512	1,509	1,512	1,526	1,513	1,499	1,507	1,510	31.0	
Newcastle	1,147	1,493	1,507	1,489	1,516	1,527	1,527	1,529	1,535	33.8	
Broken Hill	1,468	1,820	1,817	1,844	1,838	1,806	1,814	1,807	1,780	21.3	
Goulburn	1,183	1,543	1,550	1,542	1,549	1,507	1,476	1,458	1,440	21.7	
Bathurst	1,097	1,474	1,479	1,483	1,482	1,461	1,473	1,480	1,481	35.0	
*Weighted Average	1,165	1,523	1,522	1,524	1,538	1,525	1,514	1,520	1,522	30.6	
VICTORIA—											
Melbourne	1,106	1,484	1,485	1,479	1,483	1,410	1,409	1,418	1,426	28.9	
Ballarat	1,103	1,496	1,506	1,501	1,482	1,401	1,406	1,403	1,398	28.7	
Bendigo	1,107	1,475	1,482	1,480	1,431	1,403	1,432	1,440	1,438	29.9	
Geelong	1,089	1,500	1,514	1,506	1,497	1,446	1,432	1,434	1,428	31.1	
Warrnambool	1,087	1,475	1,493	1,484	1,484	1,431	1,436	1,438	1,437	32.2	
*Weighted Average	1,105	1,485	1,488	1,482	1,481	1,411	1,412	1,419	1,425	29.0	
QUEENSLAND—											
Brisbane	1,057	1,486	1,491	1,391	1,362	1,364	1,375	1,380	1,389	31.4	
Toowoomba	1,041	1,506	1,457	1,397	1,397	1,323	1,360	1,372	1,383	32.9	
Rockhampton	1,156	1,642	1,613	1,485	1,468	1,400	1,404	1,424	1,420	22.8	
Charters Towers	1,246	1,650	1,644	1,640	1,557	1,573	1,582	1,555	1,583	27.0	
Warwick	1,083	1,467	1,462	1,392	1,391	1,348	1,369	1,406	1,400	29.3	
*Weighted Average	1,082	1,517	1,512	1,422	1,393	1,381	1,394	1,399	1,408	30.1	
SOUTH AUSTRALIA—											
Adelaide	1,250	1,549	1,584	1,590	1,551	1,485	1,480	1,441	1,399	11.9	
Kadina, Moonta, Wallaroo	1,230	1,592	1,612	1,627	1,614	1,570	1,573	1,571	1,524	23.9	
Pert Pirie	1,291	1,640	1,643	1,645	1,596	1,600	1,603	1,613	1,565	21.2	
Mt. Gambier	1,064	1,532	1,504	1,500	1,512	1,458	1,445	1,441	1,418	33.3	
Petersburg	1,340	1,621	1,622	1,647	1,619	1,573	1,584	1,602	1,537	14.7	
*Weighted Average	1,247	1,557	1,586	1,593	1,556	1,495	1,491	1,458	1,416	13.6	
WESTERN AUSTRALIA—											
Perth	1,340	1,513	1,550	1,630	1,614	1,535	1,586	1,543	1,510	12.7	
Kalgoorlie and Boulder	1,664	1,792	1,814	1,867	1,878	1,740	1,799	1,802	1,794	7.8	
Mid. Junction & Guildford	1,354	1,523	1,534	1,608	1,656	1,552	1,598	1,566	1,512	11.7	
Bunbury	1,418	1,630	1,608	1,723	1,729	1,677	1,753	1,745	1,727	21.8	
Geraldton	1,445	1,663	1,675	1,691	1,694	1,621	1,630	1,642	1,622	12.2	
*Weighted Average	1,412	1,578	1,608	1,682	1,675	1,584	1,636	1,605	1,577	11.6	
TASMANIA—											
Hobart	1,211	1,588	1,551	1,525	1,512	1,476	1,471	1,497	1,500	23.9	
Launceston	1,144	1,564	1,538	1,514	1,501	1,485	1,478	1,497	1,495	30.7	
Zeehan	1,292	1,698	1,683	1,690	1,679	1,597	1,610	1,625	1,628	26.0	
Beaconsfield	1,230	1,674	1,647	1,634	1,623	1,580	1,587	1,615	1,610	30.9	
Queenstown	1,315	1,678	1,697	1,729	1,721	1,598	1,625	1,643	1,641	24.8	
*Weighted Average	1,201	1,595	1,566	1,547	1,535	1,496	1,494	1,517	1,518	26.4	
† Weighted Aver. for C'wealth	1,164	1,520	1,524	1,519	1,516	1,473	1,473	1,473	1,470	26.3	

* Average for the five towns. † Average for thirty towns.

† See Remarks on page 31 of Labour Report No. 6, with reference to change of base period.

NOTE.—Corresponding index-numbers for the intervening months are given in Labour Report No. 6, pp. 33 to 35, and in Labour Bulletins 13, 14, 15 and 16.



Weighted Average for 100 towns in November, 1913 = 1000

A	□	E	▨
B	▤	F	▩
C	▥	G	▪
D	▦	H	▫

A	Less than one inhabitant to 16 sq. miles.
B	From 1 inhabitant in 16 sq. miles to less than 1 in 4 sq. miles.
C	" 1 " " 1 sq. mile " " 2 in 1 " "
D	" 1 " " 1 sq. mile " " 4 in 1 " "
E	" 2 inhabitants in 1 " " 8 in 1 " "
F	" 4 " " 1 " " 16 in 1 " "
G	" 8 " " 1 " " " " "
H	16 inhabitants and upwards in 1 sq. mile.

RELATIVE COST OF FOOD, GROCERIES, AND HOUSE RENT (NOVEMBER, 1913, 1914, 1915 AND 1916) IN RELATION TO DISTRIBUTION OF POPULATION

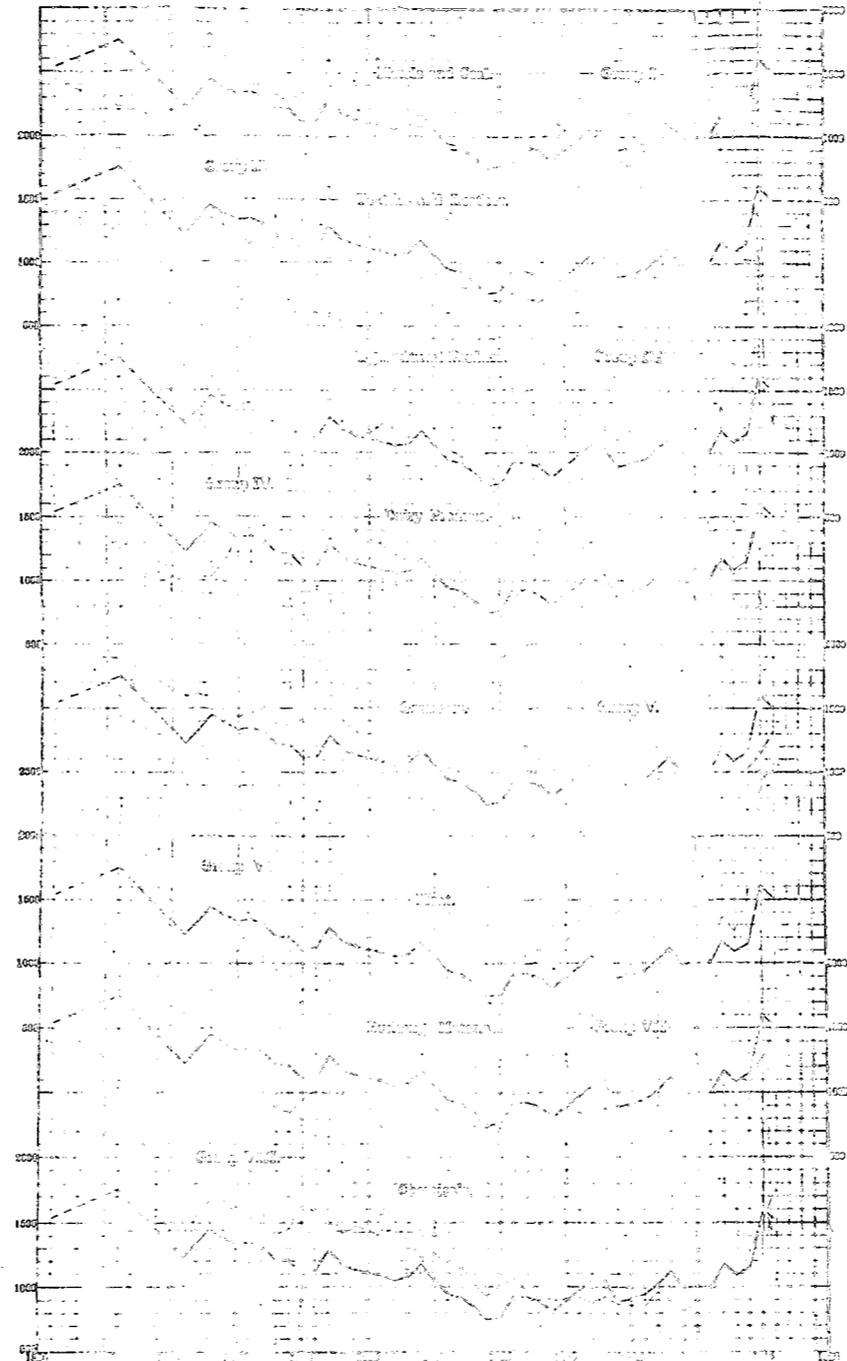
Reference to Numbers on Map.

	1913.		1914.		1915.		1916.		1915.	1916.	
	A	B	A	B	A	B	A	B		A	B
1 SYDNEY	1,109	634	1,124	651	1,321	861	1,305	851			
2 Newcastle	960	637	972	648	1,222	847	1,173	856			
3 Broken Hill	1,116	768	849	773	1,192	1,043	1,341	1,042			
4 Goulburn	974	629	1,036	607	1,271	854	1,247	864			
5 Bathurst	892	583	909	608	1,102	825	1,102	832			
6 Armidale	875	601	848	618	1,148	868	1,150	834			
7 Coah	987	661	881	742	996	907	1,159	909			
8 Cooma	861	638	875	662	1,221	962	1,131	884			
9 Cootamundra	977	632	890	653	1,222	892	1,222	864			
10 Deniliquin	836	606	843	675	1,199	924	1,148	874			
11 Grafton	919	632	922	654	1,181	913	1,164	830			
12 Hay	918	638	889	740	1,277	1,006	1,235	948			
13 Lismore	931	695	1,042	723	1,212	860	1,122	842			
14 Lithgow	915	628	938	625	1,227	894	1,212	884			
15 Moree	981	681	1,041	696	1,256	937	1,225	906			
16 Mudgee	824	569	895	640	1,131	863	1,162	878			
17 Quesantony	1,052	650	980	635	1,212	906	1,169	873			
18 Tamworth	902	590	1,066	649	1,221	874	1,306	876			
19 Wagga Wagga	967	654	949	670	1,178	834	1,207	818			
20 Yass	943	637	1,040	676	1,251	948	1,201	899			
21 West Wyalong	866	631	952	609	1,130	890	1,177	906			
22 MELBOURNE	864	568	1,019	628	1,240	862	1,207	807			
23 Ballarat	787	566	845	636	1,024	874	1,012	815			
24 Bendigo	815	573	872	641	1,062	849	1,030	814			
25 Geelong	872	579	942	639	1,145	849	1,125	809			
26 Warrnambool	865	581	914	620	1,152	868	1,100	804			
27 Ararat	833	577	915	641	1,179	895	1,119	852			
28 Bairnsdale	796	579	832	615	1,155	909	1,053	811			
29 Camperdown	866	572	915	625	1,101	818	1,072	800			
30 Castlemaine	773	547	911	636	1,137	842	1,089	831			
31 Creswick	730	577	808	636	1,056	833	1,039	860			
32 Daylesford	779	590	817	638	1,072	855	1,030	821			
33 Echuca	811	607	857	672	1,061	878	1,009	827			
34 Hamilton	871	594	926	636	1,275	924	1,102	847			
35 Horsham	849	534	982	670	1,202	921	1,179	860			
36 Koroiterra	839	596	822	625	1,162	907	1,068	798			
37 Kyrenon	762	562	790	611	1,114	897	1,040	824			
38 Maryborough	745	578	803	622	1,022	841	1,037	838			
39 Mildura	972	608	1,053	606	1,272	899	1,320	907			
40 Nhill	867	593	805	656	1,121	857	1,142	833			
41 Portland	784	592	804	624	1,222	928	1,121	869			
42 Sale	974	618	1,000	649	1,070	824	1,022	780			
43 Swan Hill	790	587	808	649	1,278	874	1,204	827			
44 Waihalia	885	589	965	602	1,172	876	1,102	824			
45 Wangaratta	810	555	877	647	1,082	814	1,042	783			
46 Warracknabeal	878	583	912	627	1,166	878	1,050	763			
47 BRISBANE	840	603	882	646	1,119	894	992	760			
48 Rockhampton	862	617	920	668	1,124	945	1,062	817			
49 Chartern Towers	907	658	987	752	1,122	942	1,120	884			
50 Warwick	822	590	822	635	1,077	863	987	773			
51 Bundaberg	861	621	892	650	1,122	873	1,041	822			
52 Cairns	1,097	704	1,140	809	1,242	918	1,229	929			
53 Charlville	1,029	704	1,041	722	1,396	1,001	1,322	936			
54 Chillagoe	1,152	884	1,052	892	1,312	1,000	1,212	920			
55 Cooktown	937	745	1,002	799	1,122	959	1,072	951			
56 Cunnamulla	892	724	1,047	779	1,221	1,065	1,124	894			
57 Goomiwindi	858	639	958	680	1,190	935	1,044	808			
58 Gympie	791	600	812	653	1,022	890	1,001	816			
59 Hughenden	1,145	766	1,222	803	1,324	951	1,274	907			
60 Ipswich	874	606	900	632	1,120	899	1,062	780			
61 Longreach	1,047	722	1,122	823	1,200	945	1,194	932			
62 Maryborough	762	584	820	624	1,122	913	1,045	825			
63 Mount Morgan	880	637	951	696	1,204	949	1,102	842			
64 Townsville	990	686	1,122	769	1,242	952	1,245	856			
65 Winton	1,147	803	1,136	817	1,442	997	1,242	934			
66 ADELAIDE	1,056	619	1,078	698	1,242	876	1,212	852			
67 Kadina-Moonta	862	636	941	690	1,150	891	1,170	889			
68 Port Pirie	972	644	972	729	1,122	922	1,222	892			
69 Mount Gambier	816	568	894	614	1,100	838	1,067	804			
70 Petersburg	996	613	1,099	742	1,214	895	1,122	890			
71 Kapunda	847	618	901	690	1,066	893	1,057	873			
72 Murray Bridge	911	618	1,004	640	1,210	856	1,211	854			
73 Port Augusta	931	660	1,115	770	1,300	892	1,402	949			
74 Port Lincoln	892	674	1,034	716	1,220	901	1,212	925			
75 Renmark	886	606	1,041	696	1,222	897	1,202	872			
76 Victor Harbour	824	637	1,102	720	1,122	863	1,222	864			
77 PERTH	1,116	719	1,131	762	1,186	836	1,220	872			
78 Kalgoorlie	1,277	912	1,244	988	1,451	1,036	1,459	1,030			
79 Midland Junction	1,079	731	1,108	777	1,171	847	1,212	905			
80 Bunbury	1,113	757	1,155	819	1,155	894	1,210	949			
81 Geraldton	1,317	783	1,244	856	1,412	941	1,342	908			
82 Broome	942	942	942	942	942	942	942	1,091			
83 Albany	1,147	793	1,124	817	1,222	901	1,314	947			
84 Carnarvon	1,242	960	1,210	965	1,222	961	1,447	1,032			
85 Katanning	1,154	748	1,160	774	1,212	844	1,275	899			
86 Leonora	1,222	1,042	1,224	1,069	1,321	1,139	1,274	1,110			
87 Menzies	1,152	1,026	1,222	1,133	1,395	1,242	1,456	1,303			
88 Ravensthorpe	1,147	1,019	1,150	1,010	1,240	1,119	1,322	1,172			
89 HOBART	875	645	1,042	702	1,231	876	1,178	824			
90 Launceston	811	596	899	668	1,200	868	1,165	825			
91 Zeehan	934	717	922	758	1,141	975	1,062	909			
92 Beaconfield	789	654	806	710	1,022	987	922	825			
93 Queenstown	822	724	1,022	746	1,214	982	1,242	815			
94 Burnie	956	606	1,011	633	1,220	870	1,122	804			
95 Campbell Town	701	599	756	600	756	600	940	815			
96 Devonport	890	622	870	639	1,222	903	1,172	846			
97 Franklin	909	654	916	703	703	703	1,062	836			
98 Otlands	820	622	874	682	961	788	976	804			
100 Scottsdale	765	570	844	632	1,022	846	991	795			

Weighted Average .. *1,000 *621 *1,035 *665 *1,224 *872 1,204 840
 * Weighted average of 100 Towns.
 † Weighted average of 150 Towns.
 ‡ Not available.

A.—Heavy Figures denote index-numbers for Food, Groceries, and Rent of 5-roomed Houses.
 B.—Light figures denote index-numbers for Food and Groceries only.

MELBOURNE & SURROUNDING DISTRICT INDEX-NUMBERS 1897 TO 1913



EXPLANATION: The index number for each of the districts for 1900 is 100. The index number for 1913 is shown by the heavy line in each graph. The index number for 1900 is shown by the light line in each graph. The index number for 1913 is shown by the heavy line in each graph. The index number for 1900 is shown by the light line in each graph. The index number for 1913 is shown by the heavy line in each graph. The index number for 1900 is shown by the light line in each graph. The index number for 1913 is shown by the heavy line in each graph.

§ 8. Investigation into Purchasing-Power of Money in 150 Towns in Commonwealth.

1. **Introduction.**—In order to supplement the information as to variations in the purchasing-power of money, which is collected each month for the thirty towns specified in the preceding section, a special investigation was initiated in November, 1913, as to the purchasing-power of money in seventy additional towns in the Commonwealth. This investigation was repeated in November, 1914, November, 1915, and November, 1916. At the two latter periods the number of additional towns from which returns are collected annually was increased to 120. It is intended to carry it out in that month each year, thus making information available annually in all for 150 towns.

2. **Map shewing relative Purchasing-Power of Money.**—On the map on page 1115 each town is shewn by means of a number, the reference list at the side of the map indicating the town corresponding to each number and its relative index-numbers for the years 1913, 1914, 1915 and 1916. The figures in black type relate to the cost of food, groceries and rent of 5-roomed houses, while those in light type refer to food and groceries only. A glance at the map shews that the distribution of the 150 towns selected is in close approximation to the density of population (indicated by hatching). The weighted average cost for 100 towns in 1913 is taken as base, and the index-numbers are comparable in all respects.

§ 9. Wholesale Prices.

1. **General.**—The results of an investigation into wholesale prices in Melbourne were given in some detail in Report No. 1, from 1871 to the end of September, 1912. In Report No. 2 summarised results were included for the whole of the latter year; in Report No. 5 those for the year 1913; in Report No. 6 those for the years 1914 and 1915, and in Report No. 7 those for the year 1916.

The index-numbers up to the year 1911 are based on the prices of eighty commodities, but since that year the number has been increased to ninety-two.* The methods followed for the computation of the wholesale price index-numbers are the same as those adopted in regard to retail prices. The commodities included, the units of measurement for which the prices are taken, and the mass-units, indicating the relative extent to which each commodity, in the units of measurement specified, is used or consumed, are shewn in a tabular statement in Report No. 7 (page 405).

2. **Index-Numbers and Graphs.**—Index-numbers have been computed for each group of commodities, as well as for all groups together. The index-numbers for the several groups, and for all groups together, are shewn in the following table.

(i.) *Table of Index-numbers.*—The index-numbers have in each case been computed with the prices in the year 1911 as base; that is to say, *they shew the amount which would have had to be expended in each of the years specified in order to purchase what would have cost £1000 in 1911, distributed in purchasing the relative quantities (indicated by the mass-units), of the several commodities included in each group, and in all groups respectively.* Thus, in the last column it may be seen that the cost of the relative quantities of the various commodities was 1229 in 1871, and 974 in 1901, as compared with 1000 in 1911, 1170 in 1912, 1088 in 1913, 1149 in 1914, 1604 in 1915, and 1504 in 1916. In other words, prices were lower in 1911 than in either 1871, 1914, 1915, or 1916, and the purchasing-power of money in 1911 was, accordingly, greater. Again, prices were lower in 1901 than in 1911, and the purchasing-power of money in the former year was, therefore, greater.

* In the computation of the index-numbers for years prior to 1911, the aggregate expenditure on 80 commodities in 1911 is taken as base (=1000), while for later years the aggregate expenditure on 92 commodities is taken.

MELBOURNE WHOLESALE PRICES INDEX-NUMBERS, 1861 TO 1916
COMPUTED TO YEAR 1911 AS BASE.

YEAR.	I. Metals and Coal.	II. Jute, Leather, &c.	III. Agricultural Produce, &c.	IV. Dairy Produce.	V. Groceries.	VI. Meat.	VII. Building Materials.	VIII. Chemicals.	All commodities together.
1861 ...	1,438	1,381	1,583	1,008	1,963	...	1,070	2,030	1,538
1871 ...	1,096	1,237	1,236	964	1,586	...	1,044	1,409	1,229
1881 ...	1,178	1,115	1,012	935	1,421	...	1,091	1,587	1,121
1891 ...	895	847	1,024	995	1,032	888	780	1,194	45
1901 ...	1,061	774	928	1,029	1,048	1,345	841	917	974
1902 ...	1,007	756	1,133	1,215	945	1,447	837	881	1,051
1903 ...	923	834	1,209	1,059	836	1,443	875	921	1,049
1904 ...	821	835	754	876	916	1,427	845	875	890
1905 ...	772	850	894	930	942	1,209	801	859	810
1906 ...	882	978	916	972	923	1,110	895	864	948
1907 ...	1,037	1,017	973	1,020	948	1,294	968	961	1,021
1908 ...	1,033	901	1,312	1,198	968	1,335	935	891	1,115
1909 ...	1,014	907	1,000	1,119	978	1,068	911	815	998
1910 ...	1,004	1,032	969	1,100	999	1,008	996	898	1,003
1911 ...	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
1912 ...	1,021	991	1,370	1,206	1,052	1,357	1,057	978	1,170
1913 ...	1,046	1,070	1,097	1,054	1,024	1,252	1,128	995	1,088
1914 ...	1,099	1,032	1,207	1,137	1,021	1,507	1,081	1,253	1,149
1915 ...	1,284	1,017	2,162	1,530	1,133	2,435	1,275	1,528	1,604
1916 ...	1,695	1,423	1,208	1,485	1,322	2,515	1,491	1,760	1,504

NOTE.—The figures given in this table are comparable in the vertical columns, but are not directly comparable horizontally. The index-numbers are reversible.

(ii.) *Graphs.*—The index-numbers are shewn for each group and for all groups combined in the graphs on page 1116. The heavy line, repeated on each graph, represents the index-numbers for the weighted average for all groups, and is shewn so that comparison may be made between the price levels for all commodities and those for the commodities comprised in each group separately. The index-numbers for the individual groups are represented by the light lines. The broken lines at the commencement of each graph shew the index-numbers for the separate years 1861 and 1866, the continuous records commencing with the year 1871. The actual index-numbers for the whole period were given in Report No. 1.

3. *Seasonal Fluctuations and Tables of Prices.*—Information as to seasonal fluctuations in wholesale prices was given in Report No. 2 (page 64) and tables of prices of each commodity were given in Appendixes to Reports Nos. 1, 2, 5, 6 and 7.

4. *Fluctuations in Wholesale Prices, July, 1914, to March, 1917.*—Since the outbreak of war, prices of many commodities have increased considerably. This is shewn in the following table in which the index-numbers are given for each group for the month of March, 1917, taking July, 1914, the last month before the outbreak of war, as base (= 1000) for each group:—

MELBOURNE WHOLESALE PRICES.—VARIATIONS BETWEEN JULY, 1914,
AND MARCH, 1917.

Particulars.	I. Metals and Coal.	II. Jute, Leather, etc.	III. Agricultural Produce, etc.	IV. Dairy Produce.	V. Groceries.	VI. Meat.	VII. Building Materials.	VIII. Chemicals.	All Groups.
July, 1914 ...	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
March, 1917 ...	1,659	1,587	1,052	1,180	1,293	1,600	1,501	1,756	1,344

It may be seen that there has been an aggregate increase in prices during the period specified of no less than 34.4 per cent. The greatest increase, 75.6 per cent., is recorded in Group VIII. (Chemicals), and the least, 5.2 per cent., in Group III. (Agricultural Produce, etc.).

§ 10. Control of Trade and Prices during War.

1. General.—Shortly after the outbreak of war, a conference of Federal and State Ministers met to discuss the financial position and other matters, and it was decided that for the purpose of controlling the prices of foodstuffs, each State should introduce *uniform* legislation, since it was obvious that this was necessary in view of all the circumstances.

Particulars of the various Acts passed by the State Governments will be found in Labour Bulletin No. 6, September, 1914, pages 132-147.

As a further outcome of this conference, in addition to the various State Boards and Commissions, a Federal Royal Commission, consisting of the Hon. Alfred Deakin (chairman), the Hon. Dugald Thomson, formerly Minister for Home Affairs, and Mr. G. H. Knibbs, C.M.G., Commonwealth Statistician, was appointed to collect information and report upon such matters as the supply of foodstuffs and other necessities required by and available for Australia during the war; the amount then available and likely to be so for export, having due regard to the requirements of Australia; the development of fresh sources of supply; and any other important matters relating to conditions of trade and industry arising from the war. This commission ceased to exercise its functions after the 30th October, 1914.

There has been great diversity in regard to the operations of the various authorities created in the different States. In New South Wales and Queensland prices have been fixed for a large number of commodities, whereas in Victoria only a comparatively few commodities were dealt with, and these only during the latter half of 1914 and early in 1915. In South Australia it was not until the latter part of 1915 that the Necessary Commodities Commission began to fix prices. In Western Australia the Food Stuffs Commission fixed the price of some commodities, and refused to sanction proposed advances in others. The commission was revoked in October, 1915. In Tasmania the Legislative Council rejected the Bill creating a Necessaries of Life Control Bill, and consequently no action has been taken in that State to deal with prices of commodities in the manner adopted by the other States.

2. Federal Control of Prices.—In March, 1916, the Federal Government created a Prices Adjustment Board with authority to fix the prices of flour, bread, bran, and pollard. The Board made investigations, and fixed the prices of flour, bran, and pollard in every milling centre of Australia. Prices of bread were fixed in upwards of 1000 separate towns, after investigations had been made as to the cost of manufacture, distribution, etc. An important judgment of the High Court, as to the powers of Government to fix prices, was obtained as the result of the conviction of a Melbourne suburban baker, by the local magistrate, for selling bread at a higher rate than that fixed by the Prices Adjustment Board. This conviction was appealed against, but the High Court, by a majority decision, affirmed that in matters affecting the safety of Australia the Government, under the War Precautions Act, had plenary powers, and that the decision as to what is necessary rests with the Executive and not with the judicial authority.

After this judgment, the scope of the investigations and activities of the Prices Adjustment Board were considerably enlarged, and an exhaustive list of commodities were declared to be necessary commodities. Later, a Commissioner was appointed in each State to make investigations, and to make recommendations to the Minister as to the necessity for fixing maximum selling prices of various commodities.

Shortly after the appointment of these Commissioners, the members of the Prices Adjustment Board resigned in a body, and since then the control of prices has been in the hands of the Minister acting upon the recommendations of the State Commissioners. The Commissioner for Victoria acts also as Chief Prices Commissioner. Prices have been fixed, by regulations under the War Precautions Act, for a large number of commodities.

SECTION XXXIV.

MISCELLANEOUS.

§ 1. Immigration.

(A) The Encouragement of Immigration into Australia.

1. **Introduction.**—Various measures have from time to time been adopted by the Commonwealth and State Governments, as well as by private societies and individuals, with a view to promoting the immigration of suitable classes of settlers into Australia. Since the outbreak of war, however, little is being done. The activities of the Commonwealth Government (which is vested with constitutional powers in regard to immigration under Sec. 51, xxvii., of the Constitution Act 1900) with respect to the encouragement of immigration, have hitherto practically been confined to advertising in handbooks, newspapers, and periodicals, the resources and attractions of Australia.

2. **State Immigration.**—The advertising in the United Kingdom of the resources of the individual States has been carried out by their Agents-General in London. During 1910 and the three subsequent years, a great advance was made in Australian immigration generally, the State Governments having adopted more active and direct means than had hitherto existed for making the advantages and opportunities of their respective States better known to the people of the United Kingdom, Europe, and America. At the present time, however, owing to war, no State action is being taken in the matter of immigration. In previous issues of the Year Book will be found in detail the various methods under which intending immigrants could obtain information and assistance (see Year Book No. 8, p. 1053).

Particulars of the net immigration to the Commonwealth are given on pages 114, 121, and of assisted immigration on page 126 hereinbefore.

3. **Commonwealth Scheme of Immigration.**—It is the function of the Commonwealth Department of Home and Territories to advertise the attractions of Australia for settlers, farm workers, and tourists. The Commonwealth carries on the general advertising of Australia by means of paragraphs and illustrated articles in British, European, and American publications, while the several States advertise for the class of immigrants they specially require. Bioscope films are utilised for the illustration of lectures. Exhibitions are held throughout the chief rural districts and at the important agricultural shows in Great Britain, and handbooks for settlers and tourists, as well as folders and other publications, have been issued. Pictorial posters are also utilised. The outbreak of war, however, interrupted the vigorous campaign that had been initiated, and for the present, the matter of advertising and recruiting for immigrants is practically at a standstill.

4. **The High Commissioner for Australia and the Agents-General.**—Intending settlers or immigrants may, on application, obtain information from the High Commissioner for Australia—

THE RIGHT HON A. FISHER, P.C.,
AUSTRALIA HOUSE,
STRAND,
LONDON, W.C.

Information regarding individual States may be obtained from the officials specified below :—

AUSTRALIAN AGENTS-GENERAL.

<i>New South Wales</i>	Hon. C. G. WADE, K.C. ...	123-125 Cannon St., London, E.C.
<i>Victoria</i> ...	Sir PETER MCBRIDE ...	Australia House, Strand, London
<i>Queensland</i> ...	Col. the Hon. Sir T. B. ROBINSON ...	Marble Hall, 409-10, Strand, London
<i>South Australia</i>	Hon. F. W. YOUNG ...	85 Gracechurch St., London, E.C.
<i>Western Australia</i>	Brig. Gen. the Hon. Sir NEWTON J. MOORE, K.C.M.G.	Savoy House, Strand, London.
<i>Tasmania</i> ...	Major the Hon. SIR J. MCCALL, M.D. ...	56 Victoria St., Westminster, London

(B) The Regulation of Immigration into Australia.

1. **Pre-Federal Restrictions.**—(i.) *Alien Races.* The several States of Australia had regarded it as desirable, long prior to Federation, to impose certain restrictions upon the admission of persons wishing to become inhabitants of those States. The influx of Chinese, for example, was limited by stringent statutes, and later, general Acts were passed in some of the States which had the effect of restricting the immigration of other—principally Asiatic—races.

(ii.) *Undesirable Immigrants.* Further restrictions were placed upon the admission of persons who were undesirable as inhabitants, either for medical or moral reasons, or who were likely to be an economic burden upon the community.

2. **Powers and Legislation of the Commonwealth.**—(i.) *Constitutional Powers.* By Chap. I., Pt. V., Sec. 51, xxvii. and xxviii. of the Commonwealth Constitution Act the Parliament of the Commonwealth is empowered to make laws with respect to immigration and emigration and the influx of criminals. (See page 26 herein.)

(ii.) *Legislation.* The powers above specified have now been exercised by the Commonwealth Government, and the laws passed in pursuance thereof supersede the State laws above referred to.

The first Act passed, dealing with this matter, was the Immigration Restriction Act 1901, which contained provisions restricting the immigration of the classes of persons previously mentioned, and also persons under contract to perform manual labour. The provisions regarding contract labour were repealed and amended by the Contract Immigrants Act 1905, and the principal Act was also amended by the Immigration Restriction Amendment Act 1905, and subsequently by the Immigration Restriction Acts of 1908 and 1910, and the Immigration Act of 1912. The immigration of alien races and undesirable persons is now regulated by the Immigration Act 1901-12. Admission of immigrants under contract to perform manual labour is, however, still controlled by the provisions of the Contract Immigrants Act 1905, and will be permitted if the contract is in writing, is made by or on behalf of some person named, who must be resident in Australia, and approved by the Minister. Such approval, which must be obtained before the immigrant lands in Australia, will not be given if the contract is made with the view of affecting an industrial dispute, or if the remuneration and other terms are not as advantageous to the contract immigrant as those current for workers of the same class at the place where the contract is to be carried out.

There is an additional provision where the proposed immigrant is not a British subject born in the United Kingdom or descendant of such a person. In such case it has to be proved that there is a difficulty in the employers obtaining in the Commonwealth a worker of at least equal skill and ability.

In case of infraction of the law it is provided that the contract is absolutely void and the immigrant and employer are both liable to penalties, and the employer is also liable to pay the immigrant until he obtains employment, or, at the option of the immigrant, to provide expenses for his return to the country whence he came.

3. Prohibited Immigrants.—(i.) *Provisions of the Act.* Persons comprised in the following classes are prohibited from entering the Commonwealth, viz. :—(a) Any person who fails to pass the dictation test; that is to say, who fails to write out not less than fifty words of a language prescribed by regulation when dictated to him by an officer administering the Act. (b) Any person not possessed of the prescribed certificate of health. (c) Any idiot, imbecile, feeble-minded person, or epileptic. (d) Any person suffering from a serious transmissible disease or defect. (e) Any person suffering from pulmonary tuberculosis, trachoma, or with any loathsome or dangerous communicable disease, either general or local. (f) Any person suffering from any other disease or mental or physical defect, which from its nature is, in the opinion of an officer, liable to render the person concerned a charge upon the public or upon any public or charitable institution. (g) Any person suffering from any other disease, disability, or disqualification which is prescribed. (ga) Any person who has been convicted of a crime and sentenced to imprisonment for one year or more, unless five years have elapsed since the termination of the imprisonment. (gb) Any person who has been convicted of any crime involving moral turpitude, but whose sentence has been suspended or shortened conditionally on his emigration, unless five years have elapsed since the expiration of the term for which he was sentenced. (gc) Any prostitute, procurer, or person living on the prostitution of others.

Regarding (a) it may be stated that the Act of 1901 provided for the dictation of not less than fifty words of a European language. The Act of 1905 provided for the retention of this test until regulations be passed prescribing the languages to be employed. No such regulations have yet been made, and the provision of the Act of 1901 is therefore *de facto* still in force. It may be stated that in general practice the dictation test is not imposed upon persons of European race.

Regarding (b), the Amending Act of 1912 provides for the establishment of Commonwealth Medical Bureaux at places outside the Commonwealth, and the appointment of medical referees to examine intending immigrants and issue certificates of health in the prescribed form, on payment of a prescribed fee. A chief medical officer has already been appointed to take charge of the Bureaux attached to the High Commissioner's Office in London. He will arrange for the selection of suitable medical referees for appointment to act at various centres throughout the United Kingdom.

Provision is also made for the medical examination of, and the issues of certificates of health to, intending immigrants who embark at a port where there is no medical referee, or who arrive in the Commonwealth without a certificate in the prescribed form.

Pending the proper organisation in the United Kingdom of the Medical Bureaux and the appointment of medical referees, the requirements that immigrants must produce a certificate of health on arrival in Australia will not be enforced.

(ii.) *Exemptions.* To these restrictions there are the following exemptions, viz. :—(a) Any person holding an exemption certificate. (b) Members of the King's regular land and sea forces. (c) The master and crew of any public vessel of any Government. (d) The master and crew of any other vessel landing during the stay of the vessel in a Commonwealth port. The exemption of members of a crew during the vessel's stay in port is subject to the production of identification cards to an officer on demand. This provision will not be enforced in respect of white members of a crew, but there is a further provision which empowers an officer to refuse any member of a crew permission to land unless he is satisfied that such person is free from a communicable disease. Before the ship can obtain her outward clearance the crew must, at the demand of an officer administering the Act, be mustered, and if any member of the crew be missing,

and would otherwise, in the opinion of the officer, have been a prohibited immigrant, then such person is deemed to be a prohibited immigrant, and until the contrary be proved, to have entered the Commonwealth contrary to the Act. (e) Any Commissioner of, or other person accredited from, the Imperial or any other Government.

(iii.) *General Provisions.* An immigrant may be required to pass the dictation test at any time within two years after he has entered the Commonwealth. This applies particularly to coloured persons, but any immigrant found within three years of entering the Commonwealth to be suffering from a prohibitory disease or defect may be deemed to be a prohibited immigrant unless it is proved to the Minister's satisfaction that he was free from the disease or disability at the time of his arrival in Australia.

A prohibited immigrant within the meaning of (a) above may, at the discretion of an officer, be allowed to enter the Commonwealth, or to remain within it, upon depositing £100 and within thirty days either obtaining an exemption certificate or departing from the Commonwealth; in either case the deposit is returned.

The punishment for breach of the Act by a prohibited immigrant is imprisonment for six months and deportation in addition to or in substitution for such imprisonment, if so ordered.

4. Liabilities of Shipmasters and Others.—The master, owners, agents, and charterers of a vessel from which a prohibited immigrant enters the Commonwealth are jointly and severally liable to a penalty not exceeding £100 for each entrant. The vessel may be detained as security, but may be released upon the giving of a bond with two sureties for the payment of any penalties; the vessel may be seized and sold in default of payment of penalties. The master, owners, agents, and charterers may be required to provide a return passage for the prohibited immigrant, and to pay for his maintenance during his detention prior to deportation. Masters of the vessels are authorised to prevent such a person from landing, and to obtain any necessary assistance.

Under the Immigration Restriction Act 1908, any person on board a vessel at the time of her arrival from any place outside Australia at any port in Australia who is not (a) a *bonâ fide* passenger of the vessel, or (b) a member of the crew of the vessel whose name is on the articles, is deemed to be a stowaway, unless the master gives notice that the person is on board the vessel, and does not permit him to land until an officer has had an opportunity of satisfying himself that the person is not a prohibited immigrant. The master, owners, agents, and charterers of a vessel are jointly and severally liable to a penalty of £100 for each stowaway brought into any port in Australia. The immigration Act 1912 provides for a penalty of £200 for each stowaway in cases where the master has been convicted of a similar offence within the preceding twelve months. Power is given to search vessels for stowaways. The Immigration Restriction Act 1910 provides penalties for being concerned in bringing immigrants secretly to the Commonwealth.

5. Agreements with other Countries.—Arrangements may be made with the Government of any country regulating the admission into Australia of the subjects or citizens of such country, such subjects not being, during the subsistence of the arrangement, required to pass the dictation test.

Persons who have resided either continuously or from time to time in the Commonwealth for a period of five years in the whole, and who are about to depart from it, being persons, who, if they return, would be prohibited immigrants, may obtain a certificate of exemption entitling them to return.

Certificates of exemption are granted by the Minister for Home and Territories, whose department administers the Act, and also by the Collector of Customs in each State.

6. Statistics.—The following tables shew the number of persons who desired but were not permitted to land, those who were allowed to land, and the nationality of the persons admitted.

**PERSONS ADMITTED OR REFUSED ADMISSION TO COMMONWEALTH UNDER
PROVISIONS OF IMMIGRATION RESTRICTION ACT, 1909 to 1916.**

Year.	Persons Admitted who Passed Education Test.	Persons Admitted without Passing Education Test.	Persons Refused Admission.
1909	1	83,324	108
1910	Nil	94,543	42
1911	Nil	139,020	83
1912	Nil	163,990	187
1913	Nil	140,251	109
1914	Nil	110,701	54
1915	Nil	70,436	56
1916	Nil	59,140	233

NATIONALITY OF PERSONS ADMITTED, 1909 to 1916.

Nationality.	1909.(a)	1910.	1911.	1912.	1913.	1914.	1915.	1916.
	Without Test.	Without Test.	Without Test.	Without Test.	Without Test.	Without Test.	Without Test.	Without Test.
EUROPEANS—								
Austrians	895	815	1,184	855	794	676	(f) 27	(f) 10
Belgians	35	50	84	95	65	63	105	69
British	71,201	81,457	124,061	146,602	122,443	93,136	60,505	50,429
Danes	272	269	393	371	444	478	505	173
Dutch	187	175	307	435	283	287	182	156
French	1,347	1,160	1,166	1,233	1,491	1,187	595	516
Germans	2,109	2,449	2,517	3,501	3,155	3,335	(f) 890	(f) 452
Greeks	327	380	583	736	480	772	361	160
Italians	1,078	883	1,365	1,632	1,963	1,642	645	179
Maltese	...	...	41	122	193	464	57	173
Poles	24	11	34	17	7	12	2	...
Portuguese	10	3	6	9	25	12	1	...
Rumanians	11	3	13	24	9	34	6	...
Russians	466	735	994	1,159	1,334	1,446	716	497
Scandinavians	891	1,210	1,384	1,303	1,285	1,489	1,202	786
Spaniards	56	49	128	118	116	149	206	51
Swiss	131	109	130	209	202	220	64	40
Turks	14	10	10	6	5	19	1	1
Other Europeans (b)	16	22	27	(c) 57	5	(d) 165	13	7
AMERICANS—								
North Americans...	692	746	914	1,386	1,713	1,529	1,066	1,050
South Americans...	14	13	17	37	14	31	5	16
American Indians	...	...	31	9	...	1	...	...
Negroes	6	14	13	47	7	23	9	8
West Indians	6	13	11	8	1	3	2	9
ASIATICS—								
Afghans	3	2	14	17	7	2	3	...
Arabs	1	1	1	18	14	19	2	6
Burmese	1	...	...	...	1	1	1	...
Chinese	1,729	1,817	2,009	2,250	2,286	1,975	2,287	2,289
Cingalese	10	14	4	17	9	9	6	18
Eurasians	6	14	7	13	2	...	...	...
Filipinos	37	66	17	13	12	4	15	...
Hindoo	130	156	188	157	187	305	144	135
Japanese	509	610	459	698	822	387	423	1,089
Javanese	52	4	12	6	3	20	3	4
Malays	309	304	479	326	303	291	285	254
Syrians	73	95	104	75	31	19	5	14
OTHER RACES—								
Maoris	108	62	31	32	41	21	16	6
Mauritians	3	4	9	2	7	1	...	...
Pacific Islanders	94	54	69	92	105	101	37	59
Papuans	439	622	139	196	171	189	185	178
St. Helena Blacks	1	...	...	...	...	...	...	...
Unspecified	31	141	(e) 65	(e) 102	(e) 214	(e) 104	(e) 58	(e) 225
Total	83,324	94,543	139,020	163,990	140,251	110,701	70,436	59,140

(a) One person was admitted, after passing the test, in each of the years 1908 and 1909. (b) Not specified. (c) Bulgarians. (d) Including 162 Bulgarians. (e) A large percentage of these immigrants was Timorese. (f) Principally prisoners of war and their families.

The following table has been prepared, shewing to what extent immigration has taken place into the several States of the Commonwealth from 1909 to 1916 :—

IMMIGRATION INTO THE SEVERAL STATES OF THE COMMONWEALTH, 1909-1916.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N.T.	C'wealth.
1909	51,170	13,602	6,720	3,169	6,343	2,172	148	83,324
1910	53,029	14,942	10,353	3,988	9,881	2,168	182	94,543
1911	69,640	21,488	17,778	7,039	18,386	4,563	126	139,020
1912	86,239	34,568	11,820	10,035	16,624	4,480	224	163,990
1913	73,946	29,121	10,496	8,220	15,985	2,350	133	140,251
1914	67,221	20,727	8,594	4,820	6,954	2,249	143	110,708
1915	44,899	13,028	3,963	1,847	4,358	1,925	416	70,436
1916	36,782	12,970	2,426	924	4,054	1,735	249	59,140

§ 2. Patents, Trade Marks, and Designs.

1. Devolution of Jurisdiction upon the Commonwealth.—Prior to the establishment of Federation, and for a few years thereafter, each Australian State possessed independent jurisdiction in respect of patents, copyrights, trade marks, and designs, and had, with the exception of Tasmania in regard to copyrights, enacted its own laws. Any person, therefore, who desired to obtain the grant of a patent, or the registration of any copyright, trade mark, or design had necessarily, with the exception aforesaid, to incur the trouble and expense of making separate applications. The Commonwealth Constitution Act conferred upon the Federal Parliament power to legislate respecting these matters. (See page 26 hereinbefore.) The Patents Act of 1909 applied the laws relating to patents for inventions to the Territory of Papua.

The State Acts, though in general based upon the Imperial Statutes dealing with these subjects, were not wholly governed by them. The Commonwealth Acts, both in regard to principle and practice, have the same general foundation as the Imperial Statutes, but in some respects have been modified and brought into line with the totality of Australian experience:

2. Patents.—The first Commonwealth Patents Act was passed in 1903, and was amended in 1906, 1909, 1910, 1915 and 1916. (See page 44 *ante*.) Under these Acts, which are administered by a "Commissioner of Patents," the powers and functions vested under the States Acts became vested in the Commonwealth. A single Commonwealth patent now gives throughout the Commonwealth and the Territory of Papua that protection which formerly could only be obtained by procuring a patent in each State and the said Territory. The rights of State patentees or the patentees in the Territory of Papua are in all cases reserved to them. The holder of a State patent in force may obtain, for a period not exceeding the unexpired time thereof, a Commonwealth patent for the invention comprised in the State patent; provided, however, that any State other than the State in which the patent under the States Patent Act was granted may be excepted from the patent if the Commissioner of Patents is satisfied that the invention either (a) is not novel, (b) has been made the subject of a pending application, or (c) has been published, in such State. Comparatively small fees, totalling £8, are now sufficient to obtain for an inventor protection throughout the Commonwealth and the Territory of Papua, and the only renewal fee (£5) is payable before the expiration of the seventh year of the patent, or within such extended time, not exceeding one year, and upon payment of further fees as may be allowed.

(i.) *Applications for Patents.* Any of the following persons may make application for a patent:—(a) The actual inventor. (b) His assignee, agent, attorney, or nominee. (c) The actual inventor or his nominee jointly with the assignee of a part interest in the invention. (d) The legal representative of a deceased actual inventor or of his assignee. (e) Any person resident in the Commonwealth to whom the invention has been communicated by the actual inventor, his legal representative, or assignee (if the actual inventor, his legal representative, or assignee is not resident in the Commonwealth). An application for a patent must be for one invention only, and must be made in the form prescribed, and lodged by being left at or sent by post to the Patent Office at Melbourne. It must be accompanied by either a provisional or a complete specification. The application must contain a declaration in the prescribed form setting out the facts relied on to support the application, and must be signed by the applicant before a witness.

(ii.) *Term for which Granted.* The term for the duration of every patent is limited to fourteen years from the date of application. A patent ceases if the patentee fails to pay the renewal fee within the prescribed time.

(iii.) *Opposition to Grant of Patent.* Within three months of the advertisement of the acceptance of a complete specification, or within such further time, not exceeding one month, as the Commissioner on application made within the three months allows, any person may give notice at the Patent Office of opposition to the grant on any of the following grounds:—(a) That the applicant has obtained the invention from the opponent or from a person of whom he is the legal representative or assignee or nominee. (b) That the invention has not been communicated to the applicant by the actual inventor, his legal representative or assignee (if the actual inventor, his legal representative or assignee is not resident in the Commonwealth). (c) That the invention has been patented in the Commonwealth on an application of prior date or has been patented in a State. (d) That the complete specification describes or claims an invention other than that described in the provisional specification, and that the opponent has applied for a patent for such other invention in the interval between the leaving of the provisional and complete specifications. (e) Want of novelty. (f) Prior publication.

The case is heard and decided by the Commissioner, from whose decision an appeal lies to the High Court or to the Supreme Court of the State in which the Patent Office is situated.

(iv.) *Single Patent for Cognate Inventions, etc.* The provisions of the Act relative to single patents for cognate inventions, patents of addition and revocation of patents, will be found in detail in previous issues of the Year Book. (See No. 6, p. 1163.)

(v.) *Compulsory Working and Licenses.* At any time not less than four years after the date of a patent, and not less than two years after the 13th December, 1911, any person may apply to the High Court or the Supreme Court of the State in which the Patent Office is situated for an order declaring that the patent article or process is not manufactured or carried on to an adequate extent in the Commonwealth. From and after the time when any such order may take effect, the patent is not deemed to be infringed by the manufacture or carrying on in the Commonwealth of the patented article or process, or by the vending within the Commonwealth of the patented article made within the Commonwealth. By Act No. 13 of 1916, section 87(a), which provides for compulsory working, has been suspended during the continuance of the present war and for a period of six months thereafter, and in reckoning the said period of four years, the period during which section 87(a) is suspended shall not be taken into account. Any person interested may, after the expiration of two years from the granting of the patent, present a petition to the Commissioner alleging that the reasonable requirements of the public with respect to a patented invention have not been satisfied and praying for the grant of a compulsory license or, in the alternative, for the revocation of a patent. If the parties do not come to an arrangement between themselves, the Commissioner, on being satisfied that a *prima*

facie case has been made out, must refer the petition to the High Court or the Supreme Court of the State in which the Patent Office is situated. If the Commissioner is not satisfied that a *prima facie* case has been made out he may dismiss the petition.

(vi.) *Restoration and Surrender of Patents, and Contracts and Proceedings.* The provisions of the Act with reference to restoration and surrender of patents, contracts, etc., are given in detail in previous issues of the Year Book. (See No. 6, p. 1164.)

(vii.) *International Protection of Patents.* The Patents Act contains provisions under which the international arrangements for the protection of patents contained in the Imperial Acts could be made applicable to the Commonwealth by order of the King-in-Council. Applicants for patents, subject to the country in which first application is made being a party to the arrangement, are now, if they apply in Australia within twelve months of their first foreign application, entitled to make application for patents for their inventions in priority to other applicants, and such patents have the same date as the date of the first application abroad. Corresponding arrangements have also been made by the Commonwealth with New Zealand.

(viii.) *Patent Attorneys.* Any person on passing the prescribed examination, and on paying a fee of £5, may be registered by the Commissioner as a patent attorney. A solicitor may practise as a patent attorney without passing the prescribed examination and without being registered as a patent attorney. No person may describe himself as a patent attorney, or as a patent agent, or as an agent for obtaining patents unless he is registered or entitled to practise as a patent attorney.

(ix.) *Patent Office Publications.* Complete specifications are printed shortly after they become open to public inspection by advertisement of acceptance, or under Section 121 of the Act, provided the complete specification is not accepted and advertised. Each specification is open to public inspection. A number of publications, of which a list may be found in the Australian Official Journal of Patents, is on sale at the Government Printing Office, Melbourne.

The *Australian Official Journal of Patents* is issued weekly, and contains lists of applications and proceedings, with illustrated notes of accepted complete specifications. A supplementary annual volume contains statistics, indexes to names of persons concerned, classified indexes to subject matter of applications lodged, and a numerical index to proceedings on Commonwealth applications which have been advertised during the year; there are also names and number indexes to proceedings on State applications.

(x.) *Applications Filed, Provisional Specifications Accepted, and Letters Patent Sealed.* The numbers of individual inventions in respect of which applications were filed in the States or Commonwealth during each year from 1909 to 1916 inclusive are shewn in the following table. The number of applications accompanied by provisional specifications and the number of patents sealed in respect of applications made in each year are also shewn.

PATENTS.—APPLICATIONS FILED AND LETTERS PATENT SEALED IN THE COMMONWEALTH, 1909 to 1916.

Year	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.
No. of applications	3,309	3,605	3,497	4,071	4,163	3,436	3,117	2,906
No. of applications accompanied by provisional specifications	2,165	2,294	2,290	2,273	2,626	2,232	2,133	1,980
Letters patent sealed during each year	1,269	1,552	2,027	1,502	1,495	2,098	1,279	1,162

(xi.) *Revenue of Patent Office.* The revenue of the Commonwealth Patent Office for each year from 1909 to the end of the year 1916 is shewn in the subjoined table :—

REVENUE OF COMMONWEALTH PATENT OFFICE, 1909 to 1916.

Particulars.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.
Fees collected under—	£	£	£	£	£	£	£	£
States Patents Acts ...	1,703	1,940	768	118	50	16	19	15
Patents Acts 1903-10 ...	14,087	17,042	19,640	18,542	18,800	21,575	15,463	14,055
Receipts from publications ...	216	208	237	305	283	274	298	294
Petty receipts ...	33	33	48	50	49	81	6	4
Total ...	16,039	19,223	20,693	19,015	19,182	21,946	15,786	14,368

3. **Trade Marks.**—The remarks made concerning the unification of the patent system of the Commonwealth apply equally to trade marks. Under the Trade Marks Act 1905, which came into force on the 2nd July, 1906, the Commissioner of Patents is appointed to act also as "Registrar of Trade Marks." The Trade Marks Act of 1905 was amended by the Patents, Trade Marks, and Designs Act 1910, assented to on the 14th November, 1910, and by the Trade Marks Act 1912, and is now cited as The Trade Marks Act 1905-1912. The principal objects of the amending Act were to enlarge the scope of marks capable of registration, and repeal the provisions of the Act of 1905 relating to the "Workers Trade Mark," the provisions regarding which were held to be unconstitutional. Special provisions for the registration of a "Commonwealth Trade Mark" are contained in the Act of 1905 and are applicable to all goods included in or specified by a resolution passed by both Houses of Parliament that in their opinion the conditions as to remuneration of labour in connection with their manufacture are fair and reasonable.

(i.) *Essential Particulars of Trade Marks.*—

Section 15. "A registrable trade mark shall consist of essential particulars with or without additional matter."

Section 16. (1) "A registrable trade mark must contain or consist of at least one of the following essential particulars:—(a) The name of a company, individual, or firm represented in a special or particular manner; (b) the signature of the applicant for registration or some predecessor in his business; (c) an invented word or invented words; (d) a word or words having no direct reference to the character or quality of the goods, and not being according to its signification a geographical name or a surname; (e) any other distinctive mark, but a name, signature, or word or words, other than such as fall within the descriptions in the above paragraphs (a), (b), (c) and (d) shall not, except by order of the Registrar, Law Officer, or Court, be deemed a distinctive mark."

(2) "For the purposes of this section 'distinctive' means adapted to distinguish goods of the proprietor of the trade mark from those of other persons."

(3) "In determining whether a trade mark is so adapted, the Registrar, Law Officer, or Court may, in the case of a trade mark in actual use, take into consideration the extent to which such user has rendered such trade mark in fact distinctive for the goods with respect to which it is registered or proposed to be registered."

(ii.) *State Registrations.* State registrations cease to be in force at the expiration of fourteen years from the date of the Commonwealth Act, or at the time when, under the State Trade Marks Act, the trade mark would, if after the commencement of the Commonwealth Act no fee for the continuance of its registration were paid, first become liable to removal from the register, whichever first happens. It is also provided that no fee shall be receivable nor shall any act be done after the commencement of the Commonwealth Act for the continuance of the registration of a trade mark under a State Act.

Commonwealth registration of a State registered mark may be effected, and the fact of its registration in a State prior to the coming into force of the Commonwealth Act may entitle the registered proprietor in the State to Commonwealth registration, notwithstanding the existence of defects which might be ground for refusal of an application for the registration of a new trade mark.

(iii.) *Duration of Registration and General Provisions.* The registration of a trade mark is for a period of fourteen years, but may be renewed from time to time. International and intercolonial arrangements for the mutual protection of trade marks may be made in a manner similar to that provided for the protection of patents. In this regard Australia has become a party to the International Convention for the protection of industrial property. Registration may be opposed by any person lodging a notice of opposition at the Trade Marks Office within three months after the advertisement of the application, or such further time, not exceeding three months, as may, on application made within the first three months, be allowed.

(iv.) *Publications.* The *Australian Official Journal of Trade Marks* is issued weekly, and contains lists of applications and proceedings, with representations of marks (when accepted) sought to be registered. *Designs.* Lists of registered owners of designs and the subject matter of applications are published weekly in the official Journal of Trade Marks. Indexes to names of applicants and subject matter of applications are compiled and are on sale.

4. **Designs.**—The Designs Act of 1906 came into operation on the 1st January, 1907, being subsequently amended by the Patents, Designs and Trade Marks Act 1910, and the Designs Act 1912, and is now cited as the Designs Act 1906-12. Under this Act a Commonwealth Designs Office has been established and the Commissioner of Patents appointed "Registrar of Designs."

(i.) *Registration.* Any new and original design which has not been published in Australia before the lodging of an application for its registration may be registered in respect of all or any of the articles enumerated in the classification contained in the regulations, which comprise jewellery, paperhangings, carpets, floor-cloths, lace, hosiery, millinery, wearing apparel, textile fabrics, bookbinding, and articles composed wholly or chiefly of a variety of solid substances. A separate application must be made in respect of each class in which the owner of the design desires it to be registered. After an application for the registration of a design has been lodged, the design may be published and used without prejudice to the validity of the registration.

(ii.) *Duration of Copyright in Designs.* The registration takes effect as from the date of the lodging of the application, and, subject to the provisions of the Act, remains in force for a period of five years from that date. Provision is made by the amending Act of 1912 for an extension of the period of registration to fifteen years, subject to applications for extensions being made and the prescribed fees paid before the expiration of five and ten years respectively. The owner of a registered design must within two years after registration substantially use the design, or cause it to be used, in Australia, and if he fails to do so the copyright ceases. If, however, such design is used in any manufacture abroad, the above period is limited to six months.

(iii.) *General.* The Act also contains provisions regarding the remedies for infringement of designs and the rectification of the register. Arrangements for the international and intercolonial protection of copyright in designs were made by the same proclamation referred to above with regard to patents and trade marks. The owner of a registered design must cause each article to which the design is applied to be marked before delivery for sale with the prescribed mark to denote that the design is registered.

5. **Application for Trade Marks and Designs.**—The following table gives particulars of trade mark and design applications received and registered under the Commonwealth Acts from 1909 to 1916 inclusive :—

**TRADE MARK AND DESIGN APPLICATIONS RECEIVED AND REGISTERED UNDER
COMMONWEALTH ACTS, 1909 to 1916.**

Applications.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.
RECEIVED.								
Trade Marks	1,688	1,729	1,977	1,803	1,957	1,619	1,526	1,636
Designs ...	187	186	203	235	301	267	326	298
REGISTERED.								
Trade Marks	1,455	1,190	1,323	1,389	1,468	1,272	1,015	1,126
Designs ...	166	160	180	211	281	220	266	253

The following table shows the revenue of the Trade Mark and Design Office during the years 1913 to 1916:—

REVENUE OF TRADE MARK AND DESIGN OFFICE, 1913 to 1916.

Particulars.	1913.			1914.			1915.			1916.		
	Trade Marks.	Desig's	Publi- cations									
	£	£	£	£	£	£	£	£	£	£	£	£
Fees collected under State Acts ...	38	42	32	21
Fees collected under Commonwealth Acts ...	5,260	293	123	4,510	266	102	4,024	329	95	4,230	354	89
Total ...	5,298	293	123	4,652	266	102	4,056	329	95	4,301	354	89

6. Enemy Patents and Trade Marks.—On the outbreak of the European war the Commonwealth Government deemed it advisable to extend the powers of the Governor-General of the Commonwealth during the continuance of hostilities with reference to patents, trade marks, and designs, the property of alien enemies.

Acts Nos. 15 and 16 of 1914 were accordingly passed by the Commonwealth Parliament in November, 1914, giving the Governor-General power to make regulations as follows:—

- (a) for avoiding or suspending in whole or in part any patent or license the person entitled to the benefit of which is the subject of any State at war with the King;
- (b) for avoiding or suspending the registration, and all or any rights conferred by the registration, of any trade mark or design the proprietor whereof is a subject as aforesaid;
- (c) for avoiding or suspending any application made by any such person under any of the Acts referred to in this section;
- (d) for enabling the Minister to grant, in favour of persons other than such persons as aforesaid, on such terms and conditions, and either for the whole term of the patent or registration or for such less period, as the Minister thinks fit, licenses to make, use, exercise or vend patented inventions and registered designs so liable to avoidance or suspension as aforesaid; and
- (e) for extending the time within which any act or thing may or is required to be done under any of the Acts referred to in this section.

The regulations prescribed by the Governor-General for giving effect to the provisions of these Acts may be found in the official journals issued by the Commonwealth Commissioner of Patents (see *Australian Official Journal of Patents*, vol. 20, No. 47 *et seq.*).

To the end of June, 1917, twenty applications had been made under these Acts to avoid or suspend patents, of which five were granted and three refused, the others being withdrawn. Twenty-seven applications were also made to avoid or suspend trade marks, of which seven were granted, ten refused, three withdrawn, and seven are still pending. Five hundred and fifty-eight Commonwealth and eleven State registrations of trade marks, and all rights conferred by such registrations, also have been suspended in favour of the Minister of State for Trade and Customs. In addition, four patents were suspended in favour of the Engineer-in-Chief for the Commonwealth Railways and such person or persons as may be licensed by the Minister.

7. Publication of Inventions during Present State of War.—Under the War Precautions (Patents) Regulations 1916 (Statutory Rules 140), any person intending to apply for a patent outside the Commonwealth must give notice of his intention to the Commissioner of Patents, who will refer the notice to the Patents Inquiry Board. If the Board is of opinion that the invention is one which would be of assistance to the enemy, or its publication outside the Commonwealth would be detrimental to the interests of the Commonwealth, the applicant is directed not to publish or communicate his invention.

Under the same regulations every application for a patent, except applications the publication of which in the opinion of the Commissioner of Patents would obviously not be detrimental to the Commonwealth, shall also be referred to the Board. If the Board determines that an invention might be of assistance to the enemy, the applicant shall not, during the continuance of the present state of war, proceed with his application either within or beyond the Commonwealth.

Provision is also made under these regulations for the Attorney-General to give permission in writing for an application to be made abroad under the terms of the International Convention in respect of any invention the subject of an application in the Commonwealth lodged prior to the 12th January, 1916.

§ 3. Copyright.

1. Copyright Legislation.—Prior to the 1st January, 1907, the date on which the Commonwealth Copyright Act of 1905 came into operation, the subject of copyright was regulated by the laws of the separate States. In general, the State laws were under the like provisions of the Imperial Copyright law, including the law of 1842 and the earlier unrepealed or subsequent Acts, the most important of which were the Colonial Copyright Act 1847 and the International Copyright Act of 1886. They were also generally included under British international relations embracing the Berne-Paris provisions of the International Copyright Union and the reciprocal relations with the United States of America, but, with the exception that in the Austria-Hungary Treaty, New South Wales and Tasmania were not parties, because they did not exercise the right of ratification especially reserved to individual colonies.

Though the Commonwealth Copyright Act of 1905 took the place of the State Copyright Acts formerly in force, it left unaffected existing rights under the State laws, but transferred the administration thereof to the Commonwealth. Provision was also made under the law of 1905 for the registration of International and State copyrights. The principal features of the Act of 1905 are given in previous issues of the Year Book (see No. 9, p. 1119). This Act was repealed by the Copyright Act of 1912, which was assented to and became operative on the 20th November, 1912. Subject to modifications relating to procedure and remedies, the Commonwealth law of 1912 adopted the British Copyright

Act of 1911, and declared the latter law to be in force within the Commonwealth as from the 1st July, 1912. The British Act extends throughout the whole of His Majesty's dominions, but it is not to be in force in a self-governing dominion unless enacted by the legislature thereof either in full or with modifications relating exclusively to procedure and remedies necessary to adopt the Act to the circumstances of the dominion.

Under the Commonwealth Law of 1912, copyright subsists in "every original literary, dramatic, musical, and artistic work," first published within parts of His Majesty's dominions to which the British Copyright Act of 1911 extends, and in the case of an unpublished work, the author of which was "at the date of the making of the work," a British subject or a resident domiciled within the aforesaid parts of His Majesty's dominions (or under protection through international copyright provisions). The old Common Law right is abrogated by the Act of 1912, and all copyright property is now the creature of statute from the date when it takes shape, either written in words or in some other material form.

Copyright is defined to mean the sole right to produce or reproduce the work or any substantial part thereof in any material form whatever, or any translation thereof, to publish, perform, or deliver the work in public, to dramatise or novelise it, and in the case of a literary, dramatic or musical work, to make any record, cinematograph film or other contrivance by means of which it may be mechanically performed or delivered, or to authorise any of such acts. Architectural works of art are included as to design, but not as to process or methods of construction.

Further details relative to the provisions of the Act of 1912 will be found in previous issues of the Year Book (see No. 8, p. 1066).

2. **Applications for Copyright.**—The following table gives particulars of copyright applications received and registered under the Commonwealth Acts from 1912 to 1916 inclusive:—

**COPYRIGHT APPLICATIONS RECEIVED AND REGISTERED UNDER
COMMONWEALTH ACTS, 1912 to 1916.**

Year.	Copyrights.			
	Literary.	Artistic.	International and State.	Total.
APPLICATIONS RECEIVED.				
1912	463	415	8	886
1913	505	340	...	845
1914	743	219	5	967
1915	740	237	4	981
1916	845	180	...	1,025
APPLICATIONS REGISTERED.				
1912	401	318	10	729
1913	429	245	...	674
1914	693	184	5	882
1915	742	222	3	967
1916	797	168	...	965

The revenue from copyright for the years 1912, 1913, 1914, 1915, and 1916 was £145, £169, £239, £252, and £268 respectively.

§ 4. Old-age and Invalid Pensions.

1. **General.**—In previous issues an account has been given of the introduction of the old-age pension system into Australasia. Then followed a detailed description of the Commonwealth Invalid and Old-age Pensions Act of 1908, which became operative on

1st July, 1909. It is not intended to repeat these sections in the present publication; enquirers into the subject are referred to previous issues (3-8) of the Official Year Book. In view, however, of the interest attaching to the working of the system, the series of statistical tables which have hitherto been published will be continued.

Details of the several States as at 30th June, 1916, are as follows:—

COMMONWEALTH OLD-AGE PENSIONS, YEAR ENDED 30th JUNE, 1916.

	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'w'lth.
Claims examined during year ending 30th June, 1916 ...	4,440	3,093	1,753	1,213	536	450	11,485
Claims rejected ...	670	124	330	55	62	22	1,263
Claims granted ...	3,770	2,969	1,423	1,158	474	428	10,222
Transfers from other States ...	395	276	135	166	88	41	1,101
Existing 30th June, 1915 ...	32,904	28,365	11,924	9,018	4,153	4,528	90,892
	37,069	31,610	13,482	10,342	4,715	4,997	102,215
To be deducted—							
Deaths ...	2,884	2,412	1,056	688	319	354	7,713
Cancellations, and transfers to other States ...	936	752	377	336	197	121	2,719
	3,820	3,164	1,433	1,024	516	475	10,432
Old-age Pensions existing on 30th June, 1916 ...	33,249	28,446	12,049	9,318	4,199	4,522	91,783

2. Sexes of Old-age Pensioners.—Of the 91,783 persons in receipt of pensions at 30th June, 1916, 37,832 (or 41 per cent.) were males, and 53,951 (or 59 per cent.) were females. Details for the several States are as follows:—

SEXES OF PENSIONERS, 30th JUNE, 1916.

State.	Males.	Females.	Total.	*Masculinity.
New South Wales ...	14,630	18,619	33,249	78.58
Victoria ...	10,708	17,738	28,446	60.37
Queensland ...	5,501	6,548	12,049	84.01
South Australia ...	3,522	5,796	9,318	60.77
Western Australia ...	1,890	2,309	4,199	81.85
Tasmania ...	1,581	2,941	4,522	53.76
Total ...	37,832	53,951	91,783	70.12

* Number of males to each 100 females.

3. Ages and Conjugal Condition of Old-age Pensioners Admitted during 1915-16.—The recorded ages of the 10,222 persons to whom pensions were granted during the year 1915-16 varied considerably, ranging from 2035 at age 60 to one at age 95. Particulars for quinquennial age-groups are as follows:—

AGES AND CONJUGAL CONDITION OF PENSIONERS ADMITTED DURING 1915-16.

Age at Admission.	Males.				Females.				Grand Total.
	Single.	Married.	Widowed	Total.	Single.	Married.	Widowed	Total.	
60-64	66	177	47	290	364	1,860	1,591	3,815	4,105
65-69	636	1,615	565	2,816	85	514	454	1,053	3,869
70-74	173	433	235	841	50	206	322	578	1,419
75-79	67	147	101	315	18	53	176	247	562
80-84	10	31	49	90	7	13	85	105	195
85-89	2	13	16	31	...	...	26	26	57
Above 90 ... ..	...	1	4	5	...	1	9	10	15
Total	954	2,417	1,017	4,388	524	2,647	2,63	5,834	10,222

4. Commonwealth Claims for Invalid Pensions.—The situation as at 30th June, 1916, was as follows:—

COMMONWEALTH INVALID PENSIONS.—YEAR ENDED 30th JUNE, 1916.

	N.S.W.	Vic.	Q.	S.A.	W.A.	Tas.	Total C'wealth.
Claims examined during year ending 30th June, 1916	2,116	1,756	994	479	275	400	6,020
Claims rejected	413	230	196	87	52	50	1,028
Claims granted	1,703	1,526	798	392	223	350	4,992
Transfers from other States	59	71	39	26	8	10	213
Existing 30th June, 1915	8,138	6,054	2,430	1,511	935	1,349	20,417
	9,900	7,651	3,267	1,929	1,166	1,709	25,622
Deduct—							
Deaths	445	598	191	149	91	107	1,581
Cancellations and Transfers to other States	99	184	122	105	18	74	602
	544	782	313	254	109	181	2,183
Invalid Pensions existing 30th June, 1916	9,356	6,869	2,954	1,675	1,057	1,528	23,439

5. Sexes of Invalid Pensioners.—Of the 23,439 persons in receipt of an invalid pension on 30th June, 1916, 11,753, or 50.14 per cent., were males, and 11,686, or 49.86 per cent., were females. Details for the several States are as follows:—

SEXES OF INVALID PENSIONERS, 30th JUNE, 1916.

State.	Males.	Females.	Total.	*Masculinity.
New South Wales	4,819	4,537	9,356	106.22
Victoria	3,325	3,544	6,869	93.82
Queensland	1,581	1,373	2,954	115.15
South Australia	720	955	1,675	75.39
Western Australia	586	471	1,057	124.42
Tasmania	722	806	1,528	89.58
Commonwealth	11,753	11,686	23,439	100.57

* Number of males per 100 females.

6. **Ages and Conjugal Condition of Invalid Pensioners Admitted during 1915-16.**—The recorded ages of the 4992 persons who received invalid pensions in the period under review varied from 16 to 93. The following table gives particulars for those up to age 20 and in decennial age-groups after age 20:—

AGE AND CONJUGAL CONDITION OF INVALID PENSIONERS ADMITTED IN 1915-16.

Age at Admission.	Males.				Females.				Grand Total.
	Single.	Married.	Widowed.	Total.	Single.	Married.	Widowed.	Total.	
16-19	166	1	...	167	165	1	...	166	333
20-29	207	38	...	245	236	10	7	253	498
30-39	136	149	3	288	185	46	28	259	547
40-49	149	300	29	478	159	110	118	387	865
50-59	250	536	107	893	193	372	444	1,009	1,902
60-69	172	366	107	645	28	48	58	134	779
70-79	12	13	7	32	3	6	22	31	63
80 and over ...	...	...	1	1	...	...	4	4	5
Total ...	1,092	1,403	254	2,749	969	593	681	2,243	4,992

7. **Cost of Administration.**—Under the State régime the cost of administration differed considerably in the several States, and for 1908-9 represented in New South Wales 4.17 per cent. of the amount actually paid in pensions. In Victoria for the same year the corresponding percentage was 0.70. During the year 1915-16 the total cost to the Commonwealth of administering the Old-age and Invalid Pensions Department was £44,401, or about 1.5 per cent. of the amount actually paid in pensions. Details concerning the cost of administration for 1915-16 are as follows:—

Salaries ... ..	...	...	...	...	...	...	...	£ 11,325
Temporary assistance ... ..	...	...	...	...	...	...	...	1,617
Services of magistrates, registrars, clerks of courts, and police ... ..	...	...	...	...	...	...	...	3,643
Commission to Postmaster-General's Dept., at 12s. 6d. per £100 paid ... ..	...	...	...	...	...	...	...	17,696
Postage and telegrams ... ..	...	...	...	...	...	...	...	2,200
Other expenses ... ..	...	...	...	...	...	...	...	7,920
Total ...	...	...	...	...	...	...	...	£44,401

The actual sum disbursed in Old-age and Invalid Pensions in the financial year 1915-16, apart from the cost of administration, was £2,859,766.

8. **Liability Undertaken in Granting Old-age Pensions.**—As an indication of the extent of the responsibility which an old-age pension scheme involves, it may be mentioned that in connection with the evidence tendered to the Commonwealth Commission on Old-age Pensions a computation was made of the total liability in respect of accrued pensions which the Commonwealth would have incurred if, at 31st March, 1901, the date of the Census, 39 per cent. of the persons aged sixty-five and upwards were entitled to pensions of ten shillings per week. The present value at that date of the liability so computed was £10,415,820. (See Minutes of Evidence of Royal Commission on Old-age Pensions, p. 80.)

The following table gives detailed statistical information concerning the working of the Act since 1st July, 1909:—

INVALID AND OLD-AGE PENSIONS.—SUMMARY.

Financial Year ended 30th June.	Number of Pensioners.			Amount Paid in Pensions.	Amount Paid to Asylums for Maintenance of Pensioners.	Total Payment to Pensioners and Asylums.	Cost of Administration	Cost of Administration per £100 paid to Pensioners and Asylums.	Average Fortnightly Pension on last day of Financial Year
	Old-Age.	Invalid.	Total.						
				£	£	£	£	£ s. d.	s. d.
1910	65,492	...	65,492	1,497,330	155	1,497,485	37,146	2 9 7 %	19 1
1911	75,502	7,451	82,953	1,868,648	2,592	1,871,240	39,244	2 1 11 %	19 1
1912	79,071	10,763	89,834	2,148,034	7,447	2,155,481	41,794	1 18 9 %	19 0
1913	82,943	13,739	96,682	2,289,048	13,287	2,302,335	44,523	1 18 8 %	19 6
1914	87,780	16,865	104,645	2,577,965	14,236	2,592,201	47,015	1 16 3 %	19 5
1915	90,892	20,417	111,309	2,704,309	27,630	2,731,939	48,018	1 15 4 %	19 5
1916	91,783	23,439	115,222	2,859,766	31,831	2,891,597	44,401	1 10 9 %	19 4

9. On 30th September, 1916, an Act was assented to, which amended the original Pensions Act in a very important particular. It had been felt for some time that, owing to the increased cost of living, the grant of ten shillings a week was insufficient. Accordingly amendments were made in the case of the two important sections, twenty-four and twenty-six.

Section 24 of the Invalid and Old-age Pensions Act 1908-1912 originally enacted that the pension "shall not exceed the rate of twenty-six pounds per annum in any event, nor shall it be at such a rate as will make the pensioner's income, together with pension, exceed fifty-two pounds per annum." It was amended (a) by omitting the words "twenty-six pounds," and inserting in their stead the words "thirty-two pounds ten shillings": and (b) by omitting the words "fifty-two pounds" and inserting in their stead the words "fifty-eight pounds ten shillings."

Section 26 originally enacted that if an applicant for pension was in receipt of board or lodging, the actual or estimated value or cost of this should be counted as income, to an extent not exceeding five shillings per week. This has now been amended by omitting the words "five shillings" and inserting in their stead the words "seven shillings and sixpence."

The effect of these amendments is to increase the liability under the heading of Invalid and Old-Age Pensions by about twenty-five per cent.

§ 5. Maternity Allowance.

The Federal Parliament, during the session of 1912, passed an Act (assented to on 10th October, 1912) providing under certain circumstances for the payment of maternity allowances. The scope and main provisions of the Act will be gathered from the following sections and sub-sections, given in full:—

4. "Subject to this Act, there shall be payable out of the Consolidated Revenue Fund, which is hereby appropriated accordingly, a maternity allowance of Five pounds to every woman who, after the commencement of this Act, gives birth to a child, either in Australia or on board a ship proceeding from one port in the Commonwealth or a Territory of the Commonwealth to another port in the Commonwealth or a Territory of the Commonwealth."
5. (1) "A maternity allowance shall be payable in respect of each occasion on which a birth occurs, and the child is born alive, or is a viable child, but only one allowance shall be payable in cases where more than one child is born at one birth."
6. (1) "The maternity allowance shall be payable only to women who are inhabitants of the Commonwealth or who intend to settle therein."
- (2) "Women who are Asiatics or are aboriginal natives of Australia, Papua, or the islands of the Pacific, shall not be paid a maternity allowance."

The following table gives a statistical summary of the most important points in connection with the working of the Maternity Allowance Act since 10th October, 1912, when the first payments were made:—

COMMONWEALTH MATERNITY ALLOWANCE.—SUMMARY.

Year ended 30th June.	Claims Paid.	Claims Rejected.	Amount Paid.	Cost of	Cost per £100 of allowance paid.
				Administration.	
			£	£	£ s. d.
1913 (a)	82,475	619	412,375	6,547	1 11 9
1914	134,998	709	674,990	10,281	1 10 6
1915	138,855	640	694,275	12,900	1 17 2
1916	131,943	504	659,715	12,165	1 16 11

(a) From 10th October, 1912.

§ 6. War Pensions.

1. **General.**—An Act for the provision of war pensions was passed in 1914 and amended in 1915 and 1916. Its scope can be determined by the following extract from Section 3. "Upon the death or incapacity of any member of the forces whose death or incapacity results, or has resulted, from his employment in connection with warlike operations in which His Majesty is, or has since the commencement of the present state of war been, engaged, the Commonwealth shall, subject to this Act, be liable to pay to the member or his dependants, or both, as the case may be, pensions in accordance with this Act."

A very great latitude is allowed in the interpretation of the word "dependants." It includes the wife or widow of any member of the forces; the widowed mother of an unmarried son; the children (including ex-nuptial children); the parents, if without adequate means of support; and such other members of his family as were wholly or in part dependent upon his earnings at any time within twelve months prior to his enlistment.

2. **Rates of Pension:** (1) The rates of pension payable under this Act are as follows:—

(A) In case of the death of a member of the forces:

- (i.) To the widow, or the widowed mother of an unmarried son, the rate specified in column two of the first schedule opposite to the rate of pay of the member, and
- (ii.) to each child, the rate of twenty shillings per fortnight for the first child, fifteen shillings per fortnight for the second child, and ten shillings per fortnight for the third and each subsequent child, and
- (iii.) to the other dependants such rates as are assessed by the Commissioner or the Deputy-Commissioner, as the case may be, but not exceeding in the aggregate the rate specified in column two of the first schedule opposite to the rate of pay of the member plus two pounds per fortnight:

Provided that the maximum rate of pension payable to any one dependant of a member shall not in any case exceed the amount specified in column two of the first schedule opposite to the rate of pay of the member.

(B) In case of the total incapacity of a member of the Forces:—

- (i.) To the member the rate specified in column three of the first schedule, opposite to the rate of pay of the member, and
- (ii.) to the wife of a member fifty per centum of that rate, and
- (iii.) to each child of the member, the rate of twenty shillings per fortnight for the first child, fifteen shillings per fortnight for the second child, and ten shillings per fortnight for the third and each subsequent child, and

- (iv.) to the other dependants such rates as are assessed by the Commissioner, or the Deputy-Commissioner, as the case may be, but not exceeding in the aggregate the rate specified in column two of the first schedule, opposite to the rate of pay to the member, plus two pounds per fortnight. Provided that the maximum rate of pension payable to any one dependant of a member shall not in any case exceed the amount specified in column two of the first schedule, opposite to the rate of pay of the member.
- (c) In case of the partial incapacity of a member of the Forces, such less rates than those referred to in paragraph (B) as are assessed by Commissioner, or the Deputy-Commissioner, as the case may be, having regard to the nature and probable duration of the incapacity.
- (2) Notwithstanding anything contained in this section, the maximum rate of pension payable to a child, both of whose parents are dead, shall be :—
- (i.) up to ten years of age, one pound per fortnight;
 - (ii.) from ten to fourteen, twenty-five shillings per fortnight; and
 - (iii.) from fourteen to sixteen years of age, thirty shillings per fortnight.
- (3) The amount of pension granted and payable to a member of the Forces shall not be reduced within the period of six months from the date of the commencement of the pension.
- (4) Any member of the Forces who is incapacitated by reason of a disability specified in the second schedule, shall receive the rate of pension shewn opposite to the description of the disability in that schedule.
- (5) If a member of the Forces who is unmarried or whose wife is either dead or a permanent invalid is incapacitated to an extent which necessitates the constant services of an attendant, and the member has not the means to pay for such services, the rate of his pension may be increased by a sum not exceeding one pound per fortnight.

3. The schedules to which reference has been made in the preceding section are as follows :—

THE FIRST SCHEDULE.

Scale of pensions payable to widow on death of a member of the Forces, or to a member upon total incapacity :

Column One. Rate of Pay of the Member per Day.		Column Two. Pension Payable to Widow on Death of Member.	Column Three. Pension Payable to Member upon Total Incapacity.
s. d.		£ s. d.	£ s. d.
6 0	and under	2 0 0	3 0 0
7 0	"	2 3 0	3 2 0
9 0	"	2 9 0	3 6 0
10 0	"	2 12 3	3 8 0
10 6	"	2 13 9	3 9 0
11 6	"	2 16 0	3 11 0
12 0	"	2 17 3	3 12 0
13 0	"	2 19 6	3 14 0
17 6	"	3 10 0	4 0 0
22 6	"	3 17 6	4 5 0
30 0	"	4 9 0	4 15 0
37 6	"	5 0 9	5 5 0
45 0	"	5 12 3	5 15 0
50 0	and upwards	6 0 0	6 0 0

THE SECOND SCHEDULE.

Description of Disability.	Rate of Pension Payable.
Loss of leg or foot	The maximum rate for six months, there- after three-fourths of the maximum rate.
Loss of hand or arm	The maximum rate for six months, there- after three-fourths of the maximum rate.
Loss of one eye	Half of the maximum rate.
Loss of both legs	} The maximum rate.
" " arms	
" " feet	
" " hands	
" " eyes	
Loss of arm and leg	
Loss of hand and foot	
Loss of one eye, together with loss of leg, foot, hand, or arm	

4. The following statistical tables shew the position of affairs as at the 30th June, 1916:—

TABLE I.—PARTICULARS OF WAR PENSIONERS, AT 30th JUNE, 1916.

	In respect of Deceased Members.	In respect of Incapaci- tated Members.	Total.
(i.) Dependants of members of the Forces—			
(a) Wives or widows	909	488	1,397
(b) Children under 16 years	1,485	814	2,299
(c) Children over 16 years	20	16	36
(d) Widowed mothers of unmarried members	626	19	645
(e) Other mothers of members	846	61	907
(f) Fathers	222	3	225
(g) Brothers and sisters	151	4	155
(h) Others	55	10	65
Total number of dependants of members of the Forces	4,314	1,415	5,729
(ii.) Incapacitated members of the Forces ... ..	...	3,025	3,025
Total number of war pensioners at 30th June, 1916	4,314	4,440	8,754

TABLE II.—NUMBER OF WAR PENSIONERS ON 30th JUNE, 1916.

	Incapacitated Members of the Forces.	Dependants of		Total.
		Deceased Members.	Incapacitated Members.	
South Africa	1	2	1	4
New Zealand	12	28	2	42
New South Wales	1,048	1,311	485	2,844
Victoria	865	1,506	505	2,876
Queensland	491	284	169	944
South Australia	268	320	206	794
Western Australia	192	329	...	521
Tasmania	75	216	44	335
London	73	318	3	394
	3,025	4,314	1,415	8,754

TABLE III.—EXPENDITURE IN 1915-16.

	£		£
New South Wales	39,449	Tasmania	4,706
Victoria	54,221	London	8,647
Queensland	12,802		
South Australia	9,586		
Western Australia	8,509	Total	£137,920

The expenditure in 1916-17 has been returned as £1,149,423, but this figure is subject to a slight revision. The cost of administration was £10,187 in 1915-16, and £37,560 in 1916-17.

§ 7. Local Option.

1. **General.**—The principles of local option as to the sale of fermented and spirituous liquors have been applied in all the States of the Commonwealth. The last State to adopt these principles was Western Australia, where provision was made for a system of local option by the Licensing Act 1911. Since the outbreak of war in 1914, various enactments have been made in several of the States relative to the control of the liquor traffic. While not in any way pertaining to the scheme of local option, these measures are referred to in this section, as possibly, if not probably, affecting future public opinion in regard to this matter.

2. **New South Wales.**—(i.) *Local Option.* The Act in force relating to local option in this State is the Liquor Act 1912, which consolidates the laws relating to publicans, brewers and other persons engaged in the brewing, manufacture or sale of liquor. The local option vote is taken in every electorate on the day fixed for the poll therein at each general election, but special provision was made under The Liquor Amendment Act 1916 to suspend the taking of the local option vote at the general election in 1917. The option with regard to licenses extends to public-houses, wineshops, and clubs, and the persons entitled to vote are those entered on the Parliamentary electoral rolls. The first local option vote under the Liquor (Amendment) Act of 1905 was taken at the general election in 1907, and the second at the election in 1910, while the vote in 1913 was taken under the Liquor Act 1912. In 1907, when the first local option vote was taken, there were 3023 hotels in existence; of this number 293 were ordered to be closed at varying dates. At the election of 1910 there were 2869 hotels, and

of these, 28 were ordered to be closed. At the 1913 election there were 2719 hotels, of which 23 were closed before July, 1917. The number of wine licenses at the time of the vote of 1907 was 633, of which 46 were abolished. In 1910, 5 out of 565 were closed, and in 1913, 7 out of 514 were ordered to be closed. The resolutions to be submitted, and the effects of such resolutions, if carried, are given *in extenso* in previous issues of this book. The following statement shews the number of electorates in which each of the resolutions was carried:—

NEW SOUTH WALES.—EFFECTS OF LOCAL OPTION VOTES, 1907, 1910, and 1913.

Particulars.	General Election, 1907.		General Election, 1910.		General Election, 1913.	
	Electorates.	Votes.	Electorates.	Votes.	Electorates.	Votes.
<i>Results in favour of—</i>						
(a) Continuance ...	25	209,384	76	324,973	75	380,707
(b) Reduction ...	65	75,706	14	38,856	15	44,453
(c) No license ...	Nil	178,580	Nil	212,889	Nil	245,202

(ii.) *Liquor Referendum Act 1916.* On 17th February, 1916, a proclamation was issued, in terms of the War Precautions Act, by the Minister for Defence, ordering that licensed premises be closed at 6 p.m. in the County of Cumberland, and within a radius of five miles from any military camp; a week later the closing hour was varied from 6 to 8 p.m. Subsequently the Liquor Referendum Act 1916 was passed in the State Parliament to decide by referendum the hour of closing for premises licensed under the Liquor Act 1912. At the referendum the electors were enabled to record votes in order of preference for each hour from 6 to 11 p.m. inclusively. The count of the first preference votes resulted in a large majority for 6 o'clock, and from 21st July, 1916, all licensed premises and registered clubs in New South Wales have been closed at that hour. This determination prevails during the currency of the war and for a period not exceeding six months thereafter.

3. *Victoria.*—The Acts dealing with the subject of local option as to the sale of fermented and spirituous liquors, and with the compulsory closing of hotels in this State, are the Licensing Act 1915, No. 2683, and the Licensing Act 1916, No. 2855. Other Acts, now repealed, which dealt with the subject, are the Licensing Acts 1876, 1885, 1888, 1890, 1906, and 1907.

Part XIII. of the Act of 1915 relates to the subject of local option. Under this part the local option provisions were to come into operation at the first general election subsequent to 1st January, 1917. The 1916 Act provides that the first local option polls are not to be held till the second general election following on the above date. In the meantime, the Licenses Reduction Board, which by the same Act has been constituted the Licensing Court for the whole State, is empowered to continue the work of closing hotels, which it has carried out since 1906.

The reduction of a statutory number of hotels for each licensing district disappeared with the old provisions relating to closing, and the Court is now authorised to close hotels in any licensing district, as if resolution B (Reduction), under the local option provisions, had been carried in each district. This allows of a reduction proportionate to the existing number, the maximum closing not to exceed one-fourth. Power has also been given to accept the surrender of any victualler's license irrespective of the number otherwise closed. A greater number must not be closed than can be compensated, and the old limitation, that hotels licensed after 1886 were not entitled to compensation, has been removed.

(i.) *The Licenses Reduction Board.* This Board was established by the 1906 Act, with power to reduce the number of licensed victuallers' premises, up to December, 1916, in districts where there were more than the statutory number of licenses. It had also

the duty of fixing and awarding compensation to the owners of licenses of the closed hotels. The compensation was provided by an annual percentage fee of 3 per cent. on all liquor purchased by licensed victuallers. The compensation fund obtained in this manner has risen from £48,233 in 1907, to £63,623 in 1916, which was the highest figure reached. In 1916, with the restricted hours of trading, the amount received was £60,396. The licensing fund, which was distinct from the compensation fund, was protected by a provision that the remaining hotels, by a *pro rata* assessment, had to make up annually the amount of the license fees lost by the closing of hotels; the license fees for hotels were of varying amounts, based on the annual municipal value of the premises, ranging from £5 to £50, in four classes, viz., £5, £15, £25, £50. By the 1916 Act, this system of fixed fees was abolished, as was also the *pro rata* assessment of lost fees and the 3 per cent. compensation fees. The two funds referred to above were merged into one, and a system of percentage fees was applied to all licenses for the sale of liquor in the State, whether wholesale or retail, and the amount received is paid into one fund.

The Act was only passed late in the year, and it was not possible to apply it at once to all classes of licenses then in course of renewal, but provision was made for the fixing of the percentage fees as soon as the necessary returns could be made, and for the adjustment of the amounts payable.

Under this system, all vendors of liquor pay in proportion to the benefit they derive from the license. The amount charged the wholesale trade is four per cent. on the cost of all liquors sold to non-licensed persons, no charge being made on sales to other licensed vendors. The retail trade is charged six per cent on liquor purchases, except the holders of Australian wine licenses, who are charged four per cent.

During 1916, prior to the passing of the above Act, a number of owners and licensees, fearing that no provision would exist for the acceptance of surrenders when Part XIII. came into operation, took advantage of the existing provisions. Consequently, the number closed, 143, was in excess of the average, and the 1917 compensation funds had to be drawn upon to the extent of £18,087. The closings of 1917 have had to be somewhat curtailed for this reason. The maximum compensation payable is still governed by the trading results and the rents of the years 1903-6, though a concession was made in the Amending Act by which licensees are entitled to be compensated on a three years' tenure, if they are in possession of a lease of that extent when deprived of their license. Up to December, 1916, 1004 hotels were closed by the Board, the amounts awarded in compensation totalling £540,851, or an average of £514. Since then 76 additional hotels have been closed, but the compensation awards are not yet complete. The following table shews particulars of the operations of the Board up to the 31st December, 1916:—

VICTORIA.—OPERATIONS OF LICENSES REDUCTION BOARD, 31st DECEMBER, 1916.

Particulars.	Licenses in December, 1906.			Hotels De- prived of Licenses	Compensation Awarded.		Hotels Surren- dered.	Compensation Awarded.	
	Number in Exist- ence.	Statutory Number.	* Number in Excess.		Owner.	Licensee.		Owner.	Licensee.
Metropolitan & Suburban Country ...	1,020 2,428	877 1,622	401 967	271 517	£ 202,889 191,798	£ 39,993 29,595	12 254	£ 5,973 62,543	£ 1,149 5,911
Total ...	3,448	2,490	1,368	788	394,687	69,588	266	68,516	8,060

* In some districts the number of hotels was below the statutory number; in these districts the total number of hotels less than the statutory number was 418.

(ii.) *Early Closing of Hotels.* Consequent on the war, an Act (No. 2584) was passed, and came into operation on 6th July, 1915, restricting the hours for the sale of intoxicating liquors, the restriction being limited to the duration of the war. Sale was permitted only between the hours of 9 a.m. and 9.30 p.m. By a subsequent Act (No. 2776), tenants of licensed premises were given the right to apply to the Licenses Reduction Board to adjust the rents of their premises. The hours of trading in the evening were further restricted as from 25th October, 1916—six o'clock being fixed as the time of closing.

The provisions of the Rent Adjustment Act were extended so as to enable the Board to deal with applications for reductions of rent arising from fresh restrictions. Between 300 and 400 additional applications were received, the amounts involved being substantial.

Special provision was made in the 1916 Act for the granting of victuallers' licenses in the Mallee. Power was given to proclaim areas containing 500 resident electors, when petitions signed by a majority of the residents were lodged, and where the licensing court, after enquiring, recommended this course.

On the proclamation of an area, a poll of the electors is to be taken at which one-third of those enrolled must vote. A majority of those voting decides whether a license is to issue or not. These hotels must be at least twelve miles apart, except at Mildura, where special provision is made for the issue of three licenses.

4. **Queensland.**—The local option clauses of the Liquor Acts of 1912-1914 provide for the following:—

- (i.) The conditions under which new licenses may be granted until the completion of the business of the Licensing Court in April, 1916.
- (ii.) The continuance of the local option clauses of the Licensing Act of 1885 until the 31st December, 1916.
- (iii.) The institution of a new scheme, under which electors from and after the year 1917 will have the opportunity of voting every three years on the question of reduction or increase of licenses.

(i.) *New Licenses.* With regard to the granting of "new licenses" from the 1st April, 1913, and until the completion of the business of the Licensing Court in April, 1916, it is provided that no new licensed victualler's or wine seller's or provisional licenses shall be granted, unless at a local option vote of the electors of the local option area in which the premises or proposed premises are situated, a resolution "that new licenses shall be granted in this local option area" has been carried.

If the resolution is carried, the Court may, but need not, grant applications; but if the resolution is not carried, the Court shall not grant any application during the said years in the said local option areas.

The Acts of 1912 and 1914 provided that a local option vote following on an application for a license might be taken in any of the years 1913, 1914, 1915, and 1916 in a local option area, but having been taken once should not be taken again during those years in the same local option area. During 1913 a vote was taken in 10 districts on the resolution "that new licenses be granted." In five of these the resolution was carried, the other five districts declaring against any increase in the number of licenses. In 1914, 16 districts voted on the same resolution, in 11 of which it was carried, while in 1915, 16 districts also voted, the resolution being carried in 10 cases. On the 5th May, 1917, 57 polls were taken, 55 being in favour of reduction, and 2 for increase.

(ii.) *Continuance of Present System until 1917.* With the exception of the third resolution, viz., "that no new licenses be granted," the local option provisions of the Licensing Act of 1885 remain in full force and effect until the 31st December, 1916, with certain modifications and additions. These will be found fully described in previous issues of the Year Book (see No. 6, p. 1177).

(iii.) *General Local Option.* The first vote may be taken in the year 1917, either on the same day as the election of senators takes place, or if no senate elections is held in 1917 before the 30th September, then on a day to be appointed by the Governor-in-Council, and the vote will be by ballot.

The vote will be taken on the request of one-tenth of the number of electors in an area, which is defined in the request, and such area may be:—(a) an electoral district, (b) an electoral division of an electoral district, or, (c) a group of two or more divisions of an electoral district, provided that the whole of such local option area is wholly comprised within one and the same electoral district.

There must be a separate request for each resolution on which a vote is required to be taken.

The resolutions on which a vote may be taken are:—(a) reduction by one-fourth of the existing number, (b) further reduction by one-fourth of the existing number, (c) further reduction by one-fourth of the existing number, (d) prohibition, and (e) new licenses.

In previous issues of the Year Book (see No. 6, p. 1178) will be found fuller reference to the effect of the carrying of any of these resolutions.

5. South Australia.—In this State the subject of local option is now regulated by Part V. of the Licensing Act 1908.

Under this Act, each electoral district for the House of Assembly is constituted a local option district, and each electoral district may be divided into local option districts by proclamation of the Governor. A quorum consisting of 500 electors, or one-tenth of the total number of electors, whichever be the smaller number, in any district may petition to the Governor for a local option poll. The persons entitled to vote at the poll are those whose names appear on the electoral roll and who reside in the local option district.

The resolutions to be submitted under the Act, together with the effects such resolutions would have, are set out in detail in previous issues of the Year Book (see No. 6, p. 1179).

(i.) *Local Option Polls.* On the 2nd April, 1910, local option polls were taken under the Act of 1908 in twenty-four districts; the electors in the remaining nine local option districts did not petition for polls. A resolution that the number of licenses be reduced, was carried in only one district, Wallaroo; in the remaining 23 districts a resolution that the number of licenses be not increased or reduced, was carried. At the General Election of the House of Assembly held on the 10th February, 1912, no local option polls were held in any local option district. On the 27th March, 1915 (the same day as the Parliamentary elections), a local option poll was taken in the Flinders Southern (Port Lincoln) local option district, when the resolution "that the number of licenses be not increased or reduced" was carried. No other petitions were received during the year from any of the other local option districts.

(ii.) *Early Closing of Hotels.* On the 27th March, 1915, a referendum was held as to the hour for the closing of bar-rooms in licensed premises. Out of a total of 178,362 votes cast, 100,418 were cast in favour of closing bar-rooms at 6 p.m., those in favour of closing at 11 p.m. being 61,362. Electors had the choice of voting for hours other than the two mentioned, but the votes so cast were comparatively few.

6. Western Australia.—The law relating to local option in Western Australia is contained in Part V. (sections 75 to 86) of the Licensing Act 1911, which was assented to on 16th February, 1911, and came into force on the 7th April following. Prior to the passing of this Act there was no provision for any system of local option in Western Australia.

The resolutions to be submitted under the above-mentioned Act and the effect such resolutions would have, are given in detail in previous issues of the Year Book (see No. 6, p. 1180).

The first vote under the Act of 1911 was taken on 26th April, 1911, the main question being confined (as prescribed by the Act when the vote is taken prior to 1920) to a resolution "that the number of licenses be increased," the only other questions submitted being those of the State control of new publicans' general licenses and State management throughout all licensing districts.

The following table shows the result of this local option poll:—

WESTERN AUSTRALIA.—RETURN SHEWING THE RESULT OF LOCAL OPTION POLL OF 26th APRIL, 1911.

Result of Local Option Poll.		Do you vote that all new Publicans' General Licenses be held by the State.		Are you in favor of State Management throughout all Licensing Districts.	
Votes given in favor of the number of Licenses in the various districts being increased.	Votes given in favor of the number of Licenses in the various districts not being increased.	Yes.	No.	Yes.	No.
4,554	17,623	27,007	14,387	26,631	14,944

Under the 1911 Act a second poll was due on 26th April, 1914, but an amending Act was passed in December, 1913, continuing the present conditions until April, 1915. Subsequently, by an amending Act of 1915, the present conditions were further continued until 1918.

(i.) *Regulation of Liquor Traffic during the War.* In 1914, upon the outbreak of war, a special Act was passed in Western Australia empowering the Government by Proclamation to restrict or prohibit the sale or supply of liquor within any licensing district, or any portion of a licensing district, and rendered it an offence for any person, licensed or unlicensed, to offer for sale or supply liquor contrary to such Proclamation, with a penalty of £200, or imprisonment for twelve months.

Provision was also made to limit and fix the hours during which licensed premises in any district, or portion thereof, might be open for the sale of liquor. The Act also contained the necessary powers to enforce the provisions thereof, including power to search without warrant and seize any liquor where there was reason to believe that such liquor existed in a prohibited area.

The Act was passed solely as an emergency measure, and so far there has been no necessity to issue any Proclamation thereunder.

In 1915, a further Act was passed *regulating the sale of liquors*. That Act divided the State into four districts—Metropolitan, Goldfields, Agricultural, and North-West, the latter being exempt from the provisions of the Act.

The main feature, as regards the Metropolitan and Agricultural districts, was to reduce the period during which licensed premises could be open for the sale of liquor to the hours between 9 a.m. and 9 p.m., the previous period being between the hours of 6 a.m. and 11 p.m.

As regards the Goldfields district, the Act provided that upon receipt of a requisition signed by not less than 2000 electors in the district, a referendum should be held.

In submitting the referendum, each elector had one vote, and the voting paper set out the hours of 6 o'clock, 7 o'clock, 8 o'clock, 9 o'clock, 10 o'clock, and 11 o'clock p.m. as alternative hours of closing. Each elector was to indicate his vote by marking an "X" opposite the hour which he desired to have fixed as the hour of closing. If the majority of votes were cast in favour of any particular hour, that hour was to be certified as being the result of the vote and proclaimed as the hour of closing. If there was no majority, then the votes cast for the earliest hour were to be transferred to the next later hour, and so on until a majority was thus obtained, when such majority would have the same effect as if the votes were originally given in favour of the hour to which they had been transferred, and such hour would be proclaimed the hour of closing.

A petition signed by the necessary number of electors was duly received, and a referendum was taken on the 24th May, 1916, the result of the poll being that the majority of all votes cast was in favour of the hour of 11 o'clock p.m. being fixed as the hour of closing.

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The hour of 11 o'clock p.m. was the same as the hour originally fixed in the Licensing Act, and the result of the referendum therefore left the hour of closing the same, in so far as the goldfields district was concerned, as existed prior thereto.

7. *Tasmania*.—In this State the subject of local option is dealt with in Part VI. (sections 72 to 84) of the Licensing Act 1902, as subsequently amended by section 8 of the Licensing Act 1908, which later Act, however, does not come into full operation until the first of January, 1917. Other Acts which formerly dealt with the subject, but are now repealed, are the Licensing Acts 1889-1890, the Inn Keepers Relief Act 1894, and the Licensing Act Amendment Act 1898. Under the Act of 1902, opposition to the grant of a license may be made (i.) by any resident ratepayer, (ii.) by petition of ratepayers resident in the neighbourhood, or (iii.) by local option poll.

The conditions under which applications may be made to the Licensing Bench, opposing the granting of licenses, are set out in detail in previous issues of the Year Book. (See No. 6, p. 1181.)

(i.) *Local Option Poll*. Any number of ratepayers not less than seven, resident in the neighbourhood of the house in respect of which a provisional certificate or an hotel license has been applied for, may require, by petition lodged with the Clerk of Petty Sessions, that a poll of the ratepayers resident in the neighbourhood be taken upon the question whether such provisional certificate be granted or not. If a majority of the votes taken be against the granting of the certificate the Licensing Bench must refuse to grant it.

Particulars as to operations under Part VI. of the Act are not available.

(ii.) *Early Closing of Licensed Premises*. A referendum on the question of the closing time for the sale and supply of liquor on licensed premises (6 Geo. V., No. 63) was taken on the 25th March, 1916, when 42,713 votes were cast in favour of closing at six o'clock p.m., against 26,153 votes in favour of ten o'clock, and 3951 votes for other hours. The majority in favour of closing at six o'clock over all other hours was 12,609, and a Bill is to be presented to Parliament in the present session to give effect to the wishes of the electors.

§ 8. Preferential Voting.

In previous issues of the Year Book, a description in detail has been given of the systems of preferential voting now in force in the States of Victoria, Queensland, Western Australia and Tasmania. It is not intended to repeat the description in the present issue.

§ 9. Valuation of Commonwealth Production.

The want of uniformity in methods of compilation and presentation of Australian statistics renders it an extremely difficult task to make anything like a satisfactory valuation of the various elements of production. At present there is so little accurate statistical knowledge regarding such industries as forestry, fisheries, poultry, and bee-farming, that any valuation of the production therefrom can only be regarded as the roughest approximation. As a matter of fact, complete information as to value of production in all States is available in regard to the mining industry alone, and even in this case adjustments have to be made before the returns are strictly comparable. Careful estimates have been made in connection with the value of production from the agricultural and pastoral industries, which, it is believed, in the main give fairly accurate results. In the case of manufactories, prior to 1909, five of the States collected statistics of the value of production, while, for the sixth State, Tasmania, an estimate has been prepared which it is believed gives a fair approximation. The returns given in the following table are fuller and more approximate than those which have been given

previously, and the returns collected in 1909 and subsequent years, may be taken as substantially correct. The table hereunder shews the approximate value of the production from all industries during the years 1909 to 1915 :—

ESTIMATED VALUE OF PRODUCTION FROM INDUSTRIES, 1909 to 1915.

Year.	Agriculture.	Pastoral.	Dairy, Poultry, & Bee-farming.	Forestry and Fisheries.	Mining.	Manufacturing.*	Total.
	£1000.	£1000.	£1000.	£1000.	£1000.	£1000.	£1000.
1909 ...	41,056	50,864	15,064	4,462	23,039	39,713	174,198
1910 ...	39,752	56,993	17,387	4,789	23,215	45,598	187,734
1911 ...	38,774	50,725	19,107	5,728	23,480	50,767	188,581
1912 ...	45,754	51,615	20,280	6,432	25,629	57,022	206,732
1913 ...	46,162	57,866	20,341	6,338	25,808	61,586	218,101
1914 ...	36,052	60,265	21,562	6,419	22,265	62,922	209,485
1915 ...	73,769	65,607	21,156	5,777	22,397	62,883	251,589

* These amounts differ from those given in Section XIII., Manufacturing Industries, owing to certain products which are there included having been included in Dairy Farming and Forestry in this table.

The total production from all industries during 1915 was £251,589,000, equal to an average of £50,16s. 6d. per inhabitant.

In Year Books Nos. 1 to 5 will be found the value of production in each State at decennial intervals since 1871, and for the year 1909. Details for individual States are not available for subsequent years owing to discontinuance by the Customs Department of the collection of statistics of interstate trade.

§ 10. Norfolk Island.

1. **Area, Location, etc.**—Norfolk Island, discovered by Captain Cook in 1774, is situated in latitude 29° 3' 45" south, longitude 167° 58' 6" east. Its total area is 8528 acres, the island being about 5 miles long and 3 miles wide. From Sydney it is distant 930 miles, and from New Zealand 400 miles. The coast line is 20 miles, and its form that of an irregular ellipse. Except on the south-west, inaccessible cliffs rise from the water's edge. The climate is equable, and the average annual rainfall 43 inches.

2. **Settlement.**—The first colonisation, in 1788, was by Lieutenant King, who in H.M.S. *Sirius* established a small penal station as a branch settlement of that at Port Jackson. The settlement was abandoned in 1806, and thence for 20 years its chief use was as a whaling station and place of call for British warships.

From 1826 to 1855 it was again made a penal station. In 1844 it was annexed to Van Diemen's Land (Tasmania).

The descendant^s of the *Bounty* mutineers having become too numerous to subsist on Pitcairn Island were removed thence to Norfolk Island in 1856. The new community numbered 193—94 males and 99 females—and were the descendants of British sailors and Tahitian women.

In 1856 the island was severed from Tasmania, and created a distinct and separate settlement under the jurisdiction of New South Wales. In 1897 it was made a dependency under the Governor of that Colony, and was administered by the Chief Secretary's Department through a resident Chief Magistrate, in whom was vested the executive government of the settlement, and the penal supervision of its affairs. In 1913, however, a Bill was passed by the Federal Parliament providing for the taking over of the Island as a territory of the Commonwealth. The Act came into force on 1st July, 1914, and the Island is now administered by the Department of Home and Territories, Melbourne, through an Administrator and Chief Magistrate.

3. **Population and Live Stock.**—The population on 31st December, 1916, was 927, including 113 Melanesians being trained at the mission station. The latest returns of live stock shew that there are in the island 1735 cattle, 619 horses, 667 sheep, and 306 pigs.

4. **Production, Trade, etc.**—In 1914-15 the imports were valued at £12,119, of which £10,679 was imported from New South Wales, £554 from New Zealand, and £886 from England. The exports were valued at £4001, the chief items being fruit, £810; seeds, £438; lemon juice, £1795; and hides, £256. Nearly all the export trade was with the Commonwealth, only small amounts going to New Zealand and the South Sea Islands. There is little other production. A five-weekly steam service is maintained with Sydney; other communication is irregular. The "all red" cable from Great Britain *via* Vancouver, Fanning Island and Fiji, bifurcates at Norfolk Island, one line connecting with New Zealand, the other with Brisbane.

5. **Social Condition.**—Education is free and compulsory, and there is a public school under the N.S.W. Department of Public Instruction, and with standards corresponding to the State public schools. The number of scholars enrolled is 164 (82 boys and 82 girls). A mission station has for many years been in existence for the education and general training of Melanesians, mostly from the Santa Cruz and Solomon Islands.

The magistrate's court has criminal jurisdiction in all crimes except capital offences, civil jurisdiction in all matters, and authority to grant probate and letters of administration.

§ 11. Lord Howe Island.

1. **Area, Location, etc.**—Between Norfolk Island and the Australian coast is Lord Howe Island in latitude 31° 30' south; longitude 159° 5' east. It was discovered in 1788. The total area is 3220 acres, the island being seven miles in length and from one-half to one and three-quarter miles in width. It is distant 436 miles from Sydney. The flora are varied and the vegetation luxuriant, with shady forests, principally of palms and banyans. The highest point is Mount Gower, 2840 feet. The climate is mild and the rainfall abundant.

2. **Settlement.**—The first settlement was by a small Maori party in 1853; afterwards a colony was settled from Sydney. Constitutionally, it is a dependency of New South Wales, and is supervised by a visiting magistrate.

3. **Population.**—The population at the Census of 3rd April, 1911, was 56 males, 49 females, total 105.

4. **Production, Trade, etc.**—The principal product is the seed of the native or *Kentia* palms. A monthly steamship service is maintained with Sydney. The lands belong to the Crown. The occupants pay no rent, and are tenants on sufferance.

§ 12. Interstate Conferences.

Reference to the various Interstate Conferences, held in 1914 and 1915, will be found on page 1081, Official Year Book No. 8. Considerations of space preclude their insertion in the present issue.

§ 13. Interstate Commission.

In accordance with the provisions of the Commonwealth Constitution Act (sections 101 to 104, see page 33) an Act providing for the appointment of the commission was assented to on the 24th December, 1912. The personnel of the commission was, however, not decided until the 11th August, 1913, when Messrs. A. B. Piddington, K.C. (Chief Commissioner), Hon. George Swinburne, and N. Lockyer, I.S.O., were appointed. On the 8th September, 1913, a request was received from the Executive Government of the Commonwealth that the commission should investigate and report as soon as practicable upon the following matters:—

- (a) Any industries now in urgent need of tariff assistance ;
- (b) Anomalies in the existing tariff Acts which are either technical in character or are due to or arise from the incidence of the taxation ;
- (c) The lessening, where consistent with the general policy of the tariff Acts, of the cost of the ordinary necessities of life, without injury to the workers engaged in any useful industry.

In accordance with the Government's suggestions, investigations were made by the Commissioners, and a Tariff Investigation report was presented by them on the 22nd April, 1915. The matters dealt with in the report comprise:—Progress of manufacturing industries; comparison of the value of output of manufacturing industries with the value of imports; conflicting interests of the different industries; profits to manufacturers; salaries and wages; local prejudice against the use of Australian goods; complaints of lessening efficiency of workers; the future of Australian manufacturing industries in the relation to employment; large scale industry; duties on raw materials; interstate freights; prohibiting duties; export duties; mode of stating the *ad valorem* rates of duty chargeable. In all 70 reports were issued, and the matters dealt with are given in detail in Year Book No. 9, page 1134.

The commission has now completed an investigation with a view to the development of trade in the South Pacific, and has now entered upon an investigation as to the prices of foodstuffs.

§ 14. The Commonwealth Advisory Council of Science and Industry.

1. **General.**—An account of the origin of the Advisory Council and the proceedings which led to its formation was given in Year Book No. 9 (p. 1135). The Advisory Council was appointed by order of the Governor-General in Council on the 16th March, 1916. Since that date certain additional appointments have been made, so that the council now consists of thirty-five members representative of both science and industry, and includes members from all the Australian States. It is a temporary body, designed to prepare the ground for a proposed permanent Institute of Science and Industry, and to exercise in a preliminary way the functions that will in future belong to the Institute. The chief of these functions are—

- “(i.) To consider and initiate scientific researches in connection with, or for the promotion of, primary or secondary industries in the Commonwealth” ;
- and “(ii.) the collection of industrial scientific information and the formation of a Bureau for its dissemination amongst those engaged in industry.”

The Advisory Council itself has held only three meetings, viz., the inaugural meeting in April, 1916, and meetings in August, 1916, and July, 1917, called to receive reports and at which certain resolutions referred to below were passed. The work of the council has been done by means of committees.

(i.) *The Executive Committee.* In accordance with instructions given by the then Acting Prime Minister, the Advisory Council at its first meeting elected an Executive Committee of six members. Three additional members of the Executive have since been appointed. It was decided that the Prime Minister, or in his absence a Minister representing him, should be chairman of the Executive committee. In addition, it was decided that the chairman of each State committee should be *ex officio* a member of the Executive in order to keep the various committees in touch with one another. Such *ex officio* members were to receive copies of the Executive's minutes, and to keep in touch with it by correspondence, but were not expected to attend its ordinary meetings except when they happened to visit Melbourne. Similarly, the Executive receives copies of the minutes of each State committee. In addition a monthly summary of the work of the Executive is sent to all the members of each of the State committees.

(ii.) *The State Committees.*—At the first meeting of the Advisory Council it was decided that all of its members resident in any one State should form a local committee to co-operate with the Central Executive, especially in relation to questions involving local industries. By arrangement with the Commonwealth Government, certain additional members of the Advisory Council were added to the original list, so as to insure that there should be at least three such members available for the formation of each State Committee, and it was decided that the chairman of each of these should be *ex officio* a member of the Executive, as explained above. Further procedure was formulated whereby any State committee could be strengthened by the appointment of associate members, representative of particular branches of science or industry. The associate members of the State committees are not members of the Advisory Council. A State committee has been established in each State.

It is to be noted that these so-called State committees are really local committees of the Federal organisation, their members and associate members being appointed by the Commonwealth Government. They must be clearly distinguished from certain "New Industries" and "Research" committees, which have originated as separate organisations in some of the States.

The chief functions of these State committees are to collect locally such information as may be required by the Executive, and to forward to the Executive such recommendations as local knowledge or local enquiries may suggest. They have no independent executive or financial powers, but they are an extremely important part of the business machinery.

2. The Policy and Nature of the Work of the Executive Committee.—The nature of the chief work carried out by the Executive committee and the general policy which has guided it may be summarised under the heads specified below :—

(i.) *Collection of Information for use of Committee and of Permanent Institute.*—Information has been collected regarding Australian industries and their distribution, problems connected with them, the equipment and *personnel* of laboratories available for industrial scientific research in all its branches, research work in actual progress in laboratories, and experimental work in progress at Government experimental farms, and the facilities available for the proper training of future scientific investigators. The results of these inquiries have been analysed and summarised in tabular form so far as practicable.

(ii.) *Establishment of Relations with other Authorities.*—These include State Governments, scientific and technical departments, universities, technical colleges, scientific societies, and associations and committees representing the pastoral, agricultural, manufacturing, and other industries. The policy of the Executive in this matter is in accordance with the report of the original committee of conference, which defined the functions of the Commonwealth Institute and included the following among them :—

"(ix.) To keep in close touch with, and seek the aid of, all Commonwealth and State Government departments, learned and professional societies, and private enterprises concerned with, or interested in, scientific industrial research."

Much still remains to be done in this direction, but much has been done already by the following means :—(a) Through the agency of the various State committees; (b) by correspondence; (c) by personal interviews between the Executive and various representatives of Government departments, universities, and industrial organisations, who have by invitation attended meetings in Melbourne; (d) by visits which the Executive has paid to Sydney and Brisbane. During these visits the committee met members of State Governments, as well as many others interested in the Science and Industry movement, and was able to explain its policy and to elicit cordial approval and promises of support.

(iii.) *Encouragement and Co-ordination of Researches already in Progress.*—One of the functions of the Institute specified in the report of the Committee of Conference is—

“(ix.) The co-ordination and direction of scientific investigation and of research and experimental work, with a view to the prevention of undesirable overlapping effort.”

In this connection the following quotation from the speech of the Acting Prime Minister (Senator Pearce) at the first meeting of the Advisory Council may also be given :—

“Each of the States pursued to some extent research and inquiries into various questions, and the data they have collected will be available for us ; and of the things towards which you will naturally first turn your attention, one of the most important is to ascertain what data are available, so that there shall be no overlapping. . . . Then, again, there are certain bodies in the Commonwealth that have facilities for investigation and scientific research, and we assume that you will take full advantage of the resources of these bodies and utilise them as much as you can in pursuance of your investigations.”

Much of the work of the Executive has been of the kind thus indicated.

(iv.) *Initiation of New Researches.*—The Executive Committee's plan of action in each such case has been to gather and study all available evidence in the form of existing reports, etc., to take verbal evidence, where possible, from men known to be authorities on the special question, and then to appoint a small Special Committee of experts either to give further advice and information to the Executive with a view to future research or to carry out actual experimental investigations. In the latter case, the Executive has selected the locality and the institution in which the research shall be conducted, and has appointed a salaried investigator to assist the Special Committee, and has voted a reasonable sum for expenses. Not only does the course adopted offer a good prospect of the solution, within a reasonable time and at a comparatively small cost, of problems which are important in connection with existing industries or which may lead to the establishment of new ones, but it affords the best possible means of securing the sympathies of the leading scientists and industrialists and of the scientific institutions in all parts of Australia, these being gradually enlisted in the work of the Commonwealth Institute. Further, the appointment of young scientists as salaried investigators cannot fail to stimulate the training of such men and to increase the supply ; and it is obvious that the future success of the attempt to wed science to industry in Australia must ultimately depend largely upon that supply.

3. Investigational Work. The principal matters into which the Advisory Council has made enquiries are as follows :—

(i.) *Agricultural and Pastoral Industries.*

- (a) *The Control and Eradication of Pests and Diseases of Stock and of Crops* :—Cattle tick,* † worm nodules in cattle,* † tuberculosis in cattle and pigs,* blow-fly pest of sheep, † sparrow,* insect pests of stored grain,* mouse plague.
- (b) *The Control and Eradication of Weed Pests* :—Prickly pear, St. John's wort.
- (c) *The Cultivation of New or Improved Crops* :—Cotton (development of mechanical cotton-picker), † flax, drought-resistant cereals and fodder plants.
- (d) *Miscellaneous* :—Soil survey of Australia, stomach contents of birds, methods of branding stock.

* Special committee appointed to report. † Special committee appointed to undertake research.

(ii.) *Forest and Vegetable Products.*

- (a) *Timber and Timber Products.*—Manufacture of wood pulp, destructive distillation of timber, utilisation of waste timber, best seasons for felling.
- (b) *Sources of Tannin.*—Mangroves, † Western Australian redgum. †
- (c) *Other Vegetable Extracts.*—Dyes, camphor, products of grass-trees, † products of kelp. †
- (d) *Miscellaneous.*—Botanical survey of Papua.

(iii.) *Fisheries.*—Establishment of a marine biological station, marine biological economics of tropical Australia* (pearling, bêche-de-mer fishery, trochus fishery, sponge fishery).

(iv.) *Mining and Metallurgy.*

- (a) *Metals.*—Manufacture of ferro-alloys, † mode of occurrence of gold in quartz (Bendigo goldfields). †
- (b) *Non-Metals.*—Brown coal, clays, phosphatic rocks, opal.

(v.) *Chemical Industry.*

- (a) *General.*—Classification of chemicals in Customs returns.*
- (b) *Fertilizers.*—Potash from alunite †, other sources of potash (kelp, suint, molasses, wood-ashes), utilisation of local phosphates, † manufacture of nitrates from atmospheric nitrogen.
- (c) *Other Chemicals.*—Lanoline,* cream of tartar, † production of casein, production of rennet.

(vi.) *Other Secondary Industries.*

- (a) *Leather and Tanning.*—Process of extraction of tannin from wattle-bark, † sources of tannin (see above).
- (b) *Food Supply.*—Waste in meat works, electrical methods for sterilisation of milk, † yeasts for rapid ripening of doughs. †
- (c) *Pottery.*—Establishment of schools of ceramics, enamels, and glazes.
- (d) *Papermaking.*—Utilisation of various raw materials (timber for wood-pulp, marram-grass, etc.).
- (e) *Textiles.*—Posidonia fibre, † cotton growing, flax growing.
- (f) *Engineering.*—Design and manufacture of alcohol-engines and supply of alcohol for fuel, † cylinders for compressed gases, ship-building.

(vii.) *Standardisation.*—Analytical methods in chemical industry, † design of scientific apparatus,* appraisement of alcohol in spirituous liquors, metric system and decimal coinage,* electrical standards.

4. Publications and Supply of Information. The Executive Committee has issued three reports dealing with its work, the last covering the period from its appointment up to 30th June, 1917. It has also begun to publish bulletins on the researches carried out under its auspices, those already issued or about to appear being:—

1. The cattle tick in Australia.
2. Worm nodules in cattle.
3. The alunite deposits of Australia and their utilisation.
4. The factors influencing gold deposition in the Bendigo goldfield.

Other publications issued by the Advisory Council are:—Memorandum on the Organisation of Scientific Research; Institutions in the United States of America, by G. Lightfoot; The Economics of Trochus niloticus, by C. Hedley; and resolutions passed by the Advisory Council, July, 1917, together with report and recommendations on the organisation and work of the proposed permanent Institute of Science and Industry.

* Special committee appointed to report. † Special committee appointed to undertake research.

Information is being collected and indexed for the use of the Bureau of Information, which will be one of the sections of the proposed future Institute. In connection with this work steps are being taken to prepare a catalogue of the Scientific and Technical Periodicals in all the libraries of Australia.

A considerable amount of information on a great variety of topics has already been supplied to applicants from all parts of Australia.

5. The Proposed Permanent Institute of Science and Industry.—At its last meeting in July, 1917, the Advisory Council passed among others the following resolutions:—

1. That the Advisory Council is of the opinion that the immediate establishment of the permanent institute is a matter of urgency, as the financial and executive powers of the temporary organisation are wholly inadequate to the purposes in view.
2. That in the work of the future institute provision be made for co-operation between the Commonwealth and State Governments. It is suggested that this might be effected by arranging for the estimates of expenditure of the Institute to be discussed at the Premiers' Annual Conference.

The Council also adopted a report and recommendations which had been drawn up by the Executive committee, setting out the general features of the organisation and work of the proposed permanent Institute of Science and Industry. The recommendations are substantially the same as those drawn up by the committee of the conference held in January, 1916, which were published in Year Book No. 9. Certain modifications have, however, been introduced in the light of eighteen months' experience.

The principal recommendations are as follows:—

1. There should be established, under Act of Parliament, a Commonwealth Institute of Science and Industry.
2. The functions of the Institute should be:—
 - (i.) To consider and initiate scientific researches in connection with, or for the promotion of, primary or secondary industries in the Commonwealth.
 - (ii.) The collection of industrial scientific information, and the establishment of a Bureau of Information for the benefit of those engaged in industry.
 - (iii.) The establishment of National Laboratories.
 - (iv.) The general control and administration of such laboratories, when established.
 - (v.) To promote the immediate utilisation of existing institutions, whether Federal or State, for the purposes of industrial scientific research.
 - (vi.) To make recommendations from time to time for the establishment or development of special institutions or departments of existing institutions for the scientific study of problems affecting particular industries and trades.
 - (vii.) The establishment and award of industrial research studentships and fellowships, to include either travelling fellowships or fellowships attached to particular institutions.
 - (viii.) To draw attention to any new industries which might be profitably established in the Commonwealth.

- (ix.) To keep in close touch with, and seek the aid of, all Commonwealth and State Government departments, learned and professional societies, and private enterprises concerned with, or interested in, scientific industrial research.
- (x.) The co-ordination and direction of scientific investigation and of research and experimental work, with a view to the prevention of undesirable overlapping of effort.
- (xi.) To recommend grants by the Commonwealth Government in aid of pure scientific research in existing institutions.
- (xii.) To seek the co-operation of and to advise the educational authorities and scientific societies in the States, with a view to—
 - (a) Advancing the teaching of science in schools, technical colleges, and universities, where its teaching is determined by those authorities.
 - (b) The training of investigators in pure and applied science and of technical experts.
 - (c) The education of skilled artisans.
- (xiii.) To report annually and from time to time to Parliament.

3. *Constitution of Institute.*

- (i.) That for the purpose of controlling and administering the Institute three highly-qualified salaried directors, of whom one should be chairman, shall be appointed by the Governor-General in Council.
- (ii.) That of the three directors one should be an expert business and financial man, with ability in organisation; the other two should be chosen mainly on account of scientific attainments and wide experience.
- (iii.) That the tenure of the directors shall be fixed by the Act.
- (iv.) That an Advisory Council, representing Science and the principal Primary and Secondary Industries, be appointed in each State, who shall advise the directors in respect to the affairs of the Institute. That the directors shall meet each Advisory Council at least once a year.
- (v.) That the members of the Advisory Council in each State be appointed by the Governor-General in Council on the nomination of the State Government, and should receive fees for attendance.
- (vi.) That the staff of the Institute should be appointed by the Governor-General in Council on the recommendation of the directors, and should be excepted from the operation of the Public Service Act.

§ 15. Department of Chemistry, South Australia.*

In South Australia, a Department of Chemistry was formed in December, 1915. The Department is largely engaged in the chemical investigation of local products and industries. A series of bulletins is in course of publication. Up to March, 1917, four had been issued as follows:—

* Information supplied by the Director, Dr. W. A. Hargreaves, D.Sc., M.A., F.I.C.

- No. 1.—*Paper Making*: An investigation into the prospects of establishing a paper-making industry in South Australia. A number of local materials have been investigated, and special attention is directed to straw as the most valuable available material, owing to the very large supply obtainable at a low price and near to the principal sea-ports.
- No. 2.—*Potash*: Its economic sources in South Australia. Many local sources have been investigated, and wool scour is indicated as especially worthy of attention.
Lanoline: A process for obtaining wool fat from locally scoured wool is described.
- No. 3.—*Cream of Tartar*: An examination of local grape products as sources of cream of tartar.
- No. 4.—*Marine Fibre*: The fibrous portion of the leaf sheath of the sea plant *Posidonia Australis* grows abundantly in the shallow waters around the coasts of South Australia, and on other parts of the Australian Coast. This bulletin has been written to gather together and publish all the available information respecting it. The sum of £220,000 has already been spent in this industry, and a large amount of experimental work has been done in finding methods of collection and purification and market uses.

APPENDIX.

Recent information and returns which have come to hand since the various sections of this book were sent to press, are given hereunder.

SECTION IV.

POPULATION.

§ 4. Elements of Growth of Population.

3. **Net Immigration, p. 114.**—The following table gives particulars of net immigration for the year 1916:—

NET IMMIGRATION,¹ 1916.

Particulars.	States.						Territories.		C'wth.
	N.S.W.	Victoria.	Q'land.	S. Aust.	W.A.	Tas.	North-ern.	Federal	
Arrivals ...	389,643	289,997	130,528	83,561	19,322	41,361	1,389	...	63,405
Departures ...	433,413	328,035	151,134	95,917	34,010	46,047	1,137	...	197,297
Excess of ar- rivals over departures	² -43,770	-38,038	-20,606	-12,356	-14,688	-4686	252	³ 339	-133,892

NOTE.—The sign — denotes excess of departures over arrivals.

1. Figures for States and Territories represent Interstate, Interterritorial and Oversea migration; those for Commonwealth represent Oversea migration only. 2. Including Federal Territory. 3. Included with New South Wales migration.

5. **Total Increase, p. 113.**—The following table gives particulars of the total increase in population for each State and Territory and for the Commonwealth during the year 1916:—

TOTAL INCREASE OF POPULATION, 1916.

Particulars.	States.						Territories.		C'wth.
	N.S.W.	Vic.	Q'land.	S. Aust.	W.A.	Tas.	North-ern.	Federal	
Excess of births over deaths ...	32,234	17,746	11,398	6,780	5,478	3,586	-48	55	77,229
Excess of arrivals over departures	-44,109	-38,038	20,606	-12,356	-14,688	-4,686	252	339	-133,892
Total increase	-11,875	-20,292	-9,208	-5,576	-9,210	-1,100	204	1394	-56,663

NOTE. — signifies excess of departures over arrivals.

¹ Including Jervis Bay population 282, transferred from New South Wales.

§ 8. Enumerations and Estimates.

5. **Estimates of Population, pp. 128 to 131.**—The following table shows the estimated population of each State and the Commonwealth on the 31st December, 1916, and on 30th June, 1917:—

ESTIMATED POPULATION ON 31st DECEMBER, 1916.

Particulars:	States.						Territories.		C'with.
	N.S.W.	Vic.	Q'land.	S. Aust.	W.A.	Tas.	North-ern.	Federal	
Males ...	923,603	666,036	344,557	201,998	159,998	99,839	3,839	1,194	2,401,064
Females ...	934,941	732,848	324,910	230,711	148,808	100,086	928	1,029	2,474,261
Total ...	1,858,544	1,398,884	669,467	432,709	308,806	199,925	4,767	2,223	4,875,325

ON 30TH JUNE, 1917.

Males ...	922,279	666,440	349,686	198,981	158,336	98,561	4,066	1,559	2,399,908
Females ...	946,121	736,210	331,616	230,909	150,194	98,776	977	1,183	2,495,986
Total ...	1,868,400	1,402,650	681,302	429,890	308,530	197,337	5,043	2,742	4,895,894

§ 10. Principal Results of Census of 1911.

Census Results, p. 133.

10. **Average Number of Children of Married Males.**—For the solution of certain sociological questions, it is necessary to know how many children, under a given age, are referable to married males of given ages. These are set out in the table given hereunder, which is to be interpreted in the following manner:—*On the average*, married males of 25 years of age last birthday will have 0.812 children under 7 years of age (*i.e.*, 1000 married males of age 25 will have 812 children), and they would not have more than 0.814 children under 8 or any greater age. Or again; on the average, married males of 35 would have 2.217 children under 12, or 2.320 under 14, and not more than 2.348 under 18 or any greater age.

It will be noticed that the age, where the figures become constant for any higher age limit, is 17 plus the greatest age of any of the children, except when the greatest age of the latter is 4, in which case it is 16 plus the greatest age.

**AVERAGE NUMBER OF CHILDREN UNDER THE SEVERAL AGES, 1 to 21, INCLUSIVE,
(Based upon Results obtained in connexion**

Ages of Married Males. Years.	AVERAGE NUMBER (PER MARRIED MALE)										
	Under 1	Under 2	Under 3	Under 4	Under 5	Under 6	Under 7	Under 8	Under 9	Under 10	Under 11
	17	.039*	.039	.039	.039	.039	.039	.039	.039	.039	.039
18	.060	.070*	.070	.070	.070	.070	.070	.070	.070	.070	.070
19	.128	.152	.156*	.156	.156	.156	.156	.156	.156	.156	.156
20	.188	.235	.243	.245*	.245	.245	.245	.245	.245	.245	.245
21	.205	.296	.319	.324*	.324	.324	.324	.324	.324	.324	.324
22	.256	.363	.413	.425	.428*	.428	.428	.428	.428	.428	.428
23	.262	.417	.485	.518	.525	.526*	.526	.526	.526	.526	.526
24	.286	.473	.588	.639	.662	.668	.669*	.669	.669	.669	.669
25	.292	.510	.658	.749	.789	.808	.812	.814*	.814	.814	.814
26	.293	.525	.704	.826	.901	.935	.950	.954	.955*	.955	.955
27	.293	.531	.730	.883	.988	1.053	1.082	1.095	1.098	1.099*	1.099
28	.293†	.536	.748	.925	1.061	1.154	1.212	1.237	1.249	1.252	1.253*
29	.293	.550	.776	.972	1.135	1.261	1.347	1.401	1.424	1.435	1.438
30	.292	.556†	.791†	1.002	1.184	1.335	1.452	1.532	1.582	1.604	1.614
31	.280	.542	.785	1.005†	1.201†	1.372	1.513	1.623	1.698	1.744	1.765
32	.254	.506	.752	.980	1.187	1.372†	1.532	1.666	1.770	1.841	1.885
33	.236	.467	.706	.940	1.158	1.355	1.533†	1.685	1.813	1.911	1.979
34	.225	.442	.664	.894	1.120	1.331	1.521	1.692†	1.840	1.963	2.059
35	.217	.426	.637	.854	1.078	1.299	1.505	1.691	1.858†	2.003	2.123
36	.209	.411	.615	.821	1.033	1.253	1.469	1.671	1.853	2.017†	2.159
37	.201	.397	.596	.796	.998	1.206	1.423	1.635	1.834	2.014	2.175†
38	.195	.384	.577	.772	.969	1.168	1.374	1.587	1.797	1.993	2.171
39	.189	.373	.559	.749	.941	1.136	1.334	1.537	1.748	1.956	2.150
40	.182	.361	.542	.726	.914	1.105	1.298	1.494	1.695	1.904	2.110
41	.171	.343	.519	.698	.880	1.066	1.254	1.446	1.640	1.839	2.047
42	.150	.311	.481	.655	.832	1.012	1.196	1.383	1.573	1.765	1.963
43	.128	.269	.428	.596	.768	.943	1.122	1.304	1.490	1.678	1.868
44	.115	.236	.375	.532	.697	.868	1.041	1.218	1.399	1.582	1.769
45	.102	.211	.330	.467	.622	.787	.955	1.127	1.302	1.481	1.664
46	.091	.188	.295	.413	.549	.703	.866	1.033	1.204	1.378	1.556
47	.080	.166	.262	.368	.485	.621	.774	.937	1.103	1.273	1.447
48	.070	.146	.231	.326	.432	.549	.684	.837	.999	1.165	1.335
49	.080	.127	.202	.288	.383	.489	.606	.741	.894	1.056	1.223
50	.051	.109	.175	.250	.336	.431	.538	.654	.789	.942	1.104
51	.043	.092	.149	.215	.290	.375	.470	.575	.692	.827	.980
52	.035	.076	.125	.181	.247	.322	.406	.501	.606	.722	.857
53	.029	.062	.103	.151	.208	.273	.348	.432	.527	.632	.748
54	.023	.050	.084	.124	.173	.229	.295	.370	.454	.549	.655
55	.018	.039	.067	.100	.141	.189	.246	.312	.387	.472	.567
56	.015	.032	.053	.080	.114	.155	.203	.260	.325	.401	.486
57	.013	.027	.044	.065	.093	.126	.167	.216	.273	.339	.414
58	.011	.023	.037	.054	.076	.104	.137	.178	.227	.285	.351
59	.009	.020	.032	.046	.063	.085	.113	.147	.188	.237	.295
60	.008	.017	.028	.040	.054	.071	.093	.121	.156	.197	.247
61	.007	.014	.024	.034	.047	.061	.079	.101	.129	.164	.206
62	.006	.013	.020	.029	.040	.053	.067	.085	.108	.136	.171
63	.005	.011	.018	.025	.034	.045	.058	.073	.091	.113	.142
64	.004	.009	.015	.022	.029	.039	.050	.063	.078	.096	.119
65	.004	.008	.013	.019	.025	.033	.043	.054	.067	.082	.100
66	.003	.007	.011	.016	.022	.029	.037	.046	.057	.070	.085
67	.003	.006	.010	.014	.019	.025	.032	.040	.049	.061	.074
68	.002	.005	.008	.012	.016	.021	.028	.035	.043	.052	.064
69	.002	.005	.007	.011	.014	.019	.024	.030	.037	.045	.055
70	.002	.004	.006	.009	.012	.016	.021	.026	.033	.040	.048
71	.002	.003	.006	.008	.011	.014	.018	.023	.028	.035	.042
72	.001	.003	.005	.007	.009	.012	.016	.020	.025	.030	.037
73	.001	.002	.004	.006	.008	.011	.014	.017	.021	.026	.032
74	.001	.002	.003	.005	.007	.009	.012	.015	.018	.023	.028
75	.001	.002	.003	.004	.006	.008	.010	.013	.016	.020	.024
76	.001	.002	.002	.004	.005	.007	.009	.011	.014	.017	.021
77	.001	.001	.002	.003	.004	.006	.007	.010	.012	.015	.018
78	.001	.001	.002	.003	.004	.005	.006	.008	.010	.013	.016
79	.001	.001	.002	.003	.003	.004	.006	.007	.009	.011	.013
80	.001	.001	.002	.003	.003	.004	.005	.006	.008	.010	.012
81	.001	.001	.002	.002	.003	.004	.005	.006	.007	.009	.011
82	.001	.001	.002	.002	.003	.004	.005	.006	.007	.008	.010
83	.001	.001	.002	.002	.003	.004	.004	.005	.006	.007	.009
84	.001	.001	.002	.002	.003	.004	.004	.005	.006	.007	.008
85	.001	.001	.002	.002	.003	.004	.004	.005	.006	.007	.008
86	.001	.001	.002	.002	.003	.003	.004	.004	.005	.007	.008
87	.001	.001	.002	.002	.003	.003	.004	.004	.005	.006	.007
88	.001	.001	.002	.002	.003	.003	.004	.004	.005	.006	.007
89	..	..	..	..	..	.002	.003	.004	.005	.006	.007
90	..	..	..	..	..	..	..	..	..	..	..
91	..	..	..	..	..	..	..	..	..	..	..
92	..	..	..	..	..	..	..	..	..	..	..

* The values following horizontally are merely repetitions of the values marked with asterisks.

PER MARRIED MALE OF EACH AGE FROM 17 to 92, LAST BIRTHDAY INCLUSIVE.
with the Australian Census of 1911.)

OF CHILDREN WHOSE AGES ARE IN YEARS											Ages of Married Males. Years.	
Under 11	Under 12	Under 13	Under 14	Under 15	Under 16	Under 17	Under 18	Under 19	Under 20	Under 21		
.039	.039	.039	.039	.039	.039	.039	.039	.039	.039	.039	..	17
.070	.070	.070	.070	.070	.070	.070	.070	.070	.070	.070	..	18
.156	.156	.156	.156	.156	.156	.156	.156	.156	.156	.156	..	19
.245	.245	.245	.245	.245	.245	.245	.245	.245	.245	.245	..	20
.324	.324	.324	.324	.324	.324	.324	.324	.324	.324	.324	..	21
.428	.428	.428	.428	.428	.428	.428	.428	.428	.428	.428	..	22
.526	.526	.526	.526	.526	.526	.526	.526	.526	.526	.526	..	23
.669	.669	.669	.669	.669	.669	.669	.669	.669	.669	.669	..	24
.814	.814	.814	.814	.814	.814	.814	.814	.814	.814	.814	..	25
.955	.955	.955	.955	.955	.955	.955	.955	.955	.955	.955	..	26
1.099	1.099	1.099	1.099	1.099	1.099	1.099	1.099	1.099	1.099	1.099	..	27
1.253*	1.253	1.253	1.253	1.253	1.253	1.253	1.253	1.253	1.253	1.253	..	28
1.438	1.439*	1.439	1.439	1.439	1.439	1.439	1.439	1.439	1.439	1.439	..	29
1.614	1.617	1.618*	1.618	1.618	1.618	1.618	1.618	1.618	1.618	1.618	..	30
1.765	1.774	1.776	1.777*	1.777	1.777	1.777	1.777	1.777	1.777	1.777	..	31
1.885	1.904	1.913	1.915	1.916*	1.916	1.916	1.916	1.916	1.916	1.916	..	32
1.979	2.021	2.040	2.048	2.050	2.051*	2.051	2.051	2.051	2.051	2.051	..	33
2.059	2.124	2.165	2.183	2.191	2.193	2.194*	2.194	2.194	2.194	2.194	..	34
2.123	2.217	2.281	2.320	2.338	2.346	2.347	2.348*	2.348	2.348	2.348	..	35
2.159	2.277	2.368	2.431	2.470	2.487	2.495	2.497	2.498*	2.498	2.498	..	36
2.175†	2.315	2.431	2.521	2.583	2.621	2.638	2.646	2.647	2.648*	2.648	..	37
2.171	2.330†	2.468	2.583	2.672	2.732	2.770	2.787	2.795	2.796	2.797*	..	38
2.150	2.326	2.483†	2.620	2.733	2.821	2.881	2.919	2.935	2.943	2.945	..	39
2.110	2.303	2.477	2.633†	2.768	2.881	2.968	3.028	3.065	3.081	3.088	..	40
2.047	2.251	2.441	2.614	2.769†	2.903†	3.014	3.100	3.160	3.196	3.212	..	41
1.963	2.169	2.372	2.561	2.732	2.885	3.018†	3.128†	3.214	3.272	3.308	..	42
1.868	2.064	2.288	2.469	2.656	2.826	2.977	3.109	3.218†	3.303†	3.361	..	43
1.769	1.958	2.152	2.354	2.563	2.738	2.906	3.056	3.186	3.295	3.378†	..	44
1.664	1.848	2.036	2.228	2.429	2.626	2.809	2.975	3.124	3.253	3.360	..	45
1.556	1.737	1.921	2.107	2.298	2.497	2.693	2.875	3.040	3.188	3.315	..	46
1.447	1.624	1.804	1.987	2.172	2.363	2.561	2.755	2.937	3.101	3.248	..	47
1.335	1.508	1.685	1.865	2.047	2.232	2.422	2.619	2.813	2.994	3.157	..	48
1.223	1.398	1.566	1.743	1.923	2.106	2.291	2.481	2.678	2.872	3.053	..	49
1.104	1.271	1.441	1.615	1.792	1.972	2.155	2.339	2.529	2.727	2.920	..	50
.980	1.142	1.308	1.478	1.651	1.828	2.008	2.190	2.374	2.563	2.760	..	51
.857	1.009	1.171	1.337	1.506	1.679	1.855	2.033	2.215	2.398	2.586	..	52
.748	.883	1.035	1.197	1.362	1.531	1.704	1.879	2.058	2.239	2.422	..	53
.655	.771	.907	1.059	1.221	1.388	1.557	1.730	1.906	2.085	2.266	..	54
.567	.672	.789	.925	1.078	1.240	1.407	1.576	1.749	1.926	2.105	..	55
.486	.581	.686	.804	.939	1.092	1.255	1.421	1.591	1.763	1.938	..	56
.414	.500	.595	.702	.819	.955	1.109	1.272	1.439	1.609	1.783	..	57
.351	.427	.513	.610	.717	.835	.972	1.127	1.291	1.459	1.630	..	58
.295	.362	.438	.525	.622	.729	.848	.986	1.141	1.306	1.474	..	59
.247	.305	.373	.450	.538	.636	.744	.864	1.003	1.160	1.326	..	60
.206	.257	.316	.384	.463	.551	.650	.760	.882	1.022	1.181	..	61
.171	.214	.285	.325	.394	.473	.563	.663	.774	.897	1.039	..	62
.142	.178	.221	.273	.333	.403	.483	.573	.674	.786	.910	..	63
.119	.145	.184	.227	.280	.341	.411	.492	.583	.685	.798	..	64
.100	.123	.152	.189	.233	.285	.346	.418	.499	.590	.693	..	65
.085	.104	.127	.157	.183	.228	.291	.353	.424	.506	.598	..	66
.074	.089	.108	.132	.162	.199	.244	.297	.360	.432	.515	..	67
.064	.077	.093	.112	.136	.167	.204	.250	.305	.368	.442	..	68
.055	.067	.081	.097	.116	.141	.172	.210	.257	.312	.377	..	69
.048	.058	.071	.085	.101	.121	.146	.178	.217	.265	.321	..	70
.042	.051	.061	.074	.088	.105	.125	.151	.183	.224	.272	..	71
.037	.044	.053	.064	.077	.091	.108	.129	.155	.189	.230	..	72
.032	.038	.046	.055	.066	.079	.094	.111	.132	.159	.193	..	73
.028	.033	.040	.048	.057	.068	.082	.097	.115	.136	.164	..	74
.024	.029	.035	.042	.051	.060	.072	.085	.101	.120	.142	..	75
.021	.026	.031	.037	.045	.053	.063	.075	.089	.105	.124	..	76
.018	.022	.027	.032	.039	.046	.055	.065	.078	.092	.109	..	77
.016	.019	.023	.028	.034	.040	.048	.057	.067	.080	.094	..	78
.013	.016	.020	.024	.029	.035	.041	.049	.058	.069	.081	..	79
.012	.015	.018	.022	.026	.031	.037	.044	.053	.062	.073	..	80
.011	.013	.016	.019	.023	.028	.033	.039	.046	.055	.065	..	81
.010	.012	.014	.017	.021	.025	.029	.034	.041	.048	.057	..	82
.009	.010	.013	.015	.018	.022	.026	.031	.036	.043	.051	..	83
.008	.010	.012	.014	.017	.020	.024	.028	.033	.039	.046	..	84
.008	.009	.011	.013	.015	.018	.022	.026	.030	.035	.041	..	85
.008	.009	.010	.012	.014	.017	.020	.023	.028	.032	.038	..	86
.007	.009	.010	.011	.013	.015	.018	.021	.024	.028	.033	..	87
.007	.009	.010	.011	.013	.014	.016	.019	.022	.025	.029	..	88
.007	.009	.010	.011	.013	.014	.016	.019	.022	.025	.029	..	89
.007	.008	.009	.010	.012	.013	.015	.017	.020	.023	.026	..	90
..	..	.009	.010	.012	.013	.014	.016	.018	.021	.023	..	91
..	..	..	..	..	..	.013	.015	.017	.019	.021	..	92
..	..	..	..	..	..	..	..	..	.017	.019	..	92

† These are the maximum values on the vertical lines.

SECTION V. VITAL STATISTICS.

§ 1. Births.

1. **Male and Female Births, p. 158.**—The total number of male and female births registered, and the birth rates per 1000 of the population in each State and Territory and in the Commonwealth, during the year 1916, were as follows:—

BIRTHS AND BIRTH RATES, 1916.

Particulars.	States.						Territories.		C'with.
	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	North-ern.	Federal	
Males ...	26,615	17,623	9,673	6,200	4,439	2,873	44	38	67,505
Females ...	25,465	16,612	9,239	5,657	4,124	2,769	30	25	63,921
Total ...	52,080	34,235	18,912	11,857	8,563	5,642	74	63	131,426
Birth rates ...	27.89	24.29	27.91	27.39	27.21	28.47	15.26	24.11	26.78

§ 2. Marriages.

1. **Marriages, p. 175.**—The following statement shows the number of marriages registered in each State and Territory and in the Commonwealth, and the marriage rates per 1000 of the mean population, during the year 1916:—

MARRIAGES AND MARRIAGE RATES, 1916.

Particulars.	States.						Territories.		C'with.
	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	North-ern.	Federal	
No. of marriages	16,316	11,342	5,208	3,602	2,365	1,433	19	4	40,289
Marriage rates ¹	8.74	8.05	7.69	8.32	7.51	7.23	3.92	1.53	8.21

1. Number of marriages, not persons married, per 1000 of mean population.

§ 3. Deaths.

1. **Male and Female Deaths, p. 182.**—The number of deaths registered in each State and Territory and in the Commonwealth during 1916, and the death rates per 1000 of the mean population, are shown in the following table:—

MALE AND FEMALE DEATHS AND DEATH RATES, 1916.

Particulars.	States.						Territories.		C'with.
	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	North-ern.	Federal	
Male ...	11,500	8,901	4,653	2,721	1,981	1,148	108	6	31,018
Female ...	8,346	7,588	2,861	2,356	1,104	908	14	2	23,179
Total ...	19,846	16,489	7,514	5,077	3,085	2,056	122	8	54,197
Death rates...	10.63	11.70	11.09	11.73	9.80	10.38	25.16	3.06	11.04

7. **Infantile Death Rate, p. 184.**—The total number of births, of deaths of children under one year of age, and the average rate of infantile mortality for the ten years 1907 to 1916 are shown in the following table for each of the fifty-nine districts for which the vital statistics of the Commonwealth have been tabulated during that period. To afford a better idea of the geographical position of the districts, the name of a town situated in a fairly central part of each district has been added. The figures for the Federal Territory and for Lord Howe Island are included for the sake of completeness, but are too small to be used in comparison with others.

INFANTILE MORTALITY FOR THE TEN YEARS 1907 to 1916.

States and Territories.	Districts.	Towns.	Total Births, 1907-16.	Total Deaths of Children under one year, 1907-16.	Average Infantile Mortality per 1000 Births, 1907-16.
New South Wales	Metropolitan	Sydney	185,021	14,296	77.27
	North Coast	Grafton	39,704	2,187	55.08
	Lower Hunter	Newcastle	49,867	3,753	75.26
	Cumberland	Parramatta	20,806	1,465	70.41
	South Coast	Nowra	20,845	1,353	64.91
	Northern Tableland	Armidale	29,515	1,949.	66.03
	Central Tableland	Bathurst	35,164	2,678	76.16
	Southern Tableland	Goulburn	26,690	1,767	66.20
	North-Western Slope	Moree	12,043	895	74.32
	Central-Western Slope	Dubbo	17,459	1,326	75.95
	South-Western Slope	Temora	18,500	1,179	63.73
	Riverina	Hay	10,135	619	61.08
	Plains East of Darling	Cobar	5,819	351	94.69
Trans-Darling Plains	Broken Hill	12,545	1,373	109.45	
Lord Howe Island	—	—	18	3	166.67
Victoria	Metropolitan	Melbourne	154,718	13,170	85.12
	Central	Geelong	31,484	2,116	67.21
	North-Central	Kyneton	17,723	1,098	61.95
	Western	Hamilton	39,256	2,830	72.09
	Wimmera	Horsham	15,363	884	57.54
	Mallee	Ultima	8,337	496	59.49
	Northern	Rochester	37,740	2,571	68.12
	North-Eastern	Beechworth	13,565	805	59.34
	Gippsland	Sale	17,515	947	54.07
	Queensland	Metropolitan	Brisbane	45,326	3,694	81.49
Moreton		Ipswich	22,976	1,270	55.28
Wide Bay		Maryborough	22,704	1,296	54.44
Port Curtis		Rockhampton	14,921	1,149	77.01
Edgumbe		Townsville	17,900	1,093	61.06
Rockingham		Cairns	8,813	545	61.84
York Peninsula		Cooktown	1,364	91	65.75
Carpentaria		Croydon	3,053	255	83.52
Central-Western		Winton	821	72	87.70
South-Western		Charleville	2,365	241	101.90
Central		Blackall	5,230	350	66.92
Maranoa		Roma	3,942	267	67.73
Downs		Toowoomba	26,066	1,644	63.07
South Australia	Metropolitan	Adelaide	53,826	4,106	76.28
	Central	Gawler	24,406	1,291	52.90
	Lower North	Redruth	17,692	1,369	77.38
	Upper North	Port Augusta	5,835	315	53.98
	North-Eastern	Mount Gambier	6,191	315	50.88
	Western	Port Lincoln	3,940	180	45.69
Western Australia	Metropolitan	Perth	35,626	2,961	83.11
	Northern Agricultural	Geraldton	11,529	778	67.48
	South-Western	Katanning	18,152	944	52.01
	Eastern Goldfields	Kalgoorlie	14,266	1,249	87.55
	Northern Goldfields	Pilbara	2,965	273	92.07
	North-Western	Roebourne	420	26	61.90
Tasmania	Northern	Broome	378	34	89.95
	Hobart	Hobart	12,278	1,115	90.81
	Launceston	Launceston	8,074	754	93.40
	North-Eastern	Scottsdale	6,949	473	68.07
	North-Western	Stanley	14,023	884	63.04
	Midland	Zeehan	7,693	562	73.05
Northern Territory	South-Eastern	Sorell	5,805	356	61.33
	South-Western	Franklin	1,850	124	67.03
	—	Darwin	437	41	93.82
Federal Territory (1911-16)	—	Canberra	278	8	28.78

SECTION VII. PASTORAL PRODUCTION.

§ 1. Initiation and Growth of Pastoral Industry.

3. **Increase in Numbers, p. 290.**—The following table shews the estimated number of horses, cattle, sheep, and pigs in the Commonwealth at the latest dates available. The totals shew a satisfactory upward tendency as compared with the previous year's figures:—

PRELIMINARY FIGURES—LIVE STOCK.

States and Territories.	Date.	Horses.	Cattle.	Sheep.	Pigs.
New South Wales ...	31/12/16	*718,232	†2,361,152	33,713,901†	*280,869
Victoria ...	31/3/17	514,403	1,175,098	12,576,587	254,436
Queensland ...	31/12/16	697,517	4,765,657	15,524,293	129,733
South Australia...	31/3/17	275,000	212,000	3,800,000	70,000
Western Australia...	31/12/16	169,478	865,497	5,501,046	90,650
Tasmania ...	1/3/17	42,620	179,360	1,702,579	53,033
Northern Territory	31/12/16	21,674	420,362	47,520	500
Federal Territory ...	30/6/16	1,310	‡	‡	289
Commonwealth ...	...	2,440,234	9,979,126	72,865,926	879,510

* As at 30th June, 1916. † Including Federal Territory. ‡ Included with New South Wales.

§ 5. Wool.

10. **The Wool Market, p. 309.**—Purchase of balance of 1916-17 wool clip by Imperial Government.

The purchase by the Imperial Government of the balance of the Australian wool clip, season 1916-17, was brought about as a result of war conditions.

Owing to the demand for wool for the manufacture of clothing for British military requirements and those of the Allies, it was decided to acquire the Australian clip at the flat rate of 15½d. per pound greasy—an increase of 55 per cent. on the prices ruling in the pre-war season.

The control of the scheme was placed in the hands of a body called the Central Wool Committee, assisted by a committee in each State.

These committees consist of representatives of the wool growers, wool sellers, wool buyers, manufacturers and scourers or fellmongers.

In addition the Central Wool Committee has a Government nominee, who acts as chairman.

The broad policy laid down was that existing trade conditions were not to be disturbed; this meant that the carrying out of the details of the scheme was left to the trade itself.

The wool was prepared, catalogued and shewn in the usual way, but instead of being sold by public auction, it was valued by duly appointed Government Wool Appraisers, according to a table of limits prepared by a body of experts acting as an Advisory Board to the Central Wool Committee.

On appraisal the wool became the property of the Imperial Government, and is being shipped as freight space is available, it being prescribed that allotment of freight should be on the basis of the quantity of wool appraised in each State.

The Central Wool Committee, at the request of the Imperial Government, undertook to scour and re-class as much wool as would keep the local industries going to their full capacity. The work is still proceeding.

Financial.—Payment of 90 per cent. of the appraised price was made to wool brokers for distribution to the growers within fourteen (14) days from the final date of each series of appraisements, with funds received from the Imperial Government, the

balance of 10 per cent. being withheld for possible adjustments. This retention money was placed out at interest, which, being added to the amount for final distribution, means that the growers will not suffer any loss.

The average appraised price per pound having worked out less than the purchase price of 15½d. per pound, the retention money, amounting to £2,313,461, was paid over on the 14th August, 1917, and a further sum is to be made available. A dividend—the first—of 10 per cent. will probably be paid about the end of October. This represents slightly more than the payment in full of the flat rate of 15½d. per pound. A small final dividend will follow as soon as circumstances will permit.

Quantity and Value of Wool Appraised.—The quantity of wool appraised under the Imperial Government's purchase of a portion of the clip for the season 1916-17 amounted to 323,748,376 lbs. greasy, and 34,310,645 lbs. scoured, or equivalent to 392,369,666 lbs. wool as in the grease. The actual quantities finally distributed between the British Government and Commonwealth manufacturers are set out in the table hereunder. The average appraised price per pound of wool in the grease was 14.72d., the average for scoured wool was 22.86d. per pound, and the average of all wool—greasy, and scoured calculated as greasy—appraised under the scheme was 14.15d. per pound. The difference of this average and the 15½d. basis being equal to 9.5 per cent. on the average appraised price, there is every probability of the total dividends approximating 10 per cent. of appraised prices. The quantities of wool shipped and the distribution thereof, also wool stored for shipment, are not available for publication.

The figures given in the following table are not final, as slight adjustments will eventually be necessary, though the result cannot be materially affected:—

PARTICULARS OF PURCHASE OF BALANCE OF 1916-17 AUSTRALIAN WOOL CLIP.

Purchased by		Quantity of Wool Appraised.				Values.	
		Bales.	Butts.	Bags.	lbs.	Appraised.	Based on Flat Rate.
						£	£
British Government*	Greasy	940,872	8,171	110,274	309,789,055	18,985,169	20,007,210
	Scoured	141,247	153	823	33,188,552	3,170,381	4,286,854
	Total	1,082,119	8,324	111,097	342,977,607	22,155,550	†24,294,064
Woolen Manufacturers ...	Greasy	24,077	511	9,139	8,316,016	406,519	445,281
	Scoured	3,845	34	71	945,909	71,708	78,546
	Total	27,922	545	9,210	9,261,925	£ 478,227	523,827
Wool Top Manufacturers ...	Greasy	17,427	...	...	5,643,305	473,635	518,797
	Scoured	820	...	...	176,184	27,197	29,790
	Total	18,247	...	...	5,819,489	500,832	†548,587
Total Purchased ...	Greasy	982,376	8,682	119,413	323,748,376	19,865,323	20,908,749
	Scoured	145,912	187	894	34,310,645	3,269,286	4,431,792
	Total	1,128,288	8,869	120,307	358,059,021	23,134,609	25,340,541
Grand total in terms of Greasy ...	...	...	...	...	...	...	‡ 25,340,541

* Actually purchased by British Government after meeting requirements of Commonwealth manufacturers. † After crediting £25,937 to the British Government for slightly higher grade wools selected by the Commonwealth manufacturers. ‡ On the assumption that two pounds of greasy are required to produce one pound of scoured, this total is made up by:—British Government, 376,166,159 lbs.; woolen manufacturers, 10,207,834 lbs., and wool top manufacturers, 5,995,673 lbs. of wool as in the grease. § Paid for by woolen manufacturers at appraised value. ¶ Paid for at the flat rate basis of 15½d. per pound greasy, tops to be sold at prices fixed by Army Contracts' Wool Committee, London, a certain percentage of profits to be returned to the Commonwealth Government by wool tops manufacturers. †† At flat rate of 15½d. per pound.

The 1917-18 Clip having been purchased by the Imperial Government on the same terms as those for the 1916-17 season, the carrying out of the scheme will be on similar lines as those found so satisfactory, on the whole, for appraisement, etc., of the previous season's clip; a few modifications, however, may be found necessary in order to remove slight inconsistencies.

SECTION VIII. AGRICULTURAL PRODUCTION.

§ 4. Wheat.

1. **Progress of Wheat Growing, p. 325.**—The following table shews the area under wheat and the yields in each State and the Commonwealth for the season 1916-17 :—

AREA UNDER WHEAT, AND YIELDS, 1916-17.

Particulars.	N.S.W. ¹	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth. ²
Area Acres	3,521,331	3,125,692	227,778	2,765,383	1,567,607	27,789	11,235,580
Yield Bush.	36,743,500	51,162,438	2,463,141	43,830,972	16,103,220	348,330	150,651,601
Average yield per acre ..	10.43	16.37	10.82	15.85	10.27	12.53	13.41

1. Including Federal Territory.
Queensland.

2. Preliminary figures, with exception of Victoria and

SECTION XII.

MINES AND MINING.

§ 1. The Mineral Wealth of Australia.

3. **Value of Production during 1916.**—The following table shews the value of the production of the principal minerals and of all minerals, where details are available, for each State and for the Commonwealth during the year 1916 :—

COMMONWEALTH MINERAL PRODUCTION IN 1916.

Minerals.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	N.T.	C'wealth.
	£	£	£	£	£	£	£	£
Gold	459,370	1,090,194	913,951	33,000	4,506,532	67,072	2,554	7,074,673
Silver and lead	3,284,991	1,239	50,588	5,173	34,291	153,796	*	3,530,078
Copper	586,127	...	2,265,422	822,527	64,833	886,454	*	4,625,363
Tin	306,497	12,955	181,401	...	49,101	350,852	*	900,806
Coal	3,336,419	216,875	389,348	...	147,823	27,736	*	4,118,201
All minerals ...	10,515,856	1,403,770	4,021,007	1,212,874	4,893,417	1,521,050	*	23,567,974

* Not yet available.

§ 12. Oil Shale and Mineral Oils.

3. **Shale Oil Bounties, p. 451.**—The "Shale Oil Bounty Act 1917" provides for the payment of bounty on crude shale oil in accordance with the schedule hereunder :—

Description of Goods.	Period dating from 1st Sept., 1917, during or in respect of which bounty may be paid.	Rate of Bounty payable in each year to each producer of goods produced by him at each separate deposit as prescribed.	Maximum Amount which may be paid in any one year.	Date of Expiry of Bounty.
Crude Shale Oil, as prescribed, produced in Australia from Mined Kerose Shale.	Four years.	On each gallon up to 3,500,000 gallons, 2½d. On each gallon exceeding 3,500,000 and not exceeding 5,000,000 gallons, 2d. On each gallon exceeding 5,000,000 gallons and not exceeding 8,000,000 gallons, 1½d. On each additional gallon, 1½d.	£67,500.	31st August, 1921.

SECTION XV.

COMMERCE.

§ 10. Customs Tariff, 1914.

Page 578.—On pages 578-591 of this issue, a comparison is given between the Tariff of 1908-11 and the proposed Tariff of 1914, as confirmed by the Customs Tariff Validation Act of 1917. Since the matter referred to was printed, further tariff amendments have been made as follows:—By increasing the duty on spirits and spirituous liquors from 17s. to 20s. per proof gallon; by removing the duties of 1s. 6d. per cental from wheat, and 2s. 6d. per cental from wheaten flour; by removing the duty of 10 per cent. (General Tariff) from hessians and brattice cloth, jute piece goods, bookbinders' cloth, bunting, and from bags, sacks, packs, and bales for bran, chaff, compressed fodder, potatoes, onions, ore, coal, and wool; also sugar mats, and sugar, corn, and flour sacks; and by reducing by $\frac{3}{4}$ d. per lineal foot the duty on exposed or developed films (cinematograph) representing Australian or dramatic subjects.

The general effect of these changes, as applied to the imports for 1913, which were taken as the basis for comparisons, is to raise the equivalent *ad valorem* rate on all imports of merchandise from 21.50 per cent. to 21.87 per cent., and to raise the rate on all *dutiable* merchandise from 31.65 per cent. to 33.63 per cent. Excluding drink and tobacco, however, the average rate on all other merchandise is reduced from 14.65 per cent. to 13.75 per cent., and on all other *dutiable* merchandise from 23.23 per cent. to 22.52 per cent. The removal of duties from hessian piece goods and from bags and sacks has increased the proportion of free goods from 32.08 per cent. to 34.84 per cent.

As the imports of jute goods from India represented 27.54 per cent. of all imports from British Possessions during 1913, the removal of the 10 per cent. duty from these goods has materially altered the tariff incidence on imports into the Commonwealth from other British Dominions and Dependencies. The proportion of *dutiable* goods in relation to the total imports from these countries is reduced from 67.12 per cent. to 39.53 per cent., and the average *ad valorem* rate on all imports of merchandise is lowered from 15.89 per cent. to 13.74 per cent. These matters will be fully dealt with in the next issue of the Official Year Book.

SECTION XVII.

ROADS AND RAILWAYS.

§ 2. Railways.

(B) Federal Railways.

4. Port Augusta-Kalgoorlie Line, p. 627.—On the 17th October, 1917, the junction of the Eastern and Western sections was effected at Ooldea, South Australia, thus rendering it possible to run a train through from Port Augusta to Kalgoorlie, or *vice versa*. On the 22nd October, the first through train left Port Augusta with an official party for the West. It is proposed to run three through trains a week from each end of the line, and the distance of 1053 miles will be covered in about 35 hours.

The effect of the opening of this line largely increases the distance over which a journey by continuous rail is possible. On page 620 *ante*, this is stated as being 3294 miles, viz., from Longreach, in Queensland, to Oodnadatta, in South Australia. It will now be possible to make a journey from Longreach, in Queensland, to Meekatharra, in Western Australia, a distance of about 4757 miles.

SECTION XIX. COMMONWEALTH FINANCE.

§ 1. General.

7. **Accounts of Commonwealth Government, p. 723.**—(i.) On the 8th August, Sir John Forrest, Commonwealth Treasurer, delivered his Budget speech bringing forward the statement of accounts for the year 1916-17, and the estimates for the year 1917-18. A summary of these important statements is appended, but in studying them it must be distinctly remembered that the figures for 1916-17 are not yet final, and are subject to slight revision, whilst the figures for 1917-18 are estimates, and may in some instances prove to be wide of the mark. This is particularly possible in the case of the estimates of the probable yield of those taxes which are being levied for the first time.

Setting aside loan expenditure, and deducting Commonwealth payments to States from both sides of the account, the revenue and expenditure appear as follows:—

	1916-17 (Actual). £	1917-18 (Estimated). £
Expenditure	28,662,577	30,967,582
Net Revenue	27,764,754	28,040,050
Deficiency	897,823	2,927,532

The deficiency for the two years is thus seen to be £3,825,355, and it has been met by appropriating the £3,000,000 set aside in 1915-16, and transferring £825,355 from unexpended London balances. This is, however, only a temporary expedient, and the balance between current revenue and current expenditure can only be maintained permanently by a reduction of the latter, or by increased taxation, an alternative which will confront the Commonwealth Treasurer at an early date.

(ii.) *Revenue.* Details of the net revenue are given in the table which follows. They are arranged in such a way as to give due prominence to the several items composing Commonwealth taxation, which is becoming so important a factor in Public Finance.

FEDERAL CONSOLIDATED REVENUE.

Heading.	1916-17 (Actual). £	1917-18 (Estimate). £
Taxation—		
Customs and Excise	15,606,441	13,630,000
Land Tax	2,121,847	2,110,000
Income Tax	5,622,026	5,915,000
Special Income Tax of 10 per cent ... ..	...	500,000
Probate and Succession Duties	1,062,013	900,000
Entertainments Tax	110,686	225,000
War Time Profits Tax, 1915-16 and 1916-17 ... ..	...	1,000,000
Total Taxation	24,523,013	24,280,000
Post Office	5,488,765	5,670,000
Other Revenue	4,023,395	4,406,300
Total Revenue	34,035,173	34,356,300
Less paid to States	6,270,419	6,316,250
Net Revenue	27,764,754	28,040,050*

* Exclusive of transfer from London balances.

It will be noticed that the increase in direct taxation is offset by a serious diminution of nearly two millions in customs and excise duties. This is a consequence of the restriction upon imports imposed by a scarcity of tonnage.

(iii.) *Expenditure from Consolidated Revenue.* The expenditure for 1916-17, as compared with the estimate for 1917-18, is given in the following table. It is arranged in rather an unusual way so as to shew in some detail the war expenditure from revenue.

EXPENDITURE FROM FEDERAL CONSOLIDATED REVENUE.

Heads of Expenditure.	1916-17 (Actual).	1917-18 (Estimated).
1. Ordinary—		
Interest—	£ 357,635	£ 392,640
Sinking Fund	36,554	36,555
Invalid and Old Age Pensions	9,452,849	3,830,000
Maternity Allowance	663,035	666,000
Defence, Military	1,542,973	1,629,162
Navy	1,470,399	1,573,080
Post Office	5,362,558	5,557,612
New Works	3,928,444	1,257,617
Fleet Construction	373,036	
Remission of Duties		200,000
Other Expenditure	2,663,556	2,308,065
Total	19,779,469	17,455,731
2. Interest (States)*	105,000	402,500
3. Repayment of advance from Notes Fund in 1914-15	371,118	...
4. War—		
Interest on War loans	4,820,926	7,689,940
Sinking Fund do	1,167,127	771,260
Detained Enemy vessels	674,565	1,000,000
War Pensions (in administration)	1,185,907	2,637,168
Repatriation	...	1,000,000
Other	558,445	10,983
Total Debt	8,406,970	13,109,351
Total Expenditure from consolidated revenue	28,662,577	30,967,582

* Interest on loans issued on behalf of States, the amounts received from which are included in miscellaneous revenue above.

The only feature calling for remark is the large reduction in the amount to be spent on "New Works" in 1917-18. This is due to the reversion to the practice, prevailing before 1916-17, of charging a substantial amount under this heading to loans.

(iv.) *War Expenditure.* The total war expenditure from consolidated revenue, and from loan, since the outbreak of the war is summarised in the following table:—

WAR EXPENDITURE FROM REVENUE AND LOAN.

Year.	From Revenue.	From Loan.	Total.
1914-15	540,217	14,471,118	15,011,335
1915-16	3,778,378	37,423,568	41,201,946
1916-17	8,406,970	53,099,841	61,506,811
1917-18 (estimated)	13,109,351	84,051,230	97,160,581

The war expenditure includes £2,052,477 in 1916-17 for the Federal Government's purchase of steamships, and £2,850,000 in 1917-18 for the construction of silos for the purpose of wheat storage.

(v.) *Public Debt.* The Public Debt of the Commonwealth at the 30th June, 1917, amounted to £169,177,767, detailed as follows:—

FEDERAL PUBLIC DEBT, 30th JUNE, 1917.

Heading.	£
War loans in Australia due 1925	79,454,720
War Savings Certificates	736,000
War loan from Imperial Government	47,774,269
Loans raised in London for States	7,500,000
Inscribed Stock, 3½%	4,580,000
Treasury Bills, 4%	4,437,543
Balance of loans taken over from South Australia	4,531,519
Transferred properties	10,789,739
Accrued deferred pay	9,373,977
Total Debt	169,177,767

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An index to special articles, etc., appearing in previous issues, is given at the commencement of this book, page viii.

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479 COLLINS ST., MELBOURNE, AUSTRALIA.