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The

Official Year Book

of

New South Wales.

1917.



J. B. TRIVETT.

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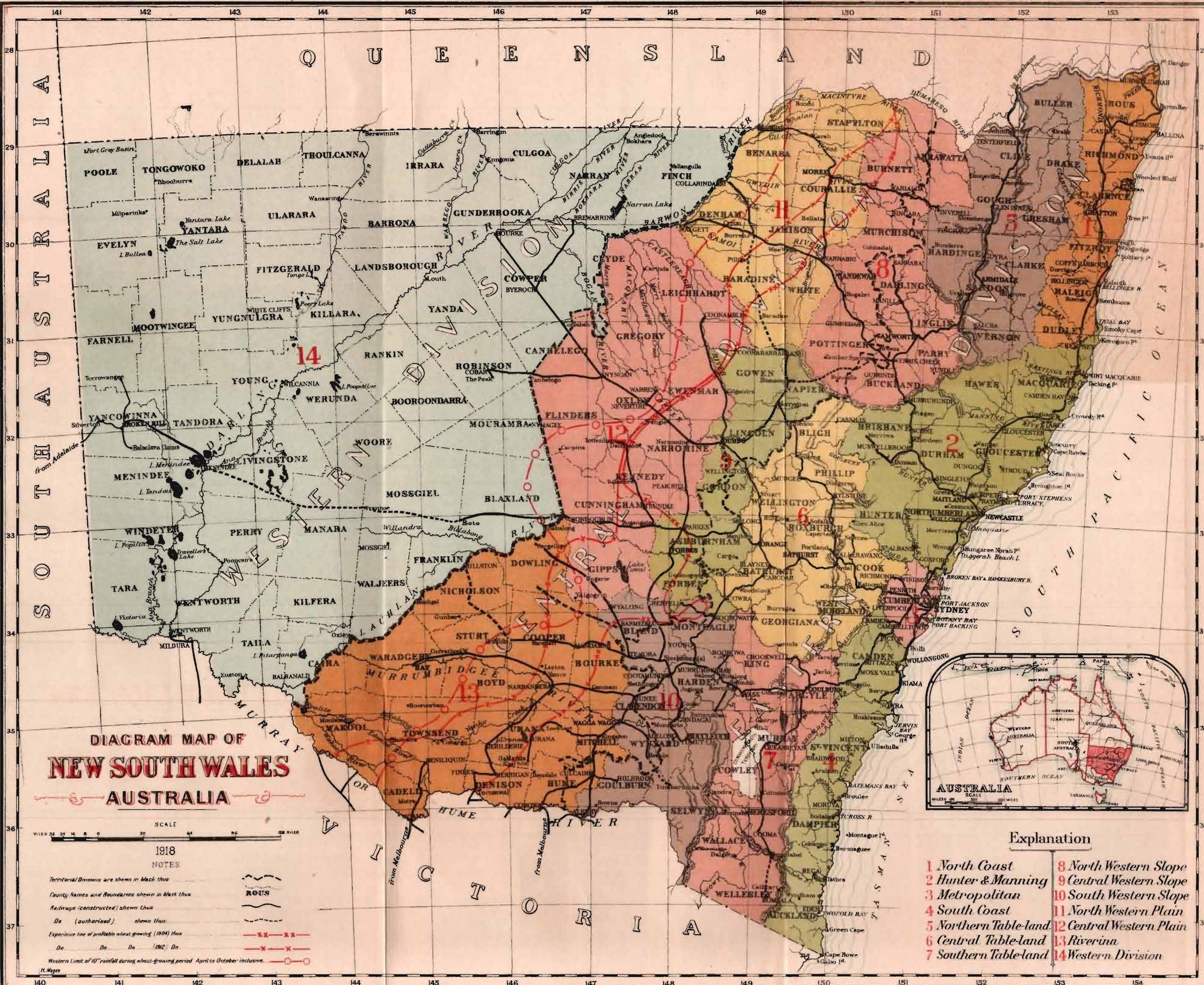
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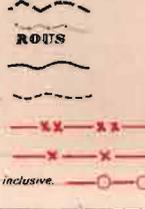


**DIAGRAM MAP OF  
NEW SOUTH WALES  
AUSTRALIA**

SCALE  
0 32 64 96 MILES

1918  
NOTES

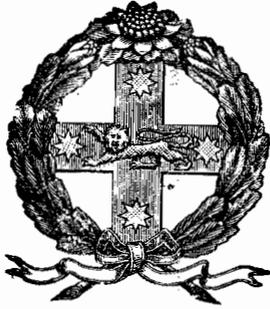
- Territorial Divisions are shown in black thus
- County Names and Boundaries shown in black thus
- Railways (constructed) shown thus
- Do (authorised) shown thus
- Expected line of profitable wheat growing (1904) thus
- Do Do Do (1912) Do
- Western Limit of 10" rainfall during wheat-growing period April to October inclusive.



- Explanation**
- 1 North Coast
  - 2 Hunter & Manning
  - 3 Metropolitan
  - 4 South Coast
  - 5 Northern Table-land
  - 6 Central Table-land
  - 7 Southern Table-land
  - 8 North Western Slope
  - 9 Central Western Slope
  - 10 South Western Slope
  - 11 North Western Plain
  - 12 Central Western Plain
  - 13 Riverina
  - 14 Western Division

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NEW SOUTH WALES.

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GOVERNMENT STATISTICIAN.

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## PREFACE.

THE contents of the Official Year Book of New South Wales have been published already in the form of periodic chapters, which have been issued, as they became available from the printer, in order to render them of immediate service to the public.

As in previous years, the text includes the latest information concerning the activities of the State, together with full notes as to changes in legislation. Consequently the legislator, the student, or the ordinary reader, will have at his disposal the most recent records relating to the State on matters of public interest. For reasons of economy, the information regarding rural settlement has not been tabulated, and the figures given in the previous Year Book should be consulted.

Much extra work has devolved upon this Bureau on account of the Great War in which New South Wales as part of the British Empire is involved. I am pleased to record that fourteen members of the Bureau have been accepted for service in the Australian Imperial Forces.

I have to express my thanks to the responsible officers of the various State and Commonwealth Departments, and to others who have kindly supplied all desired information, often at considerable trouble.

A diagram map of New South Wales is published with the volume to show the railways, county and territorial divisions, and area of the State suitable for profitable cultivation of wheat.

The "Statistical Register of New South Wales" is published annually from this Bureau; and as it contains in very full detail the results of the collected and compiled statistics of the State, it will prove of great service if studied in conjunction with this Year Book.

JOHN B. TRIVETT,

Bureau of Statistics,

Government Statistician.

Sydney, 1st October, 1918.



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IN THE

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Homebush ... ..	1915	Battle Cruiser launched ...	1911
Aborigines Children's Institution ..	1814	Exploration Map, First ...	1791
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Protection Association ... ..	1880	Australian Army ( <i>see</i> Defence).	
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Pensions, Commonwealth ... ..	1910	Gaslight Company ... ..	1837
State ... ..	1907	Museum, incorporated ... ..	1853
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Advancement of Science Association—Australasian ... ..	1888	Navy ( <i>see</i> Defence).	
Congress, Sydney ... ..	1911	Notes (Currency) ... ..	1911
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Advances, State—Homes ... ..	1914	Steam Navigation Company ..	1833
Settlers ... ..	1899	Subscription Library ... ..	1826
Agent-General appointed ... ..	1863	converted into Free Public ...	1869
Agricultural Bureau ... ..	1910	Aviation—First Aerial Mail ...	1914
Chamber ... ..	1903	First International Contest... ..	1912
Commission, Scottish ... ..	1910	Flight of First Australian ...	
Royal Society... ..	1822	(Hart) ... ..	1911
Alpacas introduced ... ..	1858	School, Commonwealth ... ..	1914
American (U.S.) Fleet visit ... ..	1908	New South Wales ... ..	1916
Antarctic Expedition—Amundsen's Return ... ..	1912	Baby Clinics Board ... ..	1914
Mackintosh ... ..	1914	"Bacchante," H.M.S., arrived ...	1881
Relief ... ..	1917	Balcombe, first Colonial Treasurer	1824
Mawson ... ..	1911-14	Ball discovered Lord Howe Island	1788
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Arbitration, Industrial—		Australia ... ..	1826
Acts ... ..	1901, 1903, 1912, 1916	Lottery ... ..	1843
Commission ... ..	1913	Australian Joint Stock ... ..	1853
Conciliation in disputes ... ..	1899	Commercial ... ..	1834
Council of Conciliation ... ..	1892	Commonwealth ... ..	1912
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Art Gallery, National ... ..	1871	Savings, First Australian ... ..	1819
Artesian Bore, First ... ..	1879	Government ... ..	1871
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Assignment of Convicts ceased ... ..	1838	Agencies removed from ... ..	
Assisted Immigration ( <i>see</i> Immigration).		Post Offices ... ..	1913
Astronomer, First Government ... ..	1826	New South Wales ... ..	1832
Attorney, First Colonial ... ..	1822	School ... ..	1887
Australasia, Bank ... ..	1835	Banks, Sir Joseph, died ... ..	1820
Australasian Conference, London ... ..	1887	Barcoo explored by Mitchell and Kennedy ... ..	1845
Federal Council ... ..	1885	Barley, first cultivation ... ..	1788
Medical Congress ... ..	1911	Bass, attempt to cross Blue Mountains ... ..	1796
Naval Defence Force Act ... ..	1887	Explorations ... ..	1796-9
		Insularity of Tasmania established ... ..	1798
		Strait discovered ... ..	1798
		Flinders' chart ... ..	1800

Event.	Year.	Event.	Year.
Bathurst, Discovered by Evans ...	1813	Brisbane, Governor ...	1821-25
Founded ...	1815	River discovered ...	1823
Lake discovered ...	1817	Water discovered ...	1788
Beauchamp, Governor ...	1899-1901	British Association, Advancement	
Beef shipped to England ...	1830	of Science at Sydney ...	1914
Bees introduced ...	1822	Parliamentary Party's Visit...	1913
Belgian Grant ...	1914	Trade Commissioner's Office,	
Relief Funds ...	1914	Sydney ...	1913
Belmore, Governor ...	1868-72	Broken Hill Proprietary Syndicate	1883
Markets ...	1869	Silver Field discovered ...	1883
Benevolent Society ...	1818	Miners strikes 1890, 1892,	1909
Bent, first Judge ...	1814-16	Mines opened ...	1885
Berrima District explored ...	1814	Umberumberka Dam ...	1914
Bigge's inquiry ...	1819	Broughton, Archdeacon, arrived...	1829
Births, Civil Registration ...	1856	Consecrated Bishop ...	1836
Bishop established Illawarra		Building Societies, many failures	1891
Settlement ...	1826	Bulk-handling of Grain investi-	
Blaxland crossed Blue Mountains	1813	gation ...	1913
Bligh, Governor ...	1806-8	Bull's Mining Disaster ...	1887
deposed ...	1808	Bureau, Agricultural ...	1910
Blind Institution ...	1860	Statistics ...	1886
Blue Mountains, crossing ...	1813	Tourist, Government ...	1906
Attempts ...	1793	Burial Grounds consecrated ...	1811
Bass ...	1796	Sydney (Town Hall), closed...	1820
Caley ...	1803	Burke and Wills expedition ...	1860
Board, Abattoirs ...	1912	Burrangong Anti-Chinese Riots ...	1861
Baby Clinics, Home Nursing		Burrinjung Dam authorised ...	1906
and Pre-maternity ...	1914	Bursary Endowment, Secondary	
Health ...	1881	Education ...	1912
Meat Industry ...	1912, 1916	Bushrangers Act ...	1830
Naval ...	1911	Bathurst ...	1825, 1863
Patents Investigation ...	1916	Canowindra ...	1863
School, National and De-		Butchers' employees strike	1914, 1917
nominational ...	1848-66	Cable, England ...	1872
State Children Relief ...	1881	New Caledonia ...	1893
Water Supply and Sewerage,		New Zealand ...	1876, 1912
Hunter District ...	1892	Pacific ...	1902
Metropolitan ...	1888	Conference, Sydney ...	1896
Boat, first Colonial, built ...	1789	Subsidised Press Service ...	1910
Government Guard ...	1820	Tasmania ...	1869
Rosehill packet service ...	1818	Week-end letters ...	1913
Boer War Contingents ...	1899	Cadell ascended Darling River ...	1859
Boiling-down sheep, first ...	1843	Caley's attempt to cross Blue	
Book, first printed... ..	1802	Mountains ...	1803
Border Duties Conference ...	1865	Canberra, designs selected ...	1912
Bore, first Artesian ...	1879	Founded and named ...	1913
Botanic Gardens formed ...	1816	Site selected ...	1908
Opened to public ...	1838	Transferred to Commonwealth	1911
Botany Bay, Cook's landing ...	1770	Cardinal Moran died ...	1911
First Fleet anchored ...	1788	Carrington, Governor ...	1885-90
Botany Wool-combing Works ...	1909	Cataract Dam completed ...	1908
Bounties Act ...	1907	"Catherine Adamson" wreck ...	1857
Sugar ...	1903-12	Cattle, Cow-pastures reserved for	1795
Bourke, Depôt at Fort ...	1832	Found at Cow-pastures ...	1795
Governor ...	1831-37	Metropolitan Saleyards ...	1882
Statue unveiled ...	1842	Slaughtering Act ...	1902
Bowen, Lieut., First Settlement in		Census, first ...	1828
Tasmania ...	1803	First Muster ...	1801
Boyd, Benj., arrived ...	1840	First simultaneous of Aus-	
Bread, Day-baking ...	1914	tralia ...	1881
State Bakery ...	1914	War ...	1915
Brickworks, State ...	1911	Centenary Celebration of First	
Bridge, Duck River ...	1796	Settlement ...	1888
Hawkesbury River Railway	1889	Centennial Park dedicated ...	1888
Murray River Railway ...	1883		
Tank Stream enlarged ...	1811		

Event.	Year.
Chamber of Agriculture ... ..	1903
Commerce ... ..	1826
Sydney ... ..	1851
Manufacturers ... ..	1895
Chart, Flinders' of Bass Strait and Tasmania ... ..	1800
Charter of Justice ... ..	1814, 1824
Chelmsford, Governor ... ..	1909-13
Children, Courts ... ..	1905
Infant Protection Act ... ..	1904
Legitimation Act ... ..	1902
Medical inspection ... ..	1907
Protection Act ... ..	1892
Relief Board, State ... ..	1881
China War Contingent ... ..	1900-1
Chinese immigrants—Inter- colonial Conference ... ..	1888
Restriction Acts 1861, 1881, 1888 Bill defeated ... ..	1858
Riots against ... ..	1861
Church and School Lands Grants... ..	1829
Churches ( <i>see</i> Religion).	
Circuit Court, first ... ..	1829
At Hobart ... ..	1821
Civil Court (Supreme) ... ..	1814
Law suit, first important ... ..	1795
Clarke's Discovery of Gold ... ..	1841
Tin ... ..	1851
Clinics, Baby ... ..	1914
School Dental ... ..	1915
Venereal Diseases ... ..	1914
Clock, Sydney Town ... ..	1798
Closer Settlement Act ... ..	1901
Club, Australian ... ..	1838
Clyde Engineering Works ... ..	1882
River discovered ... ..	1820
Coal—Bulli Mine disaster... ..	1887
Discovered—Coalcliff (Illa- warra) ... ..	1797
Coal (Hunter) River ... ..	1797
Newcastle ... ..	1796
Port Stephens ... ..	1796
Hunter River mines ... ..	1801
Miners' strikes 1873, 1883, 1888, 1908, 1909-10, 1913, 1914, 1916, 1917.	
Mount Kembla Mine explo- sion ... ..	1902
Shipped from Hunter River ..	1799
State Mines Act ... ..	1912
Cockatoo Island Dock transferred to Commonwealth ... ..	1913
Coinage ( <i>see</i> Currency).	
College ( <i>see</i> Education).	
Duntroon Military ... ..	1911
Jervis Bay Naval ... ..	1915
Collins attempt to colonise Port Phillip ... ..	1803
Commerce, Chamber ... ..	1826
Sydney ... ..	1851
Empire Congress, Sydney ... ..	1909
Commercial Banking Company ... ..	1834
Causes Act ... ..	1903
Commission, Interstate ... ..	1913
Commodities Control Commission	1914
Common Land designated, Sydney	1811

Event.	Year.
Commonwealth of Australia ... ..	1901
Aviation School ... ..	1914
Bank ... ..	1912
Head Office, Sydney, opened ... ..	1916
Constitution Act ... ..	1900
Federation Bill rejected 1884, 1898 Conferences 1870, 1880, 1883, 1890 Conventions 1891, 1895, 1896, 1897, 1898	
Council of Australasia ... ..	1885
Enabling Act passed ... ..	1896
Select Committee ... ..	1857
Finance agreement, Premier's Conference ... ..	1909, 1914
First Ministry... ..	1900
Income Tax ... ..	1915
Land Tax ... ..	1910
Maternity allowances ... ..	1912
Parliament, First ... ..	1901
Double dissolution... ..	1914
Powers (War) Act ... ..	1915
Prices Regulation ... ..	1916
Prime Minister's visit to Europe ... ..	1916
Scientific Research, Advisory Council ... ..	1916
Steamers purchased by Government ... ..	1916
Communication, Sydney-North Sydney Commission ... ..	1890
Compensation Act, Workmen's ... ..	1910
Conciliation ( <i>see</i> Industrial Arbi- tration).	
Condamine River, Cunningham's explorations ... ..	1827
Conscription Referendum ... ..	1916
Conservation, Water Commissioner Artesian, Interstate Confer- ence ... ..	1912
Conservatorium of Music ... ..	1915
Constitution, Commonwealth of Australia Act ... ..	1900
Constitution, New South Wales 1823, 1828	
First Representative ... ..	1843
Imperial Act authorising ... ..	1851
Responsible Government ... ..	1855
Contingents, War ( <i>see</i> War).	
Convalescent Hospitals, State ... ..	1914
Convicts, assignment ceased ... ..	1838
Castle Hill Insurrection ... ..	1804
Deported from Norfolk Island Transportation abolished 1840, 1850 Agitation against 1846, 1840-50 Last ships ... ..	1849
Revived ... ..	1848
Select Committee, London..	1837
Cook landed at Botany Bay ... ..	1770
Monument erected at Kurnell	1870
Norfolk Island discovered ... ..	1774
Statue in Sydney, founda- tion ... ..	1869
Unveiled ... ..	1879
Copper coinage, first issue ... ..	1801
Copper Mines, Carcoar ... ..	1848
Copyright Act ... ..	1879

Event.	Year.	Event.	Year.
"Corangamite" wreck ...	1886	Dairies Supervision Act ...	1886
Cost of Living Inquiry ...	1913	Dalley, Emigration Commissioner	1861
Cotton first grown in Sydney ...	1828	Dam, Burrinjuck, authorised ...	1906
Courts, Children's ...	1905	Cataract ...	1908
Circuit, first ...	1829	Umberumberka (Broken Hill)	1914
at Hobart ...	1821	Danzysz's experiments in rabbit	
Civil jurisdiction, Supreme ...	1814	destruction ...	1906
First important law suit ...	1795	Darling, Governor ...	1825-31
Criminal ...	1788	Flour Mills, Parramatta ...	1826
Appeal ...	1912	River discovered by Sturt ...	1829
Trial by Jury ...	1824	Fort Bourke established ...	1832
District, Country ...	1858	Navigated by Cadell and	
Sydney ...	1844	Randell ...	1859
Fair Rents ...	1916	Darlinghurst Gaol ...	1841-1914
Governor's ...	1812	Daylight Saving Act ...	1916
High, Court of Australia,		Repeal ...	1917
inaugurated ...	1903	Deaf, Dumb and Blind Institution	
Judge (Bent), first ...	1814-16	founded ...	1860
Military juries ceased ...	1830	Deaths, Civil Registration ...	1856
Privy Council appellate juris-		Decentralisation in Railway Tran-	
diction ...	1833	sit Commission ...	1911
Quarter Sessions, first ...	1824	Defence, Aviation School, Com-	
Requests ...	1824	monwealth ...	1914
Supreme created ...	1812	New South Wales ...	1916
Civil jurisdiction ...	1814	Barracks, Hyde Park ...	1817
Criminal jurisdiction ...	1824	Compulsory Military Service,	
First sitting ...	1815	Proclamation ...	1916
Trial by jury—Civil cases ...	1829	Department transferred to	
Petition for ...	1827	Commonwealth ...	1901
Criminal Sessions ...	1824	Factory, Small Arms, Lith-	
Criminal Appeal Court ...	1912	gow ...	1912
Court ...	1788	Gunpowder first made in	
English law adopted ...	1828	Australia ...	1829
Habitual Act ...	1905	Imperial Act ...	1888
Influx Prevention Act ...	1903	Conference ...	1909
Royal authority to pardon ...	1791	Inspection, Military—	
Supreme Court jurisdiction ...	1824	Hamilton ...	1914
Trial by jury ...	1824	Kitchener ...	1909
"Cumberland" wreck ...	1917	Naval, Henderson ...	1910
Cunningham, Allan, arrived ...	1816	Land resumed, Duntroon ...	1913
Explorations ... 1823, 1826,		Moorebank, Liverpool ...	1913
Killed by aborigines ...	1835	Yarralumla ...	1913
Currency Act ...	1824	Military College, Duntroon ...	1911
Australian Notes issued ...	1911	Military Forces—	
Bills of exchange payable in		Corps, New South Wales 1790-1810	
dollars ...	1824	reduced to peace footing	1803
Coinage, Australian ...	1910	Corps of Marines relieved	
Copper ...	1801	by New South Wales	
Scarcity ...	1812	Corps ...	1791
Sydney Mint ...	1855	Imperial, withdrawn ...	1870
Bronze ...	1868	Inspection, Hamilton ...	1914
Silver ...	1879	Kitchener ...	1909
Dollar system superseded ...	1826	Permanent, raised ...	1871
Holey Dollar and Damp ...	1813-29	Recruiting commenced ...	1838
Private money orders and		Soldiers Repatriation Fund	1916
promissory notes issued ..	1812	Volunteers ... 1800, 1854,	1860
Promissory notes payable in		First encampment ...	1873
dollars ...	1824	Loyal Association Corps	1801
Rum forbidden ...	1807	Military Service Referendum	1916
Customs, Commonwealth Admin-		Naval Agreement ...	1890
istration ...	1901	Australasian Defence Force	
Duties, <i>ad valorem</i> , ceased ...	1887	Act ...	1887
First ...	1800	Australian Auxiliary Squad-	
Freetrade tariff instituted ...	1895	ron arrived ...	1891
Interstate ...	1901	Australian Fleet unit	
House, Sydney ...	1800	arrived ...	1913
Naval control superseded ...	1827	under Imperial control...	1914
Dacey Garden Suburb ...	1912		

Event.	Year.
Defence ( <i>continued</i> )—	
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Australian Station, Rear Admiral's Command ...	1884
Vice Admiral's Command Board ... ..	1902
China War Contingent	1900-1
Cockatoo Island Dock, transferred to Commonwealth ... ..	1913
Control of Wireless Telegraphy ... ..	1915
Garden Island dedicated to Imperial Government ...	1866
House, Sydney ... ..	1889
Imperial Establishments transferred to Commonwealth ... ..	1913
Imperial Admiral King-Hall's departure... ..	1913
Inspection, Henderson ...	1910
Stores, Circular Quay ...	1812
Naval Vessels—"Australia"	
launched ... ..	1911
"Brisbane" launched ...	1915
"Drake" left for England	1913
"Franklin" acquired ...	1915
"Huon" launched ... ..	1914
"Melbourne" arrived ...	1913
"Parramatta" arrived ...	1910
"Spitfire" first Australian gunboat launched ... ..	1855
"Swan" launched ... ..	1915
"Sydney" arrived ... ..	1913
destroyed "Emden" ...	1914
"Tingira" Training Ship ..	1912
"Torrens" launched ... ..	1915
"Una" ("Komet") captured from Germans ...	1914
"Warrego" launched ... ..	1911
"Warspite" first line-of-battleship arrived ... ..	1826
"Wolverine" presented to New South Wales ... ..	1882
"Yarra" arrived ... ..	1910
Volunteer Brigade organised ... ..	1863
Rifle Association formed ...	1860
Universal Training initiated...	1911
War operations ( <i>see War</i> ).	
Works, George's Head ... ..	1803
Port Jackson commenced...	1853
Denison, Governor ... ..	1855-61
Denization, Letters ... ..	1828
Denominational School Boards	1848-66
Dental Clinics, School ... ..	1915
Hospital of Sydney, United...	1905
Dentists Act ... ..	1901
Diamond discoveries ... ..	1867, 1883
Diseases Supervision Act, Infectious... ..	1881
Dispensary, Tuberculin ... ..	1912
Disputes Act, Industrial ... ..	1908
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Event.	Year.
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Fitzroy, commenced ... ..	1854
completed ... ..	1857
Sutherland ... ..	1890
Woolwich (Mort's) ... ..	1901
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Domain, Government ... ..	1831
Dominions Royal Commission ...	1913
Dreadnought Farm Training ...	1911
Dredge, first Gold ... ..	1899
Drugs, Commission on Uniform Standard ... ..	1913
Duck River Bridge ... ..	1796
Duff, Governor ... ..	1893-95
Death ... ..	1895
Duke and Duchess of Cornwall and York, visit ... ..	1901
Duke of Edinburgh, visit... ..	1868
Attempted assassination at Clontarf ... ..	1868
Dump ( <i>see Currency</i> ).	
"Dunbar" wreck ... ..	1857
Duntroon Military College ... ..	1911
Dutch Naval Squadron, visit ...	1910
Duties, <i>ad valorem</i> , ceased ... ..	1887
Border Conference ... ..	1865
Import, first ... ..	1800
Stamp ... ..	1865
Act ... ..	1914
Early Closing of Shops ... ..	1899
Education, Bursary Endowment ..	1912
Church and School Corporation ... ..	1826-32
First land grant ... ..	1829
Council ... ..	1866
Deaf, Dumb and Blind Institution ... ..	1860
Dreadnought Farm Training Scheme ... ..	1911
Public Instruction Act 1880, 1916	
Schools Act... ..	1866
Consolidation ... ..	1907
Evening Continuation ... ..	1911
Fees abolished ... ..	1906
First travelling ... ..	1908
Reforms commenced ... ..	1904
School Boards, Denominational ... ..	1848-66
National ... ..	1848-66
Dental Clinics ... ..	1915
Farm for Women, Pitt Town ... ..	1916
First... ..	1796
Free ... ..	1809
Hospital, Travelling ... ..	1914
Industrial ... ..	1867
King's, Parramatta ... ..	1832
Mechanics, of Arts, Sydney	1833
Technical classes ... ..	1873
Open-air, first ... ..	1913
Ship "Sobraon" abolished	1911
Sydney College (Grammar School) ... ..	1835
Sydney Mechanics' School of Arts ... ..	1833
Teachers' College ... ..	1905

Event.	Year.	Event.	Year.
Education ( <i>continued</i> )—		Explorers ( <i>continued</i> )—	
Technical College, Ultimo ...	1892	Hawkesbury River ...	1789
Education commenced ...	1878	Hovell—Overland to South...	1824
State System ...	1883	Hume—Berrima District ...	1814
Technological Museum ...	1879	Goulburn District ...	1817
University ( <i>see</i> University).		New route to Bathurst ...	1827
Eight Hours Act ...	1916	Overland south ...	1824
Celebration, first annual ...	1871	Kennedy ...	1845, 1848
Working day conceded to masons ...	1855	King, Coast ...	1817
Elections ( <i>see</i> Parliament).		Port Essington ...	1818
Electoralates, Parliamentary, Act	1880, 1893	Lawson—Blue Mountains ...	1813
Distribution Commission ...	1911	Leichhardt ...	1844, 1848
Franchise, Manhood ...	1858	Meehan—Goulburn District...	1817
One man, one Vote ...	1893	Mitchell—Barcoo ...	1845
Police ...	1896	Darling River ...	1832
Women ...	1902	Northern ...	1831
Rolls printed ...	1857	Southern ...	1836
Electrification, City Tramways ...	1899	Murray—Port Phillip ...	1802
Emigration Commissioners, Parkes and Dalley ...	1861	Ovens—Monaro ...	1823
To Californian Goldfields ...	1849	Oxley ...	1817, 1818
Employment scarcity, Govern- ment Relief Works ...	1887	Tweed and Brisbane Rivers	1823
Women's State Agency ...	1914	Randell—Darling River ...	1859
Emu Plains Prison Farm ...	1914	Rous—Richmond River ...	1828
Engineering, Clyde Works ...	1882	Russian ships ...	1820
First steam engine erected ...	1815	Stirling—Western Australia ..	1827
England, Cable to ...	1872	Strzalecki—Western Port ...	1840
Mail Services ( <i>see</i> Mails).		Sturt—Darling and Murray Rivers ...	1829
Entertainments Tax Act ...	1916	Overland to South...	1830
Eskbank, Iron Company ...	1869	Throsby ...	1821
Evans discovered Bathurst Plains and Macquarie River ...	1813	Wentworth—Blue Mountains	1813
Explored Lachlan River ...	1815	Wilson—Lachlan River ...	1799
Exchange Settlement Office, Banks Sydney ...	1894	Export, first surplus ...	1844
Exhibition, International, Sydney	1872, 1879	Wheat... ..	1898
Expeditions, Antarctic ( <i>see</i> An- tartic).		Horses to India ...	1830
Scientific, Funafuti Island	1896-7-8	Ten ships to England ...	1821
Vavau ...	1911	Factory and Shops Regulations ...	1896
Exploration Map of Australia, first ...	1791	Small Arms, Lithgow ...	1912
Explorers—		Fair Rents Court ...	1916
Bass—Blue Mountains ...	1796	Farm Training for Women, Pitt Town ...	1916
Port Hacking ...	1796	Dreadnought ...	1911
Tasmania ...	1798-9	Federal Capital City founded ...	1913
Blaxland—Blue Mountains ...	1813	Designs selected ...	1912
Blue Mountains 1793, 1796, 1803, 1813		Site selected ...	1908
Burke and Wills ...	1860	Transferred to Common- wealth ...	1911
Cadell—Darling River ...	1859	Federation ( <i>see</i> Commonwealth).	
Caley—Blue Mountains ...	1803	Ferry employees strike, Sydney	1913
Cunningham, arrived ...	1816	Financial agreement, Common- wealth and States—	
Expeditions 1823, 1826, 1827		Premiers' Conference	1909, 1914
Killed by aborigines ...	1835	Referendum ...	1910
Currie—Monaro Plains ...	1823	Crises ...	1840, 1842, 1893
Evans—Bathurst Plains and Macquarie River ...	1813	Firms Registration ...	1903
Lachlan River ...	1815	First Act of Parliament ...	1824
Flinders—Circumnavigation of Australia ...	1803	Artesian Bore ...	1879
North Coast ...	1799	Astronomer, Government ...	1826
Port Hacking ...	1796	Attorney, Colonial ...	1822
Tasmania ...	1798-9	Aviation Contest, Inter- national ...	1912
		Flight of Australian ...	1911
		Mail, Melbourne-Sydney ...	1914
		Bank ...	1817
		Savings ...	1819
		Blankets manufacture ...	1801
		Blue Mountains crossing ...	1813

Event.	Year.
First Boiling-down of sheep ...	1843
Book printed ... ..	1802
Cable ... ..	1872
Census ... ..	1828
Muster ... ..	1801
Simultaneous Australian ...	1881
Church... ..	1793
Coinage, Copper ... ..	1801
Constitution ... ..	1823
Representative ... ..	1843
Court, Arbitration ... ..	1902
Circuit ... ..	1829
Criminal ... ..	1788
District ... ..	1844
Criminal Trial by Jury ... ..	1824
Customs Duty ... ..	1800
Divine Service ... ..	1788
Election, Parliamentary ... ..	1843
Engine, Steam ... ..	1815
Executive Council Meeting ...	1824
Export, Excess of Annual ...	1844
Wool ... ..	1807
Fleet ... ..	1788
Free immigrants ... ..	1793
Friendly Society ... ..	1834
Gold Dredge ... ..	1899
Register ... ..	1857
Gunpowder Manufacture ... ..	1829
Harvest ... ..	1789
Industries, whaling and seal- ing ... ..	1791
Jury, criminal trial by ... ..	1824
Labour Ministry ... ..	1910
Land grant to Settlers ... ..	1791
Regulations ... ..	1824
Loan, Public ... ..	1841
Mail Contract ... ..	1831
Overland, Sydney-Adelaide	1847
Steamer, P. and O. Com- pany ... ..	1852
Maize surplus sold to Govern- ment ... ..	1793
Manufacture, blankets ... ..	1801
gunpowder ... ..	1829
linen... ..	1801
sugar ... ..	1824
tobacco ... ..	1822
tweed ... ..	1843
Map of Australia, Exploration	1791
Military Force of Volunteers	1800
Encampment ... ..	1873
Ministry, Labour ... ..	1910
Responsible ... ..	1856
Mounted Police ... ..	1825
Muster, Census ... ..	1801
Naval Vessels, Australian ...	1910
Gunboat ... ..	1855
Line-of-battleship ... ..	1826
New South Wales Settlement	1788
Newspaper ... ..	1803
Observatory ... ..	1788
Offenders' Probation Act ... ..	1894
Parliament Act ... ..	1824
Election ... ..	1843
Elective ... ..	1856
Post Office ... ..	1809

Event.	Year.
First Postage Stamped covers ...	1838
Printing press... ..	1795
Races, horse ... ..	1810
Railway commenced ... ..	1850
Contract ... ..	1851
Opened ... ..	1855
Religious Service ... ..	1788
Roman Catholic... ..	1803
Place of Worship ... ..	1793
Wesleyan Minister ... ..	1815
Savings Bank ... ..	1819
School ... ..	1796
Open-air ... ..	1913
Settlement, New South Wales	1788
Queensland ... ..	1824
South Australia ... ..	1836
Tasmania ... ..	1803
Victoria ... ..	1803
Western Australia ... ..	1826
Sewerage ... ..	1853
Sheep, boiling-down ... ..	1843
Wool export ... ..	1807
Ship-building—Boat... ..	1789
Steamer ... ..	1831
Foreign trading ... ..	1792
Immigrant ... ..	1831
Steam ... ..	1831
On Murray River ... ..	1853
Statue, public... ..	1842
Store (brick) ... ..	1790
Sugar manufacture ... ..	1824
Telegraph ... ..	1851
Wireless Station ... ..	1911
Telephone ... ..	1880
Long distance ... ..	1898
Theatre ... ..	1796
Tobacco manufacture ... ..	1822
Town Clock ... ..	1798
Tramway (horse-drawn) ... ..	1861
Steam ... ..	1879
Treasurer, Colonial ... ..	1824
Trial by Jury, Criminal ... ..	1824
Tweed manufacture ... ..	1843
Volunteer Defence Force ... ..	1800
Water Police ... ..	1830
Wheat harvest ... ..	1789
import from Tasmania ... ..	1815
Surplus ... ..	1898
Wireless Telegraph Station ...	1911
Women Police... ..	1915
Wool export ... ..	1807
Sample sent abroad ... ..	1803
Fish Industry Commission ... ..	1894
Investigation ship "Endea- vour" lost ... ..	1914
State trawling ... ..	1915
Fisher Library ... ..	1909
Fitzroy Dock commenced ... ..	1854
completed ... ..	1857
Governor ... ..	1846-55
Iron works ... ..	1847
Fleet, First ... ..	1788
Second ... ..	1790
Third ... ..	1791
Flinders' Chart of Bass Strait and Tasmania ... ..	1800
Circumnavigation of Australia	1803

Event.	Year.	Event.	Year.
Flinders ( <i>continued</i> )—		Gold ( <i>continued</i> )—	
Explorations ... ..	1796-99	Fields ( <i>continued</i> )—	
Insularity of Tasmania estab-		Regulations ... ..	1857
lished ... ..	1798	Temora ... ..	1880
Floods, Gundagai ... ..	1852	Wyalong ... ..	1893
Flour Mills, Darling, Parramatta ..	1826	Proclaimed Crown property... ..	1851
Lachlan, Botany ... ..	1820	Register, first ... ..	1857
Food Act, Pure ... ..	1909	Revenue allocated to Legis-	
Commission, Supplies and		lature ... ..	1852
Prices ... ..	1911	Goulburn Plains discovered ... ..	1817
Uniform Standards ... ..	1913	Government ( <i>see</i> Constitution).	
Forestry Act ... ..	1916	<i>Gazette</i> ... ..	1832
Conservation ... ..	1882	Guard boats established ... ..	1820
Interstate Conference, first ... ..	1911	House establishment removed	
Regulations ... ..	1878	from Parramatta to	
Reserves ... ..	1871	Sydney ... ..	1853
Franchise, Parliamentary, Man-		Lawsuit decided by Privy	
hood ... ..	1858	Council ... ..	1915
One Man one Vote ... ..	1893	Industrial undertakings ( <i>see</i>	
Police ... ..	1896	State).	
Women's ... ..	1902	Relief Works started... ..	1887
Freetrade Association ... ..	1864	Savings Bank ( <i>see</i> Bank).	
Interstate ... ..	1901	Statistician's Office ... ..	1886
Tariff ... ..	1895	Tourist Bureau ... ..	1906
Friendly Societies Act ... ..	1873, 1899	Governor Beauchamp ... ..	1899-1901
First ... ..	1834	Belmore ... ..	1868-72
Subventions ... ..	1908	Bligh ... ..	1806-08
Funafuti Island Scientific Expedi-		Bourke ... ..	1831-37
tions ... ..	1896-98	Brisbane ... ..	1821-25
Gallery, National Art ... ..	1871	Carrington ... ..	1885-90
Game Act ... ..	1868	Chelmsford ... ..	1909-13
Gaols ( <i>see</i> Prisons).		Darling ... ..	1825-31
Garden Island dedicated to Im-		Denison ... ..	1855-61
perial Government ... ..	1866	Duff ... ..	1893-95
Garden Palace Exhibition ... ..	1879	Fitzroy ... ..	1846-55
Fire ... ..	1882	Gipps ... ..	1838-46
Suburb, Dacey ... ..	1912	Hampden ... ..	1895-99
Gardens, Botanic, formed ... ..	1816	Hunter ... ..	1795-1800
Opened to Public ... ..	1838	Jersey ... ..	1891-93
Zoological ... ..	1879, 1916	King ... ..	1800-06
Gas Act ... ..	1912	Loftus ... ..	1879-85
Australian Company ... ..	1837	Macquarie ... ..	1810-21
Employees strike ... ..	1913, 1917	Phillip ... ..	1788-92
Sydney lit with ... ..	1841	Rawson ... ..	1902-09
<i>Gazette, Government</i> ... ..	1832	Robinson ... ..	1872-79
Sydney, first newspaper ... ..	1803	Strickland ... ..	1913-17
Geographical Society of Australia	1884	Young ... ..	1861-67
Geological Survey (Stutchbury) ... ..	1851	Governor, Lieutenant, Grose	1792-94
George Lake, discovered ... ..	1817	Paterson ... ..	1794-95
German War operations ( <i>see</i> War).		Major Johnston assumed	
Gipps, Governor ... ..	1838-46	administration ... ..	1808
Glebe Abattoirs ... ..	1860	Governor's censorship of press	
Gold Commissioner appointed ... ..	1851	ceased ... ..	1824.
Discovery—Clarke ... ..	1841	Governors' Court ... ..	1812
Hargraves ... ..	1851	Granary at Sydney completed ... ..	1797
McBrien ... ..	1823	Grape-vines imported ... ..	1817, 1832
Strzelecki ... ..	1839	planted ... ..	1801
Dredge, first ... ..	1899	Viticulture established ... ..	1840
Fields—Anti-Chinese riots ... ..	1861	Greater Sydney, Parliamentary	
Commission ... ..	1870	Select Committee ... ..	1902
Control scheme ... ..	1855	Griffiths (Norton) Contract for	
Exodus to California ... ..	1849	Public Works ... ..	1915
Great activity ... ..	1873	Cancelled ... ..	1917
Kiandra ... ..	1860	Grose, Lieutenant-Governor	1792-94
Lambing Flat ... ..	1861	Gundagai floods ... ..	1852
Riots ... ..	1861	Gunpowder first made ... ..	1829
Mount Boppy ... ..	1901	Habitual Criminals Act ... ..	1905
Mount Drysdale ... ..	1893	Half-holiday, Saturday ... ..	1910

Event.	Year.	Event.	Year.
Hall, Mrs. W., charitable bequest, £1,000,000 ...	1912	Immigration ( <i>continued</i> )—	
Hamilton, Military Inspection ...	1914	Proposed to relieve labour shortage ...	1830
Hampden, Governor ...	1895-99	Public Funds appropriated	1832, 1840
Harbour Trust, Sydney ...	1901	Loan ...	1841
Hargraves' gold discovery pensioned ...	1851 1877	Imperial Act, Constitution of New South Wales ...	1851
Hastings River discovered ...	1818	Defence ...	1888
Hawkesbury River discovered ...	1788	Conference ...	1909, 1911
Explored ...	1789	Troops withdrawn ...	1870
Settlement ...	1794	Import Duties, first ...	1800
Health, Public, Act ...	1902	Exceeded by exports ...	1844
Board ...	1881	Improvement of Sydney and Sub- urbs Commission ...	1908
Department ...	1914	Income Tax, Commonwealth ...	1915
"Helen Nicol" wreck ...	1886	(Bachelor's) ...	1917
Henderson, Naval Defence In- spection ...	1910	State ...	1895, 1912
High Court of Australia ...	1903	Industrial Arbitration Act	1899, 1901, 1912
Holey Dollar and Dump Currency	1813-29	Commission ...	1913
Homebush Abattoirs ...	1915	Court, first sitting... ..	1902
Home-nursing Board ...	1914	Cost of living inquiry ...	1913
Homes, State Advances ...	1914	Council of Conciliation ...	1892
Hops, first crop ...	1812	Disputes Act ...	1908
Horses, first races ...	1810	Legislation Referendum ...	1911
Shipped to India ...	1830	Schools ...	1867
Hospitals Act, Private ...	1908	Wages Boards ...	1908
Prince Alfred ...	1878	Industries, first whaling and seal- ing ...	1791
Saturday Fund ...	1895	Inebriates Act ...	1900
School, Travelling ...	1914	Infant Protection Act ...	1904
State Convalescent ...	1914	Maintenance by Confinées ...	1913
Sydney, founded ...	1811	Infectious Diseases Supervision Act ...	1881
Opened ...	1816	Influx of Criminals Prevention Act	1903
Radium obtained ...	1911	Inquiry Commission—Baldwin	
United Dental ...	1905	Locomotives ...	1892
Hotels Closing Hour, Federal Pro- clamations ...	1916	Food Supply and Prices ...	1911
Referendum ...	1916	New South Wales (Bigge's) ...	1819
Hovell overland expedition to South ...	1824	House of Commons ...	1812
Hume explorations ...	1814, 1817	Insolvency Law ...	1842
New route to Bathurst ...	1827	Inspection of Children, Medical ...	1907
Overland expedition to South	1824	Intercolonial Conference 1873, 1874, 1888	
Hunter District Water Supply and Sewerage Board ...	1892	International Exhibition ...	1872, 1879
Governor ...	1795-1800	Interstate Commission ...	1913
River coal discovered ...	1797	Invalidity Pensions ...	1907
Mines ...	1801	Commonwealth ...	1910
Hyde Park Barracks ...	1817	Iron Industry Commission ...	1911
Illawarra settlement ...	1826	works, Eskbank ...	1869
Immigration, assistance by State	1832-85	Fitzroy ...	1847
resumed ...	1905	Lithgow blast furnace ...	1907
Chinese ...	1848	Newcastle ...	1915
Intercolonial Conference ...	1888	Irrigation, Burrinjuck Dam author- ised ...	1908
Restriction Act ...	1861, 1881, 1888	Commission ...	1913
Bill defeated ...	1858	Murrumbidgee Area ...	1912
Riots against ...	1861	Trust ...	1911
Committee ...	1841	Jersey, Governor ...	1891-93
First ship ...	1831	Jervis Bay Naval College ...	1915
Free, first ...	1793	Johnston assumed Government ...	1808
Sought by Governor Phillip	1788	Court martial ...	1811
Suspended ...	1818	Sailed for England ...	1809
German proposed ...	1847	Judge (Bent) first ...	1814-16
Lang's Scotch mechanics ...	1830	Juries, Military, ceased ...	1839
Pacific Islanders ...	1847	trial by, civil cases ...	1829
prohibited ...	1901	Criminal Sessions ...	1824

Event.	Year.	Event.	Year.
Justice Charter ... ..	1814, 1824	Law (see Courts).	
"Keilawarra" wreck ... ..	1886	Charter of Justice ... ..	1814, 1824
Keanedy's explorations ... ..	1845, 1848	English Criminal adopted ... ..	1828
Kiandra Goldfield ... ..	1860	First Colonial attorney ... ..	1822
King, Governor ... ..	1800-06	important civil action ... ..	1795
brought territorial Seal and		Inquiry, Bigge's ... ..	1819
Authority to Pardon ... ..	1791	Insolvency ... ..	1842
discovered Port Essington ... ..	1818	Matrimonial Causes Act ... ..	1873
explorations ... ..	1817	Lawson crossed Blue Mountains ... ..	1813
King George's Sound Settlement	1826	Legitimation of Children Act ... ..	1902
King-Hall, Admiral, departed ... ..	1913	Leichhardt explorations ... ..	1844, 1848
Kitchener, military inspection ... ..	1909	Letter telegrams ... ..	1914
Kuring-gai Chase ... ..	1894	Letters of Denization ... ..	1828
Kurnell reserve ... ..	1905	Week-end Cable ... ..	1913
Labour Ministry, first State ... ..	1910	Library, Australian Subscription	1826
Scarcity ... ..	1830	Converted into Free Public ... ..	1869
Shortage Commission ... ..	1911	Fisher ... ..	1909
Strikes (see Strikes).		Free Public ... ..	1869
Lachlan River discovered ... ..	1799	Mitchell ... ..	1910
explored ... ..	1815	Municipal, Sydney ... ..	1909
Lake Bathurst discovered ... ..	1817	Music ... ..	1913
George discovered ... ..	1817	Public ... ..	1869
Lambing Flat Goldfield ... ..	1861	incorporated ... ..	1899
Riots ... ..	1861	Lieutenant-Governor (see Govern-	
Land Advances to Settlers ... ..	1899	nor).	
Board ... ..	1826	Lighthouses, Commonwealth Ad-	
Local ... ..	1885	ministration ... ..	1915
Division, Territorial ... ..	1885	Macquarie, founded ... ..	1816
Grants ... ..	1791	Solitary Island, opened ... ..	1880
Abolished ... ..	1831	Liquor Legislation ... ..	1830, 1882, 1905
Church and School Corpor-		Licenses ... ..	1825
ation ... ..	1829	Referendum ... ..	1916
Legislation—		Lithgow Iron and Steel Works,	
Auction Sales restriction ... ..	1884	blast furnace ... ..	1907
Closer Settlement ... ..	1901	Small Arms Factory ... ..	1912
Conversions ... ..	1908	Liverpool Plains exploration—	
Dummying restricted ... ..	1875	Mitchell ... ..	1831
Leases ... ..	1847	Oxley ... ..	1818
Pastoral Lessees tenure ... ..	1884	Living Wage, Industrial Court	
Real Property (Torrens') ... ..	1862	Inquiry ... ..	1913
Sales ... ..	1842	Loan Account, Government ... ..	1853
Selection before Survey		Local Government Act ... ..	1906
(Robertson's) ... ..	1861	Incorporation of Towns ... ..	1843
Squatting Act ... ..	1839	Shires Act ... ..	1905
Imperial ... ..	1846	Sydney Municipal Corpora-	
Valuation ... ..	1916	tion ... ..	1842-53
Western ... ..	1901	Revived ... ..	1857
Orphan School Estates, vested		Lookyer established King George's	
in Trustees of Church and		Sound Settlement ... ..	1826
School Lands ... ..	1826	Loftus, Governor ... ..	1879-85
Port Phillip, land sale in		Long Bay Penitentiary ... ..	1909
Sydney ... ..	1838	Lord Howe Island discovered ... ..	1788
Regulations ... ..	1824, 1840	Loyal Association Volunteer Corps	1801
Auction Sales (Ripon) ... ..	1831	"Ly-ee-Moon" wreck ... ..	1886
Selection, free ... ..	1862	Macarthur arrived ... ..	1790
Conference ... ..	1877	Departure to England ... ..	1809
Sydney Common designated ..	1811	Imported grape vines ... ..	1817
Tax, Commonwealth ... ..	1910	Returned after banishment ... ..	1817
State ... ..	1895	Sheep farm Camden ... ..	1805
Volunteer orders ... ..	1867-74	Flocks dispersed ... ..	1858
Lang, J. D., arrived ... ..	1823	Wool sample taken to Eng-	
Australian College ... ..	1831	land ... ..	1803
Scotch mechanics ... ..	1830	Macquarie, Governor ... ..	1810-21
La Pérouse, arrived at Botany Bay	1788	Tour of Settlements ... ..	1811
Monument ... ..	1825	Lighthouse founded ... ..	1816
		River discovered ... ..	1813
		Oxley's exploration ... ..	1818

	Event.	Year.
Mail, Aerial, Melbourne-Sydney		1914
Contract, first...	...	1831
Inland, regular services	...	1827
Sydney-Adelaide	...	1847
Sydney-Melbourne, fortnightly	...	1837
Oversea, English contract	...	1849
Weekly	...	1888
Orient Co.	...	1878
Contract	...	1910
Messageries Maritimes	...	1882
Norddeutscher-Lloyd	1886-1914	
Panama	...	1866-68
Peninsular and Oriental	...	1852
Suspended	1854-56,	1917
San Francisco	1869-71, 1873-1900	
Oceanic Co.	1900-07,	1912
Union Co.	...	1911
Vancouver	...	1893
Maize, first surplus sold to Government	...	1793
Manhood suffrage	...	1858
Manning River discovered	...	1818
Manufacture, blankets and linen, first	...	1801
Encouragement Act	...	1908
Gunpowder	...	1829
Rolling stock	...	1869
Sugar, first	...	1824
Tobacco, first	...	1822
Tweed	...	1843
Maori War contingent	...	1860
Map of Australia, first exploration	...	1791
Maritime strike	...	1890
Markets, Belmore	...	1869
Queen Victoria	...	1898
Regulations	...	1810
Sydney Municipal, Fish	...	1910
Fruit	...	1911
Marriages, Civil Registration	...	1856
Married Women's Property Act	...	1893
Maternity Allowances, Commonwealth	...	1912
Matrimonial Causes Act	...	1873
Mawson Antarctic Expedition	1911-14	
McBrien gold discoveries	...	1823
Meat Act	...	1902
Imperial uses	...	1915
Export to England	...	1830
Trade Inquiry	...	1914
Industry Board	1912,	1916
Preserving Industry	...	1846
Sydney Co. Works	...	1872
Mechanics School of Arts, Sydney	...	1833
Technical College	...	1878
Scotch immigrants	...	1830
Medical Congress, Australasian	...	1911
Inspection of school children	...	1907
Meehan explorations	...	1817
Melbourne discovered	...	1803
founded	...	1835
Melville Island settlement	...	1824
Messageries Maritimes Mail Service	...	1882
Metroopolitan Cattle Saleyards	...	1882
Traffic Act	...	1900
Military (see Defence).		
College, Duntroon	...	1911
Juries ceased	...	1839

	Event.	Year.
Mills, Flour, Darling, Parramatta		1826
Lachlan, Botany	...	1820
Mineralogical Survey (Stutchbury)	...	1851
Minimum Wage Act	...	1908
Mining, Accident Relief Fund	...	1900
Broken Hill (see Silver).		
Coal (see Coal).		
Copper	...	1848
Department created	...	1874
Diamond discoveries	1867, 1883	
Gold (see Gold).		
Mineralogical Survey	...	1851
Opal, Rocky Bridge	...	1877
White Cliffs	...	1889
Silver (see Silver).		
Strikes, Coal	1873, 1883, 1888, 1908	
	1909, 1913, 1914, 1916, 1917	
Silver	...	1890, 1892, 1909
Tin	...	1851, 1872
Ministry, First Federal	...	1900
First Labour (State)	...	1910
Mint, Sydney	...	1855
Bronze issue	...	1868
Silver issue	...	1879
Mitchell explorations—		
Barcoo	...	1845
Darling	...	1832
Northern	...	1831
Southern	...	1836
Mitchell Library	...	1910
Monaro Plains discovered	...	1823
Money Order system	...	1863
Monopolies, Federal Referendum	...	1911
Moran, Death of Cardinal	...	1911
Moreton Bay (see Queensland).		
Mount Boppy mine	...	1901
Drysdale Goldfield	...	1893
Kembla Colliery disaster	...	1902
Municipal Library, Sydney	...	1909
Markets, Fish	...	1910
Fruit	...	1911
Municipalities Acts	1858, 1867, 1897	
City and Suburban	...	1843
Country	...	1858
Murray discovered Port Phillip	...	1802
Murray River discovered	...	1829
First steamer on	...	1853
Railway Bridge	...	1883
Waters Act	...	1915
Agreement	...	1912
Premiers' Conference	...	1914
Murrumbidgee Irrigation Area	...	1912
Burrinjuck Dam authorised	...	1906
Trust	...	1911
River discovered	...	1820
Navigated to Gundagai	...	1858
Museum, Australian, founded	...	1836
Incorporated	...	1853
Technological	...	1879
Music, Conservatorium	...	1915
Library	...	1913
Muster, First Census	...	1801
Mutual Provident Society, Australian	...	1849
National Art Gallery	...	1871
Park	...	1879
School Boards	...	1848-66

	Event.	Year.		Event.	Year.
Navy ( <i>see</i> Defence).			Oxley's explorations ...		1817-18
College, Jervis Bay ...	...	1915	Tweed and Brisbane Rivers discovered ...	...	1823
Control of Customs, superseded ...	...	1827	Pacific Cable ...	...	1902
Necessary Commodities Control Commission ...	...	1914	Conference, Sydney ...	...	1896
Nepean River discovered ...	...	1789	Islanders introduced ...	...	1847
New Australia expedition ...	...	1893	prohibited ...	...	1901
New Caledonia Cable ...	...	1893	Panama Mail Service ...	...	1866-68
New Holland named Australia ...	...	1814	Pardons, Royal Authority to grant ...	...	1791
New South Wales ...	...	1788	Park, Centennial ...	...	1888
Bank ...	...	1817	Kuring-gai Chase ...	...	1894
Boundary extended ...	...	1827	Kurnell ...	...	1905
Colony proclaimed ...	...	1788	National ...	...	1879
Crown ...	...	1824	Parke, Sir Henry, death ...	...	1896
Self-supporting ...	...	1827	Emigration Commissioner ...	...	1861
Corps arrived ...	...	1790	Parliament, Commonwealth, first Double dissolution... ..	...	1901
Reduced to peace footing... ..	...	1803	New South Wales—		
Relieved Corps of Marines... ..	...	1791	Act, First ...	...	1824
Returned to England ...	...	1810	Ballot voting ...	...	1858
Inquiry, Bigge's ...	...	1819	Elections, First General ...	...	1843
House of Commons, Committee ...	...	1812	Second Ballot Act ...	...	1910
Mineralogical and geological survey ...	...	1851	Electoral Act ...	...	1880
New Zealand Cable ...	1876, 1912		Distribution Commission ...	...	1911
Colonisation attempted ...	...	1825	Redistribution ...	...	1904
Proclaimed dependency of New South Wales ...	...	1814	Rolls printed ...	...	1857
Separate Colony ...	...	1841	Executive Council, first ...	...	1824
Newcastle coal discovered ...	...	1796	Franchise, Manhood ...	...	1858
Iron and Steel Works ...	...	1915	One Man one Vote ...	...	1893
Settlement ...	...	1804	Police ...	...	1896
Newspapers ( <i>see</i> Press.)			Women ...	...	1902
Nichols, Isaac, first Post Office ...	...	1809	Labour Ministry, First Thirty-five members elected ...	...	1916
Norddeutscher Lloyd Mail Service ...	1886-1914		Legislative Assembly Continuance Act ...	...	1916
Norfolk Island control—			Members, Payment ...	...	1889
Commonwealth ...	...	1914	Reduction ...	...	1904
New South Wales ...	...	1788	Referendum ...	...	1903
Governor... ..	...	1856	Representation petition ...	...	1827, 1835
Tasmania ...	...	1844	Responsible Government ...	...	1856
Convicts finally deported ...	...	1853	Triennial Parliaments Act ...	...	1874
Discovery ...	...	1774	Parliamentary Party, British ...	...	1913
Evacuation contemplated ...	...	1807	Parramatta, first settlement ...	...	1788
Pitcairn Islanders placed on... ..	...	1856	Governor's establishment removed from ...	...	1853
"Sirius" lost ...	...	1790	Pastoral Association ...	...	1844
Northern Territory annexed to South Australia ...	...	1863	Patents, Commonwealth Administration ...	...	1904
Norton Griffiths contract ...	...	1915	Investigation Board ...	...	1916
Cancelled ...	...	1917	Paterson, Lieutenant-Governor ...	...	1794
Notes (Currency) Australian, Act ...	...	1910	Peninsular and Oriental Mail Service ...	...	1852
First ...	...	1911	Suspended ...	1854-56,	1917
Postal ...	...	1893	Penny Postage, Australia... ..	...	1910
Nursing Board, Home ...	...	1914	British Empire ...	...	1911
Observatory, Dawes Point ...	...	1788	Pensions, Invalidity and Accident Commonwealth ...	...	1907
Parramatta ...	1822-47		Old-age ...	...	1900
Sydney ...	...	1856	Commonwealth ...	...	1909
Offenders, First, Probation Act ...	...	1894	War ...	...	1914
Old-age Pensions, Commonwealth State ...	...	1909	Pharmacy Act ...	...	1897
State ...	...	1900	Phillip, Governor ...	...	1788-92
One Man one Vote ...	...	1893	Arrival with First Fleet ...	...	1788
Opal discovered, Rocky Bridge ...	...	1877	Proclamation of Colony ...	...	1788
White Cliffs ...	...	1889	Return to England ...	...	1792
Orient Co. Mail Service ...	...	1878			
Contract ...	...	1910			

Event.	Year.	Event.	Year.
Phillip, Governor ( <i>continued</i> )—		Prices, Food Commission ...	1911
Resignation... ..	1793	Necessary Commodities Con- trol Commission ...	1914
Statue unveiled ... ..	1897	Regulation Board (Common- wealth) ... ..	1916
Port ( <i>see</i> Victoria). discovered ... ..	1802	Princes Albert and George of Wales visit ... ..	1881
Philosophical (Royal) Society ...	1821	Printing first book... ..	1802
Pitcairn Islanders placed on Nor- folk Island ... ..	1856	First press ... ..	1795
Pitt Town Training Farm... ..	1906	Prison, Darlinghurst ... ..	1841-1914
opened to Women ... ..	1916	Emu Plains ... ..	1914
Pittwater discovered ... ..	1788	Long Bay ... ..	1909
Playground School, first ... ..	1913	Prisoners Detention Act ... ..	1908
Polding, First Bishop (R.C.) ... ..	1835	Private Hospitals Act ... ..	1908
Police enfranchised ... ..	1896	Privy Council appellate jurisdic- tion ... ..	1838
Fund ... ..	1810	Probation Act, First Offenders ...	1894
Mounted ... ..	1825	Property Act, Married Women's... Real (Torrens) ... ..	1893
Water ... ..	1830	Protection Act, Children's ... ..	1862
Women ... ..	1915	Infant ... ..	1892
Population ( <i>see</i> Census). Exodus to California Gold- fields ... ..	1849	Public Funds appropriation for Immigration, first ... ..	1832
Port Essington discovered ... ..	1818	Cash basis of accounts ... ..	1895
Hacking explored ... ..	1796	Gold Revenue allocated to Colonial legislatures ... ..	1852
Jackson ... ..	1788	Health ( <i>see</i> Health). Library ( <i>see</i> Library). Loan, first ... ..	1841
Macquarie Settlement ... ..	1821	Pounds ... ..	1811
Phillip ( <i>see</i> Victoria). Stephens coal discovered ... ..	1796	Schools ( <i>see</i> Education). Service reorganisation ... ..	1896
Postal Act ... ..	1825	Trust Office ... ..	1914
Australasian Colonies join Union ... ..	1891	Works, Norton Griffiths con- tract ... ..	1915
Cards ... ..	1875	Pure Food Act ... ..	1909
Commonwealth control ... ..	1901	Quarantine Commonwealth Ad- ministration ... ..	1909
First office ... ..	1809	Quarter Sessions first Court ... ..	1824
General communication estab- lished ... ..	1828	Queen Victoria celebrations, Jubi- lee ... ..	1887, 1897
Iron pillar-letter receivers in Sydney ... ..	1856	Markets ... ..	1898
Mail Services ( <i>see</i> Mails). Money Order system ... ..	1863	Queensland (Moreton Bay)— Founded ... ..	1824
Newspaper Postage Repeal Act ... ..	1873	Legislative representation granted ... ..	1843
Notes ... ..	1893	Separation ... ..	1859
Parcels, inland ... ..	1893	Agitation for ... ..	1851
Foreign ... ..	1886	Settlement proclaimed ... ..	1842
Rates fixed ... ..	1828	Rabbit destruction compulsory ...	1883
Penny, Australia ... ..	1910	Danysz's experiments ... ..	1906
British Empire ... ..	1911	Races, first horse ... ..	1810
Twopenny ... ..	1849	Railway Accident, Hawkesbury River ... ..	1887
Stamped Covers ... ..	1838	Redfern ... ..	1894
Stamps ... ..	1850	Automatic signalling ... ..	1913
Commonwealth issue ... ..	1913	Baldwin Locomotive Inquiry ... ..	1892
Pounds, public ... ..	1811	Bridge, Hawkesbury River ... ..	1889
Pre-maternity Board ... ..	1914	Murray River ... ..	1883
Press, first newspaper ... ..	1803	Brisbane-Adelaide ... ..	1889
freed ... ..	1824	Commissioners ... ..	1848-1888
Governor's censorship ceased ...	1824	Decentralisation Commission ...	1911
Legal proceedings reported ... ..	1832	Employees' strike ... ..	1917
Legislative Chambers, ad- mission ... ..	1838	First commenced ... ..	1850
Libel law applied ... ..	1828	Contract signed ... ..	1851
Subsidised Cable Service ... ..	1910	Opened ... ..	1855
<i>Sydney Gazette</i> , first newspaper issued daily ... ..	1803	Queensland system, con- nection with ... ..	1888
<i>Sydney Morning Herald</i> ... ..	1831		
Prevention, Influx of Criminals Act ... ..	1903		

Event.	Year.	Event.	Year.
Railway ( <i>continued</i> )—		Roads, Cox's Emu Plains-Bathurst	1815
Rolling Stock, Australian		Hunter River ... ..	1830
Manufacture ... ..	1869	Illawarra ... ..	1835
Superannuation Fund ... ..	1910	Liverpool ... ..	1814
Sydney Central Station ... ..	1906	Mitchell's, over Blue Moun-	
Melbourne Line ... ..	1883	tains ... ..	1834
Tram and Rail Company... ..	1846	Obelisk in Macquarie-place,	
Transcontinental commenced	1912	Sydney ... ..	1820
Opened ... ..	1917	Richmond-West Maitland ... ..	1822
Rawson, Governor... ..	1902-09	Tollgates ... ..	1810-77
Real Property (Torrens) Act ... ..	1862	Robertson, Sir John, death ... ..	1891
Referenda, Commonwealth, Feder-		Land Act ... ..	1861
ation Enabling ... ..	1899	Robinson, Governor ... ..	1872-79
Finance agreement ... ..	1910	Rocky Bridge Creek opal dis-	
Industrial legislation ... ..	1911	covery ... ..	1877
Military Service ... ..	1916	Rosehill packet boat service ... ..	1818
Monopolies ... ..	1911	Rous discovered Richmond River	1828
Postponement ... ..	1915	Rum currency forbidden ... ..	1807
State Debts Transfer ... ..	1910	Rumker, first Government Astron-	
Reduction of Members ... ..	1903	omer ... ..	1826
State, Liquor... ..	1916	Russell, P. N., bequest to Univer-	
Registration, Births, Deaths, and		sity (Engineering) 1896, 1904	
Marriages ... ..	1856	Russian exploration ships ... ..	1820
Firms ... ..	1903	San Francisco Mail Service ( <i>see</i>	
Relief Board, State Children ... ..	1881	Mails).	
Fund, Miners' Accident 1900-17		Saturday Half Holiday ... ..	1910
War ( <i>see</i> War).		Hospital Fund ... ..	1895
Religion, Church Act ... ..	1839	Savings Banks ( <i>see</i> Banks).	
and School Corporation 1826-32		Schools ( <i>see</i> Education).	
First land grant ... ..	1829	Science Advancement Association,	
Church of England—		Australasian ... ..	1888
Bishop (Broughton), first... ..	1836	Congress ... ..	1911
Bishopric of Australia ... ..	1836	British, Congress ... ..	1914
First Church ... ..	1793	Expeditions ( <i>see</i> Expeditions).	
burned ... ..	1798	Research, Commonwealth Ad-	
place of Public Worship	1793	visory Council ... ..	1916
St. Andrew's Cathedral		Scott, Antarctic Expedition 1910-12	
(Sydney) founded 1819, 1837		Scottish Agricultural Commission	1910
opened ... ..	1868	Seal, Territorial ... ..	1791, 1817
St. James', Sydney, com-		Sealing, first industry ... ..	1791
menced ... ..	1819	Second Ballot Act ... ..	1910
opened ... ..	1822	Fleet ... ..	1790
St. John's, Parramatta ... ..	1798	Service, Public, reorganisation ... ..	1896
St. Phillip's, Sydney ... ..	1798	Settlement, Closer ... ..	1901
Equality established ... ..	1839	First ... ..	1788
Jewish regular services ... ..	1828	Centenary Celebration ... ..	1888
Synagogue, Sydney, York-		Hawkesbury River ... ..	1794
street ... ..	1844	Illawarra ... ..	1826
Elizabeth-street ... ..	1878	Moreton Bay (Queensland) ... ..	1824
Methodist, First Wesleyan		Port Macquarie ... ..	1821
Minister ... ..	1815	Phillip (Victoria) ... ..	1803
Union of Churches... ..	1902	Prospect Hill ... ..	1791
Roman Catholic, First Bishop		South Australia ... ..	1836
(Polding) ... ..	1835	Tasmania ... ..	1803
Service ... ..	1803	The Ponds ... ..	1791
St. Mary's Cathedral		Twofold Bay ... ..	1834
(Sydney) burned ... ..	1865	Wellington Valley ... ..	1822
dedicated ... ..	1836	Western Australia ... ..	1829
foundation ... ..	1821	Settlers, Advances ... ..	1899
Salvation Army ... ..	1881	Savings Bank ... ..	1907
Service, first ... ..	1788	Free, encouraged ... ..	1823
State Aid to Ministers 1836-62		Western Plains return ... ..	1828
Rents Court, Fair ... ..	1916	Sewerage Board, Metropolitan ... ..	1888
Requests, Court ... ..	1824	Hunter District ... ..	1892
Responsible Government ... ..	1855	Country Towns Act ... ..	1880
Richmond River discovered ... ..	1828	Works, first ... ..	1853
Ripon's Land Regulation (Auction			
Sales) ... ..	1831		

Event.	Year.	Event.	Year.
Shackleton Antarctic Expedition	1908-09, 1914-16	Stamp Duties ... ..	1865, 1914
Sheep, Alpacas introduced	... 1858	Postage ( <i>see</i> Postal).	
Boiling-down, first ...	... 1843	Standard Food and Drug Com-	
Macarthur's Camden Farm ...	... 1805	mission ... ..	1913
flocks dispersed ...	... 1858	Time Act ... ..	1895
Merinos Importation—		Daylight Saving Act ...	1916
Cape of Good Hope ...	... 1797	Repeal ... ..	1917
Spanish (George III) ...	... 1804	State Advances, Homes ...	1914
Shearers' strike ...	1890, 1894	Settlers ... ..	1899
Wool, Botany combing works	1909	Bakery ... ..	1914
Clip, Imperial Govt. pur-		Brickworks ... ..	1911, 1912
chase ... ..	1916	Children Relief Board ...	1881
First export ... ..	1807	Coal Mines Act ... ..	1912
Sample ... ..	1803	Convalescent Hospitals ...	1914
Prices highest on record ...	1916	Debts Referendum ... ..	1910
Shipping, Australian Steam Con-		Joinery Works ... ..	1912
veyance Company ... ..	1831	Lime Works ... ..	1912
Navigation Company ...	1833	Monier Pipe Works ... ..	1914
Commonwealth cargo steamers		Quarry, Metal ... ..	1911
purchased ... ..	1916	Timber Works ... ..	1912
First colonial built boat ...	1789	Trawling ... ..	1915
steamer ... ..	1831	Women's Employment Agency	1914
on Murray River ... ..	1853	Statistician's Office, Government	1886
Navy ( <i>see</i> Defence).		Statue, Captain Cook ... ..	1879
Ocean Services ( <i>see</i> Mail).		Governor Bourke ... ..	1842
Rosehill packet service ...	1818	Phillip ... ..	1897
Signal Station, Port Jackson..	1790	Steel Industry Commission ...	1911
Strike, Maritime ... ..	1890	Lithgow blast furnace ...	1907
Seamen's ... ..	1878, 1917	rails for transcontinental	
Shires Act ... ..	1905	line ... ..	1913
Shops, Early Closing ... ..	1899	Newcastle Works ... ..	1915
Regulations ... ..	1896	Stephen, Sir Alfred, died ...	1894
Saturday half-holiday ...	1910	Judge, Supreme Court ...	1839
Store, first brick ... ..	1790	Stirling's expedition to Western	
Shortage of Labour Commission ...	1911	Australia ... ..	1827
Signal Station, Port Jackson ...	1790	Store, first brick ... ..	1790
Signalling, automatic railway ...	1913	Street regulations ... ..	1809
Silver coinage ( <i>see</i> Currency).		Wood-paving, Sydney ...	1880
Broken Hill field discovered... ..	1883	Strickland, Governor ... ..	1913-17
Miners' strikes 1890, 1892, 1909		Strike, Butchers ... ..	1914, 1917
Mines ... ..	1885	Ferry employees' ... ..	1913
“Sirius” lost at Norfolk Island ...	1790	Gas employees' ... ..	1913, 1917
Small Arms Factory, Lithgow ...	1912	Maritime ... ..	1890
Smelting furnaces, Sunny Corner		Miners, coal 1873, 1883, 1888, 1908,	
and Silverton ... ..	1884	1909, 1913, 1914, 1916, 1917	
Snowfall, Sydney ... ..	1836, 1837	Silver ... ..	1890, 1892, 1909
“Sobraon,” Nautical Schoolship,		Railway employees ... ..	1917
abolished ... ..	1911	Seamen ... ..	1878, 1917
Society, Agricultural ... ..	1822	Shearers ... ..	1890, 1894
Benevolent ... ..	1818	Tramway employees 1908, 1917	
Friendly, Act ... ..	1873, 1899	Strzelecki expedition to Western	
First... ..	1834	Port ... ..	1840
Subventions ... ..	1908	Gold discovery ... ..	1839
Geographical ... ..	1884	Sturt, explorations, Darling and	
Zoological ... ..	1879	Murray River ... ..	1829
Soldiers ( <i>see</i> Defence and War).		Overland southward ...	1830
Repatriation Fund ... ..	1916	Stutchbury, Mineralogical and	
Solitary Island Lighthouse ...	1880	Geological Survey ... ..	1851
Soudan Contingent ... ..	1885	Subsidised Press Cable Service ...	1910
South African War Contingents ...	1899	Suburban Municipalities ...	1843
South Australia, permanent settle-		Subventions to Friendly Societies	1908
ment ... ..	1836	Suffrage, Manhood ... ..	1858
Proclaimed Colony ... ..	1834	Police ... ..	1896
Squatting Act ... ..	1839	Women ... ..	1902
Imperial ... ..	1846	Sugar Bounty ... ..	1903-12
Commenced ... ..	1823	Manufacture, first ... ..	1824
Formally recognised ... ..	1863	Mill, Richmond River ...	1881

	Event.	Year.		Event.	Year.
Sunday closing of shops	...	1812	Telephones	...	1880
Trading Act	...	1916	Charges, toll system	...	1907, 1910
Supreme Court ( <i>see</i> Court).			Sydney-Adelaide	...	1914
Survey, Mineralogical and Geological	...	1851	Melbourne	...	1907
Sutherland Graving Dock	...	1890	Newcastle	...	1898
Sydney, Australian Cruiser, destroyed "Emden"	...	1914	Temora Goldfield	...	1880
Common land, designated	...	1811	Territorial division of Colony	...	1885
Communication with North Sydney Commission	...	1890	Seal	...	1791, 1817
Corporation	...	1842-53, 1857	Testator's Family Maintenance Act	...	1916
Cove, formal possession	...	1788	Theatre, first	...	1796
Exchange	...	1857	Sydney	...	1832
<i>Gazette</i> , first newspaper issued daily	...	1803, 1827	Throsby's explorations	...	1821
Harbour Trust	...	1901	Tidal-wave, Port Jackson	...	1868
Improvement Commission	...	1908	Timber ( <i>see</i> Forestry).		
Meat Preserving Co.'s Works	...	1872	Time, Standard	...	1895
Mechanics' School of Arts	...	1833	Daylight Saving Act	...	1916
Mint ( <i>see</i> Currency).			Repeal	...	1917
<i>Morning Herald</i>	...	1831	Tin discovery	...	1851
Municipal Library	...	1909	Fields opened	...	1872
Markets, Fish	...	1910	Tobacco, first manufacture	...	1822
Fruit	...	1911	Successful cultivation	...	1806
Observatory	...	1856	Toll-gates	...	1810-77
Railway Station, Central	...	1906	Torrens' Real Property Act	...	1862
Underground commenced	...	1916	Totalizer Act	...	1916
Town Clock	...	1798	Tourist Bureau, Government	...	1906
Hall founded	...	1868, 1883	Town Clock, Sydney	...	1798
Opened	...	1875, 1889	Hall, Sydney, founded	...	1868, 1883
University ( <i>see</i> University).			Opened	...	1875, 1889
Taronga Park, Zoological Gardens	...	1916	Trade, British Commissioners, Sydney, Office	...	1913
Tasmania (Van Diemen's Land)—			First excess annual exports	...	1844
Bass-Flinders explorations	...	1798-9	First export wool	...	1807
Cable	...	1869	First Foreign ship	...	1792
Flinders' chart	...	1800	Interstate Commission	...	1913
Insularity established	...	1798	Marks, Commonwealth Administration	...	1904
Norfolk Island annexed	...	1844	Unions Act	...	1881
Separation	...	1825	Conference	...	1885
Settlement, first	...	1803	Eight-hour celebration inaugurated	...	1871
Tax, Entertainments	...	1916	Traffic Act, Metropolitan	...	1900
Income, Commonwealth	...	1915	Tramways, Electrification	...	1899
(Bachelors)	...	1917	First horse drawn	...	1861
State	...	1895, 1912	Steam	...	1879
Land, Commonwealth	...	1910	Strike, Sydney	...	1908, 1917
State	...	1895	Transcontinental Railway commenced	...	1912
Stamp Duties	...	1865, 1914	Opened	...	1917
Totalizer	...	1916	Transportation ( <i>see</i> Convicts).		
Teachers' College	...	1905	Trawling, State undertaking	...	1915
Technical Education ( <i>see</i> Education).			Treasurer, first Colonial	...	1824
Technological Museum	...	1879	Trial by jury ( <i>see</i> Courts).		
Telegraph ( <i>see</i> also Cable).			Triennial Parliaments Act	...	1874
First	...	1851	Trust Office, Public	...	1914
Letter telegrams	...	1914	Tuberculin Dispensary	...	1912
Sydney-Adelaide	...	1858	Tuggerah Lake discovered	...	1797
Brisbane	...	1861	Tweed, first manufacture,	...	1843
Melbourne	...	1858	River, discovered	...	1823
Wireless, Naval control	...	1915	Twofold Bay discovered	...	1797
Station, first	...	1911	Settlement	...	1834
Randwick, Australian made apparatus messages, 2,000 miles	...	1911	Umberumberka Dam, Broken Hill	...	1914
Purchased by Commonwealth	...	1916	Unions ( <i>see</i> Trade Unions).		
Sydney (Pennant Hills)	...	1912	United States, American Fleet visit	...	1908
			University of Sydney—		
			Affiliated Colleges	...	1854
			Women's	...	1892

Event.	Year.	Event.	Year.
University of Sydney ( <i>continued</i> )—		Water ( <i>continued</i> )—	
Extension Lectures ... ..	1886	River Murray Act ... ..	1915
Fisher Library ... ..	1909	Supply, Country Towns Act... ..	1880
Incorporation ... ..	1850	Hunter District Board ... ..	1892
Opening ... ..	1852	Metropolitan Board ... ..	1888
Royal Charter ... ..	1858	Botany swamps scheme..	1827, 1837
Russell, P. N., bequest ... ..	1896, 1904	Cataract Dam ... ..	1908
Senate, first elective) ... ..	1913	Umberumberka Dam	
Women students admitted ... ..	1881	(Broken Hill) ... ..	1914
Valuation of Land Act ... ..	1916	Watering Places Act, Public ... ..	1884
Vancouver Mail Service ... ..	1893	Watermen appointed, Sydney Cove	1813
Van Diemen's Land ( <i>see</i> Tasmania).		Wellington Valley Settlement ... ..	1822
Vavau Scientific Expedition ... ..	1911	Wentworth, William Charles, crossed Blue Mountains	1813
Vegetation Diseases Act ... ..	1897	Died ... ..	1872
Vehicles (public) numbered and named ... ..	1813	Published account of Aus- tralia ... ..	1820
Victoria (Port Phillip) discovered	1802	Western Australia, possession taken ... ..	1828
Land sale in Sydney ... ..	1838	Settlement ... ..	1829
Melbourne discovered ... ..	1803	King George's Sound ... ..	1826
Founded ... ..	1835	Stirling's expedition ... ..	1827
Proclaimed part of New South Wales ... ..	1835	Western Lands Act ... ..	1901
Separated ... ..	1851	Plains settlers return ... ..	1828
Viticulture industry established ... ..	1840	Port discovered by Bass ... ..	1798
vines imported ... ..	1817	Strzelecki's expedition ... ..	1840
Volunteers ( <i>see</i> Defence).		Whaling, first industry ... ..	1791
Voting ( <i>see</i> Parliament).		Wheat Acquisition Act ... ..	1914
Wages, Industrial Boards ... ..	1908	Bulk-handling investigation... ..	1913
Living, Inquiry ... ..	1913	First cultivation ... ..	1788
Minimum Act ... ..	1908	Harvest ... ..	1789
War ( <i>see</i> also Defence).		Import from Tasmania ... ..	1815
Battleplanes, collections for ... ..	1916	Surplus for export ... ..	1898
Census ... ..	1915	Marketed by Government ... ..	1915
Commonwealth Powers Act	1915	White Cliffs Opal-field ... ..	1889
Contingents, China ... ..	1900-1	Wills and Burke expedition ... ..	1860
European ... ..	1914	Wilson discovered Lachlan River..	1799
Maori ... ..	1860	Wireless Telegraphy ( <i>see</i> Tele- graphs).	
Soudan ... ..	1885	Women Employment State Agency	1914
South African ... ..	1899	Farm School, Pitt Town ... ..	1916
European, Australian Forces, Egypt ... ..	1915	Franchise ... ..	1902
France ... ..	1916	Police ... ..	1915
Gallipoli ... ..	1915	Property Act, Married ... ..	1893
Pacific ... ..	1914	University College ... ..	1892
German Pacific Possessions captured ... ..	1914	Students ... ..	1881
Gunboat "Komet" cap- tured ... ..	1914	Wool ( <i>see</i> Sheep).	
Navy transferred to Im- perial control ... ..	1914	Woolwich Graving Dock ... ..	1901
"Sydney" destroyed		Workmen's Compensation Act ... ..	1910
"Emden" ... ..	1914	Wrecks—"Catherine Adamson" "Corangamite" ... ..	1857 1886
Loan ... ..	1915, 1916	"Cumberland" ... ..	1917
Pensions Act ... ..	1914	"Dunbar" ... ..	1857
Prize ships brought to Sydney, Dutch ... ..	1804	"Helen Nicol" ... ..	1886
Spanish ... ..	1799	"Keilawarra" ... ..	1886
Relief Funds, Belgian Grant	1914	"Ly-ee-Moon" ... ..	1886
Soldiers' Repatriation ... ..	1916	Wyalong Gold-field ... ..	1893
Special collections ... ..	1915	Wylde, Judge-Advocate, arrived... ..	1816
Scare, Russian ... ..	1854	Yarra River discovered ... ..	1803
Water, Artesian, first bore ... ..	1879	Yass-Canberra Capital Site ( <i>see</i> Canberra).	
Interstate Conference ... ..	1912	Young, Governor ... ..	1861-67
Wells Act ... ..	1897	Zoological Gardens, Moore Park	1879-1916
Conservation Commissioner... ..	1913	Taronga Park ... ..	1916
Police ... ..	1830	Society ... ..	1879

## GEOGRAPHY AND CLIMATE

### GEOGRAPHY.

#### AREA OF NEW SOUTH WALES.

THE area of New South Wales, including Lord Howe Island and the Federal Capital Territory, is estimated at 310,372 square miles, or 198,638,080 acres, representing rather more than one-tenth of the total area of the Commonwealth of Australia. There was a formal surrender to the Commonwealth Government, on 1st January, 1911, of about 900 square miles at Yass-Canberra as Territory for the Federal Capital, and subsequently an area of about 28 square miles at Jervis Bay was surrendered to the Federal Government for naval purposes.

The length of the State, measuring directly from Point Danger on the north to Cape Howe on the south, is 683 miles. From east to west, along the 29th parallel, the breadth is 756 miles, while diagonally from the south-west corner, where the River Murray passes into South Australia, to Point Danger, the distance is 850 miles.

Lord Howe Island, the dependency of New South Wales, is 7 miles in length, by a width ranging from half-a-mile to  $1\frac{3}{4}$  miles, and has an area of 5 square miles.

The area of New South Wales in relation to the total area of the Commonwealth is shown in the following statement:—

State or Territory.	Area.	Per cent. of total area.
	sq. miles.	
New South Wales ... ..	309,444	10·40
Victoria ... ..	87,884	2·96
Queensland ... ..	670,500	22·54
South Australia ... ..	380,070	12·78
Western Australia ... ..	975,920	32·81
Tasmania ... ..	26,215	·88
Northern Territory ... ..	523,620	17·60
Federal Capital Territory ... ..	900*	} 03
„ Area at Jervis Bay ... ..	28	
Total Commonwealth ... ..	2,974,581	100·00

\* Approximate.

New South Wales is three and a half times as large as Victoria, nearly twelve times as large as Tasmania, and somewhat smaller than South Australia; related to the larger States, it is half the size of Queensland and one-third that of Western Australia.

#### BOUNDARIES OF NEW SOUTH WALES.

New South Wales lies in the temperate zone, and almost entirely between the 29th and 36th parallels of south latitude and the 141st and 154th meridians of east longitude; the southern boundary dips from the 34th parallel on the west to the 37th parallel on the east. The State is bordered on the north, west, and south respectively by the States of Queensland, South

Australia, and Victoria, and on the east by the South Pacific Ocean. The total length of coast line is 700 miles, representing 1 mile of coast to 443 square miles of its area, as against an average of 1 in 261 for the continent of Australia. New South Wales has, of all the Australian States, excepting the Northern Territory, the greatest proportion of territory to coast line.

#### GEOGRAPHICAL FEATURES.

In the 1914 issue of this Year Book an account was given of the important geographical features of New South Wales.

##### *Lord Howe Island.*

Lord Howe Island is a dependency of New South Wales and included in the King division of Sydney electorate; it is situated about 300 miles east of Port Macquarie, and 436 miles north-east from Sydney, in latitude  $31^{\circ} 33' 4''$  S., longitude  $159^{\circ} 4' 26''$  E. It was discovered in 1788 by Lieutenant Ball, of H.M.S. "Supply," whilst on his way from Port Jackson to found a settlement at Norfolk Island. The island is of volcanic origin, and Mount Gower, the highest point, reaches a height of 2,840 feet. The climate is equable, and the rich soil and abundant rainfall are favourable for the growth of subtropical products; but on account of the rocky formation of the greater part of the surface of 3,220 acres, only about 300 acres are suitable for cultivation. The vegetation of Lord Howe Island is luxuriant, palms and banyans being the most remarkable of the varied flora. The land has not been alienated, but is occupied rent free on sufferance, and utilised for the production of *Kentia* palm seed. A Board of Control manages the affairs of the island and supervises the palm seed industry. The population is 107 persons.

##### *The Surface of New South Wales.*

The surface of New South Wales is divided naturally into five well-defined divisions—the Coast District, the Tablelands, the Western Declivity, the Inland Rivers Districts, and the Western Plains. The tablelands occupy the summit of the Great Dividing Range, which traverses the State from north to south and marks the division between the coastal district and the hinterland.

The coastal strip is undulating and well watered. The average width is about 30 miles; at Clifton the tableland abuts on the ocean, and the widest part (150 miles) is in the valley of the Hunter River, where the relatively soft rocks of the coal basin have offered least obstruction to river erosion. The Great Coal Basin (extending from beyond Gunnedah on the north to Ulladulla on the south), underlies the central portion of the coastal region; the seam emerges to the surface at Newcastle and Bulli, and at Sydney lies about 3,000 feet below the surface. Coal seams are found in the Clarence River district, but for the most part the northern and southern sections of the Coast District are devoted to dairy farming and the cultivation of such crops as maize, lucerne, and, in the extreme north, sugar-cane, and the forests yield a great variety of valuable timbers.

There are three tablelands—the northern, the central, and the southern—comprising an extensive plateau region, furrowed in many parts by deep, rugged valleys. Generally they present on the eastern side a steep escarpment towards the coast, while on the west they slope gradually towards the plains. The tablelands vary in width from 30 to 100 miles. The northern tableland commences in Queensland and terminates on the northern side of the Peel River Valley; its average height is 2,500 feet. The central tableland is bounded by the Warrumbungle and Liverpool Ranges on the north, and by the valleys of the Lachlan, Crookwell and Wollondilly

Rivers on the south. The southern tableland extends northward from the Victorian border, and slopes gradually to the Crookwell River on the north-west and to the spurs of the Cullarin Range on the north-east. Its average height is slightly less than the northern tableland, although the Kosciusko Plateau, the most elevated portion of the State, is within its limits. Level upland plains occur throughout the Tableland Division.

The Western Declivity sweeps with greater or less abruptness from the western limits of the tablelands to the head-waters of successive systems of inland rivers.

The inland rivers constitute a well-defined area, distinct in character from the Western Plains. The northern division comprises the Gwydir and the Namoi River systems; the central division, the Castlereagh, the Macquarie, and the Bogan; and the southern, specifically designated the Riverina, the Lachlan, the Murrumbidgee, the Edwards and the Murray.

The Great Plain district stretches from the river-courses of the Barwon, the Bogan, and the Lachlan, to the western boundary of the State. The plains are not quite horizontal, but slope very gently from the bed of the Darling eastward towards the Great Dividing Range and westward towards the South Australian border. Only a few trifling elevations occur, and the plains are for the most part devoid of timber. They are watered by the rivers of the Murray-Darling system. The Darling and its tributaries are liable to considerable shrinkage in periods of dry weather, but in wet seasons they overflow their banks and flood the surrounding country for miles, rendering it extremely fertile.

The surface of the plains consists of rich red and black soils, the former being particularly rich in plant-food. The black soil formations represent the silted-up channels of old rivers which, when flooded, spread a fertile silt over the surrounding district. The black soil plains occupy large areas along the middle courses of the Castlereagh, the Namoi, and the Gwydir Rivers.

*Geological Formation.*

The sedimentary rock formations found in New South Wales are classified as follows:—

CAINOZOIC.	{	Post-Tertiary ... ..	Recent; auriferous and stanniferous soils, and alluvial deposits in the beds of existing rivers.
			Pleistocene; alluvial leads containing gold, tin, and gem-stones.
	{	Tertiary ... ..	Pliocene; alluvial leads, frequently covered by basalt, and containing gold, tin, and gem-stones.
			Miocene; quartzites with plant remains at Dalton, near Gunning.
			Eocene; marine limestones and calcareous sandstones of the Lower Darling; plant beds of the New England district.
MESOZOIC.	{	Cretaceous ... ..	Upper Cretaceous (Desert Sandstone); contains deposits of precious opal.
			Middle Cretaceous; auriferous alluvial leads at Mount Brown.
	{	Jurassic ... ..	Lower Cretaceous; Rolling Downs formation of Queensland.
			Talbragar fish-bearing shales.
			The Ipswich Coal Measures and the Clarence Coal Measures
{	Trias-Jura ... ..	Form the base of the artesian water-bearing basin. These Measures contain thin coal-seams, not at present worked in New South Wales.	
		Hawkesbury Series ... ..	Wianamatta Shales; contain fireclays. Hawkesbury Sandstones; building stone. Narrabeen Shales.

PALÆOZOIC.	Permo-Carboniferous ...	...	1. Upper or Newcastle Coal Measures ...	} The productive coal-seams of New South Wales occur in these measures.	
			2. Dempsey Series ...		
			3. Middle or Tomago Coal Measures ...		
			4. Upper Marine Series ...		
			5. Greta Coal Measures ...		
			6. Lower Marine Series ...		
	Carboniferous ...	...	...	Rhacopteris Beds and Associated Marine Beds ...	}
				Marine beds of Dungog and Clarence Town areas, and New England District, equivalent in part to the Star Beds of Queensland. ...	
	Devonian ...	...	...	Upper Devonian ...	} All the metalliferous lodes and reefs occur in these formations, or in such igneous rocks as granites, quartz-porphyrries, felsites, diorites, &c.
				Lower Devonian ...	
Silurian ...	...	...	Limestones and slates at Yass, Molong, Wellington, Quidong, Portland, &c. ...	}	
			Slates and Tuffs at Mandurama, Cadia, Tomingley, Berridale, and in the counties of Auckland and Wellesley, on the Victorian border, Talwong, Tallong, Chatsbury, and in the Monaro-Albury district.		
Ordovician ...	...	...		}	
Cambrian ...	...	...	Limestones, schists, and glacial beds of Torrowangee.	}	

Post-Tertiary and Tertiary deposits cover approximately one-third of the area of New South Wales, embracing practically the valleys of the western river systems, except for a broad belt of pre-Silurian, Silurian, and Devonian rocks between the Bogan River and the Barrier Range. Tertiary and Post-Tertiary fluviatile deposits constitute the chief sources of alluvial gold, stream tin, and gem-stones. The Cretaceous formation was the source of supply of the first artesian water struck. Lower Cretaceous rocks occupy the greater part of the basin of the Upper Darling and its tributaries, overlying a considerable area of Trias-Jura water-bearing formation. The Upper Cretaceous formation is opal-bearing, rich deposits being worked at White Cliffs and Lightning Ridge. Rocks of Jurassic age are limited in occurrence to the locality of Gulgong. Triassic and Trias-Jura rocks extend over a large part of the coastal district, the Trias-Jura having a great development as conglomerates, sandstones, and shales in the Clarence River District: Wianamatta shales, Hawkesbury sandstone, and Narrabeen shales, constitute the Hawkesbury series of Triassic age. The Hawkesbury sandstone overlies the Narrabeen shales, and extends from Sydney on all sides for some 70 miles embracing practically the whole Hawkesbury River Valley. This formation extends also continuously from Sydney to the head of the Goulburn River, and has an important development in the Macquarie and Castlereagh River basins. The Wianamatta shales cover a large area in County Cumberland and outcrop in the Blue Mountains.

The Permo-Carboniferous formation extends along the coast between the Clyde and Hunter River districts and westward to the mountains and in the Central-Western Division. This formation is described in detail in the chapter relating to the Mining Industry. Carboniferous strata are developed in the Hunter and Manning River districts, and thence in a north-north-westerly direction to Warialda. They are of marine and fresh-water origin, interbedded with tuffs and lavas and intersected by metalliferous lodes, but contain no workable coal seams.

Rocks of Devonian age are developed within the Blue Mountain area and in isolated localities, as in the Yass-Goulburn district, and in the Western and New England Division; they are traversed by metalliferous lodes and quartz reefs.

Upper Silurian beds occur generally west of the tablelands, on the upper courses of the Murrumbidgee and Lachlan Rivers, and extend northwards. They are developed also in the basins of the Clyde and Upper Shoalhaven, and probably in the basins of the Upper Namoi and Macleay Rivers. In certain districts of the State sediments of this age contain commercial deposits of gold, silver, tin, copper, lead, and antimony; the limestone beds in which the Jenolan, Wellington, Yarrangobilly, and Wombeyan Caves occur are of this age.

Ordovician rocks have been located on the Victorian-New South Wales boundary line, and at the localities mentioned in the table of formations. Their area is not defined. Sediments of this age contain important deposits of gold, silver, and copper. Rocks of Cambrian age contain the Broken Hill lode, and probably occur in the Cooma-Albury districts.

#### *Capital City of New South Wales.*

Sydney, the capital city of New South Wales, and the seat of Government, is situated on the shores of Port Jackson. It is the oldest and largest of the Australian towns, and is the main commercial and industrial centre of New South Wales. The great bulk of the sea trade of the State passes through Sydney, where all the main railways converge and numerous large manufacturing establishments are conducted.

#### FEDERAL CAPITAL TERRITORY.

The Federal Capital Territory, formerly part of the State of New South Wales, is situated in the upper basin of the Murrumbidgee River, being watered by its tributaries, Molonglo and Cotter. Canberra, the site chosen for the capital city, is 5 miles distant from Queanbeyan, with which it is connected by rail. A trial survey has been made of the route for a railway about 135 miles in length to give access to the Federal Port at Jervis Bay.

#### TOURIST DISTRICTS.

The tourist districts of New South Wales are situated in the coastal and tableland divisions, and are not yet extended to the Great Western Plain, with its rich mineral areas and fine pastoral lands, watered in many places by artesian bores, nor to fertile Riverina, in the south, where the Murrumbidgee Irrigation Area will prove a source of material interest to visitors from other lands.

The main tourist districts are:—

Sydney and its surroundings.	Southern Highlands.
Illawarra and South Coast districts.	Hawkesbury River.
Blue Mountains and Central Tableland.	Northern Lakes.
Jenolan and other Caves.	New England Highlands.
Kosciusko and the Alpine snowfields.	North Coast district.

The Government Tourist Bureau of New South Wales, administered in connection with the Immigration Department, was established for the purpose of advertising the scenic and health resorts of the State, to supply information to tourists, and to improve transport facilities and accommodation in tourist districts. Information is supplied at the Bureau free of charge, itineraries are prepared, guide books published, and tours organised, with the object of unfolding the natural beauties and displaying the advantages of all parts of the State to the inquiring traveller and prospective citizen.

The Tourist Bureau co-operates with similar offices in the adjacent States in furnishing particulars regarding other places of interest in Australia.

## CLIMATE.

### *Meteorological Bureau.*

Meteorological observations in New South Wales are directed from Sydney as the centre of a subdivision of Australia, which includes the greater part of New South Wales; a special climatological station is maintained also at Dubbo, and there are many reporting stations throughout the State. Bulletins and weather charts are issued daily by the Meteorological Bureau, and rain maps and isobaric charts are prepared.

Flag signals are displayed in Sydney to give storm warnings, and to indicate fair weather, rain, and cold or heat waves; forecasts are telegraphed daily to towns in country districts, and the city forecasts are published in the early editions of the press.

A red light is also exhibited at night on the G.P.O. tower to notify the approach of cool southerly conditions.

### SYDNEY OBSERVATORY.

Sydney Observatory, lat.  $33^{\circ} 51' 41.1''$  south, long.  $151^{\circ} 12' 23.1''$  east, established in the year 1856, is a State institution. Since the creation of a Federal weather bureau in 1907 the work of the Observatory has been of an astronomical character. The principal instruments are the transit circle, astrophotometer, equatorial, and seismograph. Owing to the unsuitableness of the atmosphere in Sydney the astrophotometer has been removed to Pennant Hills. The principal scientific work is the determination of the position, distribution, and movement of stars in the region allotted to Sydney (viz.,  $52^{\circ}$  to  $65^{\circ}$  south declination) in the great international scheme. In addition, occasional observations, such as those of comets, are made with the equatorial, and systematic records of earth tremors are sent to the Earthquake Committee of the British Association for the Advancement of Science. Practical and popular work embraces the determination and notification of the standard time of the State; correspondence of an educational character on astronomical matters, and day and evening reception of visitors interested in astronomy. The Observatory is open to the public for inspection on Monday afternoons, and by appointment on Friday evenings. The Government Astronomer is also the Professor of Astronomy in the Sydney University, and delivers a regular course of lectures to students and undergraduates in Arts and Science.

### WEATHER.

The weather is determined chiefly by anticyclones, or areas of high barometric pressure, with their attendant tropical and antarctic depressions, in which the winds blow spirally outward from the centre or maximum. These anticyclones pass almost continuously across the face of the continent of Australia from west to east, and the explanation of the existence of such high-pressure belts lies probably in the fact that this area is within the zone in which polar and equatorial currents meet and for some time circulate before flowing north and south. The easterly movement depends on the revolution of the earth.

A general surging movement occasionally takes place in the atmosphere, sometimes towards, and sometimes from, the equator. The movement causes sudden changes in the weather—heat when the surge is to the south, and very cold weather when it moves towards the equator. Probably, these

sudden displacements of the air systems are due to thermal action, resulting in expansion or contraction in the atmospheric belts to the north and south of Australia.

New South Wales is peculiarly free from cyclonic disturbances, although occasionally a cyclone may reach the State from the north-east tropics or from the Antarctic low pressure belt which lies to the south of Australia, or may result from monsoonal disturbances.

#### THE SEASONS.

The seasons occur as follows:—Summer—December, January, and February; autumn—March, April, and May; winter—June, July, and August; spring—September, October, and November.

January is the hottest and July the coldest month, and the temperatures of autumn and spring are approximately the mean of the whole year.

#### WINDS.

In the summer months the prevailing winds blow from the north on the coast of New South Wales, with an easterly tendency which extends to, and in parts beyond, the highlands; in the western districts the winds usually have a westerly tendency. Southerly winds, which are characteristic of the summer weather on the coast, occur most frequently during the months from September to February, and between 7 p.m. and midnight. These winds, which are deflected sea breezes, cause a rapid fall in temperature, and are sometimes accompanied by thunderstorms.

During winter, the prevailing direction of the wind is westerly. In the southern areas of the State the winds are almost due west, but proceeding northwards there is a southerly tendency, while on reaching latitudes north of Sydney the direction is almost due south. When they reach the north-eastern parts of the State, these winds are deflected in a westerly direction, and are merged in the south-east trade winds north of latitude 30°. During the cold months of the year, Australia lies directly in the great high-pressure stream referred to previously, and the high pressure when passing over the continent tends to break up into individual anti-cyclonic circulations.

#### RAINFALL.

Generally, the wet season extends over the first six months of the year, although occasionally the most serviceable rains come in the spring. The coastal districts are subject to the heaviest falls, ranging from 30 inches in the south to 70 inches in the north. Despite their proximity to the sea, the mountain chains are not of sufficient elevation to cause any great condensation; so that, with slight irregularities, the average rainfall gradually diminishes towards the western limits of the State, the figures ranging from a mean of about 50 inches on the seaboard to 10 or 20 inches on the Western Plains.

A classification of areas in New South Wales in accordance with the annual rainfall shows the following distribution:—

Annual Rainfall.		Area.	Annual Rainfall.		Area.
Inches.		Sq. Miles.	Inches.		Sq. Miles.
Over 70	...	668	15 to 20	...	57,639
60 to 70	...	1,765	10 „ 15	...	77,268
50 „ 60	...	4,329	Under 10	...	44,997
40 „ 50	...	15,804			
30 „ 40	...	30,700			
20 „ 30	...	77,202	Total	...	310,372

The distribution of rainfall is dependent on three factors—(1) the energy present in the atmospheric systems, (2) the rate of movement of the atmospheric stream, and (3) the prevailing latitudes in which the anticyclones are moving.

The chief agencies for precipitating rainfall are Antarctic depressions, monsoonal depressions, and anticyclonic systems. Antarctic depressions are the main cause of the good winter rains in the Riverina and on the South-western Slope. A seasonal prevalence of this type of weather would cause a low rainfall on the coast and tablelands, and over that portion of the inland district north of the Lachlan River. A monsoonal prevalence ensures a good season inland north of the Lachlan, but not necessarily in eastern and southern areas. An anticyclonic prevalence results in good rains over coastal and tableland districts, but causes dryness west of the mountains.

Generally, June is the wettest month in all southern districts west of the highlands; in other parts of the interior the month of greatest humidity is January, February, or March. On the Northern Tablelands, the Central Western Slope, and Central Western Plains, the highest monthly average is recorded in January. February is the wettest month on the North-western Plains and over the country to the north of the Darling and east of the Paroo; and March in the far north-west quarter and over the central Darling country between Tilpa and Pooncarie. In the coastal districts, every month, except November, is represented in some part as the wettest.

## CLIMATIC DIVISIONS.

The territory of New South Wales may be divided into four climatic divisions—the Coast, the Tablelands, the Western Slopes of the Dividing Range, and the Western Plains.

*Coast.*

In the Coastal division, which lies between the Pacific Ocean and the Great Dividing Range, the rainfall average is comparatively high.

Sydney is situated half-way between the extreme northern and southern limits of the State. Its mean annual temperature is 63° Fahrenheit. The range is only 17°, calculated over a period of fifty-eight years, the mean summer temperature being about 71°, and the mean winter temperature 54°.

The following table shows the average meteorological conditions of Sydney based on the experience of the fifty-eight (58) years ended 1916:—

Month.	Hourly Average Reading of Standard Barometer, corrected to 32° Fah., Standard Gravity and Mean Sea Level.	Temperature (in shade).			Rainfall.			
		Mean Standard.	Average Reading of Maximum Thermometer.	Average Reading of Minimum Thermometer.	Average.	Greatest.	Least.	Average number of days Rain
January ...	29·902	71·7	78·4	64·9	inches. 3·443	inches. 15·257	inches. 0·419	13·9
February..	29·943	71·2	77·4	64·9	4·530	18·556	0·344	14·2
March ...	30·012	69·3	75·5	63·0	5·229	18·700	0·419	15·1
April ...	30·071	64·6	71·1	58·0	5·359	24·492	0·060	13·2
May ...	30·084	58·5	65·0	52·1	5·008	20·868	0·214	15·3
June ...	30·061	54·4	60·5	48·2	5·121	16·296	0·190	12·9
July ...	30·079	52·4	59·0	45·8	4·593	13·208	0·120	12·7
August ...	30·068	55·0	62·3	47·6	3·145	14·886	0·040	11·4
September ...	30·005	59·0	66·5	51·4	2·866	14·045	0·083	12·0
October ...	29·971	63·5	71·1	55·9	2·950	11·135	0·209	12·7
November ...	29·936	67·1	74·4	59·6	2·814	9·877	0·070	12·4
December ...	29·882	70·0	77·2	62·9	2·652	8·469	0·225	12·9

The North Coast districts are favoured with a warm, moist climate, the rainfall being from 40 to 70 inches annually. The mean temperature for the year is from 66° to 69°, the summer mean being 75° to 78°, and the winter mean 56° to 58°. On the South Coast the rainfall varies from 30 to 60 inches, and the mean temperature ranges between 57° and 63°, the summer mean being from 66° at the foot of the ranges to 70° on the sea coast, and the winter from 48° to 54° over the same area.

Coastal rains come from the sea with both south-east and north-east winds, being further augmented in the latter part of the year by thunderstorms from the north-west. The principal precipitating agencies are the Antarctic depressions, the anticyclones when travelling in high latitudes, and in the extreme north-east reliable rains are precipitated by the south-east trades.

The following table shows the meteorological conditions of the principal stations in the Coastal Division, arranged in the order of their latitude. These stations are representative of the whole division, and the figures are the average of a large number of years:—

Station.	Least Distance from East Coast.	Altitude.	Temperature (in Shade).						Rainfall— Mean Annual.
			Mean Annual.	Mean Summer.	Mean Winter.	Mean Daily Range.	Highest.	Lowest.	
	miles.	feet.	°	°	°	°	°	°	inches.
Casino ... ..	28	82	67·8	76·2	57·8	23·7	116·4	21·0	43·27
Lismore ... ..	13	52	67·2	75·4	57·0	22·5	116·2	23·0	51·03
Clarence Heads ... ..	0	99	67·8	74·7	59·5	14·8	110·0	36·4	54·96
Grafton ... ..	22	40	67·6	76·3	57·4	25·9	114·0	24·9	38·34
Port Macquarie ... ..	0	44	63·6	71·0	55·0	16·7	105·5	24·8	60·70
Singleton ... ..	40	135	64·1	76·1	52·1	20·3	113·9	22·0	29·19
Morpeth... ..	15	20	63·8	73·9	54·3	18·1	108·7	26·0	38·76
West Maitland... ..	18	40	64·2	74·7	53·0	21·1	114·0	28·0	34·00
Port Stephens ... ..	0	30	64·1	72·6	53·1	20·8	111·2	30·2	56·32
Newcastle ... ..	1	112	64·6	72·3	55·4	15·1	110·5	31·0	47·20
Pitt Town ... ..	26	40	64·0	76·1	52·6	20·0	113·0	27·2	31·24
Emu ... ..	36	87	62·7	73·2	50·4	16·2	107·6	26·8	29·88
Sydney ... ..	5	146	63·0	70·9	53·9	13·7	108·5	35·9	48·01
Wollongong ... ..	0	33	63·0	70·1	54·8	16·8	113·4	31·9	43·57
Nowra ... ..	6	30	61·6	71·0	53·4	19·0	109·5	34·5	37·73
Point Perpendicular ... ..	0	257	62·0	68·4	54·7	11·9	105·2	25·5	55·46
Moruya Heads... ..	0	55	61·0	68·1	53·0	19·1	114·8	26·3	35·04
Bodalla ... ..	7	40	59·9	69·1	50·5	27·7	114·1	18·6	36·54
Bega ... ..	0	50	60·3	69·6	50·0	26·6	109·0	20·0	32·65
Eden ... ..	0	107	60·0	67·7	51·8	14·2	106·0	29·3	34·20

Taking the coast as a whole, the difference between the mean summer and mean winter temperature is not much over 20°—a range so small as to be rarely found in other countries.

## Tablelands.

On the Northern Tableland the rainfall is consistent, ranging from 30 inches in the western parts to 40 inches in the eastern. The temperature is cool and bracing, the average for the year being between 54° and 60°; the mean summer temperature lies between 65° and 70°, and the mean winter between 43° and 45°. The Southern Tableland is the coldest part of the State, the mean annual temperature being about 56°. In summer the mean ranges from 57° to 68°, and in winter from 34° to 44°. At Kiandra, the elevation of which is 4,640 feet, the mean annual temperature is 44°. Near the southern extremity of the tableland, on the Snowy and Muniong Ranges, the snow is present generally throughout the year.

The statement below shows, for the Tablelands, similar particulars to those already given for the Coastal Division:—

Station.	Least Distance from East Coast.	Altitude.	Temperature (in Shade).						Rainfall— Mean Annual.
			Mean Annual.	Mean Summer.	Mean Winter.	Mean Daily Range.	Highest.	Lowest.	
	miles.	feet.	°	°	°	°	°	°	inches.
Tenterfield ...	80	2,827	53·8	69·0	47·2	24·4	107·1	11·9	32·25
Inverell ..	124	1,980	60·0	71·8	47·3	29·2	110·6	13·4	29·95
Glen Innes ...	90	3,518	56·4	67·2	44·1	25·3	107·3	14·4	31·39
Bundarra ...	113	2,000	60·8	72·3	48·8	25·2	101·0	17·5	29·79
Armidale ...	81	3,333	56·3	67·5	44·1	24·4	105·2	11·2	31·82
Walcha ...	83	3,386	54·5	66·3	47·4	23·4	104·1	10·0	30·95
Murrurundi ...	94	1,545	60·9	73·7	49·7	19·8	107·3	19·0	31·17
Cassilis ...	120	1,500	60·2	72·2	47·3	24·8	109·5	19·0	23·54
Scone ...	78	680	63·3	74·8	50·6	28·8	114·4	19·0	23·69
Muswellbrook ...	68	475	63·8	75·2	49·4	25·4	117·6	19·0	23·61
Mudgee ...	121	1,635	60·0	72·6	46·8	30·3	114·9	15·0	25·26
Bathurst ...	96	2,206	57·1	69·8	44·2	28·0	112·9	13·0	23·52
Kurrajong Heights ...	35	1,870	53·3	61·7	43·9	13·3	99·5	25·5	50·46
Mount Victoria ...	61	3,490	54·0	64·1	42·9	17·3	97·0	24·5	37·22
Katoomba ...	53	3,349	53·8	63·0	43·3	15·7	100·0	25·9	55·99
Carcoar ...	111	2,330	58·5	72·0	44·5	25·6	105·0	15·4	29·43
Springwood ...	42	1,216	61·1	70·8	47·2	17·4	104·8	32·5	40·92
Cowra ...	126	987	61·6	76·0	47·9	27·5	113·0	22·5	23·52
Picton ...	22	549	61·5	72·4	50·2	27·4	114·0	19·7	30·23
Crookwell ...	81	2,000	52·0	64·7	39·4	23·7	100·8	12·1	31·76
Moss Vale ...	31	2,205	55·5	65·8	44·6	21·6	106·0	18·9	38·31
Goulburn ...	54	2,097	56·1	67·7	44·1	24·0	111·0	13·0	24·79
Yass ...	92	1,616	57·2	70·3	44·7	24·3	108·0	21·0	22·03
Queanbeyan ...	60	1,899	56·3	68·5	44·0	26·2	109·4	15·8	22·17
Kiandra ...	88	4,640	44·4	55·8	32·6	20·7	91·0	<sup>4</sup> below zero	63·43
Cooma ...	52	2,617	54·2	66·0	41·9	27·7	112·0	11·0	19·01
Bombala ...	37	3,000	53·4	64·4	42·8	24·2	104·1	15·5	22·76

*Western Slopes.*

On the Western Slopes the rainfall is distributed uniformly, varying from 20 inches in the western parts to 30 inches in the eastern; the greater part of the wheat-growing area of the State is situated on these slopes, where the average rainfall is about 25 inches. The mean annual temperature ranges from 69° in the north to 60° in the south; in the summer from 81° to 74°, and in the winter from 53° to 47°.

North of the Lachlan River, good rains are expected from the monsoonal disturbances during February and March, although these may come as late as May, and incidentally during the remainder of the year. These monsoonal or seasonal rains are caused by radiation in the interior of Australia during the summer months, when the heat suspends the moisture accumulated chiefly from the Southern Ocean.

In the Riverina district, south of the Murrumbidgee generally, and on the South-western Slopes, fairly reliable rains, light but frequent, are experienced during the winter and spring months.

The next statement gives, for the principal stations on the Western Slopes, information similar to that shown for Coast and Tablelands:—

Station.	Least Distance from East Coast.	Altitude.	Temperature (in Shade).						Rainfall— Mean Annual.
			Mean Annual.	Mean Summer.	Mean Winter.	Mean Daily Range.	Highest.	Lowest.	
	miles.	feet.	°	°	°	°	°	°	inches.
Moree ... ..	204	680	67·5	80·4	53·2	30·2	117·3	18·0	23·15
Warialda ... ..	162	1,106	61·6	73·9	49·4	34·0	111·0	18·0	27·94
Bingara ... ..	153	1,200	64·4	77·3	50·3	28·9	112·5	16·0	30·99
Narrabri ... ..	193	697	66·8	80·7	51·9	28·5	119·9	18·4	25·95
Gunnedah ... ..	156	874	65·6	79·1	50·9	28·8	114·0	24·0	24·34
Coonabarabran ... ..	185	1,710	60·0	73·0	46·4	32·3	111·9	11·4	28·65
Quirindi ... ..	115	1,278	63·9	76·5	48·5	27·1	113·6	17·0	27·55
Dubbo ... ..	177	870	63·5	77·5	49·4	28·0	115·4	16·9	22·21
Forbes ... ..	176	789	63·6	77·6	49·7	24·5	118·4	24·0	19·61
Young ... ..	140	1,416	59·4	73·6	45·8	26·2	113·9	20·3	24·87
Marsden ... ..	187	700	63·0	78·2	47·4	26·6	114·0	23·0	19·47
Murrumburrah ... ..	126	1,268	60·4	74·0	47·5	27·5	114·9	19·0	23·56
Wagga Wagga ... ..	158	612	62·2	76·2	48·7	25·3	119·0	18·4	21·04
Urana ... ..	213	400	62·3	76·2	48·1	22·6	117·0	18·4	16·85
Albury ... ..	175	542	60·8	74·3	47·7	27·3	117·3	19·9	27·47

*Western Plains.*

The Western District consists of a vast plain, the continuity of which is broken only by the Grey and Barrier Ranges. Owing to the absence of mountains in the interior, the annual rainfall over a great part of this division, which lies in the zone of perpetual high pressure, does not exceed 10 inches. It increases from 8 inches on the western boundary to 10 and 15 inches along the Darling River, and 20 inches on the eastern limits. The mean annual temperature ranges from 69° in the north to 62° in the south; in the summer from 83° to 74°, and in the winter from 53° to 45°.

Although the summer readings of the thermometer in this district may be from 10° to 20° higher than those on the coast, the heat is not distressing. Excessive heat is experienced occasionally, and with many summers intervening, its occurrence being in all probability due to a temporary stagnation in the easterly atmospheric drift. Under normal conditions, air entering Western Australia with a temperature of 70° or 80° would accumulate only 20° to 25° by contact with the radiation from the soil during its passage across the continent.

Where there is stagnation, however, the air resting over the sandy soils of the interior of Australia becomes superheated, and on reaching the western districts of the eastern States shows a temperature sometimes as much as 40° above the normal. Extensive bush fires also cause a local rise in temperature, and this is due, not only to the actual heat generated, but also to the liberation of combustible matter into the atmosphere; and it has further been affirmed that the presence of a small excess of carbonic acid gas above the normal quantity in air raises the temperature several degrees. The winter, with an average temperature over 50°, accompanied by clear skies and an absence of snow, leaves little to be desired from the standpoint of health; while, also owing chiefly to the dryness of the climate, these inland regions produce the best merino wool in the world.

The meteorological conditions of the Western Plains will be seen from the following statement, corresponding to those given already for the other divisions of the State:—

Station.	Least Distance from East Coast.	Altitude.	Temperature (in Shade).					Rainfall—Mean Annual	
			Mean Annual.	Mean Summer.	Mean Winter.	Mean Daily Range.	Highest.		Lowest.
	miles.	feet.	°	°	°	°	°	°	inches.
Brewarrina ... ..	345	430	69·3	84·0	52·9	26·3	122·3	24·8	15·48
Walgett... ..	286	436	68·0	82·1	52·9	25·7	122·2	23·2	18·43
Bourke ... ..	386	361	69·2	83·7	54·1	27·6	127·0	25·0	14·15
Wilcannia ... ..	473	267	66·4	80·3	52·2	26·1	120·8	21·8	10·14
Cobar ... ..	345	803	67·0	81·1	52·4	24·0	118·7	25·0	14·17
Broken Hill ... ..	555	1,000	64·7	77·8	51·2	23·6	115·9	28·5	9·63
Mount Hope ... ..	296	600	64·8	78·9	50·4	22·1	123·6	24·6	15·03
Condobolin ... ..	227	700	65·4	79·0	51·3	27·1	122·2	20·0	17·07
Wentworth ... ..	478	126	63·6	76·3	51·4	25·7	119·0	21·0	11·99
Hay ... ..	309	291	63·2	76·2	50·3	27·4	117·3	22·9	13·97
Euston ... ..	422	188	62·6	75·3	50·2	26·4	124·8	17·1	12·06
Deniliquin ... ..	287	312	61·7	74·6	49·3	24·0	121·1	18·0	16·02

## TIDES.

A self-recording tide-gauge was set up at Fort Denison, in Port Jackson, in 1867. The average range of ordinary tides is 3 feet 4½ inches; of spring tides the average is 5 feet 1½ inches. In June, 1915, in January, 1912, and in December, 1910, the tide-gauge at Fort Denison recorded 6 feet 9 inches, which is practically the highest tide registered. The Sydney Harbour Trust, in 1911, installed a tide-gauge of the most modern type at Fort Denison, at Watson's Bay, and at Spectacle Island.

At Port Hunter, the average rise and fall of ordinary tides is 3 feet 4  $\frac{7}{12}$  inches, and of spring tides 5 feet 5  $\frac{1}{8}$  inches; the greatest range being 6 feet 6½ inches. The highest tide registered was 7 feet 4 inches in May, 1898.

For the coast the average rise of spring tides may be taken as 5 feet 6 inches.

## CONSTITUTION, GOVERNMENT, AND DEFENCE.

### DEVELOPMENT OF REPRESENTATIVE GOVERNMENT.

#### EARLY CONSTITUTIONS OF NEW SOUTH WALES.

ON the foundation of New South Wales as a British Colony the Governor was empowered, under his Commission and Letters Patent, to make ordinances for the government of the settlement; subsequently he was authorised to impose a limited taxation by customs duties, and during the first thirty-five years of the colony's existence was possessed of virtually absolute administrative power.

In 1823 an Act was passed in the Imperial Parliament, providing "for the better administration of justice in New South Wales and Van Diemen's Land" by the creation of a Legislative Council, with a minimum of five and a maximum of seven members, nominated by the Governor. This Council acted as an advisory body to the Governor, with authority to assist him in making laws and ordinances. Five members were appointed under His Majesty's warrant of 1st December, 1823, viz.:—Wm. Stewart, Lieutenant-Governor; Francis Forbes, Chief Justice; Frederic Goulburn, Colonial Secretary; James Bowman, Principal Surgeon; John Oxley, Surveyor-General.

All laws or ordinances had to be submitted to a summoned meeting of this Council, and any action of the Governor contrary to the advice of the Council was referable to England for decision. The first meeting of the Council was held on 25th August, 1824. Practically coincident with the institution of this Legislative Council, which embodied the first form of constitutional government, a new Charter of Justice was proclaimed, and the system of trial by jury inaugurated.

The Legislative Council, as constituted in 1823, was subsequently increased in 1828 to fifteen members, and its functions were extended; but twenty years of its existence demonstrated the inefficacy of such a limited measure of constitutional government in the face of the expanding commercial and agricultural interests of a rapidly developing population.

#### REPRESENTATIVE GOVERNMENT.

In 1843 a measure of direct representation in the Legislative Council was given to the people of the Colony by means of an Imperial enactment of the previous year which, while defining the functions of the Council and the conditions under which Royal Assent was to be accorded to bills passed by it, extended its membership to thirty-six, namely, twelve nominees of the Crown and twenty-four members elected by the people.

Eight years' experience of partly representative government proved the necessity for extension of popular representation. In 1851 the Australian Colonies Government Act of the Imperial Parliament gave authority to the existing Legislative Council to prepare a democratic Constitution for the colonies. At the same time, provision was made for the establishment of Port Phillip District as a separate colony. In 1853 a select committee of the Council, which then numbered fifty-four (thirty-six elective and eighteen nominee members), adopted a draft Constitution for a Legislature of two Houses, which, with minor amendments, was accepted by the Imperial Parliament in 1855. The New South Wales Constitution Act, 1855,

conferred a fully responsible system of government, entire control of Crown lands devolving upon the New South Wales Parliament, which was empowered also, subject to the provisions of the Act, to make laws amending its Constitution.

The first elective Parliament was opened by Governor Denison, on 22nd May, 1856. Subsequently the Constitution was amended by Acts passed in 1857, 1884, and 1890, which were consolidated in the Constitution Act, 1902. Further amendments were made in 1908, 1914, and 1916, but the essential form of the original Legislature remains intact, though its functions have from time to time been enlarged by Imperial enactments, such as those which empowered the State Parliament to deal with matters relating to coinage, copyright, extradition, naturalisation, shipping, &c. Since 1901, when the Commonwealth of Australia was inaugurated, legislative functions have been divided between the Parliaments of the Commonwealth and of the State.

#### INAUGURATION OF THE COMMONWEALTH.

The question of establishing a Federal Legislature, to deal with the common interests of the colonies, was considered when arrangements were being made for the separation of Victoria and New South Wales and for the self-government of the Australian colonies in 1850; and for forty years the problems of federation were discussed at conferences and in Parliamentary Committees, but the most practical and definite step towards the achievement of federation was taken in 1890, when a conference of representatives from the seven Australasian colonies was held in Melbourne; arrangements were then made for a Federal Convention of members, appointed by the various Parliaments, to draft an adequate scheme for a Federal Constitution. The Draft Bill produced by this Convention in 1891 was intended for discussion in the State Parliaments, but lapsed for lack of popular enthusiasm. In the financial and commercial depression of succeeding years the necessity for federation was felt keenly, and another conference was held in Hobart in 1895; as a result a Constitution was drawn up by elected representatives of New South Wales, Victoria, South Australia, Western Australia, and Tasmania, and submitted to the electors by means of a referendum in 1898. The Bill was accepted in Victoria, South Australia, and Tasmania; in New South Wales the majority of votes secured was insufficient; in Western Australia the referendum was deferred, as the Enabling Bill of that State made the acceptance of the Constitution by New South Wales a necessary condition. Queensland did not join the federal movement until the following year.

The Constitution Bill was subsequently accepted by each of the six States of Australia, and received the Royal Assent; the formal inauguration of the Commonwealth took place on 1st January, 1901, the first day of the twentieth century, and the first Parliament was opened on 9th May, 1901, by H.R.H. the Duke of Cornwall and York.

#### FUNCTIONS.

Under the Commonwealth of Australia Constitution Act, the Parliament of the Commonwealth is empowered to make laws on matters affecting the peace, order, and good government of the Commonwealth, particularly with respect to the following:—Trade and commerce with other countries and among States, taxation, bounties on production, borrowing money on public credit, postal, telegraphic and telephonic services, defence, lighthouses, astronomical and meteorological observations, quarantine, fisheries, census and statistics, currency, banking, insurance, weights and measures, bills of exchange, and

promissory notes, bankruptcy, copyright, patents and trade marks, naturalisation and aliens, foreign corporations and trading, or financial corporations formed within the Commonwealth, marriage, divorce, invalid and old-age pensions, migration, external affairs, railway control in relation to defence and railway acquisition or construction, subject to the consent of the State, conciliation and arbitration in regard to disputes extending beyond the limits of one State.

To alter the Constitution, the law for the proposed alteration must be submitted to a referendum of electors not less than two nor more than six months after its passage through both Houses of Parliament, and must be approved by a majority of electors voting, in a majority of the States, as well as in the whole Commonwealth. The Constitution has been altered by the Constitution Alteration (Senate Elections) Act, 1906, and the Constitution Alteration (State Debts) Act, 1909.

The Parliament of the Commonwealth is empowered specifically to legislate on any matter referred to it by the Parliament or Parliaments of any State or States, but so that the law made shall extend only to the States which are parties to the reference.

Outside the specific functions of the Commonwealth the Constitution of each State continues as at the establishment of the Commonwealth, and the Parliament of New South Wales has legislative power in all matters not specifically within the functions of the Commonwealth.

#### EXECUTIVE GOVERNMENT.

In both Commonwealth and State the executive government rests with a Governor representing the Crown, who acts on the advice of an Executive Council responsible to Parliament.

##### *Commonwealth Executive Government.*

The Crown is represented by the Governor-General of Australia, who is appointed by the King. The Senate and the House of Representatives are elective Chambers, being the Upper and Lower Houses respectively. As representative of the King, the Governor-General is Commander-in-Chief of the Naval and Military Forces. His office carries a salary of £10,000 per annum, and the amount is not alterable during his occupancy of office. The present Governor-General and Commander-in-Chief is the Right Hon. Sir Ronald Craufurd Munro Ferguson, P.C., G.C.M.G.

The Governor-General's powers and functions are assigned to him under his Commission, subject to the Constitution; as head of the Legislature he appoints the times for holding sessions of Parliament, prorogues Parliament, and dissolves the House of Representatives. In his Executive Government he is advised by the Executive Council, which is composed of members summoned by the Governor-General, being Ministers of the Crown administering Commonwealth Departments. Under the provisions of the Constitution Act the Ministry numbered seven, the maximum amount specified for their salaries was £12,000 per annum, until the enactment of the Ministers of State Act in July, 1915, by which the number of Ministers was increased to eight and the amount appropriated for their salaries to £13,650. In 1917 provision was made for increasing the number to nine and the maximum amount of salaries to £15,300.

##### *The State Executive Government.*

The Governor is the representative of the British Sovereign; he is appointed by the King, and his functions and powers are defined by his Commission and the Royal Instructions accompanying it. He assents to

Bills as passed by Parliament, or he may withhold his assent pending reference of a Bill to the Imperial Government, bills of certain classes being reserved for Royal Assent. In his Executive capacity, the Governor summons, and acts under advice of the Executive Council, of which the members are Ministers of the Crown controlling administrative departments of the State. The Governor appoints Ministers and members of the Legislative Council, Judges, Justices of the Peace, Commissioners, and other officers, and he may summon, prorogue, or dissolve any Parliament. In the exercise of these functions, he is in general guided by the advice of the Executive Council, but in special circumstances acts at his own discretion, especially with regard to dissolution of Parliament. The prerogative of mercy vested in him is exercised only with the advice of the Executive Council.

The term of office for which the Governor is appointed is five years, and his salary (£5,000 per annum), with certain allowances for his staff, is provided by the Constitution out of the revenues of the State.

## PARLIAMENTS.

### THE COMMONWEALTH.

#### *The Senate.*

A session of the Parliament must be held once at least in every year, with a maximum interval between sessions of twelve months.

The Senate consists of thirty-six members, six of whom are elected for each State, the people in each State voting as in one electorate. The term of service of a Senator is six years; but, in accordance with the Constitution Act, the seats of half the number chosen at an election of a new Senate become vacant at the expiration of three years. An election is held triennially to fill the vacancies then occurring by effluxion of time.

#### *House of Representatives.*

The House of Representatives, as far as practicable, contains twice as many members as the Senate, the number elected for the several States being in proportion to the respective populations, but with a specified minimum of five each. There are seventy-five members in this House, the number from New South Wales being twenty-seven.

The House of Representatives is liable to dissolution at the discretion of the Governor-General if the Ministry loses its majority, otherwise it exists for three years. In the event of the failure of the Senate and House of Representatives to agree on the subject of any proposed law, the Governor-General may dissolve both Chambers simultaneously, and if the new Houses disagree, the Governor-General may convene a joint sitting of the members of the Houses to deliberate and vote upon the proposed law, when resolutions, to be effective, must be carried by an absolute majority of all the members. This furnishes the first example within the British Empire of a provision for joint session to overcome a deadlock.

The qualifications of members of the Commonwealth Parliament are the same for both Houses, and are identical with the qualifications of electors. The allowance attaching to the office of member was originally £400 per annum, but was raised by Parliament in 1907 to £600 per annum. The seat of a member becomes vacant if he is absent without leave for two consecutive months of any session.

The qualifications of electors are the same for both Federal Houses, Electors must be adult British subjects, natural-born or naturalised for five years, and resident in Australia for three years. Aboriginal natives of Australia, Asiatics, Africans, and Pacific Islanders, except natives of New Zealand, are disqualified unless entitled to vote at the election of a State Legislative Assembly.

Under the provisions of the Commonwealth Electoral (War-time) Act, 1917, members of Expeditionary Forces, and munition and other workers engaged under agreement with the Commonwealth Government, are entitled to vote while on service abroad at elections for the Senate and at general elections for the House of Representatives; naturalised British subjects of enemy origin are disqualified during the period of the war.

### FEDERAL ELECTIONS.

#### Senate.

The following table shows the votes polled at the Senate Elections in the State of New South Wales. The last Federal Elections took place on 5th May, 1917.

Election.	Electors Enrolled.		Electors to whom Ballot Papers were issued.		Informal Ballot Papers.	Percentage of Electors Enrolled to whom Ballot Papers were issued.		
	Men.	Women.	Men.	Women.		Men.	Women.	Total.
1901	329,093	...	220,573	...	38,674	67·02	...	67·02
1903	369,285	326,764	189,877	134,487	15,796	52·70	41·16	47·21
1906	392,077	345,522	229,654	151,682	28,016	58·57	43·90	51·70
1910	444,269	390,393	301,167	211,635	24,213	67·79	54·21	61·44
1913	554,028	482,159	405,152	312,703	48,195	73·13	64·85	69·28
1914	576,309	506,820	407,461	294,939	34,984	70·70	58·19	64·85
1917	566,345	528,489	430,514	343,143	29,625	76·02	64·93	70·66

#### House of Representatives.

The votes recorded in the State of New South Wales at the elections of members of the House of Representatives were as follow:--

Election.	Electors Enrolled (Contested Divisions only).		Electors to whom Ballot Papers were issued.		Informal Ballot Papers.	Percentage of Electors Enrolled to whom Ballot Papers were issued.		
	Men.	Women.	Men.	Women.		Men.	Women.	Total.
1901	315,962	...	215,105	...	4,070	68·08	...	68·08
1903	303,254	274,763	164,133	118,381	7,834	54·12	43·08	48·88
1906	363,723	314,777	216,150	141,227	11,705	59·43	44·87	52·67
1910	431,702	379,927	294,049	207,868	8,002	68·11	54·71	61·84
1913	554,028	482,159	405,152	312,703	22,262	73·13	64·85	69·28
1914	491,086	429,906	351,172	257,581	14,816	71·51	59·92	66·10
1917	484,854	447,437	370,618	292,925	19,874	76·44	65·47	71·17

The percentage of voters increased steadily at the elections during the period 1903-1913; the improvement was not continued in 1914, when the contest was modified in consequence of the outbreak of war in Europe, but in 1917 the percentage was the highest since the inauguration of the Commonwealth Parliament.

FEDERAL MINISTRIES.

In the following statement is shown the various Ministries which have held office since the inauguration of the Commonwealth, also the date of occupancy and duration of each Ministry:—

Ministry.		From—	To—	Duration,
Number.	Name.			days.
1	Barton ... ..	1 Jan., 1901 ...	23 Sept., 1903...	996
2	Deakin ... ..	23 Sept., 1903...	26 April, 1904...	216
3	Watson ... ..	26 April, 1904...	17 Aug., 1904 ...	113
4	Reid-McLean ... ..	17 Aug., 1904 ...	4 July, 1905 ...	321
5	Deakin ... ..	4 July, 1905 ...	12 Nov., 1908 ...	1,227
6	Fisher ... ..	12 Nov., 1908 ...	2 June, 1909 ...	201
7	Deakin ... ..	2 June, 1909 ...	29 April, 1910...	331
8	Fisher ... ..	29 April, 1910...	20 June, 1913 ...	1,148
9	Cook ... ..	20 June, 1913 ...	17 Sept., 1914...	454
10	Fisher ... ..	17 Sept., 1914 ...	27 Oct., 1915 ...	405
11	Hughes ... ..	27 Oct., 1915 ...	14 Nov., 1916 ...	384
12	Hughes ... ..	14 Nov., 1916 ...	17 Feb., 1917 ...	95
13	Hughes ... ..	17 Feb., 1917 ..	Still in Office.	.....

FEDERAL REFERENDA.

The Referendum (Constitution Alterations) Act, 1906-10, provides the necessary machinery for the submission to the electors of any proposed law for the alteration of the Constitution.

The following statement shows the votes recorded in the State of New South Wales and in the Commonwealth at the various referenda which have been taken in relation to the Federal Constitution:—

Date.	Referendum.	State of New South Wales.			Commonwealth of Australia.			
		For.	Against.	Majority.	For.	Against.	Result.	Majority.
1898	Federation ... ..	71,595	66,228	5,367	219,712	108,363	.....	111,349
1899	Federation ... ..	107,420	82,741	24,679	422,788	161,077	A	261,711
1906	Constitution Alteration (Senate Elections) ...	286,888	55,261	231,627	774,011	162,470	A	611,541
1910	Financial Agreement ...	227,650	253,107	25,457	645,514	670,838	R	25,324
1910	State Debts ... ..	159,275	318,412	159,137	715,053	586,271	A	128,782
1911	Legislative Powers ...	135,968	240,605	104,637	483,356	742,704	R	259,348
1911	Monopolies ... ..	138,237	238,177	99,940	488,668	736,392	R	247,724
1913	Trade and Commerce ...	317,848	359,418	41,570	958,419	982,615	R	24,196
1913	Corporations ... ..	317,668	361,255	43,587	960,711	986,824	R	26,113
1913	Industrial Matters ...	318,622	361,044	42,422	961,601	987,611	R	26,010
1913	Railway Disputes ...	316,928	361,743	44,815	956,358	990,046	R	33,688
1913	Trusts ... ..	319,150	358,155	39,005	967,331	975,943	R	8,612
1913	N'n'lisation of Monopolies	301,192	341,724	40,532	917,165	941,947	R	24,782

A. Accepted. R. Rejected.

In 1898 the question of federation was put to the people in the States of New South Wales, Victoria, South Australia, and Tasmania. In the three last-named it was passed; but in New South Wales although it had a majority it failed to obtain the minimum number of 80,000 votes in the affirmative as required by the Enabling Act of 1897. At the second referendum for federation, in 1899, the vote was taken in Queensland, in addition to the States concerned in the 1898 referendum, and the figures for Australia shown above included the votes in Western Australia, where the referendum did not take place until 1900.

The referendum in 1906 related to the extension to 30th June, 1910, of the services of Senators whose places would have become vacant in December, 1909, and also that the term of service of a Senator should begin on the first day of July. The fact of this referendum being taken on the same day as the Commonwealth General Election no doubt accounts for the large number of votes recorded.

Two proposals for altering the Constitution, referred in 1910, relate to financial arrangements between the States and the Commonwealth; the one, to give effect to an agreement regarding the amount of revenue which should be returned to the States, was rejected, and the other, to enable the Commonwealth to take over all the debts of the States, was passed by a majority in the Commonwealth as a whole, and in all the States except New South Wales. Previous to this alteration the Commonwealth was empowered to take over only such debts as had been incurred prior to federation.

The referenda of 1911 were for the purpose of (1) extending the legislative powers of the Federal Government regarding trade and commerce, corporations, industrial matters, and trusts and monopolies; and (2) to empower the Commonwealth to take control of industries subject to monopolies. These proposals were rejected in each State except Western Australia, and consequently in the Commonwealth as a whole.

At the general elections in 1913, these proposed alterations were submitted again to the electors with an additional proposal to enable the Commonwealth to legislate regarding conditions of employment and the settlement of disputes relating thereto in the State railway services. All the proposals were rejected, as the majority of voters in three States only—Queensland, South Australia, and Western Australia—approved of the alterations, the majority in the other States, and in the Commonwealth as a whole, being against the proposals. In 1915, Bills were introduced into the Commonwealth Parliament embodying similar alterations, and arrangements were made to submit the proposals to the electors. Subsequently the referendum was postponed during the currency of the war in consequence of an agreement between the State Premiers and the Prime Minister of the Commonwealth, by which the former agreed to bring forward in their respective Parliaments legislation for referring to the Commonwealth Parliament, for the term of the war and twelve months after the conclusion of peace, the powers embodied in the proposed alterations. The Commonwealth Powers (War) Act was passed in the New South Wales Parliament in December, 1915.

At the Military Service Referendum in 1916 the majority voted against a proposal that the Government be empowered to compel citizens to serve with the military forces outside the Commonwealth. In the State of New South Wales 356,805 electors voted for the proposal and 474,544, repre-

senting a majority of 117,739, against it; for the Commonwealth the figures were 1,087,557 votes in favour of the proposal and 1,160,033 against it, the majority being 72,476.

#### SEAT OF FEDERAL GOVERNMENT—ORDINANCE.

The agreement under section 125 of the Commonwealth Constitution Act, between the State of New South Wales and the Commonwealth, for the surrender and acceptance of territory in the Canberra district for the seat of Federal Government has been ratified, and an ordinance issued on 22nd December, 1910, for the Provisional Government of the Territory. On 12th March, 1913, the official ceremony took place in connection with the establishment of the seat of Government and the selection of Canberra as the name of the Capital City announced. All laws hitherto in force in the Territory (except those imposing duties on estates of deceased persons) remain in force, and continue to be administered by the State authorities. All revenue, except Public Instruction fees, belongs to the Commonwealth. The authority of State magistrates, gaolers, and police continues, and all offenders are tried in the Courts of the State. Licenses to sell intoxicating liquors are not granted, and existing licenses may be renewed for the same premises only.

#### THE STATE PARLIAMENT.

##### *The Legislative Council.*

Under the Constitution Act, 1902, the Governor may summon to the Legislative Council any person he thinks fit, provided such person is of the full age of 21 years, and is a natural-born or naturalised subject of His Majesty in Great Britain or in New South Wales; naturalised British subjects of enemy origin are excluded from membership of the Council during the present war, in terms of the Naturalised Subjects Franchise Act, 1916. At least four-fifths of the members summoned to this Council must be persons not holding any office of emolument under the Crown. The members have a life tenure of office, subject to certain qualifications, but are not entitled to remuneration for their services; as a matter of privilege, they are allowed to travel free on the State railways and tramways. The presence of one-fourth of the members, exclusive of the President, is necessary to form a quorum for the despatch of business. The Constitution Act contains no proviso as to the number of members; in October, 1917, there were 71. The President receives an annual salary of £750, and the Chairman of Committees £470.

##### *The Legislative Assembly.*

The Legislative Assembly consists of ninety elected members, each being an adult male British subject, and entitled to a vote at the Parliamentary elections. Members of the Federal Legislature and of the Legislative Council, persons holding non-political offices of profit under the Crown, except in the navy or army, and (during the period of the present war and for six months thereafter) naturalised British subjects of enemy origin, are disqualified for membership. Under the provisions of the Constitution Amendment Act of 1916 any officer of the public service of New South Wales may be nominated and elected to the Legislative Assembly, but if elected must forthwith resign his position in the service.

Each member receives the sum of £500 per annum by way of reimbursement for expenses incurred in the discharge of Parliamentary duties, is allowed to travel free on the State railways and tramways, and has free transmission of correspondence.

The seat of a member becomes vacant if the member be absent without permission for a whole session of the Legislature, becomes bankrupt, a subject of a foreign power, or convicted of a crime. The Speaker of the Legislative Assembly receives a salary of £1,000 per annum, and the Chairman of Committees £740 per annum. The Leader of the Opposition receives £250 per annum in addition to his remuneration as a Member of Parliament.

Parliament may be dissolved at the discretion of the Governor, if the Government is defeated in the Assembly, otherwise it exists for three years; before the passing of the Triennial Parliaments Act, 1874, the limit of duration was five years.

The Legislative Assembly Continuance Act, 1916, which received assent in November, 1916, extended the duration of the Legislative Assembly then sitting for a maximum period of one year; it was dissolved, however, in February, 1917.

The Constitution Act makes no distinction between the powers and privileges of the two Houses of Parliament, but it is tacitly agreed that the procedure in each House shall be conducted according to that of its prototype in the Imperial Parliament.

#### STATE ELECTIONS.

The first Legislative Assembly of New South Wales met in 1856, and consisted of 54 members elected under the Constitution Act. Votes were allowed to all male adult British subjects, who, at the time of registration of electors and for six months previously to that date, owned freehold estate valued at £100, or occupied building or lodging, or land under lease for three years, valued at £10 per annum. Holders of Government pastoral licenses and persons who had a yearly salary of £100, or paid £40 per annum for board and lodging, were also entitled to vote. Electors were allowed a vote in each electorate in which they possessed the necessary qualifications.

In 1859 the membership of the Assembly was increased to 72, and the franchise was given to every male adult British subject who for six months previously to the collection of the rolls had resided in the district and held property of the clear value of £100 or annual value of £10, or occupied a building valued at £10 per annum, or held Crown lease or license for pastoral purposes. Holders of miners' rights were allowed to vote in "gold-fields" electorates. Officers of military or police services were disqualified, as well as persons in receipt of public charity.

Under the Electoral Act, 1880, by which 108 members were elected for 72 electorates, provision was made for automatically increased representation so that the number of members in 1891 had increased to 141, elected for 74 districts.

Under the Parliamentary Electorates and Elections Act, 1893, an important change was made in the system of Parliamentary representation, the State being then divided into 125 electorates, each represented by one member. The franchise was remodelled by the introduction of universal manhood suffrage, and the rights of citizenship were equalised by the principle of allowing each elector to vote in one electorate only. A vote was given to every male adult who had resided continuously for one year in the State, provided that he was a British subject and became enrolled in the electoral district in which he had resided for three months prior to the election. The disqualification of the police was removed in 1896, and in 1902 the franchise was extended to women, thus establishing adult suffrage.

Under the Electorates Redistribution Act, 1904, the number of electorates and of representatives elected was reduced to 90, which number was determined by referendum of electors, to whom the question of reduction was submitted by an Act passed in 1903.

The Parliamentary Elections Act, 1911, provides for a residential qualification of six months in the Commonwealth, three months in the State, and one month in the electoral district, and for the extension of the franchise to the military and naval services. The hours of polling are specified as from 8 a.m. to 7 p.m., the polling-day being a public holiday from 12 o'clock noon, and, under the Liquor Amendment Act, 1905, hotels are closed during the hours of polling. The introduction of the absent voter principle enables electors absent from their districts on making a declaration to record a vote for the electorate for which they are enrolled at any polling-place within the State. Provision is made also for an annual collection and revision of rolls, the occupiers of dwelling-houses being required to prepare schedules showing the persons living in the houses.

The Parliamentary Elections (Second Ballot) Act, 1910, provides that the elected candidate must receive an absolute majority—that is, more than half the number of valid votes recorded. If, as a result of the ballot, a candidate has not received an absolute majority a second ballot must be taken between the first two candidates on the list. This principle was introduced at the general election in October, 1910, and second ballots were taken in three electorates; in 1913 second ballots were held in twelve electorates, and in 1917 in eight electorates.

The enactments relating to Parliamentary elections were consolidated by the Parliamentary Electorates and Elections Act of 1912.

Under the provisions of the Naturalised Subjects Franchise Act, 1916, naturalised British subjects of enemy origin are not permitted to vote at an election during the continuance of the present war, and for a period of six months after its conclusion.

The following table shows the voting at the elections held in New South Wales since plural voting was abolished; in districts in which second ballots were taken the votes recorded at the first ballots have been excluded:—

Year of Election.	Voters on Roll.	Electorates per Member.	Total Members returned.	Members unopposed.	Contested Electorates.					
					Electors on Roll.	Votes recorded.	Percentage of Votes recorded.	Informal Votes.	Percentage of Informal Votes.	
1894 ... ..	298,817	2,390	125	1	254,105	204,246	80.38	3,310	1.62	
1895 ... ..	267,458	2,139	125	8	238,233	153,034	64.24	1,354	.88	
1898 ... ..	324,339	2,595	125	3	294,481	178,717	60.69	1,638	.92	
1901 ... ..	346,184	2,769	125	13	270,861	195,359	72.13	1,534	.79	
1904 { Males	363,062	7,661	90	2	304,396	226,057	74.26	3,973	.59	
{ Females	326,428				262,433	174,538	66.51			
1907 { Males	392,845	8,288	90	5	370,715	267,301	72.10	13,543	2.87	
{ Females	353,055				336,680	204,650	60.78			
1910 { Males	458,626	9,641	90	3	444,242	322,199	72.53	10,393	1.78	
{ Females	409,069				400,139	262,154	65.52			
1913 { Males	553,633	11,533	90	3	534,379	385,838	72.20	14,439	2.10	
{ Females	484,366				468,437	302,389	64.55			
1917 { Males	574,308	12,331	90	8	525,681	328,030	62.40	5,844	.94	
{ Females	535,522				487,585	295,354	60.57			

Making due allowance for obstacles to voting, especially in sparsely-settled districts, the figures quoted above indicate abstention on the part of a large percentage of the electors, particularly in the case of the women. At the first election after enfranchisement, 66·5 per cent. of women recorded their votes; in 1907, 60·8 per cent.; at the elections of 1910 and 1913 about 65 per cent.; and in 1917 only 60·6 per cent. voted; so that 39·4 per cent. failed to take advantage of their franchise.

In the case of men, the highest proportion of votes, 80·4 per cent., was recorded at the first election shown in the table above, when popular interest was excited by a strenuous contest on the question of fiscal reform; at the next two elections there was no definite issue at stake, as negotiations were in progress with the other States for federation. At subsequent elections the percentage of votes increased; the proportion at the three elections in 1907-13 being about 72 per cent. of men enrolled. In 1917 many of the electors were absent on war service, and the percentage of voters was low, viz., 62·4.

The number of informal votes was high at the election in 1907, being 3 per cent. of the total votes recorded; at the 1910 election a change made in the method of marking the ballot-papers no doubt accounted for the percentage of informal votes being reduced to 1·78 per cent. The percentage rose to 2·1 in 1913; this was the first election at which the absent voting was in operation, and many informalities occurred through the non-compliance by election-officers with the special conditions regarding the issue of ballot-papers to electors outside the districts in which they were enrolled. In 1917 there were 5,844 informal votes, representing 9·4 per cent. of the total votes recorded.

#### DISTRIBUTION OF ELECTORATES.

After federation of the Australian States the question of reducing the membership of the Legislative Assembly of New South Wales was submitted to a referendum of the electors in 1904, and, as a result, the number of representatives was reduced to 90. The following table shows the average number of persons represented by each member of the Assembly, and the proportion of the population enrolled on the electoral lists at various dates on which the membership or franchise has been altered since the opening of the first Parliament and at each year of election since 1901:—

Year of Election.	Number of Members	Population per Member.	Percentage of Population Enrolled.
1856	54	5,200	15·8
1858	72	4,500	22·3
1880	108	6,900	25·2
1885	122	7,800	24·5
1891	141	8,100	26·7
1894	125	9,800	24·3
1901	125	10,900	25·3
1904	90	15,900	48·3
1907	90	17,000	48·8
1910	90	18,100	53·3
1913	90	20,400	56·6
1917	90	20,700	59·6

The number of distinct electors cannot be ascertained for any period prior to the year 1894, and the figures in the last column have been calculated on the total number of votes to which the electors on the roll were entitled; they are, therefore, somewhat in excess of the actual proportions. At the census of 1901 the percentage of adult males in the total population was about 28, and of adults, males and females, 51·7. At the election in 1901 the proportion of the population enrolled was 25 per cent., and after the Women's Franchise Act, 1902, was passed it rose to 48 per cent. In 1910 the proportion was 53 per cent.; while at the Census date, 2nd April, 1911, the adult population represented 55·8 per cent. of the total. In March, 1917, the electors on the roll represented 59·6 per cent. of the total population.

A list of the Parliaments since Responsible Government was established is shown below:—

Number of Parliament.	Opened.			Dissolved.			Duration.			No. of Sessions.
	Yr.	Mo.	Dy.	Yr.	Mo.	Dy.	Yrs.	Mths.	Dys.	
1	22	May	1856	19	Dec.	1857	1	6	28	2
2	23	March	1858	11	April	1859	1	0	19	2
3	30	Aug.	1859	10	Nov.	1860	1	2	11	2
4	10	Jan.	1861	10	Nov.	1864	3	10	0	5
5	24	Jan.	1865	15	Nov.	1869	4	9	22	6
6	27	Jan.	1870	3	Feb.	1872	2	0	7	3
7	30	April	1872	28	Nov.	1874	2	6	29	4
8	27	Jan.	1875	12	Oct.	1877	2	8	15	3
9	27	Nov.	1877	9	Nov.	1880	2	11	13	3
10	15	Dec.	1880	23	Nov.	1882	1	11	8	3
11	3	Jan.	1883	7	Oct.	1885	2	9	4	6
12	17	Nov.	1885	26	Jan.	1887	1	2	9	2
13	8	March	1887	19	Jan.	1889	1	10	11	3
14	27	Feb.	1889	6	June	1891	2	3	10	4
15	14	July	1891	25	June	1894	2	11	11	4
16	7	Aug.	1894	5	July	1895	0	10	28	1
17	13	Aug.	1895	8	July	1898	2	10	25	4
18	16	Aug.	1898	11	June	1901	2	9	26	5
19	23	July	1901	16	July	1904	2	11	23	4
20	23	Aug.	1904	12	July	1907	2	10	19	4
21	2	Oct.	1907	14	Sept.	1910	2	11	12	5
22	15	Nov.	1910	6	Nov.	1913	2	11	22	5
23	23	Dec.	1913	21	Feb.	1917	3	1	30	5
24	17	April	1917	Still sitting.			.....			.....

## STATE MINISTRIES.

The various Ministries which have held office since the establishment of Responsible Government, together with the duration in office of each, are shown below:—

Number.	Ministry.			From—	To—	Duration.	
	Name.					months.	days.
1	Donaldson	...	...	6 June 1856	25 Aug. 1856	2	20
2	Cowper	...	...	26 Aug. 1856	2 Oct. 1856	1	7
3	Parker	...	...	3 Oct. 1856	6 Sept. 1857	11	4
4	Cowper	...	...	7 Sept. 1857	26 Oct. 1859	25	20
5	Forster	...	...	27 Oct. 1859	8 Mar. 1860	4	11
6	Robertson	...	...	9 Mar. 1860	9 Jan. 1861	10	1
7	Cowper	...	...	10 Jan. 1861	15 Oct. 1863	33	6
8	Martin	...	...	16 Oct. 1863	2 Feb. 1865	15	18
9	Cowper	...	...	3 Feb. 1865	21 Jan. 1866	11	19
10	Martin	...	...	22 Jan. 1866	26 Oct. 1868	33	5
11	Robertson	...	...	27 Oct. 1868	12 Jan. 1870	14	17
12	Cowper	...	...	13 Jan. 1870	15 Dec. 1870	11	3
13	Martin	...	...	16 Dec. 1870	13 May 1872	16	28
14	Parkes	...	...	14 May 1872	8 Feb. 1875	32	26
15	Robertson	...	...	9 Feb. 1875	21 Mar. 1877	25	13
16	Parkes	...	...	22 Mar. 1877	16 Aug. 1877	4	26
17	Robertson	...	...	17 Aug. 1877	17 Dec. 1877	4	1
18	Farnell	...	...	18 Dec. 1877	20 Dec. 1878	12	3
19	Parkes	...	...	21 Dec. 1878	4 Jan. 1883	48	15
20	Stuart	...	...	5 Jan. 1883	6 Oct. 1885	33	2
21	Dibbs	...	...	7 Oct. 1885	21 Dec. 1885	2	15
22	Robertson	...	...	22 Dec. 1885	25 Feb. 1886	2	4
23	Jennings	...	...	26 Feb. 1886	19 Jan. 1887	10	25
24	Parkes	...	...	20 Jan. 1887	16 Jan. 1889	23	28
25	Dibbs	...	...	17 Jan. 1889	7 Mar. 1889	1	19
26	Parkes	...	...	8 Mar. 1889	22 Oct. 1891	31	15
27	Dibbs	...	...	23 Oct. 1891	2 Aug. 1894	33	11
28	Reid	...	...	3 Aug. 1894	13 Sept. 1899	61	11
29	Lyne	...	...	14 Sept. 1899	27 Mar. 1901	18	14
30	See	...	...	28 Mar. 1901	14 June 1904	38	18
31	Waddell	...	...	15 June 1904	29 Aug. 1904	2	15
32	Carruthers	...	...	30 Aug. 1904	1 Oct. 1907	37	2
33	Wade	...	...	2 Oct. 1907	20 Oct. 1910	36	19
34	McGowen	...	...	21 Oct. 1910	29 June 1913	32	9
35	Holman	...	...	30 June, 1913	15 Nov. 1916	40	16
36	Holman	...	...	16 Nov. 1916	Still in office.	.....	

The Holman Ministry, which is in office, consists of the following members:—

Premier and Colonial Treasurer	...	...	Hon. W. A. HOLMAN, M.L.A.
Colonial Secretary	...	...	Hon. G. W. FULLER, M.L.A.
Attorney-General	...	...	Hon. D. R. HALL, M.L.A.
Vice-President of the Executive Council and Minister for Public Health and Local Government.	...	...	Hon. J. D. FITZGERALD, M.L.C.
Solicitor-General and Minister of Justice	...	...	Hon. J. GARLAND, K.C., M.L.C.
Secretary for Lands and Minister for Forests	...	...	Hon. W. G. ASHFORD, M.L.A.
Secretary for Public Works & Minister for Railways	...	...	Hon. R. T. BALL, M.L.A.
Secretary for Mines and Assistant Treasurer	...	...	Hon. J. C. L. FITZPATRICK, M.L.A.
Minister for Agriculture	...	...	Hon. W. C. GRAHAME, M.L.A.
Minister for Labour and Industry	...	...	Hon. G. S. BREEBY, M.L.A.
Minister of Public Instruction	...	...	Hon. A. G. F. JAMES, M.L.A.
Member of the Executive Council (without portfolio)	...	...	Hon. D. STOREY, M.L.A.

Under the provisions of the Ministers' Salaries Act of 1908, the following annual payments from the Consolidated Revenue Fund are authorised:—

	£
The Premier in addition to his salary as Minister of the Crown...	500
The Attorney-General...	1,520
Six Ministers of the Crown, £1,370 each ...	8,220
The Vice-President of the Executive Council ...	800
Total...	£11,040

The Constitution Act of 1902 authorises the payment of £1,000 per annum as salary for the office of Solicitor-General.

COST OF PARLIAMENT—NEW SOUTH WALES.

The following statement shows the cost of Parliamentary Government in New South Wales during the five financial years 1913-1917:—

Head of Expenditure.	1913.	1914.	1915.	1916.	1917.
<b>Governor—</b>	£	£	£	£	£
Governor's salary ... ..	5,000	5,000	5,000	5,000	5,000
Official Secretary ... ..	400	400	400	400	400
Private Secretary ... ..	350	350	350	350	350
Aide-de-Camp ... ..	350	350	350	350	290
Orderlies ... ..	803	883	912	796	85
Additions, Repairs and maintenance of Residences ... ..	1,180	1,266	4,845	1,653	1,399
Miscellaneous ... ..	1,263	2,285	1,053	1,547	2,570
Total ... ..	£ 9,346	10,534	12,910	10,096	10,094
<b>Executive Council—</b>					
Salaries of Officers ... ..	108	...	...	...	145
Other Expenses ... ..	...	...	...	...	...
Total ... ..	£ 108	...	...	...	145
<b>Ministry—</b>					
Salaries of Ministers ... ..	11,040	11,040	11,038	11,040	11,040
Other expenses ... ..	2,777	1,150	1,219	1,298	988
Total ... ..	£ 13,817	12,190	12,257	12,338	12,028
<b>Parliament—</b>					
<b>The Legislative Council—</b>					
Railway passes ... ..	£ 5,855	5,883	5,903	6,070	6,929
<b>The Legislative Assembly—</b>					
Allowances to Members ... ..	38,887	37,354	40,541	40,335	37,681
Railway passes ... ..	9,699	10,382	10,723	10,387	11,262
Other expenses (Postage Stamps, &c.) ... ..	1,816	1,732	2,539	1,770	1,753
	£ 50,402	49,468	53,803	52,492	50,696
<b>Miscellaneous—</b>					
Fees and expenses of Parliamentary Standing Committee on Public Works ... ..	5,980	3,310	6,894	6,225	3,833
Salaries of Officers and Staff ... ..	21,882	22,652	22,073	21,454	21,339
Printing ... ..	10,823	12,005	9,646	14,967	17,158
Hansard (including Salaries) ... ..	7,378	6,775	6,540	7,121	6,969
Library ... ..	684	567	675	677	544
Water, power, light, and heat ... ..	682	561	740	575	462
Postage, stores, and stationery ... ..	698	1,002	340	947	596
Refreshment Rooms ... ..	106	208	329	3,339	2,489
Miscellaneous ... ..	2,005	2,461	2,756		
	£ 50,236	49,544	49,993	55,305	53,390
<b>Total Parliament</b>	£ 106,493	104,895	109,699	113,867	111,015
<b>Electoral Office and Elections—</b>					
Salaries ... ..	995	813	875	1,123	1,832
Elections, Printing of Electoral Rolls, expenses of Electoral Registrars, and contingencies ... ..	34,867	53,010	24,112	*56,491	50,047
Total ... ..	£ 35,862	53,823	24,987	57,614	51,879
<b>Royal Commissions and Select Committees</b>					
Fees, &c. ... ..	3,492	4,578	4,231	4,114	6,171
Miscellaneous ... ..	2,170	840	1,275		
Total ... ..	£ 5,662	5,418	5,506	4,114	6,171
<b>GRAND TOTAL</b>	£ 171,288	186,890	165,359	198,029	191,332

\* Includes £30,244 for Liquor Referendum.

### PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS.

As soon as practicable after the commencement of the first session of every Parliament, a joint committee of members of the Legislative Council and Legislative Assembly, called the Parliamentary Standing Committee on Public Works, is appointed by ballot. Three members of this Committee must be members of the Legislative Council, and four members of the Legislative Assembly.

The Committee has power, under the Public Works Act, to prosecute inquiries, to summons witnesses, and to compel the production of books, &c.

The Chairman receives by way of remuneration £3 3s. for each sitting of the Committee, and every other member £2 2s.

Proposals for public works of an estimated cost exceeding £20,000 must be submitted and explained by a Minister in the Legislative Assembly, and then referred to the Public Works Committee for report.

#### *Commissions and Trusts.*

In addition to the Ministerial Departments, various public services are administered by Commissions, Boards and Trusts; the more important of these are—

- Chief Commissioner for Railways and Tramways.
- Metropolitan Board of Water Supply and Sewerage.
- Hunter District Water Supply and Sewerage Board.
- Sydney Harbour Trust Commissioners.
- Water Conservation and Irrigation Commission.
- Housing Board.
- Commissioners of the Government Savings Bank of New South Wales.
- Board of Fire Commissioners of New South Wales.
- Metropolitan Meat Industry Board.
- Forestry Commission.

In each case the authority controls a specific service, and administers the statute law in relation to it.

## DEFENCE.

### DEFENCE LEGISLATION.

Upon the inauguration of the Commonwealth the duty of providing for the defence of Australia devolved upon the Federal Government.

The Commonwealth of Australia Constitution Act, 1900, empowered the Commonwealth Parliament to legislate for the naval and military defence of the Commonwealth, and of the several States, and for the control of the forces to execute and maintain the laws of the Commonwealth; the Governor-General, as Commander-in-Chief, authorised the transfer of the defence arrangements of each State to the Commonwealth in March, 1901. Statutes in relation to defence were enacted in 1903 and subsequent years, particular provision in regard to naval defence being contained in the Naval Agreement Act, 1903-1912, and in the Naval Defence Act, 1910-1912. The earlier enactments of the Commonwealth Government in regard to defence provided machinery to systematise the defence forces, and to secure efficient administration. The divisions of militia and volunteers were retained, the permanent forces consisting of persons bound for a term of continuous service, and the citizen forces being at the call of the Commander-in-Chief in time of war. In 1909 an innovation was made, in that universal obligation to military and naval training was imposed, and arrangements were made for registration and enrolment for training; in 1910 the period of compulsory training was extended from two to seven years.

*Administration.*

A Council of Defence has been constituted to deal with matters of policy its functions being chiefly to establish and maintain continuity in defence policy, to act as advisors to Parliament and Minister, to secure standard of efficiency, and to ensure a measure of decentralisation. A Military and a Naval Board supervise the administration of the Military and Naval Forces respectively.

**LIABILITY FOR SERVICE IN TIME OF WAR.**

The Defence Acts, 1903-1917, provide that all male persons—unless specifically exempted—who have resided in Australia for six months, and who are British subjects between the ages 18 and 60 years, may be called upon to serve in the Citizen forces in time of war. The order in which they may be called upon is as follows:—

1. From 18 to 35 years of age—All unmarried men or widowers without children.
2. From 35 to 45 years of age—All unmarried men or widowers without children.
3. From 18 to 35 years of age—All married men or widowers with children.
4. From 35 to 45 years of age—All married men or widowers with children.
5. All men aged 45 to 60 years.

The specific exemptions are as follows:—(a) Persons reported unfit by medical authorities; (b) Members and officers of Parliament; (c) Judges and police, stipendiary or special magistrates; (d) Ministers of religion; (e) Police or prison employees; (f) Persons employed in lighthouses; (g) Medical practitioners or nurses in public hospitals; (h) Persons not substantially of European origin or descent; (i) Persons whose conscientious beliefs do not allow them to bear arms; (j) Persons engaged in any employment specified by regulations or by proclamation. As regards persons in the classes (g), (h), and (i), the exemptions do not extend to duties of a non-combatant nature.

**UNIVERSAL TRAINING.**

Universal training, as established by the Defence Act, came into operation on 1st January, 1911; persons who reached the age of 18 years in or before the year 1911 were exempted from this obligation.

The prescribed training is as follows:—

Rank.	Age.	Service.	Annual Training.
	years.	years.	
Junior Cadets ... ..	12-14	2	90 hours.
Senior Cadets ... ..	14-18	4	40 drills each year—4 whole days, (four hours), 12 half-days (two hours), and 24 night drills (one hour). Minimum service, 64 hours per annum.
Citizen Forces— Naval Forces, Artillery and Engineer Arms, and Army Service Corps.	18-25	7	Drills equivalent to 25 whole days (six hours) of which, at least, 17 days must be in camps of continuous training.
Other ... ..	18-25	7	Drills equivalent to 16 whole days (six hours), of which, at least, 8 days must be in camps of continuous training.
Citizen Forces ... ..	25-26	1	One registration or one muster parade.

Members of Senior Cadets and Citizen Forces who have not attained a required standard of efficiency during each annual training must attend an equivalent additional training for each year in which they failed to qualify as efficient.

Exemptions from training in time of peace include persons medically unfit, school-teachers who have qualified as instructors or officers of the Junior or Senior Cadets, members of Permanent Naval or Military Forces, or of police or prison services, and persons whose *bona fide* residence is not within 5 miles of the nearest training place. Persons not substantially of European origin are exempt except from duties of a non-combatant nature. Exemptions may be granted to persons whose attendance at the prescribed training would impose great hardship upon them, their parents or dependents; to persons employed in a factory established in pursuance of the Defence Act or in a civil capacity in connection with the Defence Forces; and to persons who have served on war service.

Trainees may not be imprisoned in default of payment of pecuniary penalties for offences against the universal training provisions, but may be committed to the custody of a prescribed authority. Offences against the Defence Act committed by cadets under 16 years of age must be tried, as far as practicable, in Children's Courts.

#### MILITARY ORGANISATION.

The Commonwealth is organised for Defence purposes into six military districts, corresponding as far as practicable with the political divisions into States. The second military district represents the State of New South Wales, excepting the North Coast district, the Barrier district, and the Riverina, which are attached to Queensland, South Australia, and Victoria respectively.

#### MILITARY FORCES.

Permanent military forces are organised for Administrative and Instructional Staffs, also for Expeditionary Forces in time of war. The Active Citizen Military Forces consist of militia and volunteers, trainees from 18 to 26 years of age, and officers on the unattached list; the Military Reserve Forces include officers on Reserve of Officers' list, members of Rifle Clubs who are allotted to the Military Reserve Forces, and all persons liable to serve in the Commonwealth in time of war who are not included in the active forces.

The military forces are not liable to serve beyond the Commonwealth unless they voluntarily agree to do so. The Citizen Forces may be called out for active service in time of war or for the protection of a State from domestic violence, but may not be utilised in connection with an industrial dispute.

The subjoined table contains information regarding the military forces in New South Wales on 31st December of each year since 1914; the figures represent the number attached to the Second Military District of the Commonwealth:—

Classification.	1914.	1915.	1916.	Classification.	1914.	1915.	1916.
<b>Permanent—</b>				<b>Volunteer—</b>			
Headquarters Staff ...	35	43	43	Automobile Corps ...	9	9	...
Artillery ...	401	68	192	Army Nursing Service	26	26	26
Engineers ...	81	396	127	<b>Total Volunteer ...</b>	<b>35</b>	<b>35</b>	<b>26</b>
Army Service Corps ...	58	51	47				
Army Medical Corps	16	16	5	<b>Total Permanent, Militia, and Volunteer ...</b>	<b>21,399</b>	<b>26,313</b>	<b>28,038</b>
Ordnance Department	79	96	93				
Instructional Staff ...	181	433	433				
Other ...	61	58	125				
<b>Total Permanent...</b>	<b>912</b>	<b>1,161</b>	<b>1,065</b>				
				Area Officers ...	72	...	...
<b>Militia—</b>				Area Medical Officers...	20	20	18
Light Horse ...	2,297	2,939	2,930	Engineer and Railway Staff Corps ...	9	9	9
Artillery ...	1,460	1,679	1,834	Chaplains ...	59	77	79
Engineers ...	960	1,072	1,481	Cadets, Senior (Universal Training) ...	33,304	31,235	32,050
Infantry ...	14,486	17,756	19,326	Rifle Clubs ...	16,451	30,460	35,314
Intelligence Corps ...	15	...	...	Unattached List of Officers ...	69	69	69
Army Service Corps...	450	612	556	Reserve of Officers ...	208	208	208
Army Medical Corps	776	1,047	820	Medical Corps Reserve	73	73	72
Army Veterinary Corps ...	8	12	...				
<b>Total Militia ...</b>	<b>20,452</b>	<b>25,117</b>	<b>26,947</b>	<b>Grand Total ...</b>	<b>71,664</b>	<b>88,464</b>	<b>95,857</b>

JUNIOR CADETS.

The training of Junior Cadets embraces physical training, elementary marching drill, and the attainment of a certain standard of efficiency in not less than one of the following subjects:—Miniature rifle shooting, swimming, running in organised games, first aid. In schools in the naval training areas instruction is given also in mariners' compass and elementary signalling. The training is commenced on 1st July of the year in which the cadet reaches the age of 12 years and is conducted by school teachers, who are instructed for this purpose by a staff of instructors maintained by the Defence Department.

Junior Cadets are not required to register, but are examined medically. Particulars regarding the medical examinations during the year ended 31st December, 1916, are given in the subjoined table:—

Military District.	Boys medically examined.			Percentage of total examined.	
	Total.	Medically fit.	Unfit and temporarily unfit.	Medically fit.	Unfit and temporarily unfit
1st—Queensland ...	6,471	6,269	202	96.9	3.1
2nd—New South Wales ...	19,759	19,332	427	97.8	2.2
3rd—Victoria ...	14,212	13,935	277	98.0	2.0
4th—South Australia ...	4,236	4,135	101	97.6	2.4
5th—Western Australia ...	3,916	3,823	93	97.6	2.4
6th—Tasmania ...	1,688	1,618	70	95.9	4.1
<b>Commonwealth ...</b>	<b>50,282</b>	<b>49,112</b>	<b>1,170</b>	<b>97.7</b>	<b>2.3</b>

## SENIOR CADETS.

Boys are required to register for military training as Senior Cadets in January and February, and to commence training on 1st July of the year in which they reach the age of 14 years. After medical examination they are organised in naval or military units and trained in elementary exercises or in musketry on open ranges, but are not required to attend camp. The following return shows the registrations and medical examinations of Senior Cadets during the year ended 31st December, 1916 :—

Military District.	Total Registrations.	Medically examined.	Medically fit.		Exemptions granted.*	Number actually in Training, as at 31st Dec., 1916.
			Number.	Percentage of medically examined.		
1st—Queensland ...	14,403	14,272	12,241	85·7	2,085	12,209
2nd—New South Wales ...	37,303	36,473	32,835	90·0	4,175	32,050
3rd—Victoria ...	31,457	31,147	27,920	89·6	3,357	27,434
4th—South Australia ...	10,217	10,195	9,252	90·7	943	9,242
5th—Western Australia ...	6,312	6,292	5,829	92·6	472	5,622
6th—Tasmania ...	3,928	3,748	3,178	84·7	722	3,147
Commonwealth ...	103,620	102,127	91,255	89·4	11,754	89,704

\* Chiefly on account of distance from training places.

It will be seen that only a very small percentage failed to pass the medical examination, and that percentage would be further reduced by the exclusion of lads deemed only temporarily unfit.

## CITIZEN FORCES.

On 1st July of the year in which the Senior Cadets reach the age of 18 years they are transferred, after medical examination, to the Citizen Forces. In the allotment to the various arms the wishes of the individuals are considered as far as practicable; only specially selected men are accepted for service with the Artillery, Engineers, and Army Service and Medical Corps. Service in the Light Horse is voluntary, the recruit being required to provide his own horse. In other arms voluntary enlistment ceased on 1st July, 1912, when the first batch of trainees completed their term as Senior Cadets; volunteers serving on that date were allowed to continue their service until the expiration of their period of enlistment, officers and non-commissioned officers only being eligible to re-enlist for further periods. With regard to persons who have served on war service, however, special provision for their voluntary enlistment in the Citizen Forces was made in the Defence Act of 1917.

On completion of their period of compulsory service, men may be enrolled in the Reserve Forces.

*Reserves—Rifle Clubs.*

Members of Rifle Clubs constitute the reserves for the militia. A course of musketry is held annually, and the clubs are subsidised by the Defence Department. At 31st December, 1916, there were 407 rifle clubs in New South Wales, with 35,314 members.

## NAVAL DEFENCE.

In 1885 Australia, previously attached to the China and East Indies Naval Station, was constituted as a separate naval command. As an Imperial Naval base, New South Wales was accorded a large measure of naval pro-

tection, and prior to the Federation of the Australian Colonies, supplemented the Imperial Naval Forces by local organisations, such as the Naval Brigade and Naval Artillery Volunteers. Under agreement between the Australian Colonies and the Imperial Government, in 1891 and subsequent years, the Imperial vessels on the Australian Naval Station were reinforced by an auxiliary squadron of five third-class cruisers and two torpedo gunboats to assure protection to trade in Australasian waters. The agreement was renewed by the Commonwealth Government, in 1903, for a period of ten years, and by a subsequent arrangement it was agreed that the squadron provided by the Imperial Government for the Australian Station should consist of one first-class armoured cruiser, three second-class, and five third-class cruisers. The Australian Government contributed—to a maximum of £200,000 per annum—five-twelfths of the annual cost of maintenance, and the Government of New Zealand paid one-twelfth up to a maximum of £40,000 per annum.

Though connected immediately with the ports of Australia and New Zealand, the sphere of operations of this fleet extended to the Australian, China, and East Indies stations. One ship was kept in reserve, and three others, partly manned, were used as drill ships for training the Royal Naval Reserve, the remainder being kept in commission fully manned. The drill ships and one other vessel were manned by Australians and New Zealanders, paid at special rates, and controlled by officers of the Royal Navy and Royal Naval Reserve.

In 1908 the Commonwealth Government decided to raise an Australian naval force, and to build submarines and torpedo-boat destroyers for the protection of the Australian coast, and to replace the squadron of Imperial vessels maintained under the Naval Agreement; in pursuance of this policy contracts were made for the construction of three destroyers. Subsequently, at the Imperial Defence Conference in 1909, the Commonwealth Government undertook to provide a fleet unit consisting of one armoured cruiser, three second-class protected cruisers, destroyers, and two submarines.

In 1911 Admiral Sir Reginald Henderson visited Australia to advise the Commonwealth Government in the matter of naval defence. His recommendations involve the gradual acquisition of a fleet of fifty-two vessels, requiring a complement of some 15,000 men; the construction of docks; and the establishment of six naval bases and eleven sub-bases.

Towards the end of 1913, the advice of Sir Maurice Fitzmaurice, an engineering expert, was obtained regarding the construction of naval bases.

#### *Australian Naval Station.*

The boundaries of the Australian Naval Station are :—On the north from 95° E. longitude by the parallel of 13° S. latitude to 120° E. longitude; thence north to 11° S. latitude; thence to the boundary with Dutch New Guinea on the south coast in about longitude 141° E.; thence along the coast of Papua to 8° S. latitude; thence east to 155° E. longitude; on the east by the meridian of 155° E. longitude to 15° S. latitude; thence to 28° S. latitude on the meridian of 170° E. longitude; thence south to 32° S. latitude; thence west to the meridian of 160° E. longitude; thence south; on the south, by the Antarctic Circle; on the west, by the meridian of 95° E. longitude.

The Imperial naval establishments at Sydney were transferred to the Commonwealth on 1st July, 1913, and after the arrival in Sydney of the battle cruiser "Australia," on 4th October, 1913, the Imperial war vessels on the Australian Station were transferred to New Zealand.

*Classification of Naval Forces.*

The naval forces of the Commonwealth consist of the Permanent and the Citizen naval forces. The Permanent forces are those who engage for continuous naval service; the Citizen include the partially-paid naval reserves, previously the naval militia, and the trainees under the universal training system.

The naval forces may be required to serve for training or other service beyond the limits of the Commonwealth; the permanent are liable at all times to be employed on any naval service; the citizen forces are not liable to continuous service in time of peace, and may be called out for active service by proclamation only.

The Defence Act provides that a proportion of the trainees under the universal training system is allotted to the naval forces, the navy having first choice in selection. The senior naval cadets in New South Wales are drawn chiefly from the maritime districts in the neighbourhood of Sydney and Newcastle.

The number of naval trainees in New South Wales under the universal training system at 1st July, 1912-17, is shown below:—

Year (1st July).	Sydney.		Newcastle.	
	Adults.	Cadets.	Adults.	Cadets.
1912	158	780	37	204
1913	322	698	77	241
1914	339	692	112	257
1915	460	785	140	298
1916	433	778	161	314
1917	484	788	167	293

*Naval Training Ship.*

The naval training ship "Tingira" was commissioned in June, 1912, when 100 boys, selected from the several States of the Commonwealth, commenced training. The ship is moored in Rose Bay, Port Jackson, and has accommodation for 300 boys. On the completion of their course on the "Tingira," which lasts about a year, the trainees are drafted into the permanent naval forces. The age of entry is 14½ to 16 years, and trainees engage to serve until they reach the age of 25 years.

## UNIFORM AND EQUIPMENT.

In order to render Australia self-contained in the matter of uniform and equipment for defence purposes, factories have been established throughout the Commonwealth for the manufacture of small arms, cordite, harness, saddlery, and leather accoutrements, and clothing.

The small arms factory, which was opened on 8th June, 1912, is situated at Lithgow, New South Wales; the factory site contains about 123 acres, and the buildings have a floor-space of nearly 2 acres.

## ROYAL NAVAL HOUSE.

The Royal Naval House, erected in Sydney exclusively for the accommodation of the men of the British Navy, was built in 1889, at a total cost inclusive of land, of £25,000, contributed by citizens and by the Government of New South Wales. A new wing was added, in 1908, at a cost of £8,600. The House contains large reading, smoking, dining, and billiard rooms,

besides a gymnasium, and other accessories. Sleeping accommodation is available for 450 men. The institution is self-supporting, and is controlled by a Superintendent, a Committee elected by the Trustees from among their number, and a few Naval Officers, with an Honorary Secretary and Treasurer. An annual grant from the Government of New South Wales is devoted to maintaining the House during the absence of the Fleet from Sydney. It is now used by the petty officers and men of the Australian Navy.

#### SOLDIERS' CLUB.

The first Soldiers' Club to be established in the State was opened on 3rd June, 1915, at Sydney, in a large building centrally situated in the city.

The rooms are now freely used by soldiers of the Australian Imperial Force, the building being maintained by public subscriptions.

#### WAR CONTINGENTS.

Although service in the military forces beyond Commonwealth territory is not obligatory, in time of war contingents of volunteers have been sent from Australia to co-operate with the Imperial Forces. The first contingent was despatched from New South Wales to the Soudan Campaign in 1885; large numbers of troops were sent from all the Australian States to the South African war, which commenced in 1899, and a naval contingent proceeded to China at the time of the Boxer rebellion in 1900.

#### EUROPEAN WAR.

##### *Naval and Military Operations.*

Upon the outbreak of war in August, 1914, the control of the Australian Navy was transferred to the British Admiralty, and an offer to despatch and maintain a fully equipped expeditionary force for service abroad was accepted by the Imperial Government, the local forces being immediately mobilised for home defence.

The first expedition, consisting of military and naval forces, sailed from Australia on 19th August, 1914, to seize and occupy German possessions in the Pacific; German New Guinea and neighbouring islands were occupied and have since been garrisoned by a special force organised for service in the tropics.

The Australian Imperial Expeditionary Forces were despatched to Egypt where the first convoy landed in December, 1914; in February, 1915, the Australians assisted in the defence of Egypt against the Turkish invasion, and from April to December were actively engaged in the Dardanelles. Since 1916 the Australian Force has been operating in the defence of Egypt, on the Western front in Europe, and in Mesopotamia and Palestine.

From the outbreak of war in August, 1914, to October, 1917, the total enlistments of soldiers for the Australian Imperial Force were 382,864, and the total embarkations were 298,436. Of the men on active service 34,731 have died; 4,502 are missing or prisoners of war; 42,988 have returned to Australia, leaving 216,215 on the strength abroad as at October, 1917.

Immediately after the declaration of war the Australian war vessels were actively employed in the destruction of German Pacific wireless stations and in search for enemy warships known to be cruising in the Pacific. The search was suspended in order to assist in the convoy of the New Zealand Expedition to Samoa and to take part in the Australian expedition against German New Guinea. During the latter operations the submarine A.E.1. was lost whilst engaged on patrol work; the cause of the disaster being unknown. The

German gunboat "Komet," and the Government yacht "Nusa," with other prizes were captured; the "Komet," having been renamed "Una," is now attached to the Australian navy.

Whilst the Australian war vessels were escorting the first Australian and New Zealand Imperial Expeditionary Forces to Egypt, news was received of the presence of the German cruiser "Emden" at Cocos Island; the H.M.A.S "Sydney" proceeded to Cocos Island, and after a short engagement, on the 9th November, 1914, completely disabled the "Emden," which was driven ashore on North Keeling Island and became a total wreck.

The submarine AE2 was lost in May, 1915, whilst operating in the Sea of Marmora.

#### WAR LEGISLATION.

A brief review is appended of the special legislation enacted in the Parliaments of New South Wales and of the Commonwealth in order to cope with emergencies arising from the state of war, and to organise the national resources for war purposes.

#### STATE ACTS.

Shortly after the declaration of war, the Postponement of Debts Act, 1914, was passed to empower the Governor to postpone, by proclamation, the payment of debts; the interest chargeable in respect of a postponed debt will be continued, but not payable during postponement. The Act will continue in force until six months after the war. There has been no necessity, so far, for the issue of any proclamation.

The Commissioners of the Government Savings Bank were empowered under the Government Savings Bank Amendment Act, 1914, to prescribe conditions and periods of notice to be given in respect to withdrawals.

The Motor Tax Management Acts, 1914 and 1916, the Motor Vehicle (Taxation) Act, 1916, the Finance (Taxation) Acts, 1914 and 1915, the Finance Taxation Management Act, 1915, the Income Tax Act, 1916, and the Finance Taxation (Amendment) Act, 1917, provide for imposing and collecting additional taxes upon motor vehicles, incomes, racing clubs and associations, bookmakers and betting tickets. Under the Totalizator Act, 1916, the Consolidated Revenue Fund will receive a commission on all moneys paid into totalizators on racecourses. The Navigation (Amendment) Act, 1917, provides for an increase in pilotage rates.

The Commonwealth War Loan (Investment Enabling) Act, 1915, and the Commonwealth Loans (Investment Enabling) Act, 1915, authorise trustees and others to invest in Stock, Treasury Bills, and Bonds of the Commonwealth any property which they are not expressly forbidden to invest in Government Stock or securities.

A number of Acts were passed for the benefit of men enlisting in the expeditionary forces, viz. :—The Constitution Amendment Act, which enables members of the State Parliament to serve in the military or naval forces without incurring disqualification by reason of accepting an office of profit under the Crown; the Apprentices Amendment Act, 1915, which protects the interests of apprentices who enlist for war service; the Probate Duties War Exemption Act, 1915, which exempts from stamp and probate duties the estates of persons dying on active service, or as the result of injuries or diseases contracted on active service, with the Commonwealth or other British forces; also any estates the subject of settlement, trust, disposition, conveyance, transfer, vesting, purchase, investment, or gift made by persons so dying.

The Medical Practitioners Amendment Act, 1915, was passed to permit medical students at the Sydney University who desire to volunteer for war service to complete their course in a shorter period of time than five years, the minimum fixed by the Medical Practitioners Act of 1912. Graduates of German and Austrian Universities and Medical Schools, and German and Austrian subjects are excluded from registration as medical practitioners in New South Wales.

The Trustees Delegation of Powers Act, 1915, authorises trustees, executors, and administrators temporarily absent, or about to depart from, the State, to delegate their powers for a maximum term of two years.

Under the Returned Soldiers Settlement Act, 1916, land may be set apart for the settlement of members of the Commonwealth Naval and Military Forces, or residents of Australia joining the forces of Great Britain, who return to New South Wales after service abroad; special tenures are created for these settlers, and financial and other assistance may be granted to them.

The National Relief Fund Act, 1914 provided for the amalgamation of funds instituted for purposes of relief in connection with certain mining disasters and the South African War. The fund so formed may be applied for the relief of persons injured, and the dependents of persons killed or injured in war or public disaster.

Under the Destitute Children's Society (Vesting) Act, 1916, land and buildings held by the Society at Randwick were vested in the Crown for use as a hospital home for invalided soldiers and sailors or for such other purpose as the Governor may determine. The property had been used as an institution for destitute children until 1915 when it was converted into a military hospital. The moneys and securities held by the Society were vested, under the Act, in the Public Trustee to be used for the care of defective children.

With regard to food supplies, important enactments were passed, viz., the Necessary Commodities Control Act, 1914, which provided for the control of prices of articles used for ordinary food consumption, and of coal, firewood, gas, and other fuel; the fixing of prices was taken over by the Commonwealth Government in July, 1916, and the operations of the State body were suspended; the Wheat Acquisition Acts, 1914 and 1915, which enabled the State Government to compulsorily acquire the wheat harvest of 1914-15; and the Meat Supply for Imperial Uses Act, 1915, to secure supplies of meat for the use of the Imperial Government during the war.

The Munitions Act, 1915, authorises the Chief Commissioner for Railways to manufacture and supply arms and munitions of war.

The Commonwealth Powers (War) Act.—The Commonwealth Government had made arrangements for submitting to the vote of the electors in December, 1915, certain proposals for extending the powers of the Commonwealth Parliament, but in the preceding month an agreement was made between the State Premiers and the Prime Minister of the Commonwealth that the Premiers would bring forward in their respective Parliaments legislation for referring these powers to the Federal Parliament, and that the Commonwealth Government would postpone the referendum during the currency of the war. The New South Wales Act will operate during the war and for twelve months after the declaration of peace.

Under this Act the following matters are referred to the Commonwealth:—

- (i) Trade and Commerce.
- (ii) Corporations, including the creation, dissolution, regulation and control of corporations (State and Foreign), exclusive of municipalities, and religious, charitable, scientific, or artistic societies.

- (iii) Employment and unemployment ; strikes and lock-outs ; maintenance of Industrial peace ; settlement of Industrial disputes.
- (iv) Conciliation and Arbitration for the prevention and settlement of Industrial disputes relating to State Railways.
- (v) Trusts, combinations, monopolies, and arrangements relating to the production, manufacture or supply of goods, or the supply of services, including ownership of means of production, manufacture, or supply.
- (vi) The conduct, by or under the control of the Commonwealth, of any industry or business of producing, manufacturing or supplying specified goods or services, which have been declared to be subjects of monopolies, and the acquisition of properties connected with such industries. This does not apply to undertakings carried on by State Governments, nor to State Railways ; and the rates and fares charged by Railway authorities cannot be altered.

The Liquor Referendum Act, 1916, submitted to a referendum the question of the hour at which premises licensed for the sale of intoxicating liquors should be closed during the currency of the war. It was brought forward in response to a popular demand for the restriction of the consumption of alcoholic liquors by closing licensed houses earlier than 11 p.m., the statutory closing hour. As the result of the referendum the closing hour was altered to 6 p.m., and the Liquor Amendment Act, 1916, was passed to provide for the abatement of rents of licensed premises, the reduction of license fees, the postponement of payment of mortgages, &c., the closing of bars during prohibited hours, and the suspension of the taking of the local option vote at the next general election of the State Parliament.

The Enemy Contracts Annulment Act, 1915, provides for the annulment or termination of contracts with or for the benefit of enemy subjects. The Naturalised Subjects Franchise Act, 1916, suspends from certain privileges naturalised British Subjects of enemy origin, *i.e.*, persons who at the time of naturalisation were subjects of any country with which the British Empire is at war. During the continuance of the war no such person may participate, as candidate or elector, in the elections of the State Parliament, or municipal or shire councils, nor sit in such assemblies, nor officiate as justice of the peace, coroner, member of licensing bench, or juror, nor obtain a license or renewal of license under the Liquor Act. No person convicted under the Commonwealth War Precautions Act under circumstances which indicate disloyalty will be allowed to vote at Parliamentary, municipal, or shire elections.

The Legislative Assembly Continuance Act, 1916, extended for a maximum period of one year the duration of the Legislative Assembly of New South Wales, which would have expired by effluxion of time in December, 1916. The Crimes Prevention Act, 1916, was passed with the object of providing an effective method of dealing with the offence of inciting to the commission of crime.

#### COMMONWEALTH ACTS.

In the Federal Parliament the following legislation was passed to enable the Government to make adequate provision for the safety and defence of the Commonwealth :—

The War Precautions Act, 1914, and two amendments in 1915, empower the Governor General to make regulations and orders for the safety of the Commonwealth, in particular with a view to prevent persons communicating with the enemy in order to jeopardise the operations of His Majesty's forces,

or to assist the enemy ; to prevent the transmission abroad, except through the post, of any letter, newspaper, &c. ; to secure the safety of means of communication, railways, docks, harbours, and public works ; to prevent the spread of reports likely to cause disaffection or alarm ; to secure the navigation of vessels in accordance with the direction of the naval authorities ; to prevent assistance to the enemy ; to secure the successful prosecution of the war ; and to cause the detention of any person in military custody. The Minister for Defence may take possession of any factory or of its output for the production of war supplies, and authority is given for the supervision and detention of aliens, for the application to naturalised persons of regulations relating to aliens, and for the prevention of the exportation of money or goods.

The War Precautions Amendment Act, 1916, authorised regulations regarding the possession and ownership of the property of alien enemies and persons having enemy associations or connections, their trade or business, civil rights and obligations ; also the disposal, use or requisitioning of property or goods of any kind.

The Rules Publication Act, 1916, repealed the clause of the Rules Publication Act, 1903, requiring that 60 days' notice be given of any proposal to make statutory rules.

The War Census Acts of 1915 and 1916 enable the Government to take a census to obtain information regarding the national resources.

The Defence Acts of 1914, 1915 and 1917, amend the defence laws in view of special conditions arising from the state of war and from the despatch of expeditionary forces abroad.

The Customs Act, 1914, gives the Governor-General authority to prohibit the exportation of any goods in time of war.

The Patents, Trade Marks, and Designs Acts, 1914 and 1915, provide for the avoidance or suspension of any patent or licence or registration of trade mark or design for the benefit of a person who is the subject of any State at war with the King, and for the transfer of such rights to other persons.

The Patents (Partial Suspension) Act, 1916, suspends during the continuance of the war, and for six months thereafter, the section of the Patents law, which prescribes that a patent may be voided if it is not worked to an adequate extent in the Commonwealth.

The Trading with the Enemy Acts, 1914, prohibit trade with or for the benefit of the enemy. Persons acting in contravention of these statutes may be prosecuted either summarily or upon indictment ; the authorities are empowered to conduct searches of premises, books, &c., and the High Court, on the application of the Minister, may appoint a controller of a firm or company trading with the enemy, or so affected by the state of war, as to prejudice the effective continuance of its trade or business. The Controller-General of Customs may receive and hold in trust, till after the termination of the war, moneys for the discharge of debts due to enemy subjects.

Under the Trading with the Enemy Act, 1916, provision is made for the appointment of a Public Trustee to act as custodian of the property of persons of enemy nationality or associations, the payment of debts due by enemy subjects, and the winding up of enemy companies ; assignment of debts and transfers of shares by enemy subjects are invalidated. Restrictions on dealings with enemy subjects may continue beyond the period of the war until such time as they are removed by the Governor-General.

The Enemy Contracts Annulment Act, 1915, provides for the annulment of contracts with or for the benefit of the enemy, and for the termination of contracts suspended during or on account of the war.

Important amendments to the law governing the naturalization of aliens are contained in the Naturalization Act, 1917. The applicant is required to satisfy additional requirements, and before a certificate of naturalization may be issued, he must renounce his allegiance to the country of which he was a subject.

The Judiciary Acts of 1914 and 1915 conferred on the High Court of Australia, original jurisdiction in matters of Admiralty or Maritime Jurisdiction, and extended its powers during the war and for six months after, to include trials of indictable offences against the laws of the Commonwealth. The High Court Procedure Act, 1915, determines the procedure in trials of these offences.

The Crimes Act, 1914, and its amendment of 1915, relate to offences against the Commonwealth, such as treason, mutiny, offences against the administration of justice, or relating to coinage, forging, breach of official secrecy, conspiracy, &c.

The Unlawful Associations Act, 1916-1917, was enacted for the suppression of the practices of advocating or inciting to the crimes of taking or endangering of human life, and the destruction or injury of property. Any person who fails to satisfy the Attorney-General that he is a natural-born British subject born in Australia is liable to deportation upon conviction for these offences. The Industrial Workers of the World and any Association, which by its constitution or propaganda incites to crime, were declared unlawful associations. The Act will continue in force until six months after the conclusion of the war.

The Commonwealth Inscribed Stock Act, 1915, amends the principal Acts, 1911-13, to facilitate the raising of war loans.

The War Loan Acts, 1914, (No. 2), 1915, and (United Kingdom) (No. 1), 1916, authorised the Commonwealth Government to borrow money from the Imperial Government; and the War Loans Acts (No. 1 and No. 3), 1915, 1916 and 1917, authorised the raising of loans for war purposes. The War Loan Act (United Kingdom, No. 2) 1916 and 1917, provide that moneys raised by war loans be paid into a special loan fund to be used for war purposes only.

The States Loan Act, 1916, authorised the Commonwealth Government to borrow moneys to be loaned to the States of Victoria, Queensland, South Australia, Western Australia and Tasmania.

The Treasury Bills Act, 1914, authorises the issue of Treasury Bills, and the Treasury Bills Act, 1915, authorises the Treasurer to borrow money from the Australian Notes' Account without issuing Treasury bills.

The Sugar Purchase Acts, 1915 and 1917, and the Freight Arrangements Acts, 1915 and 1917, authorise the Government to borrow money from the Commonwealth Bank, the former for the purchase of sugar and the payment of Customs duty on sugar imported to supply the local shortage, and the latter to obtain freight to carry the wheat crop to oversea markets.

The Wheat Storage Act, 1917, provides for the appointment of a Wheat Commission to make arrangements with the State Governments for the erection of silos and other structures to protect wheat stored in Australia awaiting shipment abroad. The Commonwealth may advance a sum not exceeding £2,850,000 to the States for the erection of the silos.

The Commonwealth Bank Act, 1914, amends the Act of 1911, and makes provision for increasing the capital of the bank, and for the establishment of branches and agencies in other parts of the British Empire.

The Australian Notes Act, 1914, repealed the clause of the principal Act, 1910-1911, which prescribed that Australian notes should bear date of issue from the Treasury.

Additional taxes were imposed by a number of statutes, viz., the Estate Duty Assessment Act, 1914-16, and the Estate Duty Act, 1914, to impose duties upon the estates of deceased persons, exemptions being granted in the case of persons dying, during the war or within one year after its termination, on active service, or as the result of injuries or disease contracted on active service. The Land Tax and Land Tax Assessment Acts, 1914, increased the amount of tax upon land. The Income Tax Assessment and the Income Tax Acts, 1915, imposed a tax upon incomes which was increased under the Income Tax and the Income Tax Assessment Acts of 1916; further increases were imposed in terms of the Income Tax Act, 1917, viz., a tax of £5, or 5 per cent. of taxable income, whichever is the greater, upon the incomes of unmarried men and widowers without children, and a tax of 10 per cent. on cash prizes in lotteries. The Entertainments Tax Assessment and the Entertainments Tax Acts, 1916, provide for the collection of a tax upon payments for admission to entertainments. The War-time Profits Tax Assessment and the War-time Profits Tax Act, 1917, relate to the imposition, assessment, and collection of a tax upon profits from any business arising during the period from 1st July, 1915, to 30th June next after the declaration of peace.

In connection with the administrative arrangements of the Commonwealth Government, the Ministers of State Act, 1915, increased the number of Ministers from seven to eight, thus making provision for the appointment of the Minister for the Navy. This Act was repealed by the Ministers of State Act, 1917, which fixed nine as the maximum number of Ministers, in order that a Minister for Repatriation might be appointed. The Wireless Telegraphy Act, 1915, authorised the transfer of control from the Postmaster-General to the Minister for the Navy.

The Belgian Grant Act, 1914, authorised the appropriation of £100,000 out of Consolidated Revenue in aid of the Government of Belgium.

The War Pensions Acts of 1914-16 make provision for pensions for soldiers and their dependents; details are shown elsewhere in this publication.

The Officers Compensation Act provides for compensation to the widow of Major-General Sir W. T. Bridges, K.C.B., C.M.G., who lost his life on active service in Gallipoli.

The Australian Soldiers' Repatriation Fund Act, 1916, provided for the administration of a fund raised by public subscription for assisting soldiers and sailors and their dependents. The fund was vested in trustees under the presidency of the Prime Minister of the Commonwealth, but was transferred subsequently to the Repatriation Commission, appointed under the Australian Soldiers' Repatriation Act, 1917. The Commission is empowered to make recommendations for regulating the granting of assistance to soldiers upon discharge, to the children under 18 years of age of deceased and incapacitated soldiers, and, in special cases, to soldiers' widows. The Australian Soldiers' Repatriation Act authorises also the appointment of a State Repatriation Board for each State and of local committees to raise and control district funds.

The Commonwealth Public Service Acts, 1915 and 1917, provides, *inter alia*, for preference in appointments to members of expeditionary forces who have served with satisfactory record; for leave of absence, without pay, to Commonwealth Public Service officers joining the expeditionary forces or called up for service under the Defence Acts; for raising the maximum age for entrance to the clerical division, and for the preservation of eligibility of members of the Forces for appointment.

The Invalid and Old-age Pensions Act, 1917, provides that the rates of invalid and old-age pensions shall not be decreased by reason of war pensions granted to dependents of members of Expeditionary Forces, or of allotments of soldiers' and sailors' pay.

The Quarantine Act, 1915, extends the power of the Government in relation to infectious diseases, which became necessary in consequence of the opening of the Panama Canal and the inauguration of a new trade route through an area infected with yellow fever, and in view of the possibility of the introduction of infectious diseases by soldiers returning from service abroad.

The Referendum (Constitution Alteration) Acts, 1915, relate to the submission of certain proposed laws to the electors; its postponement is noted above; the Compulsory Voting Act, 1915, was passed to provide for compulsory voting at this referendum.

The Military Service Referendum Act, 1916, made provision to submit to a referendum the question of compulsory military service abroad. Details are shown in the chapter relating to Defence.

The Commonwealth Electoral (War-time) Act, 1917, enables members of Expeditionary Forces serving abroad to vote at elections for the Senate and at general elections for the House of Representatives. With certain exceptions, naturalized British subjects born in enemy countries are disqualified from voting during the period of the war.

The Daylight Saving Act, 1916, promoted the earlier use of daylight by prescribing that Australian clock time be one hour in advance of the standard time from the last Sunday in September of each year to the last Sunday in March of the following year. The Act commenced on the 1st January, 1917, but was repealed in the following September, public opinion being unfavorable to it.

## POPULATION.

## EARLY ENUMERATIONS.

INFORMATION regarding the population from the foundation of New South Wales in 1788, when Governor Phillip landed with 1,035 persons, until the first census in 1828, depends on the records of the enumerations or "musters," which were taken at frequent intervals for the proper maintenance of official supervision, for the allocation of the labour of prisoners, and for the distribution of provisions in times of drought and scarcity.

The following table shows, as nearly as can be ascertained, the population of New South Wales, including Norfolk Island, at quinquennial intervals from the end of the year 1790 until the year 1825.

Year.	Population.	Year.	Population.
1790 ... ..	2,800	1810 ... ..	10,100
1795 ... ..	4,500	1815 ... ..	13,300
1800 ... ..	6,200	1820 ... ..	25,300
1805 ... ..	7,400	1825 ... ..	33,500

Only the totals are given, for the "musters" supplied very scanty details, and the sexes of the children were unstated.

The first census was taken during the month of November in the year 1828, the result being a total of 36,598 persons, of whom 27,611 were males and 8,987 were females, showing a large preponderance of the male sex.

The slow growth during the forty years to which the previous figures relate was followed by a rapid increase in population, induced by the steady development which resulted from the progressive public policy inaugurated during the governorship of Sir Richard Bourke, and from the expansion of settlement which followed the opening of the country by exploration. A system of assisted immigration was introduced on a scale of annually increasing dimensions, and attained definite strength in the year 1832, so that at the end of 1833 the population had increased to 61,000, being an advance of 27,500 on the number for the year 1825, or by 82 per cent. during the period of eight years.

The enumerations shown below are those for the Colony of New South Wales within the boundaries existing at the time of taking the census.

Date of Census.	Males.	Females.	Total.	Increase.	
				Number.	Per cent.
1828, November ...	27,611	8,987	36,598	...	...
1833, September 2 ...	44,644	16,150	60,794	24,196	66·1
1836, September 2 ...	55,539	21,557	77,096	16,302	26·8
1841, March 2 ...	87,298	43,558	130,856	53,760	69·7
1846, March 2 ...	114,769	74,840	189,609	58,753	44·9
1851, March 1 {	155,845	112,499	268,344	78,735	41·5
Incl. Victoria					
1851, March 1 {	109,643	81,356	190,999	...	...
Excl. Victoria					
1856, March 1 ...	150,488	119,234	269,722	78,723	41·2

With the rapid expansion of settlement a great demand for labour was created, and the high rates of wages attracted a large influx of unassisted immigrants. The most powerful factor in promoting the development of Australia was, however, the discovery of rich goldfields in 1851.

Victoria was founded in July, 1851, by the separation of the District of Port Phillip, with a population of 77,345, from New South Wales. For purposes of comparison, the population at the census of 1851 has been shown in the above table, both inclusive and exclusive of Victoria.

After the census year of 1856 there was yet another reduction in the territory of New South Wales, when in 1859 Queensland, with a population of 16,907, was separated.

A further, though comparatively small reduction in area took place on the 1st January, 1911, when the Federal Capital Territory was transferred to the Commonwealth.

#### CENSUS ENUMERATIONS, 1861-1911.

At the census taken in New South Wales on the 7th April, 1861, the ascertained population was 350,860. Thereafter the numbers were determined decennially, and the last census was taken on the 3rd April, 1911, when the population had increased to 1,648,746. This number does not include the population of the Federal Capital Territory, which at the census of 1911 numbered 997 males and 727 females, or 1,724 persons, of whom 10 were aborigines. The population of New South Wales at each census period from 1861 to 1911 is stated below, also the estimated population as at the 31st December, 1916. Aboriginal natives are included, except for 1861, when they were not enumerated; their number in 1911 was 2,012 (1,152 males and 860 females).

Year.	Males.	Females.	Total.	Increase since Previous Census.
1861	198,488	152,372	350,860	...
1871	275,551	228,430	503,981	153,121
1881	411,149	340,319	751,468	247,487
1891	612,562	519,672	1,132,234	380,766
1901	712,456	646,677	1,359,133	226,899
1911	858,850	789,896	1,648,746	289,613
1916	923,113	934,807	1,857,920	209,174

The relative increase from census to census may be measured according to the several methods shown in the following statement. In the first column the population in 1861 is taken as a basis.

Year.	Index Number of Population.	Increase since previous Census.		Persons per Square Mile.
		For Period.	Average Annual Rate.	
1861	100	per cent.	per cent.	1.12
1871	144	...	...	1.61
1881	214	43.64	3.69	2.41
1891	323	49.11	4.08	3.64
1901	387	50.67	4.19	4.38
1911	470	20.04	1.84	5.32
1916	530	21.31	1.95	6.00
		12.69	2.10	

In 1861 the number of persons per square mile was 1·1, in 1891 it was 3·6, and in 1916 it was 6·0.

The following statement shows the population of each State of the Commonwealth at the last census, in comparison with the estimated population as at the 31st December, 1916, and the average annual rate of increase during the period. The figures are exclusive of full-blood aborigines.

State.	Census Population, 1911.	Estimated Population, December, 1916.	Proportion in Each State.		Average Annual Rate of Increase since Census, 1911.
			1911.	1916.	
New South Wales ...	1,646,734	1,855,908	per cent. 36·96	per cent. 38·09	per cent. 2·10
Victoria ...	1,315,551	1,399,779	29·53	28·73	1·09
Queensland ...	605,813	669,467	13·60	13·74	1·75
South Australia ...	408,558	431,814	9·17	8·86	1·07
Western Australia ...	282,114	308,806	6·33	6·34	1·58
Tasmania ...	191,211	199,925	4·29	4·10	0·78
Northern Territory ...	3,310	4,767	0·08	0·10	6·55
Federal Capital Territory	1,714	2,223	0·04	0·04	4·63
Commonwealth ...	4,455,005	4,872,689	100·00	100·00	1·57

The average annual increase of the Commonwealth since the census of 1911 has been 1·57 per cent. The rate was highest in New South Wales, 2·10 per cent., and Queensland ranked next with 1·75 per cent.; Tasmania showed the lowest rate, 0·78 per cent. The population of New South Wales in 1916 represented 38·09 per cent. of the population of Australia, as compared with 36·96 per cent. in 1911.

#### SEX DISTRIBUTION.

Prior to the outbreak of war in 1914, and the consequent enlistment of eligible men for service overseas, the number of males in New South Wales had always exceeded the number of females. In the early days the disparity was very marked, but there has been a gradual tendency towards an equal sex distribution. The distribution of the sexes at each census since 1861 was as follows:—

Year.	Proportion of Males.	Proportion of Females.	Males per 100 Females.
	per cent.	per cent.	No.
1861	56·57	43·43	130
1871	54·67	45·33	121
1881	54·86	45·14	121
1891	54·14	45·86	118
1901	52·42	47·58	110
1911	52·09	47·91	109
1916	49·69	50·31	99

From 1871 to 1881 the proportion of males remained constant at about 55 per cent., but immigration was checked towards the end of the next decade, and in 1891 the proportion of males had decreased slightly. During the following period there was very little immigration, and in 1901 the difference between the sexes had become less than at any previous period, the proportion of males being 52·42 per cent., or 110 males to every 100 females.

According to official estimates, the proportion of males remained fairly constant from 1901 to 1907, but since that year it has decreased; at the census of 1911 the percentages were—males 52·09, females 47·91, or 109 males to every 100 females. At the end of the year 1916 it was estimated that there were 99 males per 100 females, a ratio brought about by successive embarkations of males of military age for service abroad.

#### ESTIMATES OF POPULATION.

Reliable estimates of the population are required during the intercensal periods for many purposes affecting the welfare of the community. Apart from its value as the standard by which other statistics are measured, the population is used as the basis of important political and financial arrangements between the Government of the Commonwealth and the individual States, as, for instance, in the distribution amongst the States of representation in the Federal Parliament, and in the determination of the amount of revenue to be paid back to each State by the Commonwealth.

The elements of increase of the population are the excess of births over deaths, which is termed "natural increase," and the excess of immigration over emigration. The registers of births and deaths ensure a reliable return of the natural increase, but it is unfortunate that the records of arrivals and departures are defective, as in a young and progressive country the element of migration is extremely variable.

The records of overland migration are not perfect, but they give with approximate accuracy the gain or loss to the State across its borders. In the case of the sea traffic, however, the returns are less reliable, as there are persons whose departure is not recorded. The usual practice has been to assume that arrivals as recorded are correct, and to add to the recorded departures, as an allowance for the unrecorded, a certain percentage of those departures based on the experience of the preceding intercensal period. This method is not altogether satisfactory, as when the census is taken it is found that the estimate differs more or less from the census figure, and it becomes necessary to adjust the estimated populations of all the years between census enumerations, so that they may not appear incompatible with census results.

At different periods Conferences of the Statisticians of the several States of the Commonwealth have been held for the purpose of devising a uniform method of estimating population.

The estimated population of New South Wales, including aborigines, at the end of each of the last ten years, was as follows:—

Year.	Estimated Population at End of Year.			Annual Increase.		Mean Population.
	Males.	Females.	Total.	Numerical.	Per cent.	
1907	795,635	736,315	1,531,950	33,371	2·23	1,517,900
1908	809,240	750,786	1,560,026	28,046	1·83	1,545,700
1909	829,329	767,356	1,596,685	36,659	2·35	1,577,200
1910	852,680	785,540	1,638,220	41,535	2·60	1,616,200
1911	889,391	809,345	*1,698,736	62,240	3·80	1,664,500
1912	935,979	842,983	1,778,962	80,226	4·72	1,738,600
1913	962,749	869,707	1,832,456	53,494	3·01	1,809,400
1914	967,033	894,995	1,862,028	29,572	1·59	1,853,400
1915	953,162	917,253	1,870,415	8,387	0·45	1,868,200
1916	923,113	934,807	1,857,920	(—)12,495	(—)0·67	1,866,300

\* Exclusive of 1,724 persons, the population of the Federal Capital Territory, which has been excluded in all subsequent years. (—) Denotes a decrease of population.

## THE SOURCES OF INCREASE.

The following statement shows the extent to which each source contributed to the growth of the population during the census periods from 1861; in calculating the increase from 1901 to 1911, the population of the Federal Capital Territory has been taken into consideration, and aborigines have been included.

Period.	Increase.			Average Annual Rate of Increase.		
	By Excess of Births over Deaths.	By Excess of Immigration over Emigration.	Total Increase.	By Excess of Births over Deaths.	By Excess of Immigration over Emigration.	Total.
1861-71	106,077	47,044	153,121	per cent. 2·68	per cent. 1·27	per cent. 3·69
1871-81	140,382	107,105	247,487	2·49	1·95	4·08
1881-91	211,301	169,465	380,766	2·51	2·05	4·19
1891-1901	226,676	223	226,899	1·84	...	1·84
1901-11	247,865	43,472	291,337	1·69	0·32	1·96
1911-15 *	156,545	65,124	221,669	1·93	0·82	2·69
1916	32,221	(-)44,716	(-)12,495	1·72	(-)2·39	(-)0·67

\* Four years and nine months.

(-) Denotes an excess of emigration.

The rate of natural increase fell steadily throughout each intercensal period, and reached its lowest point in 1903, when it was only half the average annual rate during the period 1861-71. The fall was caused by the declining birth-rate, as the death-rate had shown constant improvement. Since 1903, however, the rate of natural increase has risen. For the quinquennium 1911-15 (four years and nine months) the excess of births over deaths reached 1·93 per cent., a rate lower than that for 1912, which was 1·95. During individual years of the quinquennium (1911-15) the rate has fluctuated greatly. For the census year 1911, the excess of births over deaths amounted to 1·85 per cent.; for 1912, to 1·95 per cent.; in 1913 it fell to 1·82 per cent.; in 1914 it rose to 1·90 per cent.; in 1915 it fell to 1·79 per cent.; and in 1916 it fell to 1·72 per cent., the lowest point touched since 1908, when it was 1·68 per cent., a result no doubt largely owing to the withdrawal from the community for service of a considerable number of married and prospective married men of military age.

In the year 1891 immigration ceased, and for the next decade the population progressed solely by reason of the natural increase, as the excess of arrivals was only 223. The balance of migration was, moreover, affected by the rush of men to Western Australia after the discovery of gold in 1894, and by the departure of over 5,000 troops to the war in South Africa, from 1899 to 1901. After the war the troops returned to New South Wales, and in 1905 State assistance to immigrants was restored; consequently the experience of 1901-11 was an improvement on that of the ten years prior to 1901. The excess of emigrants in the years 1914 and 1915 is due to the despatch of troops to the European war, and to the practical cessation of assisted immigration which was a natural sequence.

## MIGRATION.

The next table shows the arrivals in and departures from New South Wales by sea and by land during the last ten years, allowance being made for those unrecorded.

Year.	Arrivals.			Departures.		
	By Sea.	By Land.	Total.	By Sea.	By Land.	Total.
1907	101,125	140,213	241,338	90,748	143,004	233,752
1908	101,589	143,570	245,159	93,521	150,027	243,548
1909	106,310	144,199	250,509	92,504	149,275	241,779
1910	111,525	163,691	275,216	96,514	166,509	263,023
1911	141,667	198,458	340,125	111,295	197,088	308,383
1912	163,788	221,609	385,397	125,010	213,268	338,278
1913	146,749	234,441	381,190	125,184	234,914	360,098
1914	143,143	257,016	400,159	145,937	259,488	405,425
1915	110,098	275,955	386,053	141,194	269,747	410,941
1916	95,111	303,030	398,141	149,121	293,736	442,857

The large movement of population each year can hardly be described as immigration or emigration in the popular sense in which those terms are used, as it is due largely to the arrival and departure of tourists and business men. Of the total movement, 80 per cent. is with the other Australian States, and one-third of the movement with countries outside Australia is with New Zealand.

The War has had a marked effect on the increase of population by oversea immigration, co-ordinated with oversea emigration in association with the movements of troops and shipping crews. During the three years 1914-16 the net loss of population to various countries amounted to 74,870. New South Wales gained during this triennial war period 27,754 persons from the other Australian States, 1,350 from New Zealand, and 264 from India; and lost by emigration to the United Kingdom, to British Possessions other than Australia and New Zealand, and to foreign countries, 104,238. The gain by immigration from the United Kingdom in 1914 amounted to 4,510, and in 1915 to 793; but since that year there has been practically no accretion to population from that source. During 1916 there were 867 persons withdrawn from the community as crews; and the excess of departures to various countries over arrivals amounted to 44,716, including 837 to New Zealand, 344 to Canada, 369 to South Africa, 1,350 to other British Possessions, 453 to China and Japan, 261 to the United States of America, and 566 to other countries.

After the revival of the assisted immigration policy in 1905 there had been a steadily increasing excess of arrivals from the United Kingdom, amounting in 1912 to 25,278. Owing to great improvement in labour conditions in Great Britain, and keener competition among Oversea Dominions for British emigrants, the gain from the United Kingdom in 1913 was less than in 1912. During 1914, in consequence of the war, the addition to the population from this source numbered only 4,510; in 1915 the number of assisted immigrants had dwindled to 1,695, and practically ceased at the end of the year.

## STATE-ASSISTED IMMIGRATION.

Recognising the need of a more rapid increase in population, in order to develop the vast resources and latent wealth of the country, the State Government, prior to the outbreak of the present great European war, made arrangements for the systematic advertisement throughout the United Kingdom of the advantages offered to immigrants. The cost of the passage to desirable settlers was partly paid by Government; and residents of New

South Wales were enabled to arrange, by nomination, assisted passages for relatives and friends.

Under an agreement with the States, the Federal Government co-operated in the scheme by undertaking the advertisement of the resources of Australia, while the selection of immigrants was conducted by the representatives of the individual States, which also arranged the assisted passages.

The number of persons assisted to immigrate since the 1st January, 1906, is shown hereunder.

Year.	Total Assisted Immigrants.			Nominated by Relatives or Friends in New South Wales (Included in Preceding).		
	Males.	Females.	Total.	Males.	Females.	Total.
1906	...	...	590	...	...	114
1907	...	...	2,917	...	...	490
1908	...	...	3,048	...	...	1,237
1909	...	...	4,308	...	...	1,979
1910	3,039	2,017	5,056	1,406	1,530	2,936
1911	5,880	4,042	9,922	3,647	3,279	6,926
1912	8,361	6,595	14,956	5,205	5,477	10,682
1913	4,181	5,682	9,863	3,336	4,999	8,335
1914	2,463	3,161	5,624	1,574	2,440	4,014
1915	589	1,106	1,695	496	825	1,321
1916	200	459	659	184	394	578

Full details relating to assisted immigration are shown in the chapter on Employment and Industrial Arbitration in this Year Book.

Of 1,646,734 persons comprising the population of New South Wales on the 2nd April, 1911, the Australian-born numbered 1,377,219, or 691,736 males and 685,483 females, and the immigrant population of the State numbered 269,515, or 165,962 males and 103,553 females. These and other particulars relating to the last census will be found in the previous issue of the Year Book.

The rise and fall of immigration are reflected in the figures just quoted. It is, moreover, interesting to note that, exclusive of the Australian-born, persons who had resided in Australia less than five years, namely immigrants arriving since 1905, outnumbered those in any other five-years' period; the next in numerical order being arrivals during the years 1881-6, whose period of residence was from 25-29 years. On the other hand, colonists of a 5-9 years' standing were exceeded by those in every other period up to 40 years.

#### THE DISTRIBUTION OF POPULATION.

The distribution of population as estimated at the 31st December, 1916, together with the proportion in each Division and the average population per square mile, is shown in the subjoined table.

Division.	Area.	Estimated Population, 1916.		
		Total.	Proportion in Each Division.	
	sq. miles.		per cent.	per sq. mile.
Sydney ... ..	5	106,000	5·7	21,200·0
Suburbs ... ..	180	658,600	35·5	3,658·9
Metropolis ... ..	185	764,600	41·2	4,133·0
Country Municipalities ... ..	2,853	446,800	24·0	156·6
*Shires ... ..	180,531	631,980	34·0	3·5
Western Division (Part unincorporated).	125,893	14,433	0·8	0·1
Lord Howe Island ... ..	5	107	0·0	21·4
Total, New South Wales ...	309,467	1,857,920	100·0	6·0

\* The Ku-ring-gai Shire, area 36 sq. miles, population 14,340, is included with the suburbs of the metropolis.

The population of the metropolis represents more than two-fifths of the total population, less than one-quarter resides in the country municipalities, and over one-third in the other incorporated areas.

The area of the Federal Capital Territory, transferred to the Commonwealth on the 1st January, 1911, is about 900 square miles. At the last census its population, exclusive of aborigines, was 1,714 persons, or 1.9 per square mile. At the 31st December, 1916, its estimated population was 2,223.

#### THE POPULATION OF THE METROPOLIS.

The metropolis includes Sydney, the forty municipalities which surround it, and the Ku-ring-gai Shire, as well as the islands of Port Jackson, and embraces an area of 185 square miles. The boundaries may be described roughly as follow: On the east, the sea-coast; on the south, the waters of Botany Bay and George's River; on the west, by the western boundaries of Hurstville, Canterbury, Enfield, Strathfield, Homebush, Concord, and Ryde; on the north, by the northern boundaries of Eastwood and Ryde, the western and eastern boundaries of Ku-ring-gai Shire, the north-eastern boundary of Willoughby, and the northern boundary of Manly. The habitations within these limits are fairly continuous.

The following statement shows, at the census of 1911, and on the 31st December, 1916, the population of each municipality of the metropolis, and of Ku-ring-gai Shire.

Municipality.	Population.		Municipality.	Population.	
	Census, April, 1911.	Estimated, 31st Dec., 1916.		Census, April, 1911.	Estimated, 31st Dec., 1916.
City of Sydney* ...	119,771	106,000	Manly ...	10,465	13,930
Alexandria ...	10,123	11,410	Marrickville ...	30,653	37,370
Annandale ...	11,240	12,400	Mascot ...	5,836	8,680
Ashfield ...	20,431	27,680	Mosman ...	13,243	16,990
Balmain ...	32,038	33,250	Newtown ...	26,498	27,820
Bexley ...	6,517	10,660	North Sydney ...	34,646	40,930
Botany ...	4,409	5,670	Paddington ...	24,317	25,870
Burwood ...	9,380	12,640	Petersham ...	21,712	23,830
Canterbury ...	11,335	25,470	Randwick ...	19,463	32,910
Concord ...	4,076	6,480	Redfern ...	24,427	25,010
Darlington ...	3,816	3,840	Rockdale ...	14,095	19,900
Drummoyne ...	8,678	13,580	Ryde ...	5,231	9,340
Eastwood ...	968	1,420	St. Peter's ...	8,410	10,640
Enfield ...	3,444	5,700	Strathfield ...	4,046	5,570
Erskineville ...	7,299	7,660	Vaucluse ...	1,672	2,510
Glebe ...	21,943	22,690	Waterloo ...	10,072	11,190
Homebush ...	676	1,040	Waverley ...	19,831	27,480
Hunter's Hill ...	5,013	5,780	Willoughby ...	13,036	20,840
Hurstville ...	6,533	10,540	Woollahra ...	16,989	20,280
Kogarah ...	6,953	12,550	Ku-ring-gai Shire	9,458	14,340
Lane Cove ...	3,306	4,950			
Leichhardt ...	24,254	27,760	Total ..	636,353	764,600

\* Includes shipping and the islands of Port Jackson.

The metropolitan population is unevenly distributed. At the census of 1911 two-fifths of the inhabitants resided within an area of less than 7,000 acres, having a density from 30 to 90 per acre, one-third occupied about 24,000 acres, with an average density of 10, and the remainder were scattered over about 88,000 acres, having a density of a little over 1 per acre.

The population of the metropolis at census periods and on the 31st December, 1916, is shown in the following table, together with the increasing proportion which the metropolitan population bears to that of the whole State.

Year.	Census Population.			Males per 100 Females.	Percentage of Population of Whole State.
	Males.	Females.	Total.		
1871	68,266	70,913	139,179	96·21	27·62
1881	114,936	112,230	227,166	102·41	30·23
1891	197,550	189,884	387,434	104·04	34·22
1901	241,700	246,232	487,932	98·16	35·90
1911	312,074	324,279	636,353	96·24	38·55
1916	...	...	*764,600	...	41·15

\* Estimated, 31st December.

### THE POPULATION OF THE CHIEF CITIES.

#### *In Australia.*

A comparison of the population of the chief cities (including suburbs) of each State of the Commonwealth is shown herewith.

Metropolis.	Census, 1911.			Estimated Population, 31st Dec., 1916.	Proportion of Population of Whole State.
	Males.	Females.	Total.		
Sydney ... ..	305,728	323,775	629,503	764,600	41·15
Melbourne ... ..	277,956	311,015	588,971	695,640	49·70
Brisbane ... ..	67,628	71,852	139,480	168,393	25·15
Adelaide ... ..	90,578	99,068	189,646	223,718	51·59
Perth ... ..	53,231	53,561	106,792	...*	37·85†
Hobart ... ..	18,487	21,450	39,937	39,632	19·82

\* Census 1911 results are the latest available. † As at census.

The census populations given above are exclusive of shipping, and for this reason the population of Sydney differs from that shown in the previous table.

#### *In Other Countries.*

The population of the chief cities of the United Kingdom and of other countries is given in the subjoined table, in which the most recent figures available are quoted.

City.	Year.	Population.	City.	Year.	Population.
London (Greater) ...	1912	7,252,963	Moscow ... ..	1913	1,694,900
Liverpool ... ..	1914	767,992	Constantinople ...	1909	1,200,000
Manchester ... ..	1914	973,513	Budapest ... ..	1914	950,784
Birmingham ... ..	1914	868,430	Brussels ... ..	1914	780,852
Glasgow ... ..	1914	1,047,000	Amsterdam ... ..	1914	597,888
Edinburgh ... ..	1914	321,900	Madrid ... ..	1910	571,539
Dublin (Registration Area) ... ..	1914	406,000	Copenhagen ... ..	1911	559,398
Belfast ... ..	1914	399,000	Rome ... ..	1914	591,943
Montreal ... ..	1913	600,000	Tokio ... ..	1912	2,099,181
Calcutta ... ..	1911	1,222,313	Pekin ... ..	1912	692,500
Paris ... ..	1912	2,847,229	New York ... ..	1914	5,583,871
Berlin ... ..	1912	2,083,931	Chicago ... ..	1914	2,393,325
Vienna ... ..	1914	2,149,834	Buenos Aires ... ..	1913	1,487,642
Petrograd ... ..	1912	2,018,596	Rio de Janeiro ...	1914	983,259

## THE COUNTRY DISTRICTS OF NEW SOUTH WALES.

In the opening stages of the history of New South Wales settlement followed the main roads, but with the establishment of the railway the population settled within reach of the railway lines. In the coastal area, where the bulk of the people dwells, the development of the towns has more than kept pace with the general population. Thus, in the Valley of the Hunter, with its large agricultural and mining industries, population has made rapid strides. Newcastle and suburbs, for instance, increased from 7,810 in 1861 to 54,991 in 1901, and the estimated population in 1916 was 58,750. Though Wollongong has increased considerably in population, the Illawarra District as a whole, notwithstanding its rich deposits of coal and the fertility of its pasture-lands, has stagnated, if not declined; whilst the dairy, maize and sugar-growing districts of the Clarence and Richmond Rivers have increased generally in their urban population. A number of industrial works have been established around Lithgow, which has become an important centre of the western coalfields, and the site of a small-arms and munitions factory. On the 31st December, 1916, the country districts contained 1,093,320 inhabitants, or 58·8 per cent. of the total estimated population.

The following statement shows the population of the country municipalities of New South Wales containing more than 2,000 inhabitants as at the census of 1911, and at the 31st December, 1916.

Municipality.	Census, 1911.	Estimated, Dec., 1916.	Municipality.	Census, 1911.	Estimated, Dec., 1916.
Albury ... ..	6,309	6,350	Lismore ... ..	7,331	8,000
Armidale ... ..	4,738	5,100	Lithgow ... ..	8,196	9,900
Auburn ... ..	5,559	10,850	Liverpool ... ..	3,933	3,920
Ballina ... ..	2,061	2,600	†Maitland ... ..	11,313	11,600
Bankstown ... ..	2,939	5,430	Moree ... ..	2,931	3,020
Bathurst ... ..	8,575	8,450	Mudgee ... ..	2,942	2,900
Broken Hill... ..	30,972	26,200	Murrumburrah ... ..	2,136	2,250
Casino ... ..	3,420	4,150	Murwillumbah ... ..	2,206	3,100
Cobar... ..	4,430	3,000	‡Narrabri ... ..	3,320	3,210
Cooma ... ..	2,063	1,900	Narrandera ... ..	2,374	2,400
Coonamble ... ..	2,262	2,500	Newcastle, includ- ing Suburbs.	55,380	58,750
Cootamundra ... ..	2,967	3,100	Orange ... ..	6,721	7,000
Corowa ... ..	2,063	2,100	Parkes ... ..	2,935	3,200
Cowra ... ..	3,271	3,800	Parramatta ... ..	12,465	12,200
Cudgegong ... ..	2,678	2,500	Penrith ... ..	3,682	3,650
Deniliquin ... ..	2,494	2,400	Prospect and Sher- wood.	3,932	5,100
Dubbo ... ..	4,452	4,600	Quirindi ... ..	2,240	2,500
Forbes ... ..	4,436	5,100	Singleton ... ..	2,996	2,950
Glen Innes ... ..	4,080	4,350	Smithfield and Fair- field.	2,226	3,100
Goulburn ... ..	10,023	9,900	Tamworth ... ..	7,145	7,700
*Grafton ... ..	5,888	6,350	Temora ... ..	2,784	3,200
Granville ... ..	7,231	11,100	Tenterfield... ..	2,792	2,800
Gunnedah ... ..	3,005	3,300	Wagga Wagga ... ..	6,419	6,900
Hay ... ..	2,461	2,200	Wellington ... ..	3,958	4,150
Illawarra, Central ... ..	5,000	5,200	Windsor ... ..	3,466	3,350
Illawarra, North ... ..	5,157	5,500	Wollongong ... ..	4,660	5,300
Inverell ... ..	4,549	5,100	Yass ... ..	2,136	2,000
Junee... ..	2,531	2,600	Young ... ..	3,139	3,900
Katoomba ... ..	4,923	6,500			
Kempsey ... ..	2,862	3,000			
Lidcombe ... ..	5,418	7,950			

\* Includes South Grafton.

† East and West.

‡ Includes West Narrabri.

In the detailed account of the population published in the previous issue of the Year Book it was shown that the results ascertained at the census of 1911 exhibited certain Divisions of New South Wales as having experienced a retrograde movement in their populations. The South Coast and the Southern Tableland were exhibited as having seriously declined in populousness, and the Central Tableland and the Western Plains as maintaining their position by sectional activities, as, for instance, mining and manufactures.

In the preceding table the North Coast evidences a continuous prosperity by increases in its municipal population. Murwillumbah, during the five years and nine months (from the 2nd April, 1911, to the 31st December 1916) added to its habitancy over 45 per cent., Ballina over 25, Casino over 12, Lismore over 8, Grafton nearly 8, and Kempsey nearly 5 per cent.

In the Division of the Hunter and the Manning, the population of Newcastle advanced by 6 per cent., and Maitland (East and West) by  $2\frac{1}{2}$ , but Singleton declined by  $1\frac{1}{2}$  per cent. in its habitancy.

In the county of Cumberland, outside the metropolitan area, Bankstown increased in population by nearly  $166\frac{1}{3}$  per cent., Granville by  $53\frac{1}{2}$ , Auburn by nearly 49, Lidcombe by nearly 47, Smithfield and Fairfield by  $39\frac{1}{4}$ , and Prospect and Sherwood by nearly 30; but four old settled municipalities declined in their habitancy, Windsor by  $3\frac{1}{3}$  per cent., Parramatta by over 2, Penrith by nearly 1, and Liverpool by about  $\frac{1}{2}$  per cent.

The South Coast continued to present the same tendencies to a decline in populousness as in 1911. Since the taking of the census the municipality of Bega, which was credited with an estimated population of 2,050 as at the 31st December, 1915, had fallen below the standard of 2,000 inhabitants. Wollongong (which owes its prosperity to its advantages as a coaling port), and the two dairy-farming municipalities of Central and North Illawarra had increased respectively by  $13\frac{3}{4}$ , 4, and  $6\frac{3}{4}$  per cent., but the Division otherwise had not improved in the populousness of other districts.

All the municipalities of the Northern Tableland shown in the preceding table experienced increases, Inverell by nearly 13, Armidale by over  $7\frac{1}{2}$ , Glen Innes by over  $6\frac{1}{2}$ , and Tenterfield by about  $\frac{1}{4}$  per cent. In the Central Tableland, Katoomba increased by over 32, Lithgow by nearly 21, Cowra by about  $16\frac{1}{4}$ , Wellington by nearly 5, and Orange by about  $4\frac{1}{4}$  per cent.; but three municipalities experienced decreases, Cudjiegong by about  $5\frac{1}{2}$ , and Bathurst and Mudgee each by about  $1\frac{1}{2}$  per cent. In the Southern Tableland, the three municipalities shown in the preceding table all suffered decreases, Cooma by nearly 8, Yass by over  $7\frac{1}{3}$ , and Goulburn by about  $1\frac{1}{4}$  per cent.

Of the municipalities of the North-Western Slope, Quirindi added to its population over  $11\frac{1}{2}$ , Gunnedah nearly 10, and Tamworth over  $7\frac{3}{4}$  per cent.; but Narrabri lost  $3\frac{1}{3}$  per cent. The three municipalities of the Central Division of the Western Declivity gained, Forbes about 15, Parkes over 9, and Dubbo about  $3\frac{1}{3}$  per cent. The seven municipalities in the South-Western Slope all showed increases, Temora of about 15, Wagga Wagga of  $7\frac{1}{2}$ , Murrumburrah of  $5\frac{1}{3}$ , Young of over 5, Cootamundra of about 5, and Albury of a little over  $\frac{1}{2}$  per cent.

In the Division of the North Central Plain the municipality of Moree added over 3 per cent. to its population; and in the Division of the Central Plain Coonamble increased in habitancy by  $10\frac{1}{2}$  per cent. In the Riverina Corowa improved its habitancy by nearly 2, and Narrandera by over 1 per cent.; but the pastoral municipalities of Hay and Deniliquin declined in populousness, the former by over  $10\frac{1}{2}$ , and the latter by  $3\frac{3}{4}$  per cent.

The Division of the Western Plains maintained its population standard by the activities of the mining community, but during the period which has elapsed since the census the municipality of Cobar, east of the river Darling, has declined by  $6\frac{1}{2}$  per cent., and that of Broken Hill, west of the Darling, by nearly  $15\frac{1}{2}$  per cent.

Excluding the Newcastle group, the most densely inhabited of the municipalities included in the foregoing table contains fewer than 7 persons per acre. It is noteworthy that the newer municipalities of Murwillumbah and Ballina have advanced most rapidly in the Division of the North Coast, in which the dairy farms and the maize-growing holdings are outstripping the sugar plantations. In the Division of the Hunter and the Manning, Newcastle retains its supremacy as a coal centre, but Maitland (East and West) is surrounded by youthful rivals, such as Kurri Kurri and Cessnock. The old halting-place on the main northern road, Singleton, evinces symptoms of decline.

In the county of Cumberland the six progressive municipalities of the table are all within a radius of 20 miles from the metropolis, and are devoted to small culture, market-gardens, vineyards, tanneries, saw-mills, quarries, potteries, brick-works, meat-preserving, poultry-farming, bee-keeping, various manufacturing industries, engineering establishments, and railway workshops, and together contained a population of about 44,000 inhabitants.

In the Northern Tableland the more modern municipality of Inverell has advanced beyond its senior, Armidale; but all the municipalities of this Division which are included in the table have gained in populousness, owing to the continuous development of agriculture and the permanence of the mining interest. In the Central Tableland, Katoomba owes its prosperity to its popularity as a health and tourist resort, as well as a residential mountain town. Lithgow is becoming a great industrial centre, and mining intermingled with agriculture assists to maintain the populousness of Cowra, Wellington, and Orange. Bathurst, the centenarian "City of the Plains," has declined in population, as also have Mudgee and its enclosing municipality Cudegong. A large area of the Central Tableland is stationary, and its development is arrested. The Southern Tableland, like the South Coast, showed a decline in population at the census, and that decline was still evident in the figures shown in the preceding table for the three municipalities of Cooma, Yass, and Goulburn.

The municipalities of the North-Western Slope, and in fact those of the whole of the Western Declivity, with the exception of Narrabri, exhibited increases in population ranging from 15 to 0.65 per cent. This is true also of the two Divisions of the Central Plains, and of part of the Riverina, owing to the great advance made in agriculture, particularly in wheat-growing. The pastoral centres of the Riverina, on the other hand, declined, as the pastoral centres of the Western Plains have also declined. This vast area showed increases in its mining population for the decade 1901-11, but the latest estimates show decreases for the period 1911-16 for the two important mining municipalities of Cobar and Broken Hill, included in the preceding table, amounting to over 6,000 persons, a combined loss which without any other source of leakage must have reduced the present population of the Western Division to the level it held in 1891.

#### PERSONS OF NON-EUROPEAN RACES.

Legislative measures to restrict the influx of coloured aliens were passed in New South Wales in the early days of self-government. Public feeling was first aroused by the entry of large numbers of Chinese, and the enact-

ments imposed limitations on the immigration of this race only. Subsequently, however, these restrictive powers were extended to regulate the influx of all coloured aliens.

At the establishment of the Commonwealth the control of the conditions relating to immigration was transferred to the Federal Parliament. The Federal legislation relating to the restriction of immigration does not aim at the exclusion of the people of any particular race or colour, but of undesirable immigrants generally. Under its provisions no person is allowed to land who fails to pass a dictation test in any European language chosen by the Customs Officers. This test has not been applied to any desirable immigrant of European nationality. Paupers, criminals, lunatics, and other persons likely to be a source of danger to public health or morals, are excluded.

Provision is made also to prevent the immigration of labourers under contract to perform manual labour if their arrival has any connection with an industrial dispute, or if the contract-rate of wages is less than that current in the district where the work is to be performed.

In 1901 the Commonwealth Government passed an Act to prohibit the introduction of native labourers from the Pacific Islands. These labourers were employed in the sugar plantations—for the greater part in Queensland, but also in smaller numbers in the north coastal districts of New South Wales. Under this Act all agreements with the islanders were terminated at the end of the year 1906, and they were deported by the Government to their original homes.

At the census of 1911 the number of persons of non-European races, other than aborigines, residing in New South Wales was 13,140, and was representative of the very small proportion of 8 per 1,000 of the total population. The most numerous were the Chinese, who constituted 70 per cent. of the coloured aliens, Hindus and Syrians following in the order given.

#### *The Chinese.*

The Chinese were first attracted to this State by the gold discoveries. At the census of 1861 they numbered 12,988, exclusive of half-castes, who were not enumerated until 1891. From 1861 to 1871 the number declined, probably on account of the diminution in the gold-yield and the discovery of richer goldfields in the neighbouring States; but in 1878 there was a steady increase in the arrivals from China, and this lasted until about 1888, when an effective check was given to their immigration by the Chinese Restriction and Regulation Act.

The following table shows the number of Chinese (including half-castes) in Australia at each census since 1891. For purposes of comparison the Federal Capital Territory has been included in New South Wales, and the Northern Territory in South Australia. At the census of 1911 there were 3 Chinese in the Federal Capital area, and 1,339 in the Northern Territory.

State.	1891.	1901.	1911.
New South Wales (including Federal Capital Territory) ...	14,156	11,263	9,358
Victoria ... ..	9,377	6,956	5,601
Queensland ... ..	8,574	9,313	6,714
South Australia (Including Northern Territory) ... ..	3,997	3,455	1,698
Western Australia... ..	917	1,569	1,872
Tasmania ... ..	1,056	609	529
Total, Commonwealth ... ..	38,077	33,165	25,772

## THE ABORIGINES.

It is difficult to form a correct estimate of the number of aborigines ; but though there is reason to believe that they were formerly numerous, they have decreased rapidly before the advance of settlement and systematized occupation.

Governor Phillip estimated the aboriginal population, about the year 1790, at 1,000,000, of which number about 3,000 lived between Broken and Botany Bays. The latter estimate was very likely correct, but the first Governor doubtless based his calculation on the assumption that the resources of the unlocked Continent were as great as those of the strip of settlement immediately under his notice.

The aborigines were never properly counted until the census of 1891, when they were classed as full-blood and half-caste. In 1901 the full-blood and nomadic half-caste only were counted. In reckoning the quota to determine the number of Members to which the State is entitled in the House of Representatives (in accordance with the provisions of the Commonwealth Constitution Act), aboriginal natives of Australia are not included. It has been decided that only full-bloods are aborigines within the meaning of the Act, and consequently in 1901 and 1911 half-castes were included in the general population. The number shown in the following table for the census of 1911 represents only those who were employed by whites, or who were living in the vicinity of white settlements at the date of the census. In 1861 aborigines were not enumerated ; in 1871 and 1881 the wandering tribes were passed over, and those only who were civilised, or who were in contact with Europeans, were enumerated and included in the general population. The number of full-blood aborigines in New South Wales at each census is shown below ; the figures for 1911 are exclusive of the Federal Capital Territory, in which were enumerated 10 aborigines—5 males and 5 females.

Census.	Males.	Females.	Total.
1871	709	274	983
1881	938	705	1,643
1891	4,559	3,721	8,280
1901	2,451	1,836	4,287
1911	1,152	860	2,012

In 1891 the number of half-castes was 1,663 males and 1,520 females. In 1901 the number of both full-bloods and half-castes was 4,093 males and 3,341 females, and of these 509 were nomads—259 males and 250 females. In addition to the 2,012 full-bloods at the census of 1911, half-castes were enumerated numbering 4,512, of which total 2,335 were males and 2,177 were females.

The Board for the Protection of Aborigines many years ago was constituted to safeguard the interests of the aboriginal population, and reserves were dedicated in different parts of the State, dwellings erected, and the means of livelihood organised. The residents on these reservations are encouraged in the tillage of the soil, and supplied with tools and seeds, and their children are educated. Under an Act passed in 1909 the control of the reserves was vested in the Board, and its powers of administration were considerably amplified for the amelioration of the conditions of the aborigines. Information relating to the work of the Board will be found in a later chapter of this Year Book.

## NATURALISATION.

Under the Commonwealth Naturalisation Act, which came into operation on 1st January, 1904, the issue of naturalisation certificates became a function of the Commonwealth Government. Any person is deemed to be naturalised who had obtained a certificate of naturalisation in any State of Australia prior to the passing of the Commonwealth Act.

An applicant must furnish a statutory declaration which gives his name, age, birth-place, occupation, place of abode, and the length of his residence in Australia; and he must state his intention of settling in the Commonwealth. A certificate signed by some responsible person that the applicant is of good repute is also necessary.

It is enacted also that any person resident in the Commonwealth (not a British subject, nor an aboriginal native of Asia, Africa, or the islands of the Pacific, New Zealand excepted), who intends to settle therein, and who has resided in Australia continuously for two years immediately preceding the application, or who has obtained a certificate of naturalisation in the United Kingdom, may apply for a certificate of naturalisation.

The Governor-General in his discretion may grant or withhold a certificate of naturalisation, and the certificate will not be issued until the applicant has taken an oath of allegiance.

Any person to whom a certificate of naturalisation is granted is entitled to the same rights and privileges, and is subject to the same obligations, as a natural-born British subject, provided that where, by the provisions of any Commonwealth or State Constitution or Act, a distinction is made between the rights of natural-born British subjects and naturalised persons, the rights conferred by the Commonwealth Act are those only to which naturalised persons are entitled. Consequent on the War many of the abovementioned privileges were suspended, and certain modifications and alterations were made in an Act (No. 25 of 1917) to amend the Naturalisation Act of 1903.

A foreign woman who marries a British subject is deemed to be naturalised thereby. Any infant, not a natural-born British subject, whose father has been naturalised, or whose mother is married to a natural-born British subject or to a naturalised person, and who has at any time resided in Australia with such father or mother, is also deemed to be naturalised.

Since 1849 certificates have been granted in New South Wales to 16,844 persons. Germans numbered 6,650; Swedes, 1,690; Russians, 1,101; Danes, 1,079; Italians, 953; and French, 766. No Chinese have been naturalised in New South Wales since 1887, but prior to that year 908 had obtained certificates.

Records of the occupations of persons naturalised show that labourers, seamen, cooks, carpenters, farmers, miners, fruiterers, engineers, and firemen were the most numerous, in the order given.

The naturalised British subjects in the Commonwealth, as recorded at the census of 1911, numbered 52,951, of whom 39,683 were males and 13,268 were females.

## VITAL STATISTICS.

### REGISTRATION OF BIRTHS, DEATHS, AND MARRIAGES.

Civil registration of births, deaths, and marriages was inaugurated in New South Wales in March, 1856, when a general registry was established, and a Registrar-General appointed by the Governor. The laws relating to registration were consolidated by the Registration of Births, Deaths, and Marriages Act, 1899, and the Acts relating to marriage by the Marriage Act, 1899.

New South Wales has been divided into 213 registry districts, in each of which a District Registrar has been appointed. The duties of these officials are discharged by private persons, Postmasters, Clerks of Petty Sessions, Crown Lands Agents, Police and Departmental Officers.

All births must be registered by the parent within sixty days. After the expiration of sixty days no birth may be registered unless, within six months, a declaration is furnished by the parent, or by some person present at the birth. Within six months of the arrival in New South Wales of a child under the age of 18 months, born outside the State, the parents of which child intend to reside in New South Wales, the birth may be registered upon declaration by the parent.

Notice of the death of any person must be supplied to the District Registrar by a relation of the deceased, or by the householder or tenant of the house or place in which the death occurs.

Masters of British vessels arriving at any port in New South Wales must furnish to the District Registrar particulars regarding any birth or death which had occurred on board the ship whilst at sea.

Marriages may be celebrated only by District Registrars or by ministers of religion registered for that purpose by the Registrar-General. In the former case, the parties to be married must sign, before the Registrar of the district in which the intended wife ordinarily resides, a declaration that they conscientiously object to be married by a minister of religion, or that there is no minister available for the purpose of performing the marriage.

Within one month after a marriage the minister must transmit the original certificate to the Registrar-General or to the District Registrar.

Any party to an intended marriage, not being widowed, who is under 21 years of age, must furnish the written consent of the father, if within New South Wales, or if not, that of a guardian appointed by him, or, if there is no such guardian in the State, that of the mother. Where there is no such parent or guardian in New South Wales, or if he or she is incapable, by reason of distance, habitual intoxication, or mental incapacity, the written consent may be given by a Justice of the Peace who has been appointed by the Supreme Court as a guardian of minors.

Marriage with a deceased wife's sister is valid in New South Wales.

Marriages between Quakers or Jews may be celebrated according to their respective usages, but certificates of such marriages must be transmitted to the Registrar within ten days.

No fee is charged for the registration of a birth, a marriage, or a death; but a fee of 2s. is charged for a certified copy of the entry in the Register; 5s. for a search in any index; and £1 for a marriage performed by a Registrar.

## CONJUGAL CONDITION.

The proportion of married persons in New South Wales is about one-third of the total population, as will be seen from the following statement, which shows the conjugal condition of the people at the Census of 1911.

Conjugal Condition.	Number.			Proportion per cent.		
	Males.	Females.	Total.	Males.	Females.	Total.
Never Married ... ..	556,350	467,603	1,023,953	65-00	59-30	62-27
Married ... ..	275,428	276,216	551,644	32-18	35-03	33-54
Widowed... ..	22,887	43,571	66,458	2-67	5-52	4-04
Divorced ... ..	1,230	1,190	2,420	0-15	0-15	0-15
Not Stated ... ..	1,803	456	2,259	...	...	...
Total ... ..	857,698	789,036	1,646,734	100-00	100-00	100-00

The number of males who have never married is much greater than that of females, the proportion of the total population being 65 per cent. for the former, and 59·3 per cent. for the latter. The married women are more numerous than the married men, but the difference is slight. The large excess of widows over widowers is due to the greater mortality amongst men, and to the fact that cases of the re-marriage of widowers are proportionately greater than those of widows.

The proportions per cent. of the never married, married, and widowed at each census since 1861 are shown below. The divorced are not included on account of the smallness of their number, and because they were not enumerated prior to 1891.

Census.	Males.			Females.		
	Never Married.	Married.	Widowed.	Never Married.	Married.	Widowed.
1861	69-34	28-23	2-43	61-09	35-14	3-77
1871	69-96	27-59	2-45	62-89	32-82	4-29
1881	70-64	26-93	2-43	63-52	31-75	4-73
1891	69-78	27-41	2-78	62-87	32-11	5-00
1901	68-49	28-67	2-75	62-43	32-00	5-46
1911	65-00	32-18	2-68	59-30	35-03	5-52

This table shows that the proportion of never married of both sexes increased at each census up to 1881, but decreased from 1881 to 1911, the decrease being most marked between 1901 and 1911. The married, as might be expected, showed a contrary tendency. The proportion of widowers has been fairly constant, and that of widows has increased.

A comparison of the conjugal condition of the people, at various periods of age, at the censuses of 1901 and 1911, showed that the proportion of unmarried males had decreased, the proportion of married males had increased at every age, and the proportion of widowers was slightly lower in every group. With regard to the females, the decrease in the proportion never married had taken place in the age-groups 15-29 years, as there had been an increase at all ages over 30 years. The married females in 1911 showed a proportionate increase in every group except 30-49 years, at which ages they decreased. The widows decreased in proportion in every age-group, but as the decrease was smallest at the older ages where the proportion was high, the proportion at all ages, 5·52 per cent., was about the same as at the census of 1901.

## MARRIAGES.

The number of marriages celebrated in New South Wales during 1916 was 16,320, corresponding to a rate of 8·74 per 1,000 of the population. This showed a marked decline on the record of 1915, when the number of marriages was 18,129, the highest for any individual year; and the rate was 9·70, which was approached in recent times only in 1912, but was otherwise the highest for 58 years.

The following table shows the average annual number of marriages and the rates per 1,000 of the population during each quinquennium since 1870.

Period.	Average Number of Marriages.	Rate per 1,000 of Population.	Period.	Average Number of Marriages.	Rate per 1,000 of Population.
1870-74	4,091	7·77	1900-04	10,240	7·37
1875-79	4,987	7·88	1905-09	12,080	7·97
1880-84	6,738	8·39	1910-14	15,978	9·20
1885-89	7,679	7·67	1915	18,129	9·70
1890-94	7,954	6·80	1916	16,320	8·74
1895-99	8,700	6·74			

Until the year 1891 the increase in the number of marriages was remarkably steady, but in 1892 there was a decline, which continued until 1895, when the figures again took an upward movement, though the proportion married per 1,000 of the population did not reach the 1891 level until 1900. In 1901 the rate was the highest since 1886, but in the next two years it declined again considerably. From 1904 to 1912 there was, however, a constant improvement. Compared with the rates of the quinquennium 1905-09, the marriage rate of 1914 disclosed an advance of over 17 per cent. It is probable that the high rate for 1915 was due to a number of marriages contracted by soldiers prior to their departure for the war, and the decline in 1916 to the withdrawal of marriageable men from the total population.

A more exact method of stating the rate is to compare the marriages with the number of marriageable males and females in the community, as the rate is mainly a function of age.

Of the bachelors marrying in New South Wales only 4½ per cent. are outside the ages 20-44; of the spinsters less than 1½ per cent. are outside the ages 15-39. These have, therefore, been adopted as the marriageable ages of the sexes, and the following table shows, at quinquennial intervals since 1871, the proportion of bachelors and of spinsters married per 1,000 unmarried males and females within the specified groups.

Year.	Proportion of Bachelors Married per 1,000 Unmarried Males Aged 20 to 44.	Proportion of Spinsters Married per 1,000 Unmarried Females Aged 15 to 39.	Year.	Proportion of Bachelors Married per 1,000 Unmarried Males Aged 20 to 44.	Proportion of Spinsters Married per 1,000 Unmarried Females Aged 15 to 39.
1871	65·60	87·07	1896	54·65	58·13
1876	64·78	83·66	1901	65·92	62·69
1881	65·21	82·32	1906	65·32	62·87
1886	65·08	82·81	1911	79·11	74·96
1891	57·85	71·28	1916	71·61	67·69

Up to 1896 the female rate was the higher, but since that year the male rate has exceeded the female, as a result of the increase in the proportion of females in the population. The rates for both sexes were fairly constant until the year 1886; during the succeeding decennium there was a great drop, and the year 1896 showed the lowest rate for both males and females. There was a marked increase from 1906 to 1912, but the rate declined in 1913 as compared with the previous year. There was an improvement in both rates in 1914, which continued into 1915, and compared with the 1906 figures the male and female rates for the latter year were 20 and 21 per cent. higher respectively. As already shown, the year 1916 showed a decline on the figures of the preceding twelve months amounting to 10·8 per cent. for bachelors and 11·3 per cent. for spinsters.

The marriage rate is an intimate reflex of the comparative prosperity of a country, and a high marriage rate is an obvious proof of the existence of a considerable proportion of marriageable persons in the community. From each point of view the facts in respect to New South Wales are satisfactory.

The following statement shows the marriage rate per 1,000 of the population in each State of the Commonwealth of Australia and in New Zealand during the last six years, and in a number of other countries for ante-bellum years.

State.	1911-1915.	1916.	Country.	1909-1913.	1914.
<i>New South Wales</i> ...	9·37	8·74	Roumania ... ..	9·3	8·5
South Australia ...	9·39	8·32	England and Wales ...	7·6	8·0
Victoria ... ..	8·50	8·05	Italy ... ..	7·6	7·5
Queensland ... ..	8·74	7·69	Scotland ... ..	6·7	7·4
Western Australia ...	8·24	7·51	Denmark ... ..	7·3	6·9
New Zealand ... ..	8·68	7·49	Netherlands ... ..	7·3	6·7
Tasmania ... ..	7·91	7·23	Spain ... ..	7·0	6·5
			Norway ... ..	6·2	6·5
			Sweden ... ..	5·9	5·8
			Ireland ... ..	5·2	5·4
			France ... ..	7·8	5·1
			Switzerland ... ..	7·3	...

In 1916 in all the States of the Commonwealth the rates showed a decline as compared with the experience of the quinquennium, 1911-15; but New South Wales headed the list, with South Australia second. The Dominion of New Zealand occupied the fourth place in the previous year, but in 1916 it was sixth on the list.

A comparison of the marriage rates of various countries may be misleading, on account of the different conditions of life and the varying number of marriageable persons. With the exception of Roumania, the rates for the quinquennium 1909-13 are lower than in New South Wales.

#### MARK SIGNATURES IN MARRIAGE REGISTERS.

The number of persons who signed the marriage register with marks in the year 1916 was 167, equal to 5·12 per 1,000 persons married.

In 1870 the proportion of signatures made with marks was as high as 18·23 per cent. of the whole, and this significant decrease in illiteracy is emphatic evidence of the efficiency of the State system of public instruction.

## MARRIAGES ACCORDING TO DENOMINATIONAL RITES.

Of every hundred marriages performed in New South Wales, about ninety-seven are celebrated by ministers of religion licensed under the authority of the Registrar-General. The number of marriages at which clergymen officiated during the year 1916 was 15,834; and of those contracted before District Registrars 486, or a proportion respectively of 97·0 and 3·0 per cent.

The Church of England performed the largest number of marriages, followed in order by the Roman Catholic, the Presbyterian, and the Methodist denominations.

As compared with the previous quinquennial period, the returns relating to marriages solemnised by the Church of England and the Roman Catholic denominations showed increased rates for the year 1916. The following table gives the number and proportion per cent. of marriages registered by the several denominations during 1916, in comparison with the preceding quinquennium.

Denomination.	Marriages, 1911-1915.	Proportion per cent.	Marriages, 1916.	Proportion per cent.
Church of England ... ..	35,327	42·19	7,047	43·18
Roman Catholic ... ..	15,110	18·05	3,270	20·04
Presbyterian... ..	11,597	13·85	2,198	13·47
Methodist ... ..	11,707	13·98	2,042	12·51
Congregational ... ..	3,775	4·51	447	2·74
Baptist ... ..	1,514	1·81	280	1·71
Hebrew ... ..	242	0·29	43	0·26
All Other Sects ... ..	2,528	3·02	507	3·11
District Registrars ... ..	1,924	2·30	486	2·98
Total Marriages ... ..	83,724	100·00	16,320	100·00

## CONDITION BEFORE MARRIAGE.

During the year 1916, of the males married, 15,306 were bachelors, 869 were widowers, and 145 were divorced. Of the females, 15,278 were spinsters, 850 were widows, and 192 were divorced. The proportion of males re-married was 6·23 per cent., and of females 6·38 per cent.

The following table shows at quinquennial intervals since 1881 the proportion of first marriages and re-marriages per 10,000 married.

Period.	Bachelors.	Widowers and Divorced Men.	Spinsters.	Widows and Divorced Women.
1881	9,087	913	9,044	956
1886	9,137	863	9,156	844
1891	9,229	771	9,216	784
1896	9,184	816	9,172	828
1901	9,270	730	9,268	732
1906	9,262	738	9,352	648
1911	9,407	593	9,456	544
1916	9,377	623	9,362	638

The foregoing figures emphasize the fact of a growth, in widowers no less than in widows, of a disinclination for re-marriage. In the case of both sexes this indifference to a re-entry into the condition of wedlock declined by about 40 per cent. from the earliest period given in the table, widows dis-

playing a slightly greater aversion to the contraction of a second union. The rise in the proportion for the interval 1901-6 was followed by an increased declension during the succeeding quinquennium.

AGE AT MARRIAGE.

Of the 16,320 couples married in 1916, the ages of both 16,314 bridegrooms and brides were recorded. In 70·8 per cent. of the marriages the man was older than the woman, in 10·4 per cent. their ages were the same, and in the remaining 18·8 per cent. the bride was older than the bridegroom.

The following statement shows the average age at marriage both of bridegrooms and brides for each of the last ten years. The difference between the ages at marriage of males and females is now about 3¼ years, the males being the older.

Year.	Average Age of—		Average Age of—		Year.	Average Age of—		Average Age of—	
	All Bridegrooms.	Bachelors.	All Brides.	Spinsters.		All Bridegrooms.	Bachelors.	All Brides.	Spinsters.
	years.	years.	years.	years.		years.	years.	years.	years.
1907	29·2	28·3	25·2	24·5	1912	28·9	28·4	25·3	25·0
1908	29·0	28·0	25·7	24·6	1913	28·8	27·8	25·5	24·7
1909	29·1	28·1	25·3	24·7	1914	28·8	27·9	25·6	25·0
1910	29·0	28·2	25·3	24·6	1915	28·7	28·0	25·5	25·0
1911	28·8	28·0	25·3	24·7	1916	29·1	28·4	26·1	25·2

The average age at marriage, of both bridegrooms and brides, has remained practically constant during the last ten years, although there is now a tendency to a slightly higher average on the part of both sexes.

The foregoing figures relate to all persons marrying during the year, and to those contracting unions for the first time. During 1916 the average marrying age of bachelors was about eight months lower in the case of bridegrooms, and eleven months lower in the case of brides.

THE MARRIAGES OF MINORS.

The number of persons under 21 years of age who were married during 1916 was 3,724, or 11·4 per cent. of the total. The proportion of bridegrooms who were minors was 3·3 per cent., and of brides 19·5 per cent. The following are the figures at decennial intervals since 1881.

Year.	Minors.		Percentage of—	
	Bridegrooms.	Brides.	Bridegrooms.	Brides.
1881	149	1,660	2·37	26·42
1891	177	2,085	2·09	24·65
1901	351	2,546	3·33	24·15
1911	701	3,499	4·59	22·92
1916	542	3,182	3·32	19·50

Compared with the early years the proportion of minors marrying increased among bridegrooms up to the year 1912, when it gradually decreased, and decreased continuously, with very occasional fluctuations, among brides.

## BIRTHS.

The number of births registered during 1916 was 52,075, equal to a rate of 27·90 per 1,000 of the total population, but 3·5 per cent. below the average for the last quinquennium. The number registered during 1915, namely 52,885, was the highest recorded in New South Wales for any single year. The birth-rate fell away sharply after 1888, and declined continuously till 1903, but since that year there has been an improvement, and in 1912 it was the highest rate since 1895.

The decrease in the rate in 1913 as compared with the previous year is due probably to the operation of the Maternity Allowance Act, by which the Commonwealth Government provided allowances in respect of births occurring in Australia. The Act came into force on the 10th October, 1912, and had the effect of causing the prompt registration during the last months of 1912 of many births, which otherwise would not have been registered until 1913.

The following table shows the average annual number of births and the birth-rate per 1,000 of the total population in quinquennial periods since 1870.

Year.	Average Births.	Birth-rate per 1,000 of Population.	Year.	Average Births.	Birth-rate per 1,000 of Population.
1870-74	20,733	39·36	1900-04	37,498	26·99
1875-79	24,388	38·51	1905-09	41,788	27·56
1880-84	30,417	37·89	1910-14	50,190	28·90
1885-89	36,877	36·85	1915	52,885	28·31
1890-94	39,550	33·80	1916	52,075	27·90
1895-99	37,042	28·68			

The rates shown in the previous table are calculated by the usual crude method of relating the births to the total population. It is unsatisfactory, for several reasons, so to measure the birth-rate. A preferable method for purposes of strict analysis is to relate the births according to the ages of the mothers to the total number of women living at corresponding ages.

This method can be followed with exactitude only at census periods, since at any other period it is very difficult to make a reliable estimate of the number living at various ages, on account of migration and other influences.

The birth-rate per 1,000 of the population of each State of the Commonwealth, of New Zealand, and of a number of European countries, according to the latest information and during the previous five years, is given in the following table.

State.	1911-15.	1916.	Country.	1909-13.	1914.
Tasmania ... ..	29·77	28·47	Roumania ... ..	41·7	42·5
Queensland ... ..	29·30	27·91	Italy ... ..	32·3	31·7
<i>New South Wales</i> ... ..	<i>28·91</i>	<i>27·90</i>	Spain ... ..	32·1	29·8
South Australia ... ..	28·18	27·39	Prussia ... ..	29·7	...
Western Australia ... ..	28·58	27·21	Netherlands ... ..	28·4	28·2
New Zealand ... ..	25·97	25·93	Scotland ... ..	26·1	26·1
Victoria ... ..	25·44	24·29	Denmark ... ..	26·9	25·6
			Norway ... ..	25·8	25·2
			England and Wales ... ..	24·7	23·8
			Switzerland ... ..	24·4	...
			Sweden ... ..	24·2	22·9
			Ireland ... ..	23·2	22·6
			France ... ..	19·1	18·0

The decline of the birth-rate, according to the foregoing figures, has been continuous in the States of the Commonwealth, and generally so in European countries, the rates in 1916 showing a decline in almost all instances on those of the preceding quinquennium, though it must be remembered that the European figures relate, on the whole, to pre-war periods. The Australian birth-rates are lower than in most of the countries of the Old World, but as will be shown subsequently this is more than counterbalanced by a much lower death-rate.

**BIRTH-RATES—THE METROPOLIS AND THE REMAINDER OF THE STATE.**

During the year 1916 the births recorded for the metropolitan districts of New South Wales numbered 20,856, and for the remainder of the State 31,219, or 27·31 and 28·32 per 1,000 of the population respectively. With the exception of the year 1913, the country has consistently shown a higher birth-rate than the metropolis, taking the figures for 1893 and onwards annually. Prior to the year 1893 the metropolitan birth-rate was the higher.

Period.	Number of Births.			Births per 1,000 of Population.		
	Metropolis.	Remainder of State.	New South Wales.	Metropolis.	Remainder of State.	New South Wales.
1880-84	49,058	103,026	152,084	40·16	36·90	37·89
1885-89	65,866	118,517	184,383	41·50	34·69	36·85
1890-94	68,754	128,998	197,752	34·11	33·63	33·80
1895-99	61,224	123,986	185,210	26·73	29·75	28·68
1900-04	63,694	123,795	187,489	25·16	28·05	26·99
1905-09	72,409	136,529	208,938	25·50	28·80	27·56
1910-14	95,529	155,423	250,952	28·26	29·32	28·90
1915	20,871	32,014	52,885	27·55	28·83	28·31
1916	20,856	31,219	52,075	27·31	28·32	27·90

**THE SEXES OF CHILDREN.**

Of the 52,075 children born during the year (exclusive of those still-born), 26,599 were males and 25,476 were females, the proportion being 101 males to 100 females. In no year, as far as observation extends, have the female births exceeded in number those of males, although the difference has sometimes been very small. The preponderance of births of male children in New South Wales during a number of years is shown in the following table.

Year.	Males.	Females.	Total.	Year.	Males.	Females.	Total.
1870-74	10,577	10,156	20,733	1900-04	19,134	18,364	37,498
1875-79	12,477	11,911	24,388	1905-09	21,406	20,382	41,788
1880-84	15,567	14,850	30,417	1910-14	25,728	24,462	50,190
1885-89	18,898	17,979	36,877	1915	27,105	25,780	52,885
1890-94	20,324	19,226	39,550	1916	26,599	25,476	52,075
1895-99	18,979	18,063	37,042				

The excess of males over females born during the past fifty-six years has ranged from 2 per cent. in 1875, 1876, and 1901, to about 8·7 per cent. in 1864, the average being 5 per cent.

It is noteworthy that in the case of illegitimate births, the rate for males has always maintained the ascendancy, save in the quinquennial period 1885-89 and the year 1915, when the rate for females predominated slightly.

The following table shows the number of males born to every 100 females, both in legitimate and illegitimate births, during the last forty-six years.

Year.	Legitimate Births.	Illegitimate Births.	All Births.	Year.	Legitimate Births.	Illegitimate Births.	All Births.
1870-74	104·3	101·0	104·1	1900-04	104·3	102·8	104·2
1875-79	104·6	108·8	104·8	1905-09	105·0	104·9	105·0
1880-84	104·9	103·9	104·8	1910-14	105·2	105·1	105·2
1885-89	105·4	98·8	105·1	1915	105·4	99·8	105·1
1890-94	105·7	105·4	105·7	1916	104·4	103·7	104·4
1895-99	105·0	105·4	105·1				

#### ILLEGITIMACY.

The number of illegitimate births in 1916 was 2,501, equal to 4·80 per cent. of the total births. A statement of the illegitimate births in New South Wales, distinguishing between the metropolis and the remainder of the State, is given herewith.

Year.	Number of Illegitimate Births.			Ratio per cent. to Total Births.		
	Metropolis.	Remainder of State	New South Wales.	Metropolis.	Remainder of State.	New South Wales.
1880	561	665	1,226	6·72	3·36	4·35
1890	1,056	995	2,051	7·81	3·91	5·26
1900	1,222	1,383	2,605	10·08	5·53	7·01
1905	1,530	1,382	2,912	11·11	5·37	7·37
1910	1,530	1,370	2,900	9·44	4·67	6·37
1915	1,480	1,201	2,681	7·09	3·75	5·07
1916	1,334	1,167	2,501	6·40	3·74	4·80

The proportion of illegitimate to total births increased steadily from 1880 to 1905, since which year there has been an appreciable decline.

The smaller proportion of illegitimate births in the extra-metropolitan area of the State is doubtless partly due to the fact that prospective mothers journey to the metropolis, not only for the sake of the advantages of lying-in at one of the public maternity hospitals, but to avoid the publicity of their unfortunate condition and its attendant social ostracism. However, in the absence of data as to the proportion of unmarried females of productive ages in each Division, a comparison is impracticable.

The method of stating the illegitimate as a proportion of the total births is erroneous, because the illegitimate births have no necessary relation to the legitimate births, and because they are compared with a standard which has been declining for several years, and which is itself variable.

## THE LEGITIMATION ACT OF 1902.

In 1902 an Act to legitimise children born before marriage on the subsequent marriage of their parents, provided that no legal impediment to the marriage existed at the time of birth, was passed in New South Wales. On registration in accordance with the provisions of this Legitimation Act, any child who comes within the scope of its intentions, born before or after the passing thereof, is deemed to be legitimised from birth by the post-natal union of its parents, and entitled to the status of offspring born in wedlock. Legitimation is effected on the father of the child presenting to a Registrar a certified copy of the entry of his marriage with its mother, and tendering the necessary statutory declaration. The child, even though it may have predeceased this obligation, is thereupon registered as the lawful issue of its parents. In the event of the child's previous registration as illegitimate, a note of the entry under this Act must be made in the register, in which the particulars of such registration were originally inscribed. Since the passing of the Act there have been 4,069 registrations. The number in each of the last ten years is shown in the following table.

Year.	Registrations.	Year.	Registrations.
1907	247	1912	405
1908	238	1913	298
1909	267	1914	393
1910	288	1915	416
1911	394	1916	420

## PLURAL BIRTHS.

During the year 1916 there were 563 cases of plural births. The children thus born numbered 1,127 (exclusive of three still-births), and included 559 cases of twins (589 males and 538 females), and four cases of triplets (4 males and 8 females). Of these 563 cases, 25 were classified as illegitimate. The number of children born at plural births formed 2.16 per cent. of the total births.

The following table shows the number of cases of twins, triplets, and quadruplets born in New South Wales during the the last ten years, excluding those still-born, and distinguishing legitimate and illegitimate.

Cases of—	Legitimate.	Illegitimate.	Total.
Twins ... ..	4,848	227	5,075
Triplets ... ..	43	3	46
Quadruplets ...	1	...	1

The total number of confinements recorded during the ten years was 479,264; hence the rates per million confinements were:—10,589 cases of twins, 96 of triplets, and 2 of quadruplets; otherwise stated, there were 107 plural births in every 10,000 confinements.

## NATURAL INCREASE.

In the year 1916 the excess of births over deaths, or as it is actuarially termed the "natural increase," was 32,221. It fell, however, below that of the previous year to the extent of 1,054, but the figures for 1914 were the highest on record. The excess of births over deaths shows neither a progressive increase nor a progressive decrease. In its very nature, and according to the varying conditions which regulate it, natural increase fluctuates, being dependent on material prosperity and favourable environment.

The following table shows the natural increase of population over ten years (1907-16) for the metropolis, for the remainder of the State, and for the whole of New South Wales.

Year.	Natural Increase.					Increase per cent. of Population at end of previous Year.
	Metropolis.	Remainder of State.	Whole of State.			
			Males.	Females.	Total.	
1907	8,096	17,689	12,187	13,598	25,785	1·72
1908	8,825	17,610	12,320	14,115	26,435	1·73
1909	9,312	18,617	13,297	14,632	27,929	1·79
1910	9,839	19,503	14,094	15,248	29,342	1·84
1911	10,856	19,642	14,504	15,994	30,498	1·86
1912	12,459	20,648	15,526	17,581	33,107	1·95
1913	12,597	19,805	15,091	17,311	32,402	1·82
1914	13,218	21,620	16,433	18,405	34,838	1·90
1915	12,682	20,593	15,648	17,627	33,275	1·79
1916	12,700	19,521	15,114	17,107	32,221	1·72

The natural increase is now 1·72 per cent., as against 2·25 per cent. in 1890, the falling-away being due entirely to the decline in the birth-rate, since the death-rate has exhibited a continuous improvement.

Although male births are more numerous than those of females, the increase of population from the excess of births over deaths is greatly in favour of the latter. The male population certainly exceeds the female, but there is a correspondingly larger number of deaths among males. There is also a greater mortality among male than among female children, a cause from which alone the natural excess of male births is almost neutralised. During the ten years which closed with 1916, the number of females added to the community by excess of births exceeded the males by 17,404, or 12 per cent.

While the rate of natural increase in New South Wales is low in comparison with that of twenty years ago, it is not exceeded by any country outside Australasia, as will be seen from the following table. The figures represent the birth and the death rates, and the difference between them (the natural increase) per 1,000 of mean population in each country—for the Australian States and the Dominion of New Zealand for 1916, and for the majority of other countries for 1914.

Country.	Birth-rate.	Death-rate.	Natural Increase.	Country.	Birth-rate.	Death-rate.	Natural Increase.
Roumania ... ..	42·5	23·8	18·7	Victoria ... ..	24·3	11·7	12·6
Tasmania ... ..	28·5	10·4	18·1	Norway ... ..	25·2	13·5	11·7
Jamaica ... ..	38·9	21·4	17·5	Finland (1913) ...	27·1	16·1	11·0
Western Australia ...	27·2	9·8	17·4	Austria (1912) ...	31·3	20·5	10·8
New South Wales ...	27·9	10·6	17·3	Scotland ... ..	26·1	15·5	10·6
Servia (1912) ... ..	38·0	21·1	16·9	England and Wales.	23·8	14·0	9·8
Queensland ... ..	27·9	11·1	16·8	Chile ... ..	37·0	27·8	9·2
New Zealand ... ..	25·9	9·6	16·3	Sweden ... ..	22·9	13·8	9·1
Netherlands ... ..	28·2	12·4	15·8	Switzerland (1913)...	23·1	14·3	8·8
South Australia ... ..	27·4	11·7	15·7	Belgium (1912) ...	22·6	14·8	7·8
Japan (1911) ... ..	34·1	20·4	13·7	Spain ... ..	29·8	22·1	7·7
Prussia (1913) ... ..	28·2	14·9	13·3	Ireland ... ..	22·6	16·3	6·3
Italy ... ..	31·1	17·9	13·2	Ceylon ... ..	38·1	32·2	5·9
Denmark ... ..	25·6	12·6	13·0	France ... ..	18·0	19·6	(—)1·6
Hungary (1912) ... ..	36·3	23·3	13·0				

From the foregoing figures it may be seen readily that the countries with the highest birth-rate have not necessarily the highest rate of natural increase; and the increase in population depends also upon the death-rate, which is influenced to a considerable extent by the birth-rate.

## DEATHS.

During the year 1916 the deaths numbered 19,854, equal to a rate of 10·64 per 1,000 of the population, which is 1·3 per cent. above that for the year 1915, and slightly in advance of that for the decade 1910-14. The total included 11,485 male and 8,369 female deaths, or a ratio for the former of 12·22, and for the latter of 9·04 per 1,000 living of each of the sexes. The average annual number of deaths from 1870 with the rate per 1,000, in quinquennial periods, was as follows:—

Period.	Average Annual Number of Deaths.			Death-rate per 1,000 of Total Population.		
	Males.	Females.	Total.	Males.	Females.	Total.
1870-74	4,391	2,948	7,339	15·58	12·32	13·93
1875-79	6,199	4,360	10,559	17·99	15·10	16·67
1880-84	7,286	5,124	12,410	16·55	14·14	15·46
1885-89	8,461	6,043	14,504	15·43	13·36	14·49
1890-94	8,877	6,344	15,221	14·06	11·77	13·01
1895-99	9,002	6,514	15,516	13·11	10·77	12·01
1900-04	9,195	6,733	15,928	12·65	10·17	11·47
1905-09	9,076	6,583	15,659	11·52	9·04	10·33
1910-14	10,598	7,555	18,153	11·66	9·13	10·45
1915	11,457	8,153	19,610	11·92	8·99	10·50
1916	11,485	8,369	19,854	12·22	9·04	10·64

The death-rate has fallen continuously for both sexes, but slightly more for males than for females. The death-rate for males is, however, about one-fourth higher than for females, the reason being that males are exposed to more and greater risks than females, and that male infants are the more delicate. It will be noticed that the death-rate has declined markedly since the period 1890-94, coincidentally with the decline in the birth-rate. The falling birth-rate has influenced the death-rate, inasmuch as it has affected the age-constitution of the population by reducing the proportion living at the first five years, at which the mortality is high, and at the same time increasing the proportion living at ages from 5 to 20, at which the mortality is low.

A table of the death-rates per 1,000 for each of the Australian States, for New Zealand, and for a number of other countries, during the last six years, is given herewith for purposes of comparison.

State.	1911-1915.	1916.	Country.	1909-1913.	1914.
South Australia ...	10·47	11·73	Roumania ...	25·3	23·8
Victoria ...	11·50	11·70	Spain ...	22·9	22·1
Queensland ...	10·59	11·09	France ...	18·3	19·6
New South Wales ...	10·54	10·64	Italy ...	20·0	18·7
Tasmania ...	10·30	10·38	Ireland ...	16·8	16·3
Western Australia ...	9·84	9·80	Prussia ...	16·1	...
New Zealand ...	9·22	9·64	Scotland ...	15·4	15·5
			Switzerland ...	15·1	...
			England and Wales ...	14·0	14·0
			Sweden ...	13·9	13·8
			Norway ...	13·4	13·5
			Denmark ...	13·0	12·6
			Netherlands ...	13·3	12·4

The comparatively favourable health conditions of Australasia will be manifest from an inspection of these rates. New South Wales occupied the fourth place in the list for 1916, with a rate of 10·64, as against the higher rates of South Australia, Victoria, and Queensland; though the parent State does not compare quite so well with Tasmania, Western Australia, and New Zealand, the Dominion being distinguished by the possession of the lowest death-rate of any of the countries cited.

It might have been expected that the rates of European countries in any case would be higher than those of New South Wales, on account of the larger proportion of old persons in their populations. But it must be remembered also that some of the endemic scourges of the Old World are unknown in Australasia; and that, apart from climatic conditions most conducive to healthful life, and a natural environment that offers no serious menace to longevity, the social and economic status of the great body of the people is far superior to that of Europeans. Their occupations are, in addition, more zealously safeguarded from needless risks by preventive legislation, and by the enforcement of the provisions of many Acts of Parliament dealing with the general health of the community, such as the Public Health, the Dairies Supervision, and the Pure Food Acts, besides regulations framed by Local Government authorities.

#### DEATHS—THE METROPOLIS AND THE REMAINDER OF THE STATE.

It is not possible to show the exact difference between urban and rural mortality in New South Wales, but an approximate idea may be obtained from a comparison of the experience of the metropolis with that of the remainder of the State, which is, of course, not absolutely rural, as a few large towns are contained therein. Separating the State, however, into these two broad divisions during the year 1916, the record of deaths for the metropolis was 8,156, and for the remainder of the State 11,698, equivalent respectively to rates of 10·68 and 10·61 per 1,000 of the living. The average annual number of deaths and the rate per 1,000 in each of these divisions since 1880, in five-year periods, is given in the subjoined table.

Period.	Metropolis.		Remainder of the State.		New South Wales.	
	Average Number of Deaths.	Ratio per 1,000 Living.	Average Number of Deaths.	Ratio per 1,000 Living.	Average Number of Deaths.	Ratio per 1,000 Living.
1880-84	5,033	20·60	7,377	13·21	12,410	15·46
1885-89	6,181	19·47	8,323	12·18	14,504	14·49
1890-94	5,979	14·83	9,242	12·05	15,221	13·01
1895-99	5,634	12·30	9,882	11·86	15,516	12·01
1900-04	5,845	11·54	10,083	11·42	15,923	11·47
1905-09	5,979	10·53	9,680	10·21	15,659	10·33
1910-14	7,312	10·81	10,841	10·23	18,153	10·45
1915	8,189	10·81	11,421	10·29	19,610	10·50
1916	8,156	10·68	11,698	10·61	19,854	10·64

The death-rate has improved steadily both for the metropolis and for the remainder of the State, but markedly so for the former, the proportion per cent. being now very little higher than for the latter, whereas thirty years ago it was 50 per cent. in advance. The improvement dates from the quinquennium beginning with the year 1890, and is coincident with the installation of the modern system of sewage and the enforcement of the provisions of the Dairies Supervision Act of 1886. The emphatic decline in

the rates for each Division and for the State as a whole is appreciable from the fact that the metropolitan rate for the period 1885-9 was 19·5 per 1,000; and for the year 1916 it was 10·7, or a difference of 45 per cent.; for the same dates the rates for the remainder of the State were respectively 12·2 and 10·7, or a difference of 12 per cent.; and for the whole State, 14·5 and 10·6, or a difference of 27 per cent.

#### THE MORTALITY OF INFANTS AND YOUNG CHILDREN.

A further measure of the mortality rates for the metropolis and for the remainder of the State, which affords a most sensitive test, is obtained by a comparison of the death-rates of infants in each Division.

##### *Children under 1 Year.*

During the year 1916 the children who died before completing the first year of life numbered 3,533, equivalent to a rate of 67·8 per 1,000 births. This rate, which is the lowest on record, is 7 per cent. below the average for the last decade, which included several years of exceptionally low infantile mortality. Male infants died at the rate of 73·9 per 1,000 births, and female infants at the rate of 61·5. To the total the metropolis contributed 1,428 deaths, or 68·5 per 1,000 births, and the remainder of the State 2,105, or 67·4 per 1,000 births.

The following table shows the average annual number of deaths of children under 1 year, in the metropolis and in the remainder of the State, and the proportion per 1,000 births in quinquennial periods since the year 1880.

Period.	Metropolis.		Remainder of State.		New South Wales.	
	Deaths under 1.	Rate per 1,000 Births.	Deaths under 1.	Rate per 1,000 Births.	Deaths under 1.	Rate per 1,000 Births.
1880-84	1,707	174·0	1,956	94·9	3,663	120·4
1885-89	2,168	164·6	2,256	95·2	4,424	120·0
1890-94	1,908	138·8	2,471	95·8	4,379	110·7
1895-99	1,646	134·4	2,572	103·7	4,218	113·9
1900-04	1,416	111·2	2,399	96·9	3,815	101·7
1905-09	1,255	86·7	2,035	74·5	3,290	78·7
1910-14	1,437	75·2	2,211	71·1	3,648	72·7
1915	1,516	72·6	2,087	65·2	3,603	68·1
1916	1,428	68·5	2,105	67·4	3,533	67·8

The improvement in the infantile mortality rate for the metropolis is partly due to the measures adopted to combat preventable diseases. A scheme for the preservation of infant health was formulated by the Sydney Municipal Council in 1903, and instructional pamphlets were circulated for the guidance of mothers in the care and feeding of young children. In the following year trained women inspectors were appointed to visit mothers in the populous parts of the city and in the surrounding suburbs. Further efforts to reduce infantile mortality led to the establishment of Baby Clinics in Sydney and Newcastle in 1914. The Notification of Births Act, 1915, enables the health authorities to obtain early knowledge of the birth of a child, and empowers them to bring infants under their supervision immediately after birth, when preventive measures are most efficacious for the accomplishment of beneficent results. Details regarding the Baby Clinics will be found in a later chapter.

Of the total number of deaths of infants under 1 year of age about one-third die within a week of birth; by the end of the first month the proportion

is over two-fifths; and by the end of three months, three-fifths. Approximately, one child in every 45 born dies within a week of birth. The following statement shows for 1916, in comparison with the average of the preceding quinquennium, the deaths per 1,000 births during each of the first four weeks after birth, and then for each successive month. The experience in the metropolis is distinguished from that in the remainder of the State, the sexes are taken together, and for the year 1916 the illegitimate children are distinguished from the legitimate for the State as a whole.

Age.	Metropolis.		Remainder of State.		New South Wales.			
	1911-15.	1916.	1911-15.	1916.	1911-15.	1916.		
						Legitimate.	Illegitimate.	Total.
Under 1 week ... ..	23·6	23·1	22·8	23·7	23·1	22·8	36·4	23·5
1 week ... ..	4·1	3·7	4·0	3·9	4·0	3·6	8·0	3·8
2 weeks ... ..	2·5	2·0	2·7	2·7	2·7	2·3	4·8	2·4
3 ,, ... ..	2·1	1·8	2·1	2·3	2·1	2·0	5·6	2·1
Total under 1 month	32·3	30·6	31·6	32·6	31·9	30·7	54·8	31·8
1 month ... ..	6·3	5·7	6·1	6·2	6·2	5·6	14·0	6·0
2 months ... ..	4·7	5·4	4·5	3·7	4·6	3·9	13·2	4·4
3 ,, ... ..	5·2	4·8	3·9	3·0	4·4	3·2	13·6	3·7
4 ,, ... ..	4·1	4·0	4·1	3·6	4·1	3·3	12·8	3·8
5 ,, ... ..	3·7	2·3	3·4	2·7	3·5	2·3	7·2	2·5
6 ,, ... ..	3·5	3·5	3·3	3·0	3·4	3·0	8·0	3·2
7 ,, ... ..	3·4	2·4	3·0	2·0	3·1	2·0	5·2	2·2
8 ,, ... ..	2·7	2·2	2·8	2·9	2·7	2·3	8·4	2·6
9 ,, ... ..	2·7	2·6	2·6	2·3	2·7	2·4	3·1	2·4
10 ,, ... ..	2·4	2·5	2·4	2·6	2·4	2·6	2·8	2·6
11 ,, ... ..	2·6	2·5	2·3	2·8	2·4	2·6	2·8	2·6
Total under 1 year ...	73·6	68·5	70·0	67·4	71·4	63·9	145·9	67·8

In the first week of life the mortality is more than five times as great as in the second, and in the second about twice as great as in the fourth. From the first month to the second the mortality falls rapidly; from the second to the twelfth, gradually. Comparing the mortality in the two Divisions of New South Wales—the metropolis and the remainder of the State—the usual experience is that at every stage of life children die more quickly in the former. In 1916 the rate per 1,000 births was 68·5 in the case of the metropolis, and 67·4 in that of the remainder of the State. During the previous quinquennial period the metropolitan rate was 6 per cent. higher than that for the remainder of the State.

The table shows a great waste of life among illegitimate children, the mortality under 1 year being 145·9 per 1,000, as compared with 63·9 among legitimate children. The largest proportional excess is not immediately after birth, but about three months later. During the first week the mortality

of illegitimates exceeded that of legitimates by 122 per cent.; thereafter it increased until, in the third month, the excess was 325 per cent.; after this it dropped irregularly, until in the tenth month the rates became almost equal.

The following statement furnishes a comparison of the rates of infantile mortality in the Australian States, in New Zealand, and in various other countries. The rates indicate the deaths under one year per 1,000 births.

State.	1915.	1916.	Country.	1913.	1914.
Tasmania ... ..	72·2	75·0	Chile ... ..	255	286
Victoria ... ..	68·8	74·6	Ceylon ... ..	189	213
South Australia ...	67·3	73·6	Roumania ... ..	202	187
Queensland ... ..	64·0	70·4	Italy ... ..	137	...
<i>New South Wales</i> ...	68·1	67·8	Finland ... ..	113	...
Western Australia ..	66·6	66·3	Scotland... ..	110	111
New Zealand ... ..	50·1	50·7	England and Wales ...	108	105
			Ontario, Canada ...	117	103
			Denmark ... ..	94	98
			Netherlands ... ..	91	95
			Ireland ... ..	97	87

Of the rates shown in the foregoing table, that for New Zealand is the best; but the rates for Australasia generally are emphatically superior to those prevailing for the years specified in the other countries for which records are available.

#### *Children under 5 Years.*

There has been a great improvement in the death-rate of children of the first five years of life—an improvement which is most marked in the metropolis, where the rate has declined by 55 per cent. since 1890, as compared with 37 per cent. in the remainder of the State. At every period shown in the subjoined table the metropolitan rate, however, was the higher—in some cases over 50, and never below 7, per cent. in excess.

The following table shows the mortality in each Division, in periods of five years since 1890, of children under 5 years of age.

Period.	Metropolis.		Remainder of State.		New South Wales.	
	Average Annual Number.	Rate per 1,000 Living.	Average Annual Number.	Rate per 1,000 Living.	Average Annual Number.	Rate per 1,000 Living.
1890-94	2,674	48·45	3,546	32·06	6,220	37·52
1895-99	2,206	40·77	3,487	30·97	5,693	34·15
1900-04	1,846	35·17	3,210	29·64	5,056	31·44
1905-09	1,612	27·61	2,723	23·39	4,335	24·80
1910-14	1,895	25·47	2,986	21·77	4,881	23·07
1915	2,187	24·60	2,977	19·95	5,164	21·69
1916	2,019	21·84	3,052	20·17	5,071	20·80

The improvement in the metropolis has been greater than in the remainder of the State, the rate having decreased since 1890 by 55 per cent. in the former, and in the latter by 37. Outside the metropolis the rate did not vary to any significant extent until 1904, when there was a marked decline, which has been continuous. During the year 1916 there was a saving of 24 lives in every 1,000 children under 5 years of age in the metropolis, and of 11 in the remainder of the State—an appreciable advance on the mortality rate of a quarter of a century ago.

The following table shows for 1916, and for the quinquennial period preceding, the death-rates of illegitimate children under one and under five years of age, as compared with those of legitimate children of like ages.

Age.	Legitimate.		Illegitimate		Total.	
	Deaths.	Rate per 1,000 Living.	Deaths.	Rate per 1,000 Living.	Deaths.	Rate per 1,000 Living.
Under 1 year—						
1911-15	16,269	66·63	2,176	153·85	18,445	71·41
1916	3,168	63·90	365	145·94	3,533	67·84
Under 5 years—						
1911-15	22,422	21·51	2,586	44·13	25,008	22·71
1916	4,626	19·92	445	38·63	5,071	20·80

The foregoing figures show the poor chance of survival afforded to the illegitimate as compared with that of the legitimate infant, since at each of the ages specified the death-rate of the former was twice that of the latter; and it is a fact of the utmost gravity that in the year 1915 one-seventh of the children illegitimately born died before completing the first year of existence.

#### CHILDREN SURVIVING AT THE AGE OF FIVE YEARS.

The tables just given show the death-rates of children under one and under 5. In the next statement will be found, out of 10,000 children born alive, of both sexes, the number living at each period up to five years of age.

The table, which is unadjusted, is based on the experience of the ten years 1906-15. It appears that out of 10,000 boys born 1,039 will die before reaching 5 years of age, and out of 10,000 girls 906 will die. Of the number who fail to survive five years 250 boys and 199 girls die within the first week of birth, and 326 boys and 260 girls within the first month. At the end of the first year there will be 9,193 boys and 9,327 girls surviving.

#### THE NUMBER OF CHILDREN LIVING AT EACH AGE OUT OF 10,000 BORN ALIVE.

Age.	Boys.	Girls.	Age.	Boys.	Girls.
0 week ... ..	10,000	10,000	7 months ... ..	9,333	9,455
1 ,, ... ..	9,751	9,901	8 ,, ... ..	9,298	9,426
2 weeks ... ..	9,705	9,765	9 ,, ... ..	9,268	9,400
3 ,, ... ..	9,673	9,740	10 ,, ... ..	9,241	9,372
1 month ... ..	9,648	9,720	11 ,, ... ..	9,217	9,349
2 months ... ..	9,573	9,660	1 year ... ..	9,193	9,327
3 ,, ... ..	9,515	9,615	2 years ... ..	9,059	9,188
4 ,, ... ..	9,464	9,567	3 ,, ... ..	8,999	9,130
5 ,, ... ..	9,416	9,523	4 ,, ... ..	8,961	9,094
6 ,, ... ..	9,375	9,487			

## DEATH-RATES ACCORDING TO AGES.

The age and sex distribution of a population are most important factors in determining the death-rate; for instance, the rates at ages 5 to 50 are lower than for the whole population, so that a country with a high proportion at those ages, as in the case of New South Wales, might expect to have a low death-rate. Moreover, a country having a high proportion of females will most likely have a death-rate which compares advantageously with a country having a low proportion of females. Tables published in the previous issue of the Year Book give detailed information of these and other particulars based on the census taken on the 2nd April, 1911.

A reference to these statistics will show that at all ages the rate markedly decreased, slowly for the first thirty years, and rapidly during the last twenty, and that, over the whole period, the decline for all ages reached 37 per cent. At age 35 it was over 50 per cent.: namely 67 per cent. at ages 5-9; 53 per cent. at ages 0-4; 53 per cent. at ages 10-14; 48 per cent. at ages 15-24; and 50 per cent. at ages 25-34. At ages 35-75, the decline was 48 per cent. in the first group (35-39), and 20 per cent. in the last (70-74).

Comparing both sexes, it will be seen that the male rate was higher than the female in every age-group shown, the only exceptions being in the periods 1871-80 and 1901-10, when the female rate was slightly in excess at the child-bearing ages 25-34 years. The female rate exhibited, moreover, an improvement over the male in decennial periods ranging from 1861 to 1911.

## THE INDEX OF MORTALITY.

In order to compare the death-rates of New South Wales with those of the other Commonwealth States on a uniform basis, the death-rate (index of mortality) of each has been calculated on the basis that its population contained the same proportion at each of five age-groups (under 1, 1-19, 20-39, 40-59, and 60 and over) as was contained in the population of Australia as a whole at the census of 1911. Similarly, in obtaining the index of mortality of each capital city, the population of all the capital cities at the census of 1911 was taken as a basis.

The indices of mortality during 1914 were as follow, the crude rates being also shown for purposes of comparison:—

State.	Index of Mortality.	Crude Death-rate.	City.	Index of Mortality.	Crude Death-rate.
Queensland ... ..	11·43	11·09	Brisbane ... ..	13·55	13·83
South Australia ... ..	11·30	11·73	Hobart ... ..	13·28	14·95
Victoria ... ..	11·18	11·70	Adelaide ... ..	12·78	13·57
Western Australia ... ..	11·05	9·80	Melbourne ... ..	12·31	12·94
New South Wales ... ..	10·65	10·64	Sydney ... ..	10·68	10·68
Tasmania ... ..	10·44	10·38	Perth ... ..	*	*

\* Not available.

Sydney has the best index of mortality of all the capitals, and New South Wales holds second place with regard to that of the States.

## THE CAUSES OF DEATH.

At a conference of Australian Statisticians in 1906 it was agreed to adopt the Bertillon system, and causes of death in New South Wales are now tabulated according to that classification. Formerly the system adopted in this most important section of vital statistics was that employed by the Registrar-General in England, which differed considerably from the

modern method, in some cases materially, hence a comparison of results ascertained for the last ten years with those of previous years is somewhat affected by those differences.

In the following table will be found the principal causes of death arranged in order of fatality, together with the average number of deaths from similar causes during the previous quinquennium, due allowance having been made for the increase in population.

Causes of Death.	Number, 1916.	Average Number, 1911-15.	Increase (+) or Decrease (-) in 1916.	Causes of Death.	Number, 1916.	Average Number, 1911-15.	Increase (+) or Decrease (-) in 1916.
			per cent.				per cent.
Organic Diseases of the Heart ...	1,900	1,702	+ 11.6	Leucæmia, Anæmia, Chlorosis ...	189	150	+ 26.0
Endocarditis ...	124	101	+ 22.8	Insanity ...	181	161	+ 12.4
Cancer ...	1,468	1,385	+ 6.0	Intestinal Obstruction ...	174	170	+ 2.4
Pneumonia ...	1,417	1,184	+ 19.7	Convulsions—			
Diarrhœa and Enteritis (under 2)	1,075	1,324	- 18.8	Infants ...	161	163	- 1.2
,, (over 2)...	323	358	- 9.8	Influenza ...	153	132	+ 15.9
Senility ...	1,311	1,276	+ 2.7	Meningitis	148	151	- 2.0
Tuberculosis—				Cerebro-spinal			
Lungs ...	1,157	1,184	- 2.3	Meningitis ...	148	42	+ 252.4
Accident ...	990	1,096	- 9.7	Appendicitis ...	140	148	- 5.4
Bright's Disease—				Cirrhosis of the			
Acute and Chronic	976	971	+ 0.5	Liver ...	130	142	- 8.5
Premature Birth...	884	913	- 3.2	Gastritis ...	128	116	+ 10.3
Hæmorrhage, etc., of the Brain ...	756	778	- 2.8	Scarlet Fever ...	108	34	+ 217.6
Bronchitis ...	562	578	- 2.8	Embolism, Thrombosis ...	105	108	- 2.8
Congenital Debility ...	411	413	- 0.5	Epilepsy ...	92	86	+ 7.0
Diphtheria and Croup ...	321	282	+ 13.8	Acute Rheumatism	88	95	- 7.4
Puerperal Condition ...	297	308	- 3.6	Measles ...	73	168	- 56.6
Suicide ...	212	264	- 19.7	Alcoholism—			
Typhoid Fever ...	209	234	- 10.7	Acute and Chronic	68	73	- 6.8
Congenital Malformations ...	206	177	+ 16.4	Simple Peritonitis	59	49	+ 20.4
Diabetes ...	206	176	+ 17.0	Syphilis ...	35	59	- 40.7
Whooping-cough ..	190	175	+ 8.6	Other Diseases ...	2,679	2,677	+ 0.1
				All Causes ...	19,854	19,603	+ 1.3

The number of deaths during 1916 was higher by 251, or 1.3 per cent., than the average mortality of the previous quinquennium; and compared with that period of five years two only of the ten numerically highest fatal causes showed any marked increase, namely pneumonia and diseases of the heart. Cancer exhibited an increase of 6 per cent., senility of 2.7 per cent., and Bright's disease of 0.5 per cent. Diarrhœa and enteritis, accident, prema-

ture birth, hæmorrhage and associated brain complaints, and tuberculosis of the lungs, all showed decreases of varying degree in the order given.

Of the diseases and accidents specifically infantile, or peculiarly fatal to childhood, scarlet fever, congenital malformations, diphtheria and croup, and whooping-cough, exhibited increases of varying degree in the order given, and similarly diarrhœa and enteritis, convulsions, and congenital debility exhibited decreases.

#### TYPHOID FEVER.

The number of deaths from typhoid fever during the year 1916 was 209, equivalent to 1.12 per 10,000 living, which is 11 per cent. lower than the rate for the period of the previous five years. This is essentially a preventable disease, and does not obtain a foothold where a proper system of sanitation has been installed and ordinary health precautions have been taken. Nevertheless, the rate is still high, though a great improvement has been attained during the three past decades.

The number of deaths from typhoid fever, and their correlative rates since 1884, are stated below.

Period.	Males.		Females.		Total.	
	Deaths.	Rate per 10,000.	Deaths.	Rate per 10,000.	Deaths.	Rate per 10,000.
1884-88	1,356	5.12	1,115	5.13	2,471	5.13
1889-93	959	3.11	714	2.74	1,673	2.94
1894-98	1,107	3.27	731	2.46	1,838	2.89
1899-1903	1,054	2.93	733	2.25	1,787	2.61
1904-08	748	1.93	507	1.42	1,255	1.69
1909-13	773	1.76	464	1.56	1,237	1.47
1914	169	1.74	81	0.92	250	1.35
1915	141	1.47	78	0.86	219	1.17
1916	115	1.22	94	1.02	209	1.12

The decrease between 1888 and 1893 was very marked, and may be traced to the operation of the provisions of the Dairies Supervision Act, which became law in 1889. From that year until 1903 the rate was fairly even, and did not greatly decline, but during the next quinquennium there was considerable decrease in both the number and the rate of deaths from typhoid.

The following statement shows the rate for the metropolis and for the remainder of the State during the last twenty-two years. Owing to a superior system of sewage, and to greater attention to sanitary inspection, the rate of the metropolis has always been lower than that of the remainder of the State.

Period.	Metropolis.		Remainder of State.	
	Deaths.	Rate per 10,000.	Deaths.	Rate per 10,000.
1894-98	507	2.26	1,331	3.24
1899-1903	426	1.72	1,361	3.12
1904-08	334	1.21	921	1.97
1909-13	363	1.12	874	1.69
1914	80	1.08	170	1.53
1915	83	1.09	136	1.23
1916	71	0.93	138	1.25

The greater number of deaths from typhoid occur in the summer and autumn. In 1916 there were 84 deaths during the summer months of December, January and February; and 82 during the autumn months of March, April and May.

It has been established that inoculation of healthy persons with sterilised typhoid cultures is an effective measure for preventing infection by fever. By this means the case incidence may be reduced by 75 per cent., and when the disease does occur among inoculated persons it takes a milder form, with a considerably lower fatality rate, than in those not so prophylactically protected. The New South Wales Department of Public Health supplies anti-typhoid vaccine to medical practitioners free of cost, and soldiers going abroad on active service during the past four years in all cases were inoculated.

Typhoid is a disease to which youth and early maturity are peculiarly liable, and it is attended by a greater measure of mortality to males than to females. The greatest number of deaths of males from typhoid take place in the age-groups 20-24, 25-34, 35-44, and 15-19 in the order given; and of females in the age-groups 20-24, 15-19, 25-34 and 35-44. The rate has, however, steadily declined in almost every age-group throughout each decennial period, the decrease being greater for females than for males.

Among males during the first ten years of life there is not much variation in the rate. After that, it rises progressively to a maximum at ages 20-24, and then declines gradually with advancing age. Experience is similar with respect to females, except that the maximum point is reached at ages 15-19, five years earlier. At ages 5-19 and 65-74 the female rates are slightly higher than male, but at all other ages the male rates predominate.

#### SMALLPOX.

After a considerable period of immunity, smallpox, of the mildest type, became epidemic in Sydney during the year 1913. In the absence of severe symptoms, the disease escaped detection until it had become distributed throughout the metropolitan area, and thence, in a few instances, to other parts of the State. The total number of cases notified during 1913 was 1,070, of which one only proved fatal. During the year 1914 the notifications numbered 628, and 3 deaths occurred; and in 1915 a total number of 471 cases was attended by a single death.

#### *Vaccination.*

Vaccination is not compulsory in New South Wales, and a very small proportion of the people submit voluntarily to the operation unless an epidemic threatens, when it is endured from sentiments of fear as much as from motives of precaution. This cavalier attitude towards the dread scourge of smallpox may be attributed to a general feeling of security from infection on account of the distance from those countries in which the disease is more or less endemic. The duration of voyages from such places has been considerably diminished, and consequently the risk of sufferers from smallpox entering the State or the Commonwealth undetected by the inspectors of the Quarantine Department has been greatly increased.

During the year 1913, in consequence of an outbreak of smallpox (practically restricted to Sydney), a popular demand for vaccination became insistent, a number of depôts were opened, and about 425,000 persons were vaccinated by Government medical officers and by private medical practitioners.

From the date of the Commonwealth's participation in the great war that began on the 4th August, 1914, all members of the Expeditionary Forces from this and the other five States of the Federation have been compulsorily vaccinated, besides being inoculated for other diseases of a zymotic character.

## MEASLES.

During the year 1916 the deaths due to measles amounted to 73, a number equal to a rate of 0.39 per 10,000 living. The rate for males was 0.47 and for females 0.31. The following statement shows the deaths from this cause, and the rate per 10,000 living, for each sex, arranged in quinquennial periods since 1884.

Period.	Males.		Females.		Total.	
	Deaths.	Rate per 10,000.	Deaths.	Rate per 10,000.	Deaths.	Rate per 10,000.
1884-88	166	0.63	165	0.76	331	0.69
1889-93	393	1.28	369	1.41	762	1.34
1894-98	338	1.00	324	1.09	662	1.04
1899-1903	160	0.44	219	0.67	379	0.55
1904-08	82	0.21	107	0.30	189	0.25
1909-13	309	0.71	267	0.67	576	0.69
1914	5	0.05	14	0.16	19	0.10
1915	194	2.02	130	1.43	324	1.73
1916	44	0.47	29	0.31	73	0.39

The rate in 1916 shows a decrease of 57 per cent. as compared with that of the preceding quinquennium. The high rates during the second and third quinquennial periods, and for the twelvemonth ended the 31st December, 1915, were due to severe outbreaks in 1893, 1898, and in the year named.

Measles is a disease chiefly affecting children, and is periodically epidemic. It was epidemic in 1898-9, when 719 deaths were recorded; in 1912, when there were 371 fatal cases; and in 1915, when there were no fewer than 324. Of the number first cited, 233 were deaths of children under 5 years of age, and 54 were those of children under 1 year of age. During the year 1916 deaths from measles of children under 1 year of age numbered 16, and bore the proportion of 0.3 per 1,000 births for New South Wales, the proportions for the metropolis and the remainder of the State being respectively 0.2 and 0.4. Deaths from the same cause, for the same period, of children under 5 years of age numbered 48, and bore the proportion of 1 per 1,000 children living of the same age-group for New South Wales; and the proportions for the metropolis and the remainder of the State were respectively 1.6 and 0.6.

## SCARLET FEVER.

In 1915 the number of deaths from this disease was 108, equivalent to a rate of 0.58 per 10,000 of the population. The number of deaths in the metropolis was 39, and in the remainder of the State 69—showing respectively rates of 0.51 and 0.63 per 10,000. The rate for 1916 of deaths from this

cause was the highest since 1903, and 222 per cent. above the rate for the preceding quinquennium. Since 1884 the deaths from scarlet fever and the rates for each sex have been as follow :—

Period.	Males.		Females.		Total.	
	Deaths.	Rate per 10,000.	Deaths.	Rate per 10,000.	Deaths.	Rate per 10,000.
1884-88	287	1·08	342	1·57	629	1·30
1889-93	185	0·60	236	0·90	421	0·74
1894-98	162	0·48	218	0·73	380	0·60
1899-1903	84	0·23	114	0·35	198	0·29
1904-08	88	0·23	91	0·26	179	0·24
1909-13	41	0·09	57	0·14	98	0·12
1914	5	0·05	16	0·18	21	0·11
1915	40	0·42	57	0·63	97	0·52
1916	43	0·46	65	0·70	108	0·58

Like measles, scarlet fever is an epidemic disease which affects mainly children, the rate generally being somewhat higher for females in a comparison between the sexes. Though not nearly so fatal as formerly, its sporadic recrudescence is stimulative of constant vigilance on the part of the authorities responsible for the health of the State. The death-rate from this cause of mortality has fluctuated since the years 1893 and 1894, when it was very heavy, ranging from 0·06 in 1912 to 0·63 in 1898.

#### WHOOPING-COUGH.

Whooping-cough is another disease which affects mainly children, and to which, like scarlet fever, females are more susceptible than males. During the year 1916 the deaths from this cause numbered 190, of which 86 were of boys and 104 of girls. The rate was 8·5 per 10,000 living, or 1·02 per cent. above the average of the preceding quinquennium. The deaths and rates for each sex since 1884 are given below.

Period.	Males.		Females.		Total.	
	Deaths.	Rate per 10,000.	Deaths.	Rate per 10,000.	Deaths.	Rate per 10,000.
1884-88	327	1·24	472	2·17	799	1·66
1889-93	495	1·61	666	2·55	1,161	2·04
1894-98	343	1·01	502	1·69	845	1·33
1899-1903	573	1·59	726	2·23	1,299	1·90
1904-08	369	0·95	445	1·25	814	1·10
1909-13	377	0·86	436	1·09	813	0·97
1914	67	0·69	88	1·00	155	0·84
1915	31	0·32	32	0·35	63	0·34
1916	86	0·91	104	1·12	190	1·02

Whooping-cough may justly be regarded as a permanent menace and a constantly recurring ailment of infancy and childhood, for the evidence of the table shows only spasms of declension, followed by increases in the death-

rate, which is maintained by epidemic outbreaks, one such occurring in 1907, when 594 cases proved fatal, and the rate was the highest since 1878. Of the children who died in 1916, those under 1 numbered 119, and 186 were under 5 years of age.

## DIPHTHERIA AND CROUP.

Diphtheria, under which heading membranous croup is included, was the cause of 308 deaths in 1916, while croup, so defined, caused 13. The rate for the total (321) was 1.73 per 10,000 living, or 14 per cent. above the rate for the preceding quinquennium. Metropolitan deaths from these diseases numbered 121, and those in the remainder of the State 200, the respective corresponding rates per 10,000 living in each division being 1.58 and 1.81. The following table shows the number of deaths and the rates in quinquennial periods since 1884.

Period.	Males.		Females.		Total.	
	Deaths.	Rate per 10,000.	Deaths.	Rate per 10,000.	Deaths.	Rate per 10,000.
1884-88	1,069	4.04	980	4.51	2,049	4.25
1889-93	1,433	4.65	1,399	5.36	2,832	4.98
1894-98	712	2.10	710	2.39	1,422	2.24
1899-1903	310	0.86	299	0.92	609	0.89
1904-08	367	0.95	338	0.95	705	0.95
1909-13	604	1.38	640	1.59	1,244	1.48
1914	121	1.24	138	1.57	259	1.39
1915	139	1.46	133	1.47	272	1.45
1916	163	1.73	158	1.68	321	1.73

The rate was high, and showed little susceptibility towards ameliorative declension until 1893, since which year it markedly improved; so much so, indeed, that in 1908 it was less than one-fourth of the rate for eight years before. During the quinquennium it has tended upwards, the rate for 1913 being the highest for fourteen years. Ninety per cent. of the persons who died from diphtheria during 1916 were under 10, and about 70 per cent. were under 5 years of age.

## INFLUENZA.

During the year 1916 there were recorded as due to influenza 153 deaths, equal to a rate of 0.82 per 10,000, or 16 per cent. above the average of the preceding quinquennium, the rate for males being 0.94 and for females 0.70 on a similar basis of comparison. This disease was little known, and few deaths were recorded as being caused by its agency, prior to 1891; but in that year it made its appearance in a severely epidemic form, and it has since been continuously more or less prevalent. The majority of deaths from influenza occur in the four months extending from July to October.

## TUBERCULOUS DISEASES.

Of the total deaths in New South Wales during the year 1916 the number set down as being caused by the several classified forms of tuberculous disease was 1,325, or 6.7 per cent. of the actual bill of mortality for the State, and equal to 7.13 per 10,000 living—a rate of 4 per cent. below the average for the preceding quinquennium.

Experience extended over many years shows that the mortality from tuberculous diseases, excepting pulmonary, in the infantile age-groups was greatly in excess of any other cause, and that the decrease in the general rate since 1881 was due entirely to the decline in the deaths at ages under 5 years, from 22·6 per 10,000 in 1881-90 to 6·6 per 10,000 in 1901-10, and to 3·9 in 1911.

During 1901-1910 the rate for both sexes fell rapidly from the first to the second age-group, then the male rate decreased slowly to ages 20-24, thence it increased at each age up to 55-64 years. The female rate fluctuated throughout each successive group. After a decline in ages 5-14, it rose to age 34 years, and then again declined, reaching a minimum at ages 45-54. Except at ages 15-34 years, the male rate in each group was the higher. In 1911 the general rate was much lower than in the previous decade. In 1916 it had further declined to 0·9 per 10,000 living.

#### *Tuberculosis of the Lungs.*

Tuberculosis of the lungs, or phthisis, was the cause of 1,157 deaths, or 86 per cent. of the number due to tuberculosis during the year 1916, and it stands seventh in the order of the fatal diseases of the State. The general mortality rate per 10,000 living was 6·22, the male rate being 7·23, and the female rate, 5·20. For the decade 1876-85, the rate increased from 9·30 in the second to 11·63 in the last year of the series; but in 1886 a decline, slightly interrupted during individual years, set in, and registered in 1915 the lowest rate on record, and a rate, moreover, 48 per cent. below that of 1885, and 7·3 per cent. below the average for the quinquennium preceding. In 1916 the rate was slightly higher, being 2·4 per cent. below the average for the quinquennium preceding. The improvement in the death-rate of the victims of phthisis may be ascribed to increased stringency in the admission of immigrants and visitors; the application, under official supervision, of regulations minimising the dangers of phthisic infection attending certain industries; and to the extension of the remedial, precautionary, and curative methods which have been formulated and introduced as results of the modern school of investigation, research, and experiment.

The following table shows the deaths from tuberculosis of the lungs and the rates for each sex since 1884.

Period.	Males.		Females.		Total.	
	Deaths.	Rate per 10,000.	Deaths.	Rate per 10,000.	Deaths.	Rate per 10,000.
1884-88	3,132	11·83	2,022	9·30	5,154	10·69
1889-93	3,269	10·61	1,925	7·38	5,194	9·13
1894-98	3,191	9·43	1,983	6·68	5,174	8·15
1899-1903	3,322	9·24	2,304	7·08	5,626	8·21
1904-08	2,985	7·72	2,184	6·13	5,169	6·96
1909-13	3,203	7·29	2,281	5·68	5,484	6·52
1914	752	7·75	426	4·83	1,178	6·36
1915	665	6·92	457	5·04	1,122	6·01
1916	675	7·18	482	5·20	1,157	6·20

In 1912 an advisory board was appointed to assist the Government in its efforts to combat the national menace of tuberculosis. Particulars relating to the operations of this board and to matters dealing generally with the treatment, cure, and prevention of the disease are given in the chapter on Social Condition. The decrease in the number of deaths from phthisis and other forms of tuberculosis may to a large extent be ascribed to the effect of the Acts relating to the supervision of dairies (1886), of diseased animals and meat (1892), the maintenance of public health (1896), and the inspection of foods sold for human consumption (1908). The Board of Health was empowered thereby to supervise dairies and dairy products, and to prohibit the sale of tuberculous meat. The powers conferred by the Pure Food Act of 1908 made the finding of a diseased cow in a dairy herd *prima facie* evidence that her milk had been sold for food, and provided for prosecution for selling diseased milk.

The following table shows the deaths and the rates of phthisis mortality for the metropolis and the remainder of the State. In the quinquennial period 1894-98 the rate for the former was 47 per cent. higher than that for the latter division; but since that period the extra-metropolitan rate has fluctuated but little, while owing to the progressive establishment of hospitals for the treatment of consumptive patients that of the metropolis itself has markedly improved, the decline amounting to 47 per cent.

Period.	Metropolis.		Remainder of State.	
	Deaths.	Rate per 10,000.	Deaths.	Rate per 10,000.
1894-98	2,302	10·26	2,872	6·99
1899-1903	2,490	10·03	3,136	7·18
1904-08	2,184	7·89	2,985	6·40
1909-1913	2,171	6·70	3,335	6·45
1914	432	5·83	746	6·71
1915	401	5·29	721	6·49
1916	423	5·54	734	6·70

Pulmonary tuberculosis is a notifiable disease within the City of Sydney, and in the area controlled by the Hunter District Water Supply and Sewerage Board. The compulsory observance of health regulations, the ventilation of business and residential buildings and places of amusement, the destruction in recent years of very many unhealthy tenements, the abolition of congested areas, the re-alignment of streets on a more generous scale, and the creation of broad new thoroughfares, have resulted in the disappearance of a number of those urban conditions favourable to the culture of a disease like phthisis. It is, however, matter for regret that late years have witnessed a growing encroachment upon the area devoted to recreation reserves, public parks and gardens, and children's pleasaunces, which should be rigidly conserved as the lungs of the metropolis and of its immediate environs, and such breathing-spaces should not be diverted to merely utilitarian purposes.

A comparison of death-rates from phthisis in various countries is given herewith. The rates are stated, however, per 1,000 of the total population, and do not take account either of age or sex, which are material factors. This omission makes the comparison more favourable to New South Wales and to other Australian States, because the proportion of aged persons in the Commonwealth is smaller than in the countries of the Old World.

There is possibly also a variation in the methods of classification of deaths in the various countries cited.

Country.	Death-rate per 1,000 of Total Population.		Country.	Death-rate per 1,000 of Total Population.	
	1909-13.	1914.		1910-14.	1915.
Scotland ... ..	1.15	1.04	Queensland ... ..	0.53	0.51
England and Wales ... ..	1.05	1.05	New Zealand ... ..	0.55	0.51
Netherlands ... ..	1.15	1.07	Tasmania ... ..	0.57	0.54
Spain ... ..	1.23	1.23	New South Wales ... ..	0.65	0.60
Jamaica ... ..	1.49	1.47	Victoria ... ..	0.80	0.66
Switzerland ... ..	1.53	.....	Western Australia ... ..	0.70	0.73
Ireland ... ..	1.73	1.63	South Australia ... ..	0.72	0.78
Norway ... ..	1.73	.....			

New South Wales, which stands in a mid-position with regard to the States of the Commonwealth, shares with them the advantage of showing a rate lower than that of any of the other countries given; in which countries also, however, it is noteworthy that the rates of deaths from phthisis are on the decline.

#### *Tuberculosis of Meninges.*

During the year 1916 tuberculosis of meninges caused 61 deaths, which is equal to a rate of 0.33 per 10,000 living. Nearly all the victims were children, 64 per cent. being under the age of 5 years.

#### *Abdominal Tuberculosis.*

Included under this heading are deaths due to tabes mesenterica, and in 1916 the number recorded was 33, of which 20 were those of females. The rate shown was 0.18 per 10,000 living. The disease is confined chiefly to children, and of those who died during the year, 11, or 33 per cent., were under 5 years of age. There were 41 deaths in 1914, and of these 19, or 46 per cent., were of children under 5 years of age; and of 35 deaths in 1915, those of children under 5 numbered 13, or 37 per cent.

#### *Other Tuberculous Diseases.*

To tuberculous diseases other than those above specified were due 74 deaths, equivalent to a rate of 0.40 per 10,000 living.

#### CANCER.

In 1916 the deaths from cancer numbered 1,468, equal to a rate of 7.89 per 10,000 living, and 5.9 per cent. above the average of the quinquennial period preceding. The total included 779 males and 689 females, the rates being 8.35 and 7.44 per 10,000 living of each sex respectively.

The following table shows the deaths and rates per 10,000 living of each sex since 1884.

Period.	Males.		Females.		Total.	
	Deaths.	Rate per 10,000.	Deaths.	Rate per 10,000.	Deaths.	Rate per 10,000.
1884-88	859	3.25	732	3.37	1,591	3.30
1889-93	1,262	4.10	1,038	3.98	2,300	4.04
1894-98	1,719	5.09	1,387	4.68	3,106	4.89
1899-1903	2,295	6.38	1,877	5.77	4,172	6.09
1904-08	2,671	6.91	2,418	6.73	5,089	6.95
1909-13	3,362	7.66	2,860	7.12	6,222	7.40
1914	732	7.54	658	7.46	1,390	7.50
1915	720	7.49	665	7.33	1,385	7.41
1916	779	8.29	689	7.44	1,468	7.87

In New South Wales the male rate is usually the higher, which is contrary to the experience of the United Kingdom.

The ages of the 1,468 persons who died from cancer during 1916 ranged from 3 to 94 years, but the disease is essentially one of advanced age, 96 per cent. being 35 years and over.

Cancer is probably the most feared of all diseases, inasmuch as no specific remedy is known, and in all countries for which records are kept the death-rate is increasing. Only a few years ago it was hoped that treatment by violet rays, by radium, and by other chemical means, would abate this scourge of modern civilization; but all these hopes have been disappointed in the test of experience, and the most sanguine expectations have been abandoned. In the following table the rates, based on the whole population, are given for certain countries. The comparison is uncorrected for age-incidence, and is therefore somewhat crude, but it apparently favours the Australasian States.

Country.	Death-rate per 1,000 of Total Population.		Australasian State.	Death-rate per 1,000 of Total Population.	
	1909-1913.	1914.		1910-1914.	1915.
Jamaica ... ..	0·18	0·18	Queensland ... ..	0·65	0·64
Spain ... ..	0·53	0·56	Western Australia ... ..	0·56	0·67
Italy ... ..	0·66	...	Tasmania ... ..	0·67	0·70
Prussia ... ..	0·80	...	<i>New South Wales</i> ... ..	0·74	0·74
Ireland ... ..	0·84	0·87	Victoria ... ..	0·84	0·81
Norway ... ..	0·97	...	<i>New Zealand</i> ... ..	0·78	0·82
England and Wales ... ..	1·00	1·07	South Australia ... ..	0·80	0·89
Netherlands ... ..	1·07	1·07			
Scotland ... ..	1·06	1·13			
Switzerland ... ..	1·26	...			

Three of the foregoing countries and three of the Australian States have rates lower than that of New South Wales, although in each, with the exception of Victoria and Queensland, a tendency is shown towards an increase of the rate.

DIABETES.

The deaths due to diabetes in 1916 numbered 203, equal to a rate of 1·10 per 10,000 living, which is above the average for the preceding quinquennium. The rate for males was 1·11 and for females 1·10 per 10,000 living of each sex. Most of the deaths occurred after middle life, 152 being those of persons over 45 years of age.

MENINGITIS.

Inflammation of the brain or of its membranes caused 296 deaths, equal to a rate of 1·58 per 10,000 living, and 2 per cent. below the average rate for the preceding quinquennial period. The disease is principally one of childhood, and 96, or 44 per cent., of those who died during 1916 were under 5 years of age. Included in the above total were 148 deaths from cerebro-spinal meningitis.

HÆMORRHAGE OF THE BRAIN.

To cerebral hæmorrhage and apoplexy, during the year 1916, were due 630 deaths, of which 339 were those of males and 291 those of females. The rate was 3·38 per 10,000 living, or 3·61 for males and 3·14 for females. For each sex the rate was below the average.

The following table shows the number of deaths and of rates for both sexes of the diseases of cerebral hæmorrhage and apoplexy in quinquennial periods since 1884.

Period.	Males.		Females.		Total.	
	Deaths.	Rate per 10,000.	Deaths.	Rate per 10,000.	Deaths.	Rate per 10,000.
1884-88	778	2·97	467	2·15	1,245	2·58
1889-93	796	2·58	618	2·37	1,414	2·48
1894-98	943	2·79	710	2·39	1,653	2·60
1899-1903	1,050	2·92	788	2·42	1,838	2·68
1904-08	1,303	3·31	1,039	2·91	2,342	3·15
1909-13	1,627	3·71	1,439	3·58	3,066	3·65
1914	345	3·55	297	3·37	642	3·46
1915	343	3·57	268	2·96	611	3·27
1916	339	3·61	291	3·14	630	3·38

#### CONVULSIONS OF CHILDREN.

Convulsions of children (under 5 years of age) caused 161 deaths during 1916, or 0·86 per 10,000 living at all ages, which is 8 per cent. below the average for the previous quinquennium.

Appended is a table showing the deaths and the rates for both sexes for every fifth year since 1875.

Year.	Males.		Females.		Total.	
	Deaths.	Rate per 10,000.	Deaths.	Rate per 10,000.	Deaths.	Rate per 10,000.
1875	297	9·34	205	7·69	502	8·59
1880	388	9·75	297	8·98	685	9·40
1885	428	8·33	392	9·41	820	8·84
1890	328	5·47	274	5·45	602	5·46
1895	280	4·19	243	4·17	523	4·18
1900	203	2·84	168	2·63	371	2·74
1905	119	1·57	92	1·32	211	1·45
1910	103	1·23	71	0·91	174	1·08
1915	91	0·95	67	0·74	158	0·85
1916	96	1·02	65	0·70	161	0·86

This disease is essentially infantile, being limited to children of ages under five years, and the rates would therefore be better stated proportionately to that age-period. Compared on this basis, the deaths during the year 1916 showed a rate of 0·66 per 1,000 living, as compared with 0·88, the average of the preceding quinquennium. The continuous decline in this cause of infantile mortality is indicative of increasingly definite and exhaustive diagnoses of the diseases of children.

#### INSANITY.

Insanity is classed as a distinct disease of the nervous system, but of the total number of deaths of insane persons in 1916 only 181 appeared in the tables as due to that cause (which included general paralysis of the insane), the remainder being assigned to the immediately determining factor in the patient's particular case.

The death-rate per 10,000 living, of persons dying from insanity, including general paralysis of the insane, was 1·21 for males and 0·72 for females.

Practically all the persons in New South Wales coming within this classification are under treatment in the various mental hospitals. At the end of

1916 there were 7,204 persons under official control and receiving treatment—a proportion per 1,000 of the population of 3·88, or slightly in advance of the average for the preceding quinquennium, which was 3·70.

The percentage of deaths of insane persons in New South Wales is comparatively light. The following table has been computed on the basis of the average number of patients resident in mental hospitals.

Period.	Males.		Females.		Total.	
	Deaths in Hospitals for Insane.	Proportion of Average Number Resident.	Deaths in Hospitals for Insane.	Proportion of Average Number Resident.	Deaths in Hospitals for Insane.	Proportion of Average Number Resident.
		per cent.		per cent.		per cent.
1894-98	782	6·86	366	5·18	1,148	6·21
1899-1903	1,021	7·77	465	5·54	1,486	6·91
1904-1908	1,280	8·24	613	6·00	1,893	7·35
1909-1913	1,540	8·56	741	6·24	2,281	7·64
1914	301	7·72	168	6·44	469	7·21
1915	310	7·81	179	6·27	489	7·30
1916	396	9·70	214	7·82	610	8·94

The increase in the death-rate of insane persons has been in the ages 65 and over, and during the three decennial periods, 1881-1910, it was most marked in the third decennium. The rates did not vary greatly up to 24 years, but they rose steadily after that age. The death-rate for males generally was higher than that for females—a fact due, in all probability, to the risks and shocks to which males are more greatly subjected and exposed.

#### DISEASES OF THE HEART.

Diseases of the heart were the cause of 2,094 deaths, showing a rate of 11·22 per 10,000 living, which was 3 per cent. below the average for the preceding quinquennium. Of the total deaths, 1,238 were of males and 856 were of females, the rates being 13·17 and 9·24 per 10,000 living respectively. The deaths and the death-rates for each sex since 1884 are shown below.

Period.	Males.		Females.		Total.	
	Deaths.	Rate per 10,000.	Deaths.	Rate per 10,000.	Deaths.	Rate per 10,000.
1884-88	2,149	8·12	1,390	6·39	3,539	7·34
1889-93	2,250	7·30	1,357	5·20	3,607	6·34
1894-98	2,434	7·19	1,478	4·98	3,912	6·16
1899-1903	2,917	8·11	1,932	5·94	4,849	7·08
1904-1908	3,791	9·81	2,727	7·65	6,518	8·77
1909-1913	5,054	11·51	3,633	9·05	8,687	10·33
1914	988	10·18	682	7·73	1,670	9·01
1915	1,041	10·83	783	8·63	1,824	9·76
1916	1,238	13·17	856	9·24	2,094	11·22

The ages of the persons who died during 1916 ranged up to 99 years, and the great majority of deaths occurred after middle age, 1,687 being those of persons over 45 years of age.

The classified causes of the total number of deaths include pericarditis, endocarditis, organic diseases of the heart, and angina pectoris. The

apparent increase in mortality due to diseases of the heart is probably the result of more specialised biological knowledge, and of the greater attention given to pathological diagnoses. Many deaths formerly recorded as being caused by senile decay would now doubtlessly be assigned to some cardiac trouble.

The rate for the two years 1911 and 1912 was 10·82 per 10,000 persons living. It declined to 9·77 for 1913, and to 9·01 for 1914; and it increased to 9·76 for 1915, and to 11·22 for 1916.

#### BRONCHITIS.

During the year 1916 bronchitis caused 562 deaths, equal to a rate of 3·01 per 10,000 living, which is 3 per cent. below the mean rate of the preceding quinquennium.

The rate for males was 3·39, and that for females 2·62. Of the total, 221 deaths were due to acute, and 341 to chronic, forms of the disease. Bronchitis affects chiefly the extremes of life, and those who died from this cause in 1916 numbered 142, or 25 per cent., under the age of 5 years, and 332, or 59 per cent., over the age of 65.

#### PNEUMONIA.

The total number of deaths from pneumonia during 1916 was 1,417, equal to a rate of 7·59 per 10,000 living. This total included 531 deaths which were classified as due to broncho-pneumonia. The male rate was 9·19, and the female 5·97 per 10,000 living of each sex respectively. The rate per 10,000 living, calculated for 1916, was 20 per cent. above the average for the preceding quinquennium. Pneumonia is more fatal to males than to females, and is most destructive in its attacks on young children and on adults in the decline of life. The following table gives deaths and rates, according to sex, since the year 1884.

Period.	Males.		Females.		Total.	
	Deaths.	Rate per 10,000.	Deaths.	Rate per 10,000.	Deaths.	Rate per 10,000.
1884-88	2,032	7·68	1,301	5·98	3,333	6·91
1889-93	2,158	7·00	1,373	5·26	3,531	6·21
1894-98	2,514	7·43	1,528	5·15	4,042	6·37
1899-1903	3,191	8·87	2,000	6·15	5,191	7·58
1904-1908	2,816	7·28	1,824	5·12	4,640	6·24
1909-1913	2,983	6·79	1,931	4·81	4,914	5·85
1914	640	6·59	444	5·03	1,084	5·85
1915	896	9·32	527	5·81	1,423	7·62
1916	884	9·19	553	5·97	1,417	7·59

The greatest mortality from pneumonia occurs in the cold weather, and in 1916 there were from this cause 679 deaths, or 48 per cent. of the total number in the four months ranging from June to September.

There has been little reduction in the mortality for some years. There was a drop after 1888, but in 1902 the rate subsequently increased, with a few fluctuations, to the highest point on record, 9·73 per 10,000 living. The general rate since the year cited has been much lower, that for 1916, the highest for a series of thirteen years with the exception of 1915, being 22 per cent. below.

## DISEASES OF THE DIGESTIVE SYSTEM.

In 1916 the deaths due to these diseases numbered 2,281, equal to a rate of 12.22 per 10,000 living, the male rate being 13.34 and the female 11.09, as compared with the quinquennial rates of 14.69 and 13.07 respectively. Deaths resulting from diseases of the digestive system were caused in the main by diarrhoea and enteritis, but gastritis accounted for 128, including those of 60 children under 5 years of age, and there were also 31 cases of death from gastric ulcer.

## DIARRHOEA AND ENTERITIS.

In 1916 these two diseases were the cause of 1,398 deaths, or 7.49 per 10,000 living, the rates for males being 8.07 and for females 6.90. The general rate was 7.2 per cent. below the average for the preceding quinquennium. The following table gives the deaths and the rates of males and females since 1884.

Period.	Males.		Females.		Total.	
	Deaths.	Rate per 10,000.	Deaths.	Rate per 10,000.	Deaths.	Rate per 10,000.
1884-88	3,412	12.89	3,048	14.02	6,460	13.40
1889-93	3,451	11.20	2,851	10.92	6,302	11.07
1894-98	4,042	11.94	3,638	12.26	7,680	12.09
1899-1903	4,422	12.29	3,901	11.99	8,323	12.15
1904-1908	3,714	9.61	3,000	8.41	6,714	9.03
1909-1913	4,257	9.90	3,471	8.65	7,728	9.21
1914	891	9.18	756	8.56	1,647	8.89
1915	887	9.23	735	8.10	1,622	8.68
1916	759	8.07	639	6.90	1,398	7.49

There was a considerable drop in the rate after 1888, due probably to the beneficent operations of the Dairies Supervision Act. During the next fifteen years there was a gradual increase, followed by a marked improvement in 1904, an improvement which has been consistently maintained.

According to the Bertillon classification, deaths from these diseases are divided into two groups, one including children under 2 years of age, and the other all persons 2 years of age and over. In the first group there were 1,075, or 77 per cent. of the total number of mortality cases, and in the second 323.

Of the total deaths from diarrhoea and enteritis 666, or 47 per cent., occurred in the three summer months of January, February, and December; and 405, or 29 per cent., in the autumn months of March, April, and May. As a rule, about 50 per cent. of the deaths occur in the summer quarter of the year, but the mortality from these causes was exceptionally heavy during the January and February of 1916, no fewer than 515 deaths being recorded for these months.

## APPENDICITIS.

To this cause 140 deaths were ascribed in 1916, the rate being 0·75 per 10,000 living, which is 5 per cent. below the average of the preceding quinquennium. Appendicitis is much more fatal to males than to females, the rate for the former in 1916 being 0·85, and for the latter 0·65 per 10,000 living.

## CIRRHOSIS OF THE LIVER.

In 1916 the deaths from cirrhosis of the liver numbered 130, the rate being 0·70 per 10,000 living—9 per cent. below the average for the previous quinquennial period. This disease is more prevalent among males than females—the rate for the former in 1916 being 1·08, and for the latter 0·30 per 10,000 living in each sex.

## BRIGHT'S DISEASE.

During the year 1916 there were 1,259 deaths due to diseases of the urinary system, of which number 873 were caused by chronic nephritis, or Bright's disease, and 103 by acute nephritis. Taking these two diseases together, the rate was 5·23 per 10,000 living, or for males 6·76 and for females 3·67, the general rate being 0·5 per cent. above the mean of the previous quinquennial period. The changes in the rates of Bright's disease and of acute nephritis are shown below.

Period.	Males.		Females.		Total.	
	Deaths.	Rate per 10,000.	Deaths.	Rate per 10,000.	Deaths.	Rate per 10,000.
1884-88	626	2·37	386	1·78	1,012	2·10
1889-93	907	2·94	570	2·18	1,477	2·60
1894-98	1,291	3·81	821	2·77	2,112	3·33
1899-1903	1,659	4·61	996	3·06	2,655	3·88
1904-1908	2,056	5·32	1,199	3·36	3,255	4·38
1909-1913	2,649	6·03	1,539	3·84	4,188	4·98
1914	610	6·28	347	3·93	957	5·16
1915	647	6·73	312	3·44	959	5·13
1916	636	6·76	340	3·67	976	5·23

During the whole period covered by the foregoing table the rate both for males and for females has been more than doubled. The male rate is about half as high again as the female. Not many persons under 35 die from nephritis, the proportions for 1916 being 14 per cent. for those under 35, and 86 for those over that age.

## DEATHS IN CHILDBIRTH.

In 1916 the number of deaths of women from the diseases of childbed was 297, or a rate of 5·7 per 1,000 births. Of these, 114 were due to puerperal septicæmia, 25 to accidents of pregnancy, and 158 to other puerperal accidents. The deaths resulting from various diseases and casualties incident to child-

birth were approximately 5·7 per 1,000 births, or 1 death to every 175 births. During the ten years ended 1916 the deaths were as follow :—

Cause of Death.	1907-1916.	
	Total Deaths.	Proportion due to Each Cause.
Accidents of Pregnancy ... ..	373	per cent. 13·05
Puerperal Hæmorrhage ... ..	296	10·36
Puerperal Septicæmia ... ..	1,032	36·11
Albuminuria and Eclampsia ... ..	497	17·39
Other Casualties of Childbirth ... ..	660	23·09
Total ... ..	2,858	100·00

Owing to changes in the classification of the causes of death, the figures for the last ten years are not comparable on the same basis as those for previous years, but the differences are slight.

Of the 2,858 women who died from diseases of childbirth during the ten years 1907-1916, the married numbered 2,593 and the single 265, and as there were 451,171 legitimate and 28,093 illegitimate births, reckoning twins and triplets also as single births, during this period, it follows that the fatal cases for married women averaged 6·3 per 1,000 births, or 1 in 157, and for single women 9·4 per 1,000, or 1 in 106.

#### THE CAUSES OF INFANTILE MORTALITY.

The mortality of infants in New South Wales has been exceptionally low since 1904. An upward movement in 1907, when the rate was higher than in any of the three preceding years, was followed by a decline in the following year, a decline that was continued until 1911. In 1912 there was a slight increase as compared with the year before, but the rate was considerably lower than the average for the preceding quinquennium, notwithstanding the fact that it was a period of low mortality. In 1913 the rate was 78·3, being 2 per cent. above the average of the previous ten years, and the highest since 1907. In 1914 the rate again declined, and in 1916 it was 67·8 per 1,000 births, the lowest rate recorded, and 8 per cent. below the average for the last decennium.

Children are susceptible to the attacks of disease at the earliest age-periods of life, but the rates for preventable diseases are highest. There is, therefore, no doubt that many children succumb through parental ignorance of the proper food or treatment required. About 1,000 children out of every 10,000 born in New South Wales die before reaching their fifth year.

The death-rate of infants, regarded as a general sanitary test, makes the knowledge of what diseases are most fatal to children a matter of the first importance. In this connection, the following statement shows the principal causes of the deaths of children—under 1 per 1,000 births and under 5 per

1,000 living—in 1916 and in the five years 1911–15, distinguishing deaths in the metropolis from those in the remainder of the State :—

Cause of Death.	Deaths Under 1 per 1,000 Births.						Deaths Under 5 per 1,000 Living.					
	Metropolis.		Remainder of State.		New South Wales.		Metropolis.		Remainder of State.		New South Wales.	
	1911-1915.	1916.	1911-1915.	1916.	1911-1915.	1916.	1911-1915.	1916.	1911-1915.	1916.	1911-1915.	1916.
Measles .. .. .	0·6	0·2	0·5	0·3	0·6	0·3	0·8	0·1	0·4	0·3	0·5	0·2
Scarlet Fever .. .. .	..	0·2	0·0	0·1	0·0	0·1	0·1	0·2	0·0	0·2	0·1	0·2
Whooping-cough .. .. .	1·9	2·9	2·2	1·9	2·0	2·3	0·8	1·1	0·7	0·6	0·7	0·8
Diphtheria and Croup .. .. .	0·5	1·1	0·3	0·6	0·3	0·8	0·8	1·0	0·7	0·9	0·8	0·9
Tuberculosis—Meninges .. .. .	0·4	0·2	0·2	0·2	0·3	0·2	0·3	0·2	0·2	0·1	0·2	0·1
„ Peritoneum .. .. .	0·1	0·0	0·2	0·2	0·2	0·1	0·1	0·0	0·1	0·0	0·1	0·0
„ Other Organs .. .. .	0·1	0·3	0·1	0·2	0·1	0·2	0·1	0·2	0·1	0·1	0·1	0·1
Syphilis .. .. .	1·0	0·4	0·3	0·2	0·6	0·2	0·3	0·1	0·1	0·0	0·1	0·1
Meningitis .. .. .	1·0	1·2	1·0	0·8	1·0	1·0	0·5	0·7	0·4	0·4	0·4	0·5
Convulsions .. .. .	1·8	1·4	2·3	2·8	2·4	2·2	0·6	0·4	0·8	0·8	0·7	0·7
Bronchitis .. .. .	1·6	1·6	2·5	2·6	2·1	2·2	0·5	0·5	0·7	0·7	0·7	0·6
Broncho-pneumonia .. .. .	3·2	4·4	2·8	3·5	2·9	3·9	1·4	1·8	1·1	1·3	1·2	1·5
Pneumonia .. .. .	1·4	1·8	1·7	1·4	1·6	1·6	0·8	0·9	0·7	0·7	0·8	0·8
Diarrhoea and Enteritis .. .. .	22·8	15·7	18·2	14·5	20·0	15·0	7·2	4·8	5·4	4·6	6·0	4·7
Congenital Malformations .. .. .	3·1	4·0	2·8	3·3	3·0	3·6	0·8	0·9	0·7	0·8	0·8	0·8
Infantile Debility .. .. .	8·6	7·8	9·6	8·0	9·2	7·9	2·2	1·8	2·2	1·6	2·2	1·7
Premature Birth .. .. .	18·0	17·7	16·3	16·5	17·0	17·0	4·6	4·0	3·7	3·4	4·0	3·6
All Others .. .. .	7·5	7·6	8·5	10·3	8·1	9·2	5·7	3·1	2·0	3·7	3·3	3·5
Total .. .. .	73·6	68·5	70·0	67·4	71·4	67·8	27·6	21·8	20·0	20·2	22·7	20·8

The high mortality of infants is due to the deaths of children who are incapacitated, even at birth, either from immaturity or inherited debility, for the struggle for existence. Of children under 1, the deaths from these causes in 1916 were equal to 28·5 per 1,000 births, or 42 per cent. of the total deaths of children at that age. A table already given shows that the mortality during the first month of life is over two-fifths of the total mortality during the whole of the first year, and 84 per cent. of this two-fifths proportion of the year's total mortality was due in 1916 to deaths from congenital debility or defects.

Of the deaths of children under one year, diarrhoea and enteritis were responsible to the extent of 15·0 per 1,000 births, and deaths from infectious diseases of 3·5 per cent. per 1,000, of which whooping-cough alone contributed 2·3 per cent. Respiratory diseases afflict children with fatal results, bronchitis, in 1916, causing 2·2, broncho-pneumonia 3·9, and pneumonia 1·6 deaths per 1,000 births. The death-rate for these respiratory diseases was normal in 1916. Convulsions had a death rate of 2·2, tuberculous diseases of 0·5, and meningitis (not tuberculous) of 1·0 per 1,000 births.

The greater number of fatal cases of children under 5 years of age are due to congenital debility, diarrhoea and enteritis, pneumonia, measles, diphtheria, and convulsions, in the order given.

*The Deaths of Illegitimate Children.*

The following table shows the causes of death of illegitimate as compared with those of legitimate children. The figures represent the deaths of children under 1 year per 1,000 births in New South Wales during the year 1916.

Cause of Death.	Deaths Under 1 per 1,000 Births.		
	Legitimate.	Illegitimate.	Total.
Measles ... ..	0·3	...	0·3
Scarlet Fever ... ..	0·1	0·4	0·1
Whooping-cough ... ..	2·3	2·4	2·3
Diphtheria and Croup ... ..	0·8	0·8	0·8
Tuberculosis—Meninges ... ..	0·2	0·4	0·2
„ Peritoneum ... ..	0·1	0·4	0·1
„ Other Organs ... ..	0·2	0·4	0·2
Syphilis ... ..	0·2	1·6	0·2
Meningitis ... ..	1·0	0·8	1·0
Convulsions... ..	2·1	4·4	2·2
Bronchitis ... ..	2·1	3·2	2·2
Broncho-pneumonia ... ..	3·8	6·0	3·9
Pneumonia ... ..	1·5	3·2	1·6
Diarrhœa and Enteritis ... ..	13·4	47·5	15·0
Congenital Malformations ... ..	3·6	3·2	3·6
Infantile Debility ... ..	7·0	24·8	7·9
Premature Birth ... ..	16·5	26·0	17·0
All Others ... ..	8·7	20·4	9·2
Total ... ..	63·9	145·9	67·8

A greater mortality is characteristic of illegitimate than of legitimate children, because the former are the victims of their resented intrusion into life. Exclusive of diseases inherited from contaminated parents, systematic neglect, and organised lack of care are largely responsible for these higher death-rates of the unwanted. Infantile debility, including congenital malformations and premature birth, showed 54·0 per 1,000 births as against the legitimate rate of 27·1. Diarrhœa and enteritis were 47·5 as compared with 13·4, respiratory diseases 12·4 as compared with 7·4, and syphilis 1·6 as compared with 0·2. No great difference was, however, exhibited between the legitimate and the illegitimate rates for epidemic diseases.

## THE SEASONAL PREVALENCE OF DISEASES.

The following tabulation shows the principal diseases and the seasons of the year during which their effects are most fatal to their victims. The figures are based on the experience of the ten years 1907-16, and show the

proportion of deaths per 1,000 from the diseases specified for each of the twelve months of a typical year. In order to make the results of the computation comparable, the returns have been adjusted so as to correct the inequality of the number of days in each month.

Month.	Typhoid Fever.	In- fluenza.	Diph- theria and Croup.	Whoop- ing- cough.	Phthisis.	Pneu- monia.	Bron- chitis.	Diarrhœa, Enteritis, and Dysentery.	Bright's Disease.
January ...	143	35	69	82	78	52	46	139	75
February ..	145	23	70	58	75	43	42	125	72
March ...	137	20	81	53	74	46	45	111	68
April ...	123	35	105	70	80	60	57	103	73
May ...	91	57	113	81	85	76	80	68	86
June ...	71	76	113	65	85	98	112	42	91
July ...	45	111	103	83	87	117	142	30	98
August ...	33	174	80	85	94	135	148	24	98
September.	32	196	81	103	90	130	125	27	94
October ...	29	136	57	108	85	96	85	51	80
November.	52	86	68	97	84	80	68	125	86
December..	99	51	60	115	83	67	50	155	79
	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000

The chief features of the above table are exhibited in the contrast between the figures relating to typhoid fever, diarrhœa and enteritis on the one hand, and to influenza, pneumonia and bronchitis on the other. In the first group the influence of the warm weather is the controlling factor; in the second, the cold. The warmest months in the year are January, February and December; the coldest, June, July and August. Phthisis varies little throughout the year, but the rates show that it is more fatal in the colder months. Bright's disease shows likewise a higher mortality during the cold weather.

#### DEATHS FROM VIOLENCE.

The persons dying during the year 1916 numbered 19,854, and of these 1,319, or 6·64 per cent., met with violent deaths. The rate, 7·0 per 10,000, was, however, 11·2 per cent. lower than the mean rate for the preceding quinquennium. The mortality rate from violence for males was nearly four times as great as that for females.

In the year 1916 the males thus dying numbered 1,048, or 11·15 per 10,000 living, and the females 271, or 2·93 per 10,000 living.

## DEATHS FROM SUICIDE.

The number of persons who took their own lives in 1916 was 212, or a rate of 1.14 per 10,000 living, and about 20 per cent. below the average for the preceding quinquennium. The number of male suicides was 170, or a rate of 1.81 per 10,000 living, and of female 45, or a rate of 0.45 per 10,000 living—the male rate thus being fourfold that of the female.

The number of deaths from suicide and the rates per 10,000 living since 1884 are shown in the following table.

Period.	Males.		Females.		Total.	
	Deaths.	Rate per 10,000.	Deaths.	Rate per 10,000.	Deaths.	Rate per 10,000.
1884-88	428	1.62	96	0.44	524	1.09
1889-93	519	1.68	110	0.42	629	1.11
1894-98	679	2.01	169	0.57	848	1.34
1899-1908	651	1.81	142	0.44	793	1.16
1904-1908	719	1.86	160	0.49	879	1.18
1909-1913	857	1.95	238	0.59	1,095	1.30
1914	210	2.16	58	0.66	268	1.45
1915	208	2.16	50	0.55	258	1.38
1916	170	1.81	42	0.45	212	1.14

The means usually adopted for self-destruction by men are shooting, poisoning, cutting, and hanging. Women, as a general rule, avoid weapons and have resort mostly to poison. Of every 100 cases of suicide that were consummated during the last quinquennial period 33 were by the agency of poison, 28 by shooting, 16 by cutting, 13 by hanging, and 6 by drowning.

Experience shows that suicidal morbidity is largely influenced by the seasons, as the conduct of male victims clearly exhibits, for they are more prone to self-destruction in the first and the last quarters of the year. For the ten years ended 1916 the proportion of male suicides per 1,000 during the first quarter of the year was 265, during the last 260, during the third 246, and during the second 229. January, February and December, the three hottest months of the year, have usually the largest record of suicides.

Female suicides, quarter-annually classified for the same period, show the highest proportion during the third quarter of the year, the figures being 283 per 1,000 for the third quarter, 249 for the first, 247 for the second, and 220 for the fourth.

## DEATHS FROM ACCIDENT.

During the year 1916 the number of fatal accidents was 990, viz. 779 of males and 211 of females, or equal to rates of 8.29 and 2.28 per 10,000 living of each sex, and the general rate was 5.30 per 10,000 living. Accidental deaths have always been numerically greater in the ultra-metropolitan area. Of those registered during 1916, deaths from accident in the metropolis numbered 323 and in the remainder of the State 667. As a general rule, about three-fourths of the accidents occur in the latter Division, which contains about five-eighths of the total population.

The number of deaths from accident and the rates per 1,000 since 1884 are shown in the table below.

Period.	Males.		Females.		Total.	
	Deaths.	Rate per 10,000.	Deaths.	Rate per 10,000.	Deaths.	Rate per 10,000.
1884-88	3,550	13·41	944	4·34	4,494	9·32
1889-93	3,666	11·90	966	3·70	4,632	8·14
1894-98	3,498	10·33	1,095	3·69	4,593	5·23
1899-1903	3,432	9·54	1,103	3·39	4,535	6·62
1904-1908	3,143	8·13	1,055	2·96	4,198	5·65
1909-1913	3,891	8·86	1,114	2·77	5,005	5·95
1914	903	9·30	216	2·45	1,119	6·04
1915	712	7·41	225	2·48	937	5·02
1916	779	8·29	211	2·28	990	5·30

Although the death-rate from accidents is still high compared with that of more settled countries, it has decreased, the decline for males being more rapid than for females. For the years prior to 1894 the rates were really slightly lower than those shown in the table, because certain causes formerly classed as accidents now fall into different categories.

The experience of the past quinquennium shows that out of every 1,000 accidents 181 are due to vehicles and horses, 136 to drowning, 129 to burns or scalds, 126 to falls, 112 to railways and tramways, 43 to mines and quarries, and 30 to weather agencies, *i.e.*, excessive cold or heat, and lightning. Among males the greatest number of deaths are due to vehicles and horses, and among females to burns and scalds.

## EDUCATION.

## DIFFUSION OF EDUCATION.

SOME idea of the diffusion of education among the people of New South Wales may be gathered from the following figures, derived from the Census of 1911 :—

	Males.	Females.	To
English Language—			
Read and write ...	696,258	645,022	1,341,280
Read only ...	2,565	3,140	5,705
Foreign Language only—			
Read and write ...	5,889	650	6,539
Read only ...	497	61	558
Cannot read ...	134,215	123,808	258,023
Not stated ...	18,274	16,355	34,629
<b>Total ...</b>	<b>857,698</b>	<b>789,036</b>	<b>1,646,734</b>

As regards those who cannot read, classification according to age at the Census of 1911, was as follows :—

Ages.	Males.	Females.	Total.
Years.			
0—4 ...	102,003	98,863	200,866
5—9 ...	16,612	14,944	31,556
10—14 ...	605	440	1,045
15—19 ...	641	338	979
20 and upwards ...	13,934	8,922	22,856
Unspecified ...	420	361	721
<b>Total ...</b>	<b>134,215</b>	<b>123,808</b>	<b>258,023</b>

Persons of the age of 5 years and over who could not read, in proportion to the total population, were :—Males, 3·7 per cent. ; females, 3·1 per cent. These figures included immigrants and persons who had not come under the operation of the Public Instruction Act of New South Wales.

The following figures represent the proportion of the total population over 5 years of age, in two groups, 5-14 years and 15 years and over, who could read and write, or read only, in English or in a foreign language, and the proportions unable to read at the last three Census periods:—

	1891.		1901.		1911.	
	Males.	Females.	Males.	Females.	Males.	Females.
Read and write—	per cent.					
Ages 5-14 years ... ..	73·1	74·3	76·2	77·1	88·9	89·8
15 and over ... ..	92·4	92·2	94·0	95·3	97·0	97·7
Total, 5 and over ... ..	87·5	86·8	89·3	90·0	95·3	95·9
Read only—						
Ages 5-14 years ... ..	8·4	7·7	5·0	4·7	·3	·3
15 and over ... ..	2·4	3·7	1·4	1·8	·4	·5
Total, 5 and over ... ..	4·0	4·9	2·3	2·7	·4	·5
Unable to read—						
Ages 5-14 years ... ..	18·5	18·0	18·8	18·2	10·8	9·9
15 and over ... ..	5·2	4·1	4·6	2·9	2·6	1·8
Total, 5 and over ... ..	8·5	8·3	8·4	7·3	4·3	3·6

The increase in the proportion of those who can read and write indicates the extension of educational facilities.

Under the Public Instruction Act, attendance at a school is obligatory upon children between the ages of 7 and 14 years; but this period of seven years does not cover the full school age, which is extended frequently by kindergarten training on the one hand and by continuation or secondary school work on the other; so that the full school age may fairly be taken as from ages 5 to 18 inclusive.

#### THE STATE SYSTEM OF EDUCATION.

##### *Public Schools Act, 1866.*

The Public Schools Act, 1866, which was operative from January, 1867, to 30th April, 1880, was devised as a measure "to make better provision for public education." A Council of Education of five members was constituted, in which were vested all the lands, moneys, securities, and personal property of the Board of National Education, all lands and school buildings held by trustees under the regulation and inspection of the Denominational School Board as well as all personalty of the latter Board. The new Council was empowered to disburse all moneys appropriated by Parliament for elementary instruction, to establish and maintain public schools, to grant aid to certified denominational schools, and, subject to regulations, to define the course of secular instruction generally.

Four classes of schools were recognised, viz., Public, Denominational, Provisional, and Half-time; while, for sparsely settled districts, itinerant teachers might be appointed, or private schools assisted, provided they were subject to inspection as prescribed by the Council. The Council was empowered to authorise a scale of fees to be charged in the public and in the certified denominational schools, but inability to pay such fees did not constitute a valid reason for excluding children from the schools.

Training schools for teachers were authorised; Public School Boards were appointed to exercise local supervision; four hours per school-day were reserved for secular instruction exclusively, and a maximum period of one

hour per school-day was available for visiting religious teachers to impart religious instruction; all existing national schools, vested and non-vested, were declared public schools.

On its establishment in 1867 the Council of Education assumed control over 259 national and 310 denominational schools. From 1875 the entire cost of building and maintaining public schools was defrayed from the public funds, and the number of schools increased so rapidly that in 1880, when the Department of Public Instruction was created, there were 1,220 schools under control, viz., public, 705; provisional, 313; half-time, 97; and denominational, 105; and a degree of standardisation had been attained.

#### *Public Instruction Acts, 1880 and 1916.*

The Public Instruction Act, 1880, marked a new era. Under it the powers and authority of the Council of Education were vested in a responsible Minister of the Crown, with power to disburse all moneys appropriated by Parliament for public instruction. The subsidies to certified denominational schools ceased, after due notice, on 31st December, 1882; an undenominational system of education was established as a public service, and attendance at school for a minimum period of 70 days in each half-year was declared obligatory, failing just cause of exemption, on all children between the ages of 6 and 14 years. The classes of schools to be established and maintained were defined as follows:—Public schools, primary and superior; evening public schools; and high schools for girls and for boys; and the conditions in regard to provisional schools and itinerant teachers, as contained in the Public Schools Act, 1866, were retained but in amplified form, also other features of that Act, such as the allocation of hours of instruction, &c.

The Public Instruction Act, 1880, remains the basis of the educational system of the present day, though it was amended by the Free Education Act, 1906, and by the Public Instruction (Amendment) Act, 1916.

The Free Education Act provides that instruction in primary and superior public schools shall be free. Previously, the maximum fee chargeable in public primary schools was 3d. per week per child, with a limitation of 1s. per week for all the children of one family. Fees chargeable in higher schools were determined by regulation; and, following the lead of the Free Education Act, 1906, amended regulations were issued making instruction in high schools also free from 1st January, 1911.

The Public Instruction (Amendment) Act, 1916, contains important provisions regarding compulsory school attendance, the certification of private schools, and the inspection of school premises. The clauses of the Principal Act relating to compulsory attendance were repealed, and the statutory school age reduced by the exclusion of children between the ages of 6 and 7 years. Parents and guardians of children between 7 and 14 years must cause them to attend regularly at a State or certified school; if a child has been absent without sufficient cause for more than six half-days during three months, the parent becomes liable to prosecution. Exemptions may be granted to children receiving efficient instruction at home on at least 85 days in each half-year, and the onus of proof lies upon the parent or guardian; also to those over 13 years of age, who are certified as being educated to the standard required by the Principal Act, and to those residing in places where there is not adequate school accommodation within reasonable distance. Children, who habitually disobey the orders of parents and guardians to attend school, may be sent to an institution for the detention of truants.

At the direction of the Minister of Public Instruction, parents and guardians are required to furnish returns with regard to children of ages of 7 to 14 years.

Details relating to the certification of private schools are shown on a later page.

*Development of Public School System.*

In the period during which the Public Instruction Act, 1880, has been operative, numerous adjustments in organisation and procedure have been made to admit of educational development in consonance with changing ideals. In New South Wales a considerable proportion of the population is located in sparsely settled districts, and in virtual detachment from community life. On the other hand, an urban population is concentrated at a few points only. These two entirely diverse conditions of settlement complicate the difficulties of administering a general educational policy, by making the higher standards designed by the law unattainable except in large centres of population, and necessitating special adjustments of standards for isolated areas and pioneer settlements.

In these circumstances school accommodation has extended steadily, the immediate needs being supplied by the establishment of primary schools to which superior departments have been added as occasion arose, while high schools have been established in the more populous district.

Realisation of the importance of thorough education led to a conference in 1902 of representatives of different interests in educational matters in New South Wales. In April of that year a Royal Commission of two members was appointed to proceed to Europe and America to inquire into existing methods of instruction in connection with primary, secondary, technical, and other branches of education, and to recommend for adoption whatever improvements might be introduced with advantage in New South Wales.

Extensive recommendations were made by the Commission, and a further Conference was held in 1904 to consider the question of State Education from every point of view. The plan of action embodied in the resolutions of this Conference involved the cessation of the pupil-teacher system, which had been operative in the public schools since 1852; the introduction of specially trained teachers, and for this purpose the equipment and maintenance of a Normal School, with a Practice School attached; the formation of a Kindergarten Training College, and of local training schools for country-school teachers. The establishment of a Chair of Pedagogy at the University of Sydney, of truant schools, and of schools for the feeble-minded was urged, and other resolutions involving alterations in matters of procedure in the public (primary) schools were adopted.

To accord with the new policy, a Syllabus of Instruction for Primary School Work was issued in 1905, with the grouping of subjects as follows:—

*English.*—Correct speech, reading, writing, spelling, composition, recitation, grammar.

*Mathematics.*—Arithmetic, mensuration, algebra, geometry.

*Nature Knowledge.*—Geography, object lessons, elementary science.

*Civics and Morals.*—History, Scripture, moral duties, citizenship.

*Art Manual Work.*—Drawing, brushwork, kindergarten exercises, modelling, woodwork, needlework.

*Musical and Physical Education.*

Since 1905 steady progress has been made in the co-ordination of educational effort in all stages. The regular school work has been extended, to include more manual and vocational training for boys, and better opportunities in domestic science for girls, emphasising the application of school work to the daily life of the citizen by means of special courses; progress has been made in school buildings; the question of playgrounds has received attention; medical inspection is conducted over extensive areas; and the increase of high school facilities expresses a desire to provide a higher standard of education.

The secondary school system has been extended greatly and a new syllabus, introduced in 1911, adopted in State High Schools, and in all the private schools registered under the Bursary Endowment Act. A system of examinations has been established to mark the completion of each stage of school work, and an Employment Bureau has been opened in the Department of Education for boys who continue their education beyond the primary stage.

Important statutory provisions affecting educational matters are contained in the Bursary Endowment Act, 1912, and in the University Amendment Act, 1912, concerning which details are given on a later page.

The years 1913 and 1914 were marked by a wide extension of the scheme of medical school inspection; by the reorganisation of technical education upon a Trades School basis; and by the expansion of secondary education in the State Schools. During 1915 the syllabus of each type of school was revised, and new courses were commenced in the schools at the beginning of 1916.

STATE EXPENDITURE ON EDUCATION.

The expenditure by the State on education which has been increasing steadily during the past ten years, includes grants and subsidies to Educational and Scientific institutions, cost of maintenance of industrial schools and reformatories, as well as expenditure on premises, equipment, and maintenance of public schools.

In the following statement, the expenditure on buildings, equipment, sites &c., representing capital expenditure, has been distinguished as far as practicable from expenditure for maintenance, including grants and subsidies, all of which constitute annual running costs:—

Year ended 30th June.	Expenditure.			Cost per head of population.	
	Capital.	Annual.	Total.		
	£	£	£	s.	d.
1913	357,135	1,518,863	1,875,998	21	0
1914	258,836	1,640,679	1,899,515	20	9
1915	258,044	1,691,348	1,949,392	20	11
1916	221,501	1,716,864	1,938,365	20	9
1917	294,270	1,873,926	2,168,196	23	3

These figures are exclusive of amounts spent by the State on the colleges, experiment farms, and societies for the promotion of agriculture and allied interests, concerning which reference should be made to the chapter relating to Agriculture. The following statement gives in more detail the expenditure for 1916-17:—

Object.	Expenditure.	
	Capital. £	Annual. £
Education Department, Schools, &c. ... ..	205,634	1,742,724
Educational Institutions, Schools of Arts, &c. ... ..	474	4,843
University, and Affiliated Colleges ... ..	27,952	63,822
Sydney Grammar School ... ..	.....	1,500
Industrial Schools ... ..	.....	9,987
Public Library ... ..	402	12,986
Australian Museum ... ..	.....	10,518
Conservatorium of Music ... ..	1,709	8,538
National Art Gallery ... ..	.....	5,913
Observatory ... ..	801	3,665
Zoological Gardens, Taronga Park ... ..	57,298	2,894
Grants and Subsidies to various Societies ... ..	.....	6,536
<b>Total</b> ... ..	<b>£294,270</b>	<b>1,873,926</b>

The University of Sydney, though a publicly endowed institution, was free from any measure of Governmental supervision until 1912, when the University Amendment Act was passed, under which the Government is represented on the Senate. Grants and subsidies to institutions, schools, and societies represent annual payments conditional upon satisfactory fulfilment of functions.

#### SCHOOLS AND TEACHING STAFFS.

The total number of public and private schools in operation at the end of each of the past years, and the aggregate teaching staff in each group are shown in the following table:—

Year.	Schools.			Teaching Staffs.		
	Public.	Private.	Total.	In Public Schools.	In Private Schools.	Total.
1912	3,231	754	3,988	7,048	3,673	10,721
1913	3,235	733	4,018	7,261	3,593	10,854
1914	3,258	717	3,975	7,404	3,674	11,078
1915	3,254	718	3,972	7,890	3,682	11,572
1916	3,188	701	3,889	8,369	3,678	12,047

These figures are exclusive of Technical Schools, the Sydney Grammar School, the Ragged, and Free Kindergarten Schools, the New South Wales Institution for the Deaf and Dumb and the Blind, Institutional schools under denominational control, Shorthand and Business Colleges, Agricultural Schools, &c. In 1912 there was, on the average, one school to 446 persons; in 1916 there was one school to 478 persons in the population of the State.

The Teaching Staff per school was much greater for the Private Schools than for the Public, but the staffs of the Private Schools include a number of visiting teachers who teach special subjects only, and do not devote their whole time to one school.

#### ENROLMENT.

A comparative review of the enrolment of children at Public and Private Schools is restricted to the last quarter in each year, as the figures collected in regard to Private Schools relate only to that period. The following statement shows the recorded enrolment during the December quarter of each of the last ten years:—

Year.	Enrolment (December Quarter).			Proportion of Total Children Enrolled.	
	In Public Schools.	In Private Schools.	Total.	In Public Schools.	In Private Schools.
				per cent.	per cent.
1907	209,229	57,440	266,669	78·2	21·8
1908	214,495	57,111	271,606	79·0	21·0
1909	213,739	58,361	272,100	78·6	21·4
1910	214,776	59,247	274,023	78·4	21·6
1911	221,810	60,963	282,773	78·4	21·6
1912	228,529	61,744	290,273	78·7	21·3
1913	241,784	64,591	306,375	78·9	21·1
1914	252,697	64,577	317,274	79·6	20·4
1915	258,017	64,863	322,880	79·9	20·1
1916	264,713	67,704	332,417	79·6	20·4

During the first half of the period under review the total enrolment increased very slowly. Latterly, however, there has been an appreciable advance, so that the figures for 1916 are 24·7 per cent. above those for 1907.

The ratio of enrolment of children in Public and Private Schools for the various years of the decade remains fairly constant, varying from 78·2 in 1907 to 79·9 in 1915 in the case of the former, and from 21·8 in 1907 to 20·1 in 1915 in that of the latter.

The figures relating to enrolment are exclusive of the Evening Continuation Schools, the Sydney Grammar School for Boys, Business and Shorthand Schools, the School held in connection with the Deaf and Dumb and Blind Institution, the Ragged Schools, and Free Kindergarten Schools, Institutional Schools under denominational control, Agricultural and Technical Schools, &c.

#### AVERAGE ATTENDANCE.

In the following comparison the average quarterly enrolment and the average attendance for Public Schools are derived from the rolls for all quarters of the year, not for the December quarter only; for Private Schools the ratio is on the December quarter enrolment and the average daily attendance during the whole year:—

Year.	Public Schools.			Private Schools.		
	Average Quarterly Enrolment.	Average Attendance during the year.	Ratio of Attendance to quarterly enrolment.	Enrolment, December Quarter.	Average Attendance during the year.	Ratio of Attendance to December quarter enrolment.
			per cent.			per cent.
1907	213,709	152,608	71·4	57,440	46,697	81·3
1908	216,747	155,997	72·0	57,111	48,203	84·4
1909	218,248	160,080	73·3	58,361	48,792	83·6
1910	218,539	157,498	72·1	59,247	49,351	83·3
1911	223,603	160,776	71·9	60,963	51,569	84·6
1912	235,803	171,028	72·5	61,744	51,168	82·9
1913	245,819	178,028	72·4	64,591	54,305	84·1
1914	258,562	190,194	73·6	64,577	55,431	85·8
1915	265,446	194,244	73·2	64,863	55,163	85·0
1916	272,156	200,695	73·7	67,704	56,318	83·2

The quarterly enrolment, as the standard for comparison of children under tuition, and, by means of the average attendance, of the degree of constancy in the education of children, is an unsatisfactory test.

The weekly roll is clearly a better test, inasmuch as it more nearly approaches the basis (daily) on which the average attendance is computed; but preferably the average attendance of scholars should be compared with the total children who can be regarded as in need of education. Such comparison may be seen in the following statement which shows, for the last ten years, the average attendance at Public and Private Schools in com-

parison with the estimated numbers of children requiring education. The figures are exclusive of Technical schools, Sydney Grammar School, charitable schools, and shorthand and business schools and colleges, &c.:—

Year.	Estimated children of school age.	Other Children under and over school age on roll.	Total Children requiring education.	Average Attendance Public and Private Schools.	Proportion per cent. attending school.
1907	260,800	43,111	303,911	199,305	65·6
1908	259,400	42,551	301,951	204,200	67·6
1909	259,200	43,242	302,442	208,872	69·1
1910	257,900	44,364	302,264	206,849	68·4
1911	260,800	43,979	304,779	212,345	69·7
1912	264,700	44,992	309,692	222,196	71·7
1913	271,300	45,293	316,593	232,333	73·4
1914	278,200	46,356	324,556	245,625	75·7
1915	286,200	46,689	332,889	249,407	74·9
1916	293,500	47,550	341,050	257,013	75·4

In the above table the figures represent the school age as that between 6 and 14 years. The Public Instruction (Amendment) Act, 1916, which changed the school age to that between 7 and 14 years, did not come into operation until 1917.

#### AGE DISTRIBUTION OF PUPILS.

The age distribution of pupils enrolled at schools during the last five years is shown in the following table. The figures represent the December quarter enrolment and are exclusive of Evening Continuation Schools :—

Year.	Public Schools.				Private Schools.			
	Under 6 years.	6 years and under 14.	14 years and over.	Total.	Under 6 years.	6 years and under 14.	14 years and over.	Total.
1912	10,002	200,260	18,267	228,529	5,279	47,555	8,910	61,744
1913	10,663	211,742	19,379	241,784	5,706	49,340	9,545	64,591
1914	11,165	221,046	20,486	252,697	5,344	49,872	9,361	64,577
1915	11,120	226,222	20,675	258,017	5,498	49,969	9,396	64,863
1916	11,834	232,408	20,471	264,713	5,280	52,459	9,965	67,704

#### RELIGIONS.

A comparative view of the aggregate enrolment in all schools (public and private) for the December quarter during the last five years, is given hereunder, and the figures, being on the same planes of comparison for each

year, may be accepted as illustrative of the progression of each type of school during the period :—

Year.	Public Schools— Denomination of Children.					Private Schools— Denomination of Schools.			Total Enrolment all Schools.
	Church of England.	Roman Catholic.	Presby- terian.	Methodist.	Other.	Church of England.	Roman Catholic.	Other.	
1912	123,190	31,313	26,992	31,768	15,266	3,347	46,778	11,619	290,273
1913	131,052	32,553	28,601	33,499	16,079	3,533	49,580	11,478	306,375
1914	136,812	33,628	29,783	35,678	16,796	3,644	50,434	10,499	317,274
1915	139,317	33,958	30,357	36,807	17,578	3,619	51,369	9,875	322,880
1916	143,757	33,648	31,478	37,883	17,947	3,638	54,124	9,942	332,417
PER CENT. OF TOTAL ENROLMENT.									
1912	42·4	10·8	9·3	10·9	5·3	1·2	16·1	4·0	100
1913	42·8	10·6	9·3	10·9	5·2	1·2	16·2	3·8	100
1914	43·1	10·6	9·4	11·2	5·3	1·2	15·9	3·3	100
1915	43·2	10·5	9·4	11·4	5·4	1·1	15·9	3·1	100
1916	43·2	10·1	9·5	11·4	5·4	1·1	16·3	3·0	100

It will be noticed that in the public school figures the column headings indicate the denomination of the children, and in the private school figures the denomination of the schools. In the former case the denomination of the child is ascertained, but not in the latter, and the pupil, although attending a school of stated denomination, is not necessarily to be considered of that denomination.

As compared with the total enrolment the percentage of Church of England children in public schools increased from 42·4 in 1912, to 43·2 in 1916, and the proportion in the denominational schools decreased slightly. Of the Church of England children attending school, 2½ per cent. attend their own denominational schools.

The Roman Catholic children at present attending the schools of their own denomination represent 62 per cent. of the total Roman Catholic enrolment. In the percentage attending public schools, the rate declined from 10·8 in 1912 to 10·1 in 1916 ; the proportion in the denominational schools increased slightly.

*Religious Instruction in State Schools.*

A provision of the Public Instruction Act, 1880, retained from the Public Schools Act, 1866, reserves a maximum period of one hour in each school day, during which religious instruction may be given to scholars in State schools by visiting ministers and teachers of religious bodies ; and the following table indicates the number of lessons in special religious instruction during the past five years :—

Denomination.	Number of Lessons.				
	1912.	1913.	1914.	1915.	1916.
Church of England ... ..	27,229	30,958	35,373	35,342	33,600
Roman Catholic ... ..	887	833	1,086	1,358	1,460
Presbyterian ... ..	8,074	7,922	8,313	8,485	7,517
Methodist ... ..	9,956	10,914	12,455	12,353	12,591
Other Denominations ... ..	6,737	6,694	7,472	7,326	6,908
Total ... ..	52,883	57,321	64,699	64,864	62,076

## THE STATE SCHOOLS.

*Annual Expenditure.*

The following statement shows the expenditure by the Department of Education in each calendar year since 1912, for maintenance, administration, and school premises, on account of primary and secondary public day schools and technical schools:—

Year	Primary and Secondary Schools.				Technical Education.	
	Maintenance and Administration.			School Premises.	Maintenance and Administration.	Land and Building, including Repairs.
	Maintenance and Salaries.	Administration and Training.	Total.			
1912	£ 1,191,743	£ 93,666	£ 1,285,409	£ 304,577	£ 65,433	£ 17,466
1913	1,211,920	106,405	1,318,325	367,830	53,932	63,803
1914	1,269,835	179,979	1,449,814	271,627	54,303	5,686
1915	1,288,919	183,052	1,466,971	219,911	57,900	7,630
1916	1,378,619	168,346	1,546,965	313,553	69,934	21,480

These figures represent governmental expenditure only. In regard to Technical Education, it is necessary to note that fees paid by students constitute a considerable item of receipt in each year. Fees in primary schools were abolished as from 8th October, 1906, and High School fees from 1st January, 1911.

The expenditure on land and buildings in the Technical Education branch for the year 1913, included the cost of resumption of land adjoining the Central College.

The figures given above represent the annual normal expenditure. To estimate the total cost of State school education during any year would necessitate investigation of the capital value of buildings and equipment, the rate of depreciation to be allowed, &c. At the present time the Department of Education has not the necessary data to give an exact valuation, but the latest approximate estimated value of the Departmental properties, including the sites, is £2,400,000.

The relative cost per child enrolled is shown in the following table:—

Year.	Maintenance and Administration.	School Premises.	Total Expenditure.	Per Child—Mean Quarterly Enrolment.		
				Maintenance and Administration	School Premises.	Total Expenditure.
1912	£ 1,285,409	£ 304,577	£ 1,589,986	£ s. d. 5 9 0	£ s. d. 1 5 10	£ s. d. 6 14 10
1913	1,318,325	367,830	1,686,155	5 7 3	1 9 11	6 17 2
1914	1,449,814	271,627	1,721,441	5 12 2	1 1 0	6 13 2
1915	1,466,971	219,911	1,686,882	5 10 6	0 16 7	6 7 1
1916	1,546,965	313,553	1,860,518	5 13 8	1 1	6 16 9

*Distribution of Expenditure.*

The following statement shows, in comparative form, the distribution of expenditure in connection with primary and secondary schools under the Department of Education in 1915 and 1916 :—

	1915. £	1916. £
School premises ... ..	219,911	313,553
Maintenance of Schools—		
Teachers' salaries and allowances ... ..	1,176,424	1,241,155
Travelling expenses ... ..	10,420	12,855
Forage allowances ... ..	3,479	3,618
School fuel allowances ... ..	2,568	2,174
Cleaning allowances ... ..	34,958	42,068
Materials ... ..	27,867	43,782
Miscellaneous expenses ... ..	28,203	32,967
Training of teachers ... ..	39,809	49,216
Bursary Endowment Board ... ..	13,815	25,093
Administration—		
General management ... ..	84,961	44,775
Inspection ... ..	31,779	32,784
Chief Medical Officer's Branch ... ..	12,688	16,478
<b>Total ... ..</b>	<b>1,686,882</b>	<b>1,860,518</b>

STATE PRIMARY AND SECONDARY SCHOOLS.

The number of schools open at any time during the year does not coincide with the number open at the end of that year, as with variations in population, new schools are established or existing schools closed, and changes are being made constantly in the classification of schools opened.

The following table affords a comparison between the number of State schools in operation in 1881, the first full year in which the Department of Education was under immediate ministerial control, and the numbers open at later periods; the figures represent the gross number of schools in operation during the year :—

Type of School.	Schools in operation during year.					
	1881.	1891.	1901.	1911.	1915.	1916.
High ... ..	...	5	4	8	17	19
Public ... ..	1,100	1,697	2,049	1,945	1,992	2,009
Provisional ... ..	246	349	428	514	520	510
Half-time ... ..	93	300	276	303	219	205
House-to-house and Travelling ... ..	...	92	20	6	5	4
Subsidised ... ..	...	...	...	494	675	668
Evening, Primary ... ..	57	14	41	24	1	...
Continuation ... ..	...	...	...	18	49	47
Industrial and Reformatory ... ..	2	3	4	3	2	2
<b>Total ... ..</b>	<b>1,498</b>	<b>2,460</b>	<b>2,822</b>	<b>3,315</b>	<b>3,480</b>	<b>3,464</b>

The continuous demands for new schools in freshly settled districts, remote from towns, account in great measure for the increase in the number of subsidised schools.

*Consolidation of Small Schools.*

In 1904 the consolidation of small schools was initiated, the Department of Education granting a subsidy for the conveyance, to central schools, of children attending various small schools. The advantages of this system are that better buildings and equipment, as well as a larger teaching staff, can be provided, and a wider range of instruction imparted. During the year 1916, children were conveyed to 279 central schools at a cost of £11,336.

## PRIMARY SCHOOLS.

Primary work in its various stages is undertaken in schools classified broadly in two groups—(a) Primary and Superior Schools in more or less populous centres, and (b) schools in isolated and sparsely settled districts, viz., Provisional, Half-time, House-to-House, and Subsidised Schools.

House-to-house teaching is restricted generally to English and mathematics.

In Half-time schools, one teacher divides his time between two schools, so arranging that homework and preparatory study will occupy the time of the pupils in the absence of the teacher. The course of instruction follows that of full-time schools.

*Classification of Primary Schools.*

Public primary schools are classified according to average attendance, and in the largest schools there are separate departments for infants (up to about age 8), for boys, and for girls.

In the classification of schools, made in January of each year, the schools were graded as follows, each pair of Half-time schools being counted as one:—

Class.	Average Attendance.	Schools.				
		1913.	1914.	1915.	1916.	1917.
I	600 and over	73	74	79	77	80
II	400-599	31	34	32	34	36
III	200-399	93	91	98	92	96
IV	50-199	388	412	418	395	398
V	30-49	578	555	559	555	565
VI	20-29	510	533	540	530	497
VII	Under 20	879	861	828	1,050	1,014

*Subsidised Schools.*

For the education of children resident in places remote from any State schools, the Subsidised School was instituted in 1903. The conditions upon which aid is granted are that two or more families must combine to engage a private teacher, who, after approval of the Minister as to qualifications, receives, in the Eastern portion of the State, a subsidy at the rate of £5 per pupil per annum, the maximum amount being £50 per school; and in the Western portion, a subsidy of £6 per pupil per annum, the maximum per school being £60. A subsidy may be granted to any family, with not less than four children of school age, living in complete isolation. Subject to certain conditions, subsidy at the stipulated rates may be paid as an aid towards boarding children in a township for the purpose of attending a public school. The teachers of subsidised schools in the December quarter of 1916 numbered 539, of whom 31 were men; there were 2,505 boys and 2,350 girls on the roll, and the average attendance was 3,866 or 79·6 per cent. of enrolment. The amount paid towards salaries of teachers of subsidised schools during the year 1916 was £19,653.

During 1912, regulations and arrangements were made whereby subsidised school teachers could be examined, certified, and registered on passing the examination, the Department furnishing the names of such registered teachers to parents requiring their services.

*Travelling Schools.*

In order to supply means of education for families so isolated that even two could not readily combine to form a Subsidised School, Travelling Schools have been established. The first commenced operations in 1908;

the teacher was provided with a vehicle to carry school requisites, and a tent for use as a schoolroom, in which to teach for a week at a time at each centre in his circuit. There are now three travelling schools in operation.

*Correspondence School.*

At the beginning of 1916, further efforts were made by means of a correspondence school to extend educational facilities to children in remote localities; 27 members of eleven families were enrolled during the year, and promising results were obtained.

SECONDARY EDUCATION IN STATE SCHOOLS.

Provision is made in State Schools for education beyond the primary stage in Superior or Continuation, District, and High Schools, and in Technical Schools and Colleges. The number of pupils who received secondary education in 1915 and 1916 is shown below; the figures are exclusive of those in the schools of the Technical Education Branch, which are discussed on a later page:—

Schools.	1915.			1916.		
	Schools.	Total Enrolment.	Average Attendance.	Schools.	Total Enrolment.	Average Attendance.
High ... ..	17	4,971	4,037	19	5,228	4,301
Intermediate High ... ..	4	948	707	3	660	530
District ... ..	21	2,202	1,552	20	2,293	1,621
Superior Public (Day Continuation)—						
Commercial ... ..	29	1,896	1,018	27	2,020	1,146
Junior Technical ... ..	21	1,133	574	22	1,379	789
Domestic ... ..	41	2,031	1,621	42	2,381	1,347
Total... ..	133	13,181	8,909	133	13,961	9,734

In addition to the above Superior Public (Day Continuation) Schools, there are other Public Schools in which the course of study for certain subjects is the same as for the first and second year's course in the High School Syllabus, but no statistics of enrolment nor of attendance are available.

*Superior and Day Continuation Schools.*

Any Public School may be declared a Superior School if there is in one department a minimum attendance of 20 pupils who have completed the primary course.

Until 1912 the Superior Schools continued the work of the primary syllabus with such additional subjects as would enable pupils to compete at public examinations, but it was found desirable to reorganise these schools upon a vocational basis, and many of them have been converted into Day Continuation Schools.

In the Day Continuation Schools a two-years' course is provided for pupils who do not remain at school long enough to complete the High School course, but who desire special instruction to fit them for industrial or commercial pursuits. The schools are organised as (1) Junior Technical (boys), which supply preliminary groundwork for industrial careers, the course of study being fundamental to that of the Trades Schools of the Technical Education system; (2) Commercial for boys and girls, where the curriculum includes shorthand, book-keeping, business principles, &c.; (3) Domestic for girls, the special subjects being those relating to home management.

In the Superior Schools which have not been organised as Day Continuation, the course of instruction is similar to that of the first and second year of the High School. A proposal is under consideration to consolidate many of the Day Continuation Schools in the metropolitan and Newcastle districts by the establishment of central schools.

#### *Evening Continuation Schools.*

Prior to the year 1910 Evening Schools were maintained, to afford instruction to those who had not had the full advantage of primary education. But in order to satisfy the imperative demand for an Evening School system for pupils who had completed their primary school work, and were engaged in wage-earning processes during the day, it became necessary to modify and adjust the Evening School organisation. Consequently, the Evening Schools now supply two distinct types of training—(a) the Primary Schools, to complete elementary education, (b) the Continuation Schools, to provide instruction on special lines for persons engaged in daily employment.

In January, 1911, the Director of Education was entrusted with a commission to inquire into the working of Continuation Schools in Great Britain and Europe, and to recommend for adoption whatever improvements might be of advantage in New South Wales. Following his report, issued in 1911, Evening Continuation Schools were organised, and Evening Primary Schools, were converted into Continuation Schools.

The latter schools are classified as Junior Technical, Commercial, or Domestic; for those pupils who are not qualified to enter upon the two years' courses, preparatory courses of one year's instruction in primary school subjects may be established in each school.

The fee charged is 6d. per week; but on completion of a satisfactory attendance in each year, the amount paid may be returned to the student. The average age of pupils attending the Preparatory Schools was 16 years, and for the other Evening Continuation Schools, 18 years.

The following is the record of these Evening Continuation Schools for the years 1915 and 1916 :—

Classification.	1915.			1916.		
	Schools.	Average Weekly Enrolment.	Average Weekly Attendance.	Schools.	Average Weekly Enrolment.	Average Weekly Attendance.
Junior Technical (boys) ...	17	960	705	16	951	698
Commercial (boys) ...	19	1,338	991	17	1,334	991
Preparatory ...	1	38	26	1	28	21
Domestic (girls) ...	10	517	382	10	435	298
Total ...	47	2,853	2,104	44	2,748	2,008

In connection with the Continuation School system the question of compulsory attendance has been the subject of much discussion.

#### HIGH SCHOOLS.

The High Schools provide a four years' course of advanced education for pupils who have completed the primary course. No fees are charged, and, since the beginning of 1916, text books and materials have been provided free. To gain admission pupils must complete the primary course, and the parents are required to give an undertaking that the pupils will remain at school till the completion of the whole course. A new syllabus was introduced into the High Schools at the beginning of 1911; in addition to a general course leading to professional studies at higher institutions, the Technical High School gives preparation for engineering and building professions, and the Agricultural High School accommodates students for pastoral pursuits and for

admission to the Agricultural College. The Intermediate Certificate which marks the completion of the first two years' course in these schools, must be obtained before the pupil is allowed to proceed with the work of the third year; the Leaving Certificate is awarded at the termination of the course. At the Intermediate High Schools an abbreviated course of advanced study leading to the Intermediate Certificate is provided.

The following particulars relate to High Schools and Intermediate High Schools during the last five years :—

Year.	High Schools.	Inter- mediate Schools.	Teachers.			Pupils.			Holders of—		Cost per head of enrolment.
			M.	F.	Total.	Enrolment.		Attend- ance. Daily average.	Bur- saries.	Scholar- ships.	
						Total.	Av'rage Q'terly.				
1912	12	...	95	51	146	3,002	2,714	2,392	470	781	£ s. d. 8 11 1
1913	15	5	154	97	251	4,714	4,178	3,623	499	821	14 13 4
1914	16	5	159	112	271	5,220	4,685	4,170	552	1,029	15 11 0
1915	17	4	165	134	299	5,919	5,334	4,740	636	1,733	16 9 5
1916	19	3	195	146	341	5,888	5,330	4,780	748	1,165	21 8 0

Since the reorganisation of the secondary course the number of High Schools has increased from 5 in 1910 to 22, including 3 Intermediate in 1916; the average quarterly enrolment has risen from 894 to 5,330; the number of pupils holding bursaries and scholarships from 408 to 1,913, and the cost per scholar from £7 13s. 3d. to £21 8s. This development may be attributed to the abolition of fees, dating from 1st January, 1911, and to the extension of scholarships and bursaries, as described below.

DISTRICT SCHOOLS.

In country centres where the enrolment of secondary pupils is not sufficient to warrant the establishment of a separate High School, "District" Schools have been established as a "top" to the local Primary School. These schools have special staffs, and the higher classes undertake the secondary course of instruction as followed in High Schools. At the close of 1916, twenty of these schools were in operation, the average weekly enrolment of secondary pupils being 985 boys and 816 girls, and the average attendance was 888 boys and 733 girls.

STATE SCHOOL TEACHERS.

*Training.*

Until the year 1905 the teaching staff of the State Schools was recruited by means of the pupil-teacher system, under which boys and girls commenced between the ages of 14 and 16 years, with the control and instruction of a certain number of children; in return for their services they received, in addition to a small salary, instruction and practical advice from the principals of the schools where they were employed. After four years' service, marked by annual examinations conducted by the Department of Education, a limited number who passed the qualifying examinations were admitted to a course at the Training College—men at a non-residential institution in connection with Fort-street Model School, and women at Hurlstone College, where residence was provided. On completion of the course, trainees were classified as teachers.

Pupil-teachers who did not enter the training schools were appointed as assistants, or placed in charge of small schools; and after a probationary service were allowed to compete for classification on the same footing as the

trained teachers. A number, practically untrained, entered the service as teachers of small schools in outlying districts, and became eligible for classification.

As this system proved inadequate for maintaining an efficient and well-trained body of teachers, it was decided in 1905 to make proper provision for the training of teachers. The training schools at Hurlstone and Fort-street were closed, and a general training college was established in connection with Blackfriars Public School. The admission of pupil teachers was continued until the supply of trained teachers became sufficient to meet requirements, but at the end of 1910 they had been entirely replaced.

The ordinary course at the Teachers' College extends over two years, and qualifies for teaching in the various classes of primary and infant schools, and on its completion students may qualify for second-class certificates. Those who elect to withdraw at the end of the first year are eligible for third-class certificates. A period of practical work must be accomplished satisfactorily before classification is awarded. Third-year and special courses are arranged with reference to the departmental requirements and capabilities of individual students.

The first-year courses include terms in the College and in the University for matriculated students who take also the professional parts of the College course, and professional work for students who have graduated before entering the College. The second-year courses are (1) the ordinary College, (2) Kindergarten and Infants'-school, to meet the requirements of teachers of young children, (3) Domestic Science, (4) University for students who have matriculated in their first and second College year, (5) Hawkesbury College for students preparing for work in rural schools. The last-mentioned students reside at the Hawkesbury Agricultural College and use the Public School at Richmond as a practice school; during the winter vacation they attend short terms of lectures at the Teachers' College. Evening Extension Courses in Kindergarten and Infant Teaching are provided, and these require attendance at the College on three evenings each week.

To obviate the necessity of admitting untrained teachers into the Service, short courses of training have been established for rural school teachers and assistants at Hereford House School, which was opened in 1911 as an adjunct to the Teachers' College. This training extends over six months, and about 200 teachers attend in each year, but it is considered advisable to extend the period to twelve months if possible.

The fees for training courses are as follows: Six months, £7 10s.; one, two, and three year courses, £15 per annum for those taking both general and professional subjects; fees are returned to students who enter the service of the Department of Education. For Evening Courses the fee is £3.

Professional training is conducted at three Demonstration Schools—Blackfriars, North Newtown, and Darlington—and departments have been secured in several other schools for practical work in connection with the Teachers' College.

The minimum age of admission to the College is 17 years, so that intending students must remain at school for three years beyond the primary school age, and provision has been made for their admission as probationary students to a preparatory course in District or High Schools in the principal centres throughout the State.

In addition to the teachers trained by the Department of Education qualified teachers are admitted from outside the service; those appointed to primary schools are placed on probation for six months, and those appointed to secondary schools, if requiring additional professional training, must take the University course leading to the Diploma in Education.

A portion of land within the Sydney University having been acquired as a site for the Teachers' College, the erection of the building was commenced in 1914. When the new College is completed, it will provide training for teachers for private secondary and primary schools, as well as for the State service.

In 1916, 735 students were enrolled at the Teachers' College; this number includes 8 who had enlisted in the Australian Imperial Force :—

Students.	Men.	Women.	Total.	Number holdin Scholarships.
First year ... ..	48	130	178	177
Second year ... ..	25	103	128	127
Third year ... ..	5	24	29	27
Fourth year ... ..	5	4	9	8
Short course ... ..	99	264	363	363
Evening students ... ..	...	25	25	...
Cookery ... ..	...	3	3	...
Total ... ..	182	553	735	702

Particulars of scholarships tenable by students of the Teachers' College are shown on a later page.

The staff of the College consists of a Principal, Vice-Principal, 28 lecturers, 7 visiting lecturers, and 7 supervisors of Practice teaching, a warden of women students, and 4 clerical and library assistants. Members of the teaching staff are afforded opportunities to study abroad, and leave of absence, on full pay, may be granted for this purpose.

*Conditions of Service.*

Prior to 1908 the salaries paid to classified teachers in charge of schools depended entirely on the classification of their schools, as determined by average attendance. Under the present system arrangements have been made by which the teachers' promotion depends, not only on the progression of their schools, but also on the improvement of their qualifications. To qualify for a higher grade the teachers must pass a series of examinations, but to obtain promotion they must show also the requisite degree of efficiency in practical work.

The salaries paid to High School teachers are as follows :—

Teachers.	Men.		Women.	
	£	£	£	£
Principal—				
Boys' or Girls' School ... ..	400	to 600	300	to 450
Mixed school ... ..	350	„ 450	.....	.....
Master and Mistress of Department ... ..	300	„ 400	200	to 300
Assistant ... ..	200	„ 300	180	„ 250
Junior staff ... ..	168	to 228	144	„ 180

The deputy headmaster receives from £25 to £40, and the deputy head mistress from £15 to £30, in addition to other salary.

The following statement shows the range of salaries paid to teachers in Primary Schools classified according to the average attendance :—

Average Attendance.	Salary of Principal.	Average Attendance.	Salaries.				
			Principal.	Mistress of Department.		First Assistant.	
				Gir.s'.	Infants'.	Men.	Women.
	£		£	£	£	£	£
Under 20	132-174	200-399	306-366	204-216	192-210	198-240	...
20-29	174-204	400-599	390-408	216-252	198-216	198-264	162-168
30-49	216-234	600 and over }	450	252-288	216 252	246-288	180-210
50-199	258-324						

If the average attendance in a boys' department exceeds 500, the principal receives £500, and the first assistant £312; if over 400, the salaries are £475 and £300 respectively; and if the average exceeds 300, the principal teacher receives £465. Similarly, if a girls' department exceeds 400, the mistress receives £312, and the first assistant £222, or £192. Headmasters of practice schools (Primary) receive £475 per annum.

*Assistants.*—The salaries of ordinary assistants are :—Men, £156 to £228; women, £138–£168; unclassified—men, £110–£156; women, £110–£120; junior assistants under 21 years, men and women, £72. Teachers are eligible for a minimum salary of £132 per annum on attainment of age 21; and extended leave is allowed after twenty years' service.

In addition to these rates, special allowances are made to teachers of Intermediate, High, District and Evening Continuation Schools and to teachers of special subjects, such as Science, Manual Training, Cookery, &c. Married teachers in charge of schools are granted residences at an assessed rental, and extra allowances may be granted to teachers stationed in remote localities, where the cost of living is high. Teachers of half-time schools and of house-to-house schools are paid at the same rates as those in public schools of corresponding classification. Subsidised teachers receive £5 per head of average attendance, with a maximum of £50 per annum; in the western districts the subsidy is £6, and the maximum £60 per annum.

#### *Classification and Improvement.*

State school teachers are graded and obtain promotion after passing a series of examinations, framed to test their progress in scholastic attainments as well as their skill in imparting knowledge, and consideration is given for meritorious service.

A comparative statement of the teaching staff of the State schools for the years 1910 and 1916 is shown below; those in the Technical Education Branch are not included :—

Teachers.	1910.			1916.		
	Men.	Women.	Total.	Men.	Women.	Total.
Teachers and Assistants—						
First Class ... ..	257	71	328	273	101	374
Second Class ... ..	713	545	1,258	1,037	656	1,693
Third Class ... ..	1,310	698	2,008	1,466	1,005	2,471
Unclassified ... ..	791	1,019	1,810	609	1,634	2,243
Training Students ... ..	154	149	303	122	401	523
Pupil Teachers ... ..	8	28	36	...	...	...
Cookery Teachers ... ..	...	...	...	...	59	59
Sewing Mistresses... ..	...	109	109	...	115	115
High School Teachers ... ..	29	19	48	204	148	352
Subsidised School Teachers ... ..	38	324	362	31	509	539
Total ... ..	3,300	2,962	6,262	3,742	4,627	8,369

There is a high number unclassified because there are included in this category ex-students of the College whose classification is deferred until they have proved their practical skill during a period of service as assistants; also in 1916, 167 men and 321 women who had completed the short-course of training at Hereford House.

Associations are established in the inspection districts to keep the teachers in touch with modern educational methods. Meetings are held at frequent intervals for the discussion of educational topics; addresses are delivered, and demonstration and practical lessons are given on subjects of professional interest. Circulating libraries have been established by a large number of these associations.

In isolated districts, where the teachers are unable to be present at these meetings, they are allowed to attend for a short period, from time to time, at larger schools, also summer schools and schools of instruction are held regularly.

During 1916, 386 teachers were enrolled as students in the University of Sydney, 220 attending in the evening; 239 were attending the Arts course, 81 Science, 44 Economics and Commerce, and 1 Agriculture; and 21 the post-graduate course in Education.

#### *Supervision.*

A staff of Inspectors has been organised to exercise supervision over Public Schools; and in 1917 the inspectors for Primary and Superior Schools numbered 39, together with two Inspectors of Secondary Schools, and an Inspector of Evening Continuation Schools. Under the Bursary Endowment Act, inspection is provided for such private Secondary Schools as apply for registration.

Methods of inspection were radically altered in 1904. Detailed examination of school-pupils was replaced by a more general inspection of the work and management of the school, to enable the Inspector to devote his attention to the improvement of the condition of the school and of the efficiency of the teachers. The Inspector is required to meet the teachers of his district during each year; the meetings being devoted to lectures, essays, and the discussion of educational topics.

Although the whole administration of schools is reserved to the Minister, Public School Boards are appointed to visit schools, to induce parents to send their children regularly, and to carry out other duties either to support the teachers, or to check misconduct. These Boards are restricted in supervision to the schools in their respective districts, which are defined by proclamation.

During recent years many Parents and Citizens' Associations have been formed and their growth testifies to a widespread desire to aid in educational work. These associations are constituted under Regulations made under the Public Instruction Act, but they have no authority in the internal management of the schools nor in the expenditure of public moneys.

#### PRIVATE SCHOOLS.

Until the recent reorganisation of the State Secondary School system there were only five Public High Schools with an average quarterly enrolment of less than 900 pupils, so that instruction beyond the primary stage of the Public Superior Schools was supplied to a large extent by private establishments. None of the private schools are subsidised, except the Sydney Grammar School; the majority are conducted under the auspices of the religious denominations, and those of the Roman Catholic denomination show a substantial increase, in contrast to the marked diminution of other private schools.

The fees vary in accordance with the type of school, many of the Secondary Schools being residential, and in the denominational primary schools the payment of fees is to a large extent voluntary. Scholarships and bursaries have been provided by private subscription for the assistance of deserving students.

Up to the end of 1916 the Department of Education exercised no supervision over the private schools except those registered under the Bursary Endowment Act, but in order to comply with the compulsory attendance clauses of the Public Instruction (Amendment) Act, 1916, children between the ages of 7 and 14 years must attend schools certified as efficient by the Minister for Public Instruction. Applications for registration of schools may be made to the Minister, and provisional registration granted

pending inspection by Government officers. Appeals against the refusal or cancellation of certificates may be made to the Bursary Endowment Board. The Act authorises the inspection of all school premises, and proprietors may be required to bring the hygienic conditions of their schools up to the standard of State Schools similarly situated and circumstanced. Teachers and proprietors of certified schools will be required to furnish returns to the Minister.

A comparative statement relating to the private schools is shown below. Sufficient data are not available to permit the classification of these schools according to the standard of instruction supplied:—

Classification.	1906.				1916.			
	Schools.	Teachers.	Enrolment.	Average Attendance.	Schools.	Teachers.	Enrolment.	Average Attendance.
Undenominational ...	416	1,294	11,286	9,242	216	985	8,640	7,257
Roman Catholic ...	365	1,871	42,106	33,322	420	2,242	54,124	44,809
Church of England ...	60	292	3,922	3,142	51	319	3,638	3,081
Presbyterian ...	4	43	295	268	5	69	529	472
Methodist ...	2	35	330	285	2	42	430	393
Lutheran ...	1	1	26	23	3	3	72	55
Seventh Day Adventist	3	15	242	225	4	18	271	251
Hebrew... ..	1	6	500	435	...	...	...	...
Total ... ..	852	3,557	58,707	46,942	701	3,678	67,704	56,318

Included in the number of teachers as shown in the table are those who visit the schools to give tuition in special subjects only, the figures for 1916 being 2,726 permanently attached to the teaching staffs of the schools and 952 visiting teachers as compared with 2,624 staff teachers and 933 visiting teachers in 1906.

#### *Sydney Grammar School.*

The Sydney Grammar School was incorporated by an Act of Parliament in 1854, and opened in 1857; the Act authorised the payment of £20,000 for the erection of school buildings, and an annual endowment of £1,500.

The following is the record for the last five years of the numbers of teachers and students in the Sydney Grammar School, which since its foundation has been conducted exclusively for boys:—

Year.	Teachers.			Students.				
	Holding University Degrees.	Not Holding University Degrees.	Total.	Enrolment.		Attendance.	Age Groups.	
				Total.	Quarterly Average.	Daily Average.	December Enrolment.	
							6 to 14 years.	Over 14 years.
1912	17	8	25	665	561	522	143	379
1913	18	8	26	695	606	566	132	463
1914	18	8	26	686	571	537	68	487
1915	18	8	26	638	567	545	93	468
1916	20	8	28	723	601	562	109	487

The income of the Sydney Grammar School for the year 1916 amounted to £12,879, including statutory endowment £1,500 and school fees £11,113; the expenditure amounted to £13,145.

## TECHNICAL EDUCATION.

The Technical College is under the direct control of the Department of Education, and technical education is administered by a superintendent, with financial and general procedure independent of other branches of the State Primary and Secondary education system.

Branch Technical Colleges have been established in suburban and country centres, and classes were instituted in numerous other places; but technical classes at Public Schools are part of the ordinary Public School course.

Two main courses of technical instruction have been established—(a) Trades Courses, concurrent with the period of apprenticeship; (b) Higher Courses, embracing the technology of the various trades and technical professions. Important features of the new scheme are: (1) that intending students are required to furnish evidence that they possess sufficient preparatory knowledge to take profitable advantage of the training; (2) that no student is admitted to a course unless actually engaged in the specific trade to which the course relates. Special provision is made that journeymen who desire to improve their knowledge may be admitted without preliminary test to any part of the courses relating to their trades.

The Trades Courses are divided into two parts, viz., the lower courses, covering a period of three years in the Trades Schools; and the higher, which last for two years, in the Technical Colleges. The day classes in the workshops of the College have been abolished, and students are expected to attend on three evenings per week, to receive instruction in trade mathematics, drawing and trade exercises, which include trade principles and practical work likely to be missed by the apprentice at his daily work.

An Advisory Committee, consisting of representatives of both employers and employees, has been appointed for each trade or group of trades to give advice and assistance regarding practical courses, equipment and teaching. These committees are specially valuable in giving publicity to the aims of the Technical Department, and thereby stimulating interest in this important branch of education.

The instruction of apprentices in the Trades Courses is strictly supplemental to their workshop training, and in granting certificates of trade competency, the experience and training of each apprentice in the workshop of his employer is taken into account as well as the results of his studies at the Trades Schools. By this method the trade certificate awarded on the satisfactory completion of the course is a guarantee of proper training at actual work as well as in the courses of technical instruction.

The Higher Technical, or Diploma Courses, were commenced in 1915; the qualifications as to preparatory knowledge and trade occupation are prescribed as in the case of the Trades Courses, except that the Diploma Course in Science is open to students irrespective of occupation. Holders of Trade or High School Leaving Certificates, or of similar certificates of recognised educational institutions, may be admitted without further examination to the Diploma Courses, which are given in the Technical College. Students who pass successfully through the Diploma Courses in science and engineering may be exempted from attendance during the first year's courses which lead to a degree in science and mechanical engineering at the Sydney University. A comprehensive scheme of scholarships has been established, to encourage students from the Primary Schools to pass through the study courses of the technical system, and thence to the University.

Instruction is given under the technical education system in Domestic Science (which includes cookery and laundry work), Window-dressing, and Tailor's Cutting; these subjects are not included in the trade or diploma classes.

In 1916 there were three Technical Colleges, in the main industrial centres, viz., Sydney, Newcastle and Broken Hill, and ten Trades Schools in suburban and country districts; classes for elementary technical instruction were held in various smaller localities. Special courses of instruction in Sanitary Science and in Printing (composing) were carried on by means of correspondence.

The following table shows the number of classes and teachers and the enrolments at the Technical College and Trades Schools during the last five years; the figures do not include the technical classes in Public schools:—

Year.	Classes.	Lecturers and Teachers.	Total Enrolments.*	Individual Students.	Average Weekly Attendance.	Fees Received.
1912	732	340	26,469	14,805	17,204	£ 15,846
1913	582	236	16,218	11,620	12,214	13,760
1914	513	239	13,687	9,082	11,523	10,779
1915	519	298	13,000	7,219	9,257	9,831
1916	529	321	14,188	7,720	10,077	9,968

\* Includes students who have joined more than one class.

The immediate effect of the reorganisation of the Technical system at the beginning of 1914 was to reduce the enrolment, a number of classes with no direct bearing upon any trade being discontinued; the entrance tests and the regulations as to occupation also caused a reduction in the number of students. The enlistment of students for military service has affected the attendance since the outbreak of the war.

The enrolment of students in the various departments during 1916 is shown below:—

Departments.	1916.	Departments.	1916.
Agriculture ... ..	101	Printing ... ..	177
Architecture ... ..	1,474	Sanitation ... ..	774
Biology ... ..	146	Sheep and Wool... ..	243
Chemistry and Metallurgy ... ..	554	Women's Handicrafts ... ..	1,758
Domestic Science... ..	499	Art ... ..	1,187
Electrical Engineering ... ..	589	Commercial ... ..	780
Geology ... ..	391	Other (separate classes) ... ..	230
Mathematics ... ..	2,450		
Mechanical Engineering ... ..	2,835	Total ... ..	14,188

The teaching staff in connection with technical education consists of 10 lecturers in charge of departments, of whom 2 are women, 12 resident masters in charge of branch schools, 234 men and 19 women as salaried teachers and assistants and 19 men and 27 women paid by fees.

#### KINDERGARTEN.

Kindergarten methods have been adopted as far as practicable in the Infant Schools under the Department of Education, and in various parts of Sydney and suburbs Kindergarten classes are conducted for the purpose of bringing young children under refining influences. During the year 1916 classes were in operation in 91 Public Schools; 15 were separate Infant Schools, and the remainder were Primary Schools with Kindergarten departments attached; the number of pupils enrolled for Kindergarten instruction was 4,729, the average attendance being 3,469.

These classes were conducted under Froebelian methods until 1912, when the Montessori system also was introduced, with very satisfactory results, into many of the Infant Schools. The underlying principle of the Montessori system is individual liberty, and its main benefits are independent work, more rapid progress, and a pleasure in work for both teacher and children.

*Private Kindergarten Schools.*

Free Kindergarten schools are conducted by the Kindergarten Union of New South Wales, which is assisted by a grant from the Government, amounting in 1915-16 to £1,500. In 1916 there were 8 Free Kindergarten schools with 39 teachers; the number of scholars on the roll during the December quarter was 543, of whom 539 were under 6 years of age, and 4 between 6 and 14 years. The average daily attendance was 357, and the gross enrolment for the year, 719.

At some of the ordinary private schools there are departments for Kindergarten work.

In connection with Kindergarten teaching a private institution supplies training in Froebelian methods, and the Free Kindergartens provide observation and practice schools.

COMMERCIAL EDUCATION.

Preparatory education for commercial life has been provided in the State primary schools, where the course of instruction, especially in the Commercial Continuation Schools, includes elementary training in many commercial subjects; economics and business principles and practice are included in the curriculum of the High Schools. Many private schools and colleges also afford facilities for commercial training, both by day and evening classes.

A complete return of the number of pupils taught in these special subjects is not available, but statistics of the State Commercial Continuation Schools have been supplied on a previous page, and the following statement shows particulars of Business and Shorthand Schools under private management, in which many persons who have passed the school age receive instruction. Book-keeping, business methods, shorthand, and typewriting are the main subjects taught:—

Year.	Schools.	Teachers.		Enrolment.			Average Attendance.			Total Fees Received.
		M.	F.	M.	F.	Total.	M.	F.	Total.	
1912	18	59	44	3,280	5,231	8,511	1,321	2,134	3,455	£ 22,743
1913	17	72	35	2,112	4,526	6,638	1,105	2,096	3,201	25,104
1914	18	58	40	2,511	4,068	6,579	1,152	1,423	2,575	25,389
1915	17	50	35	2,931	6,062	8,993	918	1,322	2,240	22,337
1916	17	53	59	2,336	4,907	7,243	1,059	1,685	2,744	30,521

In addition to the above, there are many students to whom instruction is being imparted by means of correspondence.

Evening classes are conducted by various institutions, such as the Young Men's Christian Association, and the Railway and Tramway Institute.

At the latter institution, lectures of a technical and scientific character are arranged, in addition to the regular class work, in subjects ranging from ordinary English and commercial subjects to engine-driving, electrical physics, safe railway working, goods and coaching accounts, &c. The institute has succeeded also in accumulating a choice collection of New South Wales timbers.

Advanced preparation for commercial life has been provided in the University evening lectures for the diploma in Economics and Commerce. This section of the University teaching was promoted originally by the Sydney Chamber of Commerce in the form of brief lecture courses available to the general public, and in examinations conducted for senior and junior commercial certificates issued by that body. The diploma course was converted in 1913 into a full degree course; separate Chairs for applied chemistry and for economics have been provided, and it is hoped that means will be given for practical research work which will be of great benefit to Australian industries.

#### DOMESTIC TRAINING.

In the reorganisation of Superior Public Schools provision has been made for the establishment of Domestic Superior Public Schools for girls. The syllabus came into operation at the beginning of 1913, and the course includes household accounts, cookery, laundry work, dressmaking, millinery, garden, art of home decoration, music, and social exercises, morals and civics, physical training, as well as a course in English, designed to encourage a taste for wholesome reading.

Three hours per week are devoted to cooking and laundry, the course being practical and diversified. Personal hygiene, nursing of sick, and care of infants receive considerable attention.

Botany and gardening are taught, and while the course is designed primarily to train girls to manage a home, provision is also made for a training in commercial horticulture, and an alternative course of business lessons in the second year is intended to fit girls to take up work in the commercial houses in the city.

During 1916 sixty-three schools for practical cookery were in operation, the enrolment being 3,958; in addition, demonstrations in cooking were given to 5,500 pupils of fifth-classes. The Technical College provides more advanced courses. Fifty-five teachers of cookery and four teachers of hygiene were employed in 1916.

#### AGRICULTURAL AND RURAL TRAINING.

Education in subjects pertaining to rural industries commences in the primary schools with the teaching of the elementary principles of agriculture, both practical and theoretical. School gardens and experiment plots are adjuncts to many State schools, and grants are made of farm, vegetable, and flower seeds.

In 1905 an Instructor of School Agriculture was appointed, to direct the work of the teachers in the primary schools; his duties are to visit schools in the interests of school agriculture, and to supply the teachers with information required to direct the work of the pupils.

Rural camp schools have been held periodically, with the object of familiarising city lads with the important rural industries of the State, and of fostering an inclination for rural pursuits. Metropolitan school-boys were accommodated for a short period, while they visited dairies, farms, &c., under suitable guidance, and were instructed by direct illustration. The operations of the rural camp school have been suspended on account of the war.

Instruction in general farm work is given at the Farm Schools at Gosford and Mittagong, conducted by the State Children's Relief Department.

A special Agricultural High School is established at Hurlstone Park. The grounds, covering 26 acres, are used for teaching practical operations and for experimental work in the growth of crops, action of fertilisers, &c. The course at this school extends over two years, and covers a general English education in addition to science with laboratory practice, and agriculture

with field work. During 1916 there were 91 students on the roll, and at the end of the year there were two bursars and ten scholarship holders in residence. For resident students the fee is £6 6s. per quarter; for day students no fees are charged.

The training at Hurlstone Agricultural High School forms a preparatory course to the more advanced work at Hawkesbury Agricultural College.

At the Central Technical College at Ultimo, a diploma course covering two years is available for evening students.

Supplementing the training given to pupils under the Department of Education, a graduated scheme of agricultural instruction is organised in connection with the development of rural industries, by the Department of Agriculture of New South Wales. This scheme provides for Apprentice and Farm Schools, Experiment and Demonstration Farms, Orchards and Horticultural Nurseries, and the Hawkesbury Agricultural College, which supplies higher agricultural education; at some of these establishments provision is made for the training of women. Full particulars regarding students and curricula will be shown in the chapter relating to agriculture.

The Diploma course at the Hawkesbury Agricultural College covers three years' work, but certificates may be obtained for shorter courses. Students holding the Diploma of the College may be permitted to complete the course for the degree of Bachelor of Science in Agriculture at the University in three years instead of four.

The final stages of agricultural education and training are reached at the University, where, in the beginning of 1910, a department of Agriculture was instituted as a branch of the Faculty of Science. A four-years' course leads to the degree of Bachelor of Agricultural Science; and, in providing a higher training ground for teachers and experts, completes the whole system of preparation for rural industries. The Experiment Farms are available for the practical and experimental work in connection with the degree course.

#### SCHOOL SAVINGS BANKS.

A system of school savings banks in connection with the public schools of the State was initiated in the year 1887, and by this means £562,551 have been received in deposits, and £127,125 transferred to the Government Savings Bank as Children's Individual Accounts. The object of these banks is to inculcate principles of thrift during the impressionable ages.

In 1916 these banks numbered 726; the estimated number of depositors was 66,000. The deposits amounted to £37,097, and withdrawals, £35,099; £6,890, representing individual sums of £1 and upwards, were transferred to the Government Savings Bank, leaving £13,175, as credit balances in the school banks.

#### DELINQUENT, DEFECTIVE AND DEPENDENT CHILDREN.

Special provision has been made for delinquent, defective and dependent children in several reformatories and industrial schools maintained by the State and in private charitable institutions.

The State Institutions are the Girls' Industrial School and Training Home at Parramatta and the Farm Home for Boys at Gosford, and the Cottage Homes established by the State Children's Relief Board; particulars regarding their operations will be shown in a later chapter of this Year Book.

Education of deaf and dumb and blind children is undertaken at a school in connection with the Institution for the Deaf and Dumb and the Blind. This institution receives periodical grants from the Government, and the school fees are remitted in cases where the parents are unable to pay.

In 1916, the sum of £3,172 was received from legacies and subscriptions, and the total income of the institution was £7,990. The expenditure for the year was £7,555, including £7,102 for maintenance, salaries and wages, and £189 for buildings and repairs. The number of teachers employed was 17, of whom 7 were men. The gross enrolment during the year was 69 boys and 57 girls; the average daily attendance was 116. The December enrolment was 119, and of these, 74 were under and 45 were over 14 years of age.

Ragged Schools have been conducted since 1860 in Sydney, to provide education and attention for neglected children, meals and clothing being supplied when necessary. The operations of these schools have decreased in recent years, with the enactment of free education in State schools. During 1916, 5 schools were open, 6 women were employed as teachers, and 208 individual scholars were enrolled, with an average daily attendance of 130. There were 152 children on the roll during the December quarter, 37 were under 6 years, 111 from 6 to 14 years, and 4 were over 14 years.

At charitable institutions in 1916 there were 13 schools with 54 teachers and a gross enrolment of 1,228. In December quarter the enrolment of 1,051 consisted of 74 under 6 years of age, 836 between 6 and 14 years, and 141 over 14. These were denominational institutions conducted by the Roman Catholic Church and the Church of England.

#### MEDICAL INSPECTION OF CHILDREN.

In 1907, arrangements were made for the medical inspection of children in the State schools in the populous centres of Sydney and Newcastle; in 1911 it was extended to the South Coast district and to a number of inland towns.

During 1913 the medical inspection was reorganised to include the pupils of all Public Schools throughout the State, and the majority of those attending the private schools; and arrangements were made to examine each child every three years, thus ensuring two medical examinations during school-life. To provide for the treatment of physically-defective children a travelling school hospital, a travelling ophthalmic clinic and six travelling dental clinics have been established, also a metropolitan dental clinic. Details regarding the medical inspection of school children and the school clinics will be given in a later chapter of the Year Book.

The work of the medical officers of the Department of Education includes the investigation of epidemics of infectious diseases affecting school children; the inspection of school buildings; systematic courses of lectures at the Teachers' College; lectures to senior girls in all metropolitan schools on the care of babies, personal cleanliness, home hygiene, sick nursing, &c.; lectures to parents; examination of candidates for admission to the Teaching Service; first treatment of ophthalmia in the back-country schools; the following up of untreated cases by visits of school nurses to parents in order to secure the medical treatment of children.

A series of lectures given by a member of the School Medical Staff to the women students at the Teachers' College forms part of the Infant Teachers' course of instruction, the students being trained to observe children and to diagnose simple ailments.

#### PHYSICAL TRAINING OF BOYS AS CADETS.

The scientific physical training of boys when they reach the age of 12 years, and become junior cadets, is doing much for their well-being, and the military authorities do not intend to relax any efforts in this direction. Information as to the number of medical examinations of all junior cadets has been given previously, in the chapter on Defence. During the year 1916, the junior cadets trained at 1,885 State schools, numbered 23,536, and of these 22,044 were passed as efficient.

## UNIVERSITY EXAMINATIONS.

From 1867 to 1916, the University conducted annual Public Examinations, Junior and Senior, open to candidates from any school, on payment of a fee. These examinations ranked as tests of the soundness of instruction imparted in the public and private schools of the State, until they were superseded by those conducted by the Department of Education as described below. The last Senior Examination was held in 1915, and the last Junior in 1916.

*Education Department's Certificate Examinations.*

Prior to 1911 students from public schools, superior and high, were successful competitors at public examinations conducted by the University. Since the introduction of a co-ordinated system of secondary education, designed to furnish adequate preparation for various types of vocation, and to institute State bursaries, the necessity for competing at such examinations has vanished with the acceptance, by the University, of the certificates of the Department of Education, as indicating the attainment of satisfactory standards of education.

The regulations provide for three certificates to mark definite stages in the progress of school pupils, the examinations being open to students of State and private schools. The Qualifying Certificate indicates that the holder has completed the primary course, and is fitted to enter upon a secondary course; this standard is a condition precedent to admission to higher schools. The Intermediate Certificate marks the completion of the higher primary stage constituting the first two years of the secondary course. The Leaving Certificate is obtainable on graduation from the full four years' course of the High Schools, and is accepted as indicative of adequate preparation for the University, if it shows a pass in matriculation subjects.

The first examination for the Qualifying Certificate was held in December 1911, at 600 centres in New South Wales. The following are particulars regarding the examinations held during the year 1911 to 1916, the candidates being pupils of Public and Private Primary Schools:—

Year.	Candidates.	Passes.	Scholarships awarded.		Bursaries awarded.	
			Boys.	Girls.	Boys.	Girls.
1911	10,708	7,092	297	240	186	116
1912	14,978	8,464	330	184	198	102
1913	15,348	7,934	418	213	218	85
1914	16,684	11,137	1,255	745	195	106
1915	17,480	11,761	5	...	291	129
1916	18,963	12,159	5	...	268	129

In allotment of the certificates on this examination, which also determines the allocation of Scholarships to Secondary Schools, the teachers' reports and the record of school attendance are taken into account. The granting of Scholarships at State Schools was discontinued in 1915, arrangements having been made for supplying text-books free of charge to all pupils; 5 Scholarships tenable at the Sydney Grammar School are awarded.

The Examining Board in connection with the Intermediate and Leaving Certificates consists of the Director of Education, the Chief Inspector, the Principal of the Teachers' College, the Inspector of Secondary Schools, and four delegates appointed by the University.

The results of the Intermediate Certificate Examinations are shown below. The low percentage of passes in 1912 is due to the fact that in the initial year the full course had not been covered before the examination. In 1916, of 2,781 candidates, 72 per cent. were successful :—

Year.	Candidates.	Passes.	Scholarships awarded.		Bursaries awarded.	
			Boys.	Girls.	Boys.	Girls.
1912	1,571	645	43	2	56	62
1913	1,573	912	19	5	63	181
1914	2,334	1,563	3	...	74	210
1915	2,435	1,604	55	40	...	...
1916	2,781	2,014	60	4	...	...

The first Leaving Certificate Examination was held in November, 1913, and of 156 candidates, 123, or 71 per cent., were successful. In 1916 the percentage of passes was 80 :—

Year.	Candidates.	Passes.	Scholarships awarded.	University bursaries awarded.	
			Boys.	Boys.	Girls.
1913	156	123	...	20	4
1914	337	280	...	20	9
1915	572	447	14	23	7
1916	866	690	22	27	3

On the results of this examination, the University bursaries, and the exhibitions instituted under the University Amendment Act are awarded, also scholarships for the Diploma Courses at the Technical College.

The Intermediate and Leaving Certificate Examinations have been adopted as standards for the admission of persons to the public services of the State.

The first examination for Superior Public School Certificates was held in December, 1914; 566 candidates who had completed the two years' course sat for examination, and 469 passed; in 1916 the candidates numbered 740 and the passes 641, viz.:—Commercial, 272 candidates and 227 passes; Junior Technical, 169 candidates and 130 passes; Domestic, 299 candidates and 284 passes.

Certificates of proficiency are awarded to pupils of Evening Continuation Schools whose attendance and work have been satisfactory throughout the course. In 1916 there were 285 candidates at the examination for certificates, and 186 passed; in the previous year 206 passed out of 354 candidates.

#### TECHNICAL EDUCATION EXAMINATIONS.

The following are particulars of examinations conducted in the Technical Branch during the last five years :—

Particulars.	1912.	1913.	1914.	1915.	1916.
Number examined ... ..	5,714	4,811	3,684	4,334	5,956
Number of passes ... ..	4,728	3,577	3,095	3,553	4,464
Percentage of passes ... ..	82·7	74·3	84·0	82·0	74·9
Number obtaining honours ...	593	502	466	675	850

#### STATE SCHOLARSHIPS AND BURSARIES.

It has been the policy of the State to assist promising students, especially to the High Schools and to the University, by means of scholarships and bursaries.

High School scholarships, awarded to pupils under 14 years of age, upon the result of the Qualifying Certificate Examinations, are tenable for a period of four years; and entitle the holders to free education with a grant of text-books and other school material to the value of £1 10s. per annum; under specified conditions an allowance in aid of maintenance or travelling may be granted.

As stated above the granting of these scholarships tenable at State Schools was discontinued in 1915, when arrangements were made for the free supply of school material.

Three scholarships are awarded annually to students of the Agricultural High School, entitling the holders to free education for two years at the Hawkesbury Agricultural College, with monetary allowance and text-books. The holders commence on the second years' course at the College.

Probationary students who intend to become teachers may gain two-year scholarships at District Schools. Text-books are supplied and an allowance is granted during the second year.

Scholarships, admitting to courses of technical instruction, are provided to assist students to pass from the Day and Evening Junior Technical Schools to the Trades and Science Schools, from Lower to Higher Trades Courses, and from Trades to Diploma Courses. Students holding Leaving Certificates may obtain entrance by Scholarship to the Diploma Courses; and those who have gained the Intermediate Certificate at the Technical High School may obtain scholarships enabling them to enter the Higher Trades Courses. These technical scholarships carry a grant of text-books and appliances and exemption from fees, and holders must be engaged in the trade or profession for which the course has been established.

Early in the year 1916 the Sydney Municipal Council decided to award annually a travelling scholarship to an employee in their Electric Light Department who should have completed his apprenticeship and the Electrical Trades course at the Technical College.

Students who pass through the Diploma Course with distinction are enabled to continue their education at the University by means of scholarships valued at £100 per annum. Two scholarships each will be granted in the Departments of Science, Engineering, and in Architecture at a later stage.

The Falkiner Scholarship, established by private benefaction, is open for competition at the Leaving Certificate examination to boys attending the Hay District School; it entitles the holder to free University education and text books for four years, and to a grant for maintenance. As the Falkiner Scholarship is available only once in every four years the Department of Education has supplemented the award by a scholarship similar in value, to be known as the Riverina Scholarship, which will be open for competition in alternate years; it was first awarded as from the beginning of 1914.

Scholarships tenable at the Teachers' College, consisting of a money allowance, text-books, and exemption from college tuition fees, are awarded annually. For first and second year students the allowance is £30 per annum, with an additional grant of £20 to holders who have to board away from home; third and fourth year students receive £50 per annum, with an additional grant of £20 if obliged to board away from home; and for the short course the allowance is £25. Three scholarships are awarded annually in the longer course at the College, for competition amongst those who have completed the short course at Hereford House. Scholarships are awarded also in the training course for cookery. Travelling scholarships have been instituted in connection with the Teachers' College; former students of two or more years' standing are eligible for these scholarships, which are of the annual value of £200, and are tenable, at the discretion of

the Director of Education, for one or two years. Holders of Travelling Scholarships are required to pursue a definite line of study or research into some branch of the theory, practice, or administration of education. The Women's College of the Sydney University awards three scholarships annually to women students of the Teachers' College who are matriculated students of the University.

In connection with the wheat industry, the Government Farrer Scholarship and the Farrer Research Scholarship are tenable at the Hawkesbury Agricultural College, and the Daily Telegraph Farrer Scholarship is awarded to the best wheat student at the Bathurst or Wagga Experiment Farm School; details of these scholarships are given in the chapter relating to Agriculture.

#### *Bursary Endowment.*

In 1912 the Bursary Endowment Act was passed by Parliament providing public moneys for bursaries, tenable in public or private secondary schools and in the University of Sydney. This fund is administered by a specially constituted board, consisting of two representatives each of the University of Sydney, of the Department of Education and of the Secondary schools registered under the Act. A representative of the Department of Education is chairman.

Schools desiring to benefit under the Act must register; and such registration, which is effective for two years, is conditional upon the suitability of school premises, the organisation and equipment of the school, the method and range of instruction, efficiency of the teaching staff, and the general conduct of the school. The inspection is conducted by the Inspector of Secondary schools under the Department of Education.

Under the general conditions attached to registration a school must be capable of providing a four-year course of instruction beyond the primary stage, to a standard not lower than that of the Leaving Certificate. As at 30th June, 1917, sixty-three schools were registered under the Bursary Endowment Act.

Bursaries admitting to a course of secondary instruction are awarded to pupils between the ages of 12 and 14 years, whose parents' income is less than £200 per annum, or not more than a quota of £50 per annum for each member of the family, exclusive of children earning 10s. or more weekly. One-third of the bursaries are available for pupils of metropolitan and suburban schools. Their award is determined upon the results of the Qualifying Certificate examination; the candidates are classified in two groups, viz., those from schools with less, or with more than 100 pupils in enrolment. Competition is restricted within the groups, and the bursaries are divided in approximate ratio to the number of candidates from the two groups of schools who pass the Qualifying Certificate examination. The number of bursaries is determined by the Board in accordance with the amount available in the current account of the Endowment Fund.

Each bursary comprises a grant of text-books not exceeding £1 10s. per annum, and a monetary allowance of £30 for the first and second years, and £40 for the third and fourth years, to holders who live away from home in order to attend school, the allowance being reduced in the case of those who reside at home. The bursaries are tenable usually for a period of four years, but, under certain conditions, may be extended for a fifth year.

Bursaries tenable at the University of Sydney may be awarded to candidates at the Leaving Certificate examination who are under 19 years of age and whose parents' means are unequal to the expense of the University education. A full Bursary entitles the holder to a grant for text-books not exceeding £5 per annum, and to free education. An allowance not exceeding

£20 per annum is given to those who need not board away from home, in order to attend the University, and not exceeding £50 per annum to those who must do so. A Bursar who wins and elects to hold a Scholarship or Exhibition offered by the Senate of the University is entitled to receive from the two sources conjointly an allowance not exceeding £100 per annum.

The bursaries made available by the Bursary Endowment Board during 1916 were as follows :—

Classification.	Tenable at—	Number awarded, 1916.		
		Boys.	Girls.	Total.
Bursaries ... ..	Metropolitan High Schools ... ..	110	49	159
	Country High and District Schools ... ..	110	52	162
	Registered Secondary Schools ... ..	38	29	67
		258	130	388
University Bursaries ...	Sydney University ... ..	27	3	30

At 30th June, 1917, excluding 36 holders of war bursaries, there were 1,364 pupils holding bursaries under the Bursary Endowment Act ; 1,276 were attending courses of secondary instruction, and 88 were attending University lectures. The annual monetary allowances paid were as follow :—

Allowances.	Pupils.	Allowances.	Pupils.
£		£	
10	444	40	204
15	136	50	38
20	146		
30	396		
		Total ...	1,364

War Bursaries are provided by the Bursary Endowment Board for children of incapacitated and fallen soldiers ; and may be awarded to assist holders during primary, secondary or University courses, or in technical trade or agricultural instruction ; they may be applied also to augment the wages of apprentices. Up to 30th June, 1917, war bursaries had been awarded in 36 cases, the total annual expenditure being £580.

In addition to the bursaries made available by the Bursary Endowment Board, three bursaries, tenable for three years, may be awarded at the Hawkesbury Agricultural College ; three, tenable for two years, at each of the Farm Schools at Bathurst and Wagga Experiment Farms ; and one, tenable for one year, at the Apprentice School at Wollongbar Experiment Farm.

*University Exhibitions.*

The University Amendment Act, 1912, provides for the allotment of Exhibitions by the Senate to students desirous of entering the University. The Exhibitions are awarded on the results of the Leaving Certificate Examinations, and exempt the holders from payment of matriculation, tuition, and degree fees ; they are tenable in all faculties and departments. The number awarded yearly is at the rate of one for every 500 persons in the State between the ages of 17 and 20 years, as shown by the latest census records. The exhibitions are open for competition to students of State High Schools and registered schools who have completed the four-year secondary course. A small number of exhibitions, not exceeding 5 per cent. of the total number awarded, are open to competitors other than school students, provided they have been residents of New South Wales for three years.



basis. The colleges provide tutorial assistance to students in preparing for the University lectures and examinations, and each is subsidised by the Government to the extent of £500 per annum for the principal's salary.

For the purpose of establishing a college the Government may subsidise the building fund by sums corresponding to the amounts expended for building by the college, out of its subscribed funds, up to a maximum of £20,000.

Within the University there are four Faculties, viz., Arts, Law, Medicine, and Science, and in addition there are six Departments. A Dean for each Faculty is appointed for a period of two years. The Professors, with the Chancellor and Vice-Chancellor, form the Professorial Board which superintends matters relating to study and discipline.

#### *Endowment.*

During the year 1916 the University received a statutory endowment of £20,000 from the Government of New South Wales, and the following sums for the services mentioned :—

	£		£
Scientific apparatus ... ..	3,125	Science Research Scholarships ...	625
Evening Lectures ... ..	3,667	Astronomy ... ..	250
Loss by reduction of Lecture Fees	3,125	Retiring allowances ... ..	1,200
Extensions of existing departments	2,000	Organic and Applied Chemistry ...	3,125
Chair of Agriculture ... ..	3,000	Chair of Mechanical Engineering ...	625
Veterinary Science ... ..	4,500	Tutorial Classes and University	
Chair of Botany ... ..	2,500	Extension ... ..	4,125
Economics and Commerce	2,500		

Including the vote for additions, repairs, and furniture, £225, the total endowment from the State in 1916 was £54,592.

#### *Private Benefactions.*

Many benefactions have been bestowed on the University by private persons. Among the first were gifts of £1,000 each from Mr. Thomas Barker, Sir Daniel Cooper, and Sir Edward Deas-Thomson, represented by lands which have multiplied in value. The sum of £445 given in 1862 by Mr. William Charles Wentworth for the foundation of a travelling scholarship had, in December, 1916, accumulated to £4,247. Some prizes have been exhausted by award, but by careful investment, increases in value, unawarded scholarships, and other causes, these private foundations showed at 31st December, 1916, credit balances to the extent of £565,889.

These endowments include a sum of £30,000, bequeathed by Mr. Thomas Fisher, for a library, and £6,000 given in 1888 by Sir William Macleay for a Curatorship of the Natural History Museum, the collection contained in the Museum having been presented by him to the University, and for which the Government erected a suitable building. The Hovell bequest—made in 1877—of properties for the endowment of a Professorship in Geology and Physical Geography, is valued at £6,000; and Mr. John Henry Challis, in 1880, bequeathed his residuary real and personal estate, subject to certain annuities, to the University, “to be applied for the benefit of that Institution in such manner as the governing body thereof shall direct.” In December, 1890, the trustees of the Challis Estate handed over to the University the major part of the Australasian portion of the estate, approximating to £200,000 in investments, together with a cash balance. The balance, bringing the capital of the fund to £276,856, was transferred to the University in 1905 upon the termination of the last annuity. Under the bequest the Senate has created Chairs in Law, Modern Literature, History, Logic and Mental Philosophy, Anatomy, Engineering, and Biology, and a Directorship in Military Science, in addition to four Lectureships in Law, and three Readerships.

During 1896 Sir Peter Nicol Russell (formerly of Sydney) presented £50,000 for the purpose of endowing the Department of Engineering as the

Peter Nicol Russell School of Engineering, and this gift was supplemented by a further grant of £50,000 in 1904, with the stipulations that efficient teaching in electrical engineering be provided and additional scholarships founded, and that the Government should expend £25,000 upon buildings. Through this endowment, seven Lectureships in Engineering have been established, in addition to Assistant Lectureships and Instructors and Demonstrators are provided. The deeds of gift stipulate practical and theoretical teaching in Mechanical and Electrical Engineering, Surveying, Mining, Metallurgy, Architecture, and other instruction as the Senate deems necessary. The income of the Fund is applicable to the maintenance of the School, but is not chargeable with the costs for existing buildings, service of attendants, Professorships of Mathematics, Chemistry, Physics, Geology, nor for the Challis Professorship of Engineering. Three Scholarships in Mechanical Engineering, each of the annual value of £75, and tenable for four years, are provided out of the fund.

In 1909 the sum of £7,050 was given by Mr. Hugh Dixson to enable the University to purchase the Aldridge Collection of Minerals from the Barrier District of New South Wales.

#### *University Receipts and Disbursements.*

The following statement shows the amounts derived by the University from each of the principal sources of revenue, and the total expenditure, during each of the last five years. Under the items are included sums received for special expenditure and amounts from benefactors to establish new benefactions:—

Year.	Receipts.					Disbursements.	Private Endowments Credit Balances.
	Government Aid.	Fees.	Challis Fund and other Private Foundations.	Other Sources.	Total.		
	£	£	£	£	£	£	£
1912	43,956	20,590	25,797	97	90,440	78,785	547,165
1913	44,966	20,637	24,219	1,134	90,956	87,951	547,386
1914	41,533	20,151	25,643	3,356	90,683	88,870	556,450
1915	44,675	19,181	29,597	1,028	94,481	83,688	563,062
1916	54,592	13,707	29,911	1,380	99,640	98,233	572,882

The Government aid received during the year 1916 included £53,167 statutory endowment and other sums for the establishment and extension of various departments, £225 for additions, repairs, and furniture, and £1,200 for Retiring Allowances Fund. The receipts from private foundations, £29,961, included £1,292 for annual prizes and new foundations; fees amounted to £13,707, and other receipts to £1,380, including £446 interest on investment of Retiring Allowances Fund. The credit balances of private endowments amounted to £572,882, viz., Private Foundations £250,047, Challis Fund £315,842, Retiring Allowances Fund £6,993.

The principal item of disbursements in each year is for salaries. In 1915 and 1916 the total expenditure was distributed as follows:—

Classification.	Amount.		Percentage of Total.	
	1915.	1916.	1915.	1916.
Salaries ... ..	£ 60,653	£ 63,192	72·5	64·4
Maintenance Apparatus, &c. ...	15,146	19,246	18·3	19·6
Buildings and Grounds ... ..	131	6,909	·2	7·0
Scholarships and Bursaries ...	5,056	3,550	6·0	3·6
Other ... ..	2,702	5,336	3·0	5·4
Total ... ..	83,688	98,233	100·0	100·0

*Lectures and Lectureships.*

Non-matriculated students are admitted to lecture and laboratory practice but are not eligible for degrees. Lectures are given during the daytime in all subjects necessary for the degrees and diplomas quoted above, and evening lectures are provided in the subjects of the Arts course, including elementary science. The Government Astronomer of New South Wales is Professor of Astronomy in the University, and lectures are given in connection with this subject.

In 1916, the Teaching Staff included 23 professors, 7 assistant professors, and 122 lecturers and demonstrators; there were, in addition, 8 honorary lecturers and demonstrators. Professors and most of the lecturers are paid fixed salaries, and the remainder receive fees. Provision is made for a pension scheme for professors appointed since 1898; the benefit will commence after twenty years' service, and after attaining the age of 50 years.

From the foundation of the University to the end of 1916 there have been 5,080 Degrees of various kinds conferred; male graduates numbered 4,344, and females 736.

The University has no power to confer honorary degrees, but may admit *ad eundem gradum* graduates of approved Universities, viz., Oxford, Cambridge, London, Durham, Victoria, St. Andrew's, Edinburgh, Glasgow, Aberdeen, and Dublin, Queen's of Ireland, Royal of Ireland, Melbourne, New Zealand, and Adelaide, and of such other Universities as the Senate may determine.

The number of students attending lectures during 1916 was 1,660, viz., 1,160 men and 500 women; 1,240 were matriculated and 420 non-matriculated.

*Scholarships, Bursaries, and Fellowships.*

Scholarships, exhibitions, and bursaries have been founded as rewards for proficiency and to place the advantages of a University education within the reach of students in straitened circumstances. They are awarded only when the examinations disclose a satisfactory degree of proficiency, and no student may hold more than two scholarships.

Candidates for bursaries are required to show that they do not possess sufficient means to attend the University. Bursaries to the number of nineteen are provided by the Senate; they are tenable only in the Faculties of Arts or Science (not including Engineering), and are supplemented, on the part of the Senate, with exemption from fees. In the case of the Struth Exhibition and the Henry Wait Bursary, awarded to students proceeding from the first year in the Arts course to the Faculty of Medicine, no exemption from payment of lecture fees is granted. In addition, bursaries are provided annually by the Government for pupils of State schools, and for those registered under the Bursary Endowment Act.

A Rhodes Scholarship of the value of £300 per annum, tenable for three years at the University of Oxford, is awarded annually to students of Sydney University; also a commission in the British Army is offered every year.

The number of students who attended University Lectures as non-paying students during 1916 was 758, including 379 public exhibitioners, 345 students of the Teachers' College and teachers in schools, and 22 State and University bursars.

Since 1912 Parliament has made an annual grant of £1,000 for Scientific Research Scholarships.

Fellowships available to graduates in Science of the University include four annually under the Macleay bequest of £35,000 made in 1904 to the Linnean Society of New South Wales. These fellowships are intended to encourage research in Natural Science, by means of post graduate work; each is of the annual value of £400.

The Walter and Eliza Hall Engineering Fellowship, awarded annually to a graduate in Engineering of the University of Sydney of not more than four years' standing, is of the annual value of £300 for a maximum period of three years. Similar Fellowships were also founded for graduates in Agriculture, Veterinary Science, and Medicine.

The University enjoys the privilege, bestowed through the Orient Steam Navigation Co. (Ltd.), of allotting three first-class return passages to Europe to graduates desiring to continue studies abroad.

#### *Clinics.*

The Royal Prince Alfred Hospital for the sick, General Hospital and Medical School for the instruction of University students, and for the training of nurses, is open for students for certificates of hospital practice necessary for admission to final degree examination in medicine and surgery, and clinical lectures are delivered in accordance with the University curriculum. All appointments to the Medical and Surgical Staff of the Hospital are made conjointly by the Senate of the University and the Directors of the Hospital.

Sydney Hospital, founded in 1811, also provides a Clinical School under the direction of a Board of Medical Studies, and all appointments of clinical lecturers and tutors are subject to the approval of the Senate.

Other hospitals recognised as places where studies may be undertaken in connection with the Faculty of Medicine, are:—The Royal Hospital for Women, Royal Alexandra Hospital for Children, St. Vincent's Hospital, the Gladesville and Callan Park Mental Hospitals, the Women's Hospital, the Renwick Hospital for Infants, and the South Sydney Hospital for Women.

In connection with the Department of Dental Studies, the United Dental Hospital of Sydney was established in 1901, and provides facilities for instruction of students. It was amalgamated with the Dental Hospital of Sydney in 1905. The University lecturers in Surgical and Mechanical Dentistry are, *ex officio*, honorary dental surgeons of the Hospital.

#### *Extension Lectures.*

University Extension Lectures were inaugurated in 1886, and have been conducted since that date under the direction of a University Extension Board of eighteen members appointed annually by the Senate, and including at least four members of that body, and four of the teaching staff. Courses of Lectures are given in various centres upon topics of literary, historical, and scientific interest. At the conclusion of a course, which consists of a minimum of three lectures, an examination may be held and certificates awarded to successful candidates.

#### *Tutorial Classes.*

In accordance with the provisions of the University Amendment Act of 1912, the Senate has made arrangements for the establishment of evening Tutorial classes, which are open to unmatriculated as well as to matriculated students; diplomas may be issued to persons who have studied in these classes for at least one year in any one subject. Tutorial classes, which may be established in particular branches of study upon specific requisition by intending students, have been formed in suburban and country centres as well as at the University.

#### *University Buildings.*

The University buildings consist of the main building, containing the great hall, lecture rooms, and offices, all built of Pyrmont sandstone; the Medical School, which is in the same style; the Fisher Library, adjacent to

the main building, and designed to form part of the main quadrangle, is of modern design, with bookstacks of steel and glass for 200,000 volumes, and with ample reading-room accommodation for students.

Separate buildings for the Departments of Chemistry, Physics, Geology, Biology, Veterinary Science, Agricultural Science, and the Macleay Museum are distributed over the grounds, which, including lands vested by the Senate in the Affiliated Colleges, &c., cover an area of 126 acres. The Peter Nicol Russell School of Engineering has a separate building, provided by the State at a cost of £25,000. A building for the Teachers' College is in course of erection.

#### MEDICAL AND LEGAL PROFESSIONS.

In New South Wales the majority of professional workers are connected with a society or association peculiar to their particular profession, and in most cases, excluding of course those professions for which the University of Sydney supplies training, such associations direct the educational work for entrance to the profession, mainly by conducting examinations and issuing certificates. Physicians, dentists, and pharmacists are bound by statute to register with the Medical, Dental, or Pharmacy Board before they can proceed to practise, and barristers and solicitors must be formally admitted to their profession.

For the medical and legal professions and in various branches of science the University provides the requisite training. The practice of medicine is restricted to persons registered by the New South Wales Medical Board under the Medical Practitioners Act. To become a legally qualified medical practitioner an applicant must prove to the satisfaction of the Board (a) that he is a doctor or bachelor of medicine of some University, or a physician or surgeon licensed or admitted as such by a college of physicians or surgeons in Great Britain or Ireland; (b) that he has completed a medical course of a University or equivalent college, and has received after examination a diploma, degree, or license entitling him to practise medicine; (c) or he is a member of the Company of Apothecaries of London, or a member or licentiate of Apothecaries' Hall, Dublin. Medical officers duly appointed in His Majesty's sea or land service are eligible for registration.

During the last five years the average registrations of medical practitioners have been 114 per annum, and at 31st December, 1916, there were 2,234 registrations in force. Holders of degrees of M.D., M.B., and Ch.M., conferred by the University of Sydney, are entitled to registration and recognition in the United Kingdom in the same way as holders of similar degrees conferred by a British University are recognised in New South Wales.

To qualify before the Dental Board of New South Wales, in terms of the Dentists Act, dentists must hold a recognised certificate; or have been engaged for not less than four years in acquiring a professional knowledge of dentistry, and passed an examination; or produce a diploma or degree in dentistry from an Australian University. Unregistered persons in actual practice, or preparing for the profession at time of passing of the Dentists (Amendment) Act, 1916, may obtain registration upon the fulfilment of prescribed conditions. At 31st December, 1916, there were 1,419 registrations in force.

During 1916 fifteen University students attended the School of Dentistry established in connection with the United Dental Hospital of Sydney.

Pharmacists are registered under the Pharmacy Board appointed under the Pharmacy Act. To qualify for registration, evidence must be adduced of three years' apprenticeship in the business of a pharmacist keeping open shop; or of holding a certificate of competency from a recognised College or

Board; or of registration under the Sale and Use of Poisons Act; or of having passed a preliminary examination before the Board, or the usual examinations of a recognised college or university.

The Board is charged with the publication, in January of each year, of a list of all registered pharmacists. At the end of 1916 the registrations in force numbered 1,214. In addition to qualified pharmacists, other dealers in poisons must be registered before the Pharmacy Board and obtain annual licenses; 356 such licenses for sale of poison were in force at 31st December, 1916.

Members of the nursing profession are registered and certificated by the Australasian Trained Nurses' Association, which was established in New South Wales in 1899, and has branches in the other States. For the year ended 30th June, 1917, the number of nurses on the register in New South Wales was as follows:—General, 1,867; Obstetric, 1,052; Medical Members, 91; Mental Nurses, 37; Honorary Members, 23.

Barristers and solicitors may proceed through the courses provided in the Law School at the University, or they may qualify for admission by the Bar examinations. Barristers practising in New South Wales at the end of 1916 numbered 170; solicitors at the same date numbered 1,072, viz., 437 in the country, and 635 in Sydney.

Men desirous of entering into articles of clerkship with Attorneys, and who have not taken a University Degree, nor passed the preliminary examination required in England, Scotland, and Ireland, are required to pass a preliminary examination conducted by the University. The standard of the law matriculation examination is the University matriculation examination, lower division. Clerks are also required to pass three subsequent examinations in Legal History and Law before application for admission as solicitors. The examinations are conducted by a Board appointed by the Supreme Court. During 1916, 54 candidates were examined and 23 passed; the figures for the previous year were: 52 examined and 22 passed.

*Public Accountants, Clerks, etc.*

The profession of public accountant has not been regulated by law in New South Wales; there are, however, a number of accountants' societies which conduct examinations for the admission of members. The results of the examinations in 1916 are shown below:—

Institution.	Candi- dates.	Passes.				Mem- bers at end of year.	
		Prelimi- nary.	Intermediate.		Final.		
			Account- ancy.	Legal.	Account- ancy.		Legal.
Association of Accountants of Australia (incorporated) ... ..	11	...	2	1	2	1	73
Australasian Corporation of Public Accountants ... ..	154	44	37	19	39	15	204
The Institute of Public Accountants of Australasia ... ..	15	...	7	2	1	2	106
Incorporated Institute of Accountants, Victoria (N.S.W. Branch) ... ..	143	...	43	43	27	31	155
Institute of Incorporated Accountants of N.S.W. ... ..	84	10	11	17	7	10	140
Society of Incorporated Accountants and Auditors, England ... ..	1	...	...	...	1	1	15
Federal Institute of Accountants, Incorporated (N.S.W. Division) ... ..	56	...	24	18	7	8	80

A Select Committee appointed by Parliament in December, 1914, to report upon matters relating to accountancy, recommended that the profession should be given legal status under a controlling board.

Examinations for bank clerks are conducted by the Institute of Bankers ; 311 candidates were examined during 1916, and 114 passed.

Persons desirous of acting as clerks, auditors, engineers, and overseers, in connection with the Local Government Services are required to furnish evidence of their efficiency, in accordance with the provisions of the Local Government Acts.

Examinations for admission of junior clerks and draftsmen to the Public Service of New South Wales have been conducted under the supervision of the Public Service Board. During 1916 there were 635 candidates for 220 vacancies for junior clerks, 197 were successful ; for 21 vacancies for cadet draftsmen there were 82 candidates, of whom 25 attained the requisite standard. The Public Service Board has recently adopted the certificate examinations of the Education Department for admission of persons to the service.

#### EDUCATIONAL AND SCIENTIFIC SOCIETIES.

Various organisations exist which have for their objective the encouragement of professional interests, the advancement of Science, Art, and Literature, and the promotion of the social well-being of the members. The Commonwealth Government has afforded a measure of recognition to the efforts of Australian men of letters by establishing in 1908 a Commonwealth Literary Fund to provide pensions and allowances to literary men and their families.

As far back as the year 1821 a scientific society, under the title of the Philosophical Society of Australasia, was founded in Sydney, and after many vicissitudes of fortune was merged, in 1866, into the Royal Society of New South Wales. Its objects are the advancement of science in Australia, and the encouragement of original research in all subjects of scientific, artistic, and philosophic interest, which may further the development of the resources of Australia, draw attention to its productions, or illustrate its natural history.

The study of the botany and natural history of Australia has attracted many enthusiastic students, and the Linnæan Society of New South Wales was established for the special purpose of furthering the advancement of these particular sciences. The Society has been richly endowed, and possesses a commodious building at Elizabeth Bay, Sydney, attached to which are a library and museum. The proceedings are published at regular intervals, and contain many valuable papers, with excellent illustrations of natural history.

Other important scientific societies are the Royal Zoological Society of New South Wales, inaugurated in 1879 ; a branch of the British Medical Association, founded in 1881 ; a branch of the British Astronomical Association ; the Australian Association for the Advancement of Science ; the Royal Geographical Society ; the University Science Society ; Australian Historical Society ; and the Naturalists Society of New South Wales.

All the learned professions are represented by associations or societies.

The Royal Art Society holds an annual exhibition of artists' work at Sydney ; and of the many musical societies, mention may be made of the Royal Sydney Apollo Society, and the Royal Sydney Philharmonic Society.

#### MUSEUMS, LIBRARIES, AND ART GALLERIES.

Recognising that Museums, Libraries, and Art Galleries are powerful factors in promoting the intellectual well-being of the people, the Government of New South Wales has been active in founding and maintaining such establishments.

The expenditure by the State on buildings for Museums, Libraries, and Art Galleries during the year ended 30th June, 1917, amounted to £13,425.

#### *Museums.*

The Australian Museum, the oldest institution of its kind in Australia, was founded in Sydney in 1836 as a Museum of Natural History; it contains fine specimens of the principal objects of natural history, and a valuable collection of zoological and ethnological specimens of distinctly Australian character. The specimens acquired during 1916 numbered 15,854, of which 3,250 were purchased, and the remainder collected, exchanged, or donated. A fine library is attached to the institution, containing many valuable publications, the volumes numbering about 22,300. Lectures and gallery demonstrations are given in the Museum, and are open to the public. During the year 1916 visitors to the Museum numbered 191,100. On Mondays students and artists only are admitted.

In 1853 the Museum, till then managed by a committee, was incorporated under control of trustees, with a State endowment, which is now supplemented by annual Parliamentary appropriations. The expenditure during the year 1916 amounted to £10,102.

A Technological Museum was instituted in Sydney at the close of 1879 under the administration of a committee of management appointed by the trustees of the Australian Museum. The whole original collection of some 9,000 specimens was destroyed in 1882 by fire. Efforts were at once made to replace the lost collection, and in December, 1883, the Museum was again opened to the public. In 1890 it was transferred to the Department of Education, as an adjunct to the Technical College, and now contains a valuable series of specimens illustrative of various stages of manufacturing, and an excellent collection of natural products acquired by purchase, gift, loan, and exchange. Technological Museums are established also at Goulburn, Bathurst, West Maitland, Newcastle, and Albury.

Research work is conducted by the scientific staff of the Technological Museum in connection with the development of the natural vegetable resources of Australia, particularly in respect of the pines and eucalypts.

The functions of the Mining and Geological Museum include the preparation of collections of minerals to be used as teaching aids in schools and in other institutions.

The Agricultural and Forestry Museum is an adjunct of the Department of Agriculture.

The public have access to the "Nicholson" Museum of Antiquities, the "Macleay" Museum of Natural History, the Museum of Normal and Morbid Anatomy, attached to the Sydney University, and the National Herbarium and Botanical Museum at the Botanic Gardens. Housed in the Macleay Museum is the Aldridge collection of Broken Hill minerals.

#### PUBLIC LIBRARY OF NEW SOUTH WALES.

The Public Library of New South Wales was established, under the designation of the Free Public Library, on 1st October, 1869, when the building and books of the Australian Subscription Library, founded in 1826, were purchased by the Government. The books thus acquired formed the nucleus of the present Library. In 1890 the Library was incorporated with a statutory endowment of £2,000 per annum for the purchase of books.

The scope of the Public Library, which is essentially a reference institution, is extended by a loan system, under which books are forwarded to country libraries, schools of arts, progress associations, lighthouses, individual students in the country, and to Public School Teachers' Associations, and branches of the Agricultural Bureau.

In 1916 the Reference Department of the Public Library contained 207,261 volumes, including volumes for country libraries under the lending system. The attendance of visitors during 1916 numbered 154,045.

The total cost to the State of the library buildings was £28,957.

In 1899 Mr. David Scott Mitchell donated to the trustees of the Public Library a collection of 10,024 volumes, together with 50 valuable pictures, and at his death, in 1907, bequeathed to the State the balance of a unique collection, principally of books and manuscripts relating to Australasia, and containing over 60,000 volumes, and 300 framed paintings of local historic interest, valued at £100,000. He also endowed the Library with an amount of £70,000, from which the income amounting to about £2,750 per annum is expended on books and manuscripts. In 1916 there were 88,081 volumes in the Mitchell Library, which is located in a separate building, opened in March, 1910. There were 16,150 visitors during the year.

The following statement shows the expenditure of the Public Library, including the Mitchell Library, during the last five years:—

Year.	Salaries.			Books, &c., and Binding.	Miscel- laneous.	Mitchell Library Endowment Account.	Total.
	Reference.	Mitchell.	Country Libraries.				
	£	£	£	£	£	£	£
1912	4,398	2,431	137	1,885	1,687	...	10,538
1913	4,534	2,521	200	2,409	2,306	2,084	14,054
1914	4,641	2,421	200	1,920	2,235	5,209	16,626
1915	4,897	2,438	229	2,826	2,181	2,025	14,596
1916	4,895	2,494	347	3,350	1,500	2,035	14,621

SYDNEY MUNICIPAL LIBRARY.

The Sydney Municipal Library was formed by the transfer to the City Council in 1908-9 of the lending branch of the Public Library. An "open access" system was introduced, and a new classification adopted.

Maintenance costs during 1916 amounted to £5,244, made up as follows:—Salaries, &c., £3,271; books, periodicals, binding, and electric lighting, £1,973.

OTHER LIBRARIES.

Local libraries established in the principal population centres throughout the State, may be classed broadly under two heads—Schools of Arts, receiving an annual subvention in proportion to the amount of monetary support accorded by the public; and Free Libraries, established in connection with municipalities. Under the provisions of the Local Government Act, any shire or municipality may establish a public library, art gallery, or museum.

The library of the Australian Museum, though intended primarily as a scientific library for staff use, is accessible to students, and about 22,300 volumes may be found on the shelves.

On 31st December, 1916, the library in connection with the Technological Museum, at the Central Technical College, and its branches, contained 14,304 text-books, &c.

The Parliamentary Library contains over 52,000 books, and large numbers of volumes are at the libraries of the Law Courts and Government Offices.

The Bush Book Club, a private foundation, is intended to provide books to people in localities not served usually by Schools of Art, &c., and in sparsely settled districts.

Private circulating libraries, the subscribers to which are charged comparatively small fees, are used extensively.

#### NATIONAL ART GALLERY OF NEW SOUTH WALES.

The National Art Gallery contains a good collection of paintings and statuary, including some works of prominent modern artists, and some valuable gifts from private persons; there is also a fine collection of water colours.

The present value of the contents of the Gallery is £151,000, and the cost of the building to 30th June, 1917, was £94,437.

The number of paintings, &c., in the Gallery at the end of year 1916 was 2,076, and the total amount expended in purchasing works of art during that year was £1,756 distributed as shown below:—

Classification.	Paintings, &c., in Gallery.	Expenditure during year. £
Oil Paintings ... ..	437	1,179
Water Colours ... ..	411	335
Black and White Works ... ..	626	144
Statuary, Casts, and Bronzes ... ..	168	...
Various Art Works in Metals, Ivory, Ceramics, Glass, Mosaic, &c. ... ..	434	98
<b>Total ... ..</b>	<b>2,076</b>	<b>1,756</b>

The attendance at the National Art Gallery during 1916 was, on weekdays, 137,429, and on Sundays 101,952.

Art students, under certain regulations, may copy any of the various works, and enjoy the benefit of a collection of books of reference on art subjects. In 1894 a system of loan exchanges between Sydney, Melbourne, and Adelaide was introduced, by which pictures are sent from Sydney to Melbourne and Adelaide and reciprocally, with results most beneficial to the interests of art. Since 1895 the distribution of loan collections of pictures to the principal country towns is permitted for temporary exhibition; during 1916, 118 pictures were so distributed among eight country towns.

The total disbursements in connection with the National Art Gallery during the year 1916 were £5,034, inclusive of £1,756 on account of works of art.

The Gallery has received but small support from private endowments, and, consequent upon its limited funds, is restricted mainly to the collection of specimens of contemporary art.

The Wynne Art Prize was instituted in 1897, and consists of the interest on approximately £1,000, which is awarded annually to the Australian artist producing the best landscape painting of Australian scenery in oils or water colours, or the best production of figure sculpture executed by an Australian sculptor.

#### CONSERVATORIUM OF MUSIC.

At the close of the year 1916 there were 720 students at the State Conservatorium of Music. Concert and lecture concerts are open to the public, and a Library of Music attached to the Conservatorium contains many valuable works which are available for the use of recognised musical societies and organisations.

## MINING INDUSTRY.

### SUPERVISION AND REGULATION OF MINING, &c.

The Department of Mines of New South Wales, created in 1874, is controlled by a Minister of the Crown. The functions of the Department include the general supervision of the mining industry, geological and mining surveys and assays, the examination of coal-fields, the inspection of collieries and mines, the administration of the Prospecting Vote, and of legal enactments relating to mining.

Regulations under Mining Acts are made and administered by the Department of Mines; and it will be sufficient to outline briefly the general conditions under which mining is conducted within the State.

#### *Wardens' Courts.*

The Mining Act, 1906, provides for the establishment of Wardens' Courts, and at the end of the year 1917 there were 169 of these Courts in New South Wales. Wardens' Courts are Courts of Record, and are held by a Warden sitting alone. The Courts have jurisdiction to hear and determine all suits relating to the right to possession or occupation of Crown or private land by virtue of a miner's right, a registered share in a claim or lease, application for a lease, or of a license or authority, the right to cut, construct, use, possess, occupy, or hold any interest in any race, drain, dam, or reservoir for mining. The subjects within the jurisdiction of the Courts are defined in the Mining Act and include all matters in dispute in regard to mining operations.

#### *Miners' Rights and Business Licenses.*

Authority must be obtained for all operations for the mining of gold or other minerals. A miner's right entitles the holder to occupy Crown land for the purpose of mining for gold or other minerals, to construct works for mining purposes, to conserve water or obtain timber in connection with mining, except within exempted areas, and for residence. A business license entitles the holder to occupy one quarter of an acre of Crown land in a town or one acre outside town boundaries.

A miner's right or a business license may be issued for any period from six months to twenty years, the fees payable being 5s. and 20s. per annum respectively.

Regulations prescribe the areas which may be held as prospecting areas or claims, and the contingent labour conditions; sites for dams or machinery; and provision is made for registration and survey in certain instances, transfer, creation of shares, and all other matters affecting holdings under miner's right or business license.

Holders of miners' rights may obtain authority to prospect upon any Crown land. Such authority is subject to payment of rent; and, upon finding gold or minerals, the holder must report the discovery within fourteen days and may be required to take out a lease.

The following return shows the number of miners' rights issued and fees received during the last five years:—

Year.	Miners' Rights.		Business Licenses.	
	Issued.	Fees received	Issued.	Fees received.
	No.	£	No.	£
1912	17,098	2,850	1,309	701
1913	17,766	2,934	1,039	659
1914	15,417	2,584	996	648
1915	14,141	2,443	849	553
1916	12,785	2,274	768	502

#### *Leases of Crown Lands.*

The term "Crown Lands" embraces all lands vested in the Crown or in any trustee or constructing authority for public purposes, all lands held under lease from the Crown (except conditional lease or conditional purchase lease), and any navigable water, road, street, or highway.

Leases of Crown lands are divided into two classes—(a) Mining leases, and (b) leases for "mining purposes."

Mining leases are for either gold or minerals, the annual rent in each case being 5s. per acre, except in the case of leases for coal or shale, which are subject to a rental of 1s. per acre, and a royalty of 6d. per ton on all shale or large coal, and 3d. per ton on all small coal raised. The amount paid as rent may be deducted from the royalty.

Gold-mining leases are limited to 25 acres, mineral leases (other than coal, shale, or opal) to 80 acres, coal or shale leases to 640 acres, and opal leases to 10 acres; and the maximum term for which a lease may be granted is twenty years, with the right of renewal for a similar term.

Under special conditions, where there are exceptional difficulties in mining the land, leases for larger areas may be granted, subject to report by the Prospecting Board. Such special leases are subject to payment of a rent or royalty to be fixed by the Minister in each case.

The definition of "mining purposes" covers all operations in connection with mining, such as erecting buildings or machinery, constructing railways or tramways, conserving water, treatment of tailings, or any other purpose in connection with mining for gold or minerals. These leases for mining purposes are limited to the surface and to a specified depth, and do not authorise the holder to mine for any minerals contained in the land.

#### *Mining on Private Lands.*

Holders of miners' rights may obtain from Mining Wardens authority to enter upon any private land to prospect for gold; or upon land granted with the reservation of minerals to the Crown, to prospect for minerals other than coal or shale. The fee for such authority is 5s., and the holder must pay to the owner of the land such rent and compensation for surface damage as the Warden may assess. The holder of a permit may search for the specified mineral on the area granted (not more than 25 acres for gold nor 80 acres for minerals), and may apply for a lease of the whole or any part of the land for any term not exceeding twenty years, with the right of renewal for a like term. The rent to the owner of the land is £1 per acre, payable in respect only of such part of the surface as is granted. A royalty of 1 per cent. on the gross value of the gold and minerals won is payable to the Crown. The owner of private land, or the occupier, with the owner's consent, may obtain authority to enter or lease any area, not exceeding that prescribed for an ordinary lease, and

to mine for gold or for any minerals, without any payment of rent or compensation, and such owner or occupier may also obtain a lease of any area not exceeding 640 acres to mine for coal or shale. Such owners' leases are subject to the payment to the Crown of 1 per cent. royalty on gold or minerals, 6d. per ton on large coal or shale, and 3d. per ton on small coal.

The owner of any private land may enter into an agreement with the holder of a miner's right, giving him permission to mine for gold or minerals (if reserved to the Crown) on any area not exceeding that prescribed for an ordinary lease. Such agreement must be submitted for the Minister's concurrence, and is subject to the payment of 1 per cent. royalty to the Crown on all gold or minerals won.

Under special conditions, or where there are exceptional difficulties in mining the land, leases for extended areas may be granted, subject to report by the Prospecting Board.

The Closer Settlement (Amendment) Act, 1909, provides that all grants of land under that Act shall contain a reservation of all minerals in such land. The effect of this provision is to make such lands "private lands" within the meaning of the Mining Act, 1906.

#### *Dredging.*

Leases of Crown or of private land may be granted for the purpose of mining for gold or any mineral by dredging, sluicing, or other method. Such leases may cover any area not exceeding 100 acres, and continue for any term not exceeding twenty years, with the right of renewal for a similar term. The lessee is required to employ a certain number of men, and to expend a certain sum in the purchase and erection of machinery and appliances. The rent of Crown land is 2s. 6d. per acre, and of private land such amount as may be assessed by the Warden. A royalty of 1 per centum of the gross value of all gold or minerals won is payable to the Crown. Compensation for surface damage to private land may also be assessed by the Warden.

#### *Labour Conditions.*

The minima of area conditions per man employed are as follow:—

For gold: 5 acres for the first year, and thereafter 2 acres. For minerals other than gold, coal, or shale: 20 acres for the first year, and thereafter 10 acres. For coal or shale: 320 acres for two men.

The Mining Act empowers the Warden to grant suspension of the labour conditions on any lease if the mine is unworkable, or if the lessee is physically or financially unable, for a limited period, to work the mine.

The Minister may grant suspension, for any period not exceeding six months, on the recommendation of the Warden, if the price of the product of the mine be low, or for any other adverse conditions. If a lessee has employed labour in excess of that required by the terms of his lease, he may obtain exemption from labour conditions to the extent of one month in respect of each six months during which excess labour has been employed.

#### *Inspection of Mines.*

The inspection of mines and collieries is conducted by Government inspectors appointed under the Mines Inspection and Coal Mines Regulation Acts. The regulations require the certification of managers and engine-drivers and other persons occupying positions of responsibility; restrict the hours of work of underground workers and persons in charge of machinery; and prescribe general regulations for the ventilation and safe-working of the Mines.



the vote were so amended as to embrace all minerals. The original annual vote was £20,000. For the year 1892, however, it was fixed at £40,000; but thereafter, until 1902, the maximum sum available was £25,000. For the year 1902-3 the amount voted was reduced to £20,000, and further decreased to £15,000 in 1904; for the year 1915-16 £10,000 was voted, and for 1916-17 £11,000. To the end of the year 1916 a total sum of £472,118 had been spent in the encouragement of prospecting.

The Prospecting Board, consisting of the Under Secretary for Mines, as Chairman, the Government Geologist, the Chief Inspector of Mines, and three Inspectors, the Chief Mining Surveyor, and a Geological Surveyor, deals with all applications for aid, and miners desiring a grant from the vote have to satisfy the Board that the locality to be prospected is likely to yield the mineral sought, and that the mode of operation is suitable for its discovery. Aid given may represent, as the maximum, 50 per cent. of the value of the developmental work done, inclusive of the cost of the necessary implements and materials. Assistance for sinking from the surface is not usually given, applicants being required generally to prove their *bona-fides* by carrying out a certain amount of work unassisted. Miners assisted from the vote are not entitled to claim any reward that may be offered for the discovery of a new gold or mineral field.

Under the regulations governing the distribution of the vote, the amount advanced must be refunded in the event of the discovery of payable mineral by means of the aid granted.

During 1907 provision was made by Parliament, to the extent of £5,000, for the erection of Government crushing batteries; and in 1911 arrangements were made to assist prospectors to erect plants. To procure the erection of a State battery, reasonable evidence must be adduced that the plant can be kept employed, or that there are prospects of new lodes being opened up as a result of the installation.

The proposal to make advances to prospectors to assist them to purchase plants was designed to meet the case of small mine-owners, as, while satisfying their requirements, it would relieve the Government of the cost of operating and maintaining State batteries. Assistance up to 75 per cent. of the cost of the plant and water supply may be advanced, and the prospector's contribution may be made up, either wholly or in part, of labour and material. No interest is chargeable for the advance, but the Government imposes a condition that the prospector shall crush parcels of ores for the public on a specified number of days, the maximum charges being fixed by regulation.

The following statement summarises the amounts allotted to prospectors of the grants made therefrom for the various minerals; the figures are for calendar years from 1887 to 1895 and thereafter for the years ended 30th June:—

Period.	Amounts allotted to Prospectors for—						Total.
	Gold.	Silver and Lead.	Copper.	Tin.	Coal.	Other Minerals.	
	£	£	£	£	£	£	£
1887-1889	26,332	886	138	34	338	283	28,011
1890-1894	111,878	7,254	1,367	1,261	3,752	3,283	128,795
1895-1900	107,581	4,886	7,762	3,389	.....	4,021	127,639
1901-1905	80,636	5,108	10,136	7,828	40	1,430	105,178
1906-1910	38,822	7,986	20,765	3,146	310	871	71,900
1911-1915	50,209	7,557	8,939	5,870	.....	4,837	77,412
1916	5,548	481	1,148	705	.....	1,895	9,277
1917	9,152	890	1,869	944	.....	667	13,522

No large payable field has yet been discovered through the agency of the prospecting vote, but several rich mines have been opened with the aid granted, notably the Mount Boppy Mine, which is now the principal gold-mine of the State.

In addition to the employment of labour, the proving of a lode or reef invariably leads to the development of large areas of adjoining land under the Mining Act, from which increased revenue is derived by the State.

#### BORES AND DRILLS.

Since 1882 boring operations by diamond drills have been conducted by the Department of Mines at minimum charges, in order to encourage the development of the mineral resources of the State.

During 1916 forty-nine bores were sunk, the total footage bored being 3,779.

#### EMPLOYMENT IN MINES.

The extent to which mining industries provide employment is indicated in the following statement of the approximate number of men employed in the various groups during the last ten years:—

Year.	Metalliferous.						Coal and Shale.	Total number of men employed.
	Gold.	Silver, Lead, and Zinc.	Copper.	Tin.	Other.	Total.		
1907	7,468	10,021	3,764	3,173	1,976	26,402	17,356	43,758
1908	6,363	7,560	2,745	2,456	1,757	20,881	18,084	38,965
1909	5,585	6,207	2,024	2,037	1,983	17,836	18,569	36,405
1910	5,247	7,999	2,286	2,028	1,809	19,369	18,044	37,413
1911	4,650	8,495	2,151	2,225	1,839	19,360	17,657	37,017
1912	3,893	9,062	2,384	2,046	1,817	19,807	18,051	37,858
1913	3,570	9,357	2,629	2,332	1,996	19,914	18,966	38,880
1914	3,443	8,242	1,357	2,168	2,283	17,493	18,974	36,467
1915	2,888	5,564	914	1,648	2,176	13,190	18,221	31,411
1916	2,317	6,461	1,661	1,938	2,035	14,412	16,892	31,304

These figures do not include persons employed in works manufacturing lime, cement, or coke. The war conditions account for the decrease in the numbers employed during the last three years. Comparing the figures for 1916 with those of the previous year, there were decreases in persons mining for coal and gold, and increases in other classes of metalliferous miners.

Coal and shale mines are subject to supervision under the Coal Mines Regulation Act, and during the year 1916 there were 115 coal mines and 9 shale mines, a total of 124 working under the provisions of the Statute. The employees in 1916 numbered 16,892, of whom 12,550 were below ground.

The employment of boys under 14 years of age or of women and girls in or about a mine is prohibited, and restrictions are placed upon the employment of youths. In 1916 the total number of boys between 14 and 16 years of age employed was 689, of whom 389 were below ground, and 300 on the surface.

WAGES OF COAL MINERS.

The employees in the Coal-mines in New South Wales work under Agreements or Awards. The rate paid to miners varies according to the selling price of coal per ton ruling at the time, and also according to the conditions of the seams or places where the coal is mined.

Northern District.	Wages.	Southern District.	Wages.
Miners .. .. . per ton	s. d. 3 5½ to 5 2½	Miners .. .. . per ton	s. d. 2 9¾
Coal-cutting machines per day	13 2 ,, 15 6	Overmen (underground) per week	£ 5 0 to £ 6 10
„ assistants „	s. d. 10 11	Deputy overmen .. „	£ 4 17 6
Deputies .. .. . „	s. d. 16 0 to 16 1	Shotfirers .. .. . per day	s. d. 15 0
Shot-firers .. .. . „	14 11 ,, 15 0	Onsetters .. .. . „	12 6
Waste-examiners .. „	14 11 ,, 15 0	Banksmen .. .. . „	12 2½
Engine-drivers— Winding and loco- motive engines .. „	s. d. 14 5	Shiftmen .. .. . „	14 1
Other engines .. .. . „	s. d. 12 0 to 14 5	Screenmen .. .. . „	10 11
Shiftmen .. .. . per shift	10 11 ,, 15 6	Mechanics .. .. . „	s. d. 12 7¾ to 15 4
Wheelers .. .. . „	10 6 ,, 11 8	Engineers .. .. . „	14 4 ,, 19 2
Flatters .. .. . „	s. d. 10 11	Engine-drivers— Winding and loco. .. „	s. d. 14 5
Water bailers .. .. . „	10 11	Haulage .. .. . „	13 2
Hand-pumpers .. .. . „	10 11	Stokers and firemen .. „	s. d. 10 11 to 12 0
Set-riders .. .. . „	13 2	Platelayers .. .. . „	s. d. 10 11
Rolleyway men .. .. . „	s. d. 10 11 to 13 2	Furnacemen .. .. . „	10 11
Roadlayers .. .. . „	11 4 ,, 13 2	Harness-makers .. .. . „	11 6
Waggon packers .. .. . „	s. d. 10 11	Wheelers .. .. . „	12 0
Banksmen .. .. . „	12 7	Water-bailers .. .. . „	12 0
Shunters .. .. . „	10 11	Stablemen .. .. . „	10 11
Screenmen .. .. . „	10 11	Labourers .. .. . „	10 11
Labourers .. .. . „	s. d. 10 11 to 11 5	Flatters .. .. . „	12 0
Boys .. .. . „	4 4 ,, 10 4	Trappers .. .. . „	4 4
		Boys .. .. . „	5 4

MINERAL PRODUCTION.

The statistics of production are incomplete, and in many instances the export trade is taken as the measure of the output. Comparisons of the output of the several minerals is embarrassed also, as regards quantity, by the variety of the units of measurement employed in the different branches of the mining industry, and, as regards value, by the difference in the stages of production at which the values are assessed. For instance, the value of the tin output represents the values of ingots and ore; with some metals also, the export trade, which is accepted as representing the total production, is mainly in ore.

The summary given below shows the output and the value of the production during the year 1916 and to the end of 1916:—

Minerals.	During 1916.		To the end of 1916.	
	Quantity.	Value.	Quantity.	Value.
	oz. fine.	£	oz. fine.	£
Gold—domestic ores ... ..	108,145	459,370	14,513,582	61,649,740
Silver*—	oz.		oz.	
Silver Ingots and Matte ... ..	2,801,507	349,367	37,299,871	71,187,030
Sulphide and Silver-lead ... ..	.....	.....	562,976	
Lead ore, Concentrates, &c. ... ..	249,849	2,935,624	8,139,937	
Lead*—Pig, &c. ... ..	25,466	799,632	243,506	4,225,830
Zinc*—Spelter and Concentrates	209,741	961,849	4,086,345	12,182,029
Copper*—Ingots, Matte, and Ore	6,171	586,127	245,285	13,478,070
Tin*—Ingots and Ore ... ..	2,129	306,497	114,799	10,589,808
Iron—				
Pig-iron—from domestic ore... ..	52,556	197,085	435,891	1,602,350
Iron oxide* ... ..	2,461	2,695	34,799	46,364
Ironstone flux ... ..	1,472	1,083	108,389	82,701
Tungsten—				
Wolfram* ... ..	183	31,163	1,856	196,186
Scheelite* ... ..	81	13,719	1,345	128,880
Platinum ... ..	oz.	687	oz.	35,437
.....	82		13,814	
.....	tons.		tons.	
Molybdenite* ... ..	54	22,066	530	93,292
Antimony*—Metal and Ore ... ..	616	13,334	17,961	331,948
Bismuth*—Metal and Ore ... ..	30	5,473	613	143,030
Chrome* ... ..	.....	.....	31,984	102,617
Cobalt* ... ..	.....	.....	885	8,065
Manganese* ... ..	1,924	1,443	2,500	3,105
Quicksilver ... ..	lb.	180	lb.	541
.....	672		2,970	
<i>Non-metals.</i>				
Fuels—	tons.		tons.	
Coal ... ..	8,127,161	3,336,419	219,976,936	83,356,873
Coke ... ..	437,587	387,571	4,470,836	3,261,537
Shale (oil) ... ..	17,425	17,772	1,751,367	2,388,205
Structural Materials—				
Limestone—flux ... ..	64,928	20,700	1,355,834	761,505
Stone, building* ... ..	.....	65	.....	26,458
Marble ... ..	.....	1,625	.....	32,047
Slates* ... ..	.....	861	.....	2,001
Alunite* ... ..	325	1,980	46,055	148,303
Gem Stones—				
Noble Opal ... ..	.....	21,273	.....	1,413,910
.....	cts.		cts.	
Diamonds ... ..	1,901	1,375	188,864	129,071
Grindstones* ... ..	.....	121	.....	3,301
Other Minerals and Ores*	.....	22,600	.....	168,097
Total value ... ..	.....	10,499,756	.....	267,777,741
Other—				
Iron made from scrap ... ..	.....	.....	.....	1,416,030
Portland Cement ... ..	.....	420,928	.....	3,496,444
.....	tons.		tons.	
Lime ... ..	26,063	38,958	436,105	447,769
Sulphuric acid ... ..	7,500	16,100	7,500	16,100

\* Exports only.

Measured by the aggregate output, coal is the most valuable mineral in New South Wales, followed by silver and gold.

The value of the mineral production in quinquennial periods since 1856 is shown in the following table; the figures are exclusive of iron made from scrap, Portland cement, lime, and sulphuric acid which are included in the production of the manufacturing industry:—

Period.	Value of Production.	Period.	Value of Production.
	£		£
1856-60	6,069,118	1891-95	26,324,780
1861-65	9,980,397	1896-1900	26,159,491
1866-70	7,001,454	1901-05	29,880,914
1871-75	10,768,230	1906-10	42,450,535
1876-80	9,184,015	1911-15	51,930,852
1881-85	12,381,842	1916	10,499,756
1886-90	18,681,548		

*Value of Production per Miner.*

Related to the number of men employed, the output in the different branches of mining varies greatly. Following are the average values per head of miners for the last five years:—

Year.	Gold.	Silver, Lead, and Zinc.	Copper.	Tin.	Coal and Shale.
	£	£	£	£	£
1912	180	608	243	128	206
1913	178	612	228	178	200
1914	153	562	202	123	199
1915	195	795	259	162	206
1916	198	781	353	158	221

As an offset to the relatively high values of silver, lead, zinc, and copper, it is to be noted that these ores require expensive treatment, which compensates the larger output per head as compared with coal, gold, or tin.

VALUE OF MACHINERY.

The following statement shows the estimated value of the plant and machinery used in mining during the years 1913 to 1916:—

Classification.	1913.	1914.	1915.	1916.
	£	£	£	£
Coal and Shale ... ..	3,209,000	3,409,000	3,526,000	3,673,000
Gold ... ..	608,912	653,363	630,138	458,921
Silver, Lead, and Zinc...	1,990,230	2,045,439	1,994,339	1,971,613
Copper ... ..	762,216	705,654	565,942	702,899
Tin ... ..	170,817	206,666	251,675	180,022
Other Minerals ... ..	488,143	524,004	551,007	563,203
Total ... ..	7,229,318	7,544,126	7,519,101	7,549,658

## QUARRIES.

The quantities and values of building stone, except stone exported, do not appear in the statements of mineral production, but are given hereunder in the return of quarries for the year 1916-17:—

Description of Quarry.	Quantity of Stone raised.	Value of Stone raised.	Description of Quarry.	Quantity of Stone raised.	Value of Stone raised.
Building Stone—	tons.	£	Macadam, Ballast, &c.—	tons.	£
Sandstone ... ..	174,307	44,985	(continued).		
Syenite (Trachyte) ... ..	2,513	2,461	Gravel ... ..	60,859	11,083
Slate ... ..	85	415	Sand ... ..	29,871	5,744
Marble ... ..	700	2,800	Ironstone ... ..	53,759	10,855
Porphyry ... ..	9,430	2,475	Shale and Clay ... ..	34,341	4,016
Other ... ..	12,813	13,967	Quartzite ... ..	43,077	5,385
Macadam, Ballast, &c.—			Limestone, crude ... ..	198,569	39,898
Sandstone ... ..	327,010	39,722	Clays—		
Bluestone, Basalt, &c... ..	854,429	158,404	Kaolin ... ..	770	300
Limestone ... ..	99,014	20,503	Fireclay ... ..	3,000	62

## PRICES OF MINERALS.

In the case of the minerals which contribute any considerable value to the production, the prices of all are regulated by the world's production in relation to the world's demands, as, with the exception of coal, the local demand is small.

Practically the whole of the gold mined in New South Wales and in Queensland, and a large proportion of the output of the other Australian States, Papua, and of New Zealand, is sent to the Sydney Mint for melting, assaying, and coining, and is accounted for at the rate of £3 17s. 10½d. per oz. standard, or sovereign gold—22 carats fineness. Pure gold, or 24 carat, is worth £4 4s. 11½d. per oz.

According to the reports of the Royal Mint, in 1890 the price of silver in the London Market was 47¾d. per oz. standard; in 1893, when the Indian mints were closed, the price was 35¾d., falling to 29d. in 1894; since 1894 that average has been exceeded only in the years 1895, 1896, 1906, and 1907, when it was slightly over 30d. In 1911 the average for the year was only 24⅞d. per oz., in 1912 it was 28¼d., in 1913 it was 27⅞d., in 1914 it was 25⅝d., in 1915 the average was 23¾d., and in 1916 it was 31¼d.

The variations in the price of lead have affected the value of the output. From 1904 nearly to the end of 1907 the price rose with corresponding benefit to the industry; but in 1908 the prices of silver, lead, tin, zinc, and copper dropped considerably. In 1914, consequent on the war conditions, there was a stagnation in the metal markets and a decline in prices, but as will be seen in the subjoined table the prices have since increased.

The prices of copper have shown considerable fluctuation; the average was very low in 1894, and remained unfavourable for some years. Satisfactory prices were obtainable in the periods 1899-1901 and 1905-7, but a decline took place in 1908. During the year 1912 the prices advanced steadily, and the average was considerably higher than in the previous four years; the prices, however, were not maintained during 1914, but became much higher in 1915 and 1916.

The average prices shown in the following table for silver, lead, copper, and tin relate to the f.o.b. prices, Sydney, based on the London prices. In the case of zinc, the averages are those quoted by the Department of Mines in connection with the Broken Hill field:—

Year.	Silver.	Lead.	Zinc.	Copper.	Tin.
	per oz. s. d.	per ton. £ s. d.	per ton. £ s. d.	per ton. £ s. d.	per ton. £ s. d.
1907	2 6 <sup>1</sup> / <sub>2</sub>	18 10 0	25 15 9	85 1 8	170 10 0
1908	2 0 <sup>5</sup> / <sub>16</sub>	13 1 8	20 3 5	57 18 4	131 5 0
1909	1 11 <sup>1</sup> / <sub>2</sub>	12 11 3	22 3 0	57 9 2	133 1 8
1910	2 1	12 13 4	23 0 0	56 3 4	153 3 4
1911	2 0 <sup>3</sup> / <sub>8</sub>	13 3 4	25 3 2	54 18 4	188 1 8
1912	2 4	17 13 4	26 3 4	72 10 0	209 1 8
1913	2 3 <sup>5</sup> / <sub>8</sub>	18 15 0	22 13 6	68 13 4	202 5 0
1914	2 1 <sup>1</sup> / <sub>2</sub>	19 1 8	21 0 0	60 16 8	153 0 0
1915	1 11 <sup>3</sup> / <sub>4</sub>	22 19 2	68 19 7	73 0 0	164 17 1
1916	2 7 <sup>5</sup> / <sub>16</sub>	31 1 8	71 18 6	115 15 0	181 15 0

In regard to coal, average prices are quoted in connection with the values of production elsewhere in this chapter.

GOLD.

Amongst the metals which occur in the State, gold occupies an important place, both on account of the quantity which has been raised and of the influence of its discovery on the settlement of the country.

The following table shows the quantity and value of the gold produced during each decennial period since 1851. New South Wales gold which was received at the Sydney Mint for coinage in 1916 amounted to 70,522 oz., of the gross value of £232,463:—

Period.	Quantity.	Equivalent in oz. fine.	Value.
	oz. crude.	oz. fine.	£
1851—1860	3,280,963	2,714,531	11,530,583
1861—1870	3,542,912	3,219,628	13,676,102
1871—1880	2,253,259	2,019,116	8,576,655
1881—1890	1,173,885	1,013,846	4,306,541
1891—1900	2,867,337	2,432,387	10,332,120
1901—1910	2,669,670	2,252,851	9,569,492
1911—1916	1,036,761	861,223	3,658,247
Total ..	16,824,787	14,513,582	61,649,740

Prospecting for gold has been neglected owing to the remunerative employment to be obtained in connection with other branches of the mining industries.

The crude quantities of quartz and alluvial gold won during each of the last ten years are estimated as follows:—

Year.	Production.			Year.	Production.		
	Alluvial.	Quartz.	Total		Alluvial.	Quartz.	Total.
	oz. crude.	oz. crude.	oz. crude.	1912	oz. crude.	oz. crude.	oz. crude.
1907	76,478	212,565	289,043	1913	33,893	166,350	200,243
1908	62,390	199,293	261,683	1914	36,203	147,570	183,773
1909	55,435	182,612	238,047	1915	36,828	112,106	148,934
1910	51,681	173,134	224,815	1916	42,122	119,886	162,008
1911	43,326	171,948	215,274		36,162	99,367	126,529

## GOLD AND TIN DREDGING.

*Development.*

During 1899 great interest was displayed in the introduction of dredging, to turn over alluvial flats which, from the point of view of the individual miner, had been already exploited. The Macquarie was the first stream on which operations were tried, the success achieved resulting in the extension of operations to the Clarence, Araluen, and other rivers, so that dredging is now in operation on practically all the rivers of New South Wales, which drain auriferous country. In addition to dredging for gold, the alluvial tin deposits known to exist were exploited also, and the value of stream-tin won annually now exceeds the value of gold recovered by dredging. The Gold and Mineral Dredging Act, passed in the latter part of 1899, assured security of tenure, and greatly facilitated dredging operations over leased areas; and an amending Act passed in 1902 fixed the rental of Crown lands leased for dredging operations at 2s. 6d. per acre per annum, with a tax of 1 per cent. on the net profits of such operations. Thenceforward dredging maintained its importance as a branch of the mining industry.

At the end of 1916 the total area held for dredging purposes was 7,878 acres.

*Gold and Tin Dredging Plants.*

Three dredges were at work during 1899, but at the end of 1900, 22 were operating, and applications had been received for 21,331 acres under dredging leases. At the end of 1901 the dredges operating and in course of construction numbered 43, their value being estimated at £289,333; 40 of them were equipped for gold dredging, 2 for tin dredging, and 1 was arranged to treat both gold and tin. In 1916 there were 68 dredges, of a total value of £338,486; 15 bucket dredges and 6 pumping plants were employed in the recovery of gold, and 6 bucket dredges and 41 pumping plants in the winning of stream-tin.

The following table demonstrates the value of the metals recovered by dredging since its inauguration in this State:—

Period.	Area under Lease at end of period.	Gold Dredged.			Stream-tin Dredged.		Total Value.
		Quantity.		Value.	Quantity.	Value.	
	acres.	oz. crude.	oz. fine.	£	tons.	£	£
1900	6,943	8,882	7,924	33,660	.....	.....	33,660
1901-05	52,852	144,028	129,850	551,568	1,254	109,026	660,594
1906-10	75,900	185,140	168,566	716,025	7,570	732,134	1,448,159
1911-15	8,210	120,082	110,284	468,459	7,551	907,582	1,376,041
1916	7,878	20,165	18,797	79,846	1,272	146,880	226,726

## SILVER, LEAD, AND ZINC.

The output of lead and zinc in New South Wales is obtained principally from the silver-lead mines of the Broken Hill district, and for that reason the mining of these metals is discussed conjointly in this chapter.

*Silver.*

The principal ores from which silver is obtained in New South Wales are argentiferous galeua, cerussite, zinc-blende, mispickel, iron and copper pyrites, and limonite (gossan), resulting from the decomposition of pyrites.

The important minerals located in various argentiferous lodes include, in New South Wales, native silver, antimonial silver, silver chloride, silver bromide, silver iodide, silver chlorobromide, and several other compositions. The progress of silver-ore development has been so considerable in recent years that the value of the output greatly exceeds that of other metals, even with a persistently low price for silver.

#### *Lead.*

Mining for the lead product alone has not been pursued extensively, because all the lead ores have contained more or less silver; and naturally the ores richest in silver were exploited first, since the market price of lead was not high enough to encourage its production except as a by-product, or in simplifying smelting operations.

The principal ores of lead are galena and cerussite; but less common ores, viz., oxide, sulphate, phosphate, arseniate, molybdate, carbonate, chloride, and tungstate of lead have been found in varying quantities in several localities. The chief source of lead supplies is the Broken Hill silver lode; its ores consist mainly of argentiferous cerussite in the upper oxidised zones, and in the lower portion, of argentiferous sulphide of lead and zinc, consisting of a crystalline mixture of galena and zinc-blende. As the ore from the lower workings of the Broken Hill lode showed in recent years a decreasing proportion of silver, and as the price of silver declined, while the value of lead improved, the production of the latter has increased in quantity and in value.

#### *Zinc.*

Ores of zinc have been located in various parts, viz., red oxide of zinc in the Vegetable Creek district, carbonate of zinc in the Cooma district, and the oxidised ores of the Broken Hill silver lode. Although zinc-blende, the most common ore of zinc, is found in association with galena in the majority of the silver mines of the State, it is not mined specially for the production of metallic zinc. On the contrary, till recently its occurrence was regarded as militating against the successful extraction of the silver and lead with which the zinc-blende is associated, and for several years after the opening of the Broken Hill mines the zinc content of the ore was lost in smelting. Improvements in methods of treatment, however, resulted in the saving of a proportion of the zinc concentrates, and subsequently rendered possible the profitable extraction of zinc from the tailings accumulated since the opening of the mines. The formation of companies to recover the zinc contents of large quantities of tailings, and the installation by mining companies of treatment plants, have added greatly to the vast wealth of minerals extracted from this field, and indicate New South Wales as one of the principal producers of spelter in the future.

#### *Production of Silver, Lead, and Zinc.*

Assessment of the total output and value of production of silver-lead ores mined in New South Wales is hampered by the fact that the process of extracting the metallic contents has been conducted for the most part outside the boundaries of the State, a proportion being treated within the Commonwealth, while large quantities of concentrates are exported to Europe for treatment. For this reason the value of the output credited to New South Wales does not represent the value of the finished product, but the estimated net value of the ore, concentrates, bullion, &c., as declared by the several companies to the Customs Department at the date of export from the State.

Calculated on this basis the quantity and value of New South Wales silver and silver-lead ore exported to the end of 1916 are shown in the following table:—

Period.	Silver.		Silver-sulphide, Silver-lead, Ore, &c.			Total Value Exported.
	Quantity.	Value.	Quantity.		Value.	
			Ore Concentrates, &c.	Metal.		
	oz.	£	tons.	tons.	£	£
To 1885	1,730,297	382,884	7,073	191	237,810	620,694
1886-1890	2,481,253	464,081	165,756	94,002	6,478,515	6,942,596
1891-1895	3,009,187	445,873	663,754	231,847	12,615,432	13,061,305
1896-1900	2,352,092	269,663	1,771,983	86,005	9,592,856	9,862,519
1901-1905	4,154,020	445,051	1,877,515	108,353	8,910,586	9,355,637
1906-1910	8,310,962	892,414	1,709,173	42,578	11,561,794	12,454,208
1911-1915	12,460,553	1,302,510	1,634,834	.....	14,302,570	15,605,080
1916	2,801,507	349,367	249,849	.....	2,935,624	3,284,991
Total	37,299,871	4,551,843	8,139,937	562,976	66,635,187	71,187,030

Similar information regarding the export of lead (pig, in matte, also lead-carbonate and lead-chloride), the product of New South Wales, is shown below; the quantity as stated for 1907 and subsequent years represents the contents, based on average assays, of bullion produced within the State:—

Period.	Lead—Pig in matte, &c.		Period.	Lead—Pig in matte, &c.	
	Quantity.	Value.		Quantity.	Value.
	tons.	£		tons.	£
1889-1890	648	8,298	1911-15	114,375	1,899,601
1891-1895	739	7,413	1916	25,466	799,632
1896-1900	13,293	258,874	Total	243,506	4,225,830
1901-1905	17,550	255,366			
1906-1910	71,435	996,646			

The following statement shows the quantity and value of zinc (spelter and concentrates), the product of domestic ores, exported, since 1889. These exports represent practically the total production:—

Period.	Zinc (Spelter and Concentrates).		Period.	Zinc (Spelter and Concentrates).	
	Quantity.	Value.		Quantity.	Value.
	tons.	£		tons.	£
1889-1890	307	3,366	1911-1915	2,093,783	6,861,489
1891-1895	663	7,677	1916	209,741	961,849
1896-1900	137,931	146,023	Total	4,086,345	12,182,020
1901-1905	133,782	440,402			
1906-1910	1,460,138	3,761,223			

The production of silver, lead, and zinc is seen in the following summary of the values during the last five years:—

Year.	Silver, Silver-lead, Concentrates, Ores, &c.	Lead (Pig, &c.)	Zinc (Spelter and Concentrates).	Total Production.
	£	£	£	£
1912	3,481,266	264,530	1,766,242	5,512,038
1913	3,808,125	365,742	1,547,987	5,721,854
1914	3,241,263	370,106	1,020,711	4,632,080
1915	2,631,662	689,439	1,111,569	4,432,670
1916	3,284,991	799,632	961,849	5,046,472

In 1913 the value of production was the highest on record owing to the favourable metal market and settled industrial conditions which prevailed throughout the year, but the rate of production has not been maintained on account of the stoppage of exportation to Europe.

As previously stated, the bulk of the ores produced in the silver-lead mines are exported for treatment outside the State and the figures shown in the preceding tables do not convey an adequate idea of the importance of the mines of New South Wales. The Department of Mines has collected independent records from the various mining and smelting companies and ore-buyers with the object of ascertaining the actual value accruing to the Commonwealth from the silver-lead mines of this State. Thus particulars have been obtained regarding the quantity and value of the silver, lead, and zinc extracted within the Commonwealth, and the gross metallic contents of concentrates exported oversea have been estimated on the basis of average assays as follows:—

Year.	Metal obtained within Commonwealth from ores raised in New South Wales.				Concentrates exported.					Total Value of Production from Silver-lead Ores of New South Wales.
	Silver.	Lead.	Spelter.	Aggregate Value.	Quantity.	Contents by average assay.			Assessed Value.	
						Silver.	Lead.	Zinc.		
	oz. fine.	tons.	tons.	£	tons.	oz. fine.	tons.	tons.	£	£
1912	5,220,538	101,811	2,545	2,477,442	537,733	8,293,711	97,736	194,214	3,692,352	6,169,794
1913	5,908,638	106,432	4,121	2,709,867	547,388	8,596,251	117,903	184,149	3,759,691	6,469,558
1914	5,481,236	99,925	5,014	2,592,322	431,965	7,879,240	88,173	146,400	3,004,248	5,896,570
1915	3,081,952	46,991	2,852	1,634,717	316,284	5,222,927	89,455	90,232	3,176,434	4,811,151
1916	1,962,091	25,466	1	1,079,290	370,160	6,107,280	115,606	98,843	3,861,018	4,940,308

In connection with the above figures, although the metallic contents are based on average assays, it is impossible to say what proportion of the bulk quantities was recovered. In the case of the lead and zinc contents, the quantities have been estimated only when payment is allowed for them.

It is estimated that the quantity of silver yielded by the mines of New South Wales to the end of 1916 amounted to 337,081,741 oz. fine, valued at £49,817,594:—

Metal obtained in Commonwealth ...	...	oz. fine.	£
Contained in concentrates, &c, exported ...	...	151,784,472	22,006,205
	...	185,297,269	27,811,389
<b>Total ...</b>	<b>...</b>	<b>337,081,741</b>	<b>49,817,594</b>

*Broken Hill Field.*

The mines on the Broken Hill field are the chief contributors to the silver and silver-lead and zinc output of Australia. The argentiferous lead ores of the Barrier Ranges and Broken Hill districts were discovered in 1883. The field extends over 2,500 square miles of country, and has developed into one of the principal mining centres of the world. It is situated in western New South Wales, beyond the River Darling, and on the confines of South Australia.

The Broken Hill lode is the largest yet discovered; it varies in width from 10 feet to 200 feet, and may be traced for several miles, the country having been taken up all along the line of lode, and subdivided into numerous leases, held by mining companies and syndicates.

During 1916 the output of ore from the Broken Hill mines amounted to 1,020,027 tons, viz., 44,061 tons of oxidised and 975,966 tons of sulphide ore; and 209,741 tons of zinc (spelter and concentrates), valued at £961,849, were exported.

The total value of the mineral output of the Barrier district during 1916 was estimated at £4,479,514, as compared with £3,341,921 in 1915. In addition, the treatment of zinc tailings in 1916 yielded an output valued at £644,627, and returned to shareholders £411,061, bringing the total production of the Broken Hill field to £5,124,141 for the year; the amount distributed to shareholders was £1,499,470.

To the end of the year 1916 the value of production by the mines on the Broken Hill field from the inception of operations was in excess of 91 millions sterling, and the dividends and bonuses paid amounted to £21,159,279.

*Yerranderie Division.*

Next in importance to the Broken Hill field are the Burragorang silver lodes, in the Yerranderie Division. In this field rich galena occurs in bunches, but the deposits are very variable in width and composition. Owing to the excessive cost of transport, only high-grade ore is sent away, and a considerable quantity of second-grade is left in the mines or dumped at the surface for future treatment. During 1916, 1,649 tons of ore were raised and sold; the metallic contents were gold 234 oz., silver 174,321 oz., and lead 585 tons; the net value received was £41,887.

*Other Fields.*

The other fields which contributed to the output of silver-lead ores include the Kangiara mines, in the Yass Division, where the treatment of 2,805 tons of ore and concentrates in 1916 resulted in the production of 8,431 oz. silver, valued at £1,054, lead to the value of £5,460, and copper valued at £5,460.

In the Condobolin Division during 1916 the Iodide (Mineral Hill) Company raised 3,649 tons of ore, which, with 109 tons raised previously, were estimated to contain gold, 182 oz.; silver, 16,785 oz.; and lead, 486 tons, the total value being given as £17,558.

The Cobar copper mines, of which details are given in connection with copper mining, yield large quantities of silver and lead.

**COPPER.**

Ores of copper are worked chiefly in the central part of the State, between the Macquarie, Bogan, and Darling Rivers. Deposits occur also in the New England and Southern districts, as well as at Broken Hill, thus showing a wide distribution.

The principal useful ores are native copper, found in most of the cupriferous deposits; red and black oxides; grey and yellow sulphides; green and blue carbonates.

Since 1894 an increasing demand for copper for industrial purposes has assured a fair price, and with extension of transport facilities and improvement in methods of treatment, particularly of low-grade sulphide ores, copper has advanced to third place in the aggregate value of production from the metal mines of the State, the total output of metal and ore being assessed at nearly 13½ millions sterling at December, 1916.

#### *Production of Copper.*

The copper lodes of New South Wales contain ores of a high grade as compared with those of many well-known mines worked in other parts of the world; and, given a fair price and transportation facilities, are capable of yielding satisfactory returns. The net export of copper ingots, matte, regulus, and ore, is taken as the production of the State. The quantities and values are shown below from the year 1858:—

Period.	Quantity.		Value.
	Ingots, Matte, and Regulus.	Ore.	
	tons.	tons.	£
1858-1879	14,877	2,102	1,067,670
1880-1884	23,715	19	1,554,326
1885-1889	15,160	537	773,804
1890-1894	10,195	1,738	454,765
1895-1899	25,408	852	1,286,094
1900-1904	32,173	8,791	2,014,040
1905-1909	41,425	3,057	2,972,253
1910-1914	42,277	9,815	2,529,554
1915	2,463	4,510	234,437
1916	5,617	554	586,127
Total ...	213,310	31,975	13,478,070

For the year 1916 the total value, £586,127, represents £577,240, value of ingots, matte, and regulus, and £8,887, value of copper ore.

During 1916 the metals produced at the works of the Electrolytic Refining and Smelting Company of Australia, Ltd., Port Kembla, included 26,577 tons of copper, valued at £3,056,355, obtained principally from imported blister copper; from domestic ores, 2,310 tons of copper, valued at £261,635, were obtained. At Waratah, 529 tons of copper, valued at £55,981, were obtained from ores mined in this State.

#### *Cobar Field.*

The Cobar mines constitute the chief centre of the copper mining industry, contributing 78 per cent. of the State's production. From the point of view of combined output, the gold-copper mines worked in the Cobar district rank next, in value of production, to the silver-lead mines of the Broken Hill field.

The output during 1916 was valued at £629,148, and comprised the following:—Gold, 38,557 oz., valued at £159,146; silver, 47,968 oz., £4,802; copper, metal and ore, 4,399 tons, £455,240; lead, 332 tons, £9,960.

#### TIN.

Tin, unlike copper, is restricted in its geographical and petrological range, and is the rarest of the common metals in commerce.

In addition to alluvial deposits, tin ore occurs *in situ* in granite and adjacent contact rocks, usually occupying fissures or penetrating walls; the majority of the tin lodes yet discovered in the State are on a small scale, but the lodes, developed or undeveloped, are very numerous. The maximum depth attained in the tin lodes of New South Wales is about 360 feet.

Tin ore occurs in the extreme Northern, Southern, and Western divisions, but the proved area of workable quantities is limited practically to the western fall of the New England Tableland, with Emmaville and Tingha as the chief centres. It has been discovered also in small quantities in the Barrier district, at Poolamacca and Euriowie; near Bombala, in the Monaro district; at Gundle, near Kempsey; at Jingellic and Dora Dora, on the Upper Murray; in the valley of the Lachlan; and in fine particles in beach sands along the coast, in association with gold, platinum, and monazite.

As the available sources of the world's tin supplies are comparatively restricted, and no known important fields await development, the necessity for preserving stanniferous areas for legitimate mining is apparent. In New South Wales these areas are usually rugged and unfit for close settlement, but their grazing capacity can be fully developed without hampering mining activities. In regard to alluvial deposits, the possibility of re-dredging, after they have been exploited by the modern system of dredging or hydraulic sluicing, is not alluring. As to lode tin-mining, the majority of the innumerable lodes are small, and the tin ore capricious in occurrence; but the principal lodes certainly offer inducement for systematic development work.

#### Output of Tin.

Since 1902 the activity which has characterised tin-mining on the various fields throughout the State, owing to the satisfactory prices obtained, has resulted in a steadily increased value of output, so that tin has contributed in a very considerable degree to the total production of the mineral wealth of the State, its aggregate yield, in point of value, standing in the sixth place, after coal, silver, gold, copper, and zinc.

The output and the value of production of tin since 1872 have been as follows:—

Period.	Ingots.	Ore.	Aggregate Value.
	tons.	tons.	£
1872-1879	18,364	12,995	2,015,407
1880-1884	22,842	2,700	2,194,533
1885-1889	12,974	1,635	1,415,374
1890-1894	7,196	1,040	677,392
1895-1899	4,608	197	342,503
1900-1904	4,220	1,222	617,446
1905-1909	5,567	3,712	1,191,635
1910-1914	4,258	6,952	1,561,741
1915	857	1,331	266,780
1916	909	1,220	306,497
Total ...	81,795	33,004	10,589,308

In 1916 the value of ingots was £159,075, and of ore £147,422, making the total as above, £306,497.

In the years 1908 and 1909 the value of the output decreased, owing to a drop in the market price and to the lesser output of ore, principally from the dredges in the Tingha Division. After 1910 the price rose steadily, and as a

result the value of the output increased. In 1914, however, owing to the disturbance of the metal market, the price fell, and there was a diminution in the supply, the value of production being £267,130, as compared with £421,292 in the previous year. Although the price of tin recovered considerably during 1915, the prolonged dry weather and the war were responsible for a great falling off in the production. The increase in 1916 was due mainly to enhanced yields obtained by the dredging plants, of which particulars have been given on a previous page.

Local-treatment plants are neither numerous nor extensive, and the industry of tin-dressing has been intermittent and relatively unimportant; the recovery and cleaning of alluvial tin ore form a simple process in the early stages, but become more complicated in the final steaming stage. In the first year of tin-mining, the crude product of the mines was exported, but with the introduction of local auction sales, penalties for depreciation below a minimum standard forced sellers to remove the heavy associates of tin in the ore. Though the first tin ore from Elsmore, New England, was smelted in 1872, smelting has not been carried on extensively; but, as dressed tin ore is sufficiently pure, very valuable, and of relatively small bulk in proportion to its metallic content, the absence of local smelting facilities does not seriously handicap the export trade.

#### IRON AND IRON ORES.

Iron is known to occur throughout New South Wales, principally in the form of magnetite, hematite or goethite, limonite, and bog-iron; deposits of chrome iron also are found. Magnetite, as the richest of the iron ores, contains, when pure, a little over 72 per cent. of available metallic iron. Of a number of analyses made from deposits at Brown's Creek, in the county of Bathurst, where veins of this ore have been opened out, the samples of ore yielded from 48.83 to 61.30 per cent. of metallic iron.

Hematite or goethite occurs in very extensive deposits in the Blue Mountains and Macquarie Ranges, the principal centres explored being situated at Mittagong, Picton, Berrima, Cadia, Lithgow Valley, Wallerawang; in the Rylstone and Mudgee districts; and in the vicinity of Port Stephens. The results of a number of analyses of this kind of ore denote that it is very rich in metallic iron, containing a proportion of 42.69 to 64.48 per cent., and in the majority of cases over 45 per cent. of metal. A sample of hematite from the Maitland district contained 60.83 per cent. of metallic iron, and another from Mount Pleasant, near Wollongong, analysed during 1891, gave 54.28 per cent. of iron. The value of these deposits is enhanced by their almost invariable occurrence in proximity to limestone and coal beds. It is fortunate, also, that the main lines of railway pass through the regions where the deposits are most easily worked.

Limonite—a variety of brown hematite—occurs principally at Lithgow, Eskbank, and Bowenfels, in the Blue Mountains; in several parts of the Hunter River coal-field; and at Bulli, in the Illawarra district. This ore is usually found very rich in metal, and contains an average of over 50 per cent. of iron, while English clay bands, which are mostly carbonates, contain only about 30 per cent. of metallic substance. It occurs in lenticular layers of no great extent, in the Coal Measures. Bog-iron ore, which is impure limonite, is found principally at Mittagong; and assays of this ore gave a percentage of metal of more than 45 per cent.

*Iron Ore Supplies.*

Estimates made during 1905 in the Geological Survey Department give the quantity of iron-ore then available in the various districts of New South Wales as 53,017,000 tons. The estimates were prepared on the basis of superficial area, depth to which the ore extends, and average weight of a unit of ore, and were regarded as conservative approximations.

Practically all the known iron-ore permanent deposits of New South Wales are to be found west of the Great Dividing Range.

The Cadia ironstone beds, 14 miles from Orange, have proved the most extensive yet examined. The ore consists of two classes, oxidised and unoxidised, the former, being chiefly hematite and magnetite, containing from 57 to 65 per cent. of metallic ore. A large proportion of the ore is of excellent quality, and suitable for the manufacture of steel by the ordinary Bessemer and other acid processes, and compares favourably with some of the best American ores with an admixture of limonite.

The deposits at Carcoar include hematite and magnetite, which contains about 52.67 per cent. of metallic iron, with 11 per cent. silica, but is slightly deficient in phosphorus.

Particular value attaches to these deposits on account of their proximity to the coal supplies of Lithgow and the limestone deposits of Portland.

A large amount of iron ore has been raised from the deposits situated in the Marulan, Goulburn, Bredalbane, Mittagong, and Carcoar districts. At Mittagong, Moss Vale, Picton, and in the Illawarra district, some of the shale and sandstones are highly ferruginous; and in these localities there are also quantities of iron ores deposited through the action of chalybeate springs, which are still active, so that the process of deposition of iron oxide can be seen. The ore is limonite, partly ochreous and powdery and partly compact.

In the Mudgee district there are manganiferous deposits suitable for the production of ferro-manganese.

Apart from the Cadia deposits already mentioned, magnetite, though found in numerous localities, has not been located in deposits capable of yielding great quantities of ore; but particular interest attaches to the titaniferous magnetite deposits in the vicinity of the Williams and Karuah Rivers, on account of their proximity to the northern coal-fields, and to the occurrence of limestone in the locality.

The ore contains from 36 to 52 per cent. of metallic iron, and from 3 to 16 per cent. of titanitic acid, in addition to silica and phosphorus, thus militating against the profitable employment of the ore.

Another magnetic iron ore deposit of importance is that at Queanbeyan, containing, approximately, 1,000,000 tons. With the opening of the Federal Capital railway, this deposit would rank as the second best in New South Wales.

Aluminous iron ores and bauxites have been examined, at Wingello chiefly, but ferruginous bauxites are known to be widely distributed throughout New South Wales, as at Moss Vale, Inverell, and Emmaville; and these are of considerable economic value as furnace charges when rich hematites and other ores are being smelted.

The clayband iron ores of the upper coal measures do not extend over wide areas. They are shales containing varying percentages of ferric and ferrous oxides, and where the shale has become thoroughly impregnated with the iron salts an economic iron ore is obtainable. Spathic ores have not been located in commercial quantities in New South Wales.

In 1911 a Royal Commission was appointed to investigate the iron and steel industry in New South Wales, particularly as to domestic ores for the manufacture of iron and steel, the costs of production, and the approximate cost of a plant capable of producing the whole of the iron and steel likely to be required by the Governments within the Commonwealth. The Commission found that the known iron ore deposits in New South Wales, and in the other States of Australia, are ample in quantity and quality to warrant the outlay of capital in the equipment of blast furnaces, and iron and steel works for manufacturing; that the coal-fields in the northern and southern districts of New South Wales can supply suitable coke to meet the maximum demand.

Iron and steel works have been constructed by the Broken Hill Proprietary Company near Newcastle.

#### *Ironstone Flux.*

Varying quantities of iron ore have been despatched from the different producing centres to the smelting and iron works for use as flux, the gold contents of the ore helping to defray the cost of railway carriage. The estimated quantity and value of ironstone flux raised during the years 1899 to 1916 was 108,389 tons, valued at £82,701.

Owing to suitable ores being obtained, the requirements of the smelting companies have decreased steadily; during the years 1913-15 no ironstone flux was raised for fluxing purposes, but in 1916 1,472 tons, valued at £1,083, were raised.

#### *Iron Oxide.*

Parcels of iron oxide are sent from the Port Macquarie, Mittagong, and Goulburn districts to various gas-works for use in purifying gas, the output of iron oxide for the last ten years being as follows:—

Year.	Quantity.	Value.	Year.	Quantity.	Value.
	tons.	£		tons.	£
1907	1,595	1,961	1912	3,757	4,763
1908	1,827	1,857	1913	3,204	3,563
1909	4,900	4,948	1914	3,144	5,584
1910	1,351	714	1915	2,294	3,774
1911	1,586	2,377	1916	2,461	2,695

The total recorded output to the end of 1916 was 34,799 tons, valued at £46,364.

#### *Production of Iron and Steel, and Bounty paid.*

Under the Manufactures Encouragement Act, 1908, the Commonwealth Government provided a bounty, to a total amount of £150,000, on all pig-iron made from Australian ore, and on puddled bar-iron and steel made from Australian pig-iron within the Commonwealth, from 1st January, 1909, to 30th June, 1914; the bounty was payable at the rate of 12s. per ton produced, and the maximum amount payable in any year was £30,000. This bounty rate was extended until 30th June, 1915, but was subsequently replaced by a bounty of 8s. per ton on pig-iron manufactured between

30th June, 1914, and 31st December, 1916. The following table shows the production and bounty paid during the year 1909-16:—

Year.	Pig-iron.		Puddled Bar-iron.		Steel.	
	Production.	Bounty Paid.	Production.	Bounty Paid.	Production.	Bounty Paid.
	tons.	£	tons.	£	tons.	£
1909	23,180	13,908	1,939	1,163	1,855	1,113
1910	40,326	24,196	3,384	2,036	3,410	2,046
1911	24,658	14,795	1,789	1,073	2,633	1,580
1912	31,104	18,663	549	329	.....	.....
1913	40,490	24,294	.....	.....	1,088	653
1914	58,528	35,117	.....	.....	14,929	8,957
1915	75,000	30,000	.....	.....	.....	.....
1916	68,512	27,405	.....	.....	.....	.....

The output and value of finished iron, pig-iron, &c., for the last ten years are shown in the following statement:—

Year.	Quantity.	Value.	Year.	Quantity.	Value.
	tons.	£		tons.	£
1907	29,902	178,632	1912	32,677	130,708
1908	40,207	118,224	1913	46,563	186,252
1909	29,762	106,357	1914	75,150	254,257
1910	40,487	161,948	1915	76,318	267,000
1911	36,354	145,416	1916	52,556	197,085

The recorded output of pig-iron, &c., to the end of 1916 was 588,032 tons, valued at £3,018,380. The bulk was made from scrap-iron, but in 1907 the smelting of iron ore was resumed, and the figures given above include the following production from ores mined in the State:—

Year.	Minerals Used.			Pig-iron.		Steel Ingots.
	Iron Ore.	Coke.	Limestone.	Production.	Value.	
	tons.	tons.	tons.	tons.	£	tons.
1912	55,170	51,102	20,399	32,677	130,708	.....
1913	71,577	60,854	26,251	46,563	186,252	13,608
1914	135,316	97,224	45,938	75,150	254,257	24,420
1915	134,684	96,316	42,379	76,318	267,000	25,040
1916	90,182	79,518	37,565	52,556	197,085	20,762

#### TUNGSTEN ORES.

Tungsten minerals occurring as ores are hubnerite, wolframite, ferberite, and scheelite; and though tungsten is of wide occurrence, the individual deposits in any part of the world are rarely large enough to be commercially important. Australia ranks as one of the chief producers of tungsten ores, which in this State are generally associated with tinstone (cassiterite), bismuth, and molybdenite. The deposits are patchy, but a steady demand during recent years has stimulated the search for payable deposits, especially in the Peel, Uralla, and New England districts.

Hillgrove is the only district in which scheelite is known to exist in commercial quantities; the deposits occur as thin veins and small lenses, and the mining is restricted to comparatively limited enterprises; the ore is

of good quality, and carries a large percentage of tungstic acid. The principal deposits of wolfram are situated in the Torrington Division. Mining for wolfram is carried on also in the Frogmore, Burrowa, Tenterfield, and Deepwater Divisions.

*Scheelite and Wolfram.*

The output of scheelite and wolfram in the last five years is shown in the following statement:—

Year.	Scheelite.		Wolfram.	
	Quantity.	Value.	Quantity.	Value.
	tons.	£	tons.	£
1912	56	4,963	172	16,584
1913	44	4,457	126	13,037
1914	57	5,852	139	14,438
1915	33	4,004	50	5,031
1916	81	13,719	183	31,163

Since the year 1903 the exports of scheelite and wolfram from New South Wales were as follow:—Scheelite, 1,345 tons, value £128,880; wolfram, 1,856 tons, value £196,186.

ANTIMONY.

Ores of antimony are of common occurrence in New South Wales, but the best are located in the Armidale, Bathurst, and Rylstone districts; and at Bowraville, on the North Coast. The principal source of supplies is at Hillgrove, near Armidale, where the lodes occur near the junction of slate and granite. The antimony ore is obtained principally in the course of mining for gold or scheelite, with which it is associated.

The following statement of the quantity and value of the output of antimony metal and ore during the last five years will show the fluctuating nature of the industry:—

Year.	Quantity.	Value.
	tons.	£
1912	63	355
1913	18	407
1914	36	464
1915	637	12,519
1916	616	13,334

The total output of antimony to the end of 1916 is estimated at 17,961 tons, valued at £331,948.

MANGANESE.

Manganese ores have been discovered in various places in New South Wales, but generally in localities lacking transport facilities. Pyrolusite, a manganese dioxide, and psilomelane or wad, are the commonest ores. Other ores, as manganite and diallogite, have been found in the Bathurst district; rhodonite and braunite have been found in several widely-separated districts. Specimens analysed have yielded a very high percentage of metal; but the demand in the State for manganese is small, and prices are unremunerative. Manganiferous iron ores have been located in the Mudgee district.

At Grenfell during the year 1916, 1,924 tons of this mineral were raised, the value being £1,443.

## BISMUTH.

Ores of bismuth, which is a rare metal, have been located in various districts in New South Wales. In workable quantities bismuth has been found, associated with molybdenite, tin, and gold, in quartz-veins, chiefly in the neighbourhood of Glen Innes, the principal mines being situated at Kingsgate. Rich argentiferous ores have been obtained, the lode consisting of soft granular felspar matrix, impregnated with blotches of bismuth, molybdenum, and chloride of silver. In the Deepwater Division, bismuth is present in association with molybdenite and wolfram ores. The total bismuth metal and ore exported during the last five years is shown below:—

Year.	Quantity.	Value.
	tons.	£
1912	6	1,210
1913	9	1,202
1914	15	2,837
1915	18	4,981
1916	30	5,473

The total value of bismuth, the product of New South Wales, exported up to the end of 1916 was £143,030, representing 613 tons of metal and ore.

## MOLYBDENUM.

Molybdenum is used chiefly in the preparation of special steels, its influence being similar to that of tungsten, but it gives greater toughness, and the steel so treated is more readily worked when hot, and stands hardening better than tungsten steel. Molybdenite, the principal ore of molybdenum, occurs most plentifully in pipe-veins at Kingsgate, near Glen Innes, and at Whipstick, near Pambula; in both these localities, and in the locality of Deepwater, it is associated with ores of bismuth. In 1913 molybdenite, associated with other minerals, was discovered in the Tenterfield Division.

The following statement shows the quantity and value of molybdenite exported during the last five years:—

Year.	Quantity.	Value.
	tons.	£
1912	57	3,703
1913	79	6,802
1914	61	11,451
1915	32	16,937
1916	54	22,066

The total quantity of molybdenite produced since 1902 was 530 tons, valued at £93,292.

## MERCURY.

Cinnabar, the most important ore of mercury, occurs in numerous localities in New South Wales, but it has not been discovered in a sufficiently concentrated form to enable it to be profitably wrought. In 1869 a deposit near Rylstone was opened up, but extensive prospecting operations met with little success. Cinnabar has been discovered also at Bingara, Orange, and Broken Hill, and at Woolgoolga, Yulgilbar, and Pulganbar, in the North Coast division; recent operations have been confined to the last-mentioned two fields.

The total production of quicksilver to the end of 1916 was 2,970 lb., valued at £541.

There is a considerable demand for mercury on account of its use in the metallurgy of gold and silver, especially in the recovery of gold by amalgamation.

As an encouragement in the search for quicksilver ores, the Government of New South Wales has offered a reward of £500 for the production of 50,000 lb. of quicksilver from domestic ores.

At Pulganbar 200 tons of ore were raised in 1916; the production of mercury during the year was 672 lb., valued at £180.

#### OTHER METALS.

Platinum occurs in several districts of New South Wales, but platinum mining, in comparison with other branches of mining, and for less valuable ores, is unimportant. The quantity produced to the end of 1916 amounted to 13,814 oz., valued at £35,437, of which 82 oz., valued at £687, were obtained during 1916.

Chromite, or chromic iron ore, is the only commercially important ore of chromium which is an accessory constituent of a variety of minerals; it has been found usually associated with serpentine in the northern portion of New South Wales. The quantity exported to the end of 1916 was 31,984 tons, valued at £102,617.

Cobalt and nickel are usually associated in the same minerals, and traces of both metals have been found in several districts in New South Wales, but workable quantities have been located in very few places.

The value of the total production of cobalt to the end of 1916 was £8,065, representing 885 tons of ore. No production of nickel is recorded.

During 1916, 1,365 tons of fluorspar, valued at £4,261, were obtained and despatched to the Newcastle steelworks for use in the manufacture of munition steel.

A specimen of uranium ore was found some years ago in the dump at the old cobalt workings at Carcoar, and again, in 1912, radio-active ores were noted, but no exploratory work has been done.

Tellurium has been discovered at Bingara and other parts of the northern districts, as well as at Tarana, on the Western railway line, though at present only in small quantities, which would not repay the cost of working. It has been found also at Captain's Flat in association with bismuth.

Selenium has been discovered at Mount Hope in association with bismuth, while tantalum has also been located in the State.

Aluminium is not included in the specified mineral output, but, in view of its constantly increasing use in manufactures, it is interesting to note that the ores from which it is made occur in great abundance in New South Wales. All clays are composed mainly of hydrous silicate of alumina, and these are of common occurrence, but the metal may be obtained at less cost from some other minerals.

Bauxite, which is considered the most suitable mineral for the manufacture of aluminium and its alloys in commercial quantities, has been located in extensive deposits at Wingello, in the county of Camden, and in the Inverell and Emmaville districts. It is of volcanic origin, and is generally found capping small hills. Near Inverell bauxite has been used extensively for making roads, with very satisfactory results. Alunite also contains a high percentage of alumina, but the yield obtained in New South Wales is used chiefly in the manufacture of alum.

## COAL.

The coal-fields of New South Wales are of much greater importance as to area and as to quality of the coal than in any other part of Australia. The coal-bearing rocks within the State have been classified as follows:—

Geological Age.	Maximum Thickness of Coal-bearing Strata (approximate).	Locality.	Character of Coal.
	ft.		
Tertiary—Eocene or Pliocene.	100	Kiandra, Gulgong, Chouta Bay, &c.	Brown-coal or lignite.
Mesozoic—Triassic or Trias-Jura.	2,500	Clarence and Richmond Rivers.	Suitable for local use only.
Palæozoic—Permo-Carboniferous.	13,000	Northern, Southern, and Western Coal-fields.	Suitable for gas-making, steam-raising, and household use.
Palæozoic—Carboniferous.	10,000	Stroud, Bullahdelah ...	Inferior.

The coal deposits of the Tertiary rocks, which have been found in the deep alluvial leads of many of the gold-fields, are not of any commercial value.

The Mesozoic coal measures occupy a considerable area in the Clarence River basin, and extend into Southern Queensland, where valuable seams are worked at Ipswich. Within New South Wales, however, the seams are thin, and interspersed with shale bands. The Clarence River coal is remarkably free from sulphur, and comparatively smokeless; it contains a large proportion of fixed carbon, but on account of the high percentage of ash it is not of commercial value, and is suitable only for local use.

The Permo-Carboniferous rocks, which contain the productive coal seams, are estimated to extend over an area of 28,000 square miles, north, west, and south of Sydney, the coal measures occupying about 16,550 square miles. It is impossible to determine the quantity of available fuel in these measures, but it has been estimated by the Government Geologist that, within a depth of 4,000 feet, there are 115,347 millions of tons of coal. This estimate allows for one-third loss in working, impurities, &c.

The main coal basin extends along the coast from Port Stephens on the north, to Ulladulla on the south, and thus has a seaboard of 200 miles, which enhances the value of the deposits by conducting to easy shipment and the development of oversea trade. From Ulladulla the basin trends inland to the west, and north-west as far as Rylstone, whence the boundary line extends northward beyond Gunnedah, and then runs in a south-easterly direction to Port Stephens. The widest part of this area is between Rylstone and Newcastle—100 miles; the basin is deepest in the neighbourhood of Sydney, where the uppermost seam is nearly 3,000 feet below the surface.

From Sydney the measures rise gradually in all directions, and emerge to the surface at Newcastle on the north, at Bulli in the Illawarra district to the south, and at Lithgow, in the Blue Mountain region, to the west.

The Permo-Carboniferous rocks have been classified in descending order as follows:—

Classification.	Thickness.	Coal Content Workable (approximate).
	feet.	feet.
1. Upper or Newcastle Coal Measures ... ..	1,400-1,500	35-40
2. Dempsey Series (freshwater beds) ... ..	2,200	.....
3. Middle, or Tomago, or East Maitland, Coal Measures... ..	500-1,800	18
4. Upper Marine Series... ..	5,000-6,400	.....
5. Lower or Greta Coal Measures ... ..	100-300	20
6. Lower Marine Series... ..	4,800	.....

The upper or Newcastle coal measures show the greatest surface development. Their seams outcrop at Newcastle, Bulli, and Lithgow, and extend continuously under Sydney, the deepest portion of the basin.

In the northern coal-field twelve seams have been discovered in these measures, five being worked; in the southern, five distinct seams are known, but two only have been worked; of the seven seams traced in the western field three only have proved of commercial value. After many unsuccessful boring operations, the uppermost seam of the Newcastle measures was located under Sydney Harbour in 1891, and is now worked at a depth of nearly 3,000 feet.

The coal obtained at Newcastle is specially suitable for gas making and for household use; the coal from Bulli and Lithgow is essentially steam coal—the southern produces a strong coke, specially suitable for smelting purposes by reason of its capacity for sustaining the weight of the ore burden in a blast furnace, and it contains less ash than the western. The coal obtained at the Sydney Harbour Colliery is also a good steam coal, and may be loaded direct into oversea steamers from a wharf near the pit's mouth.

In the western and southern fields the upper coal measures contain deposits of kerosene shale, a variety of torbanite, cannel coal, or boghead mineral. It is used extensively for the manufacture of kerosene oil, and for the production of gas. Deposits of kerosene shale, though much less extensive, occur in the upper and Greta measures of the northern coal-field.

The middle coal measures outcrop near East Maitland, but do not appear in the western field; their occurrence in the southern field has not been definitely proved.

The lower or Greta measures outcrop over an irregular area in the neighbourhood of Maitland, and have been traced with intervening breaks as far north as Wingen; they occur as an isolated belt to the north of Inverell, and extend through Ashford, almost to the Queensland border. These measures have been located in the Clyde Valley, in the extreme southern portion of the Illawarra field, but do not occur in the western. The coal of the Greta measures is contained in two seams, and is the purest and generally the most useful obtained in the State, being of good quality, hard, and economical as regards working. The Greta seams are worked extensively between West Maitland and Cessnock, in the most important coal-mining district in Australia.

#### *Production of Coal.*

The following table shows, in quinquennial periods since 1880, the quantity and value of coal raised in New South Wales from the earliest record to the close of 1916, the total production being 219,976,936 tons, valued at £83,356,873.

The figures are exclusive of coal used in the manufacture of coke, particulars as to which are quoted elsewhere in this chapter:—

Period.	Quantity.	Value at Pit's Mouth.	Average per ton.
	tons.	£	s. d.
Prior to 1880	20,697,747	11,036,723	10 8
1880-4	10,615,625	4,672,569	8 10
1885-9	15,490,611	7,077,864	9 2
1890-4	17,830,177	6,811,568	7 8
1895-9	21,334,976	6,048,281	5 8
1900-4	29,792,589	10,369,050	7 0
1905-9	39,083,328	13,234,796	6 9
1910-4	47,555,714	17,344,973	7 4
1915	9,449,008	3,424,630	7 3
1916	8,127,161	3,336,419	8 2
Total	219,976,936	83,356,873	7 7

Owing to war conditions the export of coal during the last three years was greatly restricted; moreover, during 1916 a general strike of coal-miners, which commenced on 31st October, and ended on 4th December, caused a diminution in the output.

The bulk of production is obtained from the northern coal-fields. The output of each district during 1916 was:—Northern, 5,311,832 tons, valued at £2,406,265; Southern, 1,848,933 tons, £660,761; Western, 966,396 tons, £269,393.

The following statement shows the quantity of New South Wales coal consumed in Australia and New Zealand, including bunker coal taken by interstate vessels, and the overseas exports, during the last ten years:—

Year.	Domestic Consumption	Sent to other Australian States and New Zealand.	Total.	Exported to Oversea Countries, excluding New Zealand.	Total Production.
	tons.	tons.	tons.	tons.	tons.
1907	2,914,417	2,379,024	5,293,441	3,364,483	8,657,924
1908	3,048,349	2,715,310	5,763,659	3,383,366	9,147,025
1909	2,626,276	2,200,769	4,827,045	2,192,834	7,019,879
1910	3,483,075	2,478,497	5,961,572	2,211,936	8,173,508
1911	3,667,524	2,525,776	6,193,300	2,498,304	8,691,604
1912	3,832,697	3,096,179	6,928,876	2,956,939	9,885,815
1913	4,182,441	3,465,787	7,648,228	2,765,937	10,414,165
1914	4,522,589	3,221,783	7,744,372	2,646,250	10,390,622
1915	4,780,614	2,601,070	7,381,684	2,067,324	9,449,008
1916	4,693,063	2,203,659	6,896,722	1,230,439	8,127,161

The variation in the proportion of the total production used for domestic consumption is shown in the following percentages:—

Year.	Proportion of Output.		
	Used for Domestic Consumption.	Sent to other Australian States and New Zealand.	Exported to other Countries.
	Per cent.	Per cent.	Per cent.
1907	33·66	27·48	38·86
1908	33·32	29·69	36·99
1909	37·42	31·34	31·24
1910	42·62	30·32	27·06
1911	42·20	29·06	28·74
1912	38·77	31·32	29·91
1913	40·16	33·28	26·56
1914	43·52	24·85	31·63
1915	50·60	27·52	21·88
1916	57·74	27·12	15·14

Calculated on the total value of the production during the decade, the average quantity of 666 tons extracted yearly by each person employed underground represent a value of £244. In 1916 the average value of production was £268 for each person employed below ground:—

Year.	Persons employed.		Quantity of Coal raised.		Value of Coal raised.		
	Above and below ground.	Below ground.	Total.	Per person employed below ground.	Total value.	Average value per ton.	Average value per person employed below ground.
	No.	No.	tons.	tons.	£	s. d.	£
1907	17,080	13,369	8,657,924	648	2,922,419	6 9	219
1908	17,734	13,664	9,147,025	669	3,353,093	7 4	245
1909	18,168	13,915	7,019,879	504	2,618,596	7 5	186
1910	17,618	13,290	8,173,508	615	3,009,657	7 4	226
1911	17,375	12,679	8,691,604	686	3,167,165	7 3	250
1912	17,795	13,089	9,885,815	755	3,660,015	7 5	280
1913	18,843	14,164	10,414,165	735	3,770,375	7 3	266
1914	19,758	15,007	10,390,622	692	3,737,761	7 2	250
1915	17,959	13,476	9,449,008	701	3,424,630	7 3	254
1916	16,764	12,443	8,127,161	653½	3,336,419	8 2	268

#### Coal-cutting by Machinery.

The machine-cut coal in 1916 represented 30 per cent. of the total output. Of the machines in use, 139 were classed as percussive, 172 as chain-breast, and 1 revolving bar; 173 were driven by electricity, and 139 by compressed air.

Following are the records of machines operating and coal obtained during the last five years:—

Year.	Machines driven by—			Coal obtained by machines driven by—		
	Electricity.	Compressed Air.	Total.	Electricity.	Compressed Air.	Total.
				tons.	tons.	tons.
1912	135	79	214	2,189,968	706,644	2,896,612
1913	153	80	233	2,203,265	633,451	2,836,716
1914	163	80	243	2,264,010	511,911	2,775,921
1915	172	100	272	2,162,726	654,346	2,817,072
1916	173	139	312	1,797,066	653,205	2,450,271

*State Coal Mines.*

The State Coal Mines Act, 1912, empowers the Government to purchase or resume coal-bearing lands or coal mines and to open and work coal mines upon Crown land or private land containing coal reserved to the Crown.

The coal obtained from a State mine is to be used only by the State Departments.

A State coal mine was opened at Lithgow, in the Western district, in September, 1916; the area of Crown coal amounts to about 40,200 acres, and the available supply is estimated at 240,000,000 tons.

*Prices of Coal.*

The average price of coal per ton in the various districts for the last ten years is shown below; in the average for New South Wales, allowance has been made for the quantity raised in each district:—

District.	1907.	1908.	1909.	1910.	1911.	1912.	1913	1914.	1915.	1916.
	s. d.									
Northern ...	7 4	8 0	8 3	8 1	8 0	8 1	7 10	7 8	7 7	9 1
Southern ...	5 7	5 11	6 0	6 2	6 2	6 1	6 1	6 4	6 11	7 2
Western ...	4 7	4 6	4 9	5 6	5 1	5 0	5 2	5 6	5 6	5 7
New South Wales	6 9	7 4	7 5	7 4	7 3	7 5	7 3	7 2	7 3	8 2

**COKE.**

The quantities of coke manufactured in New South Wales during the last five years were as follows:—

Year.	Quantity.				Total Value at Ovens.
	Northern District.	Southern District.	Western District.	Total.	
	tons.	tons.	tons.	tons.	£
1912	27,217	193,893	20,049	241,159	162,454
1913	29,659	239,183	29,770	298,612	208,989
1914	28,264	252,409	24,127	304,800	213,069
1915	84,134	305,584	28,035	417,753	313,241
1916	101,662	288,911	47,014	437,587	387,571

The various districts contributed as follows to the total value of coke manufactured during the year 1916:—Northern, £105,492; Southern, £245,073; Western, £37,006.

Since 1890, when the value per ton of coke at the ovens was £1 6s. 5d., the price has fallen considerably. The variations in the last twenty-two years are shown in the following table:—

Year.	Price per Ton.	Year.	Price per Ton.	Year.	Price per Ton.
	s. d.		s. d.		s. d.
1895	17 10	1903	13 7	1911	13 11
1896	16 7	1904	12 11	1912	13 6
1897	14 1	1905	12 4	1913	14 0
1898	15 7	1906	11 11	1914	13 11
1899	16 0	1907	12 6	1915	15 0
1900	17 4	1908	14 1	1916	17 9
1901	16 5	1909	13 5		
1902	14 2	1910	13 5		

In 1916 the average values per ton at the ovens were—Northern, 20s. 9d.; Southern, 17s.; Western, 15s. 9d.

Coke-making is carried on in each of the three coal-mining districts of the State, but the bulk of the output comes from the southern district, where it is manufactured from coal drawn from the mines in the locality of Wollongong.

All the coke produced is suitable for use in blast furnaces, but the products of the northern and southern districts are harder, better able to carry a load in the furnace, and contain less ash than the coke of the western district. The plants in the southern district being closer to Sydney, have advantage in railway transit of a lower transport cost than the plants in the northern and western districts.

The following statement shows the number of coke ovens, and the persons engaged in the manufacture of coke in each district during 1916:—

District.	Coke Ovens.				Persons engaged in manufacture of coke.
	Working.	Built, but not Working.	In course of Building.	Total Number.	
Northern ... ..	209	90	12	311	187
Southern ... ..	549	4	10	563	343
Western ... ..	126	109	...	235	69
Total ... ..	884	203	22	1,109	599

#### OIL SHALE.

The production of oil shale, from the opening of the mines in 1865 to the end of 1916, is shown in the following table:—

Period.	Quantity.	Total Value at Mines.	Average Price per ton at Mines.	Year.	Quantity.	Total Value at Mines.	Average Price per ton at Mines.
	tons.	£	£ s. d.		tons.	£	£ s. d.
1865-84	370,217	823,194	2 4 9	1910-14	296,449	14,358	0 9 6
1885-89	186,465	406,255	2 3 7	1915	15,474	12,890	0 16 8
1890-94	247,387	451,344	1 16 6	1916	17,425	17,772	1 0 5
1895-99	191,763	222,690	1 3 3				
1900-04	213,163	177,246	0 16 8	Total ...	1,751,367	2,388,205	1 7 3
1905-09	213,024	131,456	0 12 4				

In 1916 the output was obtained from the mines in the western district.

The Shale Oils Bounties Act, passed by the Commonwealth Government during 1910, to make provision for the payment of bounties on the manufacture of kerosene and paraffin wax from Australian shale, expired on 30th June, 1913, and no further bounty was payable until 1917, when a bounty

on crude shale oil produced in Australia from mined kerosene shale was provided for a period of four years dating from 1st September, 1917. The maximum amount payable in any one year is £67,500, the rate per gallon to each producer being as follows:—3,500,000 gallons and under, 2½d.; 3,500,000 to 5,000,000, 2d.; 5,000,000 to 8,000,000, 1½d.; each additional gallon, 1½d.

Large quantities of oil manufactured at Hartley Vale have been supplied to the Australian warships.

#### DIAMONDS.

Diamonds and other gem-stones in New South Wales were noted as early as 1851 by both Hargraves and Stutchbury, and have since been found to be widely distributed, but no extensive industry has yet been developed, mining operations being restricted to very few localities. The finest of the New South Wales diamonds are harder and whiter than the South African diamonds, and are classified as on a par with the best Brazilian gems.

The following table, compiled from the available information, is believed to understate considerably the actual output of diamonds in New South Wales. The majority of the diamonds have been obtained from the mines in the Bingara and Copeton districts; in recent years the whole output is from the latter district:—

Period.	Carats.	Value.	Period.	Carats.	Value.
		£			£
1867-1885	2,856	2,952	1901-1905	54,206	46,434
1886-1890	8,120	6,390	1906-1910	16,651	12,574
1891-1895	19,743	18,245	1911-1915	16,003	13,353
1896-1900	69,384	27,948	1916	1,901	1,375

The closing of the market consequent on the outbreak of war has had a serious effect on the industry.

#### OPAL.

Common opals occur in many parts of New South Wales, and particularly in the locality of Orange. The precious or noble opal has been found in two geological formations in New South Wales, viz., in vesicular basalt and in sedimentary rocks of the Upper Cretaceous age. Only from the latter formation have gems in quantity and value been obtained hitherto, the finest opal known being located in the Upper Cretaceous formation at White Cliffs, near Wilcannia. Black opal, remarkable for colour, fire, and brilliancy, is obtained at Lightning Ridge, near the Queensland border.

The following table shows the estimated value of precious opal won in New South Wales to the end of 1916:—

Period.	Value.	Period.	Value.
	£		£
1890	15,600	1906-1910	305,300
1891-1895	25,999	1911-1915	154,738
1896-1900	415,000	1916	24,273
1901-1905	476,000	Total	1,413,910

## OTHER GEM STONES.

Other gem stones have been located in various parts of the State, including the emerald, sapphire, topaz, garnet, ruby, zircon, turquoise, &c., but with the exception of a small quantity of emeralds, no production has been recorded.

## ALUNITE.

Alunite, or alumstone, occurs at Bullahdelah, about 35 miles from Port Stephens, in a narrow mountain range which for more than a mile of its length is composed almost entirely of alunite, of greater or less purity.

Four varieties of alunite are recognised at the mines:—

1. Light pink containing	...	...	1·7 per cent. silica.
2. Chalk-white	...	...	16·4 „
3. Purple	...	...	19·5 „
4. Granular	...	...	39·5 „

Working is confined mainly to the light-pink ore, the yield averaging about 80 per cent. of alum. The quantity and value of alunite, the produce of this State, exported to the end of 1916, is shown in the following statement:—

Period.	Quantity.	Value.	Period.	Quantity.	Value.
	tons.	£		tons.	£
1890-4	3,891	16,756	1910-14	10,842	41,435
1895-9	6,791	21,202	1915	1,420	5,680
1900-4	11,559	33,252	1916	325	1,980
1905-9	11,227	27,998			

During 1910 and 1911, prospecting by means of diamond drilling was carried on at Bullahdelah, with a view to locating further bodies of alunite of payable grade, so as to maintain the export trade; as a result there was a large increase in the quantity exported. Since the year 1890 the quantities and values of alunite, the produce of New South Wales, exported were 46,055 tons, value £148,303. Particulars are not available as to the amount of alum of local production used within the State.

## MARBLE AND BUILDING STONE.

New South Wales possesses abundant materials for building purposes, and considerable use is made of domestic supplies, but quarries generally are not subject to mining legislation. Complete records of operations are not readily available, but the annual return of quarries given on a previous page contains information as to the quantity and value of building stone raised.

## MARBLE.

Beds of marble of great variety of colouring, and with highly ornamental markings, are located in many districts of New South Wales. Much of the marble is eminently suitable for decorative work, and in recent years has won the favour of builders.

Costs of quarrying and of carriage to Sydney are heavy, and handicap the local marble considerably as compared with importations, which have

the advantage of cheaper sea carriage, while most of the quarries worked or proved in New South Wales, being in the western district, have to pay the heavier costs of rail carriage.

During 1916 marble valued at £1,625 was obtained from quarries at Borenore, Caleula, and Rockley.

#### STONE.

##### *Sandstone (Building).*

The Hawkesbury formation, which underlies the city of Sydney and outcrops all round Port Jackson, provides an inexhaustible supply of sandstone of the highest quality for building purposes. This stone, which varies in colour from white to light-brown, is admirably adapted for architectural use, being of fine grain, durable, and easily worked. Sandstone is quarried in many suburbs of Sydney.

In the north-west of New South Wales, a good building stone (desert sandstone of Upper Cretaceous age), resembling Hawkesbury sandstone, is used; and somewhat similar freestones are obtained in the Permo-Carboniferous coal measures at Morpeth, and elsewhere north of Sydney.

##### *Syenite.*

Syenite, commonly called trachyte, is found at Bowral; as a building material it is equal to granite in solidity, and takes a beautiful polish. It is a fine-grained, hard, crystalline rock, though difficult to dress; in colouring it is light-grey or dark-grey. For building purposes, the short distance from the metropolis at which it is to be found enables it to be used for large structures on comparatively favourable terms.

##### *Granite.*

Granite is found at Bathurst, Moruya, Trial Bay, and on Montagu Island, and at many other places throughout the State. Most of the granite hitherto used in Sydney has been obtained from Moruya, a port 141 miles south of Sydney, where the deposits are of dark-grey granite, and are so located as to derive advantage from cheap water carriage. This applies also to the pale-pink granite of Trial Bay and the red granite of Gabo Island.

##### *Road Metal.*

Basalt, or "blue metal," suitable for road metal, for the ballasting of railway lines, and for making concrete, is obtained at Kiama, Prospect, and Pennant Hills. From the Prospect quarry the rock can be hewn in large blocks, and sawn into slabs for paving stones.

At Coolabah, Tertiary gravels provide suitable material for roads and pathways, viz., uncompacted gravel to a depth of 3 feet below the surface, and, lower still, a type of cemented gravel. Of the uncompacted superficial gravel, some 25 per cent. is of quartzose material of shape and size suitable for a resilient railway ballast.

Within the metropolitan area, prismatic sandstones occurring in different localities have been worked for road material; but the irregular manner in which the sandstones are altered into quartzites militates against reliable estimates, from surface indications, of the quantities available.

##### *State Metal Quarries.*

Quarries are worked by the State at Kiama, where blue metal is obtained, and at Port Kembla, where blocks of stone are quarried for breakwater construction and stone is crushed for road-making and concrete purposes.

The operations of the State Metal Quarries for the year 1916-17 resulted in a considerable profit after allowing for depreciation and interest on capital.

*Quarry Licenses and Permits.*

During the year 1916-17 there were 915 quarry licenses, revenue £262, and 9 permits, revenue £35, issued at the Department of Lands, the total revenue received being £297.

LIME, LIMESTONE, AND PORTLAND CEMENT.

Beds of limestone of different geological ages are distributed widely over New South-Wales, the best known being in the eastern and central parts of the State. The limestones are worked for the preparation of quicklime, as flux in metallurgical processes, for building stones, and for the manufacture of cement.

The following table shows the quantity of limestone raised for flux in the last five years:—

Year.	Limestone Flux.	
	Quantity.	Value at Smelting Works.
	tons.	£
1912	33,186	11,066
1913	42,664	10,686
1914	51,852	11,674
1915	71,720	15,631
1916	64,928	20,700

The total value of the limestone raised for flux to the end of 1916 was £761,505, representing 1,355,834 tons, and the production of lime was 436,105 tons, valued at £447,769.

Prepared lime for building and other purposes is manufactured at various localities, the largest quantities being supplied by the kilns in the Capertee and Goulburn Divisions; lime was manufactured also in the divisions of Taree, Molong, Grenfell, Parkes, and Mudgee.

Limestone for the manufacture of cement is obtained from quarries in the Capertee division, and the principal works are at Granville and Portland, near Wallarawang. In 1916 cement to the value of £420,928 was manufactured, and the total value of the cement manufactured to the end of that year was £3,496,444. Further details regarding lime and cement works may be found in the chapter "Manufacturing Industry."

ROCK PHOSPHATE.

Under the Commonwealth Wood Pulp and Rock Phosphate Bounties Act, 1912, a reward of £1,000 may be granted under certain conditions to the discoverer of any deposit or vein of rock phosphate suitable for making phosphatic manure, provided the deposit or vein be worked, and 10,000 tons of rock phosphate be produced and used in the manufacture of marketable phosphatic manure.

During 1914, 700 tons of phosphate rock, to the value of £1,055, were obtained. In 1915, 1,100 tons of phosphate rock valued at £3,000 were raised.

During 1916, 1,652 tons of concentrates, valued at £6,000, were produced from 2,002 tons of material raised at Wellington, and 40 tons of phosphates, valued at £124, were obtained in the Inverell district.

## OTHER MINERALS.

The other minerals produced during 1916 included the following:—

Mineral.	Quantity.	Value.	Mineral.	Quantity.	Value.
	tons.	£		tons.	£
Fireclay ... ..	26	72	Steatite ... ..	237	237
Kaolin ... ..	872	758	Barytes ... ..	685	1,528
Fuller's Earth ...	110	113	Slates ... ..	.....	861
Ochres ... ..	40	60	Diatomaceous Earth ...	235	701
Silica ... ..	6,500	1,625	Magnesite ... ..	3,761	6,918

## MINING ACCIDENTS.

The number of fatalities during the last five years in the more important branches of mining, and the rates per 1,000 employees are shown below:—

Year.	Metalliferous Mines.						Coal and Shale Mines.	Total.
	Gold.	Silver, Lead, and Zinc.	Copper.	Tin.	Other.	Total Metalliferous		

*Number of Fatalities.*

1912	8	17	5	1	...	31	30	61
1913	6	30	7	1	1	45	18	63
1914	6	16	3	1	...	26	17	43
1915	...	9	3	2	...	14	23	37
1916	1	14	5	1	...	21	13	34

*Per 1,000 Employees.*

1912	2·05	1·88	2·10	·38	...	1·56	1·66	1·61
1913	1·68	3·21	2·66	·42	·50	2·26	·95	1·62
1914	1·74	1·94	2·21	·46	...	1·49	·85	1·18
1915	...	1·62	3·28	1·21	...	1·06	1·26	1·18
1916	·43	2·17	3·01	·52	...	1·46	·77	1·09

During the year 1912 the number of fatalities in connection with gold-mining was much higher than usual, in consequence of an accident at Wyalong, where six miners were asphyxiated by inhalation of carbon dioxide. During 1916 there were 13 fatalities in coal and shale mines. In proportion to the number of persons employed the rates were highest in copper and silver-lead mines.

The number of persons seriously injured in mining operations during the last five years, and the ratio per 1,000 persons employed, are shown in the following statement:—

Year.	Metalliferous Mines.						Coal and Shale Mines.	Total.	Ratio per 1,000 persons employed.
	Gold.	Silver, Lead and Zinc.	Copper.	Tin.	Other.	Total Metalliferous			
<i>Number of Persons Seriously Injured.</i>									
1912	3	22	6	1	...	32	81	113	2·98
1913	1	29	5	1	1	37	74	111	2·86
1914	3	34	1	...	1	39	73	112	3·07
1915	1	29	...	3	2	35	49	84	2·67
1916	1	24	1	2	3	31	55	86	2·75

Many of these accidents and fatalities occurring on the surface can scarcely be regarded as true mining accidents. The following table shows the number of surface and under-surface accidents in connection with metalliferous mining. As might be expected, the greater number of accidents occur under surface:—

Metalliferous Mines.	Under-surface Accidents.		Surface Accidents.	
	Fatal.	Serious.	Fatal.	Serious.
Gold (quartz) ... ..	1	...	...	1
Silver and Lead ... ..	9	16	5	8
Copper ... ..	4	1	1	...
Tin ... ..	1	1	...	1
Cther ... ..	...	1	...	2
Total ... ..	15	19	6	12

The number of persons killed and seriously injured in the coal and shale mines of New South Wales, during the last ten years, with the proportion of miners and the quantity of mineral raised, is given below:—

Year.	Coal and Shale Mines.					
	Number of persons.		Number of employees per person—		Quantity of Mineral raised to each person—	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
1912	30	81	602	223	tons. 332,394	tons. 123,109
1913	18	74	1,053	256	579,508	140,961
1914	17	73	1,116	260	614,157	143,023
1915	23	49	792	372	411,882	193,153
1916	13	55	1,299	307	626,507	148,083

During 1916 no accidents resulted from explosion of fire-damp or coal dust.

The experience of coal-mining in this State with respect to accidents bears very favourable comparison with that of other countries.

A recent estimate shows that 48·5 per cent. of the total output of coal in New South Wales is obtained from collieries where miners use safety-lamps; and as the workings get deeper this proportion is likely to increase, since with greater depth there is more likelihood of fire-damp.

Considerable improvements have been made in portable electric safety-lamps during late years, and several having passed the necessary tests in Great Britain, their use for underground purposes has been much increased.

Ambulance classes are trained and corps exist in New South Wales for the purpose of promoting among miners a knowledge of first-aid principles. From 1897-1916, 134 classes were enrolled, the minimum membership being 10. The classes formed during 1916 numbered 5.

Interesting information regarding the sickness experience of Friendly Societies, in mining districts, is given in a later chapter of this Year Book.

#### LEAD POISONING.

One case of lead poisoning at Broken Hill was reported under the Mines Inspection Act in the year 1916.

## PRIVATE FINANCE.

### CURRENCY AND COINAGE.

THE coins current in New South Wales in 1909, when the Commonwealth Coinage Act was passed, corresponded with those of the monetary system of the United Kingdom, and were issued by the Royal Mint of England through its Sydney Branch.

The Commonwealth Treasurer was given power under that Act to issue silver and bronze coin, made to his order, of specified denominations. A nickel coinage was also authorised, the denominations, fineness, and weight of which were to be specified by proclamation, but so far advantage has not been taken of this authorisation.

A tender of payment made in British or Australian gold coins is legal for any amount, in silver coins for a maximum amount of forty shillings, and in bronze for a maximum amount of one shilling. Australian notes are legal tender throughout the Commonwealth.

The principal variation of the Australian from the British system is the elimination of the half-crown from the silver coinage of the Commonwealth.

For gold coins the standard fineness is  $\frac{11}{12}$  fine gold,  $\frac{1}{12}$  alloy, or millesimal fineness 916.6; for silver coins,  $\frac{37}{40}$  fine silver,  $\frac{3}{40}$  alloy, or millesimal fineness 925; bronze coins are of mixed metal—copper, tin, and zinc.

Standard or sovereign gold of 22 carats fineness is worth £3 17s. 10½d. per oz.; pure or 24-carat gold is worth £4 4s. 11½d. per oz., but the gold contained in deposits sent to the Sydney Branch of the Royal Mint for melting, assaying, and coining, is valued at the rate of £3 17s. 10½d. per oz. standard or sovereign gold, and there is thus no premium on the metal.

The nominal value of one ounce of silver coined into eleven sixpences is 5s. 6d., and of one pound (avoirdupois) of bronze coined into pence 4s., and into halfpence or farthings 3s. 4d.

### MINTING.

The Royal Mint of England has four branches, viz., one each at Sydney, Melbourne, Perth and Ottawa (Canada). The earliest established of the Australian branches was that of Sydney, opened on the 14th May, 1855. The branch at Melbourne was opened in 1872, and that at Perth in 1899.

Only gold coins are struck at the Sydney Mint, but silver and bronze of English coinage are issued. Silver and bronze Australian coins are struck at the London Mint and forwarded to the Sydney Branch, whence they are distributed at the order of the Commonwealth Treasurer.

The total weight of gold sent for coinage to the Sydney Mint in the period from its foundation to the 31st December, 1916, was 37,791,760 oz., valued at £139,686,950. Of this quantity New South Wales produced 11,952,830 oz., of the value of £44,185,935.

Nearly the whole of the gold mined in New South Wales and Queensland, with a big proportion of the output of New Zealand, is received at the Sydney Mint for coinage. The value of gold coin and bullion issued up to the end of 1916 was £139,431,339, of which £132,749,500 represented coin, the value of sovereigns being £127,968,500 and of half-sovereigns £4,781,000.

The gold bullion issued from the Mint includes pure gold in small quantities for the use of jewellers, chemists, and others, but the bulk consists of bars of fine gold issued to local banks. There is an annual export to India

of a considerable quantity of gold cast into 10-oz. bars. The amount of gold bullion issued during 1916 was valued at £69,584, the total from 1855 to the end of 1916 being 1,617,854 oz., valued at £6,681,839.

The first issue of bronze coin from the Sydney Mint took place in 1868, and of silver in 1879, the values of each to the end of the year 1910 being—bronze £106,450, and silver £1,239,400.

The issue of British silver and bronze coin in the Commonwealth ceased in 1910, and the new Australian coins were first issued in that year.

Australian silver and bronze coins issued to the end of 1916 from the Sydney Mint were valued at £1,060,610. The values of the several coins issued in 1916 were—Florins, £130,800; shillings, £123,000; sixpences, £15,000; threepences, £7,800; pence, £5,400; and half-pence, £2,440; the total value of the year's issue being £284,440.

The coinage or nominal value of silver per standard ounce is 5s. 6d., and the average London market price per ounce during 1916 was 2s. 7-28d., the difference, 2s. 10-72d. representing the seigniorage, or gross profit. After allowance has been made for mint expenses, the profit on the local silver currency accrues to the Commonwealth Government, the net profit on the Australian silver and bronze coinage in 1916, being £329,614 and £10,080 respectively.

The withdrawal of light gold coins is effected through the Sydney Mint at nominal value, provided that they have not been called in by any proclamation or treated illegally, that is impaired or otherwise than by fair wear and tear, or defaced by stamping any device thereon. The Coinage Act of 1891 defines a diminution in standard weight of more than three grains as constituting *prima facie* evidence that a coin has been used illegally.

Light gold coins in parcels of not less than £50 nominal value are received and recoined free of charge, but depositors are required to bear the loss by abrasion. Worn gold coins have been received at the Sydney Mint for recoinage since 1876, and silver coins since 1873. The nominal value of the gold coin withdrawn from circulation during 1915 was £663, and for the whole period since the opening of the Mint £1,084,327. The influence of the War on the currency of the British Empire is evidenced in the fact that no gold coins were withdrawn from circulation during the year 1916.

Worn British silver coin of the value of £8,305 was withdrawn from circulation through the Sydney Mint during 1916, and the aggregate value withdrawn to the end of that year was £455,572. British silver coin, not exceeding a nominal value of £50,000 in any one year, may be withdrawn at Sydney for re-issue in other parts of the British Empire, and replaced by Australian silver coin of equivalent value and denomination, and the total amount of re-issuable silver coin so treated to the end of 1916 was £100,300. The worn British silver coin which has been withdrawn from circulation is melted into ingots, and these are purchased by the Commonwealth Government for the manufacture of Australian silver coinage. No Australian silver coins have yet been withdrawn from circulation.

#### *Mint Receipts and Expenditure.*

The receipts of the Mint are paid into the Consolidated Revenue of New South Wales, and represent charges for coining gold, fees for assays, etc., and profits on the sale of silver. Payment is made for all silver contained in deposits in excess of 8 per cent. of the gross weight at a rate fixed by the Deputy Master. The price paid from the 12th May, 1902, to the 31st July, 1917, was 1s. 6d., and from the 1st August, 1917, 2s. 6d. per oz. fine.

For assaying and coining gold the charge is 1d. per ounce standard, and a charge is made for melting and refining gold insufficiently treated for

direct conversion into coin, the maximum being at the rate of 3d. per oz. gross, and the minimum 1d., with an additional is. per oz. on deposits containing more than 5 per cent. of base metal. The minimum charge on any one deposit is 6s., except in the case of deposits containing more than 5 per cent. of base metal, when the minimum charge is 10s. 6d.

The Mint authorities retain all silver contained in deposits, but if the contents exceed 8 per cent. of the metal, payment is made at a rate from time to time fixed by the Deputy Master, as previously noted.

The cost of maintenance of the Sydney Branch of the Royal Mint is borne by the State Government, £17,000 being set apart annually for that purpose. Special additional votes for construction, repairs, and furniture have also been made. The expenditure from Consolidated Revenue during 1916 amounted to £13,775, and the total receipts from the Royal Mint amounted to £8,738, showing a net loss to the State of £5,037 on the year's transactions.

### PAPER CURRENCY.

#### *Bank Notes.*

Prior to 1910 the control of paper currency was vested in several private banking institutions, which had used their right to issue bank notes. In New South Wales the note currency issued by the banks was subject to a tax, at the rate of 2 per cent. per annum, by which the State benefited to the extent of £33,900 for the year 1910, but this has been replaced by a 10 per cent. Commonwealth tax, with the result of practically forcing the notes of the trading banks out of circulation.

The total liability in notes and bills of banking institutions operating in New South Wales at various periods prior to the issue of Australian notes in 1910, and the large decrease after the imposition of the 10 per cent. tax, is shown in the following table, the figures being given as recorded for the quarter ended the 31st December of each year:—

Year.	Circulation in—		Total.
	Notes.	Bills.	
	£	£	£
1860	949,849	62,505	1,012,354
1870	695,366	50,515	745,881
1880	1,260,772	51,698	1,312,470
1890	1,557,805	127,442	1,685,247
1900	1,447,641	209,905	1,657,546
1910	2,243,128	370,199	2,613,327
1911	400,784	411,792	812,576
1915	91,559	426,597	518,156
1916	84,702	575,248	659,950

The original purpose of the note issue was to obviate the necessity for keeping gold reserves in branch banks, the circulation being confined practically to country districts.

#### *Australian Notes.*

As a consequence of the Australian Notes Act passed in 1910 by the Federal Parliament, the Commonwealth Treasurer was authorized to issue notes, which are legal tender throughout the Commonwealth, and are redeemable in gold at the seat of the Federal Government. These notes are at present issued in the following denominations:—10s., £1, £5, and £10, and any multiple of £10; and against this liability the Treasurer is bound to hold in gold coin a reserve of not less than 25 per cent. against all issues.

The value of the Australian notes issued as at 27th September, 1917, was £46,390,321, and the gold reserve held against this note issue was £14,999,987, representing 32·33 per cent. of the circulation.

Under the Act of 1910 the balance of the reserve, or any part thereof, may be invested on deposit in a bank, or in securities of the United Kingdom, of the Commonwealth, or of a State. Further, as cover for the notes additional to the gold reserve, Treasury bills to the total amount of the notes may be issued by the Treasurer, within or beyond the limits of the Commonwealth.

#### MONEY ORDERS AND POSTAL NOTES.

Exchange by means of money orders and postal notes is conducted by the Post and Telegraph Department of the Commonwealth. Remittances may be forwarded by money order from the principal post offices of New South Wales to other parts of the world, either direct to the place of payment if within the Commonwealth, or through intermediary agencies to places outside Australia. The money-order and postal-note systems are both effective with regard to small remittances within the State; but as public convenience is met by the postal note, the money-order system is confined almost entirely to amounts exceeding £1.

#### Money Orders.

The money-order system was initiated in January, 1863. In that year there were 3 orders issued for every hundred persons in New South Wales, and the total value of the orders was £53,682. During the year ended the 30th June, 1917, the total number of orders issued was 1,012,426, and the total value £4,527,557. Appended is a statement of the business transacted by means of money orders during the year ended 30th June, 1917.

Where Payable.	Issued in New South Wales.		Where Issued.	Paid in New South Wales.	
	No.	Value.		No.	Value.
		£			£
In New South Wales	792,818	3,715,016	In New South Wales	766,280	3,715,122
In Other States ...	87,502	395,795	In Other States ...	99,040	477,774
Beyond the Commonwealth.	132,106	416,746	Beyond the Commonwealth.	63,364	197,048
Total ...	1,012,426	4,527,557	.....	928,684	4,389,944

The following table distinguishes money orders drawn on New South Wales from those drawn on other countries. The value of the orders issued and paid in the State at intervals since 1895 was as follows:—

Year.	Issued in New South Wales.			Paid in New South Wales.		
	Payable in New South Wales.	Payable elsewhere.	Total.	Issued in New South Wales.	Issued elsewhere.	Total.
	£	£	£	£	£	£
1895	985,771	283,429	1,269,200	984,509	262,726	1,247,235
1900	1,182,554	325,413	1,507,967	1,178,713	362,822	1,541,535
1905	1,746,866	329,280	2,076,146	1,757,229	425,400	2,182,629
1910	2,311,711	494,314	2,806,025	2,308,056	571,334	2,879,390
1915-16	4,505,492	777,064	5,282,556	4,522,359	675,141	5,197,500
1916-17	3,715,016	812,541	4,527,557	3,715,122	674,822	4,389,944

A commission is paid to countries to which money is transmitted in proportion to the amount of the orders forwarded, the rate varying from  $\frac{1}{4}$  to 1 per cent., and a similar allowance is made to the State by countries doing a return business. The revenue received during the year 1916-17 in respect of commission on the money orders issued was £27,866.

### Postal Notes.

Postal notes were first issued in New South Wales on the 1st October, 1893. The transactions for subsequent periods were as follow:—

Year.	New South Wales Postal Notes.			Postal Notes of Other Australian States Paid in New South Wales.
	Paid in New South Wales.	Paid in Other Australian States.	Total Value.	
	£	£	£	£
1895	243,188	16,369	259,557	13,362
1900	462,087	26,396	488,483	25,362
1905	637,465	85,703	723,168	87,203
1910	910,136	182,000	1,092,136	129,304
1915-16	1,155,445	266,770	1,422,215	123,057
1916-17	1,125,817	317,296	1,443,113	120,372

The total number of postal notes issued in New South Wales during the year ended the 30th June, 1917, was 4,078,389, of which 3,104,202 were for payment in the State, and 333,674 notes issued in other States were cashed in New South Wales.

The poundage collected on postal-note issues in New South Wales during 1916-17 was £28,127.

### TRADING BANKS.

There are eighteen banking institutions, including the Commonwealth Bank of Australia, which transact ordinary business within the State. Five institutions have their head offices in Sydney, four in Melbourne, two in Brisbane, one in Wellington (N.Z.), four in London, one in Paris, and one in Yokohama. Of the five local banks, four have branches outside the State. Two of the local banks—the Bank of New South Wales and the City Bank of Sydney—carry on business under the provisions of special Acts of Incorporation, and in each case the reserve liability attaching to the shares is equivalent to the amount originally subscribed. The Commercial Banking Company of Sydney and the Australian Bank of Commerce are registered as limited companies under the Companies Act, 1906. The latter was registered in September, 1909, and commenced operations on 1st January, 1910. It was registered and operated formerly as the Australian Joint Stock Bank. The Bank of North Queensland is now known as the Bank of Queensland, the new title having been assumed on the amalgamation of the old bank with the Royal Bank of Queensland. Including branches and head offices and excluding Savings Banks, New South Wales is served by 680 banking establishments.

In addition to 161 branches in Australian States other than New South Wales, and in New Zealand, the Bank of New South Wales has 3 branches in Fiji and 2 in Papua; the Commonwealth Bank has a branch in New Britain; and the Bank of New Zealand has 2 branches in Fiji and 1 in Samoa.

Institutions which transact banking business are required under the Banks and Bank Holidays Act, 1912, to furnish in a prescribed form quarterly

statements of their assets and liabilities, from which returns, and from the periodical balance-sheets issued by the banking companies, the information contained in the following tables has been prepared.

Although the returns furnished comply with the requirements of the law, they are unsuited to modern banking methods, and cannot be accepted as fairly disclosing the stability or otherwise of these institutions. For instance, in the Profit and Loss Accounts of some of the banks, the net profit is shown after deducting the interest on deposits and all other expenses. The details relating to management, such as salaries, directors' fees, printing and stationery, rent and repairs, taxes, depreciation, rebate on bills, and other expenses, are not disclosed. The balance-sheets also are incomplete, as in the liabilities the capital is not divided into the number of shares and into the amount called up, showing the particulars of ordinary and preferential shares separately. With regard to the assets, the value of coin, bullion, and cash balances in some cases is grouped under one item, while the amounts of Government securities, advances to customers, overdrafts, and other sums due to the bank are included under a similar general heading.

The classification, both of assets and of liabilities, required by the schedule to the Acts, is too general to admit of detailed analysis; thus, under the term "deposits not bearing interest," most of the banks are accustomed to return interest accrued and all debts due by them other than deposits at interest, notes, and bills, and no dissection is made in the assets of the various classes of advances.

#### BANKING INSTITUTIONS AND CAPITAL.

The paid-up capital of the banks doing business in New South Wales on the 30th June, 1917, exclusive of the Comptoir National d'Escompte de Paris, the Yokohama Specie Bank, and the Commonwealth Bank of Australasia, was £19,685,604, of which £2,061,743 carried a preferential claim on the profits of the companies.

The following table shows the ordinary and preferential capital of the fifteen banks at the dates given, with the amount of the reserve fund of each institution. The three institutions mentioned in the previous paragraph are excluded in that subjoined.

Bank.	Offices in Australasia (including Head Office.)	Date of Balance-sheet.	Capital Paid Up.			Reserve Fund.
			Ordinary.	Preferential.	Total.	
<b>HEAD OFFICE, SYDNEY.</b>						
Bank of New South Wales .. .. .	No. 338	Mar., 1917	£ 3,894,980	£ ..	£ 3,894,980	£ 2,800,000
Commercial Banking Co. of Sydney .. .. .	208	June, 1917	2,000,000	..	2,000,000	1,940,000
Australian Bank of Commerce .. .. .	89	June, 1917	1,198,679	..	1,198,679	105,000
City Bank of Sydney .. .. .	42	June, 1917	400,000	..	400,000	55,000
<b>HEAD OFFICE, MELBOURNE.</b>						
Commercial Bank of Australia .. .. .	267	June, 1917	1,535,349	..	1,535,349	..
Royal Bank of Australia .. .. .	9	Mar., 1917	800,000	..	800,000	270,000
National Bank of Australasia .. .. .	214	Mar., 1917	1,192,440	305,780	1,498,220	850,000
Colonial Bank of Australasia .. .. .	110	Mar., 1917	135,236	304,044	439,280	280,000
<b>HEAD OFFICE, BRISBANE.</b>						
Queensland National Bank .. .. .	97	June, 1917	480,000	..	480,000	222,000
Bank of Queensland .. .. .	44	July, 1917	450,000	..	450,000	..
<b>HEAD OFFICE, WELLINGTON.</b>						
Bank of New Zealand .. .. .	205	Mar., 1917	1,000,000	1,279,989	2,279,989	2,135,000
<b>HEAD OFFICE, LONDON.</b>						
Bank of Australasia .. .. .	202	Oct., 1916	2,000,000	..	2,000,000	2,840,000
Union Bank of Australia .. .. .	195	Feb., 1917	2,000,000	..	2,000,000	1,980,000
London Bank of Australia .. .. .	88	Dec., 1916	497,740	171,930	669,670	355,000
English, Scottish, and Australian Bank .. .. .	161	June, 1916	539,437	..	539,437	450,000
<b>Total .. .. .</b>	<b>2,269</b>	<b>....</b>	<b>17,623,861</b>	<b>2,061,743</b>	<b>19,685,604</b>	<b>14,082,000</b>

The reserve fund of the foregoing table excludes balances of profit and loss. With respect to the Commercial Bank of Australia, the paid-up capital was £2,213,000, but the net actual capital on the 30th June, 1917, was £1,535,349, the sum of £677,660 having been deducted to meet the estimated deficiency in connection with the Special Assets Trust Company, Limited. The ordinary capital of the London Bank of Australia (£497,740) includes the sum of £6,825 prepaid by the trustees in respect of reserve liability, but £115 had still to be paid on calls made on the shareholders.

The following table shows the amount of the paid-up capital and reserve funds of the fifteen banks referred to above, at intervals since 1895. The paid-up capital represents the amount contributed to each bank operating in New South Wales, irrespective of the countries in which it was subscribed.

Year.	Banks.	Capital Paid up.		Total.	Reserve Funds.
		Ordinary.	Preferential.		
	No.	£	£	£	£
1895	13	14,610,177	5,094,780	19,704,957	4,175,912
1900	13	12,212,129	4,594,940	16,807,069	4,529,109
1905	13	9,870,871	4,095,060	13,965,931	5,474,199
1910	15	13,911,796	2,281,754	16,193,550	8,462,235
1915	15	16,892,013	2,061,743	18,953,756	13,614,142
1916	15	17,623,861	2,061,743	19,685,604	14,082,900

The decrease in the year 1905 was due to the writing down of the capital of the Australian Joint Stock Bank (now the Australian Bank of Commerce), the Commercial Bank of Australia, the Bank of New Zealand, and the London Bank of Australia; while a slight increase occurred in the capital of the Queensland National Bank. During the period 1905-1910, the capital was materially increased by additional calls on shares, together with smaller items, of the Bank of New South Wales, the Commercial Banking Company of Sydney, and the Australian Bank of Commerce. A further augmentation was due to the commencement of operations in the State by the Colonial Bank of Australasia and the Royal Bank of Australia. Against these increases must be placed the estimated deficiency in connection with the Special Assets Trust Company of the Commercial Bank of Australia, hence the net increase during the five years 1905 to 1910 was £2,227,619. The increase from 1910 to 1916 was due to further calls on the shares of the Bank of New South Wales, the Commercial Banking Company of Sydney, the Bank of New Zealand, the Bank of Australasia, the Union Bank of Australia, and the London Bank of Australia.

#### LIABILITIES AND ASSETS OF BANKS.

The aggregate liabilities to the public, in New South Wales and elsewhere, of the fifteen foregoing institutions, together with the Commonwealth Bank, were £280,283,979, against which were assets representing £316,082,610. The following table shows the liability of each institution, its notes in circulation and its deposits being separated from other liabilities. In some

cases small items, which should be classed with "other liabilities," are included with deposits, as they cannot be distinguished in the balance-sheets.

Bank.	Notes in Circulation.	Deposits.	Other Liabilities.	Total.
	£	£	£	£
Bank of New South Wales .. .. .	525,239	40,174,670	9,818,919	50,518,828
Commercial Banking Co. of Sydney .. .. .	12,711	25,557,418	1,462,581	27,032,710
Australian Bank of Commerce .. .. .	604	5,075,978	388,399	5,464,981
City Bank of Sydney .. .. .	5,483	2,165,671	.....	2,171,154
Commonwealth Bank of Australia .. .. .	.....	48,784,349	1,192,521	49,976,870
Colonial Bank of Australasia .. .. .	18,235	4,316,747	297,539	4,632,521
Commercial Bank of Australia .. .. .	61,130	8,085,900	612,764	8,759,794
National Bank of Australasia .. .. .	33,538	11,926,415	1,280,894	13,240,847
Royal Bank of Australia .. .. .	880	2,671,246	622,676	3,294,802
Queensland National Bank .. .. .	.....	10,454,495	484,016	10,938,511
Bank of Queensland .. .. .	.....	2,864,030	206,842	3,070,872
Bank of New Zealand .. .. .	2,560,325	29,052,790	2,007,968	33,621,083
Bank of Australasia .. .. .	404,549	19,672,174	3,075,117	23,151,840
Union Bank of Australia .. .. .	877,405	24,227,108	1,936,814	27,041,327
London Bank of Australia .. .. .	5,874	5,723,550	803,982	6,533,406
English, Scottish, and Australian Bank .. .. .	1,873	10,207,463	625,107	10,834,433
Total .. .. .	£ 4,507,846	250,959,994	24,816,139	280,283,979

The assets in New South Wales and elsewhere of each bank shown in the previous table are stated below. The amount of coin and bullion excludes £6,625,763 held by the Commonwealth Bank of Australia for the Treasurer, and the Australian notes include in some cases those of Fijian and Samoan issue.

Bank.	Coin, Bullion, Cash Balances, etc.	Commonwealth Notes.	Advances.	Other Assets.	Total.
	£	£	£	£	£
Bank of New South Wales .. .. .	11,253,056	2,894,434	20,315,297	16,963,223	57,426,010
Commercial Banking Co. of Sydney .. .. .	7,669,739	.....	14,558,145	8,903,920	31,131,804
Australian Bank of Commerce .. .. .	583,261	295,401	4,421,295	1,498,442	6,798,399
City Bank of Sydney .. .. .	428,020	221,219	1,569,337	418,769	2,637,336
Commonwealth Bank of Australia .. .. .	4,845,025	10,393,979	8,145,600	27,113,558	50,508,162
Colonial Bank of Australasia .. .. .	1,333,468	.....	3,023,027	1,017,814	5,374,309
Commercial Bank of Australia .. .. .	1,995,046	.....	4,990,257	3,360,963	10,346,896
National Bank of Australasia .. .. .	3,571,249	.....	8,885,793	2,998,158	15,455,200
Royal Bank of Australia .. .. .	829,839	.....	1,963,483	1,091,635	3,884,957
Queensland National Bank .. .. .	973,097	1,792,371	6,310,893	1,616,546	11,692,407
Bank of Queensland .. .. .	724,801	215,361	2,109,892	487,270	3,537,324
Bank of New Zealand .. .. .	6,034,542	169,331	15,746,485	16,339,310	38,280,168
Bank of Australasia .. .. .	5,194,097	.....	20,093,067	2,996,740	28,284,504
Union Bank of Australia .. .. .	4,874,968	.....	18,882,776	7,776,716	31,234,460
London Bank of Australia .. .. .	1,495,462	.....	4,510,883	1,595,611	7,601,956
English, Scottish, and Australian Bank .. .. .	2,187,469	.....	7,243,002	2,463,247	11,893,718
Total .. .. .	£ 53,993,739	15,977,026	148,469,332	97,642,443	316,082,610

The difference between the assets and liabilities shown in the foregoing tables amounts to £35,798, 631, and consists of the paid-up capital and reserves (£34,781,777) and the dividends paid (£1,016,854).

In the two tables preceding, relative to the liabilities and assets of the sixteen banks, the transactions of which are under review, it should be noted that thirteen balance-sheets of the institutions enumerated were for half-yearly periods and three were for the period of twelve months, the latter comprising the Bank of New Zealand, the London Bank of Australia, and the English, Scottish, and Australian Bank.

## LOCAL BUSINESS OF BANKS.

In order to institute a comparison between the figures of the various banks, necessary adjustments have been made by excluding from the assets the balances due from branches and agencies outside New South Wales. The following table shows the assets and the liabilities, together with the surplus assets of the banks, at intervals since 1860, the figures representing the average for the quarter ended the 31st December in each year.

Year.	Assets within the State.	Liabilities within the State.	Surplus Assets.
	£	£	£
1860	8,053,463	6,480,642	1,572,821
1870	9,863,071	7,198,680	2,664,391
1880	21,658,317	19,485,862	2,172,455
1890	51,679,795	36,828,633	14,851,162
1900	43,036,427	33,969,731	9,066,696
1905	43,694,137	38,860,062	4,834,075
1910	58,276,278	54,667,088	3,609,190
1915	82,111,359	74,227,052	7,884,307
1916	92,477,264	84,278,180	8,199,084

Coin and bullion together represent only 13·8 per cent. of the average assets of the banks within New South Wales, and advances represent in the aggregate 68 per cent. of the total assets held by the banks against their liabilities.

The tables show a preponderance of deposits among the liabilities, and of advances among the assets, and a clear realisation of the fact that deposits represent nearly 97·3 per cent. of liabilities (exclusive of those to shareholders), while advances comprise 68 per cent. of assets, will exhibit the extent to which the banking business of the State is dependent on these two factors.

The following statement shows the average liabilities within New South Wales, exclusive of those to shareholders, during the quarter ended 31st December in each year. Interest-bearing deposits in 1915 and 1916 include savings banks deposits in the Commonwealth Bank of Australia.

Year.	Notes.	Deposits.			Other Liabilities.	Total Liabilities.
		At Interest.	Without Interest.	Total Deposits.		
	£	£	£	£	£	£
1881	1,390,376	11,869,979	7,719,236	19,589,215	446,535	21,426,126
1885	1,714,095	18,387,705	8,819,979	27,207,684	923,843	29,845,622
1890	1,503,404	25,114,127	9,932,310	35,046,437	278,792	36,828,633
1895	1,223,864	20,406,822	10,222,437	30,629,259	183,929	32,037,052
1900	1,447,641	20,009,081	12,224,510	32,233,591	288,499	33,969,731
1905	1,430,335	22,211,627	14,859,427	37,071,054	358,673	38,860,062
1910	2,243,128	27,824,972	24,068,552	51,893,524	530,436	54,667,088
1915	91,559	35,464,943	36,584,540	72,049,483	2,086,010	74,227,052
1916	84,702	36,542,334	45,418,484	81,960,818	2,232,660	84,278,180

The value of notes in circulation decreased to £400,784 in 1911, and steadily declined during subsequent years, a result due to the issue of the paper currency of the Commonwealth, and the consequent calling in of that issued by trading banks.

The subjoined table shows the average assets within New South Wales, Commonwealth notes being included with "other assets" since the year 1910.

Year.	Coin and Bullion.	Advances.	Landed Property.	Other Assets.	Total.
	£	£	£	£	£
1881	3,674,982	19,038,386	585,224	3,183,395	26,481,987
1885	4,233,109	30,556,628	958,349	2,067,490	37,815,576
1890	5,659,057	41,623,049	1,601,589	2,796,100	51,679,795
1895	7,516,278	35,707,153	1,919,017	479,881	45,622,329
1900	6,126,126	34,385,388	1,874,099	650,814	43,036,427
1905	8,823,260	32,447,659	1,799,231	623,987	43,694,137
1910	13,724,285	40,854,690	1,822,997	1,874,306	58,276,278
1915	12,065,902	54,398,106	2,174,225	13,473,126	82,111,359
1916	12,798,819	62,951,707	2,373,297	14,353,441	92,477,264

#### METALLIC RESERVES OF BANKS.

The proportion of metallic reserves which banking institutions should keep constantly in stock is not fixed by any enactment. Compared with the total liabilities, and with deposits at call and note circulation, the amount of coin and bullion has varied very considerably from year to year. The subjoined figures represent the weekly average amounts during the quarter ended the 31st December in each year. For the years 1860 and 1870 the amount of deposits at call was not ascertainable.

Year.	Coin.	Bullion.	Total.	Proportion of Metallic Reserves—	
				To Total Liabilities.	To Deposits at Call and Note Circulation.
	£	£	£	per cent.	per cent.
1860	1,578,424	90,052	1,668,476	25·7	...
1870	1,291,177	86,744	1,377,921	19·1	...
1880	3,488,554	75,008	3,563,562	18·3	49·5
1890	5,575,058	83,999	5,659,057	15·4	49·5
1900	5,933,076	193,050	6,126,126	18·0	44·8
1910	13,527,019	197,266	13,724,285	25·1	52·2
1915	11,967,582	98,320	12,065,902	16·3	32·9
1916	12,629,973	168,846	12,798,819	15·2	28·1

## ADVANCES BY BANKS.

Under the head of advances are included notes and bills discounted, and all other debts due to the banks. The bulk of the advances are secured by the mortgage of real estate, or by the deposit of deeds over which the lending institutions acquire a lien, but the extent to which trade bills are discounted is not disclosed. The following table supplies a summary of these transactions at various dates from 1860.

Year.	Advances.	Ratio of Advances to Deposits.	Advances per cent. of Total Assets.	Amount of Advances per Inhabitant.
	£	per cent.		£ s. d.
1860	5,780,700	111·9	71·8	16 17 6
1870	7,814,116	127·9	79·2	15 18 11
1880	17,210,205	96·2	79·5	23 12 4
1890	41,623,049	118·8	80·5	37 2 0
1900	34,385,388	101·2	79·9	25 4 0
1910	40,854,690	78·7	70·1	24 18 9
1915	54,398,106	75·5	66·2	29 2 3
1916	62,951,707	76·8	68·1	33 17 8

## DEPOSITS IN BANKS.

The total amount of money deposited with the banks operating in New South Wales during 1916 was approximately £335,179,952, of which sum £81,960,818 was received locally. The following statement shows the average amount of money deposited within the boundaries of the State at various periods commencing with 1860; the distinction between interest-bearing deposits and those at call was first made in 1880.

Year.	Deposits Within New South Wales.			Proportion of Deposits Not Bearing Interest to Total Deposits.	Proportion of Deposits to Liability (to Public).
	Bearing Interest.	Not Bearing Interest.	Total.		
	£	£	£	per cent.	per cent.
1860	.....	.....	5,164,011	...	79·7
1870	.....	.....	6,107,999	...	84·8
1880	11,948,383	5,934,641	17,883,024	33·2	91·8
1890	25,114,127	9,932,310	35,046,437	28·4	95·1
1900	20,009,081	12,224,510	32,233,591	37·9	94·9
1910	27,824,972	24,068,552	51,893,524	46·4	94·9
1915	35,464,943	36,584,540	72,049,483	50·7	93·0
1916	36,542,334	45,418,484	81,960,818	55·4	97·3

The deposits reached their highest level in December, 1916, when there was entrusted to the banks an average total of £81,960,818.

Interest-bearing deposits in the years 1915 and 1916 include those of the savings department in the Commonwealth Bank of Australia.

From the preceding tables it is apparent that deposits in banks have increased very rapidly, while advances, though larger from year to year, have not increased in a similar proportion.

## INTEREST, DISCOUNT, AND EXCHANGE RATES.

The interest on fixed deposits is 2 to 2½ per cent. for sums deposited for six months, for twelve months' deposits the rate is 3½ to 4 per cent., and for two years, 4½ per cent. The rates quoted are low, and the strength of the deposits shows that money equal to requirements is freely subscribed. The following is a statement of the average rates for twelve months' deposits, from 1860:—

Year.	Bank Interest on Deposits for Twelve Months.	Year.	Bank Interest on Deposits for Twelve Months.
	per cent.		per cent.
1860	5	1911	3
1870	5	1912	3 to 3½
1880	5	1913	3½
1890	4½	1914	3½
1900	3	1915	3½ to 4
1910	3	1916	4

Under normal conditions the annual rate of interest paid on fixed deposits is uniform for all banks, and discount and overdraft rates should correlate with the interest rates paid to depositors.

The rates for overdrafts and discounts at intervals from 1890 to 1916 were as follow:—

Year.	Overdraft Rates.	Discount Rates.	
		Bills at 3 months.	Bills over 3 months.
	per cent.	per cent.	per cent.
1890	9	7	8
1895	7 to 8	6 to 6½	7
1900	6 „ 7	5 „ 5½	5½ to 6½
1910	6 „ 7½	5 „ 6	6 „ 7
1915	6 „ 8	5 „ 6	6 „ 7
1916	6 „ 8	5 „ 6	6 „ 7

The bank exchange rate on London, at sixty days' sight, is on the average about 1 per cent., but it is subject to some fluctuation. In May, 1893, it was 3½ per cent., the banks at that date requiring all their available assets. The rates from 1890 to 1916 were:—

Year.	Exchange Rate on London at 60 Days' Sight.	
	Buying.	Selling.
	per cent.	per cent.
1890	99¾ to 100	100¾ to 101¾
1895	99¼ „ 99¾	100¾ „ 100¾
1900	98¾ „ 99½	100¼ „ 100¾
1910	98¾ „ 99	99¾ „ 99¾
1915	98¾ „ 99¼	100¼ „ 100¾
1916	98¾ „ 99½	100¾ „ 100¾

The average rates of exchange for bank bills in 1916 are given herewith. Bills drawn on the States of the Commonwealth and on New Zealand are negotiable at sight.

London ... ..	2s. 6d. to 9s. 2d. per cent. premium.
Victoria ... ..	2s. 6d. to 5s.     "     "     "
Queensland ... ..	5s. to 10s.     "     "     "
South Australia ... ..	2s. 6d. to 5s.     "     "     "
Western Australia ... ..	5s. to 10s.     "     "     "
Tasmania ... ..	2s. 6d. to 5s.     "     "     "
New Zealand ... ..	5s. to 10s.     "     "     "

PROFITS OF BANKS.

The results of the transactions of each bank for the latest period for which information is available are given hereunder. With the exception of the Bank of New Zealand, the London Bank of Australia, and the English, Scottish and Australian Bank, for which the figures relate to yearly operations, the amounts given cover a period of six months. The dates of the balance-sheets have already been given.

Bank.	Balance Brought Forward.	Net Profits for Half-year.	Total.	Half-yearly Dividend.		Amount Transferred to Reserve Fund, etc.	Amount Carried Forward.
				Rate per Cent. per Annum.	Amount.		
	£	£	£		£	£	£
Bank of New South Wales	105,242	279,050	384,292	10	194,464	75,000	114,828
Commercial Banking Company of Sydney	52,758	146,336	199,094	10	100,000	40,000	59,094
Australian Bank of Commerce	8,464	31,275	39,739	3	17,980	10,000	11,759
City Bank of Sydney	3,139	13,043	16,182	4	8,900	8,000	3,182
Commonwealth Bank of Australia	...	226,151	226,151	...	...	226,151	...
Colonial Bank of Australasia	5,484	26,024	31,508	7	15,374	10,000	6,134
Commercial Bank of Australia	7,384	64,370	71,754	4	42,347	20,000	9,407
National Bank of Australasia	13,093	73,039	86,132	7	52,437	20,000	13,695
Royal Bank of Australia	7,991	22,164	30,155	8	12,000	10,000	8,155
Queensland National Bank	...	51,896	51,896	...	41,896	10,000	...
Bank of Queensland	...	16,452	16,452	6	13,500	...	2,952
Bank of New Zealand	56,464	365,490	421,954	4 and 6 Bonus, 3	237,500	72,858	111,596
Bank of Australasia	121,759	200,905	322,664	Div'nd. 14 Bonus, 3	170,000	30,000	122,664
Union Bank of Australia	71,858	161,275	233,133	Div'nd. 10 Bonus, 2	140,000	20,000	73,153
London Bank of Australia	24,791	67,288	92,079	7	46,399	25,000	20,680
English, Scottish, and Australian Bank	33,230	93,810	127,040	8	43,155	50,000	33,885

BANKS' EXCHANGE SETTLEMENT.

The Banks' Exchange Settlement Office, which was established in Sydney on the 18th January, 1894, is not a clearing-house in the accepted meaning of the term, since the exchanges are effected daily at the banks by the staff of each institution. The results of these operations are notified to the Secretary of the Banks' Exchange Settlement, who establishes the daily credit of each bank with the "pool," which is under the control of three trustees, and consists of £750,000 in gold. This money is deposited in the vaults of three of the banks, and may not be circulated or distributed. The contributions to the "pool" are graduated according to the volume of the operations of the individual bank. The secretary notifies each institution daily of the amount of its credit with the "pool," and it is not permissible for any balance to remain below 25 per cent. of the fixed contribution. In the event of it reaching this margin, the bank is required to make up the deficiency with gold. The payment, however, is not made to the "pool," but to such other banks as may happen to have to their credit with the "pool" a larger sum than is required by the agreement. This arrangement retains the "pool" intact.

The growth in the volume of exchanges is shown in the following table.

Year.	Amount of Exchanges.	Year.	Amount of Exchanges.
	£		£
1895	108,509,860	1913	348,741,175
1900	144,080,314	1914	353,068,040
1910	274,343,666	1915	357,803,425
1911	304,488,435	1916	422,371,972
1912	330,621,122		

The transactions of this office have grown steadily since its establishment, and the large annual increases during the last seven years indicate a remarkable activity in trade, and afford an accurate commentary on the growth of the general prosperity of the State.

#### COMMONWEALTH BANK OF AUSTRALIA.

During 1911 the Federal Parliament passed an Act to provide for the establishment of a Government Bank, to be called the Commonwealth Bank of Australia. The Act confers on the Bank authority to carry on general banking business, and other incidental powers relating to acquisition of land, deposits, and advances, discounting and issue of bills and drafts, dealing in exchanges, specie, bullion, etc., and borrowing money. In accordance with the policy of conserving the control of the Australian note issue in the hands of the Federal Treasurer, the Commonwealth Bank cannot issue bank notes, but in every other respect it has the functions of an ordinary bank of issue.

The capital of the bank is fixed at £10,000,000, to be raised by the issue and sale of debentures. The management is entrusted to the governor of the bank, appointed by the Governor-General of Australia for a term of seven years, and a deputy-governor of the institution is similarly appointed. In addition to ordinary banking, a department for the transaction of savings bank business has been established.

The Commonwealth Bank was inaugurated on the 15th July, 1912, by the opening of a postal savings bank department in Victoria. A savings department was established in Queensland on the 16th September, in the Northern Territory on 21st October, and in New South Wales, in South Australia, and in Western Australia on the 13th January, 1913. In Tasmania the State Savings Bank was transferred to the Commonwealth Bank on the 1st January, 1913.

On the 20th January, 1913, operations were commenced with regard to ordinary banking business; and the Commonwealth note currency as at the 30th June, 1917, amounted to £47,201,362, and the amount of gold coin held by the Federal Treasurer at the same date was £15,418,391, approximately 33 per cent. of the note circulation, of which sum £6,625,763 was in the custody of the Commonwealth Bank.

The head office of the Commonwealth Bank is at Sydney, and twenty-six branches have been opened in New South Wales and other States of the Commonwealth. In addition, a branch has been established at Canberra, the Federal Capital, and four branches for the convenience of the soldiers of the Australian Imperial Force have been opened—at Liverpool (N.S.W.), at Rabaul (New Britain), at Londou, and at Tidworth (Salisbury Plain). Savings bank business is conducted at all the branches, and at agencies and post offices throughout the Commonwealth, Papua, and New Zealand.

## SAVINGS BANKS.

Two Savings banks were in operation in New South Wales prior to the 1st May, 1914, namely, the Savings Bank of New South Wales and the Government Savings Bank of New South Wales. On that date those banks were amalgamated under the latter designation.

The Government Savings Bank, established in 1871, was conducted under the control of the Postmaster-General of the Colony until March, 1901, when the postal service was transferred to the Commonwealth Government, and the Savings Bank was placed under the control of the State Colonial Treasurer. Under agreement with the Federal Government, the transaction of 'savings bank business' at post offices was continued until the end of the year 1912, when the State Government formed separate branches, and agencies were provided throughout New South Wales.

A notable change in the administration of the Government Savings Bank was made on the 1st January, 1907, when the bank was detached from the direct control of the Colonial Treasurer, and three commissioners were appointed to conduct the business, which included also the arrangement of loans to landholders, previously administered by the Advances to Settlers Board.

An agreement exists between the various savings banks in Australia for the transfer of the money of depositors, and similar arrangements are in existence with the United Kingdom.

On the 30th June, 1917, there were 132 branches and 507 agencies of the Government Savings Bank open; the number of accounts being 756,917; the balance at credit of depositors, £37,049,189; and the interest paid to depositors during the year, £1,222,901. Nearly one-fourth of the amount held to the credit of depositors represented deposits under £100, deposits between £100 and £500 about six-tenths, and sums over £500 less than one-seventh. The rate of interest paid since the 1st October, 1915, by the State Savings Bank has been 3½ per cent. on sums up to £500 for all accounts, and 3 per cent. on sums over £500 deposited by friendly and kindred societies without limitation.

*Deposits in Savings Banks.*

The following statement shows the particulars of deposits in the savings banks in New South Wales at the end of each year of the decennium ended the 30th June, 1917. The returns of the savings department of the Commonwealth Bank are included in the figures for the last four years.

At 30th June.	Number of Depositors.	Amount of Deposits.		
		Total.	Per Depositor.	Per head of Population.
		£	£ s. d.	£ s. d.
1908	435,618	17,849,384	40 19 6	11 11 3
1909	441,930	19,022,151	42 15 1	12 1 6
1910	478,006	20,823,764	43 11 3	12 18 0
1911	522,251	23,381,014	44 15 4	14 1 5
1912	577,232	26,539,640	45 19 6	15 5 3
1913	647,124	29,568,282	45 13 10	16 6 10
1914	717,737	33,167,523	46 4 3	17 17 2
1915	755,835	35,562,649	47 1 0	19 0 7
1916	806,882	37,363,272	46 6 1	20 2 7
1917	872,351	40,836,747	46 16 3	21 17 4

The following table shows for each State of Australia the number of depositors in savings banks, the total amount standing to their credit, and the average amount per depositor and per head of population as at the 30th June, 1917.

State.	Depositors.	Amount of Deposits in all Savings Banks.	Average Amount.	
			Per Depositor.	Per Inhabitant.
	No.	£	£ s. d.	£ s. d.
<i>New South Wales</i> ...	872,351	40,836,747	46 16 3	21 17 4
Victoria ...	869,058	31,572,165	36 6 7	22 11 2
Queensland ...	281,585	14,360,048	51 0 0	21 19 0
South Australia...	319,960	11,351,343	35 9 5	26 5 9
Western Australia ...	172,084	5,846,109	33 19 0	18 18 7
Tasmania...	91,680	2,695,274	29 7 10	13 9 10
Total ...	2,606,718	106,661,686	40 18 2	21 17 7

In addition to the deposit branch there is an advance department, to provide financial aid to settlers and others. The Advances to Settlers Board had charge of the business relating to loans prior to the 1st January, 1907; but the administration was transferred at that date to the Savings Bank Commissioners. There are three departments controlled by the Commissioners, viz., irrigation, homes, and closer settlement promotion.

According to the published balance-sheet, the various departments have been, on the whole, conducted profitably. The Closer Settlement Branch, at the 30th June, 1917, had liabilities due to the Advances and Savings Bank Departments amounting to £2,138,117, and assets valued at £2,143,626, the difference, £5,509, being reserves and amounts held in trust. The Advances for Homes Account shows a small loss on the transactions of the year, viz., £1,026. The item shown as "Other Liabilities" consists of sundries held in trust, £334, and amount for borrowers' special repayments, £7,243. The loss on the business of the Irrigation Farms Branch was only £145 for the same period, and if the balances brought forward and carried to the next year were to be excluded, a clear gain would be shown on the transactions of the Government enterprise amounting to £81.

The figures relating to the profit and loss accounts and balance-sheets as at the 30th June, 1917, are shown in the following table:—

PROFIT AND LOSS ACCOUNT, 30TH JUNE, 1917.

Department.	Receipts.			Expenditure.			
	Gross Earnings.	Balance Carried Forward.	Total.	Balance Brought Forward.	Interest Paid and Accrued.	Management, Valuation, etc.	Total.
	£	£	£	£	£	£	£
Irrigation Farms ..	1,013	145	1,158	226	844	88	1,158
Advances for Homes	32,302	1,026	33,328	2,701	25,750	4,877	33,328
Closer Settlement ..	84,909	....	84,909	....	82,348	2,561	84,909

BALANCE SHEET, 30TH JUNE, 1917.

Department.	Liabilities.				Assets.			
	Advance Department.	Savings Bank Department.	Other Reserves, Sundry Creditors, etc.).	Total.	Advances Including Interest.	Bank Balance, Sundry Debtors, etc.	Profit and Loss Account.	Total.
	£	£	£	£	£	£	£	£
Irrigation Farms ..	22,311	86	....	21,897	20,159	1,093	145	21,397
Advances for Homes	724,186	1,587	7,577	733,350	731,994	330	1,026	733,350
Closer Settlement ..	2,137,740	377	5,509	2,143,626	2,134,325	9,301	....	2,143,626

The particulars of the total transactions of the Advance Department as at the 30th June, 1917, were as follow:—

	No.	Amount. £
Advances made ... ..	14,927	4,281,697
Advances repaid, including those written off... ..	8,765	1,759,023
Total outstanding ... ..	6,162	2,522,674

#### REGISTRATION OF FIRMS.

The Registration of Firms Act requires that every company or association of individuals carrying on business, or having any place of business in New South Wales, under a firm-name which does not consist of the full or the usual names of all the partners without any addition, and every person carrying on business or having any place of business in New South Wales under any firm-name consisting of, or containing, any name or addition other than the full or the usual name of that person, must register the name under which the business is conducted.

The following return shows the transactions under the Act during the last five years.

Transactions.	1912.	1913.	1914.	1915.	1916.
Statements ... ..	1,601	1,736	1,858	1,779	1,582
Declarations and Powers of Attorney ... ..	12	19	24	29	23
Certified Copies and Certificates ... ..	19	25	37	34	28
Inspections ... ..	3,713	4,332	4,678	4,468	3,745
Inquiries ... ..	13	12	15	17	16
Total Fees ... ..	£ 593	660	712	682	594

#### INCORPORATED COMPANIES.

The legislation relating to incorporated companies in New South Wales is contained principally in the Companies Act, 1899, the amending Acts of 1900, 1906, and 1907, and the Companies (Death Duties) Act, 1901. These enactments follow the general provisions of Imperial Acts relating to companies up to 1877, with deviations embodying the results of local experience. To prepare the way for co-ordination of the law relating to the formation, management, and winding-up of joint stock companies throughout the Empire, and to secure a basis for uniformity, the question of company law was considered at Imperial Conferences held in London in 1907 and 1911, and it was resolved that uniformity should co-exist throughout the Empire in the law relating to companies, copyrights, patents, and trade marks.

Under the Companies Act, 1899, of New South Wales, the liability of members of limited companies may be fixed either by shares, or by guarantee; unlimited companies are those in which no limitation is placed on the liability of members. A special feature of the Act is the embodiment of provisions for the formation and registration of companies in connection with the mining industry under the "No-Liability System," as previously defined in the No-Liability Mining Companies Act, 1896. Societies formed for the mutual benefit and advantage of the members only are registered under the Building and Co-operative Societies Act, 1901. Under the Companies Act, 1899, the formation of a company, association, or partnership of more than ten persons in a banking business, or of twenty in other businesses trading for profit, is prohibited, unless such company, association, or partnership is registered under the Act, or incorporated under some other

enactment, by royal charter, or by letters patent. Special provision is made for associations formed to promote commerce, art, science, religion, charity, or other useful or beneficial objects.

The following particulars relating to companies are recorded for the past five years.

Year.	Limited Companies.			No-Liability Mining Companies.		
	New Companies.	Nominal Capital.	Total Fees received.	New Companies.	Nominal Capital.	Total Fees received.
1912	432	£ 13,896,231	£ 5,898	21	£ 250,575	£ 68
1913	444	12,336,737	5,790	26	568,910	84
1914	354	7,382,472	4,625	15	190,650	59
1915	286	7,074,617	4,153	15	170,450	57
1916	156	4,187,075	3,068	7	125,000	40

Eleven of the limited companies now carry on bank deposit business in addition to their ordinary business. The liabilities, assets, and paid-up capital for the quarter ended June, 1917, were as follows:—

Companies.	Number.	Liabilities (Excluding Shareholders).			Assets.			Paid-up Capital.
		Deposits.	Other Liabilities.	Total.	Landed Property.	Other Assets.	Total.	
Investment .. .. .	9	£ 67,066	£ 150,016	£ 217,082	£ 224,680	£ 736,580	£ 961,269	£ 678,764
Trading .. .. .	2	33,461	3,568,997	3,602,458	548,098	6,752,382	7,300,480	3,350,000
<b>Total .. .. .</b>	<b>11</b>	<b>100,527</b>	<b>3,719,013</b>	<b>3,819,540</b>	<b>772,787</b>	<b>7,488,962</b>	<b>8,261,749</b>	<b>4,028,764</b>

#### CO-OPERATIVE TRADING SOCIETIES.

The working of the co-operative societies during the last five years is given in the following table.

	1912.	1913.	1914.	1915.	1916.
Number of Societies ... ..	42	40	45	46	46
Number of Members ... ..	26,767	30,586	33,854	36,968	38,370
<b>Liabilities—</b>	<b>£</b>	<b>£</b>	<b>£</b>	<b>£</b>	<b>£</b>
Share Capital ... ..	156,534	199,174	231,846	253,185	274,409
Reserves and Net Profits ..	103,891	140,794	153,314	151,492	156,468
Other Liabilities ... ..	130,729	104,797	101,972	119,675	168,254
<b>Total Liabilities</b> .. .. .	<b>£ 391,154</b>	<b>£ 444,765</b>	<b>£ 490,132</b>	<b>£ 524,352</b>	<b>£ 599,131</b>
<b>Assets—</b>					
Freehold, Plant, etc. ... ..	133,387	142,108	155,298	168,217	188,518
Stock ... ..	172,282	188,757	197,090	225,448	281,746
Other Assets ... ..	85,485	113,900	137,744	130,687	128,867
<b>Total Assets</b> ... .. .	<b>£ 391,154</b>	<b>£ 444,765</b>	<b>£ 490,132</b>	<b>£ 524,352</b>	<b>£ 599,131</b>

Considering the small amount of capital invested, the results are very satisfactory, and afford inducement for the further development of these institutions. The majority of existing societies are engaged in the sale of groceries, provisions, boots, and clothing, or in the manufacture and supply of general commodities. Societies established outside the metropolitan and suburban districts are mostly in the mining districts.

During the year 1916 the sales amounted to £1,804,463, and the expenses, including interest and depreciation, to £265,238, equal to 14·7 per cent. on the amount of sales. The balances of profit amounted to £158,894, but in two cases there were losses amounting to £1,142. The profit on sales was at the rate of 8·8 per cent.

### BENEFIT BUILDING AND INVESTMENT SOCIETIES.

Under the existing law any number of persons may form a benefit building and investment society to enable members to erect or purchase dwellings, etc., by loans secured to the society by mortgage until the amount of the shares has been fully paid. These institutions, which may be registered as permanent building societies or Starr-Bowkett societies, are established solely for the benefit of the subscribing members, and their receipts are confined, as a rule, to the subscriptions.

The aggregate liabilities, assets, etc., of permanent building societies for the years 1911-16 are shown in the following return.

	1911.	1912.	1913.	1914.	1915.	1916.
Number of Societies ...	13	13	9	8	8	8
<b>Liabilities—</b>	£	£	£	£	£	£
Deposits ... ..	472,410	504,650	462,294	480,592	504,493	488,051
Share Capital ... ..	246,047	261,544	258,501	274,585	272,958	287,502
Reserves ... ..	87,258	93,714	91,918	103,896	133,986	146,469
Other Liabilities ... ..	26,800	18,775	36,389	47,584	23,915	34,362
Balance of Profit ... ..	38,905	36,111	61,576	53,113	33,390	27,465
<b>Total ... ..</b>	<b>871,420</b>	<b>914,794</b>	<b>910,678</b>	<b>959,770</b>	<b>968,742</b>	<b>983,849</b>
<b>Assets—</b>						
Advances ... ..	760,622	690,732	694,429	741,831	731,227	739,509
Other Assets ... ..	110,798	224,062	216,249	217,939	237,515	244,040
<b>Total ... ..</b>	<b>871,420</b>	<b>914,794</b>	<b>910,678</b>	<b>959,770</b>	<b>968,742</b>	<b>983,849</b>

The income of the eight societies operating in 1916 was £83,113, while the expenditure during the year amounted to £79,459.

Particulars relating to Starr-Bowkett Societies for the years 1911 to 1916 are shown herewith.

	1911.	1912.	1913.	1914.	1915.	1916.
Number of Societies ...	87	94	100	108	109	109
<b>Liabilities—</b>	£	£	£	£	£	£
Members' Subscriptions	493,668	590,975	744,256	855,272	995,749	1,076,112
Other Liabilities ... ..	41,862	35,971	15,529	28,617	36,892	37,210
Balance ... ..	38,715	41,451	63,495	75,996	94,752	115,009
<b>Total ... ..</b>	<b>574,243</b>	<b>668,397</b>	<b>823,280</b>	<b>959,885</b>	<b>1,127,393</b>	<b>1,228,331</b>
<b>Assets—</b>						
Advances ... ..	503,287	608,414	735,018	879,319	1,036,019	1,127,296
Other Assets ... ..	70,956	59,983	88,262	80,566	91,374	101,035
<b>Total ... ..</b>	<b>574,243</b>	<b>668,397</b>	<b>823,280</b>	<b>959,885</b>	<b>1,127,393</b>	<b>1,228,331</b>

## FRIENDLY SOCIETIES.

The particulars relating to the membership, the sickness, and the mortality of Friendly Societies will be found in the chapter of this volume relating to Social Condition. The following pages will, therefore, deal with these societies from a financial standpoint only.

*Receipts and Expenditure.*

The receipts and expenditure of Friendly Societies for the ten years ended the 31st December, 1916, are shown in the following statement.

Year.	Receipts.				Expenditure.					
	Contributions.	Interest.	Other.	Total.	Sick Pay.	Funeral Donations.	Medical Attendance and Medicine	Expenses of Management.	Other.	Total.
	£	£	£	£	£	£	£	£	£	£
1907	336,262	42,706	55,390	434,358	96,240	24,358	110,895	44,390	45,630	321,513
1908	345,313	45,903	44,205	435,421	101,989	29,819	116,888	47,714	50,033	346,442
1909	352,569	50,500	52,552	455,621	105,832	27,151	122,327	49,846	74,472	379,628
1910	372,220	59,312	32,561	464,093	124,789	30,051	128,627	54,184	46,672	384,323
1911	413,027	64,261	38,043	515,331	148,576	38,359	143,040	59,154	45,989	435,118
1912	456,097	69,599	32,493	558,189	166,270	40,828	157,821	66,435	42,654	474,058
1913	489,698	75,038	37,365	602,101	173,451	45,952	170,594	69,226	41,914	501,137
1914	496,961	80,707	34,915	612,583	172,796	44,446	182,308	87,858	39,463	526,371
1915	491,928	87,531	34,597	614,116	177,198	50,131	182,705	88,419	23,767	522,220
1916	508,033	95,193	28,645	631,781	172,497	61,536	178,926	89,630	35,718	538,357

In 1908 rates of contributions were reduced in the majority of societies in consequence of the favourable position disclosed in the first quinquennial valuation, and of the assistance rendered to the societies generally under the Subvention Act.

The total amount disbursed in 1916 on account of benefits amounted to £412,989. The figures afford convincing evidence of the importance of the societies and of their immense value to the community.

The apparent increase in the expenses of management in 1914, 1915, and 1916, is due to the fact that the figures for those years include certain items of expenditure classified previously under the heading "Other."

*Accumulated Funds.*

The following comparative table shows the accumulated assets of all funds at the close of each of the last ten years. The figures for 1916 in the first column include both sickness and funeral funds.

Year.	Sickness Fund.	Funeral Fund.	Medical and Management Fund.	Other Funds.	Total.
	£	£	£	£	£
1907	651,812	425,946	70,894	20,782	1,169,434
1908	693,751	454,310	75,174	35,177	1,258,412
1909	731,315	488,759	71,711	44,045	1,335,830
1910	757,543	539,469	75,048	48,080	1,420,145
1911	783,434	595,288	78,264	49,852	1,506,838
1912	803,046	655,456	82,538	51,715	1,597,755
1913	839,689	719,413	87,446	52,171	1,698,719
1914	876,121	765,583	88,256	54,971	1,784,931
1915	908,655	826,203	89,421	52,548	1,876,827
1916	1,820,708	...	101,042	48,471	1,970,271

According to the last quinquennial valuation, dated the 31st December, 1914, the total funds of the Friendly Societies amounted to £1,784,931, and were invested as follow:—

Mode of Investment.	Sickness Fund.	Funeral Fund.	Medical and Management Fund.	Other Funds.	Total Funds.	
					Amount.	Per Cent.
	£	£	£	£	£	
Mortgage ... ..	697,173	555,356	14,241	26,517	1,293,287	72·5
Public Funds ... ..	2,806	3,631	645	.....	7,082	0·4
Banks bearing Interest	79,746	68,746	36,077	14,857	199,426	11·2
Buildings and Freehold Property.	78,249	91,544	28,096	2,460	200,349	11·2
Other Investments ...	4,096	1,625	4,222	3,512	13,553	0·7
Uninvested ... ..	25,936	22,552	17,540	7,581	73,542	4·1
In use by other Funds...	7,393	22,503	2,702	923	33,490	1·9
Total ... ..	895,399	765,957	103,523	55,850	1,820,729	102·0
Overdraft ... ..	19,278	374	15,267	879	35,798	2·0
Total Funds ...	876,121	765,583	88,256	54,971	1,784,931	100·0

Stating these figures as a total of all funds it is found that long-dated or permanent investments, comprising mortgages, buildings, freeholds, etc., form 84·4 per cent. of the total—short-call investments, *i.e.*, money in savings banks, other banks, and public funds, form 11·6 per cent., while cash represents 4·1 per cent. Overdrafts in the year under review represented 2 per cent., but the greater portion of these were provided from other funds, and the actual overdraft obtained from outside sources represented only 0·1 per cent. of the total assets.

To state the case more concisely, ready money equal to 4 per cent. of the assets is sufficient to carry on business, with an additional 11 per cent. available for easy realisation, and for the remainder more permanent investment is sought.

The adoption of the principle of consolidation of funds by vesting the control in central executive bodies has reduced the amount necessary to be kept at hand by branches, as the executive bodies make advances to meet any special contingencies that may arise. Thus the amount at short call has fallen from 35·5 per cent. in 1907 to 11·6 per cent. in 1914; and conversely the investments on mortgage have risen from 42·8 per cent. to 72·5 per cent. in the same period.

For the quinquennium 1910-14 the average interest earned by all societies in the sickness funds was 4·7 per cent., and in the funeral funds 4·6 per cent., the rates for the previous quinquennium being 3·9 per cent. and 4·2 per cent. respectively.

#### EXPECTATION OF LIFE.

##### *Friendly Societies' Experience.*

The following table shows the average expectation of life in years as deduced from the experience of the Friendly Societies in New South Wales in comparison with that of the experience of Friendly Societies in

other States of the Commonwealth, the Australian Mutual Provident Life Assurance Society, and the Manchester Unity Friendly Society of England.

Age.	N.S.W. Friendly Societies, 1900-8.	Victorian Friendly Societies, 1903-7.	South Australian Friendly Societies, 1895-1904.	Manchester Unity Friendly Society, England, 1893-97.	Australian Mutual Provident Society, 1849-1903.
18	48·68	48·45	47·89	47·11	49·12
23	44·37	44·15	43·84	42·73	44·81
28	40·02	39·85	39·71	38·57	40·56
33	35·70	35·57	35·69	34·49	36·36
38	31·48	31·27	31·65	30·44	32·26
43	27·34	27·03	27·65	26·54	28·25
48	23·30	22·96	23·75	22·74	24·32
53	19·43	19·09	19·98	19·11	20·55
58	15·92	15·50	16·48	15·72	16·92
63	12·76	12·43	13·30	12·60	13·63
68	9·87	9·70	10·36	9·91	10·78
73	7·43	7·51	7·75	7·55	8·37
78	5·49	5·71	5·38	5·72 <sup>a</sup>	6·11
83	3·97	4·37	3·73	4·45	4·24
88	2·81	3·30	2·72	3·62	2·82
93	1·95	2·37	1·46	2·69	1·53
98	1·39	1·27	...	1·34	...

#### LIFE AND GENERAL ASSURANCE.

The Life, Fire, and Marine Insurance Act of 1902 consolidated previous Acts relating to insurance. The section relating to marine insurance was superseded by the Commonwealth Marine Insurance Act of 1909, and the amount of assurance payable on the death of children was limited by a Commonwealth Act passed in 1905.

Particulars relating to life assurance institutions are obtained from the reports published by the companies and from official returns. During 1917 there were twenty institutions operating in the State. Of these, ten were local, five had their head offices in Victoria, one in New Zealand, one in the United Kingdom, and three in the United States of America. As the operations of the American companies are confined to the collection of renewal premiums and a small amount of new business, the figures relating thereto have been excluded from the following tables, unless where otherwise specified. Several companies, uniting life with other classes of insurance, have local branches or agencies, but their transactions in life risks in this State are unimportant.

*Ordinary Branch—Total Business.*

The following table shows the total business in force in the ordinary branch in detail, for each society, exclusive of the American companies, for the year 1916. All the institutions do not close their transactions on the same date, and the figures relate to business existing at various periods between 30th September, 1916, and 30th June, 1917. The total number of companies in business, including the American, was 20, and of these 11 furnished particulars to 31st December, 1916, 3 to 30th September, 1916, and the others to various dates between 31st December, 1916, and 30th June, 1917.

In the table only the Australasian business of the Liverpool and London and Globe Insurance Company is given, and the bonus additions of this institution are not available. The figures for the Australian Amicable Life Company, in this and in succeeding tables, are for November, 1915, its business being now amalgamated with that of the Co-operative Company.

Institution.	Policies in Force, Exclusive of Annuities.	Amount Assured, Exclusive of Bonuses and Re-assurances.	Bonus Additions.	Total.	Annual Premium Income.
<i>Head Office in New South Wales.</i>					
	No.	£	£	£	£
Australian Mutual Provident .. ..	317,503	90,336,005	18,256,176	108,592,181	2,948,066
Mutual Life and Citizens' .. ..	119,300	22,611,400	2,603,009	25,214,409	757,237
City Mutual .. ..	25,898	4,160,598	282,823	4,443,421	174,904
Australian Provincial .. ..	5,149	918,161	1,265	919,426	39,229
Australian Metropolitan .. ..	3,918	412,952	14,292	427,244	17,962
People's Prudential .. ..	4,401	304,125	9,210	313,335	15,881
Assurance and Thrift .. ..	1,262	237,137	2,431	239,568	11,526
Co-operative .. ..	566	126,395	....	126,395	5,608
Australian Amicable .. ..	51	16,175	....	16,175	738
<i>Head Office in Victoria.</i>					
National Mutual .. ..	122,811	31,811,649	3,628,189	35,439,838	1,154,271
Colonial Mutual .. ..	59,876	13,383,695	680,278	14,063,973	496,100
Australasian Temperance and General..	53,596	5,760,617	262,829	6,023,446	227,113
Life Insurance of Australia .. ..	2,937	530,523	....	530,523	23,658
Australian Alliance .. ..	282	97,072	11,164	108,236	2,137
<i>Head Office in New Zealand.</i>					
Provident Life .. ..	3,423	474,104	4,255	478,359	15,102
<i>Head Office in United Kingdom.</i>					
Liverpool and London and Globe ..	302	120,941	....	120,941	3,640
Total .. ..	721,275	171,301,549	25,755,921	197,057,470	5,893,172

*Ordinary Branch—New South Wales Business.*

The business in force for the year 1916-17 in New South Wales only, under headings similar to those of the preceding table, is given herewith. The American companies have been included, in order to show the total assurances for the State.

Institution.	Policies in Force, Exclusive of Annuities.	Amount Assured, Exclusive of Bonuses and Reassurances.	Bonus Additions.	Total.	Annual Premium Income.
	No.	£	£	£	£
Australian Mutual Provident.	87,344	25,673,477	5,315,228	30,988,705	829,093
Mutual Life and Citizens'.	33,332	6,660,391	754,262	7,414,653	222,156
National Mutual ... ..	18,252	4,590,408	...	4,590,408	167,674
Colonial Mutual ... ..	10,738	1,927,671	74,485	2,002,156	72,379
City Mutual ... ..	9,075	1,515,850	...	1,515,850	63,700
Australasian Temperance and General.	11,584	1,244,750	51,917	1,296,667	48,638
Australian Provincial ..	2,524	426,946	316	427,262	17,796
People's Prudential ...	4,401	304,125	9,210	313,335	15,881
Assurance and Thrift ...	1,106	211,889	2,431	214,320	9,887
Life Insurance of Australia	997	200,510	...	200,510	8,569
Australian Metropolitan...	1,846	196,616	6,475	203,091	8,384
Co-operative ... ..	438	84,388	...	84,388	3,850
Liverpool and London and Globe.	141	52,261	...	52,261	1,807
Provident Life ... ..	335	34,650	247	34,897	1,313
Australian Amicable ...	51	16,175	...	16,175	738
Australian Alliance ...	Nil.	Nil.	Nil.	Nil.	Nil.
New York ... ..	2,207	1,016,030	...	1,016,030	36,718
Mutual of New York ..	1,891	837,718	63,939	901,657	21,655
Equitable of the United States.	1,252	466,478	7,476	473,954	20,073
<b>Total ... ..</b>	<b>187,514</b>	<b>45,460,333</b>	<b>6,285,986</b>	<b>51,746,319</b>	<b>1,550,311</b>

Amounts of bonus additions were not available for insertion in the column so designated in the foregoing table in the case of the City Mutual, the National Mutual, and the Liverpool and London and Globe Companies; the amount of annual premium income shown for the City Mutual Life Assurance Society is approximate; and the Australian Amicable Life Company's returns are to November, 1915, after which date it became amalgamated with the Co-operative Assurance Company.

*Industrial Branch—Total Business.*

In addition to the ordinary transactions in life assurance, a large industrial business has grown up during recent years. The policies in this class are usually for small amounts, and the premiums in most cases are payable weekly or monthly. Assurances may be effected on the lives of infants and adults, and the introduction of this class of business has proved of great benefit to the industrial population.

Nine of the Australasian companies combine industrial with ordinary business, while one limits its operations to industrial and medical benefit transactions. The total industrial business of the ten companies cited, in force in Australasia, during the year 1916 is shown in the following table.

Institution.	Policies in Force, Exclusive of Annuities.	Amount Assured, Exclusive of Bonuses.	Bonus Additions.	Total.	Annual Premium Income.
	No.	£	£	£	£
Australian Mutual Provident .. .. .	150,796	5,524,393	25,373	5,552,766	335,148
Mutual Life and Citizens' .. .. .	275,957	5,209,014	..	5,209,014	291,873
Australasian Temperance and General .. .. .	209,591	4,710,062	50,612	4,760,674	373,043
Colonial Mutual .. .. .	74,540	1,801,023	..	1,801,023	123,909
Provident Life .. .. .	35,515	954,722	..	954,722	54,450
Australian Metropolitan .. .. .	30,085	797,374	982	798,356	46,744
People's Prudential .. .. .	5,546	120,150	..	120,150	8,438
Life Insurance of Australia .. .. .	3,456	85,961	..	85,961	5,550
Co-operative .. .. .	3,503	93,257	..	93,257	6,334
Phoenix Mutual Provident .. .. .	149	3,411	..	3,411	230
Total .. .. .	789,143	19,293,367	79,967	19,379,334	1,215,119

*Industrial Branch—New South Wales Business.*

The following table shows the industrial business in force in New South Wales during the 1916.

Institution.	Policies in Force, Exclusive of Annuities.	Amount Assured, Exclusive of Bonuses.	Bonus Additions	Total.	Annual Premium Income.
	No.	£	£	£	£
Australian Mutual Provident Society .. .. .	48,737	1,719,312	..	1,719,312	108,730
Mutual Life and Citizens .. .. .	85,136	1,625,425	..	1,625,425	94,004
Australasian Temperance and General Mutual .. .. .	39,031	860,999	..	860,999	67,948
Colonial Mutual .. .. .	23,055	515,860	..	515,860	35,954
Australian Metropolitan .. .. .	17,530	472,059	496	472,555	26,379
Provident Life .. .. .	6,278	172,512	..	172,512	8,914
People's Prudential .. .. .	5,546	120,150	..	120,150	8,438
Co-operative Assurance .. .. .	3,508	93,257	..	93,257	6,334
Life Insurance of Australia .. .. .	755	16,834	..	16,834	1,195
Phoenix Mutual Provident .. .. .	149	3,411	..	3,411	230
Total .. .. .	229,728	5,509,819	493	5,600,315	358,126

There is only one entry in the column assigned to bonus additions in the foregoing table, because in some instances particulars under this heading are not available, and in others bonus additions are not included in company business. The returns relating to the People's Prudential and the Phoenix Mutual Provident Companies in this and succeeding tables are exclusive of medical insurances.

*Summary—Ordinary and Industrial Business.*

A summary of the ordinary and industrial local business in comparison with the total business of the institutions operating in the State, exclusive of the American companies, is shown in the following table.

Branch.	Total Business.			Local Business.		
	Policies.	Amount Assured (Excluding Bonuses).	Annual Premium Income.	Policies.	Amount Assured. (Excluding Bonuses).	Annual Premium Income.
Ordinary	No. 721,275	£ 171,301,549	£ 5,893,172	No. 187,514	£ 45,460,333	£ 1,550,311
Industrial	789,143	19,299,367	1,245,119	229,728	5,599,819	358,126
Total	1,510,418	190,600,916	7,138,291	417,242	51,060,152	1,908,437

In the ordinary branch the policies in force in New South Wales represent about 26 per cent., and the amount assured 26·5 per cent. of the total business. In the industrial branch the proportions in New South Wales are—Policies, 29·1 per cent.; amount assured, 29 per cent.

*Local Business.*

The next statement shows the ordinary and industrial business in force in New South Wales in each of the last ten years.

Year.	Ordinary Branch.			Industrial Branch.		
	Policies.	Amount Assured.	Annual Premium Income.	Policies.	Amount Assured.	Annual Premium Income
	No.	£	£	No.	£	£
1907	130,296	31,592,379	1,038,828	116,795	2,631,476	146,356
1908	137,852	32,993,481	1,080,236	125,476	2,881,417	155,260
1909	147,632	34,446,756	1,166,697	129,180	2,782,868	160,348
1910	155,531	35,972,590	1,164,948	143,209	3,123,666	184,607
1911	159,928	37,591,311	1,212,409	156,194	3,411,133	205,886
1912	167,399	39,652,665	1,274,797	173,941	3,918,060	238,800
1913	173,834	41,432,591	1,382,162	191,333	4,413,289	273,997
1914	178,483	42,692,910	1,432,261	202,439	4,712,117	296,597
1915	181,671	43,520,335	1,465,347	211,881	5,000,021	318,306
1916	187,514	45,460,333	1,550,311	229,723	5,599,819	358,126

A feature of this table is the large increase in industrial insurance; since 1907 the increase in the number of these policies amounted to 96·7 per cent., and in the amount assured to 112·8 per cent.

The number of ordinary and industrial policies per 1,000 of the population for 1916 was 224, as compared with 161 in 1907, and the total sum assured rose from £22 6s. 9d. to £27 9s. 8d. per head of the population, as will be seen from the figures shown hereunder.

Year.	Policies per 1,000 of Population.	Amount Assured per Head of Population.	Year.	Policies per 1,000 of Population.	Amount Assured per Head of Population.
	No.	£ s. d.		No.	£ s. d.
1907	161	22 6 9	1912	192	24 9 10
1908	169	22 19 11	1913	199	25 0 5
1909	173	23 6 4	1914	204	25 8 2
1910	182	23 17 4	1915	210	25 18 10
1911	186	24 2 9	1916	224	27 9 8

*New Assurance Business in New South Wales.*

The new business, ordinary and industrial, effected in New South Wales during the last two years is compared in the following table, in which the Australian Alliance, the Equitable of the United States, and the Liverpool and London and Globe Companies are not represented.

*Ordinary Branch.*

Institution.	1915.			1916.		
	Policies.	Amount Assured.	Annual Pre-miums.	Policies.	Amount Assured.	Annual Pre-miums.
	No.	£	£	No.	£	£
Australian Mutual Provident.. .. .	5,296	1,700,950	62,370	4,981	1,742,186	72,503
Mutual Life and Citizens' .. .. .	1,743	370,770	12,877	1,403	439,485	16,355
National Mutual .. .. .	1,299	557,998	22,989	1,043	366,132	14,564
Colonial Mutual.. .. .	1,359	267,442	10,453	1,720	344,602	13,556
City Mutual .. .. .	947	204,339	9,695	1,003	288,250	11,682
Australasian Temperance and General .	2,255	237,506	9,489	2,227	278,539	11,402
Australian Provincial .. .. .	1,216	166,925	6,975	1,428	243,175	9,847
New York .. .. .	92	76,800	2,956	100	114,904	3,309
Life Assurance of Australia .. .. .	..	..	..	432	88,785	3,623
People's Prudential .. .. .	928	74,212	3,955	1,196	73,400	3,843
Assurance and Thrift .. .. .	337	60,470	2,720	325	57,239	2,634
Australian Metropolitan .. .. .	279	32,116	1,280	328	33,591	1,337
Co-operative .. .. .	89	16,050	730	89	16,050	720
Mutual of New York .. .. .	1	500	28	9	7,145	461
Provident Life .. .. .	120	14,025	493	88	7,440	305
Australian Amicable .. .. .	15	4,200	44	15	4,200	44
Total .. .. .	15,976	3,784,103	147,554	16,387	4,105,123	166,345

*Industrial Branch.*

Institution.	1915.			1916.		
	Policies.	Amount Assured.	Annual Pre-miums.	Policies.	Amount Assured.	Annual Pre-miums.
	No.	£	£	No.	£	£
Australasian Temperance and General .. .. .	12,607	310,446	26,576	13,816	348,615	31,304
Australian Mutual Provident .. .. .	6,940	258,785	16,793	8,318	369,424	20,589
Colonial Mutual.. .. .	5,446	115,188	9,859	6,356	154,753	12,506
Mutual Life and Citizens' .. .. .	6,541	166,460	10,814	7,046	183,719	12,072
Australian Metropolitan .. .. .	5,955	209,045	10,452	6,332	209,682	10,573
People's Prudential .. .. .	3,629	90,110	6,360	4,298	113,435	7,829
Provident Life .. .. .	2,440	60,235	3,203	2,800	82,156	4,779
Co-operative Assurance .. .. .	1,527	46,774	2,766	1,527	46,777	2,766
Life Insurance of Australia .. .. .	..	..	..	81	1,757	125
Phoenix Mutual Provident .. .. .	103	1,640	136	75	1,200	125
Total .. .. .	45,188	1,258,683	86,959	50,649	1,516,515	102,608

The following statement exhibits a comparison of the new business in New South Wales during the last five years.

Year.	Ordinary Branch.			Industrial Branch.		
	Number of Policies.	Amount Assured.	Annual Premiums.	Number of Policies.	Amount Assured.	Annual Premiums.
1912	19,500	£ 4,300,576	£ 148,908	53,820	£ 1,476,965	£ 96,693
1913	19,847	4,414,664	156,078	55,334	1,506,470	102,016
1914	17,217	3,914,935	142,792	48,267	1,332,966	91,427
1915	15,976	3,784,103	147,554	45,188	1,258,683	86,959
1916	16,387	4,105,123	166,345	50,649	1,516,515	102,668

The decrease during the three years 1914-16 is due to the War, as the number of males who would be likely to insure was greatly depleted owing to enlistments, and the companies confined their operations chiefly to lives which would not be liable to war risks. However, the average insurance per policy and annual premium per £100 have been well maintained. Thus, in 1913, for the ordinary branch the average policy was £222, and the annual premium per £100 averaged £3 10s. 8d.; in 1915 the corresponding figures were £237 and £3 18s., and in 1916 £250 10s. 2d. and £4 1s. 1d. In the industrial department the average amount per policy was the same for the first and the second period, viz., slightly over £27, and the average weekly premium ranged from 2s. 7d. to 2s. 8d. per £100; while for 1916 the average amount per policy was £29 18s. 10d., and the average weekly premium 2s. 7d.

#### *Receipts and Expenditure—Australasian Societies.*

The receipts of the societies are represented chiefly by the collections from premiums on policies and by interest arising from investments. Payments on account of death claims, policies matured and surrendered, cash bonuses, and the expenses of management constitute the bulk of the disbursements, the excess of receipts over expenditure representing the additions to the funds.

The general direction of the total business of the Australasian societies is shown in the following table, which includes both ordinary and industrial departments.

Year.	Societies.	Policies in Force.	Receipts.	Expenditure.	Addition to Funds.
	No.	No.	£	£	£
1895	10	268,242	3,392,423	2,334,481	1,057,942
1900	11	331,868	4,093,376	2,648,303	1,445,073
1905	14	756,585	5,437,589	3,834,272	1,603,317
1910	11	1,056,173	7,131,250	4,619,440	2,511,810
1911	11	1,138,955	7,650,230	4,875,974	2,774,256
1912	14	1,228,104	8,152,393	5,214,022	2,938,371
1913	14	1,312,696	8,572,977	5,358,192	3,214,785
1914	15	1,375,063	9,069,150	5,757,737	3,311,393
1915	15	1,424,548	9,474,126	6,084,562	3,389,564
1916	16	1,510,418	10,185,839	6,614,124	3,571,715

The following table shows the aggregate receipts and disbursements of the Australasian institutions for 1916 for both classes of business, though in the case of two companies (the Co-operative and the People's Prudential), which did not keep the accounts of each department separately, the figures relating to the industrial have been included with those of the ordinary branch.

	Ordinary Branch.	Industrial Branch.	Total.
<b>Receipts—</b>			
<b>Premiums—</b>	£	£	£
New ... ..	645,895	4,394	650,289
Renewal ... ..	5,189,257	1,163,929	6,353,186
Consideration for Annuities... ..	48,122	3,377	51,499
Interest ... ..	2,848,549	163,037	3,011,586
Other (Rents, etc.) ... ..	109,029	10,250	119,279
<b>Total Receipts ... ..</b>	<b>8,840,852</b>	<b>1,344,987</b>	<b>10,185,839</b>
<b>Expenditure—</b>			
Claims ... ..	3,988,021	202,566	4,190,587
Surrenders ... ..	584,028	25,053	609,081
Annuities ... ..	120,157	257	120,414
Cash Bonuses and Dividends ... ..	173,011	58,364	231,375
Expenses ... ..	936,323	470,768	1,407,091
Amount written off to Depreciation, Reserves, etc. ... ..	54,071	1,505	55,576
<b>Total Expenditure ... ..</b>	<b>5,855,611</b>	<b>758,513</b>	<b>6,614,124</b>

The following table shows the revenue and expenditure of the New South Wales business for the year 1916. The particulars relating to the ordinary and industrial departments are separated (with the exceptions mentioned above), and the transactions of the American companies have been included in order to give the total for the State.

	Ordinary Branch.	Industrial Branch.	Total.
<b>Receipts—</b>			
<b>Premiums—</b>	£	£	£
New ... ..	161,988	2,880	164,868
Renewal ... ..	1,368,163	342,580	1,710,743
Consideration for Annuities... ..	15,627	3,377	19,004
Interest ... ..	1,007,472	69,929	1,077,401
Other (Rents, etc.) ... ..	67,441	3,914	71,355
<b>Total Receipts ... ..</b>	<b>2,620,691</b>	<b>422,680</b>	<b>3,043,371</b>
<b>Expenditure—</b>			
Claims ... ..	1,057,989	66,119	1,124,108
Surrenders ... ..	161,074	5,353	166,427
Annuities ... ..	30,591	258	30,849
Cash Bonuses and Dividends ... ..	93,018	18,527	111,545
Expenses ... ..	266,472	136,848	403,320
Amount written off to Depreciation, Reserves, etc. ... ..	12,810	799	13,609
<b>Total Expenditure ... ..</b>	<b>1,621,954</b>	<b>227,934</b>	<b>1,849,888</b>

*Accumulated Funds—Australasian Societies.*

The annual additions to the funds have shown a considerable increase, as will be seen from the following table, which shows the yearly increment, total amounts, and interest thereon, with the average rate realised on investments. The figures relate to the total business, and include both ordinary and industrial branches.

Year.	Accumulated Funds. Including Paid-up Capital.		Interest.	
	Additions During the Year.	Total Amount at end of Year.	Amount Received.	Average Rate Realised on Mean Funds.
	£	£	£	per cent.
1890	1,404,215	14,580,210	827,909	5·97
1895	1,057,942	20,438,224	1,037,477	5·21
1900	1,445,073	26,491,025	1,161,696	4·51
1905	1,603,317	34,915,842	1,527,690	4·48
1910	2,511,810	45,668,204	1,963,425	4·42
1915	3,389,564	61,572,309	2,762,577	4·62
1916	3,571,715	65,165,116	3,011,586	4·75

The increase in earning power has been gradual since the year 1910, but the most recent rate is lower than that of 1895. Since 1900 it has been fairly constant at about 4½ per cent., though in 1915 it rose to 4·62 per cent., and in 1916 to 4·75. A comparison with the bank rate of interest on fixed deposits, given on a previous page, shows that diminished rates were general until the year 1912, when a slight increase took place, and continued during following years, and the interest earned by the insurance companies has held a correlation to the general tendency.

*Invested Funds and Interest.*

In the next statement, the principal details of the total business of each company during the year 1916 are shown, the information regarding industrial business being distinguished as far as possible.

Institution.	Funds.		Interest.		Expenses of Management.		
	Additions During Year.	Total at End of Year.	Amount Received.	Average Rate on Mean Fund.	Amount.	Proportion to—	
						Pre- mium Receipts	Gross Re- ceipts.
<b>ORDINARY BRANCH.</b>							
Assurance and Thrift ...	£ 6,234	£ 44,799	£ 2,230	per cent. 5·03	£ 5,093	per cent. 50·91	per cent. 39·11
Australasian Temperance and General.	284,521	2,259,581	84,481	3·99	39,246	16·65	13·13
Australian Amicable* ...	292	34,554	.....	...	446	53·22	53·22
Australian Metropolitan ...	19,835	140,774	3,053	2·33	5,043	28·73	24·42
Australian Mutual Provident.	1,602,115	36,476,947	1,731,833	4·86	400,430	13·63	8·64
Australian Provincial ...	8,987	84,332	1,184	1·48	31,887	73·61	71·65
City Mutual ...	106,008	961,543	51,068	5·62	37,557	22·43	14·70
Colonial Mutual ...	214,205	4,171,984	165,539	4·72	107,673	23·13	16·35
Co-operative† ...	1,416	58,052	1,297	2·26	8,993	81·25	72·70
Life of Australia ...	8,547	44,000	932	1·97	12,018	54·79	52·98
Mutual Life and Citizens* ...	558,183	10,446,412	500,313	4·92	91,159	11·76	7·59
National Mutual ...	729,843	10,204,297	456,824	4·64	166,835	14·12	10·03
Provident Life ...	...	(See Industrial Branch.)	...	...	2,780	18·34	15·95
Total ...	3,540,186	64,927,275	3,001,754	4·62	909,160	15·45	10·28

\* Figures for 1915 : now amalgamated with Co-operative. † Includes Industrial Branch.

Institution.	Funds.		Interest.		Expenses of Management.		
	Additions During Year.	Total at End of Year.	Amount Received.	Average Rate on Mean Fund.	Amount.	Proportion to—	
						Premium Receipts.	Gross Receipts.
<b>INDUSTRIAL BRANCH.</b>							
Australasian Temperance and General.					129,469	39·17	35·29
Australian Metropolitan ...					23,625	55·61	53·52
Australian Mutual Provident.					104,006	33·10	28·72
Colonial Mutual ...					51,334	43·77	42·23
Life of Australia ...					5,210	100·93	97·40
Mutual Life and Citizens' ...					99,757	35·39	27·95
People's Prudential*	6,646	68,094	3,016	4·66	11,169	42·51	38·13
Phoenix Mutual Provident.	183	1,436	29	2·16	2,078	71·83	71·11
Provident Life ...	*24,700	*168,311	*6,787	*4·35	28,280	55·38	50·59
Total ...	31,529	237,841	9,832	4·13	454,898	38·82	33·82

\* Includes Ordinary Branch.

*Expenses of Management—Australasian Societies.*

The expenses of management in 1916 represent in the aggregate 10·28 per cent. of the total receipts, or 15·45 per cent. of the premium income. The ratio between management expenses and premium income must necessarily vary with the volume of new business transacted and the age of the society, quite apart from the intensity of competition for new business. The following figures show the cost of management, including commission, and the proportion of premium income and gross receipts, ordinary and industrial departments being included.

Year.	Management Expenses.	Premium Income.	Gross Receipts.	Management Expenses.	
				Per cent. of—	
				Premium Income	Gross Receipts.
	£	£	£		
1895	438,524	2,380,167	3,392,423	18·42	12·93
1900	565,380	2,799,512	4,093,376	20·19	13·81
1905	858,741	3,500,448	5,437,589	24·53	15·79
1910	1,016,153	5,074,204	7,131,250	20·03	14·25
1915	1,252,438	6,591,572	9,474,126	19·60	13·22
1916	1,364,058	7,138,291	10,185,839	19·11	13·39

The management expenses of the ordinary and industrial branches can be stated separately for the three years 1914 to 1916, and the proportions are shown in the following table.

Year.	Ordinary Branch.		Industrial Branch.	
	Proportion of Management Expenses to—			
	Premium Income.	Total Receipts.	Premium Income.	Total Receipts.
	per cent.	per cent.	per cent.	per cent.
1914	16·35	11·09	41·85	37·30
1915	15·39	10·32	38·86	34·12
1916	15·45	10·28	38·82	33·82

The expenses of the industrial branch are necessarily very high in proportion to the receipts, on account of the house-to-house method of collection, which is an essential feature of the system.

*Liabilities and Assets—Australasian Societies.*

The following table gives a summary of the liabilities and assets of the Australasian societies for the year 1916.

Liabilities.		Assets.	
Assurance Funds—	£	Loans—	£
Participating in Profits ...	62,408,926	On Mortgage ...	25,146,196
Non-participating in Profits ...	912,629	„ Municipal and Other	
Claims Investment Fund ...	14,027	Local Rates ...	10,587,489
Other Assurance Funds ...	1,061,453	„ Reversionary, Life, and	
		Other Interests ...	561,911
Total ...	64,397,035	„ Policies ...	8,172,768
		„ Personal Security ...	15,477
		„ Government Securities..	27,810
		„ Other Debentures and	
		Bonds ...	463,575
		„ Miscellaneous Loans ...	54,063
		Total ...	45,029,289
Fidelity Guarantee and Contingency Funds ...	11,997	Government Securities—	
Investment Fluctuation Fund ...	183,599	British Stocks including	
Claims admitted but not paid (including Annuities) ...	1,205,514	War Loans ...	247,019
Outstanding Accounts... ..	103,573	New South Wales Stocks ...	2,102,205
Other Liabilities—		Other Commonwealth	
Paid-up Capital ... ..	469,963	Stocks ... ..	10,006,050
Reserve Funds ... ..	102,522	New Zealand Stocks ...	2,502,445
Miscellaneous—including		Other Government Securities	
Deposits ... ..	1,601,926	including War Loans ...	1,268,170
		Total ... ..	16,125,889
		Real Estate—	
		Office Premises—	
		New South Wales ...	730,195
		Other Australian States	1,193,361
		Elsewhere ... ..	657,839
		Properties acquired by Foreclosure and Other Real Estate ... ..	538,459
		Total Real Estate..	3,124,854
		Other Assets—	
		Outstanding and Deferred	
		Premiums ... ..	724,381
		Accrued and Outstanding	
		Interest... ..	739,123
		Cash in Banks and in Hand	1,304,427
		Sundries ... ..	1,028,163
		Total ... ..	3,796,097
Total Liabilities...	£68,076,129	Total Assets ...	£68,076,129

The aggregate liabilities and assets for the period 1895 to 1916 are shown in the subjoined table. The accounts of three companies have not been included, as the balance-sheets do not disclose the particulars of the life business, which is small, however, as compared with the total operations.

Year.	Societies.	Liabilities.			Assets.		
		Paid-up Capital and Accumulated Funds.	Other Liabilities.	Total.	Loans on Mortgages, Policies, etc.	Securities, Freehold Property, etc.	Total.
	No.	£	£	£	£	£	£
1895	10	21,497,059	...	21,497,059	15,600,229	5,896,830	21,497,059
1900	11	27,471,223	...	27,471,223	19,013,579	8,457,644	27,471,223
1905	11	35,867,362	...	35,867,362	22,072,061	13,795,301	35,867,362
1910	11	45,668,204	775,785	46,443,989	30,625,778	15,818,211	46,443,989
1911	11	48,511,274	762,155	49,273,429	33,115,573	16,157,856	49,273,429
1912	14	51,497,036	954,992	52,452,028	35,063,109	17,388,919	52,452,028
1913	14	54,955,221	821,591	55,776,812	37,305,102	18,471,710	55,776,812
1914	13	57,775,670	1,112,766	58,888,436	42,525,480	16,362,956	58,888,436
1915	14	61,259,104	1,932,233	63,191,337	45,535,992	17,655,345	63,191,337
1916	15	64,866,998	3,209,131	68,076,129	45,029,289	23,046,840	68,076,129

Loans on mortgage, municipal rates, the policies of the societies, etc., represent over 66 per cent. of the total assets. In former years insurance companies sought only these forms of investment, but recently attention has been given to Government securities and investments in shares, and considerable sums are deposited with banks, or invested in freehold and leasehold property, and during the years 1915, 1916, and 1917 large sums were subscribed to the various War Loans. Investments on personal security are unusual, advances being generally combined with life policies, and the total amount invested under this heading for the year 1916 was only £15,477. In some of the States companies are obliged by law to deposit certain sums with the Treasury as a guarantee of good faith, and these amounts are included in their balance-sheets under the head of Government securities or of deposits. The ratio of loans on mortgages, policies, etc., to total assets for the years quoted in the previous table was as follows:—

Year.	per cent.	Year.	per cent.
1895 ...	72·57	1912 ...	66·85
1900 ...	69·21	1913 ...	66·88
1905 ...	61·54	1914 ...	72·25
1910 ...	65·94	1915 ...	72·06
1911 ...	67·21	1916 ..	66·15

#### FIRE, MARINE, AND GENERAL INSURANCE.

The Fire Brigades Act, 1909, embraces a wider area than the earlier Act, which covered only the metropolitan division of Sydney, though it was permissible to extend the provisions thereof to any borough or municipal district of New South Wales. The later Act applied to the city of Sydney, 126 suburban and country municipalities and 6 shires. An amendment to the Act rescinded the distinction between municipalities and shires, and renamed the areas under the administration of the Commissioners fire districts, of which there are at present 84. The equipment for fighting fire includes 35 permanent and 27 volunteer stations and brigades in the metropolitan area (of which 5 permanent stations and brigades are within the boundaries of the city of Sydney), and 96 brigades in the country or extra-metropolitan division of New South Wales. By proclamation the provisions of the Act may be extended to other areas.

## BOARD OF FIRE COMMISSIONERS.

The Board of Fire Commissioners of New South Wales, representing the city and suburban area, the country area, the volunteer brigades, and the insurance companies, with a president appointed by the Government, exercises control in regard to fire prevention in declared districts, and may recover charges for attendance at fires outside such districts. On the passing of the Fire Brigades Act, 1909, all existing fire brigades boards were dissolved, and their property was vested in the Board of Fire Commissioners, subject to any trusts and liabilities attaching to such property. The Board is charged with the establishment and maintenance of permanent fire brigades, and the authorisation and subsidising of volunteer bodies, for which purpose the funds are raised by contributions of one-third individually of the estimated requirements for each district, by insurance companies, by municipalities, and by the Government; and a *pro rata* contribution is charged against each owner of property assured in any company, as defined, which is not registered within the State. To ensure efficient operation of these provisions periodical returns are required by the Board from municipalities, insurance companies and property owners.

The following table shows the revenue account and balance-sheet of the Fire Commission Board for the year ended the 31st December, 1916.

*Revenue Account, 1916.*

Revenue.		Expenditure.	
	£		£
Balance from 1915 ... ..	15,286	Administration ... ..	6,010
Subsidy from Government ...	41,580	Salaries—Permanent ... ..	66,901
Subsidy from Municipalities and Shires ... ..	41,605	Salaries—Volunteer ... ..	9,516
Subsidy from Fire Insurance Companies and Firms ... ..	41,580	Buildings, Repairs and Alterations	5,959
Other Sources—		Clothing ... ..	4,505
Services Rendered ... ..	£2,266	Electrical Work, Telephones, Fire Alarms, etc. ... ..	2,053
Sale of Materials ... ..	649	Horses, Fodder, Harness, etc. ...	4,826
	2,915	Lighting and Fuel ... ..	1,862
		Miscellaneous ... ..	29,658
		Balance ... ..	11,676
Total ... ..	142,966	Total ... ..	142,966

*Balance-sheet, 1916.*

Liabilities.		Assets.	
	£		£
Fund Account ... ..	54,791	Lands and Buildings ... ..	118,306
Debentures and Accrued Interest	101,500	Plant, Stocks on Hand, etc. ...	86,241
Revenue Account ... ..	11,676	Bank Balance and Cash ... ..	14,113
Other... ..	1,301		
Property and Equipment Fund ...	49,392		
Total ... ..	218,660	Total ... ..	218,660

The estimates of necessary revenue adopted by the Board for 1917 amounted to £142,743, being £102,849 for the Sydney Fire District, and £39,894 for the eighty-three Country Fire Districts. The ratio of municipal contributions to the Assessed Annual Value in Sydney, suburbs, and shires included in the Sydney Fire District was 7s. per £100 in 1914, 5s. 9d. per £100 in 1915, 5s. 5d. in 1916, and 6s. 1d. in 1917.

Under the Act the contributions payable by insurance companies are proportionate to the premiums received by or due to the companies during the year; for 1916 contributions amounting to £41,372 were received from 84 insurance companies, and in addition contributions amounting to £208 were received from 66 individual firms who insured goods with companies not registered in New South Wales. The contributions in the Sydney Fire District in 1916 represent £5 16s. 3d. per £100 of premium, and in the remaining districts the percentage ranged from £2 13s. 4d. to £20 4s. 0d.

#### GENERAL INSURANCE—TOTAL BUSINESS.

There were 74 companies transacting general insurance (as distinct from life assurance) business in New South Wales during 1915. The following statement shows the classification of the revenue and expenditure of the total business for the year 1914-15, this being the latest available, as returns were not collected during the following years owing to the shortage of office staffs, due to enlistments. The premiums and losses are exclusive of re-insurances.

Revenue.				Expenditure.			
£				£			
Premiums	...	...	61,179,636	Losses	...	...	34,408,009
Interest...	...	...	3,835,124	Dividends	...	...	3,874,213
Rent, Fees, etc.	...	...	1,360,827	Management—			
				Commission	...	...	8,522,646
				Salaries, Fees, etc...	...	...	10,866,535
				Taxes...	...	...	1,010,979
				Total Management	...	...	20,400,160
				Transfers	...	...	7,246,825
				Depreciation	...	...	1,406,248
				Other	...	...	559,958
<b>Total</b>	...	...	<b>£66,375,587</b>	<b>Total</b>	...	...	<b>£67,895,413</b>

The total premiums received during 1914-15 were £61,179,636, and the losses amounted to £34,408,009, or 56.24 per cent. of the premiums. The expenses, including taxes, depreciation, etc., amounted to £22,366,366, which was 36.56 per cent. of the premium income, and 33.69 of the total income.

#### *Liabilities and Assets.*

The liabilities consist mainly of shareholders' capital, reserve funds, insurance funds, and miscellaneous items, such as outstanding losses, sundry debtors, etc. The assets comprise investments on mortgage, Government securities, landed property, deposits in banks, and smaller items.

The particulars of the balance-sheets for the year 1914-15 are shown in the subjoined statement.

Liabilities.			Assets.		
		£			£
Paid-up Capital ... ..	...	15,552,901	Loans on Mortgage ... ..	...	17,138,629
Reserve Funds... ..	...	20,583,506	Other Loans ... ..	...	8,286,778
Reserve for Unearned Pre- miums ... ..	...	10,800,689	Investments--		
Insurance Funds ... ..	...	84,193,540	Government Securities ...	...	10,453,379
Other Funds ... ..	...	17,933,474	Municipal and Other De- bentures and Stocks ...	...	81,246,579
Outstanding Losses ... ..	...	7,637,747	Land and House Property ...	...	17,509,371
Miscellaneous Liabilities ...	...	16,364,344	Cash on Deposit and in Hand	...	9,419,902
			Miscellaneous Assets (Out- standing Premiums, Agents' Balances, Sundry Creditors, Balance of Profit and Loss, etc.) ... ..	...	20,011,563
Total ... ..	...	£173,066,201	Total ... ..	...	£173,066,201

### New South Wales Business.

The particulars relating to the general insurance business transacted in New South Wales during 1916-17 are shown in the following table.

All the companies do not close their business on the same date, and the information relates to various periods of twelve months closing at dates between the 30th September, 1916, and the 30th June, 1917. The total number of institutions operating was 83, and of these 15 furnished particulars to the 31st December, 1916, 62 to the 30th June, 1917, and the remainder for other dates between these two.

Nature of Insurance.	Revenue in New South Wales.		Expenditure in New South Wales.					
	Premiums less Re-insurances and Returns.	Losses, less Re-insurances.	Expenses of Management.			Proportion of Premium Income.		
			Com-mission and Agents' Charges.	Other.	Total.	Losses.	Com-mission and Agents' Charges.	Other Management Expenses.
	£	£	£	£	£	percent.	percent.	percent.
Fire .. .. .	1,043,871	588,194	132,309	301,877	1,022,389	50.35	12.67	28.93
Marine .. .. .	344,516	140,009	25,262	63,490	228,761	40.64	7.33	18.43
Accident .. .. .	50,559	22,833	8,603	14,859	46,275	45.16	17.01	29.35
Employers' Liability and Workman's Compensation ..	118,163	30,908	14,041	35,527	80,476	26.16	11.88	30.07
Public Risk, Third Party ..	15,647	2,953	1,930	4,612	9,495	18.87	12.33	29.47
Plate-glass .. .. .	18,122	7,950	2,761	4,919	15,690	43.87	15.23	27.14
Motor Car and Motor Cycle ..	28,342	12,190	4,895	10,451	27,536	31.79	12.76	27.26
Hailstorm .. .. .	64,289	262,587	9,791	16,948	289,326	408.45	15.23	26.36
Boiler Explosion .. .. .	6,162	943	665	3,758	5,306	15.30	9.82	60.99
Live Stock .. .. .	23,018	12,326	3,410	6,384	22,070	53.55	14.81	27.52
Burglary .. .. .	6,288	1,648	893	1,672	4,213	26.21	14.20	26.59
Guarantee .. .. .	9,022	1,558	1,264	2,248	5,070	17.27	14.01	24.92
Loss of Profits .. .. .	22,016	19,887	2,372	3,718	25,977	90.33	10.77	16.89
Elevator .. .. .	317	90	72	36	198	28.39	22.71	11.36
Driver's Indemnity .. .. .	..	..	..	..	..	..	..	..
Baggage .. .. .	8	..	..	..	..	..	..	..
Sprinkler .. .. .	771	23	67	152	242	2.98	8.69	19.71
Other Unspecified .. .. .	1,037	153	134	133	442	14.66	12.68	14.47
Total Premiums .. .. .	1,762,168	..	..	..	..	..	..	..
Total Interest .. .. .	53,616	..	..	..	..	..	..	..
Total .. .. .	1,815,784	1,104,254	208,409	470,734	1,783,357	62.66	11.83	26.71

The total premiums amounted to £1,762,168, and the losses to £1,104,254, the latter being 62·66 per cent. of the premiums. The expenses for commission and agents' charges were £208,409, and for general management £470,734, making a total of £679,143, being 38·54 per cent. of the premium income, or 37·40 of the gross revenue.

According to the local statements, fire business comprises about 58 per cent. of the total general insurances. The premiums received for fire risks during 1916-17 were £1,043,871, and the losses amounted to £588,194, or 56·4 per cent. It will thus be seen that, with the exception of the risks for damage by hailstorms and loss of profits, the claims under the other branches were proportionately below those incurred in the fire department.

The succeeding table shows the total revenue and expenditure during the three years 1914-15 to 1916-17. The transactions of the fire branch have been shown separately, as they comprised over 62 per cent. of the total business. The interest receipts could not be distributed under the various headings, and have been included in one item.

Year.	Revenue.			Expenditure.			
	Premiums.	Interest.	Total.	Losses.	Management.		Total Expenditure.
					Commission and Agents' Charges.	Other Management Expenses.	
	£	£	£	£	£	£	£
1914-15 {	Fire ... 856,009	} 54,308	1,492,131	{ 662,381	120,508	247,423	1,030,312
Other ... 581,814	{ 224,650			59,820	135,590	420,060	
Total ... 1,437,823	{ 887,031			180,328	383,013	1,450,372	
1915-16 {	Fire ... 973,134	} 49,600	1,718,737	{ 452,549	137,586	262,099	852,244
Other ... 696,003	{ 287,515			71,671	147,785	506,971	
Total ... 1,669,137	{ 740,064			209,267	409,884	1,359,215	
1916-17 {	Fire ... 1,043,871	} 53,616	1,815,784	{ 588,194	132,309	301,877	1,022,380
Other ... 718,297	{ 516,060			76,100	168,857	761,017	
Total ... 1,762,168	{ 1,104,254			208,409	470,734	1,783,397	

The following statement shows the proportion of expenditure to premium income for the three years specified in the foregoing table, the fire department being given separately.

Year.	Losses.	Management.		Total Expenditure.
		Commission and Agents' Charges.	Other Management Expenses.	
	per cent.	per cent.	per cent.	per cent.
1914-15 {	Fire ... 77·38	14·08	28·90	120·36
Other ... 38·60	10·28	23·30	72·18	
Total ... 61·69	12·54	26·64	100·87	
1915-16 {	Fire ... 46·50	14·14	26·93	87·57
Other ... 41·31	10·29	21·23	72·83	
Total ... 44·34	12·54	24·56	81·44	
1916-17 {	Fire ... 56·35	12·67	28·93	97·95
Other ... 71·84	10·60	23·51	105·95	
Total ... 62·66	11·83	26·71	101·20	

## BANKRUPTCY.

Transactions in insolvency were conducted by the Chief Commissioner of Insolvent Estates prior to 1888, but under the Bankruptcy Act of 1887 and subsequent amending Acts, which were consolidated under the Act of 1898, the law is now administered by a Supreme Court Judge in Bankruptcy. The following statement shows the number of bankruptcy petitions for each of the last ten years.

Year.	Petitions in Bankruptcy.			Petitions Withdrawn, Refused, etc.	Sequestration Orders Granted.
	Voluntary.	Compulsory.	Total.		
1907	256	111	367	34	333
1908	272	84	356	24	332
1909	297	84	381	15	366
1910	255	97	352	27	325
1911	213	118	331	39	292
1912	283	112	395	36	359
1913	238	113	351	31	320
1914	282	123	405	30	375
1915	301	147	448	43	405
1916	243	145	393	43	350

The estates freed from sequestration during the currency of the Act number 3,257, being over 16 per cent. of the total sequestrations. Occasionally applications made for certificates are refused, and taking these into consideration, it would appear that out of 100 bankrupts, 84 are unable, or too indifferent, to take the necessary steps to free themselves from bankruptcy. The property of an uncertificated bankrupt, even if acquired subsequently to sequestration, is liable to seizure on behalf of unsatisfied creditors. The number of sequestrations for the years the Act has been in force is 20,037, and of these 16,780 remain uncertificated.

During 1916, of a total of 350 sequestrations, the liabilities, according to the bankrupts' schedules, amounted to £383,448, and the assets to £303,893. The qualification "according to the bankrupts' schedules" is necessary, as the assets and liabilities established after investigation by the Court differ widely from those furnished.

The following statement shows the number of bankruptcies and the nominal liabilities and assets from 1888 to 1915.

Period.	Sequestrations.	Nominal—		
		Liabilities.	Assets.	Ratio of Asset per £1 of Liability.
	No.	£	£	s. d.
1888-1892	5,730	5,682,689	2,644,382	9 4
1893-1897	6,235	5,760,282	3,406,148	11 10
1898-1902	2,864	2,159,659	994,803	9 3
1903-1907	2,084	1,359,121	781,108	11 6
1908-1912	1,674	986,970	590,470	12 0
1913	320	208,755	144,038	13 10
1914	375	323,111	141,068	8 9
1915	405	428,700	163,748	7 10
1916	350	383,448	303,893	15 10

The dividend rates paid on the amount of proved liabilities of estates which have been wound-up are not given, as it would involve an investigation of the transactions in each estate; and even this operation would not result in complete returns, as there are estates which remain unsettled during many years. It is noteworthy that the ratio of asset per £ of liability was lowest in 1915 and highest in 1916 of the amounts recorded in the foregoing table for the five quinquennial periods and the four individual years cited.

Official assignees assist the Court in winding-up the estates, each paying all money received by him to the Registrar in Bankruptcy, who places the amount to the credit of the Bankruptcy Estates Account, from which all charges, fees, and dividends are met. The official assignees are required to furnish quarterly and half-yearly statements of the transactions affecting each estate.

#### TRANSACTIONS IN REAL ESTATE.

The Real Property Act, commonly known as the "Torrens" Act, passed in 1862 to regulate the procedure in regard to land transfers, was modelled on the lines of similar legislation in South Australia, adopted at the instance of Sir R. R. Torrens. This Act and its amendments were consolidated in 1900, and its main features are the transfer of real property by registration of title instead of by deeds, the absolute indefeasibility of the title when registered, and the protection afforded to owners against possessory claims—as a title issued under the Act stands good, notwithstanding any length of adverse possession. All lands sold by the Crown have been conveyed to purchasers under the provisions of the "Torrens" Act since the passage of that measure, the transactions under the old law being restricted to grants issued prior to 1862, and governed by the Deeds Registration Act. The area for which such grants were issued amounted to 7,478,794 acres; 2,318,513 acres have since been brought under the provisions of the "Torrens" Act, hence 5,160,281 acres still remain under the old tenure.

Lands may be placed under the Real Property or the "Torrens" Act only when the titles are unexceptional, and as thousands of acres are brought under the Act during the course of every year, it is merely a question of time when the whole of the lands of the State will be held by a uniform system. The area of conveyed Crown lands and of private estates brought under the Real Property Act during the decade ended 1916 was as follows:—

Year.	Area.			Value.		
	Crown Lands.	Private Lands.	Total.	Crown Lands.	Private Lands.	Total.
	acres.	acres.	acres.	£	£	£
1907	1,750,597	54,205	1,804,802	1,552,049	1,349,351	2,901,400
1908	1,604,062	85,917	1,689,979	1,502,640	1,173,042	2,675,682
1909	1,227,312	54,903	1,282,215	1,147,768	1,093,796	2,241,564
1910	864,857	74,986	939,843	775,211	1,300,661	2,075,872
1911	820,728	79,778	900,506	769,723	1,488,238	2,257,961
1912	749,076	60,541	809,617	725,011	1,771,354	2,496,365
1913	458,651	64,297	522,948	438,243	1,338,091	1,776,334
1914	424,617	46,391	471,008	397,855	1,199,817	1,597,672
1915	354,268	36,188	390,456	317,208	948,820	1,266,028
1916	423,303	23,552	446,655	393,749	674,678	1,068,427

For the whole period during which the "Torrens" system has been in operation, 35,923,262 acres, valued at £35,639,144, have been conveyed under its provisions; and 2,318,713 acres, valued at £41,124,755, have been brought under it, the deeds under the old Act thus being automatically cancelled.

The transfers and conveyances of private lands which take place during ordinary years show approximately the condition of business in real estate. The following table exhibits for each year of the past decade the amount paid as money consideration on sales of private lands, estates sold on long terms being excluded.

Year.	Conveyances or Transfers.		
	Under Deeds Registration Act.	Under Real Property (Torrens) Act.	Total.
	£	£	£
1907	3,342,526	9,366,063	12,708,589
1908	2,879,955	9,880,177	12,760,132
1909	2,312,529	9,416,875	11,729,404
1910	4,057,760	11,958,783	16,016,543
1911	4,602,322	16,425,982	21,028,304
1912	5,502,502	18,379,970	23,882,472
1913	4,725,865	16,078,926	20,804,791
1914	3,612,722	16,585,718	20,198,440
1915	3,153,485	11,849,972	15,003,457
1916	3,370,243	12,188,473	15,558,716

As already mentioned, the Real Property Act provides that on the issue of a certificate the title of the person named on the certificate is indefeasible. Provision is made, however, for error in transfer, by which persons might be deprived of their property; as, should the transfer be made to the wrong person, the holder of the certificate cannot be dispossessed of his property unless he has acted fraudulently. To enable the Government to compensate persons who, through error, may have been deprived of their properties, an assurance fund was created by means of a contribution of one halfpenny in the pound on the declared capital value of property when first brought under the Act, and upon transmission of titles of estates of deceased proprietors. It is a sterling testimony of the value of the Act, and of the facility and accuracy of its working, that payments from the assurance fund to the 31st December, 1907, in respect of titles improperly granted, amounted only to £16,326. In 1907 this fund, as a separate account, was closed, and the amount at credit, £255,059, was transferred to the Closer Settlement Account, in accordance with the provisions of section 6 of the Public Works and Closer Settlement Funds Act, 1906, and all assurance contributions under section 119 of the Real Property Act, 1900, and all claims for compensation, are now dealt with under the Closer Settlement Act.

The estimated unimproved capital value of land in the State in the year 1915 was £198,218,000, and the improved value was £285,187,000. The total area alienated (exclusive of Federal Capital transactions) amounted on the 30th June, 1916, to 41,193,427 acres, of which, as already stated, 38,241,975 acres are held under the Real Property or "Torrens" Act. The total alienated area of 41,193,427 acres is subject to all the operations of lien and mortgage, and to State municipal rating and Federal taxation.

## MORTGAGES.

All mortgages, except those regulated by the Bills of Sale Act of 1898 and the Merchant Shipping Act of 1894, are registered at the Registrar-General's office, and it is a fair assumption that the number recorded represents the bulk of the mortgages effected. Where more than one mortgage has been effected on the same property, the mortgages take priority according to the time of registration, instead of the respective dates of the instruments.

The amount of consideration for which a mortgage stands as security is not always stated in the deeds, the words "valuable consideration" or "cash credit" being inserted, instead of a specific sum, in many of the transactions of banks, and other loan institutions, in cases where the advances are liable to fluctuation; and, as this frequently occurs when the property mortgaged is of great value, an exact statement of the total advances against mortgages cannot be made.

The figures in the tables given herewith relate only to cases in which a specific amount is stated in the deeds, whether that amount be the sum actually advanced or not. The same remark applies also to discharges, the amount of which, as shown in the tables, is still further reduced by the exclusion of mortgages which have been satisfied by foreclosure or seizure, a record of which is not available. Many mortgages appear in the official records as current, although the property which they represent has passed away from the mortgagor.

## MORTGAGES OF REAL ESTATE.

Mortgages of land are registered under either the Deeds Registration Act or the Real Property Act, according to the title of the property at the date of mortgage. The mortgages registered for each of the five years ended 1916 were as follow:—

Year.	Mortgage.			Consideration.		
	Under Deeds Registration Act.	Under Real Property Act.	Total.	Under Deeds Registration Act.	Under Real Property Act.	Total.
	No.	No.	No.	£	£	£
1912	6,846	15,766	22,612	9,537,888	16,424,624	25,962,512
1913	6,435	16,939	23,374	8,243,929	14,964,433	23,208,362
1914	5,071	17,834	22,905	4,769,337	15,905,411	20,674,748
1915	4,149	16,524	20,673	3,466,295	12,583,455	16,049,750
1916	4,578	15,638	20,216	5,084,000	11,991,878	17,075,878

The consideration given generally represents the principal owing; in some cases, however, it stands for the limit within which clients of banks and of other loan institutions are entitled to draw.

The amount of mortgages discharged has always been much less than the amount registered, since the discharges do not include foreclosures, which, if not formally registered as discharges, are nevertheless mortgages cancelled. The volume of the releases is also reduced by mortgages paid off in instalments, as the discharges may be given for the last sum paid, which might happen to bear a very small proportion to the total sum borrowed; and

further, the total of the discharges is reduced owing to the practice, now largely followed, of allowing mortgages maturing on fixed dates to be extended for an indefinite period.

#### MORTGAGES ON LIVE STOCK, WOOL, AND CROPS.

Liens on wool, mortgages on live stock, and liens on growing crops are registered under special Acts, the first and second under a temporary measure passed in 1847, which was continued from time to time and became permanent by a special enactment in 1860, and the third under the law of 1862—the three enactments being consolidated with Liens on Crops and Wool and Stock Mortgages Act, 1898. Mortgages on live stock are current till discharge, and liens on wool mature at the end of each season, terminating without formal discharge. The duration of liens on agricultural and horticultural produce may not exceed one year. Such advances do not usually reach large sums, either individually or in the total, as there is an element of uncertainty in the security offered. Mortgages are valid without delivery of the stock or the crops to the mortgagees.

The figures relating to live stock throw considerable light on the condition of the pastoral industry of the country. They must, however, be taken with this qualification, that the amount stated represents in many cases merely nominal indebtedness. It must, moreover, be noted that liens on wool are sometimes effected on sheep carrying a mortgage. In 1916 the amount secured by the mortgage of sheep was £164,485, and it is included in the £327,871 shown in the following table as liens on the wool from a prospective clip of 1,378,608 sheep, and as a portion of the £1,053,477 raised by mortgage on 1,211,986 sheep among other live stock, hence the net amount lent on lien was £163,386. In addition to the figures for 1916 in the table given herewith there were registered 16 discharges of wool liens, representing £5,444.

Classification.	1912.	1913.	1914.	1915.	1916.
<b>Wool—</b>					
Liens ... .. No.	1,416	1,387	1,134	895	774
Sheep ... .. „	2,856,691	2,850,894	2,433,986	3,052,642	1,378,608
Consideration ... £	575,413	801,551	620,600	498,449	327,871
<b>Growing Crops—</b>					
Liens ... .. No.	953	1,438	1,270	4,464	2,492
Consideration ... £	158,182	233,665	204,020	609,067	451,750
<b>Live Stock—</b>					
Mortgages ... .. No.	3,166	2,749	3,205	3,074	2,689
Sheep ... .. „	2,882,917	2,313,922	3,711,843	2,389,029	1,211,986
Cattle ... .. „	117,874	81,016	73,682	59,085	72,853
Horses ... .. „	24,382	19,282	26,617	26,364	100,986
Consideration ... £	1,228,065	1,313,171	1,418,298	1,112,655	1,053,477

*Discharges of Mortgages on Live Stock.*

The number of registered discharges amounted to 31·5 per cent. of the number of mortgages of live stock registered during 1916. The apparent disproportion is partly due to the fact that in many cases one discharge covers several mortgages. The figures for the ten years ended 1916 were:—

Year.	Dis- charges.	Amount.	Year.	Dis- charges.	Amount.
	No.	£		No.	£
1907	914	1,236,705	1912	1,064	623,539
1908	873	838,609	1913	940	641,037
1909	912	684,714	1914	961	228,410
1910	1,038	1,232,079	1915	780	482,216
1911	1,091	1,144,461	1916	847	454,466

## MORTGAGES ON SHIPS.

Mortgages of registered British vessels are arranged under the Imperial Merchant Shipping Act of 1894. Transactions of this nature are divided into two classes, one in which the vessel is the sole security, and the other in which the advances are made on the security of the "account current," which may consist of ships, wharfage appliances, land, and other properties. The deed of mortgage is generally executed for the full amount of the advance. Registrations are effected at the two ports of registry, Sydney and Newcastle, and the combined returns are given in the subjoined statement.

Year.	Mortgage on Ships only.				Mortgage on Account Current.			
	Sailing Vessels.		Steam and Motor Vessels.		Sailing Vessels.		Steam and Motor Vessels.	
	No.	Amount.	No.	Amount.	No.	Amount.	No.	Amount.
1912	1	£ 600	30	£ 124,129	1	£ 1	10 $\frac{3}{8}$ $\frac{3}{4}$	£ 11
1913	4	1,600	15	14,934	2	501	5	148
1915	...	...	8	14,113	...	...	2	126
1916	1	100	8	6,291	1	1	7	2,655
1917	2	1,600	4	15,300	...	...	2	1,001

Information is not available for the amount of mortgage effected on ships during the six months extending from the 1st July to the 31st December, 1914. The years 1915, 1916, and 1917 ended the 30th June in the foregoing table.

## BILLS OF SALE.

All mortgages on personalty other than ships and shipping appliances, wool, live stock, and growing crops, are filed at the Supreme Court under the Bills of Sale Act, 1855, and its amendments as consolidated by the Bills of Sale Act, 1898, which was further amended in 1903 to secure that a bill of sale shall be ineffective as to certain household furniture unless the

consent of the wife or the husband of the maker or the giver of the bill is endorsed thereon. The Act provides that each document shall be filed within thirty days after it is made or given, otherwise the transaction is void as against execution creditors, and against the official assignee or the trustee of a bankrupt estate; also that the registration shall be renewed every twelve months; and to prevent fraud and imposition the records are open to the inspection of the public. The total amount of advances made annually on the bills of sale is not readily available, but according to the number of bills filed the sum must be considerable. No complete record is made of bills terminated voluntarily, or by seizure, the official records showing only those discharged in the ordinary way. There are frequent seizures of the security given, which consists generally of household furniture and stock-in-trade, and it is regrettable that no record is kept of them; but, as previously noted, neglect of registration of foreclosures is a weakness in procedure under all Acts regulating mortgage transactions. The bills filed and the discharges registered for the five years ended 1916 were as follow:—

Year.	Registrations.		Renewals Under Bills of Sale Act of 1898.
	Filed in Supreme Court.	Satisfied, or Orders for Discharge Made.	
1911	2,430	352	1,689
1912	2,861	370	1,748
1913	3,058	385	2,015
1914	3,194	402	2,179
1915	2,931	392	2,482
1916	2,511	365	2,478

#### REGISTRATION OF MONEY-LENDERS.

Under the Money-lenders and Infants Loans Act, 1905, money-lenders must be registered at the Registrar-General's Office; and they may conduct their business only under their own or their firm names, and at their registered offices. The term "money-lender" includes every person or company the business of whom or which is that of money-lending, but it excludes licensed pawnbrokers, registered friendly societies, institutions incorporated by special Act of Parliament to lend money, and banking and insurance companies. The number of registrations and renewals during the year 1916 was 36.

#### DISTRIBUTION OF PROPERTY.

In making estimates of the wealth of a country, the probate value of estates has frequently been taken as a basis of the calculations. This method is unsatisfactory, as the probate returns give only the gross value of property left by deceased persons, irrespective of debts. The valuations of estates for stamp duty purposes, however, represent the net values, and have been used in the compilation of the following particulars regarding estates of deceased persons.

It is sometimes assumed that the average amount of property left by each adult who dies during a given period represents the average possessed by each living adult, but that assumption is open to two objections. First, the average age of adults who die is greater than of those who survive; and, secondly, the wealth of an individual increases with his or her years, and generally is greater at the death than at any period during the life of the person under consideration.

The following table shows the number of estates and the amount on which stamp duty was paid during the ten years ended the 30th June, 1916. The figures for the four years ended June, 1911, are exclusive of properties administered by the Curator of Intestate Estates, for which particulars are not available.

Year ended 30th June.	Estates.	Amount.	Year ended 30th June.	Estates.	Amount.
	No.	£		No.	£
1908	3,172	6,655,673	1913	4,749	8,509,070
1909	3,239	7,215,018	1914	4,631	10,439,256
1910	3,187	10,417,169	1915	4,488	9,997,615
1911	3,303	7,827,275	1916	5,107	10,783,496
1912	4,372	13,445,639	1917	5,309	11,554,726

According to the foregoing figures, stamp duty was paid during the ten years ended the 30th June, 1917, on 41,507 estates, valued at £96,844,847, representing an average value per estate of £2,333.

The next table shows in various age-groups the number and value of the estates of deceased persons of each sex in respect of which probate was granted during the six years 1911-16, the values given being the net values for stamp duty purposes.

Age Group.	Males.			Females.		
	Estates.	Value of Estates.	Average Value of Each Estate.	Estates.	Value of Estates.	Average Value of Each Estate.
	No.	£	£	No.	£	£
Under 15	31	6,914	223	19	6,053	319
15—20	119	29,816	251	30	10,844	361
21—29	947	377,284	398	233	86,861	373
30—39	1,428	1,139,281	798	559	369,029	660
40—49	2,287	3,076,999	1,345	801	599,885	749
50—59	3,313	6,243,506	1,885	1,205	1,023,351	849
60—69	3,625	9,017,881	2,488	1,522	2,566,467	1,686
70—79	3,751	14,092,086	3,757	1,693	2,318,521	1,369
80—89	1,715	8,086,533	4,715	849	2,244,053	2,643
90 and over	162	337,120	2,081	121	254,475	2,103
Not stated	669	1,387,863	2,075	167	765,933	4,586
Absentees	946	6,495,231	6,866	334	1,166,898	3,494
Naval and Military Forces	588	518,729	882	...	...	...
Total ...	19,581	50,809,243	2,595	7,533	11,412,305	1,515

Analysis of the returns for the six years ended the 31st December, 1916, shows that 92 per cent. of the estates represented persons domiciled in the State, leaving only 8 per cent. as absentees, that is, persons leaving property in New South Wales who died outside the State, including soldiers on service abroad. In the six years 1911-16, the number of estates of male absentees was 1,534, and the average value £4,572, and there were 334 estates of female absentees of an average value of £3,494.

Of the males who died in the State during the period under review, 29 per cent. left property, and of the females 16 per cent. Taking only the adults of the males who died 42 per cent. left property, and of the females 24 per cent.

Taking only persons leaving property, the estates of the males were valued on the average at £2,595, and of the females at £1,515.

Information regarding the estates of deceased persons in each State of the Commonwealth, based on the experience of the five years 1912-16, is shown in the following statement. Particulars of intestate estates are included where these are available.

State.	Estates of Deceased Persons.		Average Deaths of Adults.	Estates per 1,000 Deaths of Adults.	Average Estate per Deceased Adult.	Average Value per Estate.
	Mean Number.	Mean Value.				
		£		No.	£	£
New South Wales ... ..	4,607	10,560,481	13,067	352	808	2,292
Victoria .. .. .	4,683	8,612,058	11,746	399	733	1,839
Queensland ... ..	1,596	2,708,918	4,781	334	567	1,697
South Australia ... ..	1,436	2,448,818	3,282	438	746	1,705
Western Australia ... ..	910	1,123,531	2,041	446	550	1,235
Tasmania ... ..	479	775,314	1,325	361	585	1,619

Of adults who died possessed of property the proportion was lower in New South Wales than in any other State except Queensland. In Western Australia the proportion was highest, but a large number were intestate, and the average value of the property was the lowest shown in the statement. The amount left per deceased adult was highest in New South Wales, South Australia coming next. In making these comparisons it should be remembered, however, that no consideration has been given to the age and the sex distribution of the population. That these are important considerations is shown by the fact that at the census of 1911 the proportion of persons aged 50 years and over varied from 15 per cent. in Victoria to 10·4 per cent. in Western Australia, and the number of male adults per 100 females from 98 in the former State to 160 in the latter. Moreover, the experience of New South Wales and Victoria indicates that the average value of estates increases greatly after the owner has attained the age of 50, and that males dying possessed of property are proportionately more numerous than females similarly conditioned.

#### ESTATES OF DECEASED PERSONS.

The following table affords a comparison of the proportion of persons dying possessed of property per hundred of the total deaths in each quinquennium since the year 1880. The figures shown in this, and in the succeeding tables for the years prior to 1911, are exclusive of properties administered by the Curator of Intestate Estates.

Period.	Proportion of Estates per 100 Deaths of Total Population.	Period.	Proportion of Estates per 100 Deaths of Total Population.
	per cent.		per cent.
1880-84	11·0	1900-04	17·0
1885-89	11·6	1905-09	19·1
1890-94	13·2	1910-14	22·9
1895-99	14·9	1915	22·7
		1916	25·4

The preceding figures indicate a widely diffused condition of prosperity, but a more convincing illustration of the wide distribution of property in New South Wales is afforded by the next table, which shows the proportion of estates per 100 deaths of adult males, and per 100 deaths of adult males and females. The latter method of comparison is frequently neglected, but it is worthy of consideration, as large numbers of females are possessors of

valuable property in their own right. The subjoined figures are given for quinquennial periods, commencing with the year 1880.

Period.	Ratio of Estates per 100 Deaths of Adult Males.	Ratio of Estates per 100 Deaths of Adult Males and Females.
1880-84	34·6	22·3
1885-89	37·5	23·8
1890-94	41·2	25·8
1895-99	42·7	26·2
1900-04	46·0	27·8
1905-09	48·8	29·2
1910-14	56·6	34·0
1915	56·1	33·6
1916	62·5	37·2

Information regarding the ages of persons leaving property was not ascertained until 1911, and therefore it was not possible to exclude from the above calculations the estates of persons under 21 years of age in the earlier years. Since 1911, however, the necessary particulars have been made available, and are shown in the following table.

Year.	Ratio of Adult Males Leaving Property, to Total Deaths of Adult Males.	Ratio of Adult Females Leaving Property, to Total Deaths of Adult Females.
	per cent.	per cent.
1911	37·6	23·4
1912	42·9	23·4
1913	41·9	23·3
1914	38·8	24·6
1915	39·8	24·0
1916	45·4	24·3

The statement regarding the wide distribution of property in New South Wales must be taken relatively, and the following table, which shows the number of persons dying in possession of estates during the ten years ended June, 1917, affords a basis for testing the extent of its application.

Category.	Number of Deceased Persons Leaving Property.	Proportion in Each Group.	Value of Estates of Deceased Persons.	Proportion in Each Group.
		per cent.	£	per cent.
£50,000 and over ..	220	0·53	33,422,699	34·52
£25,000 to £50,000 ...	327	0·79	11,210,743	11·57
£12,500 to £25,000 ..	615	1·48	10,699,472	11·05
£5,000 to £12,500 ...	1,860	4·48	14,290,271	14·75
£200 to £5,000 ...	24,285	58·51	26,048,318	26·90
Under £200 ...	14,200	34·21	1,173,344	1·21
Total ...	41,507	100·00	96,844,847	100·00

#### THE WEALTH OF THE STATE.

An approximation to the wealth of the State may be ascertained crudely from the results of the War Census of 1915, though it must be borne in mind that in the tables in which the aggregate returns were presented the allocation to States and Territories was based on the locality of residence of the owner or representative, and not on the locality in which the income was earned, or in which the assets were situated.

The Commonwealth War Census Act (No. 20 of 1915) was passed for operation during the continuance of the present war, and no longer, and its object was to ascertain the aggregate wealth of the people of the Commonwealth expressed in terms of income and assets. In a secondary sense it was also a census of transit appliances (particularly of motor vehicles) and

a stock census; as persons furnishing returns were questioned as to the ownership of motor cars or motor cycles, or other motor vehicles, and were requested to state the number and horse-power of each, and to detail the character and number of any other vehicles in their possession, as well as the number of horses, mules, working bullocks, camels, cattle, sheep, or pigs they might own; and the approximate value of their real and personal property in Australia as at the 31st December, 1914.

The investigation into the nature and value of property owned by individuals, or as members of trusts, companies, or associations, was comprehensive and exhaustive; and the furnishing of returns was compulsory upon all persons aged 18 and upwards, who were possessed of property, or who held property on trust, or who were in receipt of income.

Details were required relating to the unimproved values of land, and of the value of all improvements, inclusive of houses and other buildings thereon, and similar information relating to leasehold estates; to the specification and estimated value of machinery and plant, inclusive of implements, vehicles, and tools of all kinds, the enumeration and value of live stock, the value of share of assets held as a partner in any business or trading concern as per last balance-sheet, the amount of interest as a beneficiary in trust estate, the amount of debentures or other stocks and shares held, the amount of bank deposits (fixed or at current account) and cash in hand, the amount of debts (secured and unsecured) due to the person furnishing the return outstanding at the close of the preceding year, the value of stock-in-trade, the value of furniture and personal and household effects, and of all other property, exclusive of life assurance policies.

Inquiries regarding other sources of income were no less searching and exhaustive. Details were required as to the amount of stipend, salary, or wages; the income accruing from the exercise of a profession, trade, business, or industry; the amount of fees, commission, or bonus; the amount of pension (other than Commonwealth old-age or invalid pension), superannuation, or retiring allowance received; as to allowance of quarters, board, etc., by an employer; money received as rent, as interest, and dividends, or as annuities, royalties, tributes, licenses, etc.; amount of income received as beneficiary from trust estate, and from all other sources; and it was required that 5 per cent. should be added to the capital value of land and improvements personally owned and used by the person making the return for the purpose of residence or enjoyment.

In calculating individual income, deductions were allowed for the amount actually paid by the person making the return for fidelity guarantee on self, for interest actually paid on borrowed money, for actual payments on repairs and maintenance of property, and of life, fire, and other insurance premiums, of contributions to pension or superannuation fund, or to friendly societies, and of rent, rates and taxes relating to business premises, offices, etc.

Every person who was the trustee of more than one estate was required to furnish particulars on a separate form in respect of each estate of which he was trustee.

In the following figures, which relate to New South Wales, the wealth represented was held by individuals, or by their agents, living in the State, irrespective of the geographical situation of the locality from which that wealth was derived. In respect of Australian partnerships, incomes have been allocated to returns of individual partners under the head of "Individuals." Income from trust funds has in the main been included in the "individual" returns of the beneficiaries; that shown below as from "trust funds" consists mainly of the net revenues of assurance and friendly societies, and of certain other cases where allocation to individual beneficiaries had not been made. The income of companies shown hereunder

was the aggregate net profit in the case of absentee companies, plus the undistributed profits for the year in the case of Australian companies.

The number of wealth and income returns for individuals for the year ended the 30th June, 1915, was in the State of New South Wales as follows:—

	Males.	Females.	Total.
Returns relating to Residents of Australia ...	524,047	268,509	792,556
"    "    " Non-residents ...	550	651	1,201
	524,597	269,160	793,757

The aggregate net income of individuals for the year ended the 30th June, 1915, recorded in respect of New South Wales was as follows:—

	Males.	Females.	Total.
	£	£	£
Residents of Australia ... ..	80,408,696	14,129,441	94,538,137
Non-residents " ... ..	196,351	306,958	503,309
Total ... ..	£80,605,047	£14,436,399	£95,041,446

Exclusive of the value of (i) interests in trust estates, (ii) assurance and annuity policies, (iii) prospective benefits from friendly societies and trade-unions (three items which were included in bulk under "trust funds"), the aggregate net assets of individuals for the year ended the 30th June, 1915, recorded in respect of New South Wales were as follow:—

	Males.	Females.	Total.
	£	£	£
Residents of Australia ... ..	362,193,858	106,750,464	468,944,322
Non-residents " ... ..	2,252,941	2,180,740	4,433,686
Total ... ..	£364,446,799	£108,931,209	£473,378,008

The subjoined statement shows the aggregate net income and net assets accruing to individuals or their agents, or controlled by them, resident within the boundaries of the State; but these are not necessarily correlative with the wealth produced from the State. In the figures given hereunder the assets of Australian partnerships have been allocated to returns of individual partners under the head of "Individuals." Under the heading "Trust Funds" the most important items in the group are (i) the total value of Australian trust estates, and (ii) the Australian funds of life assurance societies, friendly societies, and trade-unions operating in Australia. The item "Companies" represents (i) the net assets of Australian companies less the aggregate shown on individual and other returns as "shares and debentures in companies," and (ii) the net assets held in Australia by absentee companies. The net assets of "Individuals" are exclusive of the items already detailed.

Division.	Net Income.	Net Assets.
	£	£
Individuals ... ..	95,041,446	473,378,008
Non-resident Partnerships ... ..	51,030	592,034
Trust Funds ... ..	1,923,204	114,245,620
Companies ... ..	4,141,696	48,052,445
Institutions ... ..	224,990	9,430,961
Total ... ..	£101,382,366	£645,699,068

Excluding non-residents from the returns collected through the machinery of the War Census, the net incomes of persons resident in New South Wales on 30th June, 1915, arranged in categories, were as follows:—

Category.	No. of Persons.	Aggregate Income.
		£
Deficit and Nil ... ..	95,978	...
Under £50 ... ..	143,454	3,518,631
£50 and under £100 ... ..	179,243	13,000,632
£100 „ £150 ... ..	199,499	24,496,025
£150 „ £156 ... ..	20,883	3,183,318
£156 „ £200 ... ..	68,665	11,881,549
£200 „ £300 ... ..	46,684	11,084,030
£300 „ £500 ... ..	22,536	8,452,334
£500 „ £750 ... ..	7,609	4,603,801
£750 „ £1,000 ... ..	3,028	2,547,837
£1,000 „ £1,500 ... ..	2,369	2,864,103
£1,500 „ £2,000 ... ..	999	1,725,181
£2,000 „ £3,000 ... ..	779	1,896,895
£3,000 „ £4,000 ... ..	305	1,040,299
£4,000 „ £5,000 ... ..	171	768,731
£5,000 and over ... ..	354	3,474,771
Total ... ..	792,556	£94,538,137

The total number of persons in receipt of incomes of the taxable limit of £156 and upwards was 153,499, and their aggregate incomes amounted to £50,339,531.

Exclusive of the value of (i) interests in trust estates, (ii) assurance and annuity policies, and (iii) prospective benefits from friendly societies and trade unions, the net assets of persons resident in New South Wales on 30th June, 1915, arranged in categories were as follows:—

Category.	No. of Persons.	Aggregate Amount.
		£
Debt and Nil .. ..	135,809	.....
Under £100 ... ..	339,658	10,412,151
£100 and under £250 ... ..	111,480	17,814,900
£250 „ £500 ... ..	72,297	25,546,241
£500 „ £750 ... ..	34,489	20,982,398
£750 „ £1,000 ... ..	19,912	17,219,622
£1,000 „ £2,500 ... ..	44,517	69,612,302
£2,500 „ £5,000 ... ..	18,741	64,996,702
£5,000 „ £10,000 ... ..	9,125	63,075,571
£10,000 „ £15,000 ... ..	2,807	33,896,198
£15,000 „ £20,000 ... ..	1,238	21,340,764
£20,000 „ £25,000 ... ..	687	15,427,892
£25,000 „ £50,000 ... ..	1,156	33,423,067
£50,000 „ £75,000 ... ..	329	20,114,398
£75,000 „ £100,000 ... ..	113	9,753,426
£100,000 and upwards ... ..	198	39,328,190
Total ... ..	792,556	£468,944,322

As evidence of the wide diffusion of wealth in New South Wales it is worthy of remark that no fewer than 133,312 residents of the State possessed on the 30th June, 1915, assets of an aggregate total of £415,171,030, the individual amounts of which were £500 and upwards.

## PUBLIC FINANCE

## THE REVENUE AND EXPENDITURE ACCOUNT.

The following table shows the revenue and expenditure of the State during the last ten years. The figures include advances made and repaid, and transfers in aid of the Public Works and the Closer Settlement Funds:—

Year ended 30th June.	Revenue.	Expenditure.	Excess of Revenue over Expenditure.	Excess of Expenditure over Revenue.
	£	£	£	£
1908	13,995,865	13,790,285	205,580	...
1909	13,687,275	14,726,521	...	1,039,246
1910	14,582,415	14,230,386	352,029	...
1911	13,882,485	14,470,687	...	588,202
1912	15,797,136	16,137,279	...	340,143
1913	16,260,456	17,488,836	...	1,228,380
1914	18,438,229	18,065,190	373,039	...
1915	18,946,227	18,516,179	430,048	...
1916	19,703,518	19,553,927	149,591	...
1917	20,537,835	20,806,633	...	£68,793

The total net receipts for the ten years amounted to £165,831,441, and the expenditure to £167,785,923, the deficiency for the period being £1,954,482. The credit balance of the Consolidated Revenue Fund on the 30th June, 1907, was £575,220, so that the transactions during the period under review resulted in a net debit of £1,379,262.

## THE GENERAL ACCOUNT.

The following table shows each of the main accounts under which the Government conducts its financial business, the subsidiary accounts being included under one or other of the headings enumerated. The Audit Act provides that the Treasurer may arrange with any bank for the transaction of the general banking business of the State. The accounts are kept under several headings, viz., Consolidated Revenue Account, General Loan Account, Special Accounts (Colonial Treasurer's Supreme Court Moneys),

Special Deposits Account, Closer Settlement Account, Public Works Account, Railways Loan Account, and a number of suspense accounts, which are specified in the table. All moneys paid into any of the accounts mentioned are deemed to be "public moneys," and for interest purposes the several accounts are treated as one account. The special accounts, which consist of "Supreme Court Moneys," are not controlled by the Audit Act, as they are operated on directly by the officers in charge of the Departments interested. The position of the main divisions of the General Account on the 30th June, 1917, is shown below.

Head of Account.	Ledger Balances on 30th June, 1917.		
	Invested in Securities.	Balances.	Total.
Credit Balances--			
Special Deposits Account--	£	£	£
Government Savings Bank Deposits Account .. ..	....	2,997,514	2,997,514
"    "    Advances Deposit Account .. ..	....	468,500	468,500
State Debt Commissioners' Trust Accounts .. ..	....	138,081	138,081
"    "    Deposit Account .. ..	....	107,261	107,261
Fixed Deposits Account .. .. .	....	213,101	213,101
Sydney Municipal Council Sinking Funds .. ..	....	133,256	133,256
Industrial Undertakings .. .. .	....	93,738	93,738
Railway Store Advance Account .. .. .	....	103,043	103,043
Other .. .. .	64,151	909,863	974,014
Total .. .. .	£ 64,151	5,134,357	5,228,508
Railways Loan Account .. .. .	....	636,258	636,258
Closer Settlement Account .. .. .	....	154,517	154,517
Public Works Account .. .. .	....	150,817	150,817
Special Accounts--			
Colonial Treasurer's Supreme Court Moneys .. ..	....	301,195	301,195
London Remittance Account .. .. .	....	1,026,113	1,026,113
Total .. .. .	Cr. £ 64,151	8,123,257	8,187,408
Less Debit Balances--	£		
Consolidated Revenue Account .. .. .	483,138		
General Loan Account .. .. .	3,376,517		
Loans Expenditure Suspense Account .. .. .	441,616		
Public Works Expenditure Suspense Account .. ..	129,128	4,803,031	4,803,031
Seed Wheat and Fodder Expenditure Suspense Account .. .. .	134,661		
Storage of Butter Account .. .. .	237,971		
Net Credit Balance in Sydney .. .. Cr.	64,151	3,320,226	3,384,377
Deduct--London Account .. .. . Dr.	....	1,026,113	1,626,113
Total .. .. .	Cr. 64,151	1,034,113	1,758,264



The following table shows the accumulated deficiency on the Consolidated Revenue Account for each of the last ten years. The treasury bills issued have been included in the statement, as they became part of the Consolidated Revenue Account proper.

Financial Year.	Deficiency Bills Current at End of Year.	Cash Balance at 30th June.		Actual Accumulated Surplus (+) or Deficiency (-).
		Credit.	Overdraft.	
	£	£	£	£
1908	1,214,516	1,676,924	...	+ 462,408
1909	914,516	637,678	...	- 276,838
1910	659,337	989,707	...	+ 330,370
1911	414,516	401,505	...	- 13,011
1912	114,516	61,363	...	- 53,153
1913	...	...	1,167,017	- 1,167,017
1914	...	...	793,978	- 793,978
1915	...	...	563,931	- 563,931
1916	...	...	214,340	- 214,340
1917	...	...	483,138	- 483,138

#### THE REVENUE AND EXPENDITURE.

The gross revenue and the net revenue and expenditure since 1908 were as follow:—

Year ended 30th June.	Gross Revenue.	Refunds.	Net Revenue.		Net Expenditure.	
			Total.	Per Inhabitant.	Total.	Per Inhabitant.
	£	£	£	£ s. d.	£	£ s. d.
1908	14,230,459	234,594	13,995,865	9 2 8	13,790,285	9 0 0
1909	13,906,846	219,571	13,687,275	8 15 5	14,726,521	9 8 9
1910	14,732,315	149,900	14,582,415	9 2 8	14,230,386	8 13 3
1911	14,021,123	138,638	13,882,485	8 9 5	14,470,687	8 16 7
1912	15,941,078	143,942	15,797,136	9 6 0	16,137,279	9 10 0
1913	16,486,890	226,434	16,260,456	9 2 9	17,488,836	9 16 7
1914	18,653,089	214,860	18,438,229	10 1 2	18,065,190	9 17 2
1915	19,125,984	179,757	18,946,227	10 3 4	18,516,179	9 18 8
1916	19,939,065	235,547	19,703,518	10 10 10	19,553,927	10 9 3
1917	20,712,146	174,311	20,537,835	11 0 5	20,806,633	11 3 4

The revenue included the surplus revenue returned to the State by the Commonwealth, from 1907 to 1910, under the Constitution Act, and from 1910 onwards, under the Commonwealth Surplus Revenue Act of 1910. Prior to that date the Commonwealth was obliged to pay not less than three-fourths of the net Customs and Excise revenue to each State on a proportional basis, but since then it has paid 2s. per head of the population.

## THE HEADS OF REVENUE AND EXPENDITURE.

The subjoined table shows the sources of revenue and the avenues of expenditure during the last five financial years, ending the 30th June.

REVENUE.	1913.	1914.	1915.	1916.	1917.
	£	£	£	£	£
<i>Governmental.</i>					
Revenue Returned by Commonwealth .. .. .	2,178,683	2,248,241	2,287,295	2,297,872	2,286,913
<b>Taxation—</b>					
Stamp Duties—					
Probate, etc. . . . .	365,250	512,529	551,629	645,554	826,769
Other .. .. .	233,940	377,707	552,762	522,993	550,211
Land Tax .. .. .	5,738	4,692	3,346	3,194	3,215
Income Tax .. .. .	662,625	1,290,370	1,653,923	1,707,403	1,973,477
Motor Tax .. .. .	..	..	45,055	54,868	67,044
Betting Taxes .. .. .	..	..	..	31,334	47,536
Totalizator Tax .. .. .	..	..	..	..	6,346
Licenses .. .. .	137,807	144,707	148,955	151,884	154,806
<b>Total Taxation .. .. .</b>	<b>£ 1,405,360</b>	<b>2,330,005</b>	<b>2,955,670</b>	<b>3,117,221</b>	<b>3,629,404</b>
<b>Land Revenue—</b>					
Alienation .. .. .	999,363	982,885	908,785	1,057,711	972,657
Occupation .. .. .	616,725	641,290	690,984	633,975	605,784
Miscellaneous .. .. .	189,860	204,772	184,312	173,627	168,568
<b>Total Land Revenue .. .. .</b>	<b>£ 1,835,948</b>	<b>1,828,887</b>	<b>1,698,081</b>	<b>1,865,313</b>	<b>1,747,009</b>
Services Rendered (Other than Business Undertakings)	412,727	453,016	498,899	414,671	417,345
General Miscellaneous .. .. .	495,427	482,649	561,993	502,828	550,008
Industrial Undertakings .. .. .	32,885	6,300	10,358	9,030	12,710
<b>Total Governmental .. .. .</b>	<b>£ 6,361,030</b>	<b>7,349,098</b>	<b>7,920,887</b>	<b>8,206,465</b>	<b>8,643,389</b>
<i>Business Undertakings of the State.</i>					
Railways and Tramways .. .. .	8,544,376	9,684,877	9,660,822	9,990,502	10,390,602
Sydney Harbour Trust .. .. .	452,214	470,773	464,631	489,722	511,981
Metropolitan Board of Water Supply and Sewerage ..	633,599	713,056	796,338	844,664	866,313
Hunter District Board of Water Supply and Sewerage ..	66,145	80,945	88,823	98,088	99,448
<b>Total Business Undertakings</b>	<b>£ 9,696,364</b>	<b>10,949,651</b>	<b>11,007,664</b>	<b>11,422,977</b>	<b>11,868,344</b>
Advances Repaid .. .. .	203,062	139,480	17,676	74,072	26,102
<b>Grand Total .. .. .</b>	<b>£ 16,260,456</b>	<b>18,438,229</b>	<b>18,946,227</b>	<b>19,703,518</b>	<b>20,537,835</b>
<b>EXPENDITURE.</b>					
<i>Governmental.</i>					
Interest on Public Debt and Funds in Temporary Possession of Government (Exclusive of Business Undertakings) .. .. .	950,895	1,022,732	971,435	1,057,766	1,004,103
Reduction of Public Debt .. .. .	450,602	5,632	5,688	6,504	6,808
<b>Local Government—</b>					
Endowments and Grants .. .. .	281,364	258,352	281,243	344,022	308,336
Police and Prisons .. .. .	641,858	655,189	653,282	632,119	694,514
Hospitals and Charities (including Lunacy) .. .. .	643,939	733,387	769,311	880,243	929,218
<b>Departments—</b>					
Premier .. .. .	115,303	85,925	185,888	175,978	132,923
Chief Secretary and Public Health .. .. .	197,827	192,666	192,953	196,589	135,172
Treasurer .. .. .	603,520	624,716	593,936	594,751	735,911
Attorney-General and Justice .. .. .	301,788	325,776	333,995	334,058	331,300
Lands .. .. .	391,752	384,478	451,925	410,017	384,854
Public Works .. .. .	540,515	418,225	411,523	444,698	450,085
Public Instruction .. .. .	1,490,205	1,607,324	1,635,453	1,698,515	1,853,049
Labour and Industry .. .. .	59,510	54,049	43,759	50,111	55,156
Mines .. .. .	63,157	67,834	71,010	74,809	62,425
Agriculture .. .. .	216,366	295,943	230,163	245,298	249,244
Local Government and Main Roads .. .. .	..	..	..	21,777	29,612
All Other Services .. .. .	545,927	450,190	420,223	445,516	467,941
<b>Total Governmental .. .. .</b>	<b>£ 7,334,498</b>	<b>7,112,418</b>	<b>7,226,854</b>	<b>7,562,718</b>	<b>7,839,841</b>
<i>Business Undertakings of the State.</i>					
<b>Working Expenses—</b>					
Railways and Tramways .. .. .	6,390,420	7,123,569	6,923,379	7,233,151	7,605,045
Sydney Harbour Trust .. .. .	124,970	132,017	133,156	144,972	140,616
Metrop. Board of Water Supply and Sewerage ..	217,964	249,814	279,813	287,598	320,732
Hunter District Board of Water Supply and Sewerage ..	26,889	29,687	31,079	32,164	37,059
<b>Total Business Undertakings .. .. .</b>	<b>£ 6,760,243</b>	<b>7,535,087</b>	<b>7,372,427</b>	<b>7,697,885</b>	<b>8,103,532</b>
<b>Interest on Capital—</b>					
Railways and Tramways .. .. .	2,120,995	2,382,387	2,611,780	2,873,998	3,189,648
Sydney Harbour Trust .. .. .	207,869	234,681	250,279	275,697	323,949
Metrop. Board of Water Supply and Sewerage ..	372,714	415,944	442,019	485,507	584,023
Hunter Dist. Board of Water Supply and Sewerage ..	26,780	30,486	32,359	35,919	42,909
<b>Total Business Undertakings .. .. .</b>	<b>£ 2,737,358</b>	<b>3,068,468</b>	<b>3,336,467</b>	<b>3,671,211</b>	<b>4,140,529</b>
<b>Total Business Undertakings .. .. .</b>	<b>£ 9,497,601</b>	<b>10,598,555</b>	<b>10,708,894</b>	<b>11,369,096</b>	<b>12,244,061</b>
Transfers to Public Works and Closer Set. Funds ..	559,698	336,541	499,405	559,818	568,943
Advances made .. .. .	47,039	17,676	81,023	32,295	159,688
<b>Grand Total .. .. .</b>	<b>£ 17,488,836</b>	<b>18,065,190</b>	<b>18,516,179</b>	<b>19,553,927</b>	<b>20,806,633</b>

The headings of Revenue and Expenditure shown previously for the years ended the 30th June, 1913 to 1917, are repeated herewith, and against each is given the rate per head of population.

	Per Inhabitant.				
	1913.	1914.	1915.	1916.	1917.
	£ s. d. 1 4 6	£ s. d. 1 4 6	£ s. d. 1 4 6	£ s. d. 1 4 7	£ s. d. 1 4 7
<b>REVENUE.</b>					
<i>Governmental.</i>					
Revenue Returned by Commonwealth..					
<b>Taxation—</b>					
Stamp Duties—					
Probate, etc. . . . .	0 4 1	0 5 7	0 5 11	0 6 11	0 8 10
Other . . . . .	0 2 8	0 4 1	0 6 0	0 5 7	0 5 11
Land Tax . . . . .	0 0 1	0 0 1			
Income Tax . . . . .	0 7 6	0 14 1	0 17 9	0 18 3	1 1 2
Motor Tax . . . . .			0 0 6	0 0 7	0 0 9
Betting Taxes . . . . .				0 0 4	0 0 6
Totalizer Tax . . . . .					0 0 1
Licenses . . . . .	0 1 6	0 1 7	0 1 7	0 1 8	0 1 8
Total Taxation . . . . .	0 15 10	1 5 5	1 11 9	1 13 4	1 18 11
<b>Land Revenue—</b>					
Alienation . . . . .	0 11 3	0 10 9	0 9 9	0 11 4	0 10 5
Occupation . . . . .	0 7 3	0 7 0	0 6 6	0 6 9	0 6 6
Miscellaneous . . . . .	0 2 1	0 2 2	0 2 0	0 1 10	0 1 10
Total . . . . .	1 0 7	0 19 11	0 18 3	0 19 11	0 18 9
<b>Services Rendered (Other than Business Undertakings)</b>					
General Miscellaneous . . . . .	0 4 8	0 5 0	0 4 5	0 4 5	0 4 6
Industrial Undertakings . . . . .	0 5 7	0 5 3	0 6 0	0 5 5	0 5 10
Total Governmental . . . . .	0 0 4	0 0 1	0 0 1	0 0 1	0 0 2
<i>Business Undertakings of the State.</i>					
Railways and Tramways . . . . .	4 16 1	5 5 8	5 3 8	5 6 11	5 11 6
Sydney Harbour Trust . . . . .	0 5 1	0 5 2	0 5 0	0 5 3	0 5 6
Metropolitan Board of Water Supply and Sewerage . . . . .	0 7 1	0 7 9	0 8 7	0 9 0	0 9 4
Hunter District Board of Water Supply and Sewerage . . . . .	0 0 9	0 0 11	0 0 11	0 1 1	0 1 1
Total Business Undertakings . . . . .	5 9 0	5 19 6	5 18 2	6 2 3	6 7 5
Advances Repaid . . . . .	0 2 3	0 1 6	0 0 2	0 0 10	0 0 3
Grand Total . . . . .	9 2 9	10 1 2	10 3 4	10 10 10	11 0 5
<b>EXPENDITURE.</b>					
<i>Governmental.</i>					
Interest on Public Debt and Funds in Temporary Possession of Government (Exclusive of Business Undertakings) . . . . .	0 10 8	0 11 2	0 10 5	0 11 4	0 10 9
Reduction of Public Debt . . . . .	0 5 1	0 0 1	0 0 1	0 0 1	0 0 1
<b>Local Government—</b>					
Endowments and Grants . . . . .	0 3 2	0 2 11	0 3 0	0 3 8	0 3 3
Police and Prisons . . . . .	0 7 2	0 7 2	0 7 0	0 7 0	0 7 6
Hospitals and Charities (Including Lunacy) . . . . .	0 7 3	0 8 0	0 8 3	0 9 5	0 10 0
<b>Departments—</b>					
Premier . . . . .	0 1 4	0 0 11	0 2 0	0 1 11	0 1 5
Chief Secretary and Public Health . . . . .	0 1 3	0 1 4	0 1 5	0 1 4	0 1 5
Treasurer . . . . .	0 6 9	0 6 10	0 6 5	0 6 4	0 7 11
Attorney-General and Justice . . . . .	0 3 5	0 3 6	0 3 7	0 3 7	0 3 7
Lands . . . . .	0 4 5	0 4 2	0 4 10	0 4 5	0 4 2
Public Works . . . . .	0 6 1	0 4 7	0 4 9	0 4 9	0 4 11
Public Instruction . . . . .	0 16 9	0 17 6	0 17 6	0 18 2	0 19 11
Labour and Industry . . . . .	0 0 5	0 0 7	0 0 6	0 0 6	0 0 7
Mines . . . . .	0 0 8	0 0 9	0 0 9	0 0 19	0 0 3
Agriculture . . . . .	0 2 5	0 3 3	0 2 7	0 2 7	0 2 8
Local Government and Main Roads . . . . .				0 0 3	0 0 4
All Other Services . . . . .	0 6 2	0 4 11	0 4 6	0 4 9	0 5 0
Total Governmental . . . . .	4 3 0	3 17 8	3 17 7	4 0 11	4 4 2
<i>Business Undertakings of the State.</i>					
<b>Working Expenses—</b>					
Railways and Tramways . . . . .	3 11 10	3 17 9	3 14 4	3 17 5	4 1 8
Sydney Harbour Trust . . . . .	0 1 5	0 1 5	0 1 5	0 1 6	0 1 6
Metrop. Board of Water Supply and Sewerage . . . . .	0 2 5	0 2 9	0 3 0	0 3 1	0 3 5
Hunter Dis. Board of Water Supply and Sewerage . . . . .	0 0 4	0 0 4	0 0 4	0 0 4	0 0 5
Interest on Capital—					
Railways and Tramways . . . . .	1 3 11	1 6 0	1 8 1	1 10 9	1 14 3
Sydney Harbour Trust . . . . .	0 2 4	0 2 7	0 2 3	0 2 11	0 3 6
Metrop. Board of Water Supply and Sewerage . . . . .	0 4 2	0 4 6	0 4 9	0 5 3	0 6 3
Hunter Dis. Board of Water Supply and Sewerage . . . . .	0 0 4	0 0 4	0 0 4	0 0 5	0 0 5
Total Business Undertakings . . . . .	1 10 9	1 13 5	1 15 10	1 19 4	2 4 5
Transfers to Public Works and Closer Sett. Funds . . . . .	0 6 4	0 3 8	0 5 4	0 6 4	0 6 0
Advances made . . . . .	0 0 6	0 0 2	0 0 10	0 0 4	0 1 9
Grand Total . . . . .	9 16 7	9 17 2	9 18 8	10 9 3	11 3 4

## THE CLOSER SETTLEMENT ACCOUNT.

The Closer Settlement Account was established under Act No. 9 of 1906. The contributions have been advanced from the Consolidated Revenue Fund, from Loans, and from the balance at the credit of the Real Property Act Assurance Fund, which was transferred at the inauguration of the Closer Settlement Fund.

The subjoined statement shows the receipts and expenditure of the Closer Settlement Account for the financial year ended the 30th June, 1917:—

RECEIPTS.		£
Balance Brought Forward from Previous Year ... ..		75,122
Assurance Fees—Real Property Act ... ..		9,005
Repayments by Settlers ... ..		113,044
Repayments on Account of Improvement Leases... ..		2,650
		<hr/>
		£199,821

EXPENDITURE.		£
Under Real Property Act ... ..		375
Purchase of Estates, Including Contingent Expenses... ..		6,173
Compensation for Improvement Leases, etc. ... ..		16,796
Interest on Purchase Money ... ..		1,201
Interest on Closer Settlement Debentures, Act No. 53, 1916 ... ..		1,735
Recoup to Consolidated Revenue Fund ... ..		19,024
Balance, 30th June, 1917 ... ..		154,517
		<hr/>
		£199,821

During the period of eleven years ended the 30th June, 1917, forty-five estates had been purchased for closer settlement, exclusive of Improvement Leases, etc., resumed under Act 74 of 1912, the total area of all the estates being 1,463,267 acres. Receipts from all sources amounted to £834,485, and the expenditure was as follows:—Purchase money, £3,653,671; contingent expenses, £119,571; total, £3,773,242. On the 30th June, 1917, there were 644 purchasers with overdue instalments, the amounts outstanding being £93,354.

## THE PUBLIC WORKS ACCOUNT.

The Public Works Account, which was opened in the year 1906, under the authority of the same statute which provided for the Closer Settlement Fund, receives two-thirds of the net proceeds of the sales of Crown lands, less 20 per cent. credited to the Consolidated Revenue Fund, besides the

proceeds of land sales under the Public Instruction Act; and grants in aid are occasionally voted from the Consolidated Revenue. The transactions for the year ended the 30th June, 1917, are shown herewith.

Receipts.	Amount.	Disbursements.	Amount.
	£		£
Repayments to Credit of Votes (previous years) .. .. .	4,362	Premier—Aviation School .. .. .	19,650
		Miscellaneous .. .. .	1,147
			20,797
Two-thirds Net Proceeds of Sale of Crown Lands, Exclusive of Interest on Purchase Money—less 20 per cent. .. .. .	328,043	Colonial Secretary and Minister of Public Health—	
		Hospitals and Benevolent Asylums	57,318
		Miscellaneous .. .. .	9,538
			66,856
Net Proceeds of Sale of Land, Under Section 4, Public Instruction Act of 1880 .. .. .	920	Treasurer — Government Printing	
		Office—Plant .. .. .	1,680
		Explosives .. .. .	4,781
Transfers from Consolidated Revenue Account .. .. .	235,000	Sydney Harbour Trust .. .. .	24,970
		Miscellaneous .. .. .	1,500
			32,981
Repayment of Advance to Closer Settlement Account .. .. .	..	Attorney-General and Justice .. .. .	1,641
		Secretary for Lands—	
		Resumption of Parks, Foreshores, etc.	1,956
		Miscellaneous .. .. .	4,574
			6,530
		Public Works—Harbours and Rivers..	4,951
		Dredge Service .. .. .	2,905
		Public Buildings .. .. .	9,747
		Construction of Works Generally ..	4,258
		Metropolitan Board of Water Supply and Sewerage—Water Supply ..	19,334
		Hunter District Board of Water Supply and Sewerage—Water Supply	2,892
		Roads and Bridges .. .. .	13,044
		Main Roads Boards .. .. .	18,449
		Grants to Shires and Municipalities	7,741
		Railways and Tramways .. .. .	2,867
		Recoup to Loan Vote .. .. .	19,500
			189,688
		Public Instruction —	
		Technical .. .. .	10,987
		School Buildings, etc. .. .. .	180,929
		Miscellaneous Services .. .. .	45,309
		Recoup to Loan Vote .. .. .	25,000
			262,225
		Mines—	
		State Collieries .. .. .	9,993
		Agriculture—	
		Improvements to Parks, Gardens, etc.	5,305
		Forestry—	
		Afforestation, etc. .. .. .	15,915
		Purchases of Saw-mills, etc. ..	15,037
			30,952
		Total Works, Services, etc. .. .. .	918
Balance, 30th June, 1916, brought forward .. .. .	203,411	Balance, 30th June, 1916 .. .. .	150,817
Grand Total .. .. .	£ 777,735	Grand Total .. .. .	£ 777,735

#### EXPENDITURE ON PUBLIC WORKS.

The total expenditure on Public Works during each of the last five years is shown in the following table, together with the amount disbursed from the Public Works Fund, the Consolidated Revenue Fund, and from Loans.

Year.	Public Works Fund.	Consolidated Revenue Fund.	Loans.	Total Expenditure.	Per Inhabitant.
	£	£	£	£	£ s. d.
1913	570,831	570,768	7,703,594	8,845,193	4 19 5
1914	390,358	490,206	9,126,844	10,007,408	5 9 3
1915	583,541	533,932	6,996,107	8,113,580	4 7 2
1916	562,844	601,213	8,173,104	9,337,161	4 19 11
1917	626,918	570,652	6,862,179	8,059,749	4 6 6

## TAXATION.

License Fees, Land and Income Taxes, Stamp and Probate Duties, Motor Taxes, and Betting Taxes, represent the various forms of taxation in the State, and the subjoined statement shows the revenue derived from each source during the year ended the 30th June, 1917.

Head of Revenue.	Gross Revenue.	Refunds.	Net Revenue.
Collections from Licenses :—	£	£	£
To Retail Fermented and Spirituous Liquors, including Colonial Wine, Cider, and Perry ...	89,838		
Wholesale Spirit Dealers ... ..	4,940		
Billiard and Bagatelle ... ..	7,919		
Auctioneers ... ..	7,491		
Hawkers, Pedlars, and Pawnbrokers ... ..	2,709		
Sale of Tobacco, Cigars, and Cigarettes ... ..	3,867		
Explosives Act of 1905 ... ..	1,190	2,801	154,806
Metropolitan Traffic Act ... ..	3,508		
Motor Traffic Act ... ..	27,240		
Gaming and Betting Act, 1906 ... ..	1,202		
Theatres and Public Halls Act, 1908 ... ..	3,158		
Sunday Trading Refreshment Act, 1916 ... ..	1,526		
Inflammable Liquid Act, 1915 ... ..	1,824		
All Other ... ..	1,195		
Total, Licenses ... ..	£ 157,607	2,801	154,806
Land Tax ... ..	3,220	5	3,215
Income Tax... ..	2,043,011	69,534	1,973,477
Motor Tax ... ..	67,420	376	67,044
Stamp Duties :—			
Adhesive Stamps ... ..	161,610		
Impressed Stamps—	£		
Deeds ... ..	183,361		
Debentures, Promissory Notes, and Bills of Exchange ... ..	34,604		
Coupons, Cheques, and Receipts ... ..	98,124		
Bills of Lading, Transfers of Shares, etc. ... ..	14,533		
Less Commissions and Deductions	330,622 1,615		
Bank-note Composition... ..	320,907 1,716	6,248	1,376,980
Probate Duties ... ..	£ 814,813		
Settlement and Companies' Death Duties ... ..	11,953		
Betting Tickets ... ..	826,760		
Miscellaneous Receipts .. ..	40,849		
Paid direct to Treasury ... ..	5,918		
	17,359		
Total, Stamp Duties ... ..	£ 1,383,228	6,248	1,376,980
Betting Taxes—Racing Clubs and Bookmakers ... ..	47,597	61	47,536
Totalizator Tax ... ..	6,346	...	6,346
	53,943	61	53,882
Revenue from Taxation ... ..	£ 3,708,429	79,025	3,629,404

The control of Customs and Excise passed to the Commonwealth Government on the 1st January, 1901, and the foregoing statement consequently

does not include any figures relating to taxation from those sources. In a publication of this character it is desirable, however, that the actual amount to which the people of the State are subjected by way of taxation, whether direct or indirect, should be clearly set forth. The following statement shows in detail the net revenue from each source of taxation for the five years ended the 30th June, 1917, after deducting refunds, but making no allowance for the cost of collection.

Head of Taxation, or Charge.	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.
<b>COMMONWEALTH.</b>					
	£	£	£	£	£
Customs Duties ... ..	5,391,029	5,389,065	5,393,560	6,225,832	5,705,757
Excise " " " " " "	1,257,667	1,274,007	1,430,301	1,763,900	1,718,516
Land Tax " " " " " "	831,228	765,867	1,041,219	1,064,881	950,600
Income Tax " " " " " "	...	...	...	*1,551,653	*2,239,206
Probate and Succession Duties " " " " " "	...	...	19,232	257,363	606,311
Entertainment Tax " " " " " "	...	...	...	...	50,096
Total, Commonwealth Taxation ... £	7,479,924	7,428,939	7,884,312	10,863,569	11,269,886
<b>STATE.</b>					
Land Tax " " " " " "	5,738	4,632	3,346	3,190	3,215
Income Tax " " " " " "	662,625	1,290,370	1,633,923	1,707,403	1,973,477
<b>Stamp and Probate Duties.</b>					
Stamps " " " " " "	230,197	375,114	550,609	493,491	507,646
Bank-note Composition..	3,743	2,593	2,153	1,863	1,716
Betting Tickets.. " " " " " "	...	...	...	27,638	40,849
Probate " " " " " "	357,275	494,660	543,459	642,445	814,813
Settlement and Companies' Death Duties " " " " " "	7,975	17,869	8,170	3,109	11,956
Total, Stamp Duties £	599,190	890,236	1,094,891	1,168,546	1,376,980
Motor Tax " " " " " "	...	...	45,055	54,868	67,044
Betting Taxes " " " " " "	...	...	...	31,330	47,536
Totalizer Tax " " " " " "	...	...	...	...	6,246
Licenses " " " " " "	137,807	144,767	148,955	151,884	154,806
Total, State Taxation ... £	1,405,360	2,330,005	2,955,670	3,117,221	3,629,404
<b>LOCAL.</b>					
Wharfrage and Tonnage Rates " " " " " "	281,725	285,897	277,760	298,612	290,454
Fees for Registration of Dogs " " " " " "	16,768	17,079	17,075	16,851	16,692
Municipal Rates—					
City of Sydney " " " " " "	226,688	242,303	285,024	295,529	525,648
" " " " (Land Tax)	100,267	151,212	170,653	168,613	
Suburban and Country Municipalities " " " " " "	818,576	889,353	1,026,537	1,074,453	1,118,214
Shire Rates " " " " " "	524,548	572,924	625,501	626,514	651,437
Licenses (City Council)—					
Auctioneers, Hawkers, etc " " " " " "	1,499	1,479	1,302	2,106	1,319
Water and Sewerage Rates—(Metropolitan and Hunter) " " " " " "	699,744	794,601	882,161	942,753	965,761
Total, Local Rates and Charges ... £	2,669,815	2,954,248	3,286,103	3,425,431	3,569,525
Grand Total ... £	11,555,099	12,713,192	14,126,035	17,406,221	18,468,815

Customs and excise duties since 1910 are gross and do not take into account interstate credits and debits, which are not available for subsequent years. During 1909-10, the last year in which these credits and debits were recorded, the net interstate debits amounted to £242,955. The figures for municipal and shire rates and licenses relate to the year ended the 31st December preceding the close of the financial year in which they are included on the previous page.

## TAXATION PER INHABITANT.

The previous figures would be incomplete without corresponding information respecting the taxation per head of population, which is set forth hereunder.

Head of Taxation, or Charge.	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.
<b>COMMONWEALTH.</b>					
	£ s. d.				
Customs Duties ... ..	3 0 7	2 18 9	2 17 10½	3 6 7½	3 1 3
Excise ... ..	0 14 2	0 13 11	0 15 4	0 18 10½	0 18 5½
Land Tax ... ..	0 9 4	0 8 4	0 11 2¼	0 11 4¾	0 10 2¼
Income Tax ... ..	...	...	...	0 16 6¾	1 4 0½
Probate and Succession Duties ... ..	...	...	0 0 2½	0 2 9	0 6 6
Entertainment Tax ... ..	...	...	...	...	0 0 6¼
Total, Commonwealth Taxation ... £	4 4 1	4 1 0	4 4 7¼	5 16 2½	6 0 11¼
<b>STATE.</b>					
Land Tax ... ..	0 0 1	0 0 1	0 0 0¼	0 0 0¼	0 0 0¼
Income Tax ... ..	0 7 6	0 14 1	0 17 8¾	0 18 3¼	1 1 2¼
Stamp and Probate Duties—					
Stamps ... ..	0 2 7	0 4 1	0 5 10¾	0 5 3½	0 5 5½
Bank-note Composition ... ..	0 0 0½	0 0 0¼	0 0 0¼	0 0 0¼	...
Betting Tickets ... ..	...	...	...	0 0 3½	0 0 5½
Probate ... ..	0 4 0	0 5 5	0 5 10	0 6 10½	0 8 9
Settlement and Companies' Death Duties ... ..	0 0 1¼	0 0 2¼	0 0 1	0 0 0½	0 0 1½
Total, Stamp Duties £	0 6 8¾	0 9 8½	0 11 10	0 12 6¼	0 14 9½
Motor Tax ... ..	...	...	0 0 6	0 0 7	0 0 8¾
Betting Taxes ... ..	...	...	...	0 0 4	0 0 6¼
Totalizator Tax ... ..	...	...	...	...	0 0 0¾
Licenses ... ..	0 1 6	0 1 7	0 1 7	0 1 7½	0 1 8
Total, State Taxation £	0 15 9¾	1 5 5½	1 11 8	1 13 4¾	1 18 11¾
<b>LOCAL.</b>					
Wharfage and Tonnage Rates ... ..	0 3 2	0 3 2	0 3 0	0 3 2½	0 3 1¼
Fees for Registration of Dogs ... ..	0 0 2¼	0 0 2¼	0 0 2¼	0 0 2¼	0 0 2¼
Municipal Rates—					
City of Sydney ... ..	0 2 7	0 2 8	0 3 0½	0 3 2	} 0 5 7½
„ „ (Land Tax) ... ..	0 1 1	0 1 8	0 1 10	0 1 9½	
Suburban and Country Municipalities ... ..	0 9 3	0 9 8	0 11 0¼	0 11 6	0 12 0
Shire Rates ... ..	0 5 11	0 6 3	0 6 8½	0 6 8½	0 7 0
Licenses (City Council)—					
Auctioneers, Hawkers, etc. ... ..	0 0 0¼	0 0 0¼	0 0 0¼	0 0 0¼	0 0 0¼
Water and Sewerage Rates— (Metropolitan and Hunter) ... ..	0 7 10½	0 8 8	0 9 5½	0 10 1	0 10 4¼
Total, Local Rates and Charges ... .. £	1 10 1	1 12 3½	1 15 3¼	1 16 7¾	1 18 3½
Grand Total £	6 9 11½	6 18 9	7 11 6½	9 6 2½	9 18 2½

The foregoing tables of net revenue give a comprehensive list of the various sources of taxation, and the rates per capita prevailing for the five years ended the 30th June, 1917. During that period the proportions increased in customs duties, excise, income tax, wharfage and tonnage rates, city municipal rates, suburban and country municipal rates, shire rates, and water and sewerage rates. Decreases occurred in stamp duties, owing to fluctuations in the value of deceased estates, and in the State land tax, the latter being due to the operation of the Local Government Acts. A new source of revenue was provided by the Finance (Taxation) Acts, 1914 and 1915, under the provisions of which motor vehicles must be annually registered with the Police Department, and on such registration a fee fixed at a minimum of £1 is payable in respect of a motor cycle, motor tricycle, or taxi-cab. On other motor vehicles the license fee ranges between £2 and £20, and the basis upon which it is payable is the "horse-power" of the vehicle. Motor cars used by medical practitioners or clergymen, public motor cars (except taxi-cabs), and trade motor vehicles pay half-rates. Government and ambulance motor vehicles, and those owned by municipalities and shires, or by the City of Sydney, are exempt from taxation. The revenue benefited during 1916-17 by this tax to the extent of £67,044.

There was a noticeable decrease in the revenue derived from income, land, and stamp duty taxation between the years 1907 and 1909. This was due to amending legislation under the Acts Nos. 7 and 8 of 1907, as far as income tax and stamp duties were concerned, whereby from the 1st January, 1908, any income won by personal exertion, up to £1,000 a year, was exempt from direct taxation, but owing to new legislation, imposing a tax on incomes exceeding £300 per annum, the income tax shows a large increase in 1912, and in 1914 additional amounts were obtained by the Income Tax Amendment Act of that year, which further increased the taxes, and reduced the exemption to £250. In 1915 a Commonwealth Income Tax Act came into force, under the provisions of which all net incomes above £156, earned during the currency of the year ending the 30th June, 1915, were subjected to taxation. Stamp receipts declined from 1907 to 1909 owing to the repeal of the duties on bills of exchange, promissory notes, drafts, receipts, etc., but the death duties were not altered. Early in the year 1914 the Stamp Duties Amendment Act, 1914, became law, which imposed additional stamp duties and considerably increased the probate duties.

The decline in revenue from the State land tax is attributable to the operation of the Taxation Amending Acts of 1905 and 1906, and of the Sydney Corporation (Amendment) Act of 1908, which provide for the allotment to shires and municipalities of land taxation collected within their area. These taxation amending Acts are a necessary corollary to the Local Government Extension Act of 1906. As shown in succeeding pages, a land tax was levied by the Commonwealth Government as from the 1st July, 1910.

#### *The State Land Tax.*

The land tax of the State is levied on the unimproved value at the rate of 1d. in the £. A sum of £240 is allowed by way of exemption, and where the unimproved value is in excess of that sum, a reduction equal to the exemption is made; but where several blocks of land within the State are held by a person or company, only one amount of £240 may be deducted from the aggregate unimproved value. In cases where land is mortgaged, the mortgagor is permitted to deduct from the tax payable a sum equal to the income tax paid by the mortgagee on the interest derived from the mortgage of the whole property, including improvements.

The estates exempt from taxation consist of Crown lands not subject to the right of purchase, nor held under special or conditional lease, nor as homestead selections; other lands vested in the Crown, in the Railway Commissioners, or in local authorities; public roads, reserves, parks, cemeteries, and commons; lands occupied as public pounds, or used exclusively for, or in connection with, public hospitals, benevolent institutions, and other public charities, churches, and chapels; the University and its affiliated colleges, the Sydney Grammar School, and mechanics' institutes and schools of art; and lands dedicated to, and vested in, trustees, and used for zoological, agricultural, pastoral, or horticultural shows, or for other public or scientific purposes.

Under the Local Government Act, 1906, when the council of a shire or municipality makes and levies a general rate, not less than 1d. in the £ on the unimproved value of land within its area, the land tax ceases to be collected by the State therein. A similar provision was extended to the City of Sydney under the operation of the Sydney Corporation (Amendment) Act, 1908.

The land tax is now levied, therefore, only on the unincorporated portion of the Western Division of the State.

#### *The State Income Tax.*

The former Acts relating to income tax were amended by the Income Tax Act, 1911. Under its provisions a tax became payable by all persons other than companies in receipt of £300 per annum, derived from all sources within New South Wales. In the case of companies the total receipts became taxable.

Under the Income Tax (Amendment) Act, 1914, further increases were imposed, and the exemption was reduced to £250, no deduction being allowed to companies. A taxpayer is entitled to a deduction of £50 in respect of each child under 18 years of age wholly maintained by him, and insurance premiums up to £50 are exempt.

The tax payable by any company is 1s. in the £ on the taxable income of the company, and the rates per £ for persons other than companies are as follow:—

So much of income is chargeable—

As does not exceed £700	...	...	...	...	...	8d.
As exceeds £700 and does not exceed £1,700	...	...	...	...	...	9d.
„ £1,700	„	£2,700	...	...	...	10d.
„ £2,700	„	£4,700	...	...	...	11d.
„ £4,700	„	£6,700	...	...	...	1s.
„ £6,700	„	£9,700	...	...	...	1s. 1d.
„ £9,700	...	...	...	...	...	1s. 2d.

In each case an addition of one-third of the tax is made on so much of the income as is derived from the produce of property.

The following incomes are exempt from income-tax, viz.:—

- (a) The revenues of municipal corporations or other local authorities.
- (b) The incomes of mutual life assurance societies, and of other companies or societies not carrying on business for purposes of profit or gain, except income from mortgages.
- (c) The funds and incomes of societies registered under the Friendly Societies Act, or under any Act relating to trade unions.
- (d) The incomes and revenues of all ecclesiastical, charitable, and educational institutions of a public character, whether supported wholly or partly by grants from the Consolidated Revenue Fund or not.
- (e) Income arising or accruing to any person from Government debentures, inscribed stock, and treasury bills.
- (f) Dividends derived from shares in a company.

These exemptions do not extend to the salaries and wages of persons employed by any such corporation, company, society, or institution, although the same be paid wholly or in part out of the revenues or funds thereof.

#### THE INCREASE OF STATE INCOME TAX FOR YEARS 1914 TO 1916.

Under the Finance (Taxation) Act, 1914, the amount in the pound which was imposed on any taxable income by the Income Tax Act, 1911, and amendments of 1912 and 1914, with respect to the tax on income received during the year 1914, was increased by the sum of threepence. A similar increase of threepence in the pound with respect to tax on income received during the years 1915 and 1916 was imposed by the Finance (Taxation) Act, 1915, and the Income Tax Act, 1916.

#### THE REVENUE FROM STATE LAND AND INCOME TAXES.

The revenue from land and income taxes since 1896, the year in which they were first imposed, is shown herewith. The amounts exclude refunds rendered necessary through correction of errors by the taxpayer, or through adjustments by the Department, but they include refunds brought about through the income of the year of assessment falling short of the amount of the income of the preceding year on which the assessment was made—a provision which was repealed by the Land and Income Tax Amendment Act, 1904.

Year.	Land Tax.	Income Tax.	Year.	Land Tax.	Income Tax.
	£	£		£	£
1896	...	27,658	1907	345,497	283,422
1897	139,079	295,537	1908	178,889	215,283
1898	364,131	166,395	1909	80,794	202,369
1899	253,901	178,032	1910	9,066	219,977
1900	286,227	183,460	1911	7,438	269,142
1901	288,369	215,893	1912	6,479	644,571
1902	301,981	203,625	1913	5,738	662,625
1903	314,104	214,686	1914	4,692	1,290,370
1904	322,246	193,240	1915	3,346	1,653,923
1905	323,267	195,252	1916	3,190	1,707,403
1906	329,998	266,233	1917	3,215	1,973,477

The fluctuations shown in the first three years are due to the difficulties inseparable from the introduction of a system of direct taxation; the returns for 1899 and subsequent years, however, are under normal conditions, which have been varied according to the rate in the case of the income tax, and by the transfer of the land tax to shires and municipalities.

#### THE BETTING TAXES.

The Finance (Taxation) Act, 1915, imposed taxes on racing clubs and associations, and on bookmakers.

With regard to the clubs, the rates are levied on licenses and fees received from bookmakers, and range from 25 per cent. on racecourses within 40 miles of the General Post Office, Sydney, or 20 miles from the Post Office, Newcastle, to 10 per cent. on courses outside the limits mentioned.

The taxes payable by bookmakers are regulated according to the particular courses where operations are carried on, and vary considerably. Bookmakers licensed by the Australian Jockey Club pay from £5 to £50 for the privilege of betting at Randwick, and from £10 to £20 for operating on other courses under the control of that club. Bookmakers doing business under other clubs and associations in the metropolitan and Newcastle districts are charged from £10 to £20 per annum, and at Broken Hill and other country centres the charges range from £5 to £10. The total amount received during the half-year ended the 30th June, 1917, from the betting taxes, was £47,536.

The Act further provided for the imposition of a stamp duty on all betting tickets issued by bookmakers, the amount being one penny in the saddling paddock, and one half-penny for the other parts of the racecourse. The revenue derived from this source during the half-year ended the 30th June, 1917, was £40,849, which will be largely augmented in following years.

#### THE TOTALIZATOR TAX.

For the purpose of increasing the revenue of the State by means of the profits earned by the speculative portion of the community, the Government passed the Totalizator Act (No. 75, 1916), which became law on the 20th December, 1916. The revenue derived from this source for the first six months during which it was in operation, and ended the 30th June, 1917, was £6,346.

Under this Act all registered racing clubs and associations must establish an approved totalizator within a specified period, generally the 31st March, 1917. A few of the racing bodies have already complied with the regulations, but extensions have been granted in cases where large buildings require to be erected.

The amount of commission to be deducted from the total amount invested is 10 per cent., and an additional 1 per cent. is allowed as a sinking fund to meet the cost of the machines. Seven-tenths of the deductions must be paid to the State Treasurer, and the other three-tenths are retained by the clubs for prizes and upkeep of the buildings.

Returns must be sent to the State Treasurer, within fourteen days after the races, of all moneys received and commission retained, and of the expense of conducting the meetings. Penalties are imposed for breaches of the Act, such as betting by minors or issuing tickets to such persons, paying totalizator odds by bookmakers, persons acting as selling agents, officers of clubs accepting telegraphic or telephonic messages, officers receiving moneys after the starting of races, impeding inspectors, and various other offences.

#### THE COMMONWEALTH LAND TAX.

The Commonwealth Government levied a graduated tax on the unimproved value of the lands of the Commonwealth, as from the 1st July, 1910. In the case of owners who were not absentees, an amount of £5,000 was exempt, and the rate of tax ranged from 1d. for the first £1 of value in excess of that amount, and increased uniformly to 3½d. in the £ on a taxable balance of £75,000, with 6d. in the £ for every £ in excess of that amount. Absentee owners were required to pay 1d. in the £ up to £5,000, with a

uniform progression for the next £75,000, reaching 4½d. in the £. On every £ in excess of £80,000 the rate payable was 7d.

By amendments to the Act taking effect from the 30th June, 1914, the rates were increased, and interests in certain Crown leases hitherto exempt have now become taxable. Within the same limits as before, regarding taxable balances, the progression now ranges from 1d. to 5d. where land is held by residents, and from 2d. to 6d. where the owners are absentees. After the progression ceases residents pay a flat rate of 9d. in the £, and absentees one of 10d. in the £. Interests in Crown leases, carrying the right of purchase, were liable to taxation under the original Act, but since the 30th June, 1914, interests in Crown leases, with a term exceeding one year, are all practically taken into assessments. Lands exempt from taxation are such as are owned by a State, municipality, or other public authority, by savings banks, friendly societies, or trades unions, or such as are used solely for religious, charitable, or educational purposes, etc.

The tax is very comprehensive; all interests, both direct and indirect, are included in a taxpayer's assessment, and his rate is fixed accordingly. To avoid double taxation, deductions are made, however, in respect of tax paid by any primary taxpayer or precedent secondary taxpayer, but the principle of progression must always be maintained. Care has been taken not to penalise owners of land affected by pre-existing contracts, or held under settlements made before the commencement of the Act, or under wills of persons who died before the 30th June, 1910.

The following statement, and the latest available, shows the assessments by the Commonwealth Land Tax Department for the State of New South Wales for the year ended 1913-14.

Classification.	Residents.	Absentees.	Total.
Values assessed :—	£	£	£
Town Lands—			
Improved ... ..	59,314,778	2,303,120	61,617,898
Unimproved ... ..	30,449,899	1,207,326	31,657,225
Tax ... ..	272,591	16,815	289,406
Country Lands—			
Improved ... ..	116,977,254	1,221,257	118,198,511
Unimproved ... ..	55,330,314	544,714	55,875,028
Tax ... ..	463,105	7,736	470,841
Total—			
Improved ... ..	176,292,032	3,524,377	179,816,409
Unimproved ... ..	85,780,213	1,752,040	87,532,253
Tax ... ..	735,696	24,551	760,247
	Acres.	Acres.	Acres.
Area of Country Land assessed in New South Wales ... ..	33,224,162	341,768	33,565,930

The total figures for New South Wales show that the land tax for residents was £735,696; for absentees, £24,551; or total, £760,247. For the whole Commonwealth the corresponding figures were: Residents, £1,395,985; absentees, £55,788; grand total, £1,451,773.

The area of land in New South Wales included in taxable returns was 33,565,930 acres, or 52.6 per cent. of the taxable land in the Commonwealth of Australia.

## THE COMMONWEALTH INCOME TAX.

In addition to the taxation of incomes imposed by the State, an income tax is levied by the Commonwealth.

The income tax payable for each financial year is based on the income derived from sources within Australia during the period of twelve months ending the 30th June preceding the financial year for which the tax is payable.

The exemptions from taxation include the revenues and funds of local governing bodies or public authorities; friendly societies not conducted for pecuniary profit; trades unions and kindred associations; religious, scientific, charitable, or public educational institutions; such funds as may be derived from bonds, debentures, or stock of the Commonwealth issued for the purposes of war loans authorised up to the 1st January, 1917; provident, benefit, or superannuation funds established for the benefit of the employees of any business, or of such as may have been established by will or instrument of trust for approved public charitable purposes; the salaries of the Governor-General of the Commonwealth and the State Governors; and the official salaries of foreign consuls and of the trade commissioners of any part of the British Dominions. Neither does the Act apply to persons on active service with the Commonwealth Forces, nor with those of Great Britain or of her Allies, as regards income derived from personal exertion, and earned prior to the commencement of the Act, or during the present war.

Every person resident in Australia, not specifically defined as exempt under the clauses of the Income Tax Assessment Act, 1915-16, is liable to pay tax; but the Income Tax Act of 1917 enlarged the scope of taxation, and consequently curtailed the qualifications of exemption: it is necessary, therefore, to consider the two Acts in conjunction.

Under the Income Tax Assessment Act of 1915-16, which co-ordinates similar Acts, the taxable persons and incomes of the Commonwealth were defined as (a) "a person, not an absentee, the total income of whom from all sources in Australia exceeds the sum of £156"; (b) "an absentee, the total income (of whom) from all sources in Australia exceeds the sum of £1"; and (c) "a person who is not married, has no dependents, and is not an absentee, the total income (of whom) from all sources in Australia amounts to the sum of £100 or upwards." Absentees are assessed on their total incomes from all sources in Australia exceeding the sum of one pound sterling.

The exempted portion of the income has a modifying correlation to taxable balances; thus a person (a) in receipt of an income exceeding £156, derived from personal exertion, is assessed on that amount, less £1 for every £4 by which the income exceeds £156; and in the case of income derived from property, for £156, less £5 for every £11 in excess of £156. The amounts exempted from assessment are therefore progressively diminishing with the increase in the respective incomes, and reach a vanishing point, in the former case at £624, and in the latter at £497.

When the taxable income derived from personal exertion reaches the sum of £7,600, and that derived from property the sum of £6,500, the impost is resolved automatically into a flat rate of 5s. on every pound sterling in excess.

When the total taxable income consists partly of income from personal exertion, and partly of income from property, the deduction is apportioned *pro rata* between the income from each source.

In the case of a person (c), not an absentee, who has no dependents, there is a statutory basic exemption of £100, and a further exemption on

the second £100 of £25, or, in the words of subsection (3) of section 19 of the Income Tax Assessment Act (1915-16):—"In the case of a person (not being an absentee) without a dependent, there shall be deducted, in addition to the sums set forth in the last preceding section, the sum of £100, less £1 for every £4 by which the income exceeds £100." In cases such as this the lowest assessment on ratable income is £1.

The Commonwealth Income Tax Act of 1917 promulgates revised schedules of rates of taxation, besides enlarging the area of liability.

The new legislation includes every male who is unmarried or a widower without children, and who is over the age of 21, the amount payable being £5 or 5 per cent. of his taxable income, whichever may be the greater.

The Federal Commissioner of Taxation has the power, however, to reduce the amount payable under the operation of this section, provided proof be established that full payment would impose hardship on the taxpayer by reason of the support he was under the obligation of giving to his dependents.

From the operation of this section any person is exempt who has been on active service outside Australia during the present war, who is a member of an expeditionary force raised for service outside Australia, or who has enlisted for service outside Australia on a ship of war. Exemption is allowed also to any person the majority of whose brothers of military age have been on active service, are members of expeditionary forces, or have enlisted under the terms stated above; to any person permanently incapacitated for work, and is in receipt of a gross income not exceeding £150, or who is in receipt of an invalid or old-age pension, or who is over the age of sixty and has a gross income of less than £100; though nothing in the section cited will relieve any person of the liability to pay income tax under any other provision of the Act.

Under the preceding section (6), a subsection (3) defines the term "taxable income" as "the amount which is ascertained by deducting from the taxable income of the person within the meaning of the Income Tax Assessment Act (1915-16) the sum of £26 in respect of each dependent wholly dependent upon him, and such less sum as the Commissioner allows in respect of each dependent partially dependent upon him."

Subject to exemptions already detailed, the rate of taxation upon incomes derived from personal exertion is  $3\frac{2}{3}$  d. per pound sterling up to £7,600, increased uniformly with each increase of one pound sterling of the taxable income by three eight-hundredths of one penny, until an average rate of 2s.  $7\frac{1}{2}$  d. per pound is reached at £7,600. Over £7,600 the rate per pound sterling is 5s.

The rate of taxation upon income derived from property, subject to exemptions already detailed, is stated by the following formula:—

$$R = \left( 3 + \frac{I}{181.058} \right) \text{pence,}$$

R being equal to the average rate of tax in pence per pound sterling, and I to taxable income in pounds sterling up to £546.

Over the sum of £546, and up to £2,000, the tax increases continuously with the increase of the taxable income "in a curve of the second degree," till it reaches 33.6 pence per pound sterling on £2,000 10s.; thence up to the amount of £6,500 the tax increases continuously with the increase of the taxable income "in a curve of the third degree"; and then, for every pound sterling in excess of £6,500 the rate of the tax is 5s.

In the case of incomes derived both from personal exertion and from property, the procedure is as follows:—For every pound sterling of taxable

income derived from personal exertion the rate of the tax is ascertained by dividing the total amount of the tax that would be payable if the total taxable income of the taxpayer were derived exclusively from personal exertion by the total taxable income; and for every pound sterling of taxable income derived from property the rate of the tax is ascertained by dividing the total amount of the tax that would be payable if the total taxable income were derived exclusively from property by the total taxable income.

Companies pay a flat rate of one shilling and tenpence half-penny in the pound on such of the taxable incomes as have not been distributed to their members or shareholders; but for every pound sterling of income distributed to members, shareholders, or stockbrokers who are absentees, and of interest paid or credited to any person who is an absentee, in respect of the debentures of a company, or on money lodged at interest with a company by such person, the rate of the tax is sixpence.

In addition to the rates specified a supertax of 25 per cent. was imposed by the Act of 1917 on such incomes as were derived from personal exertion, from property, or partly from personal exertion and partly from property.

#### THE COMMONWEALTH ESTATE DUTIES.

The Estates Assessment Act (No. 22 of 1914) provides for the imposition of a duty on properties of all persons dying after the commencement of the Act. The rates are 1 per cent. where the total value does not exceed £2,000, and an additional one-fifth of a pound for every thousand pounds, or part thereof, in excess of two thousand pounds, the maximum being 15 per cent.

A reduction of two-thirds of the above rates is allowed if the estate is left to the widow, children, or grandchildren of the testator.

#### THE COMMONWEALTH ENTERTAINMENT TAX.

An additional measure of taxation, entitled the Entertainment Tax Assessment Act (No. 38 of 1916), provided for the levy of a duty on all tickets for admission to every class of amusement. The rates were fixed as follow:—Payment for admission exceeding sixpence and not exceeding one shilling, one penny on each ticket; for admission exceeding one shilling, one penny for the first shilling, and one halfpenny for every extra sixpence or part thereof.

#### THE LAND REVENUE OF THE STATE.

The receipts from the sale and occupation of Crown lands are treated as public income. Although the proceeds from occupation, being rent, can be reasonably regarded as an item of revenue, the inclusion of the proceeds of auction, conditional purchase, and other classes of sale as ordinary revenue is open to serious objection. It has been urged in justification of this course that the sums so obtained have empowered the Government to construct works, which enhance the value of the remaining public lands and facilitate settlement, and to endow local bodies, thus enabling them to carry out local improvements. Under the Act, passed in 1906, instituting the Public Works Fund, two-thirds of the net proceeds of the sale of Crown lands, less 20 per cent., equivalent to a clear 33½ per cent., are paid into the fund so created.

The revenue derived from lands may be grouped under three main heads—(a) auction sales and other forms of unconditional sale; (b) conditional sales under the system of deferred payments; (c) rents from pastoral, mining, and other classes of occupation. The first and second sources have been amalgamated under the head of Alienation, and the last is classed as Occupation.

More than half the annual receipts from land are obtained from alienation, as shown in the following table, which presents in detail the revenue from 1913 to 1917.

Head of Revenue.	1913.	1914.	1915.	1916.	1917.
	£	£	£	£	£
<i>Alienation—</i>					
Sales, etc. :—					
Auction Sales ... ..	63,001	43,762	31,630	27,329	25,330
Other ... ..	29,854	21,279	14,070	19,090	11,401
Total ... ..	92,855	65,041	45,700	46,419	36,731
<i>Conditional Purchases :—</i>					
Deposits and Improvements	62,303	42,068	25,782	37,083	37,601
Instalments and Interest...	660,703	721,470	715,697	794,267	780,924
Interest (under Act of 1861)	17,094	17,279	16,131	18,319	15,352
Balances ... ..	138,013	101,210	71,231	128,502	71,777
Homestead Selections ...	40,768	43,409	38,621	39,656	35,499
Total ... ..	918,881	925,436	867,462	1,017,827	941,153
Total, Alienation	1,011,736	990,477	913,162	1,064,246	977,884
<i>Occupation—</i>					
<i>Pastoral :—</i>					
Pastoral Leases ... ..	720	735	769	734	736
Conditional Leases ...	207,043	211,662	201,526	206,530	198,481
Occupation Licenses ...	25,051	23,060	21,242	20,621	20,120
Homestead and Farm Leases	1,551	1,114	1,085	1,343	1,359
Annual and Snow, Inferior and Scrub Leases.	40,607	37,405	35,639	31,902	31,038
Settlement Leases ... ..	79,147	72,238	67,743	68,204	61,723
Improvement Leases ...	46,203	40,947	37,693	37,167	34,644
Western Land Division Leases	89,613	84,662	87,488	90,073	87,588
Other Leases ... ..	36,533	40,337	41,105	50,045	48,193
Total ... ..	526,468	512,160	494,290	503,619	484,882
<i>Mining :—</i>					
Mineral Leases ... ..	18,796	19,682	15,426	15,602	15,168
Leases of Auriferous Lands	1,837	1,755	1,668	1,315	1,226
Miners' Rights ... ..	3,004	2,780	2,434	2,399	2,201
Royalty on Minerals ...	103,851	110,893	99,345	111,194	104,129
Other ... ..	9,945	10,092	8,455	7,664	7,294
Total ... ..	137,433	145,202	127,378	138,174	130,018
Total, Occupation	663,901	657,362	621,668	644,793	614,900
<i>Miscellaneous Land Receipts—</i>					
Survey Fees ... ..	27,423	25,992	22,623	24,898	23,121
Rents, Special Objects ...	44,546	47,174	52,800	57,087	53,650
Timber Licenses, Royalty, etc.	96,929	98,972	88,908	66,922	68,218
Quit Rents, and Other Receipts	35,459	45,830	30,649	34,631	32,146
Total ... ..	204,362	215,968	194,980	183,538	177,135
Gross Revenue from Lands	1,879,999	1,863,807	1,720,810	1,892,577	1,769,919
Refunds ... ..	44,051	34,920	31,729	27,264	22,910
Net Revenue from Lands...	1,835,948	1,828,887	1,689,081	1,865,313	1,747,009

The land policy of the State, though largely connected with public finance, has been fully discussed in that part of this volume dealing with Land Settlement.

## RECEIPTS FOR SERVICES RENDERED.

Information in detail for the year ended the 30th June, 1917, of the amount collected for services rendered by the State, other than for trading concerns, is shown in the following statement.

Heading.	Gross Revenue.	Refunds.	Net Revenue.
Fees and Charges—	£	£	£
Agricultural Colleges and Farms ... ..	5,727	197	5,530
Pilotage, Harbour Dues, and Fees—	£		
Pilotage ... ..	31,819	} 393	} 68,977
Harbour and Light Rates ... ..	28,739		
Harbour Dues ... ..	4,621		
Navigation Department—Fees, etc. ... ..	4,191		
Mint Receipts ... ..	6,789	...	6,789
Public Instruction Department—			
Training Fees ... ..	1,357	}	}
Registration of Brands ... ..	2,415		
Fees of Office—			
Registrar-General ... ..	77,315	} 563	} 172,801
Courts of Petty Sessions ... ..	22,904		
District Courts ... ..	1,939		
Supreme Court ... ..	33,453		
Shipping Masters ... ..	6,947		
Fees for Registration of Dogs ... ..	16,692		
Other Fees ... ..	10,337		
Rent of Public Watering-places, etc. ... ..	6,839		
For the Support of Patients in Mental Hospitals ... ..	48,960		
Store Rent and Carriage of Explosives... ..	25,745		
For Work Performed by Prisoners in Gaol ... ..	751		
Collections by Government Printer ... ..	9,428		
For the Support of Children in the Industrial Schools, and Inmates of Benevolent Asylums, Hospitals, etc. ... ..	23,095		
Fumigation and Inspection Fees... ..	7,547		
Commonwealth Government ... ..	9,174		
Haulage, etc., at Port Kembla ... ..	21,021		
Other Receipts ... ..	10,933		
Total Receipts for Services Rendered ... ..	£ 418,746	1,401	417,345

## GENERAL MISCELLANEOUS RECEIPTS.

All items which cannot be placed under one of the classes mentioned in the previous pages (Taxation, Land Revenue, and Receipts for Services Rendered) are grouped under the heading of "General Miscellaneous Receipts." The subjoined statement shows the amount received under each head of

revenue during the financial year ended the 30th June, 1917, and the balance of the revenue collected within New South Wales by the Commonwealth Government and returned to the State.

Head of Revenue.	Gross Revenue.	Refunds.	Net Revenue.
Rents, etc. (Exclusive of Land)—	£	£	£
Wharfage and Tonnage Rates, etc. (Outports) ...	7,975	} 1,195	31,523
Government Buildings and Premises ... ..	24,743		
Darling Harbour Resumed Area... ..	58,966		
Public Service Superannuation Act, No. 8 of 1903 ...	10,395		
Interest on Public Moneys—			
Interest on Advances under Country Towns Water Supply and Sewerage Act ... ..	52,886	.....	52,886
Interest on Bank Deposits and Other Temporary Investments of Public Moneys ... ..	4,606	.....	4,606
Interest on Water and Drainage Works, etc. ...	11,731	.....	11,731
„ Great Cobar Reservoirs Certificates ...	2,400	.....	2,400
„ Sale of Wire-netting... ..	2,493	.....	2,493
„ Value of Properties Transferred to Commonwealth ... ..	167,485	.....	167,485
„ Housing Fund Capital Account ...	3,922	.....	3,922
„ Accrued on Loans, Including Discount ...	5,962	.....	5,962
„ Other ... ..	4,808	.....	4,808
Fines and Forfeitures—			
Sheriff ... ..	2,408	} 413	31,234
Courts of Petty Sessions ... ..	28,052		
Confiscated and Unclaimed Property ... ..	164		
Industrial Arbitration Court ... ..	858		
Other... ..	165		
Water Conservation and Irrigation Commission ...	1,681	55	1,626
Repayments—			
Repayment to Credit of Votes—Previous Years ...	47,560	} 3,290	160,057
Value of Materials Issued by Government Stores Department ... ..	3,303		
Seed Wheat—Previous Years ... ..	66		
Annandale Garbage Destructor ... ..	238		
Balances not required ... ..	31,545		
Exchange on Cheques ... ..	1,224		
Sale of Government Property ... ..	14,559		
Receipts under Fisheries Act ... ..	10,248		
Pastures Protection Act—Contributions ... ..	2,029		
Costs Recovered in Various Actions ... ..	2,517		
Centennial Park Land Sales... ..	500		
Hay and Wentworth Irrigation Areas—Rent, Water Rates, etc. ... ..	3,833		
Unclaimed Moneys ... ..	2,469		
Broken Hill Water Supply Account ... ..	34,783		
Other Unclassified Receipts... ..	8,568		
Total General Miscellaneous Receipts ... ..	555,150	5,142	550,008
Balance of Revenue collected within the State by the Commonwealth Government and returned ...	£ 2,286,913	.....	2,286,913
Industrial Undertakings—Interest and Contributions (Act, No. 22, 1912) ... ..	£ 12,710	.....	12,710

#### EXPENSES OF GENERAL GOVERNMENT.

The figures given on page 247 regarding the revenue of New South Wales include the amount received on account of the business undertakings of the State—viz., Railways, Tramways, Water Supply and Sewerage, and the Sydney Harbour Trust—and as a consequence of this system the annual cost of maintaining those services is included in the expenditure.

The following statement shows the progress of expenditure classified under two headings—the ordinary expenditure of the General Government, including interest on the capital liability of the services connected therewith, and the expenditure on services practically outside the administration of General Government, such as railways, tramways, water supply and sewerage, and the Sydney Harbour Trust, including interest on capital liability of the services enumerated. The figures for the ten years ended the 30th June, 1917, and the rates per inhabitant, were as follow:—

Year ended 30th June.	Governmental.			Business Undertakings.				Grand Total Expenditure (Including Advances).
	General Services.	Interest and Redemptions.	Total.	Railways and Tramways.	Water Supply and Sewerage.	Sydney Harbour Trust.	Total.	
	£	£	£	£	£	£	£	£
1908	6,586,223	1,136,188	7,722,411	5,285,058	504,073	278,743	6,067,874	13,790,285
1909	6,986,290	1,233,849	8,220,139	5,698,801	524,254	283,327	6,506,382	14,726,521
1910	6,046,888	1,223,963	7,275,851	6,131,654	536,669	286,212	6,954,535	14,230,386
1911	5,616,317	1,211,103	6,827,420	6,759,942	576,072	307,253	7,643,267	14,470,687
1912	6,379,242	1,334,136	7,713,378	7,501,224	608,534	314,143	8,423,901	16,137,279
1913	6,589,738	1,401,497	7,991,235	8,520,415	644,347	332,839	9,497,601	17,488,836
1914	6,438,271	1,028,364	7,466,635	9,505,926	725,931	366,698	10,598,555	18,065,190
1915	6,830,162	977,123	7,807,285	9,540,159	785,300	383,435	10,708,894	18,516,179
1916	7,120,558	1,034,273	8,184,831	10,107,149	841,278	420,669	11,369,096	19,553,927
1917	7,551,511	1,011,061	8,562,572	10,794,693	984,803	464,565	12,244,061	20,066,633

## Expenditure per Inhabitant.

	£ s. d.							
1908	4 6 3	0 14 7	5 1 10	3 8 1	0 6 6	0 3 7	3 18 2	9 0 0
1909	4 9 5	0 15 11	5 5 4	3 13 1	0 6 9	0 3 7	4 3 5	9 8 9
1910	3 15 10	0 15 4	4 11 2	3 16 10	0 6 8	0 3 7	4 7 1	8 18 3
1911	3 8 6	0 14 9	4 3 3	4 2 6	0 7 1	0 3 9	4 13 4	8 16 7
1912	3 15 0	0 15 9	4 10 9	4 8 4	0 7 3	0 3 8	4 19 3	9 10 0
1913	3 14 1	0 15 9	4 9 10	4 15 9	0 7 3	0 3 9	5 6 9	9 16 7
1914	3 10 3	0 11 3	4 1 6	5 3 9	0 7 11	0 4 0	5 15 8	9 17 2
1915	3 13 4	0 10 6	4 3 10	5 2 6	0 8 5	0 4 1	5 15 0	9 18 10
1916	3 16 2	0 11 5	4 7 7	5 8 2	0 9 0	0 4 6	6 1 8	10 9 3
1917	4 1 1	0 10 10	4 11 11	5 15 10	0 10 7	0 5 0	6 11 5	11 3 4

The expenses of General Government include civil and legal expenditure, the cost of education, public works constructed out of the ordinary revenue,

and also the interest payable in cases where the proceeds of loans have been used to defray the cost of construction, together with the sinking fund instalments, transfers to Closer Settlement and Public Works Funds, and advances.

### THE TRADING CONCERNS OF THE STATE.

The subjoined table shows the transactions of the State business and industrial undertakings during the year ended 30th June, 1917.

Service.	Total Capital Expenditure From Loans, Public Works Fund, and Consolidated Revenue.	Revenue.	Expenditure.			Net Revenue or Expenditure.
			Working Expenses, including Rates and Taxes.	Interest, Sinking Fund, Depreciation Insurance, and Reserves.	Total.	
<b>Business Undertakings—</b>						
Railways and Tramways . . . . .	£ 86,873,328	£ 10,390,692	£ 7,605,045	£ 3,189,645	£ 10,794,693	(-) 404,091
Sydney Harbour Trust . . . . .	8,650,889	511,981	140,616	323,949	464,565	47,416
Water Supply & S.—Metropolitan Do Hunter District	14,892,483 1,131,576	896,313 99,448	320,782 37,089	584,023 42,909	9,486,051 79,958	(-) 38,492 19,450
<b>Total, Business Undertakings . . . . .</b>	<b>111,458,276</b>	<b>11,563,344</b>	<b>8,103,532</b>	<b>4,140,529</b>	<b>12,244,661</b>	<b>(-) 375,717</b>
<b>Industrial Undertakings—</b>						
Murrumbidgee Irrigation Areas	3,855,593	248,170	272,080	170,428	442,503	(-) 194,338
Timber Yard, etc.—Uhr's Point	163,309	223,351	221,704	12,594	234,293	(-) 10,857
Trawlers	127,631	30,624	30,053	7,337	43,490	(-) 12,866
Brickworks—Homebush Bay	88,853	63,693	51,801	8,223	60,024	3,672
Blue Metal Quarries—Kiama and Port Kembla	86,531	167,639	56,670	12,839	98,959	8,700
Power Station—Uhr's Point	32,670	4,146	3,432	8,266	6,898	(-) 2,752
Brickworks—Botany	29,975	11,689	12,793	2,822	15,615	(-) 3,926
Joinery Works—Rozelle	25,812	..	812	1,116	1,925	(-) 1,928
Monier Pipe Works	18,022	46,828	32,962	7,441	40,693	6,225
Building Construction	17,573	377,214	399,281	7,394	263,683	8,531
State Bakery	16,474	67,022	58,212	1,552	60,061	1,958
Sawmills—Craven and Gloucester	15,141	7,392	5,935	487	6,433	819
Lime Works—Taree and Botany	14,387	114	59	1,151	1,201	(-) 1,087
Stone Quarry—Maroubra	13,453	26,730	24,691	1,941	26,032	698
State Clothing Factory	13,170	47,507	44,843	873	45,716	1,791
Motor Garage	7,534	16,459	14,954	585	15,539	920
<b>Total, Industrial Undertakings . . . . .</b>	<b>4,526,678</b>	<b>1,273,491</b>	<b>1,232,342</b>	<b>235,589</b>	<b>1,467,931</b>	<b>(-) 194,440</b>
<b>Other Services—</b>						
Observatory Hill, Resumed Area	1,336,595	64,516	15,465	52,118	70,583	(-) 6,667
—“The Rocks”	1,262,956	167,333	167,314	15,699	120,314	46,924
Metropolitan Meat Industry	159,961	9,323	1,735	6,399	8,134	1,189
Dacey Garden Suburb	..	..	..	..	..	..
<b>Total, Other Services . . . . .</b>	<b>2,759,512</b>	<b>241,077</b>	<b>125,514</b>	<b>73,517</b>	<b>199,031</b>	<b>42,046</b>
<b>Grand Total . . . . .</b>	<b>£ 118,735,466</b>	<b>13,382,912</b>	<b>9,461,838</b>	<b>4,449,635</b>	<b>13,911,023</b>	<b>(-) 528,111</b>

Some of the services shown in the foregoing table have been established recently, and the initial working expenses are in consequence heavy. In the case of the Kiama and Port Kembla blue metal quarries, the capital expenditure, namely, £86,531, is inclusive of an amount of £10,000 repaid from profits, and in that of the brickworks at Homebush Bay (namely, £88,853), of £15,000 repaid from a similar source. The joinery works at Rozelle, the lineworks at Taree and Botany, and the brickworks at the last-named locality were not in operation as Government industrial undertakings on the 30th June, 1917. The first had been destroyed by fire over three years previously, the Taree lime-kiln had been leased to a private company since January, 1917, and the Botany brickworks failed through over-capitalisation and other causes.

With regard to the Murrumbidgee irrigation areas, on which a loss of £194,338 is shown for the year, the interest on the large capital expenditure accounts for nearly the whole of the deficit; but this will be decreased by effluxion of time, as the receipts from water rates, rents for leases, and

income from other sources will be largely augmented when the works are completed. It is to be noted, moreover, that in view of the special circumstances attending this enterprise, it is not practicable to distinguish the trading loss as in other undertakings. It is contended that the magnitude of the scheme, its experimental nature, its developmental character, its future significance, among other unique considerations, should have precluded its classification under the existing category of industrial undertakings, and a better method would have been found in the separation of the workings into two divisions, namely: (1) Operations necessary in connection with the land, such as rentals of holdings, agistment, and water distribution, as one undertaking, operated as one concrete national project; and (2) the combination of the varied activities, such as butter, canning, cheese, and other factories and the various trading departments as one industrial undertaking, carrying on operations under the Act governing such utilities. This division could be accomplished, however, only by amending legislation.

Practically all the trading concerns incidental to the scheme, and worked as industrial undertakings, have failed to achieve the objective of self-support. This result is due mainly to over-capitalisation, the installation of unnecessary and surplus plant and machinery, and the high prices of supplies required for treatment. Only three trading departments concluded the year with profits, and these were the Nursery, the Live Stock, and the Stores.

Of the sixteen specifically-defined industrial undertakings, three are no longer operative, but they still appear in the yearly reports and balance-sheets. It is deemed advisable that some statutory provision should be made to meet the requirements of such cases by the passing into law an enactment automatically terminating any State enterprise which no longer comes practically within the purview of the Industrial Undertakings Act, and charging the consequent trading and capital losses to the Consolidated Revenue Fund.

The following table shows the transactions of all the State business undertakings, industrial undertakings, and "other services" during the years 1908-1917.

Year ended 30th June.	Capital Expenditure.	Revenue.	Expenditure.			Net Revenue or Expenditure.	Proportion of Net Revenue to Capital Expenditure.
			Working Expenses.	Interest, Sinking Fund, Depreciation, and Reserves.	Total.		
	£	£	£	£	£	£	per cent.
1908	68,304,869	6,900,472	3,764,646	2,357,679	6,122,325	778,147	1·15
1909	70,688,419	7,046,585	4,160,641	2,401,566	6,562,207	484,378	0·70
1910	73,611,671	7,615,024	4,595,710	2,413,263	7,008,973	606,051	0·84
1911	76,638,228	8,428,818	5,153,728	2,551,760	7,705,488	723,330	0·96
1912	81,150,817	9,194,758	5,800,117	2,974,066	8,774,183	420,575	0·52
1913	87,156,379	9,964,935	6,980,391	3,125,531	10,105,922	(-) 140,987	(-) 0·16
1914	95,188,549	11,541,295	8,056,766	3,135,475	11,192,241	349,054	0·37
1915	101,265,111	11,861,098	8,128,891	3,429,486	11,558,377	362,721	0·50
1916	112,299,306	12,502,391	8,638,534	3,944,306	12,582,840	(-) 80,449	(-) 0·07
1917	118,735,466	13,382,912	9,461,388	4,449,635	13,911,023	(-) 528,111	(-) 0·44

#### TRUST FUNDS AND SPECIAL DEPOSITS.

The Trust Funds and Special Deposits form a very important division of the public finances, not only from the nature of the transactions and the volume of accumulation, but also by reason of the manner in which they are used in conjunction with the general finances of the State. The following table shows the amount of these funds at the eight quinquennial periods

from 1871 to 1901, and thence for each year succeeding. The first five entries in the figures given herewith represent periods ending the 31st December.

As at 30th June.	Amount.	As at 30th June.	Amount.	As at 30th June.	Amount.
	£		£		£
1871	213,340	1902	11,720,889	1910	2,743,156
1876	854,571	1903	10,564,026	1911	4,522,915
1881	1,671,183	1904	10,191,160	1912	5,547,741
1886	2,702,486	1905	10,562,513	1913	6,134,067
1891	4,997,055	1906	10,007,626	1914	5,341,000
1896	7,657,741	1907	2,359,665	1915	5,259,710
1900	10,103,940	1908	1,867,442	1916	5,601,471
1901	10,823,128	1909	2,575,757	1917	5,619,703

The decrease in the amounts shown since 1906 is due to the removal of the securities belonging to the Government Savings Bank to the control of the Savings Bank Commissioners. As these securities are not now vested in the State Treasurer they are excluded from the Public Accounts.

The trust funds under the supervision of the State Treasurer are divided into two classes, viz.:—Special Deposits Account and Special Accounts. The total of all moneys under these headings on the 30th June, 1917, was £5,619,703—viz., the Special Deposits Account, £5,228,508, and the Special Accounts, £391,195. The amount at the credit of each account is shown in the following table.

*Special Deposits Account.*

£		£	
Government Savings Bank of New South Wales Deposit Account ... ..	2,997,514	Forestry Account (No. 55 of 1916) Treasury Guarantee Fund ...	9,973 21,402
Government Savings Bank of New South Wales Advances Deposit Account ... ..	468,500	Treasury Fire Insurance Fund Sobraon Fund ... ..	89,282 10,000
State Debt Commissioners' Deposit Account ... ..	107,261	Water and Drainage Loan Re- demption Fund ... ..	41,744
State Debt Trust Accounts ...	138,082	Union Trustee Company of Aus- tralia, Limited ... ..	20,000
Public Works and Railway Con- struction Stores Advance Account ... ..	200,651	Government Dock, Newcastle— Suspense and Store Advance Accounts ... ..	8,192
Fixed Deposits Account ...	213,101	Unclaimed Salaries and Wages Account ... ..	23,396
Industrial Undertakings ...	93,738	Public Trustee — Unclaimed Balances ... ..	38,920
Sundry Deposits Account ...	490,599	Norton Griffiths and Co.—Store Advance Account ... ..	60,482
Municipal Council of Sydney, Sinking Funds ... ..	133,258	Other Accounts — less than £10,000... ..	30,344
Government Railways Super- annuation Account ... ..	13,581		
Housing Fund ... ..	8,464		
Revenue Suspense Account ...	10,024	Total ... ..	£5,228,508

*Special Accounts.*

£		£	
Master-in-Equity Account ...	92,597	Prothonotary Account ... ..	27,835
Master-in-Lunacy Account ...	8,559	Registrar of Probates' Account	24,749
Public Trustee Account ...	237,455	Total ... ..	391,195

Grand Total, Special Deposits and Special Accounts, £5,619,703.

The existence of a large account upon which the Treasurer is free to operate is of great assistance to the Consolidated Revenue, the Trust Funds and the Special Deposits forming a strong reserve on which the Government may draw in time of need. The great bulk of the funds bear interest, whether invested or not, but the power to use them enables the Government to effect a large saving of the interest which might otherwise be charged for accommodation from the banks.

Of the total sum of £5,619,703 at the credit of the Special Deposits and the Special Accounts on the 30th June, 1917, £64,151 was invested in securities; £4,501,372 was uninvested, but used in Advances and on Public Account at interest; the remainder, £1,054,180, was similarly used, but without an interest charge.

The rate of interest paid on the 30th June, 1917, was 3 per cent., with the following exceptions:—

Crown Leases Security Deposit Account	...	...	...	4 per cent.
Government Savings Bank of N.S.W. Deposit Account	...	4 and 4½	..	
"    "    Advances Deposit Account	...	4	..	
Fixed Deposits Account	...	...	...	1 to 4 ..
Municipal Council of Sydney (50 Vic., No. 13) Sinking Fund	...	4	..	
State Debt Commissioners' Deposit Account	...	...	...	4½ ..
Master-in-Equity and Master-in-Lunacy Accounts	...	...	...	1 ..

On the 30th June, 1917, the trust funds in the custody of the State Treasurer were held as follow:—

In Banks—	£
Special Deposits Account	5,164,357
Special Accounts	391,195
New South Wales Funded Stock	22,500
Treasury Bills	20,030
Fixed Deposit (Metropolitan Board of Water and Sewerage Trust Account)	1,250
Miscellaneous Securities	20,401
<b>Total</b>	<b>£5,619,733</b>

The total amount of interest received by the Treasury during the year ended June, 1917, on bank deposits and other temporary investments of public moneys was £4,606.

#### TRUSTEES AUDIT ACT.

The Trustees Audit Act, 1912, empowers the Auditor-General, at the request of the Treasurer or of any Minister of the Crown, to examine and audit any books and documents relating to the accounts of persons working shale or coal mines, or obtaining gold or other minerals in respect of which royalty is payable to the Crown; also the accounts of pastures protection boards, trusts under the Water and Drainage Act, schools of art, hospitals, and other institutions or persons in receipt of a subsidy, or of assistance from the public funds. If it appeared from such audit that any money had been applied improperly, or the provisions of the Acts contravened, such transactions might be surcharged and disallowed, and the money misapplied deducted from future subsidies, or recovered as provided according to the Acts. A large number of inspections were made during the year ended the 30th June, 1917, and resulted in the discovery of certain defalcations.

## LOAN APPROPRIATIONS.

All items of expenditure to be met by loan are authorised under an Appropriation Act, in the same manner as the ordinary expenditure chargeable to the general revenue, and under the Inscribed Stock Act, 1902, the passing of the Loan Appropriation Act conferring the power of raising the money required. There is a restriction on the expenditure of money, whether from loans or revenue, in the provisions of the Public Works Act. Under that Act the question of constructing all works estimated to cost more than £20,000, except those connected with the maintenance of railways, is referred by resolution of the Legislative Assembly to the Parliamentary Standing Committee appointed during the first session of each parliament. The Committee investigates and reports to the Parliament, and the Assembly declares whether it is expedient to carry out the proposed work. If the declaration be favourable, a Bill based thereon must be passed before the authorisation is absolute.

Under the Loan Acts from 1894 to 1899 the principle was introduced of redemption by a terminal date, guaranteed upon the Consolidated Revenue by the creation of a sinking fund and the issue of interest-bearing stock. The scheme permitted the construction of public works on a cash basis by a system of deferred payment, but the expediency of its application was somewhat discounted by its inclusion of expenditure on unproductive or non-productive enterprises.

The loan appropriations, in quinquennial periods since 1875, are shown in the subjoined table, the amounts proposed to be expended on public works being distinguished from those required for the redemption of previous loans.

Period.	Amount authorised—		
	For Public Works and Services.	For Redemption of Loans.	Total.
	£	£	£
1875-9	10,768,768	...	10,768,768
1880-4	26,457,803	...	26,457,803
1885-9	11,123,394	2,113,800	13,237,194
1890-4	15,927,993	2,910,800	18,838,793
1895-9	13,661,046	2,275,200	15,936,246
1900-4	17,690,893	2,841,612	20,532,505
1905-9	10,509,590	7,480,054	17,989,644
1910-14	22,649,240	2,549,350	25,198,590
1915	7,560,702	...	7,560,702
1916	5,851,480	...	5,851,480
1917	3,992,130	...	3,992,130

## RAILWAYS LOAN ACCOUNT.

The Railways Loan Account, which was opened under the authority of Act No. 4, 1910, together with subsequent Acts passed in the years 1913 and 1915, increased to £8,000,000 the maximum amount which could be borrowed. This account is applied to meet the cost of duplicating portions of the main trunk lines of railways and other works in that connection.

The following are the transactions for the year 1916-17:—

Receipts—	£	Expenditure—	£
Balance brought forward from 1915-16 ... ..	1,388,893	Duplications—	
Proceeds of Sale— Funded Stock ... ..	170,357	Main Suburban Line ... ..	2
Repayment to Votes on Ac- count of Previous Years ...	648	Southern Line ... ..	467,193
		Western Line ... ..	88,912
		Northern Line ... ..	29,131
		South Coast Line ... ..	168,045
		<u>753,283</u>	
		Repayment of Loan ... ..	170,357
		Credit Balance Carried For- ward to 1917-18 ... ..	636,258
	<u>£1,559,898</u>		<u>£1,559,898</u>

#### LOAN ACCOUNTS.

The following figures show the amount of loans raised from the commencement of the Loan Account, in 1853, to the 30th June, 1917, and the proceeds available for expenditure, including the moneys credited to the Railways Loan Account.

Treasury Bills, Debentures, Inscribed and Funded Stock sold to the 30th June, 1917 ... ..	£200,340,248
Discount, Interest, Bonus, and Charges ... ..	5,920,207
Net amount raised ... ..	£194,420,041
Add net amount transferred from Consolidated Revenue to make good amount short-raised ... ..	176,767
	<u>£194,596,808</u>
Less Treasury Bills in aid of Revenue not placed to Loan Account	4,769,653
„ Proceeds of Old Loans not included in Loan Accounts ...	724,733
„ Amounts over-raised and not placed to Loan Account ...	48,760
	<u>£5,543,146</u>
Net amount available for Public Works, etc. ... ..	£189,053,662

The foregoing statement shows that a sum of £200,340,248 had been raised by loans to the 30th June, 1917, in connection with which the discount, interest, bonus, and other charges amounted to £5,920,207, leaving £194,420,041 available for expenditure. The effective value of this last-cited amount was reduced by the sum of £5,543,146, so that, taking into account £176,767 transferred from Consolidated Revenue, the net amount available for public works, etc., was £189,053,662.

On the 30th June, 1917, an amount of £62,201,901 had been redeemed, of which £9,524,105 was a charge on the Consolidated Revenue, and £138,138,347 was left outstanding at the close of the last financial year. The aggregate amount of interest paid by the State on loans to the 30th June, 1917, was £99,183,163, the charge during the last financial year being £4,914,211.

The uses to which the available sum of £189,053,662 was applied are shown in the following table. The sum of £52,677,796 for redemption of loans is

included in the total; this amount was not, of course, an item of expenditure, but its inclusion is necessary to account fully for the total of £192,052,437, in which the original as well as the redemption loans were included.

Expended on—	£	£
<b>Reproductive Works :—</b>		
Railways... ..	77,205,050	
Tramways ... ..	8,782,505	
Water Supply ... ..	10,865,504	
Sewerage... ..	7,882,500	
Sydney Harbour Trust ... ..	8,239,210	
Darling Harbour Wharves Resumptions ... ..	1,324,657	
Industrial Undertakings ... ..	560,892	
	—————	114,860,318
<b>Partly Productive Works :—</b>		
Conservation of Water, Artesian Boring, etc. ... ..	5,028,253	
Harbours and Rivers—Navigation ... ..	5,837,354	
Roads, Bridges, and Punts ... ..	1,820,546	
Housing Fund ... ..	154,000	
	—————	12,840,153
Public Buildings and Sites ... ..	7,094,300	
Immigration ... ..	569,930	
Public Works in Queensland Prior to Separation ... ..	49,855	
	—————	7,714,085
<b>Commonwealth Services—</b>		
Construction of Telegraph and Telephone Lines .. ..	1,297,582	
Post and Telegraph Offices ... ..	464,262	
Fortifications and Defence Works ... ..	1,457,533	
Lighthouses ... ..	144,288	
Customs Buildings ... ..	48,880	
Quarantine Buildings ... ..	18,099	
Government Dockyard—Cockatoo Island ... ..	502,988	
Naval Victualling Stores—Darling Harbour ... ..	26,450	
	—————	3,960,085
		£139,374,641
<b>Redemptions :—</b>		
Loans repaid under various Acts, etc. ... ..	25,272,896	
Treasury Bills for Loan Services repaid ... ..	27,404,900	
	—————	52,677,796
		£192,052,437
Add Credit Balance of Railways Loan Account ... ..		636,258
		£192,688,695
Less Debit Balance, General Loan Account ... ..	£3,376,517	
"    "    "    Loans Expenditure Suspense Account ... ..	441,616	
	—————	3,818,133
		£188,870,562
Repayment Railways Loan Account ... ..		170,357
Credits—Other Accounts (details not available) ... ..		12,743
		—————
Total ... ..		£189,053,662

The sum actually expended from loans on public services was, therefore, £139,374,641, the balance to make up the total of £192,052,437, being represented by redemptions. An analysis of the foregoing shows that the proportional allocation of the items of loan expenditure was as follows:—Reproductive works, 82 per cent.; partly productive works, 9 per cent.; other, 6 per cent.; Commonwealth services, 3 per cent.

The loan expenditure on account of the various services during each of the past five years is shown herewith.

Head of Service.	1913.	1914.	1915.	1916.	1917.
	£	£	£	£	£
Railways ... ..	3,614,306	4,903,328	4,394,318	4,787,669	3,706,422
Tramways... ..	1,004,661	811,636	296,590	195,963	136,387
Water Supply and Sewerage—					
Water Supply ... ..	517,146	606,521	621,021	760,693	731,211
Sewerage ... ..	445,774	428,133	381,695	389,593	348,918
Water Conservation and Irrigation ... ..	632,173	907,843	365,544	335,078	355,420
Harbours, Wharves, and Docks	682,502	856,468	684,368	1,045,741	1,021,444
Rivers ... ..	*4,247	3,443	*433	8,593	10,697
Dredges, Tugs, Punts, etc. ...	*2,075	3,016	1,296	957	5,058
Roads and Bridges ... ..	1,451	23,703	8,609	421	5,428
Public Works, Buildings, etc.—					
Educational ... ..	*60	10,830	16,905	8,792	...
Public Instruction, School Buildings, etc. ... ..	235,005	228,397	*21,103	*17,532	*25,158
Public Abattoirs, Homebush.	58,205	82,480	315,510	201,669	249,435
Other ... ..	116,881	17,075	83,824	35,279	72,074
Closer Settlement ... ..	300,000	...	*300,000	...	...
Pastures Protection Boards, for Wire-netting ... ..	3,012	2,318	*174	*5,733	*3,918
Roads of Access to Crown Lands	*251	...	...	...	...
Promotion of Agriculture, Clearing Land for Wheat-growing, etc. ... ..	...	...	48,188	28,956	60,008
Industrial Undertakings, including Housing Fund ... ..	99,111	241,653	115,613	81,229	87,606
Shires and Municipalities, for Works ... ..	...	...	17,310	*10,457	*1,322
Advances to Settlers, for Wheat-growing ... ..	...	...	6,026	48,683	*2,747
Advances to Settlers, as Financial Assistance ... ..	...	...	...	12,446	*1,457
Site of Horse-breeding Farm ...	...	...	...	53,389	1,956
Returned Soldiers' Settlement, etc. ... ..	...	...	...	...	85,324
Advances in Connection with Agreement with Norton Griffiths & Co., including Stores, etc. ... ..	...	...	...	141,175	38,893
Mines—Great Cobar, Ltd.—Certificates taken up by Government ... ..	...	...	...	40,000	...
Public Works Fund—Amount recouped ... ..	...	...	*39,000	*19,500	*19,500
Total Expenditure on Public Works, etc. ... ..	£ 7,703,594	9,126,844	6,996,107	8,173,104	6,862,179
Loans repaid by New Loans (including Treasury Bills) ...	3,940,778	757,772	8,864,654	2,814,025	1,467,083
Total ... ..	£ 11,644,372	9,884,616	15,860,761	10,987,129	8,329,262

\* Excess repayments to credit of votes over expenditure.

It will be seen that the bulk of the proceeds of loans has been judiciously utilised, as most of the works are of a self-supporting character, and have materially assisted in developing the State's resources, enhancing largely the value of the public estate.

The loan expenditure, exclusive of payments on account of redemptions, conversions, and renewals, is shown herewith for 1842-1890, in quinquennial periods from 1891 to 1915, and for the years 1916 and 1917.

Year	During Each Period.		At the End of Each Period.	
	Amount.	Per Inhabitant.	Amount.	Per Inhabitant.
1842-1890	£	£ s. d.	£	£ s. d.
1891-1895	11,683,598	9 18 10	43,955,551	39 3 7
1896-1900	8,832,106	6 15 0	53,639,149	44 9 8
1901-1905	16,297,655	11 12 11	64,471,255	47 12 1
1906-1910	10,579,736	6 16 9	80,768,910	55 10 9
1911-1915	33,239,406	18 14 0	91,347,723	56 11 11
1916	8,173,104	4 7 5	124,339,358	66 11 3
1917	6,862,179	3 13 8	132,512,462	71 1 1
			139,374,641	74 12 8

The difference between the actual loan expenditure as shown in the previous table, and the public debt as stated below, is due to the fact that the outstanding debt represents the gross amount, and the expenditure is the net amount which remains after deducting discount and expenses of flotation, and allowing for balances of loan accounts.

#### THE PUBLIC DEBT.

The public debt outstanding at each quinquennial period and at the close of the financial years 1916 and 1917 is given in the subjoined table.

Year.	Amount.	Year.	Amount.	Year.	Amount.
	£		£		£
1842	49,500	1870	9,681,130	1900	65,332,993
1845	97,900	1875	11,470,637	1905	82,321,998
1850	132,500	1880	14,903,919	1910	92,525,095
1855	1,000,800	1885	35,564,259	1915	127,735,405
1860	3,830,230	1890	48,383,333	1916	130,514,018
1865	5,749,630	1895	58,220,933	1917	138,138,347

The following table shows the position of the public debt as at the close of each year ended the 30th June, during the last decennium. The amount of bonds or stock sold has been placed against the year in which the sales were effected, and not against the year in which they were brought to account.

Year ended 30th June.	Authorised to date.	Raised.	Redeemed.			Public Debt on 30th June.	
			From Consolidated Revenue and Sinking Fund.	From General Loan Account, including Renewals.	Total.	Total.	Per Inhabitant.
	£	£	£	£	£	£	£ s. d.
1908	139,512,294	120,029,343	7,425,887	24,967,630	32,393,517	87,635,826	56 15 7
1909	140,192,315	126,241,736	7,725,887	28,208,430	35,934,317	90,307,419	57 6 7
1910	146,305,227	132,465,258	8,231,066	31,709,097	39,940,163	92,525,095	57 6 6
1911	153,188,227	138,797,372	8,475,887	34,797,559	43,273,446	95,523,926	57 9 9
1912	159,512,197	143,662,006	8,775,887	34,833,484	43,609,371	100,052,635	57 10 9
1913	163,186,717	154,464,714	9,519,705	38,774,262	48,293,967	106,170,747	58 13 9
1914	183,018,817	165,746,770	9,519,705	39,532,034	49,051,739	116,695,031	62 16 9
1915	207,445,569	185,651,798	9,519,705	48,396,688	57,916,393	127,735,405	68 7 8
1916	220,603,887	191,244,436	9,519,705	51,210,713	60,730,418	130,514,018	69 19 8
1917	228,636,874	200,340,248	9,524,105	52,677,796	62,201,901	138,138,347	73 19 5

In former years the State Government depended largely upon the London money market for the flotation of its loans, but during recent times and until the outbreak of the Great War in August, 1914, the requirements were met to a much greater extent locally, as will be seen from the sub-joined statement, which shows the public debt on each register for the ten years ended the 30th June, 1917. Stocks may be transferred at any time from London to Sydney.

Year Ended 30th June.	Registered in London.		Registered in Sydney.		Total Public Debt.
	Amount.	Proportion to Total Debt.	Amount.	Proportion to Total Debt.	
1908	£ 64,600,860	per cent. 73·71	£ 23,034,966	per cent. 26·29	£ 87,635,826
1909	67,073,905	74·27	23,233,514	25·73	90,307,419
1910	67,154,805	72·58	25,370,290	27·42	92,525,095
1911	65,555,605	68·63	29,968,321	31·37	95,523,926
1912	67,525,305	67·49	32,527,330	32·51	100,052,635
1913	73,740,413	69·45	32,430,334	30·55	106,170,747
1914	83,499,113	71·55	33,195,918	28·45	116,695,031
1915	86,167,288	67·46	41,568,117	32·54	127,735,405
1916	87,153,587	66·78	43,360,431	33·22	130,514,018
1917	92,647,203	67·07	45,491,144	32·93	138,138,347

From the foregoing figures it will be noted that the amount of liabilities held locally at the close of the financial year 1916-17 amounted to nearly one-third of the total indebtedness.

The following table shows the annual payments under each head for interest and expenses of the public debt since 1908.

Year Ended 30th June.	Interest.	Redemptions.	Expenses Connected With Management of Inscribed Stock.	Commission Paid to Financial Agents in England and New South Wales.	Total Interest and Charges paid.	
					Total.	Per Inhabitant.
1908	£ 2,986,844	£ 406,145	£ 21,143	£ 5,641	£ 3,419,773	£ s. d. 2 4 0
1909	3,039,539	478,791	20,501	3,046	3,541,877	2 4 10
1910	3,117,472	421,034	18,894	4,621	3,562,021	2 4 4
1911	3,227,315	409,349	19,095	4,159	3,659,918	2 4 8
1912	3,430,096	436,921	19,088	2,918	3,889,023	2 5 11
1913	3,516,233	450,602	19,990	1,511	3,988,336	2 4 10
1914	3,881,011	5,632	21,171	1,039	3,908,853	2 2 8
1915	4,125,600	5,688	21,394	1,492	4,154,174	2 4 7
1916	4,552,765	6,504	21,705	2,117	4,583,091	2 9 2
1917	4,914,211	6,868	22,297	1,991	4,945,367	2 13 1

The average rate of interest on the whole of the public debt at the end of the financial year 1917 was 3·81 per cent.

The public debt is partly funded and partly unfunded, the former comprising debentures and inscribed and funded stocks; and Treasury bills constituting the latter. The amounts outstanding, and the annual interest payable on the 30th June, 1917, were as follow:—

Description of Stock.	Amount Outstanding, 30th June, 1917.	Annual Interest Payable.
Debentures—	£	£
Matured ... ..	4,650	...
Still Bearing Interest ... ..	11,910,800	529,510
Stock—		
Matured ... ..	12,767	...
N. S. W. 4 per cents. ... ..	539,189	21,208
„ 1924 Stock ... ..	198,065	5,942
„ 1925 „ ... ..	222,255	6,668
Inscribed and Funded Stock ... ..	113,836,026	4,202,839
<b>Total, Funded Debt...</b>	<b>£126,714,752</b>	<b>£4,766,167</b>
Treasury Bills—		
For Public Works ... ..	9,425,133	399,861
Renewals ... ..	1,998,462	90,965
<b>Total, Unfunded Debt</b>	<b>£11,423,595</b>	<b>£490,826</b>
<b>Total, Public Debt</b>	<b>£138,138,347</b>	<b>£5,256,993</b>

The following table shows the total amount of stock and bills outstanding at each rate of interest, and the annual interest payable thereon.

Interest—Per cent.	Amount of Stock and Bills.	Annual Interest payable.
	£	£
5½ ... ..	3,000,000	165,000
5¼ ... ..	2,695,400	141,508
5 ... ..	3,986,612	199,288
4½ ... ..	12,028,737	541,293
4¼ ... ..	7,400,000	305,250
4 ... ..	28,160,107	1,125,742
3¾ ... ..	13,514,098	506,779
3½ ... ..	50,806,321	1,760,721
3 ... ..	17,047,072	511,412
<b>Total</b>	<b>£138,138,347</b>	<b>£5,256,993</b>

The total stock and bills shown in the foregoing table include £17,417 not now bearing interest, viz.:—£850 floated at 5 per cent., and £16,567 at 4 per cent. It must also be stated that the rate given for the £7,400,000 outstanding, viz., 4½ per cent., is approximate only, as it has not been definitely fixed.

## THE DATES OF MATURITY.

The dates of repayment extend from 1916 to 1962, and the sums falling due for redemption vary considerably, as detailed in the following table, which shows the due dates and the amount repayable in London and in Sydney.

Due Date.	Registered in—		Total.
	London.	Sydney.	
	£	£	£
Overdue ... ..	3,850	13,567	17,417
1917 ... ..	...	616,667	616,667
1918 ... ..	12,648,978	6,960,555	19,609,533
*1919 ... ..	...	11,670,569	11,670,569
1920 ... ..	1,722,700	3,885,020	5,607,720
1921 ... ..	276,800	5,449,043	5,725,843
†1922 ... ..	6,900,000	195,800	7,095,800
‡1923 ... ..	1,894,665	5,961,817	7,856,482
1924 ... ..	16,464,545	233,520	16,698,065
1925 ... ..	...	311,799	311,799
1926 ... ..	...	415,000	415,000
§1927 ... ..	8,000,000	1,769,105	9,769,105
1933 ... ..	9,686,300	...	9,686,300
1935 ... ..	12,475,165	24,835	12,500,000
¶1950 .. ..	12,073,000	177,000	12,250,000
1962 ... ..	10,500,000	...	10,500,000
Interminable ... ..	1,200	531,689	532,889
**Indefinite ... ..	...	7,275,158	7,275,158
Total ... ..	£ 92,647,203	45,491,144	138,138,347

\* Includes £120,050 redeemable on or after 4th April, 1919, at option of Government, on giving twelve months' notice. † Includes £2,500,000 redeemable after 15th August, 1920, on Government giving three months' notice. ‡ Includes £1,900,000 redeemable whole, or in part, on or after 1st July, 1921, at Government option, on giving three months' notice. § Redeemable after 1st July, 1922, in whole or in part, on Government giving three months' notice. ¶ Redeemable after 1st July, 1930, on Government giving six months' notice. || Redeemable after 1st July, 1942, on Government giving six months' notice. \*\* Minimum date expired—redeemable at option of Government, on giving twelve months' notice

## THE COST OF RAISING LOANS.

The charges incidental to the issue of loans in London are heavy. Operations are conducted by the Bank of England and by the London and Westminster Bank. The former charges  $\frac{1}{4}$  per cent. per £100 of stock on all loan issues, and £350 per million annually for the inscription and management of stock, including the payment of the half-yearly dividends; and the latter charges  $\frac{1}{4}$  per cent. and £150 per million respectively for similar services.

In Sydney the Bank of New South Wales and the Commercial Banking Company of Sydney (Limited) transact all Government banking business. The former acts as the financial agent for the State in Victoria, and also undertakes the payment of the half-yearly dividends on local debentures and funded stock. The Treasury directly conducts the operations connected with the issue of New South Wales funded stock and Treasury bills, and no local loan has been underwritten.

The subjoined statement shows the charges for the negotiation of loans floated during the period from 1904-5 to 1916-17, inclusive of the accrued interest and bonuses allowed to investors. Treasury bills have not been included in the subjoined statement, because they are usually disposed of at the Treasury, Sydney, and are negotiated at par, no expenditure, as a general proceeding, being involved, and should this happen the amount is insignificant. Debentures issued in Sydney that carried no charges of flotation are not given, nor are loans placed on the London markets for which particulars have not yet been received.

Year when Floated.	Amount of Principal.	Gross Proceeds.	Charges, etc.					Expenses per £100 of Gross Proceeds.
			Stamp Duty.	Bank Commission.	Paid to Investors—Interest Bonus and Discount Bonus.	Brokerage, Underwriting, Postage, and Petty Expenses.	Total.	
	£	£	£	£	£	£	£	£ s. d.
Issued (in London) as Debentures.								
1904-5	2,000,000	1,990,000	2,500	5,000	737	30,272	38,509	1 18 8
1912-13	4,500,000	4,425,000	5,625	11,250	4,360	68,743	89,978	2 0 8
1914-15	*7,000,000	6,965,000	23,310	17,500	9,015	106,553	156,379	2 4 11
1916-17	2,500,000	2,500,000	3,095	6,250	14,389	38,650	62,384	2 9 11
Issued (in Sydney) as Funded Stock.								
1905-6	1,328,346	1,328,346				2,735	2,735	0 4 1
1906-7	2,826,382	2,826,382				5,283	5,283	0 3 9
1907-8	3,342,710	3,342,710				7,372	7,372	0 4 5
1908-9	462,393	462,393				666	666	0 2 10
1909-10	3,473,523	3,473,523				4,927	4,927	0 2 10
1910-11	6,332,113	6,332,113		Nil		6,811	6,811	0 2 2
1911-12	2,864,634	2,864,634				2,327	2,327	0 1 8
1912-13	2,552,700	2,552,700				4,622	4,622	0 3 7
1913-14	532,056	532,056				1,300	1,300	0 4 11
1916-17	1,770,154	1,770,154				2,110	2,110	0 4 8
Issued (in London) as Inscribed Stock.								
1905-6	2,000,000	1,990,000	12,500	5,000	19,102	30,491	67,093	7 5
1907-8	3,000,000	3,000,000	18,750	7,500	40,143	45,358	112,251	3 14 10
1908-9	4,500,000	4,417,500	28,125	11,250	41,921	68,700	149,996	3 7 11
1909-10	2,750,000	2,667,500	17,187	6,875	22,154	42,131	88,347	3 3
1912-13	3,000,000	2,985,000	18,750	7,500	9,334	46,220	81,804	2 14 10
1913-14	7,500,000	7,312,500	46,875	18,750	55,473	115,270	236,368	3 3 1

\* Floated as Debentures, but portion subsequently converted into Stock.

The Sydney sales take place at the Treasury on the basis of £100 cash for every £100 of stock, and a commission of  $\frac{1}{2}$  per cent. is allowed when a broker is engaged. The average cost of negotiation for all issues since 1905 did not exceed 3s. 1d. per cent., whilst the charges for London loans, with the additional  $1\frac{1}{4}$  per cent. for underwriting, averaged £1 16s. 3d. for debentures and £3 5s. 9d. for inscribed stock.

## STOCK QUOTATIONS, 1916-17.

The average market prices of stock in London and Sydney are shown in the subjoined table for each month of the year 1916-17. Where blanks appear quotations have not been recorded.

Date.	London—Average Market Price.						Sydney—Average Market Price.				
	$5\frac{1}{4}$ per cent. Stock.	5 per cent. Stock.	$4\frac{1}{2}$ per cent. Stock.	4 per cent. Stock.	$3\frac{1}{2}$ per cent. Stock.	3 per cent. Stock.	$4\frac{1}{2}$ per cent. Stock.	4 per cent. Stock.	$3\frac{3}{4}$ per cent. Stock.	$3\frac{1}{2}$ per cent. Stock.	3 per cent. Stock.
1916.	£	£	£	£	£	£	£	£	£	£	£
July ...	...	...	96	...	..	...	$96\frac{2}{3}$	$97\frac{1}{2}$	$93\frac{1}{3}$	$78\frac{2}{3}$	$64\frac{1}{2}$
August ...	...	99	95	$85\frac{1}{2}$	86	73	$96\frac{2}{3}$	$96\frac{1}{3}$	$93\frac{1}{8}$	85	$64\frac{1}{2}$
September ...	...	99	95	$85\frac{1}{2}$	$85\frac{3}{4}$	$71\frac{3}{8}$	97	$91\frac{1}{4}$	$94\frac{3}{4}$	$82\frac{3}{4}$	$64\frac{1}{2}$
October ...	98	$98\frac{1}{2}$	94	83	84	70	$97\frac{1}{2}$	$93\frac{1}{4}$	$94\frac{1}{4}$	91	65
November	98	$98\frac{3}{8}$	94	$82\frac{3}{4}$	$84\frac{1}{8}$	70	97	97	$94\frac{1}{2}$	$89\frac{3}{4}$	65
December.	98	96	$92\frac{1}{2}$	$81\frac{3}{4}$	$83\frac{1}{8}$	70	$96\frac{1}{2}$	$93\frac{1}{3}$	$93\frac{1}{2}$	$88\frac{1}{2}$	...
1917.											
January ...	...	...	92	} No Quotations }	}	}	$96\frac{1}{2}$	90	$92\frac{1}{8}$	88	...
February..	...	...	$89\frac{1}{2}$				$96\frac{1}{8}$	90	$95\frac{1}{2}$	...	...
March ...	...	...	$89\frac{1}{2}$				$97$	90	$95\frac{1}{8}$	89	$64\frac{1}{2}$
April ...	...	...	$89\frac{1}{2}$				$96\frac{1}{2}$	...	$97\frac{3}{4}$	$89\frac{1}{4}$	...
May ...	...	...	92				97	...	96	90	...
June ...	...	...	90				$97\frac{1}{2}$	...	$94\frac{1}{3}$	91	...

## REDEMPTIONS AND SINKING FUNDS.

Under the provisions of the State Debt and Sinking Fund Act, 1904, a board called the "State Debt Commissioners" was constituted, the members of which were the Treasurer, the Chief Justice, the Speaker of the Legislative Assembly, and the Under Secretary for Finance and Trade, to administer, from the 1st July, 1905, various trust accounts and balances at credit of certain special accounts in connection with the Treasury Bills Deficiency Acts of 1895, 1900, and 1901, the Railway Loan Redemption Act of 1899, and the sinking funds created by various loan Acts passed from 1894 to 1899. That Act provided for a general sinking fund, and an annual appropriation of £350,000 was paid to the credit of the fund, together with such further amount as Parliament had to provide. Under the Treasury Bills Deficiency Act, 1905, an additional £50,000 was required to be transferred to the fund whenever the operations of a financial year left a

sufficiently large surplus to enable this to be done. The Commissioners applied the amount at the credit of the fund in purchasing, redeeming, or paying-off Government stock, debentures, or Treasury bills; and they were empowered to invest the moneys under the Act. The State Debt and Sinking Fund (Amendment) Act, 1914, provided that where at the close of a year there was a deficiency on the Consolidated Revenue Account the Commissioners should repay any amount, not being greater than such deficiency, which had been issued from the fund to the Commissioners during the year.

The transactions under the Act for the financial year ended the 30th June, 1917, were as follow:—

RECEIPTS.		£
Annual Contribution from Consolidated Revenue Fund	... ..	350,000
Repayments—		
Country Towns Water Supply	... ..	5,481
Country Towns Sewerage	... ..	816
Closer Settlement under Crown Lands Act of 1895	... ..	6,868
Interest on Funded Stock	... ..	12,863
Interest on Deposit with Colonial Treasurer	... ..	2,372
Total Receipts...	... ..	378,400
Balance brought forward from 1915-16	... ..	439,612
		£818,012
EXPENDITURE.		
Repayments—		
Annual contribution from Consolidated Revenue Fund (in terms of section 2 of State Debt and Sinking Fund Amendment Act, 1914)	... ..	350,000
Redemption of Funded Stock (face value, £4,400)	... ..	4,383
Balance carried forward—		
Invested in N.S.W. Funded Stock	... ..	356,303
On Deposit with Colonial Treasurer	... ..	107,262
On Account Current	... ..	64
		463,629
Total	... ..	£818,012

#### CHARACTER OF STOCK ISSUED.

As previously stated, loans have been raised by Treasury bills, debentures, and stock. The Treasury bills are of a temporary character, and will in the course of a few years disappear from the statement of the public debt, either by substitution of ordinary stock, when the temporary purpose for which they were issued has been served, or by redemption on maturity. The practice of issuing Treasury bills for deficiencies in revenue is of long standing, but as shown later on it has been made to serve another purpose, and money has been raised by their sale to meet certain obligations for public works and redemptions when the money market has been disturbed. The amount of Treasury bills current on the 30th June, 1917, was £9,425,133 for public works, and £1,998,462 for renewals, making a total of £11,423,595, the whole of which will be redeemed at the close of 1921.

The issue of funded or registered stock is regulated by four Acts passed in the years 1873, 1892, 1894, and 1895. The amount issued under the Act of 1873 (£530,189) is interminable, but that issued under the more recent Acts may be repaid before the final due dates at the option of the Government, on the Treasurer giving from three to twelve months' notice of his intention to redeem.

## SECURITY FOR THE PUBLIC DEBT.

On the 30th June, 1917, the liabilities of the State were as follow:—  
 Debentures, £11,915,450; Inscribed and Funded Stock, £114,799,302;  
 Treasury Bills, £11,423,595; Total Public Debt, £138,138,347.

This amount might reasonably be lessened by the sum of £1,574,771 shown  
 herewith, representing expenditure to be repaid in annual instalments of  
 principal and interest by the parties benefited.

£					
Country Towns Water Supply ... ..	...	...	...	...	1,079,017
Country Towns Sewerage and Drainage ... ..	...	...	...	...	338,314
Water and Drainage Trusts ... ..	...	...	...	...	96,983
Other Advances ... ..	...	...	...	...	60,457
Total ... ..	...	...	...	...	£1,574,771

There is also the property transferred to the Federal Government, on  
 which interest is paid by the Commonwealth at  $3\frac{1}{2}$  per cent. per annum.  
 The value of this property is £3,960,085, on which a sum of £167,485 was  
 received by the State as interest in 1916-17. The total amount of the public  
 debt might therefore be reduced by about £5,535,000.

The principal assets of the State are its trading concerns (railways,  
 tramways, water supply, etc.), and the public lands, of which 116,171,750  
 acres are leased for pastoral or mining purposes, and 18,693,429 acres have  
 been sold on deferred payments. The gross revenue derived from the public  
 lands of the State in the year ended the 30th June, 1917, was £1,769,919,  
 distributed under the following headings:—Alienation, £36,731; Conditional  
 Purchases, £941,153; Pastoral Leases, £484,882; Mining Leases, etc., includ-  
 ing royalty on minerals, £130,018; Miscellaneous Land Receipts, £177,135.  
 The balance of purchase money outstanding on the 31st December, 1916, in  
 regard to conditional purchases amounted to £10,446,730.

## THE EXPENDITURE BY THE STATE ON IMMIGRATION.

The following statement shows the amounts spent towards promoting  
 immigration and advertising the resources of the State during the period  
 extending from 1832 to 1917, both years inclusive.

Period.	Amount.	Period.	Amount.	Period.	Amount.
	£		£		£
1832-50	1,192,193	1903	...	1911	32,786
1851-60	1,261,255	1904	...	1912	59,186
1861-70	278,980	1905	...	1913	69,656
1871-80	395,536	1906	1,226	1914	33,158
1881-90	533,849	1907	8,079	1915	24,501
1891-1900	14,200	1908	13,184	1916	13,571
1901	...	1909	22,436	1917	3,690
1902	245	1910	26,815		

It should be noted that the amounts expended from revenue and loans  
 cannot be stated separately, as in the earlier years the proceeds of loans  
 were credited to Consolidated Revenue, and part of the immigration  
 expenses was defrayed from "Territorial Revenue," which constituted a  
 distinct account.

As a method of promoting immigration, the Commonwealth Government  
 spends sums of money in advertising the attractions of Australia generally.

Further particulars relating to the encouragement of immigration may  
 be found in the part of this Year Book dealing with Employment and  
 Industrial Arbitration.

## FINANCIAL RELATIONS BETWEEN THE STATES AND THE COMMONWEALTH.

One of the most difficult problems to be solved in formulating a Constitution for the Commonwealth of Australia was met in the determination of the relative shares of the Commonwealth and States respectively in the proceeds of taxation from customs and excise. Each of the two governing powers was invested with authority to levy direct taxation, consequently no difficulty arose in this respect, but the power to impose tariffs through customs and excise duties was vested in the Commonwealth Parliament. Hence it became necessary to decide some proportion of the revenue derivable from these sources of indirect taxation which should constitute by legal right the share of the States *qua* States in these imposts. In the issue of this Year Book for 1913 the financial relations between the States and the Commonwealth were discussed fully, and a statement presented showing the degree to which the customs and excise taxation served to fulfil Commonwealth requirements. Information was given also regarding the relative magnitude of the functions of the State and of the Commonwealth Governments.

## POSTS AND TELEGRAPHS.

The postal, telegraphic, and telephonic services of New South Wales passed over to the Commonwealth, on 1st March, 1901, and on 1st November, 1902, uniformity of the rates was established for the conveyance of newspapers and transmission of telegrams.

The postage rates on letters, letter-cards, printed papers, books, and magazines within each State were still continued until 1st May, 1911, when, by the Postal Rates Act, 1910, complete uniformity of postage rates was established, and the postage for letters within the Commonwealth or to any part of the British Empire was reduced to 1d. per  $\frac{1}{2}$  oz.

## NUMBER OF POST OFFICES, &amp;c.

The following table shows, in comparative form, the number of post offices, and the postal matter carried in this State.

Year.	Post Offices in New South Wales.	Receiving Offices.	Letters, Post-cards and Registered Articles.	Newspapers.	Packets.	Parcels.
1860	289	*	4,230,761	3,668,783	83,736	...
1870	562	*	7,083,500	3,314,700	157,700	...
1880	927	119	21,885,860	13,791,000	711,600	...
1890	1,338	325	63,695,100	40,597,200	8,939,600	21,300
1900	1,668	521	79,602,694	51,500,920	13,846,700	711,700
1910	1,911	526	163,754,056	66,963,559	39,008,610	1,600,426
1911	1,948	542	189,656,401	71,619,194	36,283,500	1,748,822
1912	2,000	559	192,996,376	68,696,648	32,687,904	2,067,652
1913	2,025	571	212,639,659	64,874,811	33,583,889	2,318,453
1914	2,049	574	217,907,644	66,216,699	34,203,574	2,372,964
1915-16	2,074	566	219,525,661	72,067,335	33,343,149	2,537,970
1916-17	2,040	548	259,185,729	68,546,782	28,230,715	2,906,090

\* Not recorded.

A large percentage of circulars classified previously as packets have been sent as letters since the reduction of letter rates.

Further particulars of the postal matter carried during the year ended 30th June, 1917, are shown below:—

Postal Matter.	Inland (Counted Once).	To and from other Australian States.	To and from Countries outside Australia.	Total.	Per Head of Population.
Letters and post-cards	169,726,280	37,782,123	49,410,320	256,918,723	137.9
Registered articles ...	1,389,358	497,036	380,612	2,267,006	1.2
Newspapers ...	46,012,298	12,490,849	10,043,635	68,546,782	36.8
Packets ...	19,596,772	5,542,566	3,091,377	28,230,715	15.2
Parcels ...	1,908,542	450,555	546,993	2,906,090	1.6

During 1916-17 the postal matter posted and received per head of population was—Letters, post-cards, and registered articles, 139 ; newspapers, 37 ; and packets and parcels, 17.

*Value-payable Parcel Post.*

Under a system of value-payable parcel post, the Department accepts for transmission within the Commonwealth parcels or letters sent in execution of orders, and collects from the addressees on behalf of the senders the charges due thereon. During the year ended 30th June, 1917, the number of parcels posted in New South Wales was 16,794, and the value collected was £24,268, the revenue, including postage, commission on value, registration, and money-order commission being £2,154.

DEAD LETTERS, &c.

The number of letters and other postal articles dealt with by the Dead Letter Office in New South Wales during the year ended 30th June, 1917, was as follows :—

How dealt with.	Letters.	Post-cards.	Packets.
Returned direct to writers, or delivered ... ..	545,380	1,404	433,651
Destroyed in accordance with Act ... ..	130,519	1,281	110,200
Returned as unclaimed to other States or Countries ...	123,273	3,433	2,320
Total... ..	799,172	6,118	546,171

RATES OF POSTAGE.

The charge on letters between New South Wales and the United Kingdom, which had been at the rate of 6d. per  $\frac{1}{2}$  oz., *via* Italy, and 4d. by the long sea route, was reduced in 1891 to 2 $\frac{1}{2}$ d., the reduced rates being extended, when New South Wales entered the Postal Union, to all foreign countries embraced in the Union. A further reduction, made in 1905, to 2d. for a letter sent to the United Kingdom, was afterwards extended to all other parts of the British Empire.

Although the Commonwealth did not participate in the Imperial Penny Postage scheme at its inception, it was decided in 1902 to accept in Australia, with the concurrence of the despatching countries, letters from other parts of the Empire bearing postage at the rate of 1d. per  $\frac{1}{2}$  oz., and arrangements were concluded with New Zealand, Canada, and the United Kingdom. The United Kingdom adopted 1 oz. as the initial weight, and approval was given in 1907 for the acceptance in Australia of letters from any other part of the Empire bearing postage at the rate of 1d. per oz.

On 1st May, 1911, the penny postage rates were introduced ; the rate for letters throughout the Commonwealth and to any part of the British Empire, New Hebrides, Banks and Torres Islands, is 1d. per  $\frac{1}{2}$  oz., and to all other places 2 $\frac{1}{2}$ d. per  $\frac{1}{2}$  oz.

The principal postal charges in force within the Commonwealth and Papua are at the following rates:—

Letters ... ..	1d. per $\frac{1}{2}$ oz.
Post cards—Single ... ..	1d. each.
Newspapers—Printed and published in Australia ... ..	$\frac{1}{2}$ d. per 10 oz.
Printed and published outside Australia ... ..	$\frac{1}{2}$ d. per 4 oz.
Magazines—Printed and published in Australia ... ..	$\frac{1}{2}$ d. per 8 oz.
Printed and published outside Australia ... ..	$\frac{1}{2}$ d. per 4 oz.
Books—Printed in Australia ... ..	$\frac{1}{2}$ d. per 8 oz.
Printed outside Australia ... ..	$\frac{1}{2}$ d. per 4 oz.
Printed papers ... ..	$\frac{1}{2}$ d. per 2 oz.
Commercial papers, patterns, samples and merchandise ... ..	1d. per 2 oz.
Parcels ... .. 6d. for 1 lb., and 3d. per lb. additional.	

Stamped letter-cards may be purchased at the rate of five for 5 $\frac{1}{2}$ d.

Licensed vendors of postage stamps may be allowed 2 $\frac{1}{2}$  per cent. commission, up to a maximum of 30s. per week. During the year ended 30th June, 1917, an amount of £5,274 was paid as commission to licensed vendors in New South Wales, the total so paid for all States of the Commonwealth being £18,263.

#### MAIL SERVICES.

The number of inland mail services in New South Wales during 1916–17 was 2,135; the cost of road services amounted to £214,718, and of railway services to £129,621.

The Postmaster-General establishes new mail services in the country districts of the State when the persons interested provide half the difference between cost and revenue.

#### OCEAN MAIL SERVICES.

A contract for the carriage of oversea mails fortnightly, between Australia and the United Kingdom, was arranged by the Commonwealth Government with the Orient Steam Navigation Company for a period of ten years, dating from 1st February, 1910.

The contract provides that upon each mail ship a certain amount of insulated space for the carriage of perishable produce shall be provided, that white labour only shall be employed, that the vessels must call at Brisbane each trip, and that the periods of transit must be from Taranto to Adelaide 638 hours, and from Adelaide to Taranto 650 hours, the amount of subsidy being £170,000 per annum.

The Peninsular and Oriental Company also conducted a fortnightly service, under contract with the Imperial Government, and thus regular weekly communication *via* Suez was maintained until the war period.

Mails to Europe *via* America are carried by the Union Steamship Company, which maintains a monthly service *via* Auckland, Fiji, Honolulu, and Vancouver, subsidised by New Zealand and Canada, and a monthly service *via* Wellington and San Francisco, subsidised by New Zealand. American vessels of the Oceanic Steamship Company despatched every three weeks also carry mails between Sydney and San Francisco.

Mails to China, Japan, and other eastern ports are carried by various British steamships, also by the Dutch and Japanese.

A British service between Sydney and Singapore is subsidised by the Government of New South Wales.

Under an agreement which commenced in September, 1910, a mail service to Lord Howe and Norfolk Islands, Papua, Solomon Islands, New Hebrides, and the Marshall and Gilbert Islands was provided at an annual subsidy of £19,850.

## TELEGRAPHS.

The electric telegraph was first used by the public of New South Wales on 26th January, 1858, when the line from Sydney to Liverpool, 22 miles in length, was brought into operation. At 30th June, 1917, there were 2,231 telegraph stations. The following table gives a view of the telegraph business transacted in New South Wales at intervals since 1900 :—

Year.	Telegraph Stations.	Telegrams.			Revenue received.
		Transmitted, and delivered (Inland counted once).	In Transit.	Total.	
1900	961	3,058,720	161,187	3,219,907	£ 174,895
1905	1,069	3,576,045	251,917	3,827,962	156,956
1910	1,399	5,220,962	386,216	5,607,178	245,245
1911	1,406	5,505,935	357,625	5,863,560	253,398
1912	1,384	5,917,219	447,771	6,364,990	278,665
1913	1,602	6,116,945	456,722	6,573,667	297,965
1914	1,937	6,178,926	524,093	6,703,019	289,347
1915-16	2,107	6,402,092	624,992	7,027,084	331,924
1916-17	2,231	6,491,354	661,559	7,152,913	350,581

Although the telephone system has been developed extensively during recent years, there has been no decline in the number of telegraph messages.

The telegrams received and despatched during the year ended 30th June, 1917, were classified as follows :—

Inland (counted once) .. .. .	3,864,373
Interstate .. .. .	2,180,554
To and from other countries (cablegrams) .. .. .	446,427
In transit .. .. .	661,559
<b>Total .. .. .</b>	<b>7,152,913</b>

Excluding the telegrams in transit, the messages represented 3·8 per head of population.

## CABLE SERVICES.

*Eastern Extension Cables.*

Cable communication between Australia and Europe was opened in 1871 by means of a submarine cable from Java to Port Darwin, and in 1872 messages were transmitted by the overland telegraph line from Darwin to Adelaide, distance 1,971 miles. Under an agreement made with New South Wales and Victoria, the Cable Company undertook to duplicate the line, the second cable being brought into use in November, 1879, and up to October, 1899, the company received from the Australian States (excepting Queensland) a subsidy of £32,400 per annum. These lines are controlled by the Eastern Extension Company. This company, under agreement with South Australia, Western Australia, and Tasmania, which New South Wales subsequently joined, provided for a reduction in the charges for cablegrams, and for the construction of a cable between Durban and Australia *via* Cocos. The line was opened for business in 1901, the Australian landing station being at Perth. By agreement with the Western Australian Government, dated January, 1899, the Eastern Extension Company was empowered also to lay a cable from Java to Roebuck Bay in Western Australia.

A cable, also constructed by the Eastern Extension Company, connecting New Zealand with New South Wales, was opened for communication

on 20th February, 1876, and was subsidised for ten years. The landing places of this cable are at La Perouse, near Sydney, and at Nelson, New Zealand. In 1890 the Company laid a second cable to New Zealand without guarantee.

*New Caledonia Cable.*

In 1893 a cable from Gomen, New Caledonia to Bundaberg, Queensland, was opened by a French company, to which New South Wales and Queensland each agreed to pay an annual subsidy of £2,000 for thirty years. The total amount, £4,000 per annum, is now paid by the Commonwealth.

*Pacific Cable.*

In 1899 it was decided by the Governments of the United Kingdom, Canada, Australia, and New Zealand to construct a cable across the Pacific Ocean, touching only British territory on its way from Australia to Canada.

The capital and any deficit on working was guaranteed on the following basis:—Imperial Government, five-eighteenths; Canada, five-eighteenths; Australia, six-eighteenths, and New Zealand, two-eighteenths.

The line, which was completed on 31st October, 1902, connects Southport, in Queensland, with Vancouver *via* Norfolk Island, Fiji, and Fanning Island. There is also a branch from Norfolk Island to Doubtless Bay, New Zealand. The cable cost about £2,000,000, and its total length is 7,838 nautical miles. It is managed by the Pacific Cable Board, consisting of representatives from the various Governments. In 1910 the Pacific Cable Board leased a telegraph line between Bamfield, British Columbia, and Montreal, which is worked by their staff, and thus extended the Pacific cable system from Australia across Canada to Montreal. Traffic is carried across the Atlantic by the cables of the Anglo-American Company and the Commercial Cable Company.

With a view to reducing the cable charges between Australia and the United Kingdom, a proposal to nationalise the Atlantic Cable was made at the Imperial Conference in London in 1911. This proposal failed to receive approval, but arrangements have been made for the transmission of deferred telegrams at half rates and for week-end cable letters, as described below.

In 1911, authority was given to the Pacific Cable Board to lay a second direct cable between Australia and New Zealand. The landing places adopted for this line are Bondi Bay, near Sydney, and Muriwai Creek, on the West Coast of the North Island, New Zealand, the distance being about 1,200 miles. From the landing points connections were made with Sydney and Auckland respectively, and a new length of submarine line was laid to provide direct communication between Auckland and Doubtless Bay. This cable which was brought into operation in November, 1912, duplicates the two southern sections of the Pacific Cable, and provides accelerated service between Australia and New Zealand by avoiding the land line between Southport and Sydney.

In 1915, the Commonwealth Government reserved for the exclusive use of Pacific cable traffic a wire between the Board's office in Sydney and the General Post Office in Melbourne.

During the year ended 31st March, 1917, the cable earned a profit on working amounting to £21,776; after deducting the annual sinking fund instalment there was a surplus of £4,231, the Commonwealth portion being £1,410. In the terms of the Pacific Cable Act, 1901, this surplus must be applied in reduction of the outstanding balance of the original loan of £2,000,000.

*Tasmanian Cable.*

The cable of 170 miles, connecting Tasmania with the mainland of Australia, was opened for traffic in 1869, under an agreement which gave the constructing company the exclusive right of submarine telegraphic communication between Victoria and Tasmania for twenty years. The cable was subsequently acquired by the Eastern Extension Company, and the period extended for another twenty years. At the expiration of this agreement in April, 1909, two new cables laid by the Commonwealth Government between Flinders, Victoria, and Low Head, Tasmania, were opened for traffic.

*Cable Lines.*

The following statement shows the particulars of the cable lines giving communication from Sydney :—

- To Europe—
  - via Darwin and Banjoewangie, Java (duplicate).
  - via Perth, Cocos, and Durban.
  - via Roebuck Bay and Banjoewangie.
  - via Southport, Norfolk Island, Fiji, Fanning Island, and Canada.
- To New Zealand—
  - via La Perouse and Nelson (duplicate).
  - via Southport, Norfolk Island, and Auckland.
  - via Bondi and Muriwai Creek.
- To New Caledonia—
  - via Bundaberg and Gomen.
- To Tasmania—
  - via Flinders and Low Head (duplicate).

*Cable Messages.*

The following table gives a comparison of the cable business transacted in New South Wales during the last five years, excluding messages to and from Tasmania. Messages in transit are excluded also, but the receipts from such business are included in the amount of revenue shown. It will be seen that the cable messages have increased steadily during the period :—

Year.	Cable Messages.		Amount Collected.	
	Sent from New South Wales.	Received in New South Wales.	Total.	Portion due to Commonwealth Government.
			£	£
1912	146,049	146,586	271,037	15,259
1913	149,318	154,004	293,769	16,435
1914	162,114	153,395	366,086	29,833
1915-16	136,487	211,490	450,374	42,708
1916-17	186,143	260,284	503,587	48,107

## LETTER TELEGRAMS.

Letter telegrams were introduced in February, 1914; messages may be telegraphed during the night to certain offices and thence forwarded as ordinary letters—that is, delivered by first letter delivery, or despatched to address by mail. The messages must be written in plain language. Letter telegrams may be exchanged between any offices which are open for the receipt of ordinary business between 7 p.m. and midnight, or for ordinary or press business after 7 p.m.

## DEFERRED TELEGRAMS.

A system of deferred telegrams came into operation on 1st January, 1912, by which telegrams, written in plain language, and subject to a delay not exceeding twenty-four hours, may be sent at half ordinary rates to those countries which have adopted the service, including the United Kingdom and all British Possessions to which the rate per word is not less than 10d., also to the Commonwealth wireless stations in the Pacific, and to Port Moresby and Flinders Island. Besides British territories the Commonwealth exchanges deferred telegrams with a number of foreign countries.

## WEEK-END CABLE LETTERS.

An important system came into operation on 4th January, 1913, by which week-end cable letters may be exchanged between the Commonwealth and the countries taking part in the service. The cable letters reaching a cable station before midnight on Saturday are forwarded for delivery on the following Tuesday morning, or if practicable, on Monday; the messages must be written in plain language. Cable letters may be transmitted also to Great Britain or Canada for onward transmission by registered post from the telegraph office of destination to other countries.

## WIRELESS TELEGRAPHY.

Wireless telegraphy in Australia was placed under the control of the Department of the Navy as from 6th September, 1915; previously the Postmaster-General held the exclusive right to establish wireless stations in Australia, and to transmit messages, but issued licenses to ship and private stations under prescribed conditions. General licenses are issued in respect of ship stations on Australian ships only. Unless by special permission, wireless telegraphy appliances on ships, other than war vessels, may not be used while the ship is moored in an Australian port or harbour.

The scheme for connecting Australia and the Pacific Islands by wireless telegraphy formulated by representatives of Australia and New Zealand and approved by the Commonwealth Government, comprised the erection of stations at Sydney, at Doubtless Bay (New Zealand), and at Suva (Fiji), Ocean Island, also at Tulagi (Solomon Islands), and Vila (New Hebrides). The majority of stations recommended have been erected by the several Governments.

The Commonwealth scheme of wireless telegraphy includes twenty-one stations, located at such intervals as to allow intercommunication, and directly intended for ship to shore communication.

The stations are as follow :—

New South Wales—Sydney	Western Australia—Perth
Victoria—Melbourne	Geraldton
Queensland—Brisbane	Roebourne
Rockhampton	Broome
Townsville	Wyndham
Cooktown	Esperance
Thursday Island	Tasmania—Hobart
South Australia—Adelaide	King Island
Mouat Gambier	Flinders Island
	Northern Territory—Darwin
	Papua—Port Moresby.
	Samarai Island.

Most vessels trading with Australia are fitted with wireless installation. In accordance with the conditions of the Commonwealth license, intercommunication between ships is compulsory, and the vessels are required to

carry emergency apparatus capable of operating for six hours independently of the power supplied by the ship.

Wireless telegrams may be exchanged between Australia and Papua through the media of the Thursday Island and Port Moresby stations, and several radio-telegraph stations in the Pacific controlled by the Commonwealth are available for the transaction of public correspondence, viz. :—Kieta, Madang, Nauru, Rabaul, Woodlark Island.

#### TELEPHONES.

The telephone system was established in Sydney in 1880, and exchanges have since been provided in many other important centres, the number in 1917 being 765. The first long-distance service in New South Wales was inaugurated in 1898, the connection being between Sydney and Newcastle, a distance of 102 miles. There are now several long-distance lines in operation. A telephone trunk line between Sydney and Melbourne was brought into use in 1907; Melbourne and Adelaide were connected by telephone in 1914.

The following table shows the growth of the telephone service since 1912:—

Year.	Exchanges	Connections (Subscribers' Lines).			Public Tele-phones.	Telephone Instruments connected.
		Sydney and Suburbs.	Country.	Total.		
1912	385	24,787	14,113	38,900	818	48,698
1913	451	27,676	16,169	43,845	916	53,978
1914	521	30,360	18,680	49,040	1,069	62,367
1915-16	705	32,438	19,467	51,905	1,317	69,010
1916-17	765	34,082	23,471	57,553	1,421	72,884

A noticeable feature of the comparison is the extension of the telephone facilities in the country districts, where the subscribers' lines increased from 14,113 in 1912 to 23,471 in 1917. In order to reduce the cost of installation in the country districts, the telegraph lines have been utilised for telephonic purposes by means of superimposed apparatus, and in 1912, the height of poles, as prescribed by statute, was reduced. The regulations provide for the erection of telephone lines under guarantee; but the Department may erect lines where the estimated cost does not exceed £100, and in other cases is prepared to bear 50 per cent. of the deficiency.

Until recently single lines were used for all the telephones in New South Wales, but metallic circuits have been introduced in the principal exchanges.

#### FINANCIAL RESULTS OF POSTAL SERVICES.

Viewing the postal services as important factors in the development of the country, the Post Office has not been regarded as an institution which should be self supporting; on the contrary, any financial loss incurred in the working of the services has been deemed to be counterbalanced by the national advantages gained.

The results for the whole Commonwealth during the last five years are compared in the following statement :—

Year ended 30th June.	Earnings.	Working Expenses.	Surplus. (+) Deficit. (-)	Interest on Capital.	Loss.
	£	£	£	£	£
1913	4,243,292	4,273,985	(-) 30,693	376,409	407,102
1914	4,523,368	4,589,602	(-) 66,234	435,223	501,457
1915	4,620,061	4,761,714	(-) 141,653	488,069	629,722
1916	5,049,569	4,841,667	(+) 207,902	523,892	315,990
1917	5,515,769	5,134,533	(+) 381,236	558,382	177,146

The accounts for the years 1916-17 are exclusive of the figures relating to the Wireless Telegraph Branch, which has been transferred to the Department of the Navy.

The increase in the deficit during 1914-15 was due on one side to the effect of drought and war upon the earnings, and on the other side to increased charges in working expenses, under the heading of depreciation, on account of assets dismantled. The results of the following years show a considerable improvement.

Particulars regarding the various branches in the State of New South Wales, during 1916-17, were as follows :—

Branch.	Earnings.	Working Expenses.	Net Earnings.	Interest on Capital.	Net Loss.
	£	£	£	£	£
Postal ... ..	1,170,603	1,219,776	(-) 49,173	40,612	89,785
Telegraph (except Wireless) ...	353,040	310,027	43,013	36,694	*6,319
Telephone ... ..	618,850	538,832	110,018	128,986	18,968
<b>Total, all branches ... ..</b>	<b>2,172,493</b>	<b>2,068,635</b>	<b>103,858</b>	<b>206,292</b>	<b>102,434</b>

\* Net Profit. (-) Deficit.

The result in New South Wales for the year 1916-17 was a loss of £102,434, the major portion being incurred in the postal branch.

## RAILWAYS AND TRAMWAYS.

### CONTROL OF STATE RAILWAYS AND TRAMWAYS.

THE control of the railways is vested in the Minister for Works, the direct management being undertaken in terms of the Government Railways Amendment Act, 1916, by a Chief Commissioner and three Assistant Commissioners, the duties of the latter being allotted by the Governor upon the recommendation of the Chief Commissioner. The salaries payable to the Commissioners are:—Chief Commissioner, £3,000 per annum; Assistant, appointed as deputy to the Chief, £2,600 per annum; and other Assistants, each £1,800 per annum.

### RAILWAY CONSTRUCTION.

The construction of the railway line was undertaken formerly by the Department of Public Works, the lines being transferred on completion to the control of the Railway Commissioners, who supervised duplications and deviations of existing lines. But since the commencement of the Government Railways Amendment Act, 1916, the authority to construct or complete all lines authorised by Parliament has been vested in the Railway Commissioners.

On 26th September, 1855, the first railway line, 14 miles in length, was opened for traffic between Sydney to Parramatta, and communication was established between Newcastle and East Maitland on 11th April, 1857.

During the twenty years which followed the opening of the first line, railway construction progressed at a very slow rate, but from 1876 to 1889 greater activity was manifested, 1,748 miles being constructed during the period, a yearly average of 125 miles. This rate of increase was not sustained during the following decade, when the average was only 53 miles per annum. During the quinquennium 1900-4, the average rose to 115 miles. During the ten years ended June, 1915, a further length of 686 miles was brought into use, and in the three years 1914-17 the new lines opened amounted to 470 miles. The total length of line on 30th June, 1917, was 4,437 miles.

The progress in construction of the State railways of New South Wales may be traced in the table given below, the figures covering the period ending on 30th June, 1917. Included in the mileage are the Campbelltown-Camden, and Yass tramways, which are worked with the railways:—

Period.	Opened during the period.	Total opened at end of period.	Period.	Opened during the period.	Total opened at end of period.
	miles.	miles.		miles.	miles.
1855-9	55	55	1895-9	205	2,706
1860-4	88	143	1900-4	575	3,281
1865-9	175	318	1905-9	342	3,623
1870-4	85	403	1910-14	344	3,967
1875-9	331	734	1915	167	4,134
1880-4	584	1,618	1916	54	4,188
1885-9	553	2,171	1917	249	4,437
1890-4	330	2,501			

In addition to the mileage shown above there were at 30th June, 1917, 914 miles of sidings and crossovers.

## EXTENSION OF RAILWAY FACILITIES.

The progress of the State railways can be gauged fairly by comparing the population and area of territory to each mile of line open for traffic at different periods. In 1900 the average population per mile of line was 482, and in 1917 it was 421. The decrease in the area of territory to each mile of line open has been very rapid, ranging from 4,434 square miles in 1860 to 70 square miles in 1917. The following statement shows the extension of railway facilities since 1860:—

Year.	Population to each Mile of Line open.	Area to each Mile of Line open.	Year.	Population to each Mile of Line open.	Area to each Mile of Line open.
	No.	sq. miles.		No.	sq. miles.
1860	4,979	4,433·9	1895	501	122·6
1865	2,861	2,170·4	1900	482	110·4
1870	1,471	915·6	1905	443	94·6
1875	1,360	710·2	1910	443	85·2
1880	881	365·6	1915	452	74·8
1885	548	179·2	1916	445	73·9
1890	523	142·2	1917	421	69·7

*Duplication of Main Lines.*

In addition to increasing the facilities by the construction of new lines, provision for the rapidly extending traffic is made by the duplication of existing main lines.

Works now in progress will duplicate the northern line to Werris Creek, 255 miles from Sydney; the western to Orange, 196 miles; the southern to Harden, 230 miles; and the South Coast line to Wollongong, 48 miles.

The following statement shows the length of line laid with one or more tracks at intervals since 30th June, 1900:—

At 30th June.	Single.	Double.	Triple.	Quadruple.	Total.
	miles.	miles.	miles.	miles.	miles.
1900	2,644	158½	...	8½	2,811½
1905	3,079½	193	...	8½	3,280½
1910	3,393	241½	...	8½	3,643
1915	3,692½	406½	8	27¼*	4,131¼
1916	3,654	492½	7½	34*	4,188
1917	3,863½	532	7½	34*	4,437

\* Includes 1 mile 9 chains with five tracks.

## RAILWAY SYSTEMS.

The railways of the State are divided into three branches, each constituting a separate system.

*Southern Lines.*

The southern system has several offshoots serving the most thickly-populated districts, and places Sydney, Melbourne, and Adelaide in direct communication.

Numerous branches traverse the fertile Riverina district. From Culcairn there are two branch lines, one connecting with Corowa on the Murray River, and the other with Holbrook; from The Rock a line extends to Oaklands, and from Wagga Wagga a branch to Humula is being extended to Tumbarumba. From Junee a branch runs to Narrandera, where it bifurcates, one branch extending westerly to the town of Hay and the other in a southerly direction to connect with the Victorian railways at Tocumwal. From Cootamundra a southerly branch carries the line to Tumut, and another, in a north-westerly direction, through Temora to Wyalong; an extension from Wyalong to Cudgellico is under construction. A branch line from Temora extends to Griffith, in the Murrumbidgee Irrigation Area. From Stockinbingal, between Cootamundra and Temora, a cross-country line is under construction to connect with the western system at Forbes; the section from Stockinbingal to Caragabal has been opened for traffic.

From Murrumburrah a branch has been constructed to Blayney, on the western line, thus connecting the southern and western systems of the State, and from Koorawatha, on this connecting line, a branch has been laid down to join Grenfell with the railway system, and there is a branch line from Cowra to Canowindra. From Galong there is a branch to Burrowa.

Nearer the metropolis, a branch from Goulburn to Nimmitabel brings the rich pastoral district of Monaro into direct communication with the metropolis. An extension from Nimmitabel to Bombala, a distance of 40 miles, has been commenced. From Goulburn also a branch line has been opened to Crookwell.

A small offshoot from the main southern line joins Campbelltown with Camden, and on the main suburban section of the southern system there are branch lines from Clyde to Carlingford, and from Lidcombe to Regent's Park.

The South Coast, or Illawarra line, which forms part of the southern system, has been constructed to Nowra, connecting the metropolis with the coastal district of Illawarra, which is rich in coal and in the produce of agriculture. From the Illawarra line a branch extends between Sydenham and Bankstown, with Liverpool as the objective.

*Western Lines.*

The western system of railways extends from Sydney over the Blue Mountains, and has its terminus at Bourke, a distance of 511 miles. Leaving the mountains, the western line throws out a branch from Wallerawang to Mudgee and Coonabarabran, which will be extended to join the north-western branch of the northern system at Burren Junction, and enters the Bathurst Plains, connecting with the metropolis the rich agricultural lands of the Bathurst, Orange, and Wellington districts.

At Blayney, as before stated, the western line is joined with the southern system by a branch line to Murrumburrah; at Orange a branch runs through Parkes to Condobolin; an extension from Condobolin to Broken Hill, a distance of 373 miles, has been commenced. At Bogan Gate a branch line has been opened to Tottenham. Further west, branch lines extend from Dubbo to Coonamble, from Nevertire to Warren, and from Nyngan to the

important mining district of Cobar. There is a connecting line from Narromine, on the main western line, *viâ* Parkes to Forbes, and an extension has been commenced from Forbes to Caragabal, which is connected with Stockinbingal on the southern line. From Byrock a line branches off to Brewarrina. A connecting line is under construction from Dubbo to connect with the Wallerawang-Coonabarabran branch and the main northern line.

The western system includes also a short line from Blacktown to Windsor and Richmond.

#### *Northern Lines.*

The northern system originally commenced at Newcastle, but a connecting line crosses the Hawkesbury River by means of the Hawkesbury Bridge, thus making Sydney the centre of the whole of the railway systems of the State, and affording direct communication between the four State capital cities of Adelaide, Melbourne, Sydney, and Brisbane, a distance of 1,791 miles.

The northern system has a branch from Tamworth to Barraba, and there is a north-westerly branch from Werris Creek, *viâ* Narrabri and Moree, to Inverell, placing the Namoi and Gwydir districts in direct communication with the ports of Newcastle and Sydney. A branch runs from Moree to Mungindi, on the border of the State of Queensland. There is also a branch line from Narrabri to Walgett, with a further branch at Burren Junction to Collarenebri East.

From Muswellbrook a branch is being constructed to Merriwa, a distance of 51 miles. There is a short line connecting Newcastle with the tourist district of Lake Macquarie, and another line runs from East Maitland to Morpeth.

At West Maitland the North Coast railway branches from the main northern line; the construction is now proceeding in sections to meet a line which connects Murwillumbah, on the Tweed River, with Grafton, on the Clarence River; the sections from West Maitland to Kempsey, from Raleigh to Coff's Harbour, and from Glenreagh to Grafton have been opened for traffic. On the Murwillumbah-Grafton line there is a branch from Casino to Kyogle. To provide an outlet for the produce of the fertile Dorriggo district, a branch of the North Coast line, from Dorriggo to Glenreagh, has been commenced. A short line, 13 miles in length, branches off the main northern line at Hornsby, and connects with the north shore of Port Jackson at Milson's Point, whence passengers are conveyed to the city by commodious ferry steamers.

#### *Goods Lines.*

A short line from the Central Station at Sydney connects with the wharves at Darling Harbour, and a line has been constructed from the stock saleyards at Flemington on the main suburban line to the Abattoirs at Homebush Bay; these lines are used for goods and live-stock only.

On account of the rapid growth of the traffic it has been found necessary to provide a means of access to the wharves, independent of the Central Station, by the construction of a line from Flemington to join the Sydenham-Bankstown branch of the South Coast line at Campsie, and a line from Wardell-road, also on this branch, to Darling Island, with a new shipping depôt at Glebe Island.

An extension from Sydenham has been commenced to serve the important manufacturing district of Botany.

*Commonwealth Railways in New South Wales.*

A short railway, 5 miles in length, has been constructed from Queanbeyan, on the Cooma-Nimmitabel branch, to connect Canberra, the Federal Capital, with the State railway system. The work of construction was undertaken on behalf of the Commonwealth Government by the Public Works Department of New South Wales, at a charge of 5 per cent. in addition to capital outlay. The line was opened for departmental goods traffic in May, 1914, and is worked by the New South Wales Government on behalf of the Commonwealth. A trial survey of a line from Canberra to Yass has been made.

Under the "Seat of Government Acceptance Act" the Commonwealth Government has the right to construct a line from Canberra to Jervis Bay, 140 miles; a preliminary survey of the route has been made.

## STATE BORDER RAILWAYS.

At a conference of representatives of the Government of New South Wales and Victoria an agreement was drawn up with a view to extending the Victorian railways across the border to serve large areas in the Riverina district, which are situated beyond the scope of the existing New South Wales system, and which cannot be advantageously cultivated without railway facilities.

A Bill for the ratification of the agreement was submitted to Parliament, and passed by the Legislative Assembly of New South Wales, but in the Upper House it was abandoned. Subsequently several proposals were referred for investigation to a Royal Commission consisting of representatives of New South Wales and Victoria. In a majority report the Commission recommended the construction of two 5 ft. 3 in. gauge railways, viz., from Moama to Moulamein, about 82 miles; and from Kerang to Balranald, 82 miles. The cost of construction, exclusive of land and rolling-stock, was estimated at £345,000 and £376,000 respectively.

## SYDNEY AND SUBURBAN PASSENGER SERVICE.

A portion of the passenger traffic between Sydney and suburbs is conducted by suburban railways and ferry services, but the tramways form the most important means of communication.

The railway suburban traffic is conducted principally on the main trunk line, which runs in a westerly direction from Sydney to Granville, where the main southern and western railway systems separate; the main northern system begins at Homebush (8 miles from Sydney). The South Coast railway, which has a branch from Sydenham (3 miles) to Bankstown (11 miles), brings passengers from the suburbs situated south of Sydney on the western shore of Botany Bay. The passengers travelling by these lines, however, are conveyed to and from the Central Station by trams running through the city streets.

The populous suburbs of the north-western, central, and eastern divisions of the metropolitan area are served entirely by the tramways. On the north shore of Port Jackson there is a railway to connect the ferry service at Milson's Point with Hornsby on the main northern line; with this exception all the passengers from the northern suburbs connect by tramway at various points with the ferry services to the Circular Quay.

On account of the expansion of the commercial interests of New South Wales, and the consequent growth of population in and around Sydney,

where the trade of the State is centralised, the tramway system has been extended steadily, but the requirements of suburban traffic are gradually outgrowing the capacity of the main city thoroughfares, which were not originally designed for this class of traffic. Thus the extension of the tramway system, combined with the increase in the mercantile vehicular traffic, has resulted in a state of congestion in some of the city streets that demands remedy. The urgent necessity is now recognised of supplying a more effective method of dealing with the rapidly increasing traffic than is possible under any system of surface tramways.

#### *Proposed Improvements.*

In connection with this matter a Royal Commission for the Improvement of the City of Sydney and its Suburbs, in 1909 recommended the immediate introduction of a system of underground electric railways to deal comprehensively with the whole suburban area.

The scheme recommended by the Commission embraced a city railway, the connection of Sydney and North Sydney, an eastern suburbs railway, with branches to serve the sports grounds, and a western suburbs railway.

More recently, in 1912, a special branch of the Department of Public Works was created to deal exclusively with proposals for the improvement of the methods of handling the passenger traffic in the city and the question of connection between the northern and southern shores of Sydney Harbour. The report of an expert, engaged by the Government to make an inquiry into these matters, was submitted to Parliament in October, 1912, and a bridge over the harbour was recommended as the best means of connecting Sydney with North Sydney for both railway and roadway purposes. Further particulars regarding the proposed harbour bridge are given in the part, "Local Government," of this volume.

In October, 1913, a Bill to authorise the construction of a city railway was submitted to Parliament. The design included an underground loop railway around the city, joining the existing railway system near Redfern Station, and comprising three up and three down tracks; and double lines of tramway to connect the eastern and western suburban tram services with the city railway, the total length of the connection for the eastern suburbs being 1 mile 18½ chains, and for the western suburbs 1 mile 15½ chains. The cost of the work was estimated at £4,800,000.

This Bill was rejected by the Legislative Council, but in 1915 the City Railway and portions of the Eastern and Western Suburbs Railways to Bondi Junction and Weston-road, Balmain, respectively, were included in the list of works to be carried out by the Norton Griffiths Company under contract with the New South Wales Government, and the City and Suburban Electric Railways Act was passed. The design, as outlined in the Schedule of the Act, includes the city railway, with two up and two down tracks forming a loop round the city, the total length is 16 miles 52 chains of single track, of which 8 miles 66 chains are below ground; the Eastern Suburbs Railway, double track throughout of a total length of 8¼ miles of single track; and the Western Suburbs Railway, double track throughout, connecting with the main suburban line between Stanmore and Petersham Stations, the total length being 5 miles 44 chains of single track. The estimated cost, exclusive of land resumption is £6,400,000.

The Norton Griffiths' contract was cancelled in May, 1917, and work on the City Railway has been practically suspended.

## GRADIENTS OF RAILWAYS.

In many cases the railways of New South Wales pass through mountainous country, and have been constructed with a large proportion of steep gradients, some of the heaviest being situated on the trunk lines.

In the southern system, the line at Roslyn, near Crockwell, reaches an altitude of 3,225 feet above sea level; and at Nimmitabel, the terminus of the Goulburn to Nimmitabel railway, the height is 3,503 feet. In the western system, at Newnes Junction, on the Blue Mountains, a height of 3,503 feet is attained; and on the northern line the highest point, 4,473 feet, is reached at Ben Lomond.

Numerous deviations have been made during recent years in order to secure easier grades and curves, with the result that considerable economy in working and expedition in traffic have been effected.

The following statement shows the number of miles on different gradients in June, 1917:—

Gradients.	Southern System.	Western System.	Northern System.	Total.
1 in	miles.	miles.	miles.	miles.
18 to 30	3½	...	...	3½
31 „ 40	46¾	62½	33	142¼
41 „ 50	59½	49½	76	185
51 „ 60	56½	69¾	57	183¾
61 „ 70	52¼	57¼	35¾	145¼
71 „ 80	145	91	143¾	379¾
81 „ 90	40½	43¼	43	126¾
91 „ 100	93½	123¾	80¾	301
101 „ 150	137¾	147¾	137½	423
151 „ 200	91	79¼	81	251¼
201 „ 250	48¼	38	37¾	124
251 „ 300	61	61¼	57¼	185¼
301 „ level	639¼	616	659¼	1,944¼
Total ..	1,513¾	1,439¼	1,442	4,395

The above table is exclusive of the Government line from Broken Hill to Tarrarungee, measuring 40 miles 7 chains, and that at Wollongong of 1 mile 8 chains, the total length of these lines being 41 miles 15 chains.

## COST OF RAILWAY CONSTRUCTION.

The average cost per mile open for traffic of the Government Railway lines, excluding expenditure for rolling-stock, machinery, furniture, and workshops and stores, has been £12,608—an amount which is by no means high, considering the character of some parts of the country through which the lines have been carried, and the cost of labour. Some of the extensions through pastoral country have been constructed at a comparatively low cost per mile; these are known as the “pioneer” class, and are of a light and cheap kind, on which the produce of the settlers may be conveyed to the trunk lines at a reasonable speed, and at a cheaper rate than carriage

by road. The average cost of the line from Parkes to Condobolin was £2,116 per mile; Burren Junction to Collarenebri East, £2,456 per mile; from Byrock to Brewarrina, £2,748 per mile; and from Dubbo to Coonamble, £2,838 per mile.

The amount expended on rolling-stock, &c., to 30th June, 1917, was £16,063,663: ~~rolling~~ stock, £13,066,138; machinery, £927,538; workshops, £855,951; furniture, £10,036; stores advance account, £1,204,000. The total capital expenditure amounted to £72,006,621, an average of £16,229 per mile. The growth of the capital expenditure may be seen in the following table:—

Period.	Capital expended during period.	Total capital expended to end of period.	Period.	Capital expended during period.	Total capital expended to end of period.
	£	£		£	£
1855-9	1,278,416	1,278,416	1895-9	2,137,005	37,992,276
1860-4	1,353,374	2,631,790	1900-4	4,296,241	42,288,517
1865-9	2,049,539	4,681,329	1905-9	5,324,149	47,612,666
1870-4	2,163,217	6,844,546	1910-14	13,652,203	61,264,869
1875-9	3,561,949	10,406,495	1915	4,318,405	65,583,274
1880-4	9,673,643	20,080,138	1916	3,242,318	68,825,592
1885-9	9,759,029	29,839,167	1917	3,181,029	72,006,621
1890-4	6,016,104	35,855,271			

Of the £72,006,621 expended to 30th June, 1917, an amount of £659,930 has been provided from the Consolidated Revenue of the State, leaving a balance of £71,346,691 which has been raised by the issue of debentures and other stock. The net revenue for the year ended 30th June, 1917, after paying working expenses, was £2,464,725, which gave a return of 3·5 per cent. upon the total capital expenditure.

#### WORKING EXPENSES AND EARNINGS.

While the primary object of State railway construction has been to promote settlement, apart from consideration of the profitable working of the lines, the principle has nevertheless been kept in view that the railways should be self-supporting.

A statement of the capital cost of the State Railways and Tramways, and the result of working during the last two years, is shown below:—

Particulars.	1916.			1917.		
	Railways.	Tramways.	Railways and Tramways.	Railways.	Tramways.	Railways and Tramways.
	£	£	£	£	£	£
Cost of Construction and Equipment at 30th June ..	68,825,592	8,166,423	76,992,015	72,006,621	8,309,629	80,316,250
Year ended 30th June—						
Earnings .. .. .	8,006,078	1,991,628	9,997,706	8,380,084	2,008,539	10,388,623
Working Expenses .. .. .	5,661,168	1,602,650	7,263,818	5,915,360	1,691,367	7,606,727
Balance after paying Working Expenses .. .. .	2,344,910	388,978	2,733,888	2,464,724	317,172	2,781,896
Interest on Capital .. .. .	2,568,659	302,686	2,871,345	2,858,789	335,361	3,194,150
Deficit .. .. .	223,749	*86,292	137,457	394,065	18,189	412,254

\* Surplus.

A statement of the working expenses and earnings of the railways during the year ended 30th June, 1917, is shown below:—

Working Expenses.		Earnings.	
£		£	
Maintenance of Way, Works, and Buildings ... ..	932,990	Passengers ... ..	3,202,167
Locomotive Power ... ..	2,444,707	Mails, Parcels, Horses, &c. ... ..	435,489
Greasing and Oiling Carriages and Waggon ... ..	5,422	Total Coaching... ..	3,637,656
Carriage and Waggon Repairs and Renewals ... ..	476,102	Refreshment Rooms ... ..	102,375
Traffic Expenses ... ..	1,763,466	Goods—	
Compensation ... ..	9,792	Merchandise ... ..	2,698,869
General Charges ... ..	182,503	Live Stock ... ..	668,786
Refreshment Rooms ... ..	94,915	Wool ... ..	319,803
Gratuities, &c. ... ..	3,163	Minerals ... ..	855,161
Fire Insurance Fund ... ..	2,000	Total Goods ... ..	4,542,619
	5,915,360	Rents ... ..	73,442
Balance, Net Earnings ... ..	2,464,724	Miscellaneous ... ..	23,992
Total ...£	8,380,084	Total ...£	8,380,084

The expenditure on locomotive power amounted to 41 per cent. of the total; traffic expenses to 30 per cent.; and maintenance of way, works, and buildings to 16 per cent. Of the earnings 38 per cent. was derived from the carriage of passengers, 5 per cent. from mails, parcels, &c., and 54 per cent. from the conveyance of goods.

As the carriage of goods and live stock constitutes the principal source of railway revenue, the earnings fluctuate in each year in accordance with the type of seasons experienced in the agricultural and pastoral districts. In unfavourable seasons the carriage of fodder and the transfer of live stock at reduced rates cause a diminution in the earnings, and at the same time an increase in the working expenses. The extension of the lines into sparsely settled districts also causes an increase in the proportion of working expenses to total earnings, as several of these lines return little more than cost of maintenance.

The following table shows the gross earnings, working expenses, and the proportion of the expenditure to receipts, in stated years from 1890 up to 30th June, 1917:—

Year ended 30th June.	Gross Earnings.	Working Expenses.	Proportion of working expenses to gross earnings.	Year ended 30th June.	Gross Earnings.	Working Expenses.	Proportion of working expenses to gross earnings.
	£	£	per cent.		£	£	per cent.
1890	2,633,086	1,665,835	63·3	1910	5,485,715	3,276,409	59·7
1895	2,878,204	1,642,589	57·1	1915	7,616,511	5,311,162	69·7
1900	3,163,572	1,844,520	58·3	1916	8,006,078	5,661,168	70·7
1905	3,684,016	2,216,442	60·2	1917	8,380,084	5,915,360	70·6

The working expenses during the year ended 30th June, 1917, represented 70·6 per cent. of the gross earnings. In 1907 the proportion was 53·0 per cent., the lowest since the control of the railways was vested in Commissioners, but the percentage has risen steadily since that year, the increase being due mainly to advances in the salaries and wages of the staff and to the prices of necessary materials having advanced.

## NET EARNINGS AND INTEREST ON CAPITAL.

The net revenue from railways for the year ended 30th June, 1916, was £2,464,724, while the capital expended on lines open for traffic to that date was £72,006,621. The amount thus available, to meet the interest charges on the capital expended, represents a return of 3·5 per cent. The following table shows the net earnings and the interest returned on the total capital expended on railways, including the cost of construction and equipment for the year 1890 and subsequent periods:—

Year ended 30th June.	Net Earnings.	Interest on Capital.	Year ended 30th June.	Net Earnings.	Interest on Capital.
	£	per cent.		£	per cent.
1890	967,251	3·17	1910	2,209,306	4·58
1895	1,235,615	3·31	1915	2,305,349	3·60
1900	1,319,052	3·43	1916	2,344,910	3·45
1905	1,467,574	3·49	1917	2,464,724	3·50

Owing to the general prosperity ruling throughout the State the profits during 1906 to 1912 were highly satisfactory; a decrease occurred in the years 1913 and 1914, due, as stated previously, to increased cost of working. During the year 1914-15 the abnormal conditions of war and drought caused a further decline in the earnings; steps were taken, however, to reduce the working expenditure. The decrease in the rate of return on the capital expenditure during the last two years, may be assigned to various causes, viz.:—Increases in wages, increased cost of materials, the transport of troops and war materials at half rates, and the payment to employees on active war service of the difference between their departmental and military pay.

In the discussion of the financial results of the working of the lines, it is the practice of railway authorities to compare the net returns with the nominal rate of interest payable on the railway loans or on the public debt of the State. An accurate comparison, however, can be made only by taking the average rate of interest payable on the actual sum obtained by the State for its outstanding loans, inasmuch as many loans were floated below par.

The table below shows the rate of interest returned on the capital expenditure for each of the years since 1908, with the sum by which such return falls short of or exceeds the actual rate of interest payable on the cost of construction. The rate of return on capital represents the interest on the gross cost of the lines:—

Year ended 30th June.	Interest returned on Capital.	Actual rate of Interest payable on Cost of Construction.	Gain (+) or Loss (—).	Year ended 30th June.	Interest returned on Capital.	Actual rate of Interest payable on Cost of Construction.	Gain (+) or Loss (—).
	per cent.	per cent.	per cent.		per cent.	per cent.	per cent.
1908	4·88	3·65	+1·23	1913	3·76	3·49	+0·27
1909	4·45	3·65	+0·80	1914	3·87	3·67	+0·20
1910	4·58	3·53	+1·05	1915	3·60	3·67	-0·07
1911	4·67	3·59	+1·08	1916	3·45	3·78	-0·33
1912	4·41	3·60	+0·81	1917	3·50	4·03	-0·59

The railways being owned by the State, public opinion at once demands a reduction in freights and rates, when the net earnings are much in excess of the interest requirements; substantial reductions were made in 1911 and 1912, but season ticket fares and certain goods rates were increased, as from 1st July, 1913, in anticipation of an increase in working expenses, and further increases were made on 1st March, 1914, and in August, 1917.

#### COACHING AND GOODS TRAFFIC.

For the first ten years after the opening of the first railway in New South Wales the larger part of the earnings was obtained from the passenger traffic, no doubt owing to the fact that the first lines were entirely suburban. It was not until the line crossed the mountains and opened up the interior that the proportions changed, and the goods traffic became the principal source of revenue. This change began in 1867.

The following table gives the proportion of earnings from the coaching and goods traffic at intervals since 1890. The percentages shown below include earnings from miscellaneous sources and rents, and therefore differ slightly from those stated on a previous page:—

Year ended 30th June.	Proportion of Total Earnings.		Year ended 30th June.	Proportion of Total Earnings.	
	Coaching, &c.	Goods and Live Stock.		Coaching, &c.	Goods and Live Stock.
1890	per cent. 40·2	per cent. 59·8	1910	per cent. 39·9	per cent. 60·1
1895	35·5	64·5	1915	44·7	55·3
1900	38·8	61·2	1916	45·8	54·2
1905	39·9	60·1	1917	45·7	54·3

#### Coaching Traffic.

The following table shows the number of passenger journeys and the receipts from coaching traffic since 1890:—

Year ended 30th June.	Passenger Journeys.	Gross Earnings from Coaching Traffic.	Per head of population.	
			Passenger Journeys.	Gross Earnings from Coaching Traffic.
1890	No. 17,071,945	£ / 1,041,607	No. 15·8	s. d. 19 3
1895	19,725,418	1,001,107	15·9	16 2
1900	26,486,873	1,195,496	19·7	17 6
1905	35,158,150	1,428,190	24·4	19 10
1910	53,644,271	2,124,292	33·6	26 7
1915	68,774,451	3,315,294	47·7	35 7
1916	92,850,838	3,574,063	49·9	38 5
1917	96,709,846	3,637,656	51·9	39 1

Particulars regarding the passenger traffic on suburban and country lines during the year ended 30th June, 1917, are shown below; suburban lines include distances within 34 miles of Sydney and Newcastle:—

Description.	First Class.	Second Class.	Total.
<b>SUBURBAN LINES.</b>			
Ordinary Passengers ... ..	6,149,239	29,019,841	35,169,080
Season Ticket Holders' Journeys ... ..	8,752,860	19,978,522	28,731,382
Workmen's Journeys ... ..	.....	22,854,648	22,854,648
Total Passenger Journeys ... ..	14,962,099	71,853,011	86,755,110
Miles Travelled ... ..	104,466,246	550,594,469	654,860,715
Average Mileage per Passenger ... ..	7.01	7.66	7.53
Amount Received from Passengers ... ..	£ 243,446	800,007	1,043,453
Average Receipts per Passenger per Mile ... ..	d. 0.56	0.35	0.38
<b>COUNTRY LINES.</b>			
Passengers ... ..	2,462,419	7,492,317	9,954,736
Miles Travelled ... ..	316,858,782	501,987,739	818,846,521
Average Mileage per Passenger ... ..	128.63	67.50	82.26
Amount Received from Passengers ... ..	£ 977,906	1,180,808	2,158,714
Average Receipt per Passenger per Mile ... ..	d. 0.74	0.56	0.63

### *Goods Traffic.*

The following figures show how greatly the goods traffic has expanded, especially in recent years:—

Year ended 30th June.	Goods and Live Stock Traffic.		Per head of Population.	
	Tonnage.	Gross Earnings.	Tonnage.	Gross Earnings.
1890	3,788,950	£ 1,569,356	3.5	£ s. d. 1 9 0
1895	4,075,093	1,855,187	3.3	1 9 11
1900	5,531,511	1,936,217	4.1	1 8 5
1905	6,724,215	2,213,105	4.7	1 10 9
1910	8,393,033	3,290,640	5.3	2 1 3
1915	11,920,881	4,206,231	6.4	2 5 2
1916	11,915,500	4,329,971	6.4	2 6 6
1917	11,732,864	4,542,619	6.3	2 8 9

In 1917 a reduction in the tonnage was compensated by increased rates, which were introduced in December, 1916.

A statement showing the class of goods carried on the railways since 1900 is shown below:—

Year ended 30th June.	General Merchandise.		Wool.	Live Stock.	Minerals.		Total Goods.
	Grain, Flour, &c. (Up Journey).	Other.			Coal, Coke, and Shale.	Other.	
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1900	361,052	1,151,564	84,678	188,595	3,406,769	338,853	5,531,511
1905	522,755	1,398,443	90,572	174,424	4,169,076	368,945	6,724,215
1910	608,405	2,100,203	138,779	463,669	4,553,965	523,017	8,393,038
1915	482,876	2,849,908	132,895	849,604	6,649,704	955,894	11,920,881
1916	852,019	2,753,295	111,033	797,065	6,410,503	991,535	11,915,500
1917	1,327,067	2,713,102	117,762	577,798	6,052,489	914,646	11,732,864

#### EXPANSION OF TRAFFIC.

The remarkable expansion which has taken place in the volume of traffic on the railways of New South Wales will be seen from the following comparison; the earnings during the quinquennium 1913-17, show an increase of £10,501,923, or 38 per cent., as compared with the earnings during the previous five years. The number of passengers has increased by 56 per cent., and the tonnage of goods and live-stock, &c., by 21 per cent:—

				Five years ended 30th June, 1912.	Five years ended 30th June, 1917.	Increase.	Percentage increase.
<b>Earnings—</b>							
Coaching Traffic	...	...	£	11,370,189	17,275,295	5,905,106	52
Goods and Live Stock	...	...	£	14,358,976	18,352,660	3,993,684	28
Coal and Coke	...	...	£	2,262,812	*2,865,945	603,133	27
<b>Total earnings</b>	...	...	£	27,991,977	38,493,900	10,501,923	38
<b>Passengers</b>	...	...	No.	284,809,213	444,153,568	159,344,355	56
<b>Goods and Live Stock</b>	...	...	Tons	19,482,890	25,500,253	6,017,363	31
<b>Coal and Coke</b>	...	...	Tons	23,650,584	33,981,084	4,330,500	14
<b>Total Tonnage</b>	...	...		49,133,474	59,481,337	10,347,863	21

## ROLLING-STOCK.

Information regarding the rolling-stock of New South Wales Railways on 30th June, 1916 and 1917, appears in the following table:—

Classification.	1916.	1917.	Classification.	1916.	1917.
Locomotives—			Merchandise—		
Engines ... ..	1,211	1,275	Goods, open ... ..	15,264	15,311
Tenders ... ..	987	1,031	Goods, covered ... ..	965	955
Coaching—			Meat trucks ... ..	428	428
Special & sleeping cars	95	95	Live-stock trucks ... ..	2,759	2,923
First-class ... ..	426	424	Brake-vans ... ..	556	557
Composite ... ..	210	210	Total ... ..	19,972	20,174
Second-class ... ..	895	895	Departmental Stock—		
Brake-vans ... ..	161	162	Loco. coal, ballast,		
Horse-boxes, carriages,			&c., waggons ... ..	1,768	1,744
trucks, &c. ... ..	283	293			
Total ... ..	2,070	2,079			

## MAINTENANCE OF PERMANENT WAY.

During the year ended 30th June, 1917, the length of line wholly or partially renewed by relaying, re-sleepering, or re-railing, was 139 miles 59 chains, and 327 miles 77 chains were re-ballasted, thus making a total of 467 miles 56 chains of line either partially or completely renewed. In this work 5,736 tons of rails, 280,105 sleepers, and 119,541 cubic yards of ballast were used.

## SIGNALLING AND SAFETY APPLIANCES.

Great progress has been made in providing safety appliances at various places, and during recent years much new work has been installed in connection with the deviations, duplications, and new railway lines. At many of the principal stations the points and signals are interlocked, and at the Central Station, Sydney, an electro-pneumatic system of signalling is in operation. During 1913, track block and automatic signalling—the first in Australia—was installed between Redfern Tunnel Signal-box and Sydenham Junction; this system has been extended as opportunity offers to 108 miles 54 chains of double track.

Particulars regarding the various systems employed for the safe working of the lines in 1916 and 1917 are shown below:—

	1916.		1917.	
	Mls.	Chs.	Mls.	Chs.
Single Line.				
By electric tablet ... ..	290	9	357	70
electric train staff ... ..	1,170	36	1,369	21
train staff and ticket with line clear reports ... ..	1,505	75	1,451	38
train staff and ticket without line clear reports.	682	4	677	68
train staff and one engine only ... ..	6	14	2	72
	3,654	58	3,859	29
Double Line.				
By automatic signalling with track block working	79	75	108	54
absolute manual block system ... ..	476	29	487	61
permissive manual block system ... ..	6	27	6	27
telephone ... ..	0	33	0	33
	561	4	603	15

An experimental installation of a locomotive cab signalling system laid down on the Richmond line has been attended with success, and it is proposed to extend it to the more important main lines of the State.

The Westinghouse brake is used on all the rolling stock of the Government railways.

## RAILWAY ACCIDENTS.

The persons meeting with accidents on railway lines may be grouped under three heads—passengers, employees, and trespassers; and the accidents themselves may be classified into those arising from causes beyond the control of the persons injured, and those due to misconduct or want of caution.

The accidents may be further subdivided into those connected with the movement of railway vehicles and those apart from such movement.

Adopting such classifications, the accidents during the quinquennial period terminated on 30th June, 1917, are shown below. The return is compiled in a similar way to that adopted by the Board of Trade in England, and all accidents are reported which occur in the working of the railways, or on railway premises, to persons other than servants of the Department, however slight the injuries may be. In the case of employees of the Department all accidents must be reported which cause the employee to be absent for at least one whole day from his ordinary work:—

Classification.	Accidents connected with the Movement of Railway Vehicles.					Accidents not connected with the Movement of Railway Vehicles.				
	1913.	1914.	1915.	1916.	1917.	1913.	1914.	1915.	1916.	1917.
<b>Passengers—</b>										
Causes beyond their own control—										
Killed ... ..	...	14	1	...	...	...	...	...	...	...
Injured ... ..	23	46	77	14	34	2	...	...	12	11
Their own misconduct, or want of caution—										
Killed ... ..	11	9	5	16	14	...	1	...	...	...
Injured ... ..	168	137	174	208	141	49	83	40	41	53
<b>Servants of the Department—</b>										
Causes beyond their own control—										
Killed ... ..	1	1	2	...	...	1	...	...	...	...
Injured ... ..	53	44	30	37	30	130	83	64	103	92
Their own misconduct, or want of caution—										
Killed ... ..	30	41	31	31	16	6	4	5	3	5
Injured ... ..	252	257	281	344	283	2,920	3,120	2,704	2,690	2,408
<b>Trespassers and others—</b>										
Killed ... ..	42	47	39	40	33	4	3	6	7	7
Injured ... ..	86	86	83	107	84	113	131	107	110	157
<b>Total</b> { Killed ... ..	84	112	78	87	63	11	8	11	10	12
Injured ... ..	582	570	645	710	572	3,214	3,417	2,915	2,956	2,721

The rates per million passengers carried during the quinquennium were as follow:—

	Killed.	Injured.
<b>Accidents connected with movement of railway vehicles—</b>		
Causes beyond their own control ... ..	·03	·44
Their own misconduct or want of caution ... ..	·13	1·86
<b>Accidents not connected with movement of railway vehicles—</b>		
Causes beyond their own control ... ..	...	·06
Their own misconduct or want of caution ... ..	·00	·60
<b>Total</b> ... ..	·16	2·96

*Compensation Paid—Railways.*

The amount of compensation paid during the twelve months ended 30th June, 1917, in connection with accidents on railways, was £9,792, of which £3,013 was personal, £6,779 being paid in respect of goods.

## PRIVATE RAILWAY LINES.

In New South Wales the established policy has been to keep the railways under State management and control, and at the present time there are only 142 miles of private lines in operation, with the exception of short lines to connect coal and other mines with the main railways, on a few of which provision has been made for the carriage of passengers and goods.

In 1874 Parliament granted permission to a company to construct a line from Deniliquin, in the centre of the Riverina district, to Moama, on the River Murray, where it meets the railway system of Victoria. The line, which was opened in the year 1876, is of 5 ft. 3 in. gauge and 45 miles in length; a considerable proportion of the wool and other produce of the Riverina reaches the Melbourne market by this route. During the year 1888 a line of 3 ft. 6 in. gauge, and 35 miles 54 chains in length, was laid down from Silvertown and Broken Hill to the South Australian border. A short line connects the Government railway at Liverpool with the Warwick Farm Racecourse. The Seaham Coal Company's line connects the West Wallsend and Seaham Collieries with Cockle Creek; and the line of the Commonwealth Oil Corporation extends from Newnes Junction, on the Western line, to the Wolgan Valley. The following table shows the operations of all private railway lines open to the public for general traffic during the year 1916:—

Name of Private Railway.	Line.			Total Capital Expended.	Reserve Fund.	Debentures Outstanding.	Passengers Carried.	Goods Carried.	Live Stock Carried.	Train Miles Run.
	Length.	Gauge.								
	m.	ch.	ft. in.	£	£	£	No.	tons.	No.	No.
Deniliquin and Moama.	45	0	5 3	162,673	14,010	...	12,107	20,390	325,599	35,541
Silvertown ...	35	54	3 6	475,335	125,847	...	45,539	*778,718	92,789	120,617
Warwick Farm ...	0	66	4 8½	5,700	...	...	27,185	...	741	46
Seaham Colliery...	6	0	4 8½	16,000	...	...	12,720	9,250	...	7,499
East Greta ...	8	0	4 8½	194,035	...	...	856,841	tons. 66,322	...	360,054
Hexham-Minmi ...	6	0	4 8½	£1,000,000	...	...	9,850	1,175	...	4,900
Commonwealth Oil Corporation.	33	0	4 8½	194,500	...	475,000	1,156	9,599	...	13,194
†New Red Head...	7	40	4 8½	102,000	...	...	‡	‡	‡	...

\* Includes 527,291 tons local shunting.

† Year 1914.

‡ Not available.

§ Approximate.

The Deniliquin and Moama Company possesses 4 locomotives, 6 passenger carriages, and 63 goods carriages and vans. The Silvertown Company has 20 locomotives, 665 goods vehicles, and 1 passenger carriage; and passenger carriages are hired also from the South Australian Government railways as required. On the Warwick Farm line Government rolling-stock is used. The Seaham Colliery has 2 locomotives, but otherwise

Government rolling-stock is used, 4 passenger carriages, and 2,225 goods vehicles being hired during 1916. On the East Greta railway there are 19 locomotives, 32 passenger carriages, and 33 goods carriages. The Hexham-Minni Company has 1 locomotive, and 4 passenger carriages; and the Commonwealth Oil Corporation has 4 locomotives, 2 passenger carriages, 1 motor car, and 73 goods carriages and vans.

In addition to the private railway lines shown in the above table, there are several branches, connected principally with coal and other mines; a summary of them is given below:—

District.		Length.	Gauge.
		m. ch.	ft. in.
Connected with	Northern Line ... ..	95 54	4 8½
„	Western „ ... ..	6 39	4 8½
„	South Coast „ ... ..	3 40	3 6
		29 76	4 8½

#### RAILWAYS OF NEW SOUTH WALES AND OTHER COUNTRIES.

The position of all railways of New South Wales in relation to other important countries of the world is shown in the following table; but it is necessary to remember that there are vital differences which really invalidate any effective comparison, as, for instance, differences in population, and in the competition or assistance which railways encounter from river or sea carriage:—

Country.	Length of Railways.	Per Mile of Line Open.		Country.	Length of Railways.	Per Mile of Line Open.	
		Population.	Area.			Population.	Area.
	miles.	No.	sq.miles.		miles.	No.	sq.miles.
<i>New South Wales</i>	4,610	406	67·3	Germany ... ..	39,532	1,691	4·3
Victoria ... ..	4,254	330	20·7	France ... ..	31,958	1,239	6·5
Queensland ... ..	5,711	119	117·4	Switzerland ... ..	3,562	1,076	4·5
South Australia ...	2,733	157	139·1	Austria ... ..	15,739	1,967	8·6
Western Australia	4,418	70	220·9	Hungary ... ..	13,589	1,547	9·2
Tasmania ... ..	747	264	35·1	Canada ... ..	37,434	216	99·6
New Zealand ... ..	2,989	368	35·0	United States of America.	263,547	374	11·3
United Kingdom	23,709	1,940	5·1	Argentina ... ..	21,150	368	53·9
Russia ... ..	46,586	3,604	179·5	Japan ... ..	6,594	8,1·3	22·4

#### UNIFICATION OF THE RAILWAY GAUGES OF AUSTRALIA.

It was originally intended that there should be only one gauge for all the railways of Australia, but, unfortunately for interstate communication, this intention was not carried into effect, and railway construction has proceeded without uniformity of gauge. In 1850, when the first railway was commenced, the Sydney Railroad and Tramway Company decided to adopt the 5 ft. 3 in. gauge, and an Act passed in 1852 provided that all the lines in New South Wales should be laid down to this standard. Three years later the Company altered its decision, the Act was repealed, and another passed substituting the 4 ft. 8½ in. gauge for the 5 ft. 3 in.

This change was made without consulting the other Australian colonies, and in Victoria the railway companies had already placed large orders for rolling-stock for the wider gauge. The result is that the railways of New South Wales have been constructed to the 4 ft. 8½ in. gauge, and the Victorian to 5 ft. 3 in. In South Australia the 5 ft. 3 in. gauge was adopted at first, but on account of the lower cost of construction the more recent lines in that State, as well as all the lines in the Northern Territory, Queensland, and Western Australia, have been built to a gauge of 3 ft. 6 in.

Excluding the Tasmanian lines the classification of the Government Railways according to gauge as at 30th June, 1917, may be seen below:—

Government Railways.	Mileage with Gauge.					Total Miles.
	2 ft.	2 ft. 6 in.	3 ft. 6 in.	4 ft. 8½ in.	5 ft. 3 in.	
New South Wales ... ..	26	.....	40	4,397	.....	4,463*
Victoria ... ..	.....	122	.....	.....	4,091	4,123
Queensland ... ..	29	.....	5,185	.....	.....	5,214
South Australia ... ..	.....	.....	1,210	.....	1,011	2,221
Western Australia ... ..	.....	.....	3,425	.....	.....	3,425
Northern Territory ... ..	.....	.....	623	5	.....	6.8
<b>Tota ... ..</b>	<b>55</b>	<b>122</b>	<b>10,483</b>	<b>4,402</b>	<b>5,012</b>	<b>29,074</b>

\* Includes Burrinjuck line.

In consequence of the diversity of gauge interstate railway communication is seriously hampered; in a journey from Queensland to South Australia, breaks of gauge occur at Wallangarra, where the systems of Queensland and New South Wales meet, and at Albury, on the border of New South Wales and Victoria, while there is another change of gauge between Adelaide and Port Augusta or Oodnadatta, in South Australia.

The question of fixing the standard gauge has been the subject of many diverse professional opinions. The New South Wales gauge of 4 ft. 8½ in. has been recommended by the chief railway engineers of the Commonwealth and of the five States and by the Railway War Council, and has been adopted for the Port Augusta-Kalgoorlie railway.

#### TRANSCONTINENTAL RAILWAYS.

It is the intention of the Federal Government to construct transcontinental railway lines to bring the States of the continent of Australia into direct communication. A line from Port Augusta in South Australia to Kalgoorlie in Western Australia was opened for traffic in November, 1917, the gauge of 4 feet 8½ inches having been adopted. The total length is 1,051 miles, which will make the distance by rail from Sydney to Fremantle (Western Australia) 2,761 miles, divided up as follows:—Sydney to Melbourne, 583 miles; Melbourne to Adelaide, 483; Adelaide to Port Augusta, 259; Port Augusta to Kalgoorlie, 1,051; Kalgoorlie to Fremantle, 385. This line is required to facilitate the transport of troops, &c., in time of war, and accelerate the transit of European mails. Mail matter forwarded to Adelaide from Sydney by rail, and thence sent by steamer to Fremantle, takes six days, whereas the through railway journey occupies four days. When the heavy ballasting is completed it should be practicable to make the journey between Port Augusta and Kalgoorlie in about 24 hours; in the meantime, it takes about 35 hours.

Under the provisions of the Northern Territory Acceptance Act the South Australian Government transferred to the Commonwealth on 1st January, 1911, the line from Port Augusta to Oodnadatta, 478 miles, as well as the Northern Territory railway, from Darwin to Pine Creek, 145½ miles. The former is controlled by the South Australian Railway Commissioner on behalf of the Federal Government. The Commonwealth has under consideration the construction of a line across the Continent to connect these systems; the section from Pine Creek to Katherine, 54½ miles, is open for traffic, and surveys have been made of other sections.

## TRAMWAYS.

With the exception of 2¾ miles privately owned, the tramways of New South Wales are the property of the State Government. The standard gauge of 4 ft. 8½ in. has been adopted for all lines. The electric system was introduced into Sydney at the close of 1899, and the steam tramways in the metropolitan district have been converted. Of the 224 miles of line open at 30th June, 1917, there were 153 miles under the electric system and 71 miles worked by steam.

Line.	Length of Line.		Length of Single Track.	
	mls.	ch.	mls.	ch.
<b>Electric—</b>				
City and Suburban ... ..	112	13	204	76
North Sydney ... ..	20	30	34	76
Ashfield to Mortlake and Cabarita ... ..	8	28	15	9
Rockdale to Brighton-le-Sands ... ..	1	20	1	20
Manly to The Spit and Manly to Narrabeen ... ..	10	58	14	46
	152	79	270	67
<b>Steam—</b>				
Arncliffe to Bexley ... ..	2	50	2	50
Kogarah to Sans Souci ... ..	5	45	6	79
Parramatta to Castle Hill ... ..	6	55	6	55
Sutherland to Cronulla ... ..	7	32	7	32
Newcastle City and Suburban ... ..	34	6	44	34
East to West Maitland ... ..	4	47	4	47
Broken Hill ... ..	10	4	11	35
	70	79	84	12
<b>Total ... ..</b>	<b>223</b>	<b>78</b>	<b>354</b>	<b>79</b>
Sidings, loops, and Cross-overs ... ..	.....		54	39

During the year ended 30th June, 1917, the length of line opened for traffic was 3 miles 16 chains; and 1 mile 30 chains were under construction at the end of the year.

#### Rolling-stock.

The tramway rolling-stock, on 30th June, 1917, consisted of 26 steam motors, 83 steam cars, 1,387 motor cars and 11 trail cars for electric lines, and 105 service vehicles, making a total of 1,612.

#### Cost of Construction.

The capital cost of the State tramways to 30th June, 1917, amounted to £8,309,629, or £37,099 per mile open; the cost of construction was £4,140,616, or £18,486 per mile, and the expenditure on rolling-stock, work-shops, machinery, &c., amounted to £4,169,013.

#### Working of Tramways.

The following statement shows the working of the various tramways in sections for the year ended 30th June, 1917. Only two sections returned a profit during the period; the total loss on all lines, after allowing for interest on capital, amounted to £18,189.

Line.	Cost of Construction and Equipment.	Passengers carried.	Gross Revenue.	Working Expenses.	Net Earnings.	Interest on Capital.	Profit + Loss —
	£	No.	£	£	£	£	£
Electric—							
City and Suburban .. .. .	6,390,638	244,712,101	1,665,063	1,376,993	288,670	258,326	+ 30,344
North Sydney .. .. .	686,833	21,612,120	131,161	105,101	26,060	27,712	— 1,652
Ashfield to Mortlake & Cabarita	202,976	5,027,522	24,743	26,334	— 1,586	8,181	— 9,767
Manly to The Spit and Manly to Narrabeen.	320,650	3,138,457	23,446	24,491	3,955	13,045	— 9,090
Rockdale to Brighton-le-Sands	13,953	690,044	3,389	2,504	876	561	+ 315
Steam—							
Arncliffe to Bexley .. .. .	21,964	673,510	3,767	4,433	— 666	899	— 1,563
Kogarah to Sans Souci .. .. .	23,646	983,096	8,450	11,124	— 2,674	1,173	— 3,847
Parramatta to Castle Hill .. .. .	39,743	929,535	8,010	10,119	— 2,109	1,627	— 3,736
Sutherland to Cronulla .. .. .	51,183	710,897	10,719	9,729	990	2,065	— 1,103
Newcastle City and Suburban	424,218	14,364,609	105,446	98,200	7,246	16,472	— 9,226
East to West Maitland .. .. .	39,162	721,674	4,995	5,530	— 544	1,003	— 2,147
Broken Hill .. .. .	89,613	1,740,059	13,754	16,800	— 3,046	3,667	— 6,713
Total, All Lines.. .. .	8,309,629	295,303,714	2,008,539	1,691,367	317,172	335,361	— 18,189

#### Revenue and Expenditure.

In the following table are given details of revenue and expenditure, and capital invested for all State tramways, since 1880. The net earnings of the tramways for the year ended 30th June, 1917, amounted to 3.82 per cent. on cost of construction and equipment, as compared with 4.09 per cent., the

actual interest on the public debt, taking into consideration the actual sum obtained by the State for its loans, many of which were floated below par:—  
par:—

Year ended 30th June.	Total Length of Lines.	Capital Expended on Lines open for Traffic.	Gross Revenue.	Working Expenses.	Net Earnings.	Interest Returned on Capital.
	Miles.	£	£	£	£	per cent.
1880	4½	60,218	18,980	13,444	5,536	9·19
1890	39½	933,614	263,962	224,073	44,889	4·31
1900	71½	1,924,720	409,724	341,127	68,597	3·56
1910	165½	4,663,797	1,185,568	983,587	201,981	4·33
1915	219½	7,970,293	1,936,060	1,611,286	374,774	4·70
1916	220½	8,166,423	1,991,628	1,602,650	388,978	4·76
1917	224	8,309,620	2,003,539	1,691,367	317,172	3·82

During the year ended 30th June, 1917, the percentage of working expenses to the total receipts was 84·2 as compared with 80·5 in the previous year; the net earnings amounted to £317,172, which is equal to a net return per average mile open of £1,424, as compared with £1,766 per mile open in 1916.

#### *Comparison of Tramway Traffic.*

The following statement contains a comparison of the passenger traffic and the tram mileage in the State tramways since 1900. The length of line has increased from 71½ miles to 224 miles; the number of passengers from 66,244,334 to 295,303,714, and the tram mileage from 4,355,024 miles to 25,361,992 miles. With the extension of the tramway system the earnings per tram mile decreased from 2s. 3d. in 1900 to 1s. in 1905, but have since risen to 1s. 7d.; the working cost per tram mile dropped from 1s. 10d. in 1900 to 10d. in 1905, but increased steadily to 1s. 4d. in 1917:—

Year ended 30th June.	Length of line open.	Passengers carried.	Tram mileage.	Earnings per tram mile.	Working cost per tram mile.
	miles.	No.	miles.	s. d.	s. d.
1900	71½	66,244,334	4,355,024	2 3	1 10
1905	125½	139,669,459	16,413,762	1 0	0 10
1910	165½	201,151,021	20,579,386	1 1½	0 11½
1915	219½	289,282,845	26,842,974	1 5½	1 2½
1916	220½	292,021,774	26,451,442	1 6	1 2½
1917	224	295,303,714	25,361,992	1 7	1 4

The extension of the City and North Sydney tramways since 1905 may be seen in the following statement, also the enormous increase in the passenger traffic. All lines which communicate directly with the city of Sydney are

included in the category "City and Suburban"; the Ashfield, Kogarah, Arncliffe, and Rockdale lines, which act as feeders to the railways, and the Manly lines, have not been included:—

Year ended 30th June.	City and Suburban.			North Sydney.		
	Length of line.	Passengers carried.	Tram mileage.	Length of line.	Passengers carried.	Tram mileage.
	miles.	No.	miles.	miles.	No.	miles.
1905	73 $\frac{1}{4}$	120,973,934	14,413,273	11 $\frac{3}{4}$	9,128,575	1,074,743
1910	94 $\frac{1}{4}$	173,897,034	17,743,868	16 $\frac{1}{4}$	13,677,491	1,651,153
1915	110 $\frac{1}{4}$	240,545,317	22,242,010	19 $\frac{1}{2}$	20,743,680	2,375,916
1916	111 $\frac{1}{4}$	242,686,337	21,937,619	19 $\frac{1}{2}$	20,813,257	2,279,494
1917	112 $\frac{1}{4}$	244,712,191	20,884,254	20 $\frac{1}{2}$	21,612,120	2,250,913

## CARRIAGE OF GOODS BY TRAMWAYS.

Goods and other material may be carried on the Government tramways, except on the lines in the very busy sections of the streets of Sydney, viz., in George, Pitt, and Castlereagh streets between the Central Railway Station and the Circular Quay.

Although the tram lines are fully capable of carrying heavy goods, and the track is ballasted equal to the railways, up to the present time only passengers are carried, and such material as occasionally may be needed for tramway requirements.

## TRAMWAY ACCIDENTS.

The accidents which occurred on tramways during the last five years are classified in the subjoined table, in a similar way to those relating to the railways:—

Classification.	Accidents connected with the movement of tramway vehicles.					Accidents not connected with the movement of tramway vehicles.				
	1913.	1914.	1915.	1916.	1917.	1913.	1914.	1915.	1916.	1917.
Passengers—										
Causes beyond their own control—										
Killed...	...	2	1	...	...	...	...	...	...	...
Injured	229	120	75	77	43	4	3	2	1	2
Their own misconduct, or want of caution—										
Killed...	...	9	11	7	7	12	...	...	1	...
Injured	406	487	312	346	297	16	16	19	8	13
Servants of the Department—										
Causes beyond their own control—										
Killed...	...	...	1	1	...	...	...	...	...	...
Injured	66	74	37	47	74	48	45	19	29	31
Their own misconduct, or want of caution—										
Killed...	...	1	...	3	1	1	1	...	...	...
Injured	199	212	161	152	241	608	549	411	306	322
Others—										
Killed...	...	28	16	21	23	12	...	...	...	...
Injured	373	368	267	294	226	8	8	2	4	10
Total										
{ Killed...	...	38	29	33	32	25	1	1	1	...
{ Injured	1273	1261	852	916	881	684	621	453	348	378

As the tramways usually traverse crowded streets, the number of accidents must be considered small.

The number of passengers carried on the tramways during the year ended 30th June, 1917, was 295,303,714, and the rate of fatal accidents to passengers was .04 per million. With three exceptions the fatal accidents in the last five years were ascribed entirely to misconduct or want of caution on the part of passengers.

*Compensation Paid—Tramways.*

The amount of compensation paid during the twelve months ended 30th June, 1917, in respect of accidents on the tramways was £14,521, as compared with £17,558 for the preceding year.

**PRIVATE TRAMWAYS.**

There is one tramway under private control within the State—a steam tramway, which passes through the town of Parramatta, commencing at the Park and continuing as far as the Newington Wharf at Duck River, a distance of 2 miles 66 chains, where it connects with the Parramatta River steamers conveying passengers and goods to and from Sydney. The line has been constructed to the standard gauge of 4 feet 8½ inches, and was opened in 1883.

**RAILWAYS AND TRAMWAYS—EMPLOYMENT AND WAGES.**

The account of wages paid, together with the staff employed on the Government railways and tramways in June, 1917, is shown in the following statement, in comparison with the previous year:—

Particulars.	Year ended 30th June, 1916.			Year ended 30th June, 1917.		
	Railways.	Tramways.	Total.	Railways.	Tramways.	Total.
Persons employed—						
Salaried staff ...	4,148	617	4,765	4,590	639	5,229
Wages ,, ...	34,634	9,189	43,823	30,726	9,124	39,850
Total number	38,782	9,806	48,588	35,316	9,763	45,079
Wages paid—	£	£	£	£	£	£
Maintenance Branch	2,064,204	168,078	2,232,282	1,626,779	166,490	1,793,269
Locomotive ,,	2,124,866	.....	2,124,866	2,066,243	.....	2,066,243
Electric ,,	.....	378,768	378,768	.....	399,082	399,082
Traffic ,,	876,644	670,523	1,547,167	955,682	718,897	1,674,579
Total	£ 5,065,714	1,217,369	6,283,083	4,648,704	1,284,469	5,933,173

The average number of men employed during the year ended 30th June, 1917, was 47,165, including an average of 5,480 employees serving with the Australian Imperial Force. To 30th June, 1917, 673 salaried officers and 5,217 men on the wages staff had joined the Australian Imperial Force, all permanent employees being paid the difference in their pay in railway and tramway service and in the defence forces; under certain conditions similar terms are allowed to members of the temporary staff.

A scheme to provide superannuation allowances for the officers of the railway and tramway service was introduced in 1910; particulars will be shown in a later chapter of this Year Book.

## LAW COURTS.

IN New South Wales legal processes may be grouped within the original jurisdiction of the Lower or Magistrates' Courts, or of the Higher Courts presided over by appointed Judges. The subject of appellate jurisdiction will be discussed separately.

### ORIGINAL JURISDICTION—LOWER COURTS.

The Lower or Magistrates' Courts include Petty Sessions, Small Debts, Licensing, and Children's Courts.

All persons arrested and charged with offences at the various Police stations—also all summoned persons—must be brought before the Magistrates' Courts to answer charges, indictable or summary, or complaints of any nature; and are either dealt with summarily, or committed to take their trial at the Court of Quarter Sessions, or at the Supreme Court in its criminal jurisdiction. Persons may also be committed to take their trial at such higher Courts by a Coroner or by a Judge.

Certain indictable offences (larceny, stealing from the person, embezzlement, &c.) are punishable summarily by Magistrates—by consent of the accused person—if the subject matter of the charge, or value of the property involved, does not amount to £20. Persons convicted by the Magistrates under such circumstances are liable to imprisonment for six months, or to a fine of £20. The period of imprisonment that may be awarded by Magistrates for purely summary offences is fixed in each case by Statute; in some cases sentences up to two years may be imposed. Most summary offences are punishable by fine, or by imprisonment, not exceeding seven days, in default of payment, where the amount of fine and costs does not exceed 10s., and not exceeding twelve months, where the amount payable exceeds £100.

Where a person is committed to be imprisoned, and is then undergoing imprisonment for another offence, the Magistrate may order that the sentence for the subsequent offence shall commence at the termination of the period the person is then serving. Justices have no power to impose more than one sentence of imprisonment to commence at the expiration of the first sentence.

By the Small Debts Recovery Act, 1912, the jurisdiction of Magistrates' Courts is extended to include action for the recovery of a debt or liquidated demand not exceeding £30, or where the Court is constituted by a Stipendiary or Police Magistrate sitting in some place appointed in that behalf by the Governor, to an amount not exceeding £50, whether on balance of account or after admitted set-off or otherwise.

### COURTS OF PETTY SESSIONS.

Courts of Petty Sessions are held by Stipendiary Magistrates in the Sydney, Parramatta, Newcastle, Broken Hill, Bathurst, and Wollongong districts, and in other districts by Police Magistrates, or Justices of the Peace, the latter being honorary officers.

The total number of offences charged at all Courts of Petty Sessions and Children's Courts during the last five years, are shown in the following table:—

Courts.	1912.	1913.	1914.	1915.	1916.
Courts of Petty Sessions ...	87,082	89,469	92,289	83,228	77,873
Children's Courts ...	2,869	2,638	2,477	3,348	4,163
All Magistrates' Courts ...	89,951	92,107	94,766	86,576	82,036

The following table summarises the operations of these Courts during 1916:—

Procedure.	Charged before Magistrates.	Treated summarily.			Committed to higher Courts.
		Convicted.	Withdrawn or Discharged.	Total.	
By arrest... ..	45,304	39,608	4,091	43,789	1,515
By summons ... ..	36,732	28,917	7,674	36,591	141
Total ... ..	82,036	68,615	11,765	80,380	1,656

The cases (1,656) committed to higher Courts represent 2·1 per cent. of the total charges; the remainder, representing 97·9 per cent., were summarily treated, convictions resulting from 83·6 per cent. of the charges. A division of accused persons, according to sexes, shows that the charges against females numbered 9,995, being only 12·2 per cent. of the total:—

Sex.	Charged before Magistrates.	Treated summarily.			Committed to higher Courts.
		Convicted.	Withdrawn or Discharged.	Total.	
Males ... ..	72,041	60,410	10,125	70,535	1,506
Females ... ..	9,995	8,205	1,640	9,845	150
Total ... ..	82,036	68,615	11,765	80,380	1,656

The following table shows the proportion of summary convictions by Magistrates, of acquittals and discharges, and the committals to higher Courts at intervals since 1870:—

Year.	Summary Convictions.	Acquittals and Discharges.	Committals to higher Courts.
	per cent.	per cent.	per cent.
1870	69·0	24·7	6·3
1880	76·9	18·4	4·7
1890	80·4	16·0	3·6
1900	83·1	14·9	2·0
1910	86·1	12·3	1·6
1911	86·6	11·8	1·6
1912	86·3	12·0	1·7
1913	85·8	12·5	1·7
1914	85·7	12·5	1·8
1915	84·6	13·6	1·8
1916	83·6	14·3	2·1

Investigation into the nature of the offences for which summary convictions were effected during 1915 shows that only a small proportion were really criminal offences, viz., offences against person or property. Following is a classification of summary convictions, showing also their ratio to the general population, during each of the last five years :—

Year.	Against the Person.	Against Property.	Against Good Order.	Under Defence Act.	Other Offences.	Total Summary Convictions.
NUMBER OF SUMMARY CONVICTIONS.						
1912	1,918	3,981	49,727	2,580	19,405	77,611
1913	1,913	4,244	50,109	5,123	17,690	79,079
1914	2,023	4,068	51,609	3,210	20,307	81,217
1915	1,849	4,439	41,548	2,957	22,455	73,248
1916	1,785	4,480	37,407	2,383	22,560	68,615
PER 1,000 OF MEAN POPULATION.						
1912	1.10	2.29	28.60	1.49	11.16	44.64
1913	1.05	2.35	27.69	2.83	9.78	43.70
1914	1.09	2.19	27.85	1.73	10.96	43.82
1915	.99	2.38	22.24	1.58	12.02	39.21
1916	.96	2.40	20.04	1.28	12.09	36.77

In most instances the offences shown under the heading of "Other" offences are committed in ignorance of the law, and are met with small or nominal penalties.

For each of the last five years the total number of summary convictions at Courts of Petty Sessions and Children's Courts, and the proportion per 1,000 of population, were as follows :—

Year.	Summary Convictions.			Per 1,000 of mean Population.		
	Males.	Females.	Total.	Males.	Females.	Total.
1912	70,637	6,974	77,611	77.36	8.45	44.64
1913	72,250	6,829	79,079	75.96	7.96	43.70
1914	74,572	6,645	81,217	76.81	7.53	43.82
1915	65,675	7,573	73,248	68.33	8.35	39.21
1916	60,410	8,205	68,615	64.26	8.86	36.77

Summary convictions in 1916 resulted in penalties as classified below :—

Offences.	Fines Paid.	Imprisoned in default.	Imprisoned without option.	Bound over and released on probation.	Other Punishments.	Total.
Against the person ... ..	1,150	271	233	96	35	1,785
Against property ... ..	1,559	714	709	1,214	284	4,480
Against good order .. ..	21,279	13,144	1,113	323	1,548	37,407
Other offences ... ..	21,325	643	391	117	2,467	24,943
Total ... ..	45,313	14,772	2,446	1,750	4,334	68,615

Included under the heading, "Other punishments," are a number of cases of drunkenness in which the defendants took a pledge to abstain from intoxicating liquors, and numerous cases under the universal training section of the Defence Act in which offenders were transferred to the military authorities.

Sentences of imprisonment in default are usually commuted by subsequent payment of fine; the extent to which this practice operates is shown on a subsequent page in connection with the prison services. Per 100 cases, fines were paid in 66; imprisonment in lieu of fine, 21; imprisonment without option, 4; bound over, &c., 3; and other punishments, 6.

The fines paid amounted to £57,069, of which £28,640 were paid into Consolidated Revenue, £3,614 to Commonwealth Government Departments, £14,445 to the Police Reward Fund, £3,920 to municipalities and shires, £1,318 to Pastures Protection Boards, £1,604 were paid to hospitals, societies, &c., and £3,528 to informers.

#### CHILDREN'S COURTS.

Children's Courts under the Neglected Children and Juvenile Offenders Act, 1905, were established throughout the State with the object of removing children as far as possible from the atmosphere of a public court. Magistrates exercise powers in respect of children and of offences committed by and against children. They also possess the authority of a Court of Petty Sessions or Justice under the Children's Protection Act, the Infant Protection Act, and the Deserted Wives and Children Act.

Offenders against the universal training section of the Defence Act are prosecuted in the Children's Courts as far as practicable; magistrates are empowered to fine or commit them to the custody of the military authorities.

The Neglected Children and Juvenile Offenders Act is designed to remove children from association with reputed thieves, and otherwise provides for the protection and reformation of neglected or uncontrollable children, also for the supervision of the children engaged in street trading.

Information as to the number of licenses for street trading, under the Neglected Children Act, and as to permits under the Children's Protection Act to take part in public exhibitions, at theatres, &c., will be found in a later chapter of this Year Book.

During the year 1916 the charges investigated in Children's Courts numbered 4,163. In addition to these cases, there were 3,298 applications for orders, relating to the disposal of neglected and uncontrollable children, and to the maintenance of children; and 1,923 were cases of non-compliance with orders.

The following table shows the cases taken at Children's Courts during 1916; and as offences committed against children are dealt with by these Courts the figures include many cases of adult offenders:—

Offences.	Summarily treated.				Committed to Higher Courts.		Total.		
	Convicted.		Discharged or Withdrawn.		M.	F.	M.	F.	Total.
	M.	F.	M.	F.					
Against the person ..	51	11	71	25	47	1	169	37	206
Against property ...	1,305	51	787	69	5	...	2,097	120	2,217
Against good order ...	169	3	108	6	...	1	277	10	287
Other offences... ..	1,104	1	340	8	...	...	1,444	9	1,453
Total ...	2,629	66	1,306	108	52	2	3,987	176	4,163

The following table shows the number of convictions recorded in each class during the last five years :—

Offences.	Convictions.				
	1912.	1913.	1914.	1915.	1916.
Against the person ... ..	83	76	73	82	62
Against property ... ..	900	826	734	990	1,356
Against good order ... ..	301	337	237	211	172
Under Defence Act ... ..	377	303	218	781	909
Other offences ... ..	379	278	227	229	196
<b>Total ... ..</b>	<b>2,040</b>	<b>1,820</b>	<b>1,489</b>	<b>2,293</b>	<b>2,695</b>

The figures shown above and other particulars of Children's Courts are included in the aggregate tables relating to Courts of Petty Sessions.

#### SMALL DEBTS COURTS.

The total number of cases dealt with by the Small Debts Courts during 1916 was 41,863 ; in only 479 cases was the amount claimed in excess of £30. The transactions during the last two years are shown in the following table :—

Transactions.	1915.			1916.		
	Up to £30	£30 to £50	Total.	Up to £30	£30 to £50	Total.
Cases brought before the Registrar—						
Judgments given for plaintiff... ..	10,550	146	10,696	9,704	114	9,818
Not proceeded with ... ..	14,398	80	14,478	12,221	64	12,285
Verdicts given by Court—						
For plaintiff ... ..	6,651	59	6,710	5,983	49	6,032
For defendant ... ..	403	3	406	335	10	345
Withdrawn or struck out ... ..	7,112	27	7,139	6,843	86	6,929
Nonsuits ... ..	392	7	399	312	3	315
Cases pending... ..	7,026	26	7,052	5,986	153	6,139
<b>Total cases ... ..</b>	<b>46,532</b>	<b>348</b>	<b>46,880</b>	<b>41,384</b>	<b>479</b>	<b>41,863</b>
Amount of judgments for plaintiff £	75,148	5,575	80,723	64,785	4,512	69,297
Amount of verdicts for plaintiff £	27,387	2,119	29,506	30,413	1,820	32,233

In garnishee cases the Court may order that all debts due by a garnishee to the defendant may be attached to meet a judgment debt, and by a subsequent order, may direct the garnishee to pay so much of the amount owing as will satisfy the judgment debt. In respect of wages or salary, garnishee orders may be made only for so much as exceeds £2 per week. The garnishee cases in 1916 numbered 1,239.

Oral examinations of judgment debtors as to debts due to them, ordered on the application of a judgment creditor, numbered 734 in 1916. Interpleader cases, as to claims made to goods held under a writ of execution, by a person not party to the suit, numbered 47.

## LICENSING COURTS.

In the metropolitan district of the State, the Court for granting licenses to sell intoxicants consists of three Stipendiary Magistrates. In country districts the local Police Magistrate and two Justices of the Peace, specially appointed, constitute the Court; if there is no Police Magistrate resident within 10 miles of the courthouse a licensing magistrate may be appointed. In 1882 the number of licensed houses was 3,063; in 1907, it was 3,022; and in 1914, 2,658, the decrease being 364, or 12 per cent. since 1907.

The Liquor Act, 1912, and its amendment of 1916, regulate the sale of intoxicating liquor, and facilitate the exercise of the principle of local option. In addition to stringent regulations regarding the licensing and management of hotels, the registration of clubs in which liquor is sold is compulsory. Registration is granted only to properly-conducted associations, established for a lawful purpose, on suitable premises.

On 17th February, 1916, the Minister for Defence, in the exercise of powers conferred under the provisions of the War Precautions Act, ordered that all licensed premises in the county of Cumberland, and in places within five miles of any military training camp in the State, should be closed at 6 p.m. On 24th February the order was varied, making the closing hour 8 o'clock.

Subsequently an Act was passed in the State Parliament authorising a referendum, when the electors were enabled to vote for the hour of their choice, ranging from 6 p.m. to 11 p.m., both inclusive. At the referendum taken on 10th June, 1916, an absolute majority of votes was recorded for six o'clock, and since 21st July, 1916, all the licensed premises have been closed at that hour. Particulars of the voting on 10th June, 1916, are shown below:—

Districts.	Votes Recorded for—						Informal.	Total.
	6 o'clock.	7 o'clock.	8 o'clock.	9 o'clock.	10 o'clock.	11 o'clock.		
City ... ..	10,686	216	1,388	14,952	87	94	1,107	28,530
Suburban ... ..	172,067	2,294	8,994	65,505	347	460	7,198	256,865
Country ... ..	164,741	2,320	10,752	98,385	971	2,639	13,903	293,711
Total ... ..	347,494	4,830	21,134	178,842	1,405	3,193	22,208	579,106

The following table shows the total votes recorded, and the proportion to the number of electors enrolled:—

Districts.	Total Votes Recorded.			Proportion of Votes recorded to Numbers of Electors enrolled.		
	Males.	Females.	Total.	Males.	Females.	Total.
City ... ..	15,177	13,353	28,530	per cent.	per cent.	per cent.
Suburban ... ..	121,923	134,942	256,865	43·03	44·40	43·66
Country ... ..	170,511	123,200	293,711	56·56	56·72	56·65
Total ... ..	307,611	271,495	579,106	55·42	50·19	53·10
				55·08	52·88	54·02

*Local Option*

The Liquor Act of 1912 provides that the local option vote be taken at each general election of the State Parliament, unless the election be held within eighteen months of the previous polling-day. In view of the reduction in trading hours after the Referendum, 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. Publicans' or colonial wine licenses in any electorate may not exceed the number existent on 1st January, 1906, unless an increase be granted on account of growth of population. Clubs may not exceed the number formed before November, 1905, and registered before March, 1906.

Following are the propositions submitted to electors at each general election in this connection—

- (a) That the number of existing licenses be continued ;
- (b) That the number of existing licenses be reduced ;
- (c) That no licenses be granted in the electorate ;  
or where resolution (c) has been previously carried—
- (d) That licenses be restored in the electorate.

To carry resolution (c) or (d) the votes in favour must represent three-fifths of the total votes polled, and 30 per cent. of the electors on the roll. Where resolution (c) is not carried the votes are added to those given for resolution (b).

In electorates where a majority of electors vote for reduction, licenses may be reduced by one-fourth. Where the "no license" resolution is carried, licenses in the electorate cease to operate within three years.

Particulars of the local option vote are shown in the following statement:—

Year.	Electorates in which Electors carried—		Votes recorded for—			Percentage of Total Votes.		
	Con- tinuance.	Reduction.	Con- tinuance.	Reduction.	No-license.	Con- tinuance.	Reduction.	No-license.
1907	25	65	209,384	75,706	178,580	45	16	39
1910	76	14	324,973	38,856	212,889	56	7	37
1913	75	15	380,707	44,453	245,202	57	7	36

The proposition that no licenses be granted has not been carried in any electorate, consequently no vote has yet been taken on the question of "Restoration"

Special Courts are constituted to effect the reductions in accordance with the Act. The time at which the reduced licenses will cease varies from six months to three years, according to the character of the house.

When the first local option vote was taken in September, 1907, there were 3,023 hotels in existence ; of this number it was ordered that 293 be closed at dates varying from 10th September, 1908, to 31st December, 1913. At the second local option vote on 14th October, 1910, there were 2,869 hotels, and as a result of the vote the closing of 28 was ordered. On the day of the election, 6th December, 1913, there were in existence 2,719 hotels, of which 23 were to be closed at a fixed date. The licenses in force during 1916 numbered 2,617.

The number of Wine licenses in operation at the time of the vote of 1907 was 633, of which 46 have been abolished. In 1910, of the 565 licenses in existence, orders were made in 5 cases ; while in 1913, in respect of the 514 existing, 7 closing orders were made.

*Liquor Licenses.*

The following table gives particulars respecting the number of hotels in the State, and the average population to each:—

Year.	Licenses Issued.	Average Population to each Hotel.	Year.	Licenses Issued.	Average Population to each Hotel.
1890	3,428	321	1912	2,723	638
1895	3,238	386	1913	2,717	666
1900	3,163	428	1914	2,658	697
1905	3,063	475	1915	2,640	708
1910	2,865	564	1916	2,617	713
1911	2,775	600			

The annual fee for a Publican's license is regulated by the annual assessed value of the hotel. During the year 1916, an amount of £86,206 was collected on account of such licenses.

The Liquor Act which regulates the issue of hotel licenses provides also for the issue of "Additional Bar" licenses where liquor is sold in more than one room in the licensed premises, and of booth or stand licenses for places of public amusement for a period not exceeding seven days.

Licenses are allowed for the sale of liquor in club premises, and packet licenses to Masters of steamers engaged in the coastal trade of the State.

Colonial Wine, Cider, and Perry licenses are held chiefly by grocers and keepers of restaurants, oyster saloons, and wine and fruit shops; the liquor sold must be the produce of fruit grown in Australasia, and the quantity sold at one time must not exceed 2 gallons.

Spirit Merchants' and Brewers' licenses do not come under the operation of the Local Option vote. Holders of Spirit Merchants' licenses are not permitted to sell a quantity less than 2 gallons of liquor of the same kind at one time.

Railway Refreshment Room licenses are issued under Executive authority and not by Magistrates.

The following statement shows the number of licenses for the sale of intoxicating liquor issued during 1916:—

Class of License.	Annual Fee.	Number of Licenses.	Fees Collected.
Publicans' ... ..	£ Regulated by assessed value.	2,617	£ 86,296
Additional Bar ... ..	20	132	2,605
Club ... ..	£5 and upwards.	76	857
Packet ... ..	3-15	21	182
Booth or Stand ... ..	2*	1,816	3,632
Colonial Wine, Cider, and Perry ...	3	487	1,461
Brewers' ... ..	20-30	24	500
Spirit Merchants' ... ..	20-30	193	4,650
Railway Refreshment Room ...	30	27	810

\* For period of issue not exceeding seven days.

*Other Licenses.*

The other licenses issued by Magistrates are Billiard and Bagatelle, Auctioneers', Pawnbrokers', Hawkers' and Pedlers', Collectors', Second-Hand Dealers', and Sunday Trading. The fee for Billiard and Bagatelle licenses is £10 per annum, and during 1916 there were 838 in force, the total fees collected being £8,070.

Auctioneers' licenses are divided into two classes, viz., General and District. The annual fee for a general license is £15, and for a district £2, and provision is made for a *pro rata* payment for licenses issued after the commencement of the year. There were 303 of the former and 1,683 of the latter current in 1916, the fees received being £7,457. General licenses are available for all parts of the State; district licenses only cover the Police district for which they are issued, but they are not issued for the Metropolitan District. Sales by auction are illegal after sunset or before sunrise, except in the Municipality of Albury, where, under the Auctioneers' Licensing (Amendment) Act, 1915, wool may be put up to sale or sold after sunset.

In 1916 there were 99 Pawnbrokers' licenses current in New South Wales, for each of which an annual fee of £10 is payable. The hours for receiving pledges by pawnbrokers are limited, with certain exceptions, to between 8 a.m. and 6 p.m., but no restriction is placed on the rate of interest charged.

The annual license fee for a hawker trading on foot is £1, and if with pack animals or vehicles the charge is £2; the total amount of fees received during 1916 was £1,630.

The fee for a Collectors' license is 1s., Second-hand Dealer, £1, and Sunday Trading, 5s.

*Licenses Issued—Comparative Table.*

A table showing the principal licenses issued in 1905, and in the last five years, is given hereunder:—

License.	1905.	1912.	1913.	1914.	1915.	1916.
Publicans' ... ..	3,063	2,723	2,717	2,658	2,640	2,617
Additional Bar ... ..	...	124	127	140	141	132
Club ... ..	...	76	76	76	73	76
Railway Refreshment ... ..	24	26	27	27	27	27
Booth or Stand ... ..	1,915	1,940	2,049	2,126	1,955	1,816
Packet ... ..	24	22	19	20	19	21
Colonial Wine, Cider, and Perry	682	569	515	506	497	487
Spirit Merchants' ... ..	205	186	207	205	192	193
Brewers' ... ..	40	32	29	26	26	24
Auctioneers'—General ... ..	222	317	309	318	289	303
District ... ..	1,064	1,589	1,586	1,631	1,540	1,683
Billiard and Bagatelle ... ..	698	902	973	934	831	838
Tobacco ... ..	*	*	*	*	13,014	13,179
Pawnbrokers' ... ..	66	97	80	100	96	99
Hawkers' and Pedlers' ... ..	*	*	*	1,473	1,354	1,178
Collectors ... ..	...	*	*	1,797	1,731	1,852
Second-hand Dealers ... ..	...	*	*	793	798	946
Stage Carriage ... ..	*	*	*	281	224	222
Others ... ..	*	*	*	*	5,310	7,973

\* Not available.

*Registration of Dogs.*

The Dog and Goat Act, 1898, prohibits the use of dogs or goats for the purpose of drawing or helping to draw any cart, carriage, truck or barrow. All dogs must be registered annually at a fee of 2s. 6d., with a reduction to

ls. 3d. for latter six months of year. During 1916 there were 130,578 dogs registered in New South Wales, the fees collected amounting to £16,298. Additional revenue to the extent of £254 was obtained from searches, copies of registration, sale of forms, &c. In the same year 3,266 stray dogs were destroyed by the Metropolitan police, the expenditure being £408.

#### CORONERS' COURTS.

Under the Coroners Act, 1912, every stipendiary or police magistrate has the powers and duties of a coroner in all parts of the State, except the Metropolitan Police District, which is under the jurisdiction of the City Coroner.

Inquiries are held in all cases of violent or unnatural death; and, at the discretion of the Coroner, in cases of destruction or damage to property by fire; and on the evidence the Coroner is empowered to commit for trial persons judged guilty of manslaughter, murder, or arson.

The transactions of Coroners' Courts during 1916 resulted in 51 persons, 46 males and 5 females, being committed for trial to higher Courts; the offences charged being murder, 16 males and 3 females; manslaughter, 17 males and 1 female; arson, 13 males and 1 female.

#### *Inquests upon Deaths.*

Under the Coroner's Court Act, 1904, a Coroner may hold an inquest, sitting alone; but upon request of a relative, of the secretary of any society of which the deceased was a member, or on the order of the Minister of Justice, a jury of six is called. The number of deaths of which the causes were investigated by Coroners or Magistrates, during 1916, was 1,455—males 1,166, and females 289; the verdicts were that 1,103 deaths were caused by violence. The deaths of 629 males and 122 females were the results of accidents, and 165 males and 43 females were found to have committed suicide.

#### *Inquests upon Fires*

During 1916 inquiries were held into the origin of 123 fires; accident was ascribed as the cause in 8 cases, arson in 23; in 92 instances there was insufficient evidence.

#### DISTRICT COURTS.

District Courts are held for the trial of civil causes where the property involved or the amount claimed does not exceed £400, and in cases where a title to land not exceeding £200 in value is in question. These Courts are presided over by Judges, who also perform the duties of Chairmen of Quarter Sessions for the trial of prisoners, except those charged with capital crimes. District Courts are held during ten months of the year in the metropolis, and twice a year in all important country towns. The Judge is not usually assisted by a jury; but in cases where the amount in dispute exceeds £20, either of the parties, by giving notice to the Registrar of the Court, may have a jury consisting of four or twelve men. On questions of law, and in respect of admission or rejection of evidence, appeal lies to the Supreme Court. At the end of 1916 there were 68 District Courts in the State.

The several District Court Judges, numbering ten, are also Chairmen of Courts of Quarter Sessions and Judges of the Court of Review within their respective districts, as well as Judges of the Court of Marine Inquiry.

Particulars of suits brought in District Courts during the last five years are given in the following table :—

Year.	Total Suits.	Causes tried.		Causes discontinued or settled without hearing.	Judgment for Plaintiff by default, or confession, or agreement.	Causes referred to Arbitration.	Causes pending and in arrears.	Total amount of Claims.	Court Costs of Suits.
		Verdict for Plaintiff.	Verdict for Defendant (including non-suit, etc.)						
1912	5,162	454	234	1,601	1,719	16	1,138	£ 270,176	£ 15,492
1913	6,058	527	221	1,828	1,993	8	1,481	290,776	16,468
1914	6,788	464	242	1,868	2,295	7	1,912	328,429	18,062
1915	6,180	427	224	1,698	2,174	2	1,655	293,697	16,846
1916	6,126	440	195	1,655	2,266	7	1,563	290,642	21,072

Of the causes heard during 1916, only 57 were tried by jury. During the same period there were 9 appeals from judgments given in District Courts; there were 4 motions for new trials, of which 3 were granted. The amount of judgment for plaintiffs during the year was £110,486.

#### INDUSTRIAL ARBITRATION.

The Court of Industrial Arbitration is a superior court, and a court of record, having jurisdiction and powers conferred on it by the Industrial Arbitration Act, 1912.

The Court or an Industrial Board exercising the jurisdiction under the Act is governed in its procedure and in its decisions by equity and good conscience, and is not bound to observe the rules of law governing the admissibility of evidence.

#### *Court of Industrial Arbitration.*

The transactions of the Court of Industrial Arbitration show that at 30th June, 1917, 237 Boards were in operation, 6 having been constituted and 2 dissolved during the year. Prosecutions for strikes or lock-outs numbered 140, and 82 convictions followed. There were 18 proceedings on appeal from the Industrial Magistrates. The expenditure for Boards, representing fees and travelling expenses, amounted to £14,154. Further information regarding the transactions of the Court are shown in the part of the Year Book relating to "Employment and Industrial Arbitration."

#### *Industrial Magistrates.*

In regard to the proceedings before Industrial Magistrates, the cases under the Industrial Arbitration Act numbered 891, and the convictions and orders 647. In 92 cases orders were made to pay fines and subscriptions to unions. There were 325 convictions for breach of award or industrial agreement, 104 for failure to keep time and pay sheets of employees, and 77 for failure to exhibit awards.

#### *Industrial Registrar.*

The applications for registration of Unions numbered 17. The records of the Industrial Registrar's Office show that 928 indentures of apprenticeship were lodged, and 53 industrial agreements filed.

#### *Investigation Office.*

At the Investigation Office 1,272 complaints were received during the year 1916-17. There were 432 prosecutions and 390 convictions, and the fines inflicted amounted to £678, and costs, £298.

### THE SUPREME COURT.

The Supreme Court of New South Wales, which was constituted under the Charter of Justice of 13th October, 1823, is under the presidency of the Chief Justice, who is assisted by not more than seven Puisne Judges.

The Court and its Judges have, in effect, the same jurisdiction as the Courts and Judges at Westminster had on 25th July, 1828, together with any additional jurisdiction conferred since that date by State, Federal and Imperial legislation. The jurisdiction conferred upon the Court may be exercised by two or more Judges in all cases unless otherwise provided, and in certain specified cases may be exercised by one Judge.

The Chief Justice and three Puisne Judges are engaged ordinarily in matters in the Common Law and Criminal jurisdictions, the other Judges attending to matters in the Equity, Bankruptcy, Probate, and Matrimonial Causes jurisdictions.

A Puisne Judge must be a barrister of at least five years' standing, and his commission is dependent upon his good behaviour, revocable only upon address of both Houses of the Legislature.

Any Judge of the District Court, or any barrister or solicitor of at least seven years' standing, may be appointed as Acting Judge for a period not exceeding six months.

The year is divided into four terms, with two vacations; during the terms causes and matters in the various jurisdictions are considered and determined, but during the vacations applications are taken in chambers when incidental to causes and urgent matters. During vacation a Judge may exercise, in matters of exigency all the powers of the Court, but any order made by him must be confirmed subsequently by the Court. All the necessary steps to prepare causes and matters for hearing may be taken at any time, except that between Christmas and the end of January steps in certain classes of business may be taken only by leave of a Judge. Except in certain specified cases the Prothonotary is authorised to make all orders that a Judge can make in Chambers.

The procedure and practice of the Court are defined by statute or regulated by rules which may be made by any three or more Judges.

### COMMON LAW JURISDICTION.

Actions are tried usually before a judge and jury; but no jury is required where both parties consent to the cause being tried by a Judge alone, or where in accordance with the provisions of certain statutes the right to have a jury has been taken away. Ordinarily a jury consists of four persons but either party may require a jury of twelve. The jury find only as to the facts of the case, being bound by the ruling of the Judge on points of law. From the Court thus constituted appeal lies to the "Full Court," sitting *in Banco*, which is composed generally of at least three of the Judges. The Chief Justice, or in his absence the senior Puisne Judge, presides over the Full Court, which gives its decision by majority. New trials may be granted where the Judge has admitted erroneously or rejected material evidence; where he has directed the jury wrongly on a point of law; where the verdict of the jury is clearly against evidence; or where, from some other cause, there has been a miscarriage of justice.

An appeal to the High Court may be made in cases where the amount involved exceeds £300, or, in any case, with the permission of the High Court.

Provision is made for appeal by a suitor to the Privy Council, subject to leave from the Supreme Court. The dispute must involve a minimum amount of £500. In other cases, application for leave to appeal must be made directly to the Privy Council.

The following table gives the number of causes set down and writs issued in the Supreme and Circuit Courts (Common Law Jurisdiction) during the last five years. The number of writs issued includes cases which were settled subsequently by the parties. During 1916 the total bills of costs amounted to £39,673 but from this a sum of £11,317 was taxed off, leaving the net costs at £28,356. The Court costs of taxation amounted to £596:—

Particulars.	1912.	1913.	1914.	1915.	1916.
<b>Causes tried—</b>					
Verdict for plaintiff ... ..	120	128	122	146	120
„ defendant ... ..	36	39	32	43	32
Jury disagreed ... ..	.....	.....	.....	.....	1
Non-suit ... ..	2	11	4	4	8
<b>Total ... ..</b>	<b>158</b>	<b>178</b>	<b>158</b>	<b>193</b>	<b>161</b>
Not proceeded with ... ..	102	128	103	96	104
Referred to arbitration ... ..	.....	6	5	.....	2
<b>Total ... ..</b>	<b>260</b>	<b>312</b>	<b>266</b>	<b>259</b>	<b>267</b>
Writs issued ... ..	2,497	2,842	3,103	2,884	2677
	£	£	£	£	£
<b>Fees paid into Consolidated Revenue</b>					
Fund ... ..	7,523	9,227	9,508	9,510	8,675
<b>Cost of litigation—</b>					
Brought in at ... ..	44,628	43,031	52,030	44,549	39,673
Taxed off ... ..	14,476	12,906	18,454	11,986	11,317
Amount allowed ... ..	30,152	30,125	33,576	32,563	28,356
Court costs of taxation ... ..	609	580	675	649	596

The small number of causes set down for hearing in comparison with the number of writs issued indicates the extent to which cases are settled out of Court.

The Commercial Causes Act, 1903, provided an expeditious method for the trial of commercial causes, which include matters relating to the ordinary transactions of merchants and traders, the construction of mercantile documents, affreightment, insurance, banking, and mercantile usages. The parties to a Supreme Court common law action may secure the Judge's order to have it brought upon the list of Commercial Causes, and from this order there can be no appeal. To secure speedy settlement in accordance with the aim of the Act the Judge is empowered to dispense with juries, pleadings, and technical rules of evidence, and with proofs of writing and documents, and to order inspections and admissions; he may also settle the issues for trial, and state a case on points of law for the Full Court.

#### ADMIRALTY COURT.

The Supreme Court of the State has been constituted a Colonial Court of Admiralty, with power to hear and determine matters previously determined by the Vice-Admiralty Court. During 1916, one cause for wages and disbursements was taken in the Admiralty Court, and the verdict was given for the defendant.

#### SHERIFF'S OFFICE.

The transactions of the Sheriff's Office during 1916 included the service of 1,551 writs of summons issued in the Supreme Court, as against 1,438 in 1915; the money value involved is not recorded. Other writs issued included 382 *feri-facias*, involving amounts aggregating £55,315, and fines and estreats, 416, amounting to £9,574 in value.

## EQUITY JURISDICTION.

The Equity Act, 1901, consolidated enactments relating to the practice, procedure, and powers of the Supreme Court in matters of equity demanding relief, including the appointment of guardians of infants and the administration of their estates. Equitable relief may be given on an originating summons in respect of the construction of wills, foreclosure of mortgages, disputes between vendor and purchaser, and matters of account and administration. When the Judge in Equity has the assistance of two other Judges, the decision of the majority has the effect of a Full Court decision. The Court, in making binding declarations of right, may call for the assistance of actuaries, engineers, merchants, or any other persons; has power to award damages, or to grant specific performance; and exercises all the powers of the Common Law Jurisdiction of the Supreme Court in deciding legal rights which arise incidentally; also the Court may delegate investigations to the Master in Equity, who is also the Master in Lunacy. There is an appeal to the High Court or Privy Council as in the case of Common Law matters. On 31st December, 1916, the Master in Lunacy held Trust Funds amounting to £268,285. The following is a statement of the transactions in Equity jurisdiction during the last five years:—

Year.	Statements of Claims.	Statements of Defence.	Petitions.	Summonses.	Motions.	Decrees, Orders, and Certificates.
1912	171	92	92	152	133	816
1913	196	128	132	147	162	1,040
1914	222	122	87	150	204	1,100
1915	175	108	66	93	149	800
1916	180	107	84	132	152	980

The amount of Trust Funds invested under Equity Jurisdiction in 1916 was £802,992, the investments being made at interest rates ranging from 1 to 6 per cent.

## PROBATE JURISDICTION.

Since the Probate Act, 1890, now consolidated in Wills, Probate and Administration Act 1898, the jurisdiction of the Supreme Court in respect of the estates of deceased persons, which was exercised previously by the then Primary Judge in Equity, is vested in and exercised by the Probate Judge. Under the Administration Amending Act, 1906, formal duties in the granting of probates and letters of administration are delegated to the Registrar of Probates, subject to right of appeal to the Judge. In estates of less value than £300 the intervention of a solicitor is unnecessary; in 1916 probate or letters of administration were granted for 447 such estates valued at £63,415.

The number of probates and letters of administration granted by the Supreme Court in its testamentary jurisdiction for the last five years is shown in the following table; the figures for the last three years include estates administered by the Public Trustee:—

Year.	Probates granted.		Letters of Administration.		Total.	
	Number of Estates.	Value of Estates.	Number of Estates.	Value of Estates.	Number of Estates.	Value of Estates.
		£		£		£
1912	2,467	9,766,844	1,150	955,232	3,617	10,722,076
1913	3,011	10,716,922	1,268	1,038,627	4,279	11,755,549
1914	2,767	10,973,225	1,656	1,004,219	4,423	11,977,444
1915	3,028	10,703,553	1,762	1,282,750	4,790	11,986,303
1916	3,535	11,891,119	2,314	1,771,554	5,849	13,662,673

These figures represent the gross values of estates, inclusive of those not subject to duty.

*Intestate Estates.*

The Registrar of Probates, as Curator of Intestate Estates, under the jurisdiction of the Supreme Court, was empowered under the Wills, Probate, and Administration Act, 1898, to apply for orders to administer estates of intestates, or of persons who have appointed the Curator as executor, or where no executor is appointed. Moneys unclaimed after six years are paid into the Consolidated Revenue Fund, but a rightful claimant may obtain payment, without interest, at any subsequent period.

On 1st January, 1914, the functions of the Curator of Intestate Estates were taken over by the Public Trustee, who may act as executor or trustee either by will or by appointment, also as agent or attorney.

The Public Trustee is not allowed to make profits, and the commission and fees chargeable against estates are arranged from time to time to produce an annual amount sufficient to defray working expenses. Special provision has been made for the deposit of wills with the Trustee, and transfers of property to him as Public Trustee are exempt from stamp duty.

In the following table is shown the business transacted during the last four years:—

Particulars.	1914.	1915.	1916.	1917.
New estates administered—				
As administrator ... ..	1,256	1,790	2,110	3,187
As Executor or Trustee ... ..	21	86	80	101
As Attorney or Agent ... ..	2	8	21	27
	£	£	£	£
Amount received ... ..	174,750	266,277	323,966	438,995
Amount paid ... ..	150,774	205,181	337,524	413,641
Commission and fees ... ..	7,226	7,890	10,126	13,789
Unclaimed Money—				
Paid into Treasury ... ..	7,477	8,408	16,343	7,056
Subsequently claimed ... ..	3,210	783	448	562

## BANKRUPTCY JURISDICTION.

Any person unable to meet his debts may surrender his estate for the benefit of his creditors, or the latter may apply for a compulsory sequestration under certain specified conditions, the case coming under the Bankruptcy Jurisdiction of the Supreme Court.

Certain of the powers vested in the Judge in Bankruptcy are delegated to the Registrar in Bankruptcy, and in country districts Police Magistrates and Registrars of District Courts, appointed as District Registrars, have the same powers and jurisdiction as the Registrar in respect to the examination of bankrupts held before them; but appeal from a decision of the Registrar, or of a District Registrar, lies to the Judge in Bankruptcy, who also deals with questions relating to priority of claims.

An official assignee, deputed by the Judge to manage the estates of insolvents, receives  $2\frac{1}{2}$  per cent. commission on the amount realised, and  $2\frac{1}{2}$  per cent. on the amount of dividends declared, and in some cases special remuneration awarded by the Court. Creditors may accept, and the Court endorse, a proposal for a composition, or for a scheme of arrangement, subject to the approval of a majority representing three-fourths of the value of all approved claims. Such a proposal having been accepted, one or two trustees may be appointed in place of, or in addition to, the official assignee. After acceptance of a composition, or approval of a scheme of arrangement, a bankrupt's estate may be released from sequestration. Release may be effected when all creditors have been paid in full, or when they have given a legal quittance of the debts due. In other cases, a bankrupt may give notice, by advertisement, three months from the time of sequestration, of his intention to apply for a certificate of discharge, whereupon the Court receives a report from the official assignee, and may either grant or refuse an absolute order of discharge, suspend the operation of the order for a certain time, or grant an order subject to conditions respecting the future earnings or income of the bankrupt. Operations in the Bankruptcy Court are discussed in detail in the chapter of this volume relating to Private Finance.

The sequestrations during the year 1916 numbered 360; according to Bankrupts' Statements of Affairs, the liabilities of the estates sequestrated amounted to £383,448, and the assets to £303,893, thus leaving a deficiency of £79,555.

The Court Fees paid to the Treasury were £4,031.

#### DIVORCE AND MATRIMONIAL CAUSES JURISDICTION.

The Supreme Court of New South Wales has jurisdiction in divorce, dating from the Matrimonial Causes Act, 1873, under which the important grounds for divorce were adultery on the part of the wife, and adultery and cruelty on the part of the husband. The present law is contained in the Matrimonial Causes Act, 1899, under which jurisdiction is vested in the Supreme Court in respect of all causes, suits, and matters matrimonial, excepting in respect of marriage licenses. Dissolution of marriage may be granted on petition as under—

*Husband v. Wife.*—Adultery, desertion, or habitual drunkenness and neglect of domestic duties, for three years; refusal to obey an order for restitution of conjugal rights; imprisonment for three years and upwards under sentence for at least seven years; conviction for attempt to murder or to inflict grievous bodily harm; repeated assaults and cruel beatings during one year preceding the date of the filing of the petition.

*Wife v. Husband.*—Adultery; desertion, or habitual drunkenness, coupled with neglect to support or cruelty, for three years; refusal to obey an order for restitution of conjugal rights; imprisonment for three years and upwards under sentence for at least seven years; imprisonment under frequent sentences aggregating three years, within a quinquennial period; conviction for attempt to murder or to inflict grievous bodily harm; repeated assaults and cruel beatings within one year of petition.

The petitioner must have been domiciled in the State at the time of instituting the suit.

Judicial separation may be sought on grounds of cruelty or desertion without cause extending over two years, and nullity may be declared in cases of marriages which are void.

The law provides also for suits for the restitution of conjugal rights, for alimony, and generally for the enactment and enforcement of decrees.

## PETITIONS FOR DIVORCE, &amp;c.

The first Divorce Act in New South Wales was passed in 1873.

The following statement shows the divorces, judicial separations, and decrees of nullity of marriage granted in New South Wales in the last five years :—

Year.	Divorces.		Judicial Separation granted.	Nullity of Marriage.	
	Decrees nisi.	Decrees absolute.		Decrees nisi.	Decrees absolute.
1912	316	343	12	7	6
1913	360	313	9	3	4
1914	368	295	6	4	2
1915	403	346	6	...	3
1916	386	347	11	4	1

In 1914 one decree for jactitation was granted.

Reckoning as a divorce only those cases where the decree has been made absolute, the total number of decrees from 1873 to 1916 was 6,757, of which 6,339 were divorces, 69 cases of nullity of marriage, and 349 judicial separations.

The following statement shows the sexes of petitioners for divorce in the cases of decrees made absolute during the past ten years :—

Year.	Petitions for Divorce.		Year.	Petitions for Divorce.	
	Husband.	Wife.		Husband.	Wife.
1907	40	108	1912	116	227
1908	68	138	1913	129	184
1909	85	202	1914	125	170
1910	81	176	1915	132	214
1911	64	142	1916	132	215

The majority of petitions are lodged by the wife, the proportion being approximately 65 made by the wife to 35 lodged by the husband.

In regard to judicial separations during the same period, 13 were granted on petition of the husband, and 100 on petition of the wife.

The grounds of suits for divorce made during each year since 1912 were as follow :—

Ground of Suit.	1912.	1913.	1914.	1915.	1916.
Adultery ... ..	87	97	102	108	99
„ coupled with bigamy, cruelty, and desertion ... ..	3	5	5	5	4
Attempt to murder ... ..	...	1	...	...	...
Cruelty and repeated assaults ... ..	1	...	...	2	...
„ „ habitual drunkenness... ..	1	6	5	3	7
Desertion ... ..	224	195	158	183	192
Habitual drunkenness and neglect to support ... ..	12	2	10	9	12
Habitual drunkenness and neglect of domestic duties ... ..	2	...	3	1	5
Imprisonment of husband for three years... ..	1	2	...	...	1
Non-compliance with order for restitution of conjugal rights ... ..	12	5	12	35	27
Total ... ..	343	313	295	346	347

As to the grounds in support of applications for divorce, the majority of petitions granted were made on issues of desertion, a lesser proportion including habitual drunkenness as a causative factor in the conditions upon which the application was based. The following statement shows the proportions of petitions based on these grounds, viz., desertion and habitual drunkenness, during the five years, 1912-1916:—

Year.	Causes based on—		Other.	All Causes.	Year.	Causes based on—		Other.	All Causes.
	Desertion.	Drunkenness				Desertion.	Drunkenness		
1912	236	15	92	343	1915	218	13	115	346
1913	200	8	105	313	1916	219	24	104	347
1914	170	18	107	295					

It will thus be seen that 66 per cent. of divorces granted are allowed on these two counts. In cases of judicial separations, cruelty and repeated assaults are prominent factors.

As regards the duration of marriages dissolved, the records for 1916 show an average of 12·3 years, the families averaging 1·6 children.

#### COURTS OF MARINE INQUIRY.

A Court of Marine Inquiry is constituted of one or more District Court Judges assisted by assessors appointed under the Navigation Act, who have power only to advise, and not to adjudicate, upon any matter before the Court.

Such a Court hears and determines inquiries as to wrecks, shipping casualties, charges of incompetency or misconduct of officers, and appeals and references under the Navigation Act. Inquiries held during 1916 numbered 10, of which 3 were as to collisions, 5 foundering, and 2 shipwreck. The Courts found in one case that blame was not attachable to any particular person; in 4 cases the master was exonerated; in 4 cases masters were found at fault, and 4 certificates were suspended.

#### CRIMINAL JURISDICTION.

A Judge of the Supreme Court presides over the Central Criminal Court of Gaol Delivery held quarterly at Sydney, when all prisoners are tried by a jury of twelve, chosen by lot from the panel provided by the Sheriff. In capital cases the right to challenge, both by the Crown and by the accused, is limited to twenty jurors, except for cause shown; and in cases other than those in which the sentence of death may be imposed, whether felonies or misdemeanours, the number challenged may not exceed eight. At the close of the case for the prosecution, an accused person may give evidence on his own behalf or make a statement in his defence without rendering himself liable to examination thereupon, either by counsel for the Crown or by the Court. The Accused Persons Evidence Act, 1898, provides that it shall not be lawful to comment at the trial of any person upon the fact that he has refrained from giving evidence on oath on his own behalf. The verdict of the jury must be unanimous, and they may be detained until they give a verdict or are discharged by the Court. If no verdict is returned, the prisoner may be tried again before another jury.

#### CIRCUITS.

Formerly the Supreme Court Judges had sittings in various country towns as a Circuit Court, which was distinct from the Supreme Court, although the powers and jurisdictions of the two Courts were practically identical.

Since the Supreme Court and Circuit Courts (Amendment) Act 1912, Circuit Courts have been abolished, and sittings of the Supreme Court in civil and criminal jurisdictions at country towns have been substituted. The places and times of such Courts are fixed by proclamations.

#### GAOL DELIVERY.

Gaols were delivered formerly at the Circuit Courts, but now they are delivered four times a year at the sittings of the Supreme Court in its criminal jurisdiction at Darlinghurst, Sydney, and returns as to prisoners need not be made except at the times of such sittings unless by special direction of the Court or of a Judge.

#### QUARTER SESSIONS.

The Courts of Quarter Sessions are held by Chairmen, who also perform the duties of Judges of the District Courts. There are eight Chairmen of Quarter Sessions; three of these preside over the Courts in the metropolitan district, and one each in the following districts:—Southern and Hunter, south-western, northern, north-western, and western. All offences, except those involving the capital penalty, are within the jurisdiction of the Court. On the trial of prisoners at Quarter Sessions, at the request of the prisoner's counsel, the Chairman must reserve questions of law for the consideration of the Supreme Court.

#### CHARGES BEFORE HIGHER COURTS.

During the year 1916 there were 1,343 persons, viz., 1,236 men and 107 women, charged before the higher Courts of the State. The following table shows the results in the cases of these accused persons for 1915 and 1916 in comparison:—

Sex.	1915.			1916.		
	Charged.	Convicted.	Withdrawn, discharged, &c.	Charged.	Convicted.	Withdrawn, discharged, &c.
Males ... ..	911	794	117	1,236	751	485
Females ... ..	52	49	3	107	64	43
Total ... ..	963	843	120	1,343	815	528

Classifying accused persons according to the nature of the offences, it is found that, in cases both of males and females, offences against property are the most numerous. A statement is given below of the principal offences of the persons convicted in higher Courts:—

Offences.	1912.	1913.	1914.	1915.	1916.		
					Males.	Females.	Total.
Against the person ... ..	136	189	180	160	120	9	129
Against property ... ..	410	478	537	564	533	46	584
Forgery and offences against the currency ... ..	48	60	61	59	49	2	51
Against good order ... ..	2	11	7	11	3	1	4
Other offences ... ..	24	34	25	49	41	6	47
Total ... ..	620	772	810	843	751	64	815

### POOR PRISONERS' DEFENCE ACT.

Under the Poor Prisoners' Defence Act, 1907, any person committed for trial for an indictable offence may apply for legal aid for his defence before the jury is sworn. If the judge or committing magistrate considers that the person is without adequate means, and that such legal aid should be supplied, the Attorney-General may arrange for the defence of the accused and for payment of expenses of all material witnesses.

### LAND APPEAL COURT.

For the year ended 30th June, 1917, the cases referred to the Court numbered 38, of which 34 were referred by the Minister for Lands, and 4 by local Land Boards. Of the cases heard during the period, 15 resulted in the appeal being upheld, and 10 were sent back for rehearing, 25 were dismissed, and 7 were withdrawn.

### HIGH COURT OF AUSTRALIA.

Under the Commonwealth Constitution Act, the judicial power of the Commonwealth, both in original and appellate jurisdiction is vested in the High Court of Australia. Its original jurisdiction extends to matters in which the Commonwealth is a party, or which lie between States or residents of States. Its appellate jurisdiction extends to the hearing and determination of appeals from all judgments, decrees, orders and sentences of any justice exercising the original jurisdiction of the High Court or any other Federal Court, or from judgments, &c., of the Supreme Court or any other Court of any State from which an appeal previously lay to the King in Council. The judgment of the High Court, in all such cases, is final, subject to the right of the Privy Council to grant leave to appeal to it; its sittings are held in the capitals of the States, as may be necessary. Hitherto the majority of actions brought before the High Court have related to its appellate jurisdiction.

### APPELLATE JURISDICTION.

Courts having Appellate Jurisdiction are the following:—Courts of Quarter Sessions, the Supreme Court, the Full Court, the High Court of Australia, and, finally, the Privy Council. A Court of Criminal Appeal was established in 1912.

#### *Courts of Quarter Sessions.*

Appeal lies from Courts of Petty Sessions to Courts of Quarter Sessions, which provide a ready means of bringing the orders and convictions of Stipendiary Magistrates and Justices under review, and assure co-ordination of procedure in the lower Courts. Questions of fact as well as of law may be taken before these Courts, and the right of appeal exists in all cases of Magistrates' orders or convictions excepting orders made under the Seamen's Act, and in cases of adjudication to imprisonment for failure to comply with an order for payment of money, or for finding sureties.

The results of appeals from Courts of Petty Sessions during the last five years are shown below:—

Year.	Not concluded.	Conviction or order.			Total.
		Confirmed.	Varied.	Quashed.	
1912	65	274	49	68	456
1913	9	291	58	104	462
1914	80	208	39	71	398
1915	93	240	55	89	477
1916	64	298	44	91	497

*Appeals to Supreme Court.*

In connection with appeals from Magistrates and Wardens' Courts, applications for prohibition or mandamus are made either to a Judge in Chambers or to the Full Court; appeals from decisions of District Court Judges sitting in the Mining Appeal Court are made to the Supreme Court, and appeals by way of special case from Warden's Courts are determined by a Judge in Chambers.

During 1916, applications for writs of prohibition and mandamus numbered 25, of which 11 were to Judges in Chambers, and 14 to the Full Court. Writs granted were 17, viz., 5 of mandamus and 12 of prohibition.

The special cases numbered 14; decisions were sustained in 5 and reversed in 3 from the Magistrates' Courts. Of Appeals in Land Cases, 1 decision was sustained and 4 were reversed.

*Appeals to Full Court.*

In Common Law 26 cases were taken during 1916, all of which were civil cases, consisting of new trial motions; 11 were granted and 9 refused, and 6 were not proceeded with. There were 8 appeals in Equity; 2 were sustained, 2 disallowed, and 4 were not concluded. One appeal in Probate, and 1 in Divorce were disallowed. There were no appeals in Bankruptcy. Appeals from District Courts numbered 11, of which 1 was allowed, 7 refused, and 3 were not proceeded with.

*Court of Criminal Appeal.*

The Court of Criminal Appeal was established by the Criminal Appeal Act of 1912, which prescribes that the Supreme Court shall be the Court of Criminal Appeal, constituted by three or more Judges of the Supreme Court as the Chief Justice may direct. Any person convicted on indictment may appeal to the Court against his conviction (1) on any ground which involves a question of law alone, or (2) with the leave of the Court or upon the certificate of the judge of the court of trial, on any ground which involves a question of fact alone, or of mixed law and fact, or any other ground which appears to the Court to be sufficient. A convicted person may also, with the leave of the Court, appeal against the sentence passed on conviction; in such appeal the Court may quash the sentence and substitute another either more or less severe.

In addition to determining appeals in ordinary cases the Court has power, in special cases, to record a verdict and pass a sentence, in substitution of the verdict and sentence of the court of trial; it may also grant a new trial, either on its own motion or on application of the appellant.

The result of appeals since the inception of the Court are shown hereunder:—

Year.	Applications to Judge.		Applications to Court.				Sentences Varied (included with Convictions Affirmed).
	Granted.	Refused.	Convictions.		New Trials Granted.	Total Cas.s.	
			Affirmed.	Quashed.			
1912	1	4	21	...	...	21	2
1913	3	20	46	2	8	56	2
1914	1	18	42	4	...	46	1
1915	1	11	50	1	6	57	...
1916	3	12	55	6	12	73	2

*Appeals to High Court of Australia.*

During 1916 appeals made from decisions of Judges of the Supreme Court of New South Wales were decided as follows:—In Common Law, 1 allowed; in Equity, 6 dismissed and 3 settled; in Bankruptcy, 1 allowed; and in Divorce, 2 allowed.

In addition, appeals from the Full Court of the Supreme Court of New South Wales numbered 13, of which 8 were allowed, 4 dismissed, and 1 settled. One appeal from assessment under the Federal Land Tax Assessment was allowed.

One appeal from the decision of a Judge exercising Federal jurisdiction in New South Wales was dismissed.

Four applications for leave to appeal from judgments of the Supreme Court of New South Wales were refused, and 2 appeals from a Magistrate exercising Federal jurisdiction were dismissed.

*Appeals to Privy Council.*

During 1916, 3 applications for leave to appeal in Common Law were granted, and in Divorce leave to appeal was granted in one matter, but the appeal was not proceeded with. In Common Law 1 appeal to the Privy Council was dismissed, and 2 in Admiralty (in Prize) were not concluded.

## THE GOVERNMENT IN LITIGATION.

The Government of New South Wales was concerned in 3,030 actions during the year 1916, as plaintiff in 2,474, and as defendant in 556. Of these actions 2,401 were instituted or defended by the Crown Solicitor, 580 by the Solicitor for Railways, and 49 were cases concerning the Metropolitan Board of Water Supply and Sewerage.

The results of the actions were as stated below:—

Actions.	Government as—		Total.
	Plaintiff.	Defendant.	
Settled or discontinued ... ..	1,711	419	2,130
Tried—Verdict for Plaintiff ... ..	342	15	357
Defendant ... ..	...	24	24
Total Tried ... ..	342	39	381
Under consideration ... ..	421	98	519
Total ... ..	2,474	556	3,030

## SOLICITORS AND BARRISTERS.

A solicitor has the right of audience in all Courts of New South Wales, and the Supreme Court may suspend or remove from the roll any solicitor who has been guilty of misconduct or malpractice.

A candidate seeking admission as solicitor in New South Wales, provided he has not been admitted in the United Kingdom, or in any State of Australia, must have qualified by passing examinations as outlined elsewhere in this Year Book. A solicitor who ceases to practise for two years continuously is allowed to resume practice only under an order from the Court; and a barrister who has been in practice for five years, having caused himself to be disbarred, may be admitted as a solicitor without examination.

The Board for admission of barristers consists of the Judges of the Supreme Court, the Attorney-General, and two elected members of the Bar. Applicants

must have been students-at-law for three, or, in the case of graduates, for two years, and have passed all prescribed examinations. A solicitor who has been in practice for at least five years, and who has removed his name from the roll of solicitors, may be admitted as a barrister without examination.

There were, during 1916, 170 barristers practising in New South Wales, and the number of solicitors was 1,072; of the latter, 635 were in the Metropolis.

#### PATENTS.—COPYRIGHTS.—TRADE MARKS AND DESIGNS.

The administration of the statutes relating to Patents, Copyrights, Trade Marks and Designs, has devolved upon the Federal authorities, and a patent granted under the Commonwealth law is thus afforded protection in all the States, and in the Territory of Papua, the period for which it remains in force being limited to fourteen years. The copyright in a book, the performing right in a dramatic or musical work, and the lecturing right in a lecture, continue for the author's life and fifty years after his death. The British Copyright Act, subject to certain modifications, is in force in the Commonwealth under the Copyright Act, 1912.

The registration of a trade-mark protects it for fourteen years, but may be renewed from time to time. An industrial design may be protected for five years, and the period extended to fifteen years, provided it is used in Australia within two years of registration.

Under the various Federal acts, arrangements may be made for the protection in other countries of patents, copyrights, trade-marks, and designs. In all cases the rights of holders under the legislation of a State were conserved.

The Patents Trade Marks and Designs Act, 1914-15, empowers the Minister to suspend the registration of any patent or trade mark, the proprietor whereof is a subject of a State at war with the King; a large number of such registrations have been suspended in favour of the Minister for Trade and Customs, and other persons approved by the Attorney-General of the Commonwealth.

## POLICE AND PRISON SERVICES

### DUTIES OF THE GENERAL POLICE.

APART from the preservation of order and the protection of life and property, the general police are charged with a variety of duties, which, though beyond the scope of usual police work, are allotted to them as the most efficient and economical agents—as in the collection of records and statistics, and the pursuit of investigations and inquiries for various branches of the Public Service. Upon the police devolve the tasks of compiling new electoral rolls and jury lists; and of collecting, annually, statistics of pastoral holdings, manufacturing and slaughtering establishments and mills. The police also issue timber, fuel, and quarry licenses, miners' rights, business and mineral licenses; and serve as inspectors under a number of Acts.

In some localities the police also act as clerks of petty sessions, gaolers, wardens' clerks, mining registrars, and registrars of births, deaths, and marriages.

### POLICE FORCE.

In 1916 there were 671 police stations and a force numbering 2,628 was maintained under the immediate control of an Inspector-General. The following statement shows the distribution of the establishment at 31st December, 1916:—

Classification.	Superintendents.	Inspectors.	Ser-geants.	Con-stables.	De-tectives.	Track-ers.	Total.
General Police ... ..	11	52	559	1,865	...	42	2,529
Detective ,, ... ..	...	2	13	14	13	...	42
Water ,, ... ..	1	1	10	27	...	...	39
Traffic ,, ... ..	1	2	5	10	...	...	18
Total ... ..	13	57	587	1,916	13	42	2,628

In addition to the above, there are five women attached to the police stations as searchers.

Two women police were appointed during 1915; they perform useful duty in regard to women and children.

The Police Regulation (Superannuation) Act, provides that the age of retirement from the police force shall be 60 years, except in the case of the Inspector-General of Police. Under certain circumstances, however, any member of the force may be retained until he reaches the age of 65 years.

The following statement shows that during the last ten years the increases in the strength of the police establishment, exclusive of trackers, have not

been proportionate to the extension of population; the ratio of one policeman to 643 inhabitants in 1907 has changed gradually, so that in 1916 the ratio was one policeman to 718 inhabitants:—

Year.	Number of Police.	Inhabitants to each Policeman.	Year.	Number of Police.	Inhabitants to each Policeman.
1896	1,874	682	1911	2,487	683
1901	2,172	635	1912	2,554	696
1907	2,381	643	1913	2,582	710
1908	2,417	645	1914	2,627	709
1909	2,435	656	1915	2,613	716
1910	2,447	670	1916	2,586	718

#### REGULATION OF TRAFFIC.

In the metropolitan district the Traffic Police inspect public vehicles, test taximeters, regulate and control the use of motor vehicles upon public streets, besides exercising a general control over all street traffic. The number of persons taken to hospitals by the police in the Metropolitan District as the result of accidents, or illness in the streets, was 945.

As regards the services of the police in cases of accident, it is of interest to note that of the total police force of 2,586 men, 616 held First Aid Certificates, and 209 Life saving Certificates.

#### Traffic Licenses.

The following table shows licenses granted for vehicles and drivers under the Metropolitan Traffic Act and the Motor Traffic Act during the years 1915 and 1916:—

License or Certificate.	Licenses Issued.		License or Certificate.	Licenses Issued.	
	1915.	1916.		1915.	1916.
Metropolitan Traffic Act—	No.	No.	Metrop. Traffic Act <i>etd.</i> —	No.	No.
Horse cab... ..	736	708	Motor-van driver ...	26	47
Motor cab... ..	235	268	Horse-bus driver ...	37	43
Horse van ... ..	1,507	1,442	Motor-bus driver ...	21	21
Motor van ... ..	19	32	Motor Traffic Act—		
Horse omnibus ...	26	28	Motor vehicle ... ..	12,095	15,020
Motor omnibus ...	15	12	Motor vehicle driver ...	18,800	22,598
Horse-cab driver ...	832	779	Motor cycle ... ..	6,401	7,070
Motor-cab driver ...	367	387	Motor cycle rider ...	6,602	9,444
Horse-van driver ...	1,786	1,620			

The revenue obtained under the Metropolitan Traffic Act was £3,557 in 1915 and £3,486 in 1916.

The revenue obtained under the Motor Traffic Act was £19,518 in 1915, and £24,083 in 1916. In 1914 an Act was passed imposing a tax on motor vehicles. The revenue obtained from this source in 1916 amounted to £69,035.

## PRISONS.

The idea of imprisonment as punitive or retributive is no longer entertained but it is considered that the committal of crime demonstrates unfitness to be at liberty; and while not yet attempting to distinguish and eliminate the causes, hereditary or acquired, which tend to produce criminals, the effort is made to segregate the undesirables until they shall have acquired and evinced normal characteristics. To this end sentences of sufficient length are desirable, especially in cases of declared habitual criminals.

*Grading of Establishments.*

The prison establishments are graded with a view to the concentration of prison population in institutions large enough to ensure efficiency of supervision with economy of administration, and the maintenance of a strict and disciplinary organisation conducive to the highest ideals of reform.

Between 1902 and 1916 the number of gaols was reduced from 60 to 29.

The State Reformatory for Women at Long Bay is occupied by prisoners of all classes, and the State Penitentiary for Men at Long Bay is used as a place of detention for incapables from the city, and as a centre from which long-sentence prisoners are distributed to the principal country establishments, while at the police gaols and lock-ups are detained only prisoners with sentences of less than fourteen days. The Prisoners' Afforestation Camp, Tuncurry, receives selected prisoners (first offenders) after portion of their sentence has been served; and at the Emu Plains Prison Farm, young industrious prisoners, with suitable qualifications are treated on somewhat similar lines.

*Classification of Prisoners.*

In all the large establishments an inter-classification system is operative which assures the segregation of the inmates in various classes as to age and conduct.

For several years the principle of restricted association has been in operation, and has yielded results which demonstrate its success. Under present conditions association while at work, at exercise, and at religious instruction, is subject to the closest supervision. Cells are lighted, and literature is provided from the prison libraries, which, in December, 1916, contained 23,466 volumes.

Separate treatment has been practically abolished.

## PRISON POPULATION.

At the end of 1916 there were in New South Wales 29 gaols; of these, 5 were principal, 10 minor, and 14 police gaols.

The number of prisoners in gaol, exclusive of Inebriates, at the close of each year, during the last five years, will be found below:—

Year.	Under Sentence.		Awaiting Trial.		Total.		
	Males.	Females.	Males.	Females.	Males.	Females.	Total.
1912	1,145	112	94	12	1,239	124	1,363
1913	1,295	161	86	9	1,381	170	1,551
1914	1,497	146	86	11	1,583	157	1,740
1915	1,397	185	88	6	1,485	191	1,676
1916	1,251	209	64	10	1,315	210	1,525

The total prison population at the close of 1916 was 1,525. The following comparison shows that though the general population has more than trebled since 1875, the gaol population has increased only 5 per cent. The gaol entries shown in the table represent convicted persons, persons awaiting trial, debtors, naval and military offenders, and persons on remand :—

Year.	General Population at 31st December.	Gaol Entries during Year.	Gaol Population at 31st December.	
			Number.	Per 1,000 of General Population.
1875	594,297	11,832	1,453	2·44
1885	949,570	20,740	2,562	2·70
1895	1,262,270	18,552	2,460	1·95
1905	1,469,153	13,380	1,678	1·14
1910	1,638,220	9,849	1,323*	·81
1915	1,870,415	10,928	1,676*	·90
1916	1,857,920	9,999	1,525*	·82

\* Exclusive of Inebriates detained.

#### TERMS OF SENTENCES.

The following statement shows the terms of sentences of convicted persons received into penal establishments during the years 1915 and 1916 :—

Term of Sentence.	Convicted Persons Received.					
	1915.			1916.		
	Males.	Females.	Total.	Males.	Females.	Total.
1 month and under ... ..	3,885	1,173	5,058	3,177	1,183	4,360
From 1 to 3 months ... ..	1,446	349	1,795	1,319	513	1,832
„ 3 to 6 „ ... ..	712	125	837	677	129	806
„ 6 to 12 „ ... ..	282	6	288	293	12	305
„ 1 to 2 years ... ..	187	8	195	168	5	173
„ 2 to 5 „ ... ..	103	2	105	123	...	123
„ 5 to 10 years ... ..	7	...	7	19	...	19
Over 10 years ... ..	...	...	...	11	...	11
Life... ..	...	...	...	1	...	1
Death and Death recorded ...	9	...	9	4	...	4
Unspecified ... ..	346	5	351	276	5	281
Total ... ..	6,977	1,668	8,645	6,068	1,847	7,915

Cumulative sentences have been taken as in the aggregate, and concurrent sentences as equal to the longest term. It is noticeable that for 1916, 54 per cent. of sentences are for periods not exceeding one month; and 92 per cent. do not exceed one year. The majority of short sentences have been imposed for breaches of good order, the imprisonment being served in default of fines.

A number of persons in each year are convicted on charges under the Vagrancy Act, and receive sentences ranging up to six months. For many of these, the sentences served under ordinary gaol regulation are unsuitable, their cases being the result of mental or constitutional defect, and it has been suggested that a system of indeterminate sentences be applied in order to assure medical treatment and disciplinary training.

On 31st December, 1916, there were 57 men serving life sentences and 26 men sentences of various periods over 10 years. In most of these cases the sentences have been imposed by the Executive authority in lieu of capital punishment. A "Life Sentence" does not mean any fixed term, but a prisoner may petition for release after serving twenty years; if at the time of conviction his expectation of life is less than twenty-two years, the date of petition is in accordance with a fixed scale.

#### *Licensing of Prisoners.*

Persons eligible for remission of sentence for good conduct and industry may be released on license to be of good behaviour.

Licenses operate for the unexpired portion of the sentence and sureties are required. The licensee is required to report periodically, and a breach of the conditions of release may be punished by the cancellation of the license, and recommittal to gaol for the balance of the sentence. During 1916 licenses were granted to 596 men and 24 women.

#### IMPRISONMENT IN LIEU OF FINE.

Under the Justices Act, 1902, imprisonment for non-payment of an amount adjudged to be paid on order of a Justice may be curtailed by payment of a portion of the fine, for which a proportionate part of the sentence may be remitted, and under the Crimes Act, 1900, and its amendment of 1905, provision is made for the payment of fines in instalments. The following table shows the extent to which diminution in the term of confinement was commuted by money payment during the past five years:—

	1912.	1913.	1914.	1915.	1916.
Persons committed to gaol in default of payment of fines ... ..	5,844	6,016	6,299	5,050	4,403
Prisoners subsequently released after paying portion of fines ... ..	1,807	1,407	1,461	1,193	1,082
Days prisoners would have served if portion of fines had not been paid ...	55,835	46,031	57,914	40,505	47,824
Days remitted by part-payment of fines ...	41,000	32,042	25,134	25,950	23,054
Amount received at gaol as part-payment of fines ... .. £	4,255	3,387	3,343	2,913	2,721

In the year 1916, 56 per cent. of the total persons received into gaol were detained in default of payment of fines at the lower courts; 1,082 subsequently obtained release by paying part fines proportionate with unserved balance of sentence, and an amount of £2,721 was received at the gaols.

#### IMPRISONMENT FOR DEBT.

During 1916, 26 men and 5 women were imprisoned for debt, but the time of detention, as a rule, extended over a short period, and the number of debtors in confinement at any given time was not large. At the end of the year 1916 there were no debtors in gaol.

## CAPITAL PUNISHMENT.

The following table shows the number of convictions, and executions for capital offences, in the State during the last five years, together with the total number of death sentences pronounced, and sentences of death recorded :—

Year.	Capital Offences.		Death Sentences Pronounced and Sentences of Death Recorded.	Year.	Capital Offences.		Death Sentences Pronounced and Sentences of Death Recorded.
	Convictions.	Executions.			Convictions.	Executions.	
1912	18	1	9	1915	9	...	9
1913	16	...	10	1916	5	2	4
1914	16	...	13				

Of the five persons convicted in 1916 two were executed, one sentence was commuted to penal servitude for life, one to fifteen years, and the other case in which a new trial was ordered was not decided at the end of the year.

## SPECIAL TREATMENT.

*First Offenders.*

When any person, not previously convicted of an indictable offence is convicted for a minor offence and sentenced, the Court may suspend the sentence upon a recognisance, without sureties, for good behaviour during the period covered by the sentence, the probationary term being, however, not less than one year. An examination is made for purposes of identification, and the offender is required to report himself periodically. If his conduct be not satisfactory he becomes liable to imprisonment for the unexpired portion of the sentence; but good behaviour during the whole probationary period will cancel the conviction. During 1916, there were 330 persons, viz., 232 at Magistrates', and 98 at Higher Courts, released as first offenders; of these, 273 were men, and 57 women. These figures do not include children released on probation from the Children's Court, under the Neglected Children and Juvenile Offenders Act, 1905.

The records of prisoners, convicted at the higher courts show that, out of 670 received into gaol during 1916, 398 had not been convicted previously.

At Goulburn Gaol special reformatory treatment is provided for first offenders—useful employment, educational facilities, physical drill, and strict classification in order to prevent the association of prisoners of vicious tendencies. That this plan is an important factor in the deterrent influence of the prison system, is evinced by the small proportion of re-convictions of prisoners passing through the treatment.

*Youthful Offenders.*

In England, the ages between 16 and 21, or in certain cases 23 years, are regarded as the critical period during which temptation is hardest to resist, and young offenders may reap most benefit from disciplinary and moral influences and industrial training. In New South Wales the upward limit is set at age 25, and a strict line of demarcation is drawn between offenders over and under that age. Offenders under age 25 are classified in age-groups, also according to length of sentence over or under 12 months, and divisional treatment is accorded. Special disciplinary, scholastic, religious, physical training and industrial courses are provided, for the last of

which facilities in the form of workshops are available. Great discrimination and special care are necessary to prevent such youthful offenders from becoming confirmed criminals.

#### *Maintenance Confinees.*

The Deserted Wives and Children Amending Act, 1913, empowers the Comptroller-General of Prisons to direct a prisoner committed to prison under the Deserted Wives and Children Act, 1901, or the Infant Protection Act, 1904, to perform any specified class of work. An estimate is made of the value of the work performed, and after a deduction for the prisoner's keep, the remainder is applied towards satisfaction of the order for maintenance under the Deserted Wives and Children Act 1901, or for maintenance or expenses under the Infant Protection Act, 1904.

During 1916 the number of maintenance confinées received into gaol was 238, as compared with 285 in the previous year.

#### WOMEN IN PRISONS.

In August, 1909, the State Reformatory for Women was opened at Long Bay, and to this central institution are sent all prisoners from the metropolitan district, and all long-sentence prisoners from extra-metropolitan districts. At Long Bay an exhaustive system of classification is in force, accommodation being provided by means of 290 separate rooms.

During 1916, 1,909 women were received and 1,881 discharged from Long Bay, the number remaining at end of the year being 201. Approximately 64 per cent. of the women received at all gaols were committed on sentences of one month and less, and consequently presented little opportunity for the application of reformatory measures. The industrial activity of the institution resulted in an output of manufactures, which, with the work of gardening and domestic services, was valued at £2,560. During 1916 the daily average at the Long Bay State Reformatory for Women was 199; and 4 prisoners were punished for breaches of regulations.

In 1916, at all gaols of New South Wales, 1,847 female prisoners were received under sentence, the daily average number, including untried prisoners, being 215.

#### HABITUAL CRIMINALS AND PREVENTIVE DETENTION.

The Habitual Criminals Act, 1905, empowers a judge to declare as an habitual criminal any person convicted for the third or, in some cases, the fourth time, on account of certain criminal offences, as specified in the Act. A definite sentence is served on account of the offence charged, and subsequently the offender is detained for an indefinite term, until he is deemed fit for freedom.

This system of treatment acts as a deterrent to the existence of professional criminals, and moreover confers an incalculable benefit on society by removing the force of example of criminality. The benefits accruing from the system of indeterminate sentences, as initiated in New South Wales, have led to its adoption in other communities.

Five men were declared to be habitual criminals during 1916—making a total of 68 men and 1 woman so declared since the inception of the Act. Of this number, 34 men and 1 woman were released on probation, 6 being recommitted to gaol, 5 died, 3 were released on medical grounds, 2 were removed to the Hospital for Criminal Insane, and in 7 cases the declaration of an habitual criminal was remitted. At the end of 1916 there were under detention 14 men who had not yet completed the definite period, and 9 men who had passed into the indeterminate stage.

On the completion of the definite term under the ordinary prison regulations, the habitual criminal passes to the indeterminate stage, which is divided into three grades—intermediate, higher, and special; a minimum period of 4 years and 8 months must be spent in the lower grades before the prisoner can gain admission to the special grade wherein cases may be brought under consideration with a view to release. At the end of 1916, 7 prisoners were in the intermediate grade, and 2 were in the higher grade.

An important proviso of the Habitual Criminals Act prescribes that while under detention as an habitual criminal every prisoner must work at some useful trade, and receive at least one-half of the proceeds of his work. As the majority of these persons have not been trained in any branch of skilled labour, facilities are afforded them, while serving the definite term, to acquire training in some remunerative employment, such as brush or boot-making, carpentering, or tailoring.

#### DRUNKENNESS.

During 1916 the total convictions for drunkenness numbered 23,017. The following table shows the total convictions—that is cases in which convictions were recorded, not distinct persons convicted—during each of the last ten years, and their ratio to the mean population. In September, 1916, a new method of dealing with persons charged with drunkenness was adopted in the metropolitan police district. Such persons may now be released upon depositing an amount equal to the usual penalty imposed, and in the event of non-appearance at the Court the deposits are forfeited and no further action is taken. In 1916 there were 446 cases (407 men and 39 women) in which bail was estreated. These have been excluded from the table:—

Year.	Total Convictions.			Convictions per 1,000 of—		
	Males.	Females.	Total.	Male Population.	Female Population.	Total.
1907	23,573	4,536	28,109	29·86	6·23	18·52
1908	23,730	4,087	27,817	29·59	5·49	18·00
1909	23,616	3,747	27,363	28·86	4·94	17·35
1910	24,450	2,930	27,380	29·10	3·78	16·94
1911	26,295	3,004	29,299	30·28	3·77	17·60
1912	29,264	3,456	32,720	32·05	4·19	18·32
1913	29,153	3,314	32,467	30·65	3·86	17·94
1914	30,135	3,073	33,208	31·04	3·48	17·92
1915	23,224	2,639	25,863	24·16	2·91	13·84
1916	20,579	2,438	23,017	21·89	2·63	12·33

It will be seen that there has been a decided decrease in the convictions of women; this has been most marked in the years immediately succeeding the enactment of the Liquor Amendment Act of 1905, and the establishment of State institutions for treatment of inebriates in 1907. There is no doubt that the proportions have been appreciably lowered by the detention of women who, though few in number, swelled the record of cases by repeated convictions on the charge of drunkenness.

With regard to the men, the rate in 1916, viz., 21·89 per 1,000, was the lowest during the period. The offences of soldiers, dealt with by military authorities, are not included in these figures.

## BREACHES OF PRISON REGULATIONS.

A Visiting Justice is appointed to visit each prison at least once in every week, and Judges of the Supreme Court and Justices of the Peace may at any time visit and examine any prison. The Visiting Justice is empowered to hear and determine all complaints made against a prisoner for disobeying the rules of the gaol, or for having committed any offence, and to pass sentence of solitary confinement for a term not exceeding seven days. Drastic forms of punishment have been replaced by a policy of deprivation of privileges, and experience shows that the latter method is effective. No corporal nor "dark-cell" punishments have been inflicted for prison offences in New South Wales since May, 1900.

Breaches of prison regulations are rare, the punishments imposed for such infractions of discipline affecting only 1 per cent. of the total number of prisoners received into the gaols during the year 1916; of a total of 178 breaches, 3 were cases of violence to officers, and 11 of idleness. This satisfactory record is attributed to the fact that as far as practicable all the prisoners have been engaged in strenuous manual labour.

## SICKNESS AND MORTALITY IN GAOLS.

Visiting surgeons are attached to the various important establishments of which the sanitation and hygiene are on modern lines. Among the persons received into the institutions are included many whose physical condition is deplorable, persons in the last stages of disease, and aged and infirm persons, for whom a hospital or asylum is the befitting destination. Within the institutions cleanly habits are required, and there occur few instances of disease originating after reception; on the other hand there are cases in which disease, apparently originated prior to committal, has grown so serious as to compel the release of the prisoner. Prisoners suffering from tuberculosis receive special treatment.

The medical statistics of prisons show that, with an average daily number of 1,681 inmates during 1916, the total number of cases of sickness treated in hospital was 477; 13 prisoners died, and 29 were released on medical grounds.

Particulars in respect of the duration of illness are not available, but details regarding the deaths show 6 from heart disease, tuberculosis 2, pneumonia 2, fibroid tumour, venereal disease, and suicide one each. The death rate per 1,000 of the average number of inmates was 7.73.

## INSANITY IN GAOLS.

During 1916, 50 cases of insanity, viz., 48 males and 2 females, were diagnosed among the gaol inmates; of which number 31 showed symptoms on reception, and 10 developed them within one month of admission. Six prisoners were sent to observation wards, 98 persons were received for protection or on charges of mental defectiveness, and 4 were received suffering from the effects of alcoholism.

## CONTAGIOUS DISEASES.

Under the Prisoners Detention Act, 1908, prisoners found to be suffering from certain contagious diseases may be detained in Lock Hospitals attached to the gaols. In cases of imprisonment without option of fine, a stipendiary magistrate may cause the prisoner to be detained until certified by the medical officer as free from disease even after the definite sentence is served; but in the case of imprisonment in lieu of payment of a fine, the Act does not provide for detention beyond the specified term of imprisonment.

Owing to this limitation of the Act, no less than 471 cases or more than 29 per cent. have been discharged from prison since 1909 while possibly in a contagious state. During 1916, orders for detention in the Lock Hospitals

were obtained in the cases of 92 men and 83 women, and, in addition, treatment was given to 84 men and 52 women, for whom orders were not obtained—of the latter, 40 men and 44 women were discharged uncured.

In the following statement are shown particulars of the cases treated since the inception of the Act :—

Year.	Treated.		Discharged.				Remaining in Hospital at end of Year.		
			Free from Contagion.		Not free from Contagion.				
	Men	Women.	Men.	Women.	Men.	Women.	Men.	Women.	Total.
1909	132	59	69	*34	46	19	17	6	23
1910	136	20	70	16	47	2	19	2	21
1911	121	27	68	15	38	4	15	8	23
1912	113	31	59	17	26	9	28	5	33
1913	165	29	77	16	54	7	34	6	40
1914	193	32	113	22	49	5	31	5	36
1915	226	36	108	26	75	5	43	5	48
1916	176	135	104	73	40	45	32	17	49

\* Includes 2 deaths.

#### FUGITIVE OFFENDERS AND EXTRADITION.

The Imperial statutes in force in New South Wales for the surrender of fugitive criminals are the Fugitive Offenders Act, 1881, and the Extradition Act.

Under the Fugitive Offenders Act, 1881, provision is made for the surrender from the United Kingdom to a British possession or *vice versa*, or from one British possession to another, of fugitives charged with the perpetration of crimes which, in the part of His Majesty's dominions where they are committed, are punishable by a minimum penalty of imprisonment with hard labour for twelve months. Persons apprehended under this Act are brought before a Magistrates' Court, and their cases are included in the figures relating to the business transacted at such courts.

During 1916, 37 persons—35 males and 2 females—were arrested in other countries as fugitive offenders, and returned to New South Wales. Of these 8 were discharged, 8 were summarily convicted, and 13 were committed to higher courts; in 3 cases maintenance orders were made, and the remaining cases were otherwise treated.

The number of persons arrested in New South Wales during 1916 as fugitives from other parts of the British Empire was 32, of whom 30 were males. Of these 29 were remanded to other States of the Commonwealth and 3 to New Zealand.

The Extradition Act provides for the surrender to foreign States of persons accused or convicted of committing crimes within the jurisdiction of such States, and for the trial of criminals surrendered to British dominions. Treaties for the extradition of fugitives subsist between the United Kingdom and the majority of foreign countries. In proceedings taken in New South Wales under the Extradition Act the fugitive may be brought before a Stipendiary or Police or Special Magistrate, who hears evidence on oath, and, if satisfied, makes out a warrant for the extradition. At the hearing, the Consul for the country of which the person charged is a subject, the Crown Solicitor, and the Inspector-General of Police are represented. If a warrant be granted, the prisoner is detained for fifteen days prior to extradition, during which interval he may apply to the Supreme Court for a writ of *habeas corpus*. During the year 1916 there were no extraditions.

## PREVENTION OF INFLUX OF CRIMINALS.

In the Commonwealth Immigration Act, 1912, special clauses have been inserted vesting powers in the States to prevent the landing of criminals.

## AUXILIARY AGENCIES.

The Prisoners' Aid Association assists released persons to find suitable employment, and acts as trustees of gratuities and moneys earned while in prison. During 1916, 186 discharged prisoners were supplied with food, money, clothing, or lodging, while employment was secured in 73 cases. Formal applications for assistance numbered 292, of which only 18 were refused.

The work of the Association in assisting first offenders with advice or help in obtaining sureties covered 2,107 cases during 1916. Fines amounting to £984 were collected in 533 cases, while sureties for payment of fines, and the necessary bail, were found in many cases, thus assisting a large number to retain their employment.

The principal religious bodies delegate special officers for police court duty, and the work performed by such officers covers every possible form of assistance.

Upon external agencies depend the provision of lectures, entertainments, &c., at the various institutions, but religious and educational work, as already noted, are functions of the system.

The *Compendium*, a monthly newspaper for issue to well-conducted prisoners in the gaols of New South Wales, has been published since 1912. This paper is edited and compiled under the supervision of the Comptroller-General of Prisons, and, in addition to matters of a non-controversial nature, contains information regarding the demands for labour in various parts of the State.

## COST OF POLICE AND PRISON SERVICES.

The following table shows the amount expended in maintaining the police and prison services of New South Wales during the last five years, also the amount of fines paid into the Consolidated Revenue, and the net return from prison labour:—

Expenditure and Revenue.	1912.	1913.	1914.	1915.	1916.
<b>Expenditure—</b>	£	£	£	£	£
*Police ... ..	510,407	574,806	581,044	579,225	575,367
Penal establishments ... ..	105,399	106,825	113,305	103,843	102,641
<b>Total ... ..</b>	<b>615,806</b>	<b>681,631</b>	<b>694,349</b>	<b>683,068</b>	<b>678,008</b>
<b>Revenue—</b>					
Fines paid to Consolidated Revenue	29,760	29,868	31,350	27,741	28,640
Net value of prison labour of a productive character ... ..	20,688	22,614	28,978	38,482	41,904
<b>Total ... ..</b>	<b>50,448</b>	<b>52,482</b>	<b>60,328</b>	<b>66,223</b>	<b>70,544</b>
<b>Net Expenditure ... ..</b>	<b>565,358</b>	<b>629,149</b>	<b>634,021</b>	<b>616,845</b>	<b>607,464</b>
<b>Per Head of Mean Population—</b>	s. d.				
Police ... ..	5 10½	6 4	6 0	5 11	5 10
Penal establishments ... ..	0 11½	0 11½	0 11	0 8½	0 8

\* Financial year ending 30th June.

## SHIPPING.

## LEGISLATION AND SUPERVISION.

THE laws of Australia are in force on all British ships whose first port of clearance and port of destination are in the Commonwealth.

Prior to the inauguration of the Commonwealth in 1901, the shipping of the State was controlled partly by Imperial enactment (the Merchant Shipping Act, 1894) and partly by enactments of the Legislature of New South Wales.

The Commonwealth has power to make laws with respect to trade and commerce, and to lighthouses, light-ships, beacons and buoys, and quarantine; also in relation to navigation and shipping.

The shipping of New South Wales is regulated generally by the Navigation Department, but within Port Jackson control of shipping, and matters incidental thereto, are vested in the Sydney Harbour Trust. The regulation of lighthouses was transferred to Commonwealth control on 1st July, 1915.

## OVERSEA AND INTERSTATE SHIPPING.

In the shipping records the total voyages of vessels are included, but account is not taken of ships of war, cable-laying vessels, and yachts, nor of vessels trading between ports in New South Wales; the tonnage quoted is net. Vessels are entered at the first port of call in New South Wales, and cleared at the port from which final departure is taken from the State.

The aggregate number and tonnage of interstate and oversea vessels arriving in and departing from all ports of New South Wales at intervals since 1900, with the average tonnage per vessel, are as follows :—

Year.	Entries.		Clearances.		Average Tonnage per Vessel.
	Vessels.	Tonnage.	Vessels.	Tonnage.	
1900	2,784	4,014,755	2,714	3,855,748	1,432
1905	2,725	4,697,511	2,694	4,684,108	1,731
1910	2,937	6,290,119	3,035	6,471,855	2,137
1911	3,127	6,822,135	3,146	6,833,782	2,177
1912	3,354	7,490,046	3,346	7,453,005	2,230
1913	3,393	8,117,501	3,375	8,071,101	2,392
1914-15	3,000	7,051,503	3,059	7,219,914	2,355
1915-16	3,045	6,552,235	3,062	6,574,582	2,149
1916-17	2,602	5,803,451	2,613	5,802,683	2,226

Summarising oversea and interstate trade, the following figures are obtained for entries and clearances for the different States and the Northern Territory of Australia during 1917, and show the relative pre-eminence of New South Wales :—

State.	Oversea and Interstate.			
	Entries.		Clearances.	
	Vessels.	Tonnage.	Vessels.	Tonnage.
New South Wales ... ..	2,602	5,803,451	2,613	5,802,683
Victoria ... ..	1,962	4,042,819	1,967	4,050,095
Queensland ... ..	719	1,540,820	715	1,541,751
South Australia ... ..	798	2,155,948	802	2,153,143
Western Australia ... ..	728	2,548,339	721	2,557,986
Tasmania ... ..	951	1,057,393	947	1,048,514
Northern Territory ...	91	208,441	91	208,441

#### NATIONALITIES OF VESSELS.

The trade of the State of New South Wales is carried, to a very great extent, under the British flag, the deep-sea trade with the mother country and British Possessions being controlled by shipowners of the United Kingdom, and the interstate trade chiefly by local shipowners. From the table for New South Wales given below, distinguishing British and foreign shipping at intervals since 1900, it will be seen that the British tonnage declined from 85 per cent. in 1900 to 80 per cent. in 1912. The disturbance of trade, caused by war conditions, has affected this average, the figures for 1916-17 showing British shipping tonnage as 88·5 per cent. and foreign tonnage falling proportionately to 11·5 per cent. :—

Year.	Tonnage Entered and Cleared.			Percentage.	
	British.	Foreign.	Total.	British.	Foreign.
1900	6,702,106	1,168,397	7,870,503	85·15	14·85
1905	8,033,943	1,347,676	9,381,619	85·63	14·37
1910	10,723,040	2,038,934	12,761,974	84·02	15·98
1911	11,239,844	2,416,073	13,655,917	82·31	17·69
1912	11,983,698	2,959,353	14,943,051	80·20	19·80
1913	13,182,112	3,006,490	16,188,602	81·43	18·57
1914-15	12,712,330	1,559,087	14,271,417	89·07	10·93
1915-16	11,582,777	1,544,040	13,126,817	88·24	11·76
1916-17	10,271,791	1,334,343	11,606,134	88·51	11·49

Of the tonnage included as British, a large proportion is owned or registered in Australia and New Zealand.

In 1901, of vessels trading with this State, those owned in the Australian Commonwealth represented 39·8 per cent. of the total; and in 1917, 41·6 per cent. of the total.

The present war has caused a material alteration in foreign tonnage, as may be gathered from the statement below, which shows the number and tonnage of shipping of the principal nationalities that entered and cleared the ports of New South Wales in the last two years as compared with 1913 :—

Nationality of Shipping.	Entries and Clearances.						Tonnage— Percentage of each Nationality.		
	1913.		1915-16.		1916-17.		1913.	1915-16.	1916-17.
	Vessels.	Tonnage.	Vessels.	Tonnage.	Vessels.	Tonnage.			
<b>British—</b>									
Australian .. ..	3,231	5,711,398	3,398	5,503,406	2,934	4,833,745	35·28	41·92	41·65
New Zealand .. ..	771	1,359,138	428	512,826	318	367,559	8·40	3·91	3·17
United Kingdom ..	1,589	6,081,117	1,467	5,532,813	1,256	5,040,221	37·56	42·15	43·43
Other British .. ..	22	30,459	22	33,732	19	30,266	·19	·26	·26
<b>Total .. ..</b>	<b>5,613</b>	<b>13,182,112</b>	<b>5,315</b>	<b>11,582,777</b>	<b>4,557</b>	<b>10,271,791</b>	<b>81·43</b>	<b>88·24</b>	<b>88·51</b>
<b>Foreign—</b>									
France .. ..	150	313,252	101	152,203	66	94,081	1·93	1·16	·81
Germany .. ..	487	1,533,728	....	....	....	....	9·47	....	....
Norway .. ..	183	353,843	88	144,766	39	55,947	2·19	1·10	·48
Sweden .. ..	23	57,643	24	56,792	13	34,444	·36	·43	·30
Netherlands .. ..	52	128,870	78	233,185	62	189,958	·80	1·78	1·63
Italy .. ..	29	47,770	4	5,662	10	32,418	·29	·04	·23
Japan .. ..	103	332,471	211	536,290	210	475,186	2·05	4·08	4·09
United States of America .. ..	76	148,853	236	310,570	229	389,003	·92	2·37	3·35
Other Nationalities	52	90,069	50	104,567	29	63,366	·56	·80	·55
<b>Total .. ..</b>	<b>1,155</b>	<b>3,006,490</b>	<b>792</b>	<b>1,544,040</b>	<b>658</b>	<b>1,334,343</b>	<b>18·57</b>	<b>11·76</b>	<b>11·49</b>
<b>Grand Total ..</b>	<b>6,768</b>	<b>16,188,602</b>	<b>6,107</b>	<b>13,126,817</b>	<b>5,215</b>	<b>11,606,134</b>	<b>100·00</b>	<b>100·00</b>	<b>100·00</b>

The most notable alterations in the foreign trade are the cessation of German shipping, which represented 9·5 per cent. in 1913, and the increases in the tonnage belonging to the United States and Japan; the percentage of foreign tonnage declined from 18·6 in 1913 to 11·5 in 1917.

#### DIRECTION OF SHIPPING TRADE.

Of the tonnage engaged in the outward trade of New South Wales, approximately half goes to other Australian States. The following table shows, for the specified years in comparative form, the tonnage entered from and cleared for the countries within the British Empire, and the principal foreign countries.

Although a vessel may have called at many ports on both the inward and outward voyages, the intermediate ports are not considered, only one country being regarded as that from which the vessel entered or to which it cleared.

Country.	Entered from and cleared for various Countries.					
	1900.		1910.		1916-17.	
	Vessels.	Tonnage.	Vessels.	Tonnage.	Vessels.	Tonnage.
<b>British Empire—</b>						
Australian States ... ..	3,082	3,861,154	3,413	6,275,901	3,179	6,099,616
United Kingdom ... ..	341	954,232	484	2,029,216	336	1,669,142
New Zealand ... ..	540	598,710	573	1,125,492	496	910,827
Egypt ... ..	...	.....	...	.....	4	13,466
India and Ceylon ... ..	57	138,993	59	178,571	84	266,176
Hong Kong ... ..	68	121,933	26	40,392	21	34,182
Canada ... ..	41	76,477	42	145,481	44	215,288
<b>Union of South Africa—</b>						
Cape Colony ... ..	152	240,755	16	30,127	} 18	48,115
Natal ... ..	40	60,701	19	46,434		
Fiji ... ..	65	64,125	66	101,754	61	149,106
Straits Settlements ... ..	19	31,212	62	151,091	36	87,722
Papua ... ..	14	11,448	20	13,657	9	5,429
Ocean Island ... ..	...	.....	30	63,260	21	42,639
Other British Possessions ... ..	46	46,653	38	39,997	52	40,001
Unspecified ... ..	...	.....	...	.....	112	557,130
<b>Total, British Countries ... ..</b>	<b>4,465</b>	<b>6,206,393</b>	<b>4,848</b>	<b>10,241,373</b>	<b>4,473</b>	<b>10,138,839</b>
<b>Foreign Countries—</b>						
France ... ..	44	100,793	51	148,137	13	43,974
Germany ... ..	70	234,817	155	510,510	...	.....
Belgium ... ..	13	28,129	12	34,126	...	.....
United States of America ... ..	157	303,187	183	403,343	253	521,583
China ... ..	19	41,161	...	.....	2	7,512
Japan ... ..	34	83,179	93	239,713	112	270,175
New Caledonia ... ..	118	143,867	59	107,341	78	83,079
Java ... ..	45	89,129	46	104,488	39	114,712
Philippine Islands ... ..	31	44,825	47	125,945	1	743
Hawaiian Islands ... ..	94	107,248	27	62,841	4	7,014
Peru ... ..	28	37,411	44	58,389	10	18,821
Chile ... ..	211	295,829	207	443,202	42	83,270
Other Foreign Countries ... ..	169	154,535	200	282,566	188	316,412
<b>Total, Foreign Countries ... ..</b>	<b>1,033</b>	<b>1,664,110</b>	<b>1,124</b>	<b>2,520,601</b>	<b>742</b>	<b>1,467,295</b>
<b>Total ... ..</b>	<b>5,498</b>	<b>7,870,503</b>	<b>5,972</b>	<b>12,761,974</b>	<b>5,215</b>	<b>11,606,134</b>

Of the total tonnage amounting to 11,606,134 in 1916-17, vessels from and to other Australian States represented 6,099,616, or 53 per cent. The United Kingdom furnished the next largest tonnage, with 1,669,142,

equal to 14 per cent., followed by New Zealand with 910,827 tons, or 8 per cent. The United States followed with 521,583 tons, being 4 per cent., then Japan with 270,175, India and Ceylon 266,176, and Canada 215,288. In 1913 Germany headed the foreign tonnage, but on the declaration of war in August, 1912, the shipping trade with this country ceased. Several circumstances have contributed to the fall in the South American trade, of which the restriction of the export of coal is the most notable.

The above tables do not disclose the full extent of the shipping communication between New South Wales and other countries, since the records, relating only to terminal ports, entirely disregard the business of intermediate ports of call, which, being on the direct route of so many shipping lines, are visited regularly by vessels both on their outward and inward journeys.

#### STEAM AND SAILING VESSELS.

The proportion of sailing vessels to the total tonnage, amounting to 20 per cent. in 1900, has steadily diminished during recent years, now representing only 2 per cent. The tonnage of each class will be seen from the following table :—

Year.	Steam.		Sailing.		Ratio of Steam to Total Tonnage.	
	Entered.	Cleared.	Entered.	Cleared.	Entered.	Cleared.
	tons.	tons.	tons.	tons.	per cent.	per cent.
1900	3,206,657	3,140,449	808,098	715,299	79·87	81·45
1905	4,051,884	4,042,703	645,627	641,405	86·26	86·31
1910	5,892,049	6,047,832	398,070	424,023	93·67	93·45
1911	6,427,442	6,424,865	394,693	408,917	94·71	94·02
1912	7,010,420	6,975,678	479,626	477,327	93·60	93·60
1913	7,800,389	7,744,422	317,112	326,679	96·09	95·95
1914-15	6,892,390	7,004,886	159,113	215,028	97·74	97·03
1915-16	6,346,795	6,360,428	205,440	214,154	96·86	96·74
1916-17	5,667,671	5,670,665	135,780	132,018	97·66	97·72

#### VESSELS WITH CARGO, AND IN BALLAST.

The following statement evidences the relative importance of British shipping among the number of vessels, with cargo and in ballast, entered and cleared New South Wales ports during the year ending 30th June, 1917 :—

Nationality of Shipping.	Entries.				Clearances.			
	With Cargo.		In Ballast.		With Cargo.		In Ballast.	
	Steam.	Sailing.	Steam.	Sailing.	Steam.	Sailing.	Steam.	Sailing.
British—								
Australian ...	1,048	21	393	...	1,417	25	30	...
Other ...	663	20	123	7	758	25	27	...
Foreign ...	196	83	26	22	209	82	13	27
Total ...	1,907	124	542	29	2,384	132	70	27

The majority of sailing vessels are foreign-owned, but the numbers are decreasing in proportion to the decline of sailing vessels among the world's shipping.

The advantage offered by the New South Wales trade to shipowners is illustrated by the large amount of tonnage entries in ballast, and the small number of clearances without cargo. Many vessels arriving in ballast come from ports of neighbouring States, where they have delivered a general cargo, and, having been unable to obtain full return freight, have cleared for Newcastle, in this State, to load coal. In 1916-17 the tonnage entered in ballast amounted to 1,031,016 tons.

### SHIPPING ENTERED AT EACH PORT.

The following statement shows in comparative form the number and tonnage of vessels, oversea and interstate, which entered the various ports of the State during the last three years :—

Year. ended 30th June.	Sydney.		Newcastle.		Port Kembla.		Twofold Bay (Eden.)		Other Ports.	
	Vessels.	Tonnage.	Vessels.	Tonnage.	Vessels.	Tonnage.	Vessels.	Tonnage.	Vessels.	Tonnage.
1915	2,032	5,399,836	765	1,487,487	50	72,990	65	64,390	88	26,800
1916	2,051	4,990,476	820	1,890,980	60	90,923	67	59,151	47	20,705
1917	1,785	4,502,758	692	1,170,368	88	59,875	49	54,607	38	15,843

Particulars of shipping—oversea, interstate and coastwise which entered at each port of New South Wales are contained in the following statement for the year ended 30th June, 1917 :—

Port.	Vessels.	Tonnage.	Crews.	Port.	Vessels.	Tonnage.	Crews.
Bateman's Bay...	117	3,044	1,615	Manning River .. ...	137	22,107	2,008
Bellinger River...	144	21,726	2,005	Moruya ... ..	58	9,381	909
Byron Bay ...	145	82,643	5,120	Nambucca River ... ..	157	20,103	1,870
Camden Haven...	88	12,811	1,269	Narooma ... ..	83	8,900	1,082
Cape Hawke ...	139	16,333	1,453	Port Hunter (Newcastle)...	75,459	3,952,640	28,398*
Clarence River ...	192	65,819	5,956	Port Jackson (Sydney) ...	8,453	6,725,828	122,984*
Coff's Harbour ...	398	122,780	6,590	Port Kembla (Wollongong)	451	101,980	6,283
Crookhaven ...	52	8,450	817	Port Macquarie ... ..	134	24,813	2,093
Eden ... ..	172	110,498	5,950	Port Stephens ... ..	401	41,724	5,998
Kiama ... ..	318	51,393	4,156	Richmond River ... ..	238	77,555	4,862
Lake Macquarie	178	12,705	1,427	Tweed River ... ..	113	15,720	1,398
Macleay River ...	196	45,690	3,445	Woolgoolga ... ..	119	27,695	2,146

\* Exclusive of Coastwise.

† Figures for year 1916.

Sydney is one of the chief ports of the world, as appears from a comparison of its oversea and interstate shipping entries (entirely exclusive of coastal trade) with the returns of other ports.

The total shipping tonnage—oversea, interstate, and coastwise—entering Sydney Harbour in 1917 were 8,453 vessels, having a net registered tonnage of 6,725,828, and the value of oversea, interstate, and State imports was £56,216,354.

Appended are the latest figures, including coastwise, for the principal ports of Australasia and the United Kingdom; the figures include tonnage which arrived at the respective ports, although not recorded as entering:—

Port.	Tonnage. Arrivals incl. Coastwise.	Port.	Tonnage. † Arrivals incl. Coastwise.
<i>Australia—</i>		<i>England—</i>	
Sydney ... ..	6,725,828	London ... ..	15,667,515
Melbourne ... ..	5,479,867	Liverpool (including	
Newcastle ... ..	3,952,640	Birkenhead) ...	12,764,406
Port Adelaide ...	2,131,372*	Cardiff ... ..	9,065,829
Brisbane ... ..	2,113,247	Southampton ...	12,502,523
Fremantle ... ..	1,929,425	Hull ... ..	3,739,443
Townsville ... ..	1,200,815	Plymouth ... ..	2,569,903
Albany ... ..	1,146,247	<i>Scotland—</i>	
Hobart ... ..	647,933	Glasgow ... ..	5,213,237
<i>New Zealand—</i>		Leith ... ..	1,671,227
Wellington ... ..	3,183,192	<i>Ireland—</i>	
Lyttelton ... ..	1,954,500	Belfast ... ..	3,058,286
Auckland ... ..	1,746,514	Dublin ... ..	3,104,679
Dunedin ... ..	829,698		

\* Exclusive of Coastwise Shipping—not available.

† Exclusive of tonnage used for war service.

#### STEAMSHIP SUBSIDIES.

The majority of steamship lines trading to New South Wales have the benefit of mail contracts with their Governments, but in addition some of the foreign lines are assisted by subventions and contributions from national exchequers.

The Commonwealth Government has made a contract with the Orient Steam Navigation Company, Limited, for ten years from 1st February, 1910, by which the Commonwealth has agreed to pay a subsidy of £170,000 per annum for a fortnightly service between Australia and the United Kingdom, provided that each mailship is of at least 11,000 tons gross registered tonnage, and not less than 17 knots speed. In terms of the contract, space for certain cargo is provided; each steamer is fitted with wireless telegraphy installation, and the Australian flag is flown. The rates of freight payable on perishable produce are stipulated in the contract.

An annual subsidy is given to Burns, Philp & Co., Ltd., by the New South Wales Government, for the maintenance of a monthly service with Java ports and Singapore, and by the Commonwealth for the Pacific Islands service; the Union Steamship Company is subsidised by the New Zealand Government for the carriage of mails from Australia.

#### ROUTES.

Practically the whole coastal trade centralises in Sydney, whence vessels trade to all the coastal rivers and ports of the State, and as to interstate trade the greater part is direct.

Oversea the New South Wales trade, during 1916-17, included direct shipping to the following places within the British Empire:—

United Kingdom.	Mauritius.
Canada.	New Zealand.
Egypt.	Norfolk Island.
Ellice Islands.	Ocean Island.
Fiji.	Papua.
Gilbert Islands.	Solomon Islands.
Hongkong.	South African Union.
India.	Straits Settlements.

There is also considerable indirect shipping to nearly all these countries.

## RATES OF FREIGHTS.

Distance from foreign trading centres renders freight a large item in the cost of placing the products of the State on oversea markets. Since the commencement of the war there has been a continuous rise in the rates on account of the restricted tonnage, higher insurance, and increased running costs. The following statement gives the rates per steamer from Sydney to London during the four years 1913-17, and shows that the increases have affected all the principal articles of export :—

Article.	Freight rate.			
	1913-14.	1914-15.	1915-16.	1916-17.
Wool (greasy) ... .. lb	$\frac{3}{4}$ d.	$\frac{3}{4}$ d. to $1\frac{1}{8}$ d.	$1\frac{1}{8}$ d. to $1\frac{7}{8}$ d.	$1\frac{7}{8}$ d. to $2\frac{3}{4}$ d.
Wheat ... .. ton	25/- to 37/6	.....	95/-	70/- to 120/-
Frozen meat ... .. lb.	$1\frac{1}{8}$ d. to $1\frac{1}{4}$ d.	$\frac{1}{2}$ d. to $\frac{3}{4}$ d.	$\frac{3}{4}$ d. to $1\frac{1}{4}$ d.	1d. to $1\frac{1}{4}$ d.
Preserved meat per ton--40 cub. ft.	30/-	30/- to 55/-	55/- to 87/-	87/- to 120/-
Rabbits ... .. "	55/-	55/- to 65/-	65/- to 100/-	100/-
Butter ... .. 56 lb.	2/- to 2/6	2/- to 2/9	2/9 to 4/-	3/9 to 4/-
Tallow... .. ton	47/6	47/6 to 65/-	65/- to 190/-	100/- to 150/-
Leather ... .. "	80/-	80/- to 95/-	95/- to 190/-	180/- to 240/-
Hides ... .. "	50/- to 60/-	55/- to 80/-	80/- to $1\frac{1}{4}$ d. lb.	$\frac{1}{4}$ d. to 2d.
Timber ... .. 100 sup. ft.	6/9	6/9 to 8/6	8/6 to 15/-	15/- to 20/-
Copra ... .. ton	42/6	42/6 to 80/-	52/6* to 132/-	132/- to 196/-
Measurement goods ... 40 cub. ft.	40/- to 45/-	40/- to 55/-	55/- to 87/-	87/- to 120/-

\* Plus 20 per cent. † Per lb.

Freights for wool to European ports, to the East Coast of the United States of America, and to Japan, were as under :—

Route.	Freight rate per lb.			
	1913-14.	1914-15.	1915-16.	1916-17.
Wool (Greasy)—	d.	d.	d.	d.
To France ... ..	$\frac{3}{4}$	$\frac{3}{4}$ to $1\frac{1}{8}$	$1\frac{1}{8}$ to $1\frac{7}{8}$	$1\frac{7}{8}$ to $2\frac{3}{4}$
To Italy ... ..	$\frac{3}{4}$	$\frac{3}{4}$ to $1\frac{1}{8}$	$1\frac{1}{8}$ to $2\frac{1}{2}$	$2\frac{1}{2}$ to $3\frac{3}{8}$
To United States of America—				
Via London or Liverpool ...	$\frac{3}{4}$ to $\frac{7}{8}$	$\frac{3}{4}$ to $1\frac{1}{8}$	.....	.....
,, San Francisco to Boston and New York.	$\frac{3}{4}$ to $\frac{7}{8}$	.....	.....	.....
To Boston, direct ... ..	$\frac{3}{4}$ to $\frac{7}{8}$	$\frac{3}{4}$ to $1\frac{1}{8}$	1 to $1\frac{7}{8}$	.....
To Japan* ... ..	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{4}$
Wool (Scoured)—				
To Japan* ... ..	$\frac{5}{8}$	$\frac{5}{8}$	$\frac{5}{8}$	$\frac{3}{4}$

\* Plus 5 per cent primage.

## RIVER TRAFFIC.

The extent of the waterways of New South Wales has been shown in a previous issue of this Year Book. Relatively to other countries New South Wales has few inland waterways, but is dependent upon railways and ocean shipping as the principal agencies of transportation. On the coastal rivers, there is some traffic apart from the vessels trading between the river ports and Sydney, but the extent of this traffic is not recorded.

On the inland rivers there is considerable traffic after a season of good rainfalls. The Murray River is navigable for some 150 miles above Albury, or 1,590 miles from its mouth. Its tributaries, the Kyalite or Edwards River and the Wakool River, are navigable for some 400 miles, as far as Deniliquin; the Murrumbidgee and the Lachlan Rivers combined provide some 900 miles of navigable waterway; and the Darling is navigable in time of freshets as far as Walgett, 1,758 miles from its confluence with the Murray. Altogether, the Murray River system provides some 4,200 miles of waterway more or less navigable. The volume of traffic on these rivers is not recorded.

### FERRY SERVICES.

#### Rivers.

Linking up the highways in every direction are ferry services provided free by the State. There are 112 of these ferries, of which 21 are national works, and 91 are controlled by municipalities and shires. These services are not classified as shipping, being necessary connections of highways.

In Sydney Harbour ferry services are provided by private companies, which are not considered in the light of necessary links in the system of road communication, and the companies are permitted to charge fares. The total number of passengers carried on the Sydney Harbour ferries during the year ended 30th June, 1917, was 35,216,000.

### CERTIFICATES AND LICENSES.

#### Department of Navigation.

The certificates issued by the Department of Navigation, to trading vessels, during the year ending 30th June, 1917, numbered 555, distributed among coastal ports as follows:—

Port.	Vessels.	Tonnage.	Passenger capacity.	Port.	Vessels.	Tonnage.	Passenger capacity.
Sea-going Steamers				Harbour and River Steamers (contd.)			
Sydney ... ..	175	282,761	12,386	Richmond River	6	306	980
				Tweed River ...	3	161	770
				Total ... ..	101	13,158	58,242
Harbour and River Steamers—				Motor Boats ...	253	...	7,434
Sydney ... ..	62	11,380	51,685	Sailing Vessels—			
Newcastle ...	11	563	2,060	Sydney ... ..	26	4,635	...
Clarence River ...	11	440	2,003	SUMMARY.			
Lake Macquarie	1	46	282	Steamers ... ..	276	295,919	70,628
Manning River...	2	56	76	Motor Boats ...	253	...	7,434
Port Macquarie...	1	33	33	Sailing Vessels ...	26	4,635	...
Port Stephens ...	4	173	353	Total ... ..	555	300,554	78,062

Certificates are issued to all trading vessels, passenger or cargo, and are renewable at maximum intervals of twelve months. Watermen licensed by the Department of Navigation for 1916-17 numbered 85, viz., 23 at Newcastle; 15 at Clarence River; 9 at Hawkesbury River; 8 at George's River; 13 at Tweed River; 6 at Port Stephens; 3 each at Botany Bay and Richmond River; 2 at Lake Macquarie; and 1 each at Bermagui, Merimbula, and Port Hacking.

#### *Sydney Harbour Trust.*

On the 30th June, 1917, there were 11 watermen licensed by the Sydney Harbour Trust to ply on Port Jackson, while the vessels licensed by the Trust included the following:—

License.	Vessels.	Tonnage.	License.	Vessels.	Tonnage.
Lighters ... ..	457	22,814	Water Boats ... ..	18	743
Ferry Steamers ... ..	74	8,818	Hulks ... ..	23	12,325
Tugs ... ..	66	1,502	Punts ... ..	15	249
Launches—Steam ... ..	8	92			
Oil ... ..	74	.....			

#### SAFETY EQUIPMENT FOR VESSELS.

Equipments for safety under the Navigation Act are as follows:—

##### *Sea-going Vessels.*

Sufficient boat and raft accommodation and life-jackets for passengers and crew up to the numbers stated in the vessel's certificate.

Life-buoys in proportion to boats carried, the minimum number being ten.

Blue lights (12), deck flare lights (2), rocket distress signals (24), rockets (12).

##### *Harbour and River Steamers.*

Sufficient boats, buoyant apparatus, float seats, rafts, and life-jackets.

**At least four life-buoys.**

Approved signals of distress.

#### WRECKS AND DISASTERS.

Wrecks and shipping casualties occurring to British merchant shipping on the coast of New South Wales are investigated by Courts of Marine Inquiry, of which some account is given in the chapter of this Year Book

relating to law courts. The following statement shows such wrecks and casualties reported since 1915 :—

Year ended 30 June.	British Vessels.				Total Tonnage.	Crews and Passengers.	Lives Lost.
	Steam.	Motor.	Sailing.	Total.			
1915	3	1	6	10	1,896	117	13
1916	5	6	4	15	3,466	81	4
1917	11	...	2	13	6,554	314	6

The majority of the vessels reported are small coasters under 200 tons. The figures given above do not include vessels which left the ports of the State and have apparently been lost.

Two life-boat stations are maintained on the coast, one at Sydney and the other at Newcastle; and the whaleboats at the pilot stations are fitted for rescue service. The steam tugs subsidised for the towing of ships are available also for the purpose of assisting vessels in distress; and life-saving appliances are kept at certain places along the coast. A considerable number of vessels trading in Australian waters are fitted with wireless telegraphy apparatus.

The Royal Shipwreck Relief and Humane Society of New South Wales is maintained by public subscriptions, unsubsidised by the State, to afford relief in cases of distress to dependents of seamen belonging to New South Wales who have lost their lives or sustained injury in the discharge of their duties, to relieve crews of vessels and necessitous passengers wrecked in New South Wales waters, and to encourage acts of bravery by granting awards for meritorious deeds in saving human life. The relief granted on account of maritime disasters during the year ended 30th June, 1917, amounted to £465, in addition to £67 expended on account of rewards for merit, medals and certificates. The revenue of the Society for the year included £1,353, derived from public subscriptions and other sources.

Under the auspices of the religious denominations, several missions are interested in the welfare of seamen, each of which maintains an institute in Sydney for men while in the port.

#### PILOT AND ROCKET STATIONS.

Pilotage on the coast of New South Wales is a State service. The services of pilots must be engaged for all vessels not specifically exempted, and certificates of exemption from pilotage for the various ports of the State are granted, after examination, only to British subjects, and may be used only in respect of British ships registered in Australia or in New Zealand, and engaged in trade in Australasia and the South Sea Islands, or in whaling.

#### CHARTS AND COASTAL SURVEYS.

The British Admiralty employ surveying ships on the Australian Coast, and during recent years they have been engaged principally on the northern and north-western portions of the continent.

## COASTAL AND HARBOUR LIGHTS.

The coast of New South Wales, about 700 miles in length, is well provided with lighthouses and signal stations, the number of lighthouses being 28, averaging one light to 25 miles of coast line:—

Location of Lighthouse.	South Latitude.	Description of Light.	Colour of Light.	Distance visible (See note).
	° /			Nautical miles.
Green Cape ... ..	37 16	Revolving ... ..	White ... ..	19
Twofold Bay (Eden) (Lookout Point).	37 4	Fixed ... ..	Red ... ..	7
Montague Island—Summit.	36 15	Fixed and Flashing ... ..	White ... ..	20
Bateman's Bay ... ..	...	Fixed ... ..	Green ... ..	...
Ulladulla (Warden Head)	35 22	„ ... ..	White ... ..	12
Jervis Bay (Point Perpendicular).	35 5	Group Flashing ... ..	„ ... ..	24
Crookhaven River ... ..	34 54	Fixed ... ..	Red ... ..	7
Kiama ... ..	34 40	„ ... ..	Green ... ..	9
Wollongong ... ..	34 25	Group Flashing ... ..	White ... ..	10
Bellambi ... ..	34 22	Occulting ... ..	White and Red ... ..	8
Cook's River (Botany Bay)	33 57	Fixed ... ..	White ... ..	...
Port Jackson, Sydney—Macquarie (Outer South Head).	33 51	Revolving ... ..	„ ... ..	25
Hornby (Inner South Head).	33 50	Fixed ... ..	„ ... ..	14
Broken Bay (Barrenjoey)	33 35	„ ... ..	Red ... ..	10
Norah Head ... ..	33 17	Flashing ... ..	White ... ..	18
Port Hunter, Newcastle—Nobbys Head (Summit)	32 55	Double Flashing ... ..	„ ... ..	17
Port Stephens—Stephens Point.	32 45	Revolving ... ..	{ White and Red }	W. 14 R. 8
Nelson Head (Summit)... ..	...	Fixed ... ..	White and Red ... ..	8
Sugarloaf Point (Seal Rocks)	32 26	Revolving ... ..	White ... ..	22
„ (same Tower) ... ..	...	Fixed ... ..	Green ... ..	3
Forster, Cape Hawke (anchorage).	32 11	„ ... ..	„ ... ..	6
Crowdy Head (Summit)	31 51	„ ... ..	White and Red ... ..	12
Tacking Point ... ..	31 29	„ ... ..	White ... ..	12
Smoky Cape ... ..	30 56	Group Flashing ... ..	„ ... ..	28
Monument Rock, Trial Bay.	30 53	Fixed ... ..	{ White and Red }	W. 6 R. 3
Coff's Harbour Jetty ... ..	30 18	„ ... ..	Red ... ..	5
South Solitary Island (Summit).	30 12	Revolving ... ..	White ... ..	20
Clarence River ... ..	29 26	Fixed ... ..	„ ... ..	12
Richmond River (2) ... ..	28 52	{ „ ... ..	„ ... ..	12
„ ... ..	...	„ ... ..	„ ... ..	7
Cape Byron ... ..	28 38	Flashing ... ..	„ ... ..	26
„ (same Tower) ... ..	...	Fixed ... ..	Red ... ..	12
Tweed River (Fingal Head)	28 11	„ ... ..	White ... ..	12

*Distance visible.*—The distance is calculated visible to an observer whose eye is elevated 15 feet from the sea-level.

Lighted beacons and leading lights are placed for the safety of harbour navigation in the ports of Sydney, Newcastle, Narooma and Moruya, and on all Northern rivers.

In Port Jackson the question of efficient lighting has received considerable attention; leading lights have been erected at the entrance to the port, with occulting lights to mark the channels. Electric fog-bells are used in times of fog.

In Port Hunter, leading lights have been placed, also there are fog-bells.

DOCKS AND SLIPS.

As the shipping traffic, employing vessels of considerable size, is concentrated at Sydney and Newcastle, accommodation, provided by the Government and by private enterprise, for building, fitting, and repairing ships in the State, is available at these ports. At Sydney there are four graving docks, five floating docks, and six patent slips; at Newcastle there are three patent slips. Other docking and building yards are established along the coast to meet the necessities of the smaller vessels engaged in coastal trade.

Particulars as to dock accommodation at Sydney and at Newcastle at 30th June, 1917, are supplied in the following table:—

Name of Dock.	Where situated.	Length.	Breadth.	Draught limits.	Lifting-power of Floating Dock or Patent Shp.
<b>SYDNEY HARBOUR—(PORT JACKSON).</b>					
<b>Graving Docks—</b> Commonwealth Government— No. 1 (Sutherland) No. 2 (Fitzroy)	Cockatoo Island.	ft. From outer caisson, 633	ft. 84	ft. 30	tons. .....
		" inner " 603			
	Mort's Bay, Balmain	" outer " 506	49½	19½	.....
		" inner " 484			
Mort's ...	Mort's Bay, Balmain	640	69 entrance at cope, 59 on floor.	16 ft. 6 in. high water. 12 ft. 6 in. low water.	.....
Woolwich ...	Parramatta River.	850	100 at cope, 83 at entrance, 75 on floor.	28 high water 23 low	.....
<b>Floating Docks—</b> Ward's ... Drake's ...	Waterview Bay White Bay, Balmain.	163 150	42 60	11½ 7½	400 300 Dead Weights, 1,400
Woolwich Patent Dock.	Woolwich, Parramatta River.	195	56 between altars.	12	
Jubilee ...	Johnston's Bay.	317	38 at entrance.	13	1,200
" Small		100			
<b>Patent Slips—</b> Commonwealth Government— No. 1 ... No. 2 ...	Cockatoo Island.	105	Arms, 28 ... Cradle, 20 ...	9	300
		33			
N.S.W. Government Boatshed, Mort's No. 1	Dawes' Point	82	Arms, 17 ... Cradle, 10 ...	6	100
" No. 2	Mort's Bay, Balmain.	270	36	11 ft. forwd. 16 ft. aft.	1,500
" No. 3		200	25	8 ft. forwd. 14 ft. aft.	800
		58	15	4 ft. forwd. 6 ft. 6 in. aft.	40
<b>NEWCASTLE HARBOUR—(PORT HUNTER).</b>					
<b>Patent Slips—</b> O'Sullivan's ...	Stockton ...	ft. 200	ft. 40	ft. 8 ft. forwd. 12 ft. aft. up to 170 ft. 7 ft. forwd. if 220 ft. long.	tons. 1,000
Callen's No. 1	Stockton ...	150	30	8	100
" No. 2		150	30	8	100

Particulars as to the Government graving docks elsewhere along the coast are as follow :—

Locality.	Length on Top.	Breadth at Gates.	Draught limits.
	ft.	ft.	ft.
Tweed River ... ..	115	42	10
Richmond River ... ..	214½	45	10
Clarence River ... ..	115	42	10
Macleay River ... ..	121	32	7
Manning River ... ..	128½	40	6½
Shoalhaven River ... ..	130	26	6

Transactions at all Government docks for the years ended 30th June, 1915-17 are recorded in the following statement of vessels docked :—

Situation.	1915.		1916.		1917.	
	Vessels.	Tonnage.	Vessels.	Tonnage.	Vessels.	Tonnage.
Port Jackson ... ..	132	243,922	133	185,397	127	176,835
Tweed River ... ..	10	741	7	539	14	1,481
Richmond River ... ..	10	1,618	19	1,887	7	846
Clarence River ... ..	15	1,267	18	1,321	11	899
Manning River ... ..	7	89	9	194	8	45

#### SHIP-BUILDING.

The numbers and tonnage of steam and sailing vessels built in New South Wales are shown in the following statement for the years 1876-1917 :—

Years.	Sailing.		Steam.		Motor.		Total.	
	Vessels.	Tonnage.	Vessels.	Tonnage.	Vessels.	Tonnage.	Vessels.	Tonnage.
1876-1885	328	16,722	297	24,778	.....	.....	625	41,500
1886-1895	144	5,742	129	7,211	.....	.....	273	12,953
1896-1905	160	7,160	137	8,529	.....	.....	297	15,689
1906-1910	15	656	91	4,458	.....	.....	106	5,114
1911	1	18	10	891	4	77	15	986
1912	2	145	8	1,185	10	140	20	1,470
1913	2	112	10	678	6	100	18	890
1914-15	.....	.....	7	587	4	47	11	634
1915-16	2	184	8	355	6	146	16	685
1916-17	4	365	5	8,032	8	104	17	8,501

#### SHIPPING REGISTERS.

Although the Act, which controls the registration of shipping in New South Wales, does not require the registration of vessels under 15 tons burthen, few of such vessels remain unregistered. The rules of yachting clubs ensure the registration of the yachts, steamers, and motor boats of the members; and, for the purpose of sale or mortgage, business is facilitated by such registration.

The only ports in New South Wales at which shipping registers are maintained by the Navigation Department are Sydney and Newcastle, and the following statement shows the registration on 30th June, 1917, exclusive of lighters, classified according to tonnage :—

Tonnage.	Steam.		Motor.		Sailing.		Total.	
	Vessels.	Tonnage.	Vessels.	Tonnage.	Vessels.	Tonnage.	Vessels.	Tonnage.
Under 50 ... ..	274	6,330	176	1,914	275	4,010	725	12,254
50 and under 100 ...	101	7,191	4	285	56	4,146	161	11,622
100 „ 200 ...	62	8,624	...	...	19	2,719	81	11,343
200 „ 300 ...	31	7,166	...	...	9	2,248	40	9,414
300 „ 400 ...	20	6,885	...	...	15	5,250	35	12,135
400 „ 500 ...	9	4,020	...	...	4	1,843	13	5,863
500 „ 600 ...	10	5,594	...	...	1	590	11	6,184
600 „ 1,000 ...	10	7,470	...	...	13	10,271	23	17,741
1,000 „ 1,400 ...	6	6,451	...	...	3	3,647	9	10,098
1,400 „ 1,800 ...	7	10,894	...	...	...	...	7	10,894
1,800 and over... ..	12	28,820	...	...	...	...	12	28,820
Total ... ..	542	99,445	180	2,199	395	34,724	1,117	136,368

The aggregate numbers and tonnage of steam and sailing vessels on the registers at the close of each year, since 1914, are shown in the following statement :—

Year ended 30th June	Steam.		Motor.		Sailing.		Total.	
	Vessels.	Tonnage.	Vessels.	Tonnage.	Vessels.	Tonnage.	Vessels.	Tonnage.
1914	563	106,327	167	1,909	427	41,404	1,157	149,640
1915	564	104,450	169	2,036	427	38,220	1,160	144,706
1916	551	92,579	173	2,136	418	37,250	1,142	131,965
1917	542	99,445	180	2,199	395	34,724	1,117	136,368

The following statement shows the number and value of vessels built abroad and brought into New South Wales for the local trade :—

Year ended 30th June.	From United Kingdom.		From Other Countries.		Total.	
	Vessels.	Aggregate Value.	Vessels.	Aggregate Value.	Vessels.	Aggregate Value.
		£		£		£
1915	3	87,096	2	2,206	5	89,302
1916	4	74,913	1	3,843	5	78,756
1917	4	425,861	...	...	4	425,861

Changes on the register by sales during the last three years are summarised as follows. Sales to foreign buyers result in removal of the vessels from the registers :—

Year ended 30th June.	To British Buyers.						To Foreign Buyers.					
	Steam.		Motor.		Sailing.		Steam.		Motor.		Sailing.	
	Vessels.	Ton- nage.	Vessels.	Ton- nage.	Vessels.	Ton- nage.	Vessels.	Ton- nage.	Vessels.	Ton- nage.	Vessels.	Ton- nage.
1915	16	2,328	13	305	11	758	1	1,168	...	...	1	14
1916	36	6,289	6	97	19	3,408	1	917	...	...	...	...
1917	27	10,235	6	156	12	2,449	1	705	...	...	1	13

### DREDGING.

The dredging service is controlled by the Department of Public Works for the ports and rivers other than Port Jackson, where the Sydney Harbour Trust is in control.

The following statement summarises the operations of the Dredge service for the year ending 30th June, 1917, in the effort to prevent the shoaling of entrances, and to deepen existing channels wherever necessary :—

Classification.	Harbours and Rivers, other than Port Jackson.	Port Jackson (Sydney).
Tons dredged ... ..	2,868,537	1,938,130
Hours dredging ... ..	22,557	11,051
Expenditure—		
Dredging only ... ..	£99,632	£31,694
Per ton... ..	8-34d.	3-92d.
Per our ... ..	£4 8s. 4d.	£2 17s. 4d.
Dredging : Towing and Re- pairs ... ..	£114,420	£43,530
Per ton... ..	9-57d.	5-39d.

The Eastern channel of Sydney Harbour maintains its depth of 40 feet, and the Western channel is being deepened similarly.

### QUARANTINE.

The administration of all matters relating to seaboard quarantine is under control of the Commonwealth. The Quarantine Act, 1908-1915, defines the vessels subject to quarantine, and provides for the exclusion, detention, observation, segregation, isolation, protection, sanitary regulation, and disinfection of vessels, persons, goods, things, animals, or plants, so as to

prevent the introduction or spread of diseases or pests into the Commonwealth. Particulars of vessels examined by the Government Port Health Officers at Sydney and Newcastle, during each of the last three years, are shown in the following table:—

Year ended 30th June.	Vessels.		Persons.		
	Examined.	Vessels Fumigated.	Passengers.	Crews.	Total.
1915	532	900	20,394	33,266	53,660
1916	701	937	26,409	41,403	67,812
1917	612	816	21,466	41,241	62,707

Vessels arriving in Australian ports from oversea are examined at the first port of call, and also, in the case of vessels from places north of Australia, at the last port of call, and pratique is given ordinarily for the whole of the Commonwealth.

Stock quarantine is undertaken at Port Jackson, where 45 horses, 13 head of cattle, 62 sheep, 23 dogs, and 3 pigs were detained during the year ended 30th June, 1917.

#### DISTANCES FROM SYDNEY.

The distances by water between Sydney and some of the principal ports of the world are as follows:—

Sydney to—	Miles.	Sydney to—	Miles.
Adelaide ... ..	1,080	London, <i>via</i> Suez ... ..	11,863
Albany ... ..	2,090	London, <i>via</i> Cape Horn ... ..	13,070
Auckland ... ..	1,281	London, <i>via</i> Cape of Good Hope... ..	12,500
Brisbane ... ..	503	London <i>via</i> Panama ... ..	12,222
Capetown ... ..	6,774	Melbourne... ..	576
Darwin ... ..	2,540	New York, <i>via</i> Panama... ..	9,704
Fremantle ... ..	2,450	San Francisco ... ..	6,445
Hobart ... ..	623	Singapore ... ..	4,300
Hong Kong ... ..	4,130	Suva ... ..	1,743
Honolulu ... ..	4,523	Vancouver... ..	6,715
London, <i>via</i> Vancouver ... ..	11,550	Wellington ... ..	1,239

#### Government Shipping Offices.

Government Shipping Offices are maintained at Sydney and Newcastle to deal with matters relating to the engagement and discharge of seamen of British vessels. Following are the records of transactions at each of these shipping offices for the last three years:—

Year ended 30th June.	Engagements registered.			Discharges registered.			Licenses to ship.		
	Sydney.	New-castle.	Total.	Sydney.	Newcastle.	Total.	Sydney.	New-castle.	Total.
1915	32,370	4,844	37,214	31,419	4,150	35,569	2,551	395	2,946
1916	30,585	4,276	34,861	29,646	3,303	32,949	2,549	201	2,750
1917	26,679	4,555	31,234	27,901	3,900	31,801	1,615	214	1,829

During the year ended 30th June, 1917, seamen reported as deserters from British vessels, trading on foreign voyages, numbered 275, viz., 219 at Sydney, and 56 at Newcastle. The wages paid to seamen through the

shipping offices amounted to £132,829, of which £119,984 was paid at Sydney. Wages issued in advance notes amounted to £987, of which £259 was recorded for Newcastle.

Masters of foreign vessels engage and discharge seamen at the offices of the consuls representing the countries to which the vessels belong, and no particulars are available in regard to these transactions.

#### WAGES.

The wages paid to the officers and crews of vessels in the Australian trade are regulated by Awards of the Commonwealth Court of Conciliation and Arbitration. The average wages paid per month during 1916 were as follows :—

Occupation.	Oversea.		Interstate and New Zealand.		Coastal.	
	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.
Officers—Chief ... ..	8 0	to 26 0	10 0	to 26 0	11 0	to 23 10
Second ... ..	9 0	„ 23 0	8 0	„ 23 0	12 0	„ 17 10
Third ... ..	7 0	„ 20 0	12 0	„ 20 0	.....	.....
Fourth ... ..	6 0	„ 13 0	10 0	„ 13 0	.....	.....
Engineers—Chief ... ..	20 0	„ 39 2	22 0	„ 39 2	14 0	to 32 4
Second ... ..	14 0	„ 25 6	16 0	„ 25 6	15 0	„ 23 0
Third ... ..	9 10	„ 20 14	14 0	„ 20 14	17 0	„ 19 11
Fourth ... ..	6 10	„ 17 5	12 0	„ 17 5	.....	.....
Firemen ... ..	9 5	„ 13 0	11 5	„ 13 0	10 0	to 13 5
Trimmmers ... ..	8 0	„ 11 0	9 5	„ 11 0	9 5	„ 11 0
Seamen—Steamers ... ..	8 0	„ 11 0	9 5	„ 11 0	9 5	„ 13 5
Sailing Ships ... ..	5 10	„ 11 0	5 10	„ 8 0	6 0	„ 7 0
Cooks ... ..	6 0	„ 17 0	8 0	„ 17 0	8 0	„ 14 15
Stewards—Chief ... ..	7 0	„ 18 0	10 0	„ 17 10	7 0	„ 14 15
Assistant ... ..	3 0	„ 13 0	3 0	„ 10 10	.....	.....
Stewardesses ... ..	3 0	„ 6 0	3 0	„ 5 0	3 10	to 5 0

#### SEAMEN'S COMPENSATION ACT.

The Seamen's Compensation Act, 1911, applies to ships in the service of the Commonwealth (exclusive of naval or military service), and to ships trading with Australia, or engaged in any occupation in Australian waters, or in trade and commerce with other countries or among the States. The schedules to the Act indicate the amount of compensation payable, in case of death or total or partial incapacity, resulting from personal injury by accident to seamen in the course of their employment. Regulations also indicate methods of procedure for recovery of compensation.

## COMMERCE.

POWER to make laws with respect to trade and commerce with other countries and among the States was vested in the Commonwealth Parliament, and control of the Customs and Excise Department was transferred to the Commonwealth in the year 1901. Following on alterations in the financial arrangements between the Commonwealth and the States, the Federal Government ceased to collect particulars of the interstate trade from 13th September, 1910; consequently the figures shown in this chapter relate only to oversea trade—that is, to the trade of New South Wales with countries beyond Australia.

### DETERMINATION OF VALUES.

The value of goods imported, as shown in the tables throughout this chapter, represents the amount on which duty is payable, or would be payable if the duty were *ad valorem*. The value of goods subject to duty is taken to be the fair market value in the principal markets of the country whence exported, plus 10 per cent. to cover the cost of packing, insurance, freight, and all other charges. The value of goods exported is the value in the principal markets of the State.

### CUSTOMS AND TARIFFS.

The Customs Act of 1901 provided for the necessary machinery to administer matters relating to Customs, and prescribed the manner in which duties were to be computed and paid. The Customs (Inter-State Accounts) Act, 1910, repealed the sections of the Customs Act, 1901, which necessitated the keeping of accounts of dutiable goods passing between the States. The Customs Act, 1910, assigns to the Customs Department control over all goods for export, and, subject to restrictions under any enactment, extends the provisions of earlier Acts in regard to prohibited goods, payments of duty, weight and measurement, &c. It provides also for supervision of preparation or manufacture for export of articles used for or with food or drink for human consumption, and establishes conditions as to the purity and soundness of goods designed for export.

The various Customs Tariff Acts provide general and special tariffs, uniform for all the States. Preferential rates of duty apply to certain goods imported from, and being produced within, the Union of South Africa; and the Customs Tariff, 1903, provides preference rates of Customs duties for certain goods the produce or manufacture of the United Kingdom.

### SEA CARRIAGE OF GOODS.

The Sea Carriage of Goods Act, 1904, nullifies any clause in a Bill of Lading or similar document, covenanting or agreeing—(a) that the owner, charterer, master, or agent of any ship, or the ship itself, is relieved from liability for loss or damage to goods arising from the harmful or improper condition of the ship's hold, or any other part of the ship in which the goods are carried, or arising from negligence, fault, or failure in the proper loading, stowage, custody, care, or delivery of goods which are to be carried in or by the ship; (b) to lessen any obligations of owner or charterer to exercise due diligence, and to properly man, equip, and supply the ship, to make and keep it seaworthy, and to make and keep the hold, refrigerating and cool chambers, and all other parts of the ship in which goods are carried, fit and safe for their reception, carriage, and preservation; (c) or to lessen the obligations of master, officers, agents, and servants of any ship carefully to handle and stow goods, and to care for, preserve, and properly deliver them.

Regulations under the Commerce (Trade Descriptions) Act, 1905, prohibit the import and export of specified goods unless a trade description is applied to such goods; thus, a high standard quality of goods is assured.

Goods are inspected and examined, and in certain cases a declaration by the exporter must accompany the notice of intention to export. Approved goods for export are marked with an official stamp, butter and cheese are graded, and carcase meat, rabbits, and hares are classified and marked. Special instructions are issued to meat inspectors regarding supervision and inspection for export, and standard requirements are set for abattoirs and premises where meat is preserved for export.

#### AUSTRALIAN INDUSTRIES.

It is an offence for any person or corporation to make or engage or continue in any combination "to restrain trade or commerce to the detriment of the public, or 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, and consumers." Monopoly of, or attempt or conspiracy to monopolise, any part of the trade of the Commonwealth, so as to control to the detriment of the public the supply or price of any service, merchandise, or commodity, is an offence, as also the payment of rebates, or the refusal to sell so as to promote exclusive dealing.

The Inter-State Commission Act, 1912, provides for the appointment by the Commonwealth Government of three Commissioners, who are charged with the duty of investigating any matter affecting trade and commerce.

#### CUSTOMS AND EXCISE REVENUE.

The following statement shows the gross amounts collected in New South Wales under each division of the tariff during the year ended 30th June, 1917, and shows the drawbacks, refunds, and the net collections:—

Tariff Division.	Gross Collections paid into Revenue.	Draw-backs Paid.	Refunds.	Net Collections.
	£	£	£	£
1. Stimulants, Ale, Beer, &c.	866,876	232	505	866,139
2. Narcotics	847,508	...	126,024	721,484
3. Sugar	305,645	15,009	3	290,633
4. Agricultural Products and Groceries	390,487	21,367	6,303	362,817
5. Apparel and Textiles	1,345,061	24,681	12,730	1,307,650
6. Metals and Machinery	658,079	11,817	14,352	631,919
7. Oils, Paints, and Varnishes	160,468	11,362	1,714	147,392
8. Earthenware, &c.	116,262	2,027	1,558	112,677
9. Drugs and Chemicals	87,806	4,208	767	82,831
10. Wood, Wicker, &c.	152,552	1,762	928	149,862
11. Jewellery and Fancy Goods	210,130	6,342	2,650	201,158
12. Leather and Rubber	264,181	11,602	2,282	250,297
13. Paper and Stationery	195,118	2,850	2,074	190,194
14. Vehicles	179,050	2,664	3,825	172,561
15. Musical Instruments	51,891	324	313	51,254
16. Miscellaneous	157,346	3,928	2,659	150,759
Customs Miscellaneous	16,271	....	132	16,139
<b>Total, Customs Duties</b>	<b>£ 6,004,731</b>	<b>120,175</b>	<b>178,799</b>	<b>5,705,757</b>
<b>Excise—</b>				
Beer	531,613	4,485	....	527,128
Spirits	334,943	66	108	334,769
Tobacco	249,776	....	....	249,776
Cigars	5,594	....	....	5,594
Cigarettes	599,378	....	....	599,378
Licenses—Tobacco	771	....	....	771
„ Other	1,100	....	....	1,100
<b>Total, Excise Duties</b>	<b>£ 1,723,175</b>	<b>4,551</b>	<b>108</b>	<b>1,718,516</b>
<b>Total Customs and Excise Duties</b>	<b>£ 7,727,906</b>	<b>124,726</b>	<b>178,907</b>	<b>7,424,273</b>

The amounts collected in New South Wales from customs and excise, and the proportion per head of population during the last five years, appear in that portion of this Year Book dealing with Public Finance.

Sydney is a distributing centre for the whole of Australia, and the above figures include customs receipts for goods which were, in the course of trade, transferred to and consumed in other States. On the other hand, they do not include receipts for goods which were transferred from other States and consumed in New South Wales.

The following table shows the oversea trade at each port and customs station in New South Wales, with customs and excise revenue collected for the year ended 30th June, 1917 :—

Port or Station.	Oversea Trade.			Customs and Excise Revenue Collected.
	Imports.	Exports.	Total.	
	£	£	£	£
Sydney ... ..	31,778,281	41,076,845	72,855,126	7,494,612
Newcastle ... ..	948,468	988,181	1,936,649	209,368
Clarence River ... ..	.....	3,307	3,307	.....
Morpeth ... ..	.....	.....	.....	2,565
Allandale ... ..	.....	.....	.....	242
Broken Hill ... ..	15,548	.....	15,548	20,831
Corowa (Wahgunyah) ... ..	.....	.....	.....	288
New South Wales ... ..	£ 32,742,297	42,068,333	74,810,630	7,727,906

IMPORTS AND EXPORTS.

The average annual values of oversea imports and exports during the quinquennial periods between 1885 and 1909, and for each year since 1910, are quoted below :—

Period.	Imports (Average Annual Value).	Exports (Average Annual Value).	Per head of Population.		
			Imports.	Exports.	Total Oversea Trade.
	£	£	£ s. d.	£ s. d.	£ s. d.
1885-89	13,514,534	10,624,323	13 10 2	10 12 6	24 2 8
1890-94	11,689,109	13,138,884	9 19 9	11 4 7	21 4 4
1895-99	12,233,446	16,985,808	9 9 5	13 3 0	22 12 5
1900-04	15,418,701	18,879,740	11 0 5	13 9 11	24 10 4
1905-09	18,733,104	28,264,999	12 7 1	18 12 11	31 0 0
1910	23,238,993	32,035,451	14 7 7	19 16 5	34 4 0
1911	27,343,423	32,161,401	16 8 7	19 6 5	35 15 0
1912	32,303,630	32,958,529	18 11 7	18 19 1	37 10 8
1913	32,350,663	32,839,789	17 17 7	18 3 0	36 0 7
*1914	16,677,336	15,738,313	9 0 9	8 10 8	17 11 5
+1915	27,323,243	28,107,025	14 13 6	15 1 11	29 15 5
+1916	33,379,698	40,975,416	17 17 3	21 18 6	39 15 9
+1917	32,742,297	42,068,333	17 11 5	22 11 6	40 2 11

\* Six months ended 30th June.

† Twelve months ended 30th June.

Between 1910 and 1917 the annual increases in the volume of trade were considerable, the figures for 1912, 1916, and 1917 being particularly noticeable.

The value of the exports from year to year forms a sure index of the progress of this country, the result of a rise or fall in the value of the staple commodities, or of a depression in production, being readily traceable in the corresponding rise or fall in the export values. Oversea exports were

the highest in 1917, when the prices of wool, copper, lead, hides, &c., were abnormally high on account of the demand for war purposes. There was a decrease in value in 1908 and 1909, caused by the decline in the prices of pastoral and mineral products, but in 1910, 1916 and 1917 the values show a sharp rise.

Difficulty in connection with freights has been a disturbing factor in trade matters during the last three years on account of war conditions.

#### DISTRIBUTION OF TRADE.

The proportion of British to total trade affords satisfactory evidence of the continued cohesion of Empire trade. Of oversea imports, according to country of origin, approximately 60 per cent. were of British manufacture or production, thus leaving 40 per cent. of foreign origin. Approximately 48 per cent. of the total imports were shipped from the United Kingdom, 19 per cent. from British Possessions, or a total of 67 per cent. from British countries, the difference in favour of British shipments as against those of foreign countries being attributable to the advantages of Great Britain as a transshipping country. The imports shipped from foreign countries represented 33 per cent. of the total. Of the exports from New South Wales, 71 per cent. were shipped to British countries, while of the total trade about 70 per cent. was British.

The trade of the State is greater with the United Kingdom than with any other country. The real trade with the United Kingdom is not shown, however, because, in addition to foreign goods sent to Australia *via* London, a proportion of the goods sent from New South Wales to Victoria and South Australia is shipped eventually to the United Kingdom, also some of the goods shipped to the United Kingdom are destined for transshipment to foreign ports. The extent of the export trade with the United Kingdom may be gauged by the relation between the values of goods originating in, and the values of goods shipped from, the United Kingdom.

In quinquennial periods, since 1880, the volume of oversea imports divided under the heads of British Empire—*i.e.*, United Kingdom and other British countries—and Foreign countries is shown in the following table:—

Period.	Imports from—			Total Imports.
	British Empire.		Foreign Countries.	
	United Kingdom.	Other British Countries.		
	£	£	£	£
1880-84	48,726,544	7,092,661	9,502,846	65,322,051
1885-89	48,279,604	8,134,224	11,063,225	67,477,053
1890-94	41,293,833	6,943,513	10,208,197	58,445,543
1895-99	37,123,060	7,775,602	16,271,863	61,170,525
1900-04	43,118,128	10,147,402	23,827,977	77,093,507
1905-09	55,312,612	15,422,106	22,930,804	93,665,522
1910	14,385,633	3,240,358	5,613,002	23,238,993
1911	15,740,509	4,284,573	7,318,346	27,343,428
1912	18,093,957	4,970,893	9,238,780	32,303,630
1913	18,107,138	4,804,041	9,439,484	32,350,663
1914*	9,611,134	2,493,575	4,572,627	16,677,336
1915†	15,367,746	4,571,885	7,383,612	27,323,243
1916†	15,608,510	6,434,638	11,336,550	33,379,698
1917†	15,722,209	6,285,552	10,734,536	32,742,297

\* Six months ended 30th June. † Twelve months ended 30th June.

War conditions have caused a diminution in the imports from the United Kingdom during the last three years, but there has been an increase in the trade from other British Possessions, and from foreign countries, notably the United States and Japan.

Stated as proportions per cent. of the total imports the following results are obtained :—

Period.	British Empire.			Foreign Countries.
	United Kingdom.	Other British Countries.	Total.	
	per cent.	per cent.	per cent.	per cent.
1880-84	74·59	10·86	85·45	14·55
1885-89	71·55	12·05	83·60	16·40
1890-94	70·65	11·88	82·53	17·47
1895-99	60·69	12·71	73·40	26·60
1900-04	55·93	13·16	69·09	30·91
1905-09	59·05	16·47	75·52	24·48
1910	61·90	13·92	75·82	24·18
1911	57·56	15·67	73·23	26·77
1912	56·01	15·39	71·40	28·60
1913	55·97	14·85	70·82	29·18
1914*	57·63	14·95	72·58	27·42
1915†	56·25	16·73	72·98	27·02
1916†	46·76	19·28	66·04	33·96
1917†	48·02	19·20	67·22	32·78

\* Six months ended 30th June. † Twelve months ended 30th June.

The oversea exports from New South Wales are shown under the same heads and for the same periods as in the preceding tables :—

Period.	Exports to—			Total Exports.
	British Empire.		Foreign Countries.	
	United Kingdom.	Other British Countries.		
	£	£	£	£
1880-84	39,964,529	5,449,726	5,925,747	51,340,002
1885-89	37,727,437	4,508,809	10,885,370	53,121,616
1890-94	39,358,695	4,742,725	21,592,966	65,694,386
1895-99	43,203,489	6,137,642	35,585,823	84,926,954
1900-04	40,732,026	14,441,877	39,224,800	94,398,703
1905-09	57,950,739	18,737,850	64,636,404	141,324,993
1910	13,318,099	3,081,387	15,635,965	32,035,451
1911	12,261,971	5,830,179	14,069,251	32,161,401
1912	10,316,918	6,096,078	16,545,533	32,958,529
1913	11,904,424	3,761,634	17,173,731	32,839,789
1914*	5,897,486	2,380,711	7,460,116	15,738,313
1915†	16,258,252	4,580,536	7,268,237	28,107,025
1916†	15,320,054	5,076,785	20,578,577	40,975,416
1917†	23,906,117	6,078,373	12,083,843	42,068,333

\* Six months ended 30th June. † Twelve months ended 30th June.

The proportions per cent. of the total exports are as follow:—

Period.	British Empire.			Foreign Countries.
	United Kingdom.	Other British Countries.	Total.	
	per cent.	per cent.	per cent.	per cent.
1880-84	77·84	10·62	88·46	11·54
1885-89	71·02	8·49	79·51	20·49
1890-94	59·91	7·22	67·13	32·87
1895-99	50·87	7·23	58·10	41·90
1900-04	43·15	15·30	58·45	41·55
1905-09	41·00	13·26	54·26	45·74
1910	41·57	9·62	51·19	48·81
1911	38·12	18·13	56·25	43·75
1912	31·30	18·50	49·80	50·20
1913	36·25	11·45	47·70	52·30
1914*	37·47	15·13	52·60	47·40
1915†	57·84	16·30	74·14	25·86
1916†	37·39	12·39	49·78	50·22
1917†	56·83	14·45	71·28	28·72

\* Six months ended 30th June. † Twelve months ended 30th June.

Both absolutely and relatively the exports to foreign countries increased continuously until the commencement of the war, so that the proportion of goods sent to the United Kingdom became considerably less than to foreign countries. Direct communication with the various countries was largely the cause of this apparent diversion of trade, as it obviated the necessity for much transhipment. In the year ended 30th June, 1915, the direction of the trade changed again, the percentage of exports sent to the United Kingdom being 57·8, as compared with 37·5 in the previous six months. In the year ended 30th June, 1917, nearly 57 per cent. of the exports were sent to the United Kingdom, and less than 29 per cent. to foreign countries.

Taken absolutely, the total trade between New South Wales and foreign countries has increased rapidly; but, relatively to the total trade of the State, the increase has been gradual, especially since 1895, when the trade with foreign countries was 35·5 per cent. of the total as compared with 40·8 per cent. in 1913.. In consequence of the war the percentage has varied greatly during the last three years.

The following table shows the volume of oversea trade during a term of years:—

Period.	Overseas Trade.			Proportion.	
	With British Countries.	With Foreign Countries.	Total.	British.	Foreign.
	£	£	£	per cent.	per cent.
1880-4	101,233,460	15,428,593	116,662,053	86·78	13·22
1885-9	98,650,074	21,948,595	120,598,669	81·80	18·20
1890-4	92,338,766	31,801,163	124,139,929	74·38	25·62
1895-9	94,239,793	51,857,686	146,097,479	64·50	35·50
1900-4	108,439,433	63,052,777	171,492,210	63·23	36·77
1905-9	147,423,307	87,567,208	234,990,515	62·74	37·26
1910	34,025,477	21,248,967	55,274,444	61·56	38·44
1911	38,117,232	21,387,597	59,504,829	64·06	35·94
1912	39,477,846	25,784,313	65,262,159	60·49	39·51
1913	38,577,237	26,613,215	65,190,452	59·18	40·82
1914*	20,382,906	12,032,743	32,415,649	62·88	37·12
1915†	40,778,419	14,651,849	55,430,268	73·57	26·43
1916†	42,439,987	31,915,127	74,355,114	57·08	42·92
1917†	51,932,251	22,818,379	74,810,630	69·50	30·50

\* Half-year ended 30th June.

† Year ended 30th June.

ARTICLES OF IMPORT.

To show concisely the class of goods imported into New South Wales, oversea imports during the years ended 30th June, 1915-17, have been summarised, as shown in the table below. The figures represent direct imports only, as the interstate transfers are not available.

Articles of Import.	1915.	1916.	1917.
<b>Food, Drink, Narcotics, and Stimulants—</b>	<b>£</b>	<b>£</b>	<b>£</b>
Animal food ... ..	393,069	773,729	474,553
Vegetable food ... ..	1,575,604	4,219,287	2,089,255
Drinks—alcoholic ... ..	813,471	721,093	990,359
" non-alcoholic ... ..	12,532	10,146	7,906
Tobacco and other narcotics ... ..	514,525	658,075	633,595
Other stimulants and condiments ... ..	766,648	973,895	926,477
	4,075,849	7,361,225	5,122,145
<b>Live Animals and Plants—</b>			
Animals of all kinds ... ..	86,719	95,189	57,822
Plants ... ..	40,416	40,355	33,994
	127,135	135,544	91,816
<b>Textile Fabrics, Dress, and Manufactured</b>			
<b>Fibrous Materials—</b>			
Silk manufactures ... ..	648,807	706,967	704,941
Woollen manufactures ... ..	964,349	1,462,028	1,755,149
Cotton and flax manufactures ... ..	1,769,259	2,293,321	2,764,401
Manufactures of mixed materials ... ..	1,246,508	1,435,941	1,772,587
Dress ... ..	1,994,784	2,087,305	2,140,864
Manufactures of fibrous materials ... ..	905,483	929,403	1,032,614
	7,529,190	8,914,965	10,170,556
<b>Products of Arts and Manufactures, n.e.i.—</b>			
Books, stationery and paper ... ..	1,100,472	1,241,599	1,751,692
Musical instruments ... ..	146,793	176,194	175,695
Works of art and art materials ... ..	24,415	29,841	27,944
Fancy goods ... ..	369,337	421,658	433,311
Timepieces, jewellery, and plated ware ... ..	366,687	399,920	381,228
Surgical and scientific instruments ... ..	377,943	439,698	539,437
Machines, tools, and implements ... ..	4,632,738	3,739,410	3,716,396
Harness, vehicles, and equipment ... ..	686,828	995,892	907,226
Ships, boats, and equipment ... ..	92,183	£0,739	426,954
Building materials ... ..	1,322,845	1,094,229	1,047,132
Furniture ... ..	142,927	89,454	67,987
Arms and explosives ... ..	285,105	241,332	207,227
Drugs, chemicals, and by-products ... ..	688,023	906,446	851,553
Glass and earthenware manufactures ... ..	380,303	412,524	444,469
Soap, candles, and paint ... ..	349,313	334,476	350,662
Other manufactures, n.e.i. ... ..	801,898	1,300,696	1,163,891
	11,767,810	11,904,108	12,497,804
<b>Staple Animal and Vegetable Substances, including Mineral Oils—</b>			
Animal substances ... ..	431,318	615,346	967,822
Vegetable substances... ..	569,582	764,322	745,408
Oils ... ..	798,038	1,075,787	1,080,826
	1,798,938	2,455,455	2,794,056
<b>Staple Minerals and Metals, including Specie and Bullion—</b>			
Specie and bullion ... ..	427,193	496,405	226,067
Iron and steel ... ..	1,008,082	1,339,548	1,011,683
Other metals ... ..	382,449	504,361	574,625
Coal and shale... ..	15,748	5,094	8,762
Stone, clay, and other minerals ... ..	82,329	113,816	114,453
	1,915,801	2,459,224	1,935,590
<b>Indefinite articles ... ..</b>	<b>108,520</b>	<b>149,177</b>	<b>130,330</b>
<b>Total Imports ... ..</b>	<b>£ 27,323,243</b>	<b>33,379,698</b>	<b>32,742,297</b>

In 1917 the principal articles imported from abroad were those in the class comprising the products of arts and manufactures. By far the largest item in this class was machines, tools and implements; then followed books, stationery and paper, building materials, harness, vehicles and equipment, drugs, chemicals and by-products, surgical and scientific instruments, glass and earthenware manufactures, and fancy goods. The class next in importance comprised textile fabrics and dress, in which the most important items were cotton and flax, dress, woollen manufactures, and manufactures of mixed materials. The class including articles of food and drink came third, the largest item being vegetable food.

#### BRITISH PRODUCE IMPORTED.

The total value of the produce of the United Kingdom imported into the State during the year ending 30th June, 1917, was £14,250,293. A classification of the principal articles is given below:—

Article.	Value.	Article.	Value.
	£		£
Acids ... ..	60,153	Hats and caps ... ..	48,382
Ale and beer ... ..	49,197	Instruments ... ..	169,553
Alkalies ... ..	74,077	Iron and steel ... ..	664,110
Apparel and attire, n.e.i. ...	836,820	Jewellery ... ..	125,239
Arms, ammunition, and explosives ... ..	62,184	Lamps and lampware ...	54,842
Bags and purses, &c. ... ..	39,373	Machines and machinery ...	699,496
Blankets and blanketing ...	33,833	Medicines ... ..	109,761
Books ... ..	171,162	Metal manufactures ... ..	548,050
Boots and shoes ... ..	105,323	Oilmer's stores ... ..	107,132
Brass ... ..	37,571	Oils ... ..	62,891
Brushware ... ..	31,728	Paints and colours ... ..	207,424
Canvas and duck ... ..	150,087	Paper ... ..	474,246
Carpets and carpeting ... ..	138,951	Photographic materials ...	41,279
Cocoa and chocolate, &c. ...	118,077	Piece goods ... ..	3,397,245
Confectionery ... ..	35,100	Pipes (smoking) ... ..	33,052
Copper ... ..	68,504	Quilts ... ..	130,038
Cordage and Twines—		Rubber and rubber manufactures ... ..	114,086
Metal ... ..	49,651	Spirits ... ..	689,455
Sewing silks, &c. ... ..	254,065	Stationery ... ..	107,884
Other ... ..	79,857	Stone, marble, slate ... ..	30,603
Cutlery ... ..	106,240	Tin plates and sheets ... ..	348,673
Drugs and chemicals ... ..	120,403	Tobacco, &c. ... ..	42,934
Earthenware, &c. ... ..	76,809	Tools of trade ... ..	122,312
Electrical articles and materials	210,589	Trimnings and ornaments ...	34,505
Fancy goods ... ..	47,291	Vehicles ... ..	167,727
Fish (all kinds) ... ..	55,323	Vessels ... ..	425,861
Floor cloths and linoleum ...	205,997	Yarns ... ..	306,253
Glass and glassware ... ..	83,415		

The imports oversea from other British Possessions, classified according to country of origin, are shown below for the years ended 30th June, 1915-17 :—

Country.	1915.	1916.	1917.
	£	£	£
Canada ... ..	612,796	629,527	546,733
Ceylon ... ..	425,578	514,501	569,763
Fiji ... ..	242,056	592,325	1,033,779
Gilbert Islands ... ..	13,443	25,252	42,680
Hong Kong... ..	1,927	5,630	2,568
India (incl. Burma) ... ..	1,262,091	1,521,452	1,509,626
New Zealand ... ..	984,401	1,581,567	1,280,161
Ocean Island ... ..	19,161	43,292	11,055
Papua ... ..	54,828	58,680	69,941
Solomon Islands ... ..	80,139	76,047	71,418
Straits Settlements ... ..	50,329	66,073	58,222
Union of South Africa ... ..	166,793	522,564	164,046
West Indies ... ..	26,421	23,626	20,806
Other British Possessions... ..	28,245	32,865	24,682
Total ... ..	£ 3,968,208	5,693,406	5,405,480

Commercially, Hong Kong is a port of China, and a considerable portion of the Chinese trade with New South Wales is transacted *via* that port. The Indian trade has grown up almost entirely since 1880, but fluctuates largely owing to the variable exports of gold specie. The Fiji trade is valuable, and shows a remarkable increase.

The principal products of these countries imported into New South Wales during 1917 were as follows :—

New Zealand :—Wool, £467,586; timber, £341,200; gold bullion, £174,638; flax fibre, £57,609; skins and hides, £44,225.

India :—Bags and sacks, £837,033; hessian and other jute goods, £163,414; linseed, £158,157; rice, £101,206; tea, £57,011; skins and hides, £49,448.

Ceylon :—Tea, 516,133; rubber, £36,663.

Canada :—Printing paper, £101,231; chassis, &c., for motor cars, £93,443; machines and machinery, £89,370; preserved fish, £48,268; metal manufactures, £43,551.

Fiji :—Sugar, £847,049; bananas, £138,058; copra, £33,760.

South African Union :—Precious stones, £68,415; explosives, £49,088.

Papua :—Gold bullion, £22,768.

Solomon Islands :—Copra, £63,473.

Gilbert Islands :—Copra, £42,617.

Straits Settlements :—Sago and tapioca, £28,447; spices, £16,961.

## FOREIGN PRODUCE IMPORTED.

The principal items of foreign produce imported during 1916-17 were as follows :—

France :—Piece goods, £172,560; spirits, £78,641; trimmings and ornaments, £37,952; gloves, £32,034; cream of tartar, £26,512.

Italy :—Piece goods, £89,635.

Netherlands :—Gin, £36,102; piece goods, £23,882.

Norway :—Paper, £232,611; fish, £63,965.

Sweden :—Paper, £144,308; machines and machinery, £46,369.

Switzerland :—Piece goods, £236,750; trimmings and ornaments, £86,617; watches, chronometers, &c., £83,813; apparel and attire, £53,885; cocoa and chocolate confectionery, £38,201.

Japan :—Piece goods—silk £279,868, other £126,108; apparel and attire £127,355; timber, £73,196; glass and glassware, £62,995; hats and caps, £62,792; fancy goods, £60,802; oils, £57,549; chinaware, £46,161; metal manufactures, £41,312; bags, purses, &c., £38,744; quilts, £37,173.

China :—Silk piece goods, £97,863.

Java :—Tea, £266,090; kapok, £52,325.

Sumatra :—Benzine, £239,294.

Bismarek Archipelago :—Copra, £78,136.

Tonga :—Copra, £26,315.

Chile :—Nitrate of soda, £49,567.

Peru :—Sugar, £144,408.

Cuba :—Cigars :—£27,009.

United States :—Machines and machinery, £961,710; vehicles and parts, £578,808; tobacco, £531,934; timber, £498,302; metal manufactures, £493,522; paper, £359,439; apparel and attire, £333,167; iron and steel, £315,516; rubber and rubber manufactures, £269,754; instruments—cinematographs and films £218,871, pianos £92,558, other instruments £105,087; piece goods, £214,909; leather, £193,870; oils—kerosene and other petroleum £166,569, lubricating (mineral) £150,933, benzine £145,338, benzoline, gasoline, and mineral naphtha £101,184; preserved fish, £143,379; glass and glassware, £116,276; medicines, £115,114; tools of trade, £112,474; boots and shoes, £93,997; fruit and vegetables, £93,152; arms, ammunition, and explosives, £91,304; drugs and chemicals, £77,377; tinned sheets and plates, £60,175; paints and colours, £58,475; stationery, £46,582; cordage and twines, £42,996; electrical materials £37,462; turpentine, £36,884; oilmen's stores, £36,727; canvas and duck, £36,030.

## ARTICLES OF EXPORT.

Exports from New South Wales consist chiefly of goods produced or manufactured in the State. Re-exports include produce of other Australian States, and produce of other countries.

A classification of the total exports to oversea countries during the years ended 30th June, 1915-17 is shown below :—

Articles of Export.	1915.	1916.	1917.
<b>Food, Drink, Narcotics, and Stimulants—</b>	<b>£</b>	<b>£</b>	<b>£</b>
Animal food ... ..	4,843,488	1,688,020	4,138,344
Vegetable food ... ..	1,418,929	3,841,622	6,673,011
Drinks—alcoholic ... ..	114,531	132,891	140,215
„ non-alcoholic ... ..	6,019	5,868	5,060
Tobacco and other narcotics ... ..	72,893	114,251	106,311
Other stimulants and condiments ... ..	61,193	77,295	139,568
	<b>6,517,053</b>	<b>5,859,947</b>	<b>11,202,509</b>
<b>Live Animals and Plants—</b>			
Animals of all kinds ... ..	36,040	130,215	94,191
Plants ... ..	19,068	17,988	29,913
	<b>55,108</b>	<b>148,203</b>	<b>124,104</b>
<b>Textile Fabrics, Dress, and Manufactured Fibrous Materials—</b>			
Silk manufactures ... ..	6,447	12,519	12,957
Woollen manufactures ... ..	22,741	22,345	25,742
Cotton and flax manufactures ... ..	58,496	89,849	131,700
Manufactures of mixed materials ... ..	34,265	47,471	51,267
Dress ... ..	103,131	167,772	169,700
Manufactures of fibrous materials ... ..	36,053	23,245	29,425
	<b>261,133</b>	<b>365,201</b>	<b>420,791</b>
<b>Products of Art and Manufactures, n.e.i.—</b>			
Books, stationery, and paper ... ..	69,180	68,114	74,198
Musical instruments ... ..	3,616	2,999	3,700
Works of art and art materials ... ..	5,543	1,631	2,024
Fancy goods ... ..	24,195	23,775	30,748
Timepieces, jewellery, and plated-ware ... ..	17,472	25,071	14,137
Surgical and scientific instruments ... ..	63,227	74,451	85,094
Machines, tools, and implements ... ..	234,477	329,956	331,175
Harness, vehicles, and equipment ... ..	68,017	52,974	50,773
Ships, boats, and equipment ... ..	121,050	153,004	16,307
Building materials ... ..	220,518	182,623	155,829
Furniture ... ..	48,288	29,995	26,640
Arms and explosives ... ..	7,435	8,007	8,054
Drugs, chemicals, and by-products ... ..	142,613	231,030	221,634
Glass and earthenware manufactures ... ..	16,916	28,313	30,583
Soap, candles, and paint ... ..	57,783	71,769	75,907
Other manufactures, n.e.i. ... ..	75,001	105,890	172,393
	<b>1,175,331</b>	<b>1,389,602</b>	<b>1,299,196</b>
<b>Staple Animal and Vegetable Substances, including Mineral Oils—</b>			
Animal substances ... ..	13,485,510	16,156,364	16,361,862
Vegetable substances ... ..	29,675	105,137	171,873
Oils ... ..	237,768	245,730	187,561
	<b>13,752,953</b>	<b>16,507,231</b>	<b>16,721,296</b>
<b>Staple Minerals and Metals, including Specie and Bullion—</b>			
Specie and bullion ... ..	1,604,755	9,656,085	3,285,892
Iron and steel ... ..	38,534	51,941	176,861
Other metals ... ..	3,469,594	5,801,907	7,696,754
Coal and shale ... ..	735,946	535,549	463,413
Stone, clay, and other minerals ... ..	421,233	592,044	489,643
	<b>6,270,062</b>	<b>16,637,526</b>	<b>12,117,563</b>
<b>Indefinite articles ... ..</b>	<b>75,385</b>	<b>67,706</b>	<b>182,874</b>
<b>Total Exports ... ..</b>	<b>£ 28,107,025</b>	<b>40,975,416</b>	<b>42,068,333</b>

The principal articles of export during the year ended 30th June, 1917, consisted of staple animal substances, metals, vegetable and animal food, and specie and bullion.

#### EXPORTS OF AUSTRALIAN PRODUCE.

During the year 1916-17 the exports of Australian produce represented 94·8 per cent., and other produce 5·2 per cent. of the total exports. The following statement shows, for each of the years, 1907-1911, the values of oversea exports under the three heads of "New South Wales produce," "Produce of other Australian States," and of "Other countries." Subsequently the produce of New South Wales and the other Australian States is combined, to show the "Australian" produce :—

Year.	New South Wales Produce.	Produce of Other Australian States.	Produce of Other Countries.	Total.	Percentage of total.	
					Australian.	Other.
	£	£	£	£		
1907	25,231,804	5,458,953	2,203,316	32,894,073	93·3	6·7
1908	21,602,424	3,537,814	1,740,471	26,880,709	93·5	6·5
1909	21,771,580	2,644,381	1,628,828	26,044,789	93·7	6·3
1910	27,677,088	2,660,263	1,698,100	32,035,451	94·7	5·3
1911	27,491,326	2,447,089	2,222,986	32,161,401	93·1	6·9
1912	30,661,028		2,297,501	32,958,529	93·0	7·0
1913	31,135,169		1,704,620	32,839,789	94·8	5·2
1914-15	26,176,233		1,930,792	28,107,025	93·1	6·9
1915-16	38,656,163		2,319,253	40,975,416	94·3	5·7
1916-17	39,874,287		2,194,046	42,068,333	94·8	5·2

The countries to which Australian produce was exported during the years 1912-17, may be seen in the following table. The effect of war conditions is noticeable in the large decreases in the values of products sent to the European countries, except the United Kingdom, Italy, and Russia; on the other hand the values of produce sent to the United States increased from £1,804,710 in 1913 to £3,663,210 in 1916-17, and to Japan, from £1,106,860 to £2,615,392 :—

Country.	1912.	1913.	1914-15.	1915-16.	1916-17.
	£	£	£	£	£
United Kingdom ... ..	10,095,088	11,665,426	15,886,700	15,102,133	23,823,794
Canada... ..	153,200	144,093	305,607	621,881	248,506
Ceylon ... ..	1,725,340	103,834	55,887	82,115	90,047
Egypt ... ..	See Foreign countries	58,828	126,355	74,000	
Fiji ... ..	209,618	214,688	221,493	159,244	218,138
Hong Kong ... ..	446,885	332,957	269,155	221,638	103,416
India ... ..	367,301	193,271	291,344	481,521	848,292
Malta ... ..	10,356	28,421	12,920	40,440	123,768
New Zealand ... ..	856,566	838,705	1,104,449	1,765,303	1,316,052
Papua ... ..	46,872	41,936	38,823	43,438	41,370
Solomon Islands ... ..	.....	.....	41,212	38,094	42,841
South African Customs Union	203,487	327,304	725,453	121,494	149,742
Straits Settlements ... ..	383,141	465,086	208,814	260,454	340,721
Other British Possessions ... ..	25,075	19,892	45,652	58,071	43,662
British Ports (for Orders) ... ..	.....	.....	.....	.....	1,379,456
<b>Total, British</b>	<b>£14,522,929</b>	<b>14,375,613</b>	<b>19,266,337</b>	<b>19,122,181</b>	<b>28,843,805</b>

Country.	1912.	1913.	1914-15.	1915-16.	1916-17.
	£	£	£	£	£
Austria-Hungary ... ..	204,730	339,539	791	.....	.....
Belgium ... ..	3,051,594	2,761,299	202,972	420	.....
Bismarek Archipelago ...	36,059	38,043	54,482	65,348	67,542
Canary Islands ... ..	52,373	146,811	.....	.....	.....
Chile ... ..	464,342	369,929	225,117	114,194	53,129
China ... ..	102,765	108,523	48,518	46,037	63,743
Egypt ... ..	11,988	48,086	<i>See British countries</i>		.....
France ... ..	4,029,426	4,642,086	607,722	1,308,730	957,892
Germany ... ..	4,224,498	3,639,468	148,545	.....	.....
Hawaiian Islands ... ..	76,215	107,424	114,631	41,533	29,206
Italy ... ..	325,057	509,027	570,464	1,932,414	1,273,904
Japan ... ..	961,721	1,106,860	1,564,140	2,320,383	2,615,392
Java ... ..	228,946	349,319	162,508	179,169	261,229
Netherlands ... ..	62,742	99,206	27,115	.....	10
New Caledonia ... ..	82,528	78,715	94,844	121,508	151,903
New Hebrides ... ..	40,616	35,132	19,089	20,524	24,907
Peru ... ..	56,168	29,614	69,173	50,081	194,636
Philippine Islands ... ..	217,657	187,948	101,768	50,591	121,300
Russia ... ..	96,815	47,036	113,817	476,362	1,153,152
Spain ... ..	1,756	42,102	.....	75,037	.....
United States ... ..	1,535,387	1,804,710	2,667,042	12,663,460	3,663,210
Other Foreign countries ...	274,716	268,679	117,158	68,191	116,491
Foreign Ports (for Orders) ...	.....	.....	.....	.....	282,836
<b>Total, Foreign ...</b>	<b>£16,138,099</b>	<b>16,759,556</b>	<b>6,909,896</b>	<b>19,533,982</b>	<b>11,030,482</b>
<b>Total, all countries</b>	<b>£30,661,028</b>	<b>31,135,169</b>	<b>26,176,233</b>	<b>38,656,163</b>	<b>39,874,287</b>

The principal articles of Australian production exported to various countries from New South Wales in the year ended 30th June, 1917, were as follows :—

United Kingdom—Wool, £9,924,302; copper—ingots £2,759,409, in matte £57,022; wheat, £1,962,218; flour, £501,234; lead—in matte £614,072, pig £1,774,234; frozen beef, £218,868; mutton and lamb, £659,458; rabbits and hares, £758,436; potted and concentrated meats, £61,880; preserved meat, £251,945; butter, £1,615,938; cheese, £67,451; bullion—gold £126,464, silver £314,742; leather, £377,190; skins and hides, £260,282; tallow, £244,591; jams and jellies, £242,964; ores—molybdenite £80,680, wolfram £181,048, tin ingots £112,961; iron and steel, £127,020; soldiers' comforts, £82,701.

Canada—Skins and hides, £75,041; wool, £67,658; dried currants, £50,175.

Ceylon—Silver bullion, £47,475.

Egypt—Wheat (for orders), £303,315; soldiers' comforts, £35,831.

Fiji—Bran and pollard, £34,905; coal, £30,913.

Hong Kong—Pig lead, £44,847.

India—Copper ingots, £279,520; gold specie, £250,000; preserved meat, £75,181; pig lead, £72,500; horses, £56,165.

Malta—Wheat, £122,604.

New Zealand—Coal, £205,889; gold specie, £201,009; timber, £79,585; wheat, £61,166; flour, £60,874; manures, £52,788; soap, £44,281.

South African Union—Wheat, £41,202; wheat (for orders), £1,044,670; leather, £36,804.

Straits Settlements—Tin ore, £147,165; flour, £76,664; preserved milk, £42,496.

Chile—Coal, £50,068.

France—Wheat, £400,783; flour, £82,459; wool, £324,857; sheepskins, £101,253.

Guam—Wheat (for orders), £127,718.

Italy—Wool, £1,004,539; wheat, £266,174.

Japan—Wool, £2,022,730; tallow, £94,970; pig lead, £435,248.

Java—Flour, £94,210; sulphate of ammonia, £52,115.

New Caledonia—Flour, £42,052; coke, £33,137.

Peru—Wheat, £183,677.

Philippine Islands—Flour, £99,921.

Russia—Copper ingots, £1,017,449; tallow, £108,308.

United States—Gold specie, £2,300,000; skins and hides, £650,230; tin ingots, £313,534; pearl-shell, £99,139; leather, £98,864; sausage casings, £61,839.

#### RE-EXPORT TRADE.

There is a large re-export of wool, chiefly the produce of Queensland, and a fairly large trade in provisions and manufactured articles of British and foreign production with New Zealand, New Caledonia, Fiji, and other islands of the Pacific.

The returns do not disclose the value of the produce of the other Australian States, but the value of the other produce re-exported during the year ended 30th June, 1917, was £2,194,046. The principal items were wool £447,715, piece goods £161,091, rice £124,674, tea £115,544, copra £106,271, tobacco £81,809, instruments £80,833, metal manufactures, £79,789, machines and machinery £79,397, oils £70,568, and spirits £58,733.

**SHIPS' STORES.**

In addition to the values of oversea exports shown already, considerable quantities of goods are sent away from New South Wales each year in the form of ships' stores. The following statement shows the aggregate values of ships' stores exported during the last three years, classified as Australian produce, and other produce, being really re-exports :—

Year ended 30th June.	Value of Ships' Stores.		
	Australian Produce.	Other Produce.	Total.
	£	£	£
1915	1,045,751	133,274	1,179,025
1916	867,193	143,401	1,010,594
1917	999,075	130,608	1,129,683

Following are details of the most important items for 1917 of this Australian produce :—

	Quantity.	Value. £
Bunker coal ... .. tons	661,790	457,012
Meats ... ..	.....	246,301
Butter ... .. lb.	814,906	55,992
Flour ... .. centals	60,971	34,505
Potatoes ... .. cwt.	41,301	17,327
Milk, preserved ... .. lb.	614,081	17,031
Jams and jellies ... .. lb.	777,208	15,904
Fish, fresh ... .. lb.	567,352	15,131

**COMMERCIAL COMMISSIONERS.**

New South Wales is represented in Eastern Asia by a Commercial Commissioner, with headquarters at Kobe, Japan. The Commissioner is engaged in fostering the trade of the State in the important markets of eastern countries, and makes periodical tours of Japan, China, India, Philippine Islands, Netherlands India, and other portions of the East, closely watching for new opportunities for trade as well as taking steps to ensure the maintenance of the existing trade.

Reports are furnished by the Commissioner, giving in much detail the market prices, &c., for each commodity exported from New South Wales and valuable advice to shippers and to the commercial community.

In addition to the assistance given to commerce the Commissioner does useful work in diverting the stream of tourists in the East towards Australia.

New South Wales in 1916 was represented in the United States of America by a Trade Commissioner, stationed at San Francisco, and by a Deputy Commissioner at New York. Both offices were closed in 1917.

In connection with the British Board of Trade, a Trade Commissioner was appointed in 1908 for Australia, with an office at Sydney. He furnishes commercial information, and advises the Board of Trade generally with regard to openings for Imperial trade.

#### CHAMBERS OF COMMERCE.

Chambers of Commerce have been formed in New South Wales at sixteen important trading centres, including Sydney, Newcastle, Parramatta and Lismore. The membership of the Sydney Chamber of Commerce as at June, 1917, was 1,390, including 132 firms and public companies.

## LAND LEGISLATION AND SETTLEMENT.

### AREA OF NEW SOUTH WALES.

THE area of New South Wales, including Lord Howe Island of 5 square miles and the Federal Capital Territory of about 928 square miles, as stated previously in this Year Book, is estimated at 310,372 square miles, or 198,638,080 acres, being a little over two and a half times that of Great Britain and Ireland. Excluding the surface covered by rivers and lakes, the area within the boundaries of the State is 195,669,000 acres, or about 305,733 square miles, of which the greater portion has been alienated under various forms of tenure, classified as freehold or leasehold. The formal transfer on 1st January, 1911, of 576,000 acres at Yass-Canberra, and of 17,920 acres at Jervis Bay in 1915, to the Commonwealth Government as Federal Capital Territory, reduced the land surface of the State to 195,075,080 acres.

### *Territorial Divisions.*

Under various Acts the State is divided into three territorial divisions, Eastern, Central, and Western, the boundary lines running approximately north and south.

The Eastern and Central Divisions are subdivided into Land Districts, in each of which is stationed a Crown Land Agent, whose duty is to receive applications and furnish information regarding land. Groups of these districts are arranged in larger areas, under the control of Land Boards, whose decisions are subject to review by the Land Appeal Court, which is composed of a President and two Commissioners, whose awards in matters of administration have the force of judgments of the Supreme Court. Whenever questions of law arise, a case may be submitted to the Supreme Court, either on the written request of the parties interested, or by the Land Appeal Court. The conditions of alienation and pastoral occupation of Crown lands differ in each of the three divisions of the State. Control of the lands within the Western Division is vested in the Western Land Board, consisting of three Commissioners.

The Eastern Division has an area of 60,669,606 acres (exclusive of an area of 593,920 acres of Commonwealth territory), and includes a broad belt of land between the sea-coast and a line nearly parallel to it, starting from a point midway between the small settlements at Bonshaw and Bengalla on the Dumaresq River, and terminating at Howlong, on the River Murray, thus embracing the coastal districts of the State, as well as the northern and southern tablelands. In this division is excellent agricultural land, and all the original centres of settlement, which are readily accessible to the markets of the State. For these reasons, the conditions governing the purchase and occupation of the Crown lands in the Eastern Division are more stringent than is the case in the Central and Western Divisions.

The Central Division embraces an area of 57,055,846 acres, extending from north to south between the western limit of the Eastern Division and a line starting from a point on the Macintyre River, where it is crossed by the 149th meridian of east longitude, and following this river and the Darling to the junction of Marra Creek; thence along that creek to the Bogan River, and across to the River Lachlan, between the townships of Euabalong and Condobolin, along the Lachlan to Balranald, and thence

to the junction of the Edward River with the Murray. The area thus defined contains the upper basin of the Darling River in the northern part of the State, and the basins of the Lachlan, the Murrumbidgee, and other affluents of the Murray in the southern portions. The land in this division has been devoted mainly to pastoral pursuits, but experience having proved that it is suitable for agriculture, the cultivated area is increasing steadily.

The Western Division is situated between the western limit of the Central Division and the South Australian border. It contains an area of 80,318,708 acres, watered by the Darling River and its tributaries, and is devoted to pastoral pursuits. Water conservation and irrigation are the factors which ultimately will counteract climatic conditions and irregular rainfall, and make agriculture possible over this large area, of which the soil is adapted to the growth of most crops; but legislation in regard to the occupation of the lands of the district is based upon the assumption that for many years to come there will be little inducement for agricultural settlement.

#### METHODS OF ACQUISITION AND OCCUPATION.

Under the Acts now in force, land in the Eastern and Central divisions of the State may be acquired by the following methods:—

(a) Under residential conditions—

- (1) Conditional and additional purchase;
- (2) Classified conditional purchase;
- (3) Settlement purchase, under Closer Settlement Acts;
- (4) Homestead farms;
- (5) Suburban holdings;
- (6) Irrigation farms;
- (7) Returned Soldiers Special Holdings;
- (8) Conditional purchase lease;
- (9) Conditional lease;
- (10) Residential on gold and mineral fields lease;
- (11) Crown lease;
- (12) Settlement lease.

(b) Under non-residential conditions,—

- (1) Conditional purchase, without residence;
- (2) Improvement purchases on gold-fields;
- (3) Auction sales;
- (4) After-auction sales;
- (5) Special sales, without competition;
- (6) Exchange;
- (7) Annual lease;
- (8) Inferior lands lease;
- (9) Occupation license;
- (10) Scrub lease;
- (11) Special lease;
- (12) Improvement lease;
- (13) Snow-lands lease;
- (14) Week-end lease;
- (15) Town lands lease;
- (16) Special conditional purchase lease.

The maximum area which may be purchased conditionally differs in the Eastern and Central Divisions according to the method of acquisition shown in the statement above. In the Western Division land may be alienated by auction or occupied under lease.

In 1908 an Amending Act (providing for conversions of other than conditional leases) was passed, under which certain tenures may be converted, under certain conditions, into all or portion of certain other tenures, viz. :— (a) Homestead selections and homestead grants into conditional purchase leases, conditional purchases, or conditional purchases and conditional leases ; (b) settlement leases into conditional purchases or conditional purchases and conditional leases ; (c) non-residential conditional purchases into residential conditional purchases ; (d) special leases and Church and School Lands leases into conditional purchase leases or conditional purchases or homestead selections, or settlement leases, conditional leases or homestead farm. Also, the holder of any residential lease, including any additional residential leases held by virtue thereof, may apply to purchase the same at any time after expiry of the first five years of the lease. A further Amending Act, in 1912, provides for the conversion of conditional purchases, conditional purchases and conditional leases, homestead selections or homestead grants and conditional purchase leases into homestead farms. Under the Crown Lands Amendment Act, 1917, homestead farms which were conversions of settlement purchases (under provisions now repealed) upon approval may be reconverted into settlement purchases. Holders of suburban holdings and week-end leases may be allowed to purchase same.

*Conditional Purchase.*

Unreserved Crown lands in the Eastern and Central Divisions not held under pastoral or other lease, are available for conditional purchase, and lands held under annual lease or occupation license may also be acquired in this way, if not otherwise reserved. Land under conditional lease in any division may be purchased conditionally by the leaseholder only. Lands within suburban boundaries or within population areas may be proclaimed as special areas, and are open to conditional purchase under the special conditions prescribed. The value of any improvements on a conditional purchase must be paid by the applicant.

A residential conditional purchase may be taken up by males of or over age 16, or by females of or over age 18, provided that a woman must be unmarried, or a widow, or judicially separated from her husband ; for a non-residential conditional purchase the minimum age limit is 21 years. Every conditional purchase must be made solely in the interest of the applicant. Minors who become conditional purchasers have the rights and liberties of persons of full age in connection with their land.

The minimum and maximum areas allowed for each class of conditional purchase are as follow :—

Class.	Division.	Minimum Area.	Maximum Area.
Residential ... ..	Eastern ... ..	acres. 40	acres. 1,280
" ... ..	Central ... ..	40	2,560
Non-residential... ..	Eastern ... ..	40	320
" ... ..	Central ... ..	40	320
Special area ... ..	Eastern ... ..	.....	320
" ... ..	Central ... ..	.....	640

With regard to special areas, both the minimum and maximum areas are subject to proclamation in the *Government Gazette*, and are, therefore, liable to limitation. Any conditional purchaser may take up the maximum area at once, or by a series of purchases at convenient intervals. With the exception of non-residential purchases, provision is made in the Crown Lands

Amendment Act, passed in 1908, that the specified maximum areas may be exceeded by means of additional holdings, the area of which, together with all other lands held, other than a lease having less than five years to run (unless with a right to purchase the freehold) must not exceed a home maintenance area. By this is meant an area which, used for the purpose for which it is reasonably fitted, would be sufficient for the maintenance in average seasons and circumstances of an average family. Additional holdings need not necessarily adjoin the original holdings, but must be situated within a reasonable working distance.

Under the Crown Lands Amendment Act of 1905 areas may be set apart for original holdings, or for additional holdings, but no such area may be selected under both classes of holdings. Original holdings include (a) original conditional purchases and (b) original conditional purchases and conditional leases taken up in respect of, and at the same time as, the original conditional purchase within the area. Additional holdings include (a) additional conditional purchases and (b) conditional leases other than those previously mentioned. Values and rentals are specified in the official notices under the Act. Lands may be classified and set apart, by notification, at specified prices.

Applications for conditional purchase, or for additional conditional purchase, must be lodged with the Crown Lands Agent of the district in which the land is situated, and a deposit and survey fee paid at the same time. The statutory price of ordinary Crown lands is fixed at £1 per acre for residential conditional purchase, but in special areas and on lands within classified areas the price per acre may be either above or below that amount. The deposit on all residential conditional purchases is at the rate of 5 per cent. of the capital value, but on non-residential conditional purchases the price of the land is doubled, the deposit being at the rate of 2s. in the £ of such increased value; at least one-tenth of the survey fee must be lodged with the application unless such fee has been paid by a previous holder, through whom the applicant claims title, and stamp duty must be paid. Deposit and survey fee may be dispensed with in connection with an application for a holding within a classified area if such be lodged during the first week the land becomes available, but must be paid subsequently as directed by the Land Board. Under ordinary conditions the balance of purchase money, with interest at  $2\frac{1}{2}$  per cent. per annum, is cleared-off by twenty-seven annual payments of 1s. per acre, and a subsequent final lesser payment. The first instalment is due on the expiration of three years from the date of the contract.

A resident conditional purchaser in certain circumstances may reduce his annual instalment of 1s. to 9d. per £, in which case it will take the selector about forty-one years to pay. Under special circumstances a similar privilege may be extended to conditional purchasers not in residence. By the Crown Lands Act Amendment Act of 1903, the rate of interest on the balance of purchase money was reduced from 4 to  $2\frac{1}{2}$  per cent. per annum, being retrospective only in special circumstances.

Upon receipt of an application for a conditional purchase the Land Board may cause the land to be surveyed and a report to be supplied by the surveyor, and may either confirm or disallow the application. In case of confirmation a certificate is issued to the applicant.

The original conditional purchase must be occupied continuously by the selector for a period of five years, and residence must be commenced within three months after the application has been confirmed by the Land Board. Residence may be suspended conditionally, or remitted by the Land Board, for sufficient cause, for stated periods, or in certain circumstances may be

effected on the holding of a member of the same family, or on another of applicant's holdings, or in a village or town, or elsewhere within reasonable distance. In certain cases a wife may carry out residence on her husband's holding, or, conversely, a husband may carry out residence on his wife's holding. Each additional conditional purchase or conditional lease is subject to the condition of residence indicated, but the place of residence may be on any block of the series, and the term may be reduced in certain circumstances, by the applicant's previous residence on the series. The Minister may permit improvements in lieu of residence where the unimproved value of the area is not greater than £300.

The selector must enclose his land, within three years after confirmation, with such a fence as the Land Board may prescribe; or he may substitute improvements in lieu of fencing. In such a case, permanent improvements, of the value of 6s. per £ of purchase money but not exceeding £384, are required within three years, and these improvements must be brought up to the value of 10s. per £ of purchase money, but not exceeding an aggregate value of £640, within five years from the date of confirmation. In the case of non-residential purchases, the land must be fenced within one year after date of confirmation, and within five years other improvements to the value of £1 per acre must be effected. Fencing may be superseded by other improvements equivalent to 30s. per acre, within five years after confirmation.

Under the Crown Lands Amendment Act, 1908, an original non-residential conditional purchase, with any additional non-residential conditional purchase made in virtue of it, may be converted into an original residential conditional purchase, provided that the five years' residence commences from the date of application for such conversion. This term of residence is subject to reduction, and all moneys previously paid are credited towards payment of the converted conditional purchase.

A conditional purchase, residential or otherwise, may be converted into a homestead farm under certain conditions.

The following table shows the transactions under each class of conditional purchase during the last ten years:—

Year ended 30th June.	Applications for—						Conditional Purchase Leases—application to convert into C.P. received.		Total.	
	Original Conditional Purchases.		Additional Conditional Purchases.		Non-residential Conditional Purchases.		No.	Area.	No.	Area.
	No.	Area.	No.	Area.	No.	Area.				
		acres.		acres.		acres.		acres.		acres.
1908	1,618	229,044	2,103	486,491	113	16,370	11	2,220	3,850	734,125
1909	1,641	285,616	2,767	797,666	121	18,791	12	3,234	4,541	1,105,307
1910	1,206	184,097	1,091	150,074	57	8,196	22	8,357	2,286	350,724
1911	801	116,177	752	98,813	49	6,547	147	43,934	1,749	265,471
1912	584	99,604	626	84,597	48	6,768	122	39,293	1,380	230,265
1913	347	47,427	403	53,274	33	3,143	41	17,904	824	121,748
1914	250	31,543	236	31,525	26	2,233	47	27,649	559	92,955
1915	181	20,794	166	24,357	15	1,024	46	27,453	408	73,628
1916	115	11,770	97	10,387	4	338	79	47,143	295	69,638
1917	85	13,392	73	11,659	10	710	59	38,046	227	63,807

Inclusive of conditional purchase leases as shown above, for the year 1916-17, there were in all 1,660 applications, covering an area of 726,309 acres, for conversion into conditional purchase from other forms of tenure.

The following applications for conditional purchases have been made under the various Acts:—

	Applications.	
	No.	acres.
Under Crown Lands Act of 1861 ... ..	136,389	14,982,120
Under Crown Lands Act of 1880 ... ..	55,084	8,488,020
Total to 31st December, 1884... ..	191,473	23,470,140
Under the Crown Lands Acts of 1884, 1889, 1895, and subsequent amending Acts to 30th June, 1909 ... ..	89,175	16,281,251
During years 1st July, 1909, to 30th June, 1917 ... ..	7,165	1,018,454
Total to 30th June, 1917 ... ..	287,813	40,769,845

Transactions in respect of conditional purchase applications and deeds issued from 1862 to 30th June, 1917, were as follows:—

Year.	Conditional Purchase— Applications made.		Conditional Purchase— Applications confirmed.		Conditional Purchases for which Deeds have Issued.		Conditional Purchases in existence.	
	No.	Area.	No.	Area.	No.	Area.	No.	Area.
	acres.		acres.		acres.		acres.	
1862-1909 .. .. .	280,648	39,751,391	65,337	11,806,991	99,161	12,848,166	96,961	14,475,553
1910 .. .. .	2,264	342,367	1,984	294,897	7,097	1,079,887	93,567	14,362,463
1911 .. .. .	1,602	221,537	1,613	227,520	4,657	632,738	93,403	15,614,036
1912 .. .. .	1,258	190,969	1,090	175,044	5,231	671,564	92,208	16,529,006
1913 .. .. .	733	103,244	839	105,167	3,265	406,019	92,183	17,307,305
1914 .. .. .	512	65,306	554	67,534	2,338	322,556	91,935	17,837,702
1915 .. .. .	362	46,175	287	35,249	2,354	304,012	90,904	18,035,210
1916 .. .. .	216	22,495	183	23,552	2,462	307,016	89,670	18,315,095
1917 .. .. .	168	25,761	109	13,025	2,881	357,828	88,493	18,693,429
Total (as at 30th June, 1917)	287,813	40,769,845	72,004	12,748,979	129,446	16,929,786	88,493	18,693,429

In 1908 the Conversion Act was passed, and since 1909 the number of selections has been reduced by forfeitures, cancellations, conversions into homestead selections, &c., and increased by conversions from various other tenures under the Crown Lands Act, so that the land wholly alienated, or in process of alienation, by conditional purchase, on 30th June, 1917, amounted to 35,623,215 acres, contained in 217,939 purchases. Included in the foregoing are 129,446 completed purchases, covering 16,929,786 acres, upon which deeds have now been issued. The balance represents the number of purchases still in force, but upon which the conditions, payments, &c., have not yet been fulfilled, viz., 88,493 with an area of 18,693,429 acres.

Applications for conversion to mineral conditional purchase may, under the 1910 Act, be annulled or withdrawn, and all moneys, less authorised deductions for cost, refunded with the application.

#### *Improvement Purchases.*

Holder of miners' rights or of business licenses on a gold-field, being in authorised occupation by residence on land containing improvements, may purchase such land without competition. Improvements must include a residence or place of business, and be of the value of £8 per acre on town land, and of £2 10s. per acre on any other land.

During 1916-17, 94 applications were granted for a total area of 39 acres and 22½ perches, the total purchase price being £1,303.

*Auction Sales and After-auction Purchases.*

Crown lands are submitted for auction sale under two systems. Under the ordinary system the balance of purchase money is payable, without interest, within three months of the day of sale, while, under the deferred payment system, the balance is payable by instalments, with 5 per cent. interest, distributed over a period not exceeding five years; in either case, 25 per cent. of the purchase money must be deposited at the time of sale.

Auction sales are limited by law to 200,000 acres in any one year. Town lands may be sold in blocks not exceeding half an acre, at an upset price of not less than £8 per acre; and suburban lands must not exceed 20 acres in one block, the minimum upset price being £2 10s. per acre. Country lands may be submitted in areas not exceeding 640 acres, the upset price being not less than 15s. per acre. The value of improvements on the land may be added to the upset price.

Town or suburban land or portions of country land of less than 40 acres each, which have passed at auction may be bought, with the Minister's consent, at the upset price; a deposit of 25 per cent. of such upset price is payable at the time of application, the balance being payable on the terms fixed for the auction sale.

*Special Non-competitive Sales.*

Any unnecessary road which bounds or intersects freehold land may be closed and sold to the freeholder at a price determined by the Land Board, and any unnecessary road which passes through land held under conditional purchase may be closed and added to the area.

Reservations are maintained in many Crown grants of land having water frontage, being usually 100 feet from high-water mark; but the Crown may rescind the reservation, and convey the land to the holder of the adjoining land, at a price to be determined by the Land Board.

The owner in fee-simple of land having frontage to the sea, or to any tidal water or lake, who desires to reclaim and purchase any adjoining land lying below high-water mark, may apply to the Minister for Lands to do so, except in the case of Port Jackson, the control of which is vested in the Sydney Harbour Trust. Reclamations which might interrupt or interfere with navigation are not authorised.

Land encroached upon by buildings erected on granted land, or land situated between granted land and a street or road, which forms, or should form, the way of approach to the granted land, or land to which no way of access is attainable, or land which is insufficient in area for conditional purchase, may be purchased by the owner in fee-simple of the adjoining land, at a price determined by the Board.

*Exchange of Land between the Crown and Private Owners.*

Before the granting of fixity of tenure in connection with pastoral leases, the lessees had made it a practice to secure portions of their runs by conditional purchases and purchases in fee-simple. The practice was disadvantageous to the public estate, because Crown lands were left in detached blocks severed by lessees' freehold properties; and the lessees realised that it would be convenient to them to gather their freeholds together in one or more consolidated blocks by surrender of the private lands in exchange for Crown lands elsewhere.

Under the provisions of the Crown Lands Consolidation Act, 1913, the Governor, with the consent of the owner, may exchange any Crown lands for any other lands of which a grant in fee simple has been issued.

The Governor may accept in exchange for Crown lands, lands in respect of which a balance of purchase money remains unpaid, if upon payment of such balance the right to a grant in fee simple becomes absolute. In any such case a grant of Crown lands in exchange will not be issued until the balance of purchase money has been duly paid.

Applications received under this head during the year 1916-17 numbered 51, and 79 applications were outstanding on the 30th June, 1916. Eighteen applications, embracing 9,845 $\frac{3}{4}$  acres, were granted in 1916-17.

#### *Volunteer Land Orders.*

Holders of certificates issued to volunteers who had served under the provisions of the Volunteer Force Regulation Act of 1867 were entitled to a free grant of land. These certificates entitled the holder to 50 acres of such land as was open to conditional purchase, other than lands within a proclaimed special area. Claims to these grants lapsed unless lodged within three years after the commencement of the Crown Lands (Amendment) Act, 1908, which period terminated on 31st January, 1912.

The total area alienated by volunteer land orders to 30th June, 1911, amounted to 170,650 acres, and this area had been increased by 848 acres as at 30th June, 1912. During the next year there was a further alienation of 500 acres, and during 1913-14 of an additional 200 acres, the total area standing at 172,198 acres, as at 30th June, 1914. Since that date there have not been any further alienations.

#### *Homestead Selection and Homestead Grant.*

The appropriation of areas for homestead selection was a prominent feature of the Act of 1895, the land chosen for subdivision being good agricultural land. Where suitable lands were situated within easy access of towns, small blocks were set apart, the lands being available after particulars relating to area, capital value, &c., had been published in the *Gazette*. The maximum area that might be selected was 1,280 acres, but the selector was limited to a block as granted.

Any person eligible to take up a conditional purchase might apply for a homestead selection; the selector was required to deposit one-half year's rent and one-tenth of the survey fee with his application, and to pay for any improvements already on the land. The applicant must have commenced to reside on the selection within three months, and continued to do so for a period of five years, and have erected a dwelling of a minimum value of £20 within eighteen months, after the confirmation of his application. The rent, until the issue of a grant, was 1 $\frac{1}{4}$  per cent. of the capital value of the block. The condition of residence might be fulfilled by deputy prior to the issue of the grant, but the applicant was required, during this period, to pay rent at the rate of 3 $\frac{1}{2}$  per cent. of the capital value, and to effect greater improvements. An appraisalment of the capital value of the land might be obtained under certain conditions.

Additional land might be acquired out of an area set apart for the purpose to make up an area which, with all other lands held by the applicant other than under lease having less than five years to run (unless with a right to purchase the freehold), would not be more than sufficient for the maintenance of the applicant's home in average seasons and circumstances. The additional holding need not adjoin the original holding, but must be situated within a reasonable working distance.

At the expiration of five years after the confirmation of the application a grant of the holding, called a homestead grant, was issued, the tenure being subject to perpetual rent. After date of execution of the grant, or expiration of five years, whichever occurred first, the rent was 2 $\frac{1}{2}$  per cent. of the

improved capital value of the land, which was appraised every fifteen years. The land could not be transferred during the first five years, unless under special circumstances. Tenant-right in improvements was allowed, and the holding might be so protected that it could not, by any legal procedure, except by levy or sale for taxes, be taken from the owner while he resided on it.

Under the Crown Lands (Amendment) Acts, of the years 1908 and 1912, a homestead selection or grant may be converted into a homestead farm, or a conditional purchase lease, or a conditional purchase, or a conditional purchase and conditional lease, provided the area contained in such lease does not exceed three times the area in the conditional purchase.

Lands are not now made available for homestead selections, such tenure having been replaced by that of homestead farm. Applications dealt with subsequent to 1912, are either in connection with areas previously set apart for homestead selection, or as additional areas, principally the latter. A large number of persons have, however, selected under this form of holding, as will be seen from the following Statement which shows the applications and confirmations in regard to homestead selections and homestead grants issued up to 30th June, 1917.

Year.	Homestead Selections.				Homestead Grants issued.	
	Applications.		Confirmations.			
	No.	Acres.	No.	Acres.	No.	Acres.
1895 to 1910 ... .. (Year ended 30th June)	9,059	3,582,134	7,059	2,555,805	4,028	1,628,177
1911 ... ..	359	98,155	294	76,651	287	123,086
1912 ... ..	37	119,278	466	94,641	196	88,517
1913 ... ..	65	19,595	106	30,879	175	55,377
1914 ... ..	19	4,941	22	5,707	231	39,231
1915 ... ..	30	16,983	18	7,233	198	59,919
1916 ... ..	8	3,141	17	7,559	161	48,479
1917 ... ..	5	3,970	5	1,337	212	54,791
Total ... ..	10,082	3,848,197	7,957	2,779,812	5,488	2,097,577

After making allowance for conversions to and from other tenures, forfeitures, &c., the number of homestead selections and grants in existence on 30th June, 1917, was 3,585, of an area of 1,256,036 acres.

#### *Homestead Farms.*

The new tenures created by the Crown Lands Amendment Act of 1912 were homestead farms, suburban holdings, Crown leases, and irrigation farms. Crown lands are set apart for disposal as homestead farms, but the land may be made available before survey. Crown Lands available for conditional purchase (unless otherwise notified in the *Gazette*) are also available for homestead farm, and land may be set apart for homestead farms to be acquired only as additional holdings.

A person—including an alien—of a minimum age of 16 years, if a male, or 18 years, if a female, may apply for a homestead farm, provided that the applicant does not hold under any tenure—except lease which has less than five years to run, and does not confer right to purchase the freehold—an area of land which, added to the area of the homestead farm, would substantially exceed a home-maintenance area. In estimating what constitutes a home-maintenance area, the joint area held by husband and wife (unless judicially separated) is taken into account as lands held by one person. An alien becoming the holder of a homestead farm, suburban holding, Crown

lease, or irrigation farm, must become naturalised within three years. A married woman may apply if possessed of a separate estate. Persons who have selected previously are disqualified in certain circumstances.

The title of a homestead farm is a lease in perpetuity. The annual rent is charged at the rate of  $2\frac{1}{2}$  per cent. of the capital value, but for the first five years the holder, in lieu of payment of rent, may expend an equal amount on improvements of a permanent character, the same (except boundary fencing) being in addition to those which are otherwise required as a condition of improvement or expenditure of the lease. The capital value is subject to reappraisal after the first twenty-five years and for each subsequent period of twenty years.

A condition of 5 years' residence is attached to every homestead farm, but in special cases residence in a town or village, or anywhere within reasonable working distance, may be allowed. Residence may be permitted on a holding of a member of the same family, or on another of the selector's holdings within reasonable working distance. Suspensions or remissions may be granted for such periods as determined by the Land Board. In certain cases a wife may carry out residence on her husband's holding, or, conversely, a husband may carry out residence on his wife's holding.

The Minister may permit improvements in lieu of residence where the unimproved value of the area is not greater than £300.

The perpetual lease grant will be issued after the expiration of five years from confirmation of the application, if the holder has complied with all required conditions. The holder of a conditional purchase, or conditional purchase and conditional lease, or homestead selection, or homestead grant, or conditional purchase lease, under certain conditions, may convert such holding into a homestead farm. A homestead farm may be protected against sale for debt in certain circumstances. Under certain conditions, a homestead farm may be converted into a conditional purchase lease or into a conditional purchase, with or without a conditional lease. A homestead farm, which is a conversion of a settlement purchase under provision now repealed, may be reconverted into a settlement purchase.

Applications received for Homestead Farms and those dealt with, during the last six years are as follow:—

Year ended 30th June.	Applications.				Created by Conversion from other tenures.		Reversal of forfeiture and increased area.		Less—Forfeited and decrease in area.		Homestead Farms in existence at end of year.	
	Received.		Confirmed.									
	No.	Area.	No.	Area.	No.	Area.	No.	Area.	No.	Area.	No.	Area.
		acres.		acres.		acres.		acres.		acres.		acres.
1912	145	93,254	46	27,815	...	...	...	...	...	...	46	27,815
1913	400	217,186	356	203,365	19	10,041	...	...	...	...	421	241,221
1914	468	234,640	358	221,576	9	7,337	...	...	32	19,635	756	450,499
1915	605	467,873	437	327,098	11	4,550	1	210	50	33,439	1,155	748,918
1916	372	281,685	348	252,166	6	3,848	...	...	57	35,479	1,452	969,453
1917	271	181,722	167*	115,259	2	1,209	2	486	75	49,722	1,548*	1,036,685

\* Includes 82 farms of 64,476 acres for Returned Soldiers.

#### Suburban Holdings.

The conditions of perpetual rent and five years' residence are attached to suburban holdings. The area of a suburban holding is determined by the Minister for Lands; the rent—minimum 5s. per annum—is calculated at the rate of  $2\frac{1}{2}$  per cent. of the capital value, to be appraised for each period of twenty years. Males under 16 years, females under 18 years, are

disqualified from applying. A married woman may, in certain cases, apply, provided her husband has not acquired a suburban holding. A suburban holding may be protected against sale for debt in certain circumstances, and may be purchased under certain conditions. After the expiration of five years from date of confirmation, and subject to fulfilment of all conditions, a perpetual lease grant will be issued.

Any suburban Crown lands, or Crown land within population boundaries, or within the Newcastle pasturage reserve, or any other Crown land, may be set apart for disposal by way of suburban holding.

The number of applications for, and confirmations of Suburban Holdings during the past six years, were as under :—

Year ended 30th June.	Applications.		Confirmations.		Suburban Holdings in existence at the end of year.		Annual Rent.
	No.	Area.	No.	Area.	No.	Area.	
		acres.		acres.		acres.	£
1912	48	1,964	21	1,085	21	1,085	136
1913	548	12,704	373	8,730	388	9,731	1,146
1914	762	15,885	570	13,415	902	22,114	2,473
1915	563	10,499	477	9,299	1,311	30,717	3,495
1916	504	7,343	400	6,775	1,535	34,110	4,043
1917	299	4,300	230	2,937	1,662	36,631	4,246

#### *Week-end Leases.*

This tenure, created by the Crown Lands Amendment Act, 1916, is a lease in perpetuity, and is subject to payment of rent at the rate of  $2\frac{1}{2}$  per cent. of the capital value; to the effecting of substantial improvements worth £1 per acre within five years from confirmation, and to the performance of such special conditions as may be notified. Residence is not necessary. The minimum rent is £1. Anyone (except a married woman not judicially separated) not under 21 years, may apply.

Persons who already hold land within areas defined in a notification setting apart the land for week-end leases, are disqualified in special circumstances.

Transfers may be made at any time with the Minister's consent, but must be to a qualified person, except in cases of devolution under a will or intestacy. The consideration for a transfer must not exceed the capital value of the improvements on the land. Week-end leases, on approval by the Minister, may be purchased.

During the year ended 30th June, 1917, 42 applications for 62 acres were received, and confirmation was made in the case of 36 for an area of 55 acres at an annual rental of £40. In 5 cases the applications were either disallowed or withdrawn,

#### *Leases of Town Lands.*

Crown lands within the boundaries of any town may be leased by public auction or by tender. The lease is perpetual, and the area included must not exceed half an acre. The amount bid at auction or offered by tender (not being less than the upset value) is the capital value on which the annual rent at the rate of  $2\frac{1}{2}$  per cent. is based for the first period of twenty years. The capital value for each subsequent twenty years' period is determined by the Land Board.

The lease may contain such covenants and provisions as may be gazetted prior to sale or tender. Residence is not necessary.

No person is allowed to hold more than one lease, unless with the permission of the Minister on recommendation by the Land Board.

The holder of a town lease may be allowed to purchase.

In the year 1916-17, 536 lots of an area of 209 acres 1 rood 16 perches were offered at auction or by tender, and 26 lots representing 10 acres 0 roods 33 perches were sold or the tenders were accepted, the annual rent realized being £36 6s. 3d. After auction tenders accepted numbered 16 lots of an area of 6 acres 1 rood 12 perches, and the annual rental £19 7s.

#### *Land for Returned Soldiers.*

Under the Returned Soldiers' Settlement Act, 1916, special provision is made for the settlement of returned soldiers on Crown lands or on lands acquired under the Closer Settlement Acts. Under the first-mentioned Act land may be set apart only for disposal to returned soldiers, and the Minister may assist settlers thereunder with respect to clearing, fencing and general improvements of the land, erection of building, purchase of implements, stock, and other things necessary to satisfactorily occupy and develop the land.

During the year ended 30th June, 1917, eleven estates of an area of 169,480 acres, and valued at £747,165, were acquired out of the Closer Settlement Funds for soldiers' settlements.

Applications for Returned Soldiers' Special Holdings received during the year numbered 94 for an area of 1,809 acres, and confirmation was made in respect of 57 cases, of an area of 659 acres. In five of these cases the applications were afterwards either withdrawn or were declared null and void.

There were in existence at 30th June, 1917, 52 holdings of 639 acres, and an annual rental of £152.

#### *Land for Soldiers serving Abroad.*

Facilities are provided for acquiring lands under the Crown Lands Acts by soldiers absent at the war. In such cases application and declaration may be made in the name, and on behalf of the absentee, by a person duly appointed and authorised under power of attorney.

#### *Irrigation Farms.*

The disposal of lands within duly constituted irrigation areas is regulated by the Crown Lands Amendment Act, 1912, and the Irrigation Act, 1912. A special land board, with the powers and duties of a local land board, may be appointed to administer the Crown Land Acts within an irrigation area; the lands are classified as town, irrigable, and dry or non-irrigable lands. A person (except a married woman not separated from her husband by judicial decree) 16 years or over, if a male, or 18 years or over, if a female, or two or more such persons, may apply for an irrigation farm or block. An alien is not barred, but he must become naturalised within three years under penalty of forfeiture. The title is perpetual lease, subject to perpetual payment of rent and performance of residence. The rent is at the rate of 2½ per cent. of the capital value—minimum for town land blocks, £1 per annum. At the expiration of five years after confirmation of the application a grant of the farm or block will be issued to the holder, provided that the required conditions have been observed. The holding may be protected against sale for debt in certain circumstances.

In respect of town land blocks, the conditions of residence may be waived or suspended by the Commissioners for Water Conservation and Irrigation ; no person may hold more than three adjoining blocks for residence, or four adjoining blocks for business purposes.

ALIENATION.

From the early days of settlement until the year 1861 the Crown disposed of land, under prescribed conditions, by grants and by sales, so alienating, by the end of 1861, an aggregate area of 7,146,579 acres, made up as follows :—

	acres.
1. By grants, and sales by private tender to close of 1831 ... ..	3,906,327
2. „ „ in virtue of promises of early Governors made prior to 1831, from 1832-40 inclusive ... ..	171,071
3. „ sales at auction, at 5s., 7s. 6d., and 10s. per acre, from 1832-38 inclusive ... ..	1,450,508
4. „ „ „ „ 12s. and upwards per acre, at Governor's discretion, from 1839-41 inclusive ... ..	371,447
5. „ „ „ „ 20s. per acre, from 1842-46 inclusive ... ..	20,250
6. „ „ „ „ and in respect of pre-emptive rights, from 1847-61 inclusive ... ..	1,219,375
7. „ grants for public purposes, grants in virtue of promise of Governor made prior to the year 1831, and grants in exchange for lands resumed from 1841-61 inclusive ... ..	7,601
Total area alienated on 31st December, 1861 ... ..	7,146,579

The figures relating to land alienation under the legislation of 1861, and to its subsequent amendments, show that up to 30th June, 1917, 14,917,288 acres had been sold by auction and other forms of sale.

The total area alienated by volunteer land orders to 30th June, 1917, amounted to 172,198 acres. Free grants ceased as from 31st January, 1912.

From 1862 to 30th June, 1917, the Crown dedicated 239,340 acres for public and religious purposes, the dedications during the last year covering 779 acres.

The area and the purposes for which land was dedicated during 1916-17, were as follows :—

Area.			Area.				
	a.	r.	p.		a.	r.	p.
Fire Brigade Stations..	1	0	20½	Public Roads ... ..	82	3	13¾
Conservatorium of Music ...	0	3	20	Public School Sites ...	60	0	36
Governmental Farm(additions) 142	1	16		Reserve for the use of			
Industrial School (additions)...	8	2	30	Aborigines ... ..	245	0	0
Literary Institutes ... ..	1	0	24	Reserve for Travelling Stock			
Public Hall ... ..	0	2	11	and Camping ... ..	2	0	0
Public Recreation ... ..	183	1	23¾	Vice Regal Residence ...	11	1	0
Public Recreation and Access	9	0	0	Water Supply ... ..	17	3	0
Public Recreation and Show							
Ground ... ..	12	2	20	Total ... ..	778	3	15

The foregoing areas are inclusive of various tenures within the Federal Capital Territory aggregating approximately 173,451 acres and will be subject to modification when the territorial boundaries shall have been surveyed.

The operations of the various Orders, Regulations, and Acts of Council and of Parliament for the disposal of the public lands, since the foundation of New South Wales, have produced the following results:—

	acres.
Area granted and sold by private tender and public auction at prices ranging from 5s. to 20s. per acre, prior to the year 1862 ... ..	7,146,579
Area sold by auction and other forms of sale, 1862 to 30th June, 1917, inclusive ... ..	14,917,288
Area sold under system of conditional purchase for which deeds issued, 1862 to 30th June, 1917, inclusive ... ..	16,929,786
Area granted under Volunteer Land Regulations of 1867 ... ..	172,198
Area dedicated for public and religious purposes, less resumptions, 1862 to 30th June, 1917... ..	239,340
Homestead selections and grants existing on 30th June, 1917 ... ..	1,256,036
Homestead farms ... ..	1,036,685
Suburban holdings ... ..	36,631
Returned Soldiers Special Holdings ... ..	639
Lands (acquired and Crown) alienated for Closer Settlement to 30th June, 1917 ... ..	1,126,730
	42,861,912
<i>Less—</i>	acres.
Alienated and dedicated lands within Federal Capital Territory.. ... ..	173,451
Area acquired for Closer Settlement, to 30th June, 1917 ... ..	1,139,124
	1,312,575
Total area alienated, 30th June, 1917 ... ..	41,549,337
Area in process of alienation under system of conditional purchase standing good on 30th June, 1917 (exclusive of Federal Capital Territory) ...	18,693,429
	60,242,766
Total area alienated, and in process of alienation on 30th June, 1917 (exclusive of Federal Capital Territory) ... ..	60,242,766

It has been found impracticable to separate the area alienated by grant from that sold by private tender, as the records of early years are incomplete upon this point.

Under the provisions of the Crown Lands Amendment Act, 1912, the holder of a settlement purchase under the Closer Settlement Acts other than those acquired under the Closer Settlement Promotion Act, 1910, was permitted, under certain conditions, to convert such holding into a homestead farm. The Crown Lands Amendment Act, 1917, withdraws this right, and provides that those conversions already made may be re-converted into settlement purchase tenures. See pages 399 and 400.

The progress of alienation and of conditional settlement by purchase and lease at various periods from 1861 to 30th June, 1917, is shown in the following table:—

Year.	Area Alienated to end of year.	Area Conditionally Purchased, standing good at end of year.	Total area alienated and in course of alienation.	Area under Leases with right to convert. (See page 410.)	Total Area placed beyond State control.
	acres.	acres.	acres.	acres.	acres.
1861	7,146,579	.....	7,146,579	.....	7,146,579
1871	8,630,604	2,280,000	10,910,604	.....	10,910,604
1881	22,406,746	12,886,879	35,293,625	.....	35,293,625
1891	23,775,410	19,793,321	43,568,731	11,234,131	54,802,862
1901	27,934,627	20,044,703	47,979,330	13,980,942	61,960,272
1906	33,470,512	16,499,823	49,970,335	15,807,249	65,777,584
1911	38,501,167	15,614,036	54,115,203	25,352,311	79,467,514
1916	41,172,383	18,315,095	59,487,478	22,044,506	81,531,984
1917	41,549,337	18,693,429	60,242,766	21,124,423	81,367,189

CONVERSION OF TENURES.

In reference to the various methods of acquisition and occupation, details have been given of provisions of the Crown Lands Amendment Acts passed in 1908 and 1912, which confer on certain holders of Crown lands the right of conversion into more desirable tenures. The following statement shows the applications for conversion, and those confirmed, during the last three years:—

Class of Holding.	Applications.					
	1914-15.		1915-16.		1916-17.	
	No.	Area.	No.	Area.	No.	Area.
		acres.		acres.		acres.
Conditional Leases ... ..	787	326,717	997	484,079	1,175	574,834
Conditional Purchase Leases ... ..	46	27,453	79	47,143	59	38,046
Homestead Selections or Grants ... ..	81	33,962	120	57,879	130	63,346
Settlement Leases ... ..	50	179,798	68	246,662	73	244,724
Non-residential Conditional Purchases ... ..	7	639	2	66	3	400
Special Leases ... ..	234	30,981	276	34,002	328	39,872
Settlement Purchases ... ..	7	3,889	6	3,699	1	546
Church and School Lands Leases ... ..	1	5	...	...	8	1,081
Improvement Leases ... ..	1	640	2	1,280	4	2,089
Conditional Purchases ... ..	...	...	1	1,736	...	...
Scrub Leases ... ..	...	...	1	640	...	...
<b>Total ... ..</b>	<b>1,214</b>	<b>604,087</b>	<b>1,552</b>	<b>877,206</b>	<b>1,781</b>	<b>964,938</b>

Class of Holding.	Applications confirmed.					
	1914-15.		1915-16.		1916-17.	
	No.	Area.	No.	Area.	No.	Area.
		acres.		acres.		acres.
Conditional Leases ... ..	778	320,853	880	421,927	1,105	538,629
Conditional Purchase Leases ... ..	46	26,382	64	36,828	64	46,458
Special Conditional Purchase Leases ... ..	...	...	2	80	...	...
Homestead Selections or Grants ... ..	90	39,044	105	57,653	121	60,731
Settlement Leases ... ..	60	210,814	55	183,101	55	194,824
Non-residential Conditional Purchases ... ..	9	999	2	86	3	400
Special Leases ... ..	186	23,431	177	20,776	226	28,862
Settlement Purchases ... ..	10	4,446	6	3,848	2	1,209
Improvement Leases ... ..	2	638	3	2,560	3	1,613
Church and School Lands Leases ... ..	...	...	...	...	7	14
<b>Total ... ..</b>	<b>1,181</b>	<b>636,607</b>	<b>1,294</b>	<b>726,859</b>	<b>1,586</b>	<b>872,740</b>

The new tenures created by the foregoing applications during the past three years were as follows:—

New Tenures.	1914-15.		1915-16.		1916-17.	
	No.	Area.	No.	Area.	No.	Area.
		acres.		acres.		acres.
Conditional Purchase ... ..	1,095	420,933	1,216	547,347	1,492	686,809
Conditional Purchase and Associated Conditional Lease*	54	196,325	46	165,375	43	162,842
Conditional Lease ... ..	6	1,124	10	4,854	20	15,672
Conditional Purchase Lease ... ..	6	1,141	3	238	5	159
Homestead Selections ... ..	8	2,503	11	4,597	12	2,641
Settlement Lease ... ..	1	31	2	600	12	3,408
Homestead Farm ... ..	11	4,550	6	3,848	2	1,209
Total ... ..	1,181	626,607	1,294	726,859	1,586	872,740

\* Included in the above figures are 54 Associated Conditional Leases of 129,088 acres in 1914-15; 46, embracing 115,937 acres in 1915-16, and 43 of 129,457 acres in 1916-17. Non-residential Conditional Purchases converted into Conditional Purchase are also included.

#### OCCUPATION OF PASTORAL LANDS—LIMITED TENURE.

The pastoral lands of New South Wales have been occupied under various systems of tenure. In the early days land was held for grazing by virtue of tickets of occupation, the issue of which was stopped in 1827, when holders of such lands were required to pay a quit-rent of 20s. per 100 acres per annum, and to vacate the land at six months' notice. The necessity for depasturing increasing stocks induced settlers to extend their occupation to Crown lands without any right except that of first discovery, until the Legislature, in 1833, passed an Act protecting Crown lands from intrusion and trespass, Commissioners being appointed to safeguard the interests of the State.

The discovery of new country soon attracted pioneer squatters beyond the limits of settlement as proclaimed on 14th October, 1829; and regulations, involving liability to severe penalties, were issued on 29th July, 1836, with the view of restraining unauthorised occupation. In 1839 the regulations were reinforced by the passing of an Act levying upon stock a yearly assessment at the following rates:— $\frac{1}{2}$ d. for every sheep,  $1\frac{1}{2}$ d. per head of cattle, and 3d. for every horse.

Under an Act passed in 1847 a new system was introduced relating to pastoral lands of which previously the tenure had been annual, the fee being based on the area of land occupied by the squatter. Under the new plan, fixity of tenure of lease was substituted, the license fee being calculated upon the stock-carrying capacity of the run; but the term of the pastoral leases varied, being fixed, in the unsettled districts, at fourteen years; in the intermediate division, at eight years; while in the settled districts the yearly tenure was retained. The licensing fee under the altered conditions was charged at the rate of £10 for 4,000 sheep, or a proportional number of cattle—which was the minimum at which the stock-carrying capacity of a run could be assessed—and £2 10s. for every additional 1,000 sheep, or proportionate number of cattle. In settled districts lands were let for pastoral purposes only, in sections of not less than 1 square mile in area, the annual rental for each section being fixed at 10s.

The holders of alienated lands were permitted to depasture their stock upon Crown lands adjoining their holdings, free of charge; this permission, however, constituted only a commonage right.

The Occupation Act of 1861 created a new system, limiting the tenure of pastoral leases to five years in unsettled and intermediate or second-class settled districts, and leaving the whole of the pastoral leases open to the operations of the free selectors. The evils resulting from this system led Parliament to adopt, in 1884, 1889, 1895, and at intervals since 1903, the measures, the provisions of which are described below.

#### CROWN LANDS ACT OF 1861.

The conditions of colonisation altered greatly under the powerful attraction of the gold-fields, and to meet the wants of a class of immigrants of a different type from those contemplated by former enactments, the question of land settlement had to be discussed in an entirely new spirit, the result being the passing of the Crown Lands Act of 1861, introduced by Sir John Robertson. The conditions of settlement had rendered it difficult previously for men of small means to establish themselves with a fair chance of success, and the new measure aimed at facilitating the settlement of an industrial agricultural population side by side with the pastoral tenants, by introducing a principle entirely new to the land legislation of the State, namely, that of free selection, in limited areas, *before survey*. The Act provided for the conditional purchase of areas from 40 to 320 acres in extent at £1 per acre—25 per cent. of the purchase money to be deposited with the application. At the expiration of three years the purchaser was required to pay the balance, and to furnish a certificate showing that he had resided on the land, and made the necessary improvements. Provision was made to defer payment of the balance of the purchase money on receipt of 5 per cent. interest.

The Amending Act of 1875, under which annual instalments were payable, gave to any conditional purchaser of land the option of availing himself of the change in the method of payment. The system of unconditional sales was, however, continued under the Act of 1861; and during the twenty-three years the Act was in operation 23,470,140 acres were sold conditionally, and 15,572,001 acres by auction, by improvement purchase, by virtue of pre-emptive right, or otherwise without conditions, the total area alienated being 39,042,141 acres. In many cases the land selected, or purchased, reverted to the State; so that the absolute area alienated or in process of sale when the Act of 1884 came into force amounted to only 32,819,023 acres, besides 7,146,579 acres alienated prior to 1861.

#### THE CROWN LANDS ACTS OF 1884 AND 1889.

After many amendments the Act of 1861 was superseded by that of 1884, with the supplementary enactment of 1889, which measures maintained the principle of free selection before survey, but with one essential difference. Under the original Act the whole area of the Crown lands was thrown open to free selection, including the lands held under pastoral lease. The Acts of 1884 and 1889 were devised to give fixity of tenure to the pastoral lessee and to obtain a larger rental from the public lands, at the same time restricting the area sold unconditionally.

Existing holders of pastoral leases under the earlier Act were required to surrender one-half of their leases, which were resumed by the Crown for subsequent alienation, leasehold, or reserve; the other half in each case was leased to the pastoralist under fixity of tenure for a term of years. On 31st December, 1884, when this division was made, there were 4,313 leased runs, yielding an annual rental of £268,500, and forming

about 1,600 "stations," estimated to contain the bulk of the unalienated public estate, after allowing for reserves, &c. An increase in the revenue from pastoral occupation, one of the principal objects of the Act of 1884, has been realised, as evidenced by the total revenue received from the pastoral occupation of Crown lands, which increased from £329,356 in the year 1884 to £484,882 in the financial year 1916-17.

#### THE CROWN LANDS ACTS OF 1895 AND 1903 TO 1917.

The Act of 1861 failed conspicuously in encouraging *bonâ fide* settlement; and the legislation of 1884 and 1889 also was ineffective, since the accumulation of land in large estates continued, while settlement proceeded very slowly. Expert opinion pointed strongly to the necessity of introducing entirely new principles, and this was done in the Crown Lands Acts of 1895 and 1903, which, while placing land within easy reach of all, supplied the means of securing permanent settlers through the new system of tenure—homestead selections and settlement leases. These tenures have been superseded by those of homestead farms and Crown leases which were created by the Act of 1912.

In 1913 an Act, entitled the "Crown Lands Consolidation Act, 1913," was passed, which consolidated all existing original as well as amended and unrepealed portions of the various Acts dealing with the alienation, occupation, and management of Crown Lands. The Crown Lands (Amendment) Act, 1917, which came into force on 1st January, 1918, provided for conversion of certain tenures and modified the conditions relating to certain holdings particularly in regard to residence. It also amended the existing Acts in other respects.

#### OCCUPATION.

##### *Annual Leases.*

Unoccupied lands, not reserved from lease, may be obtained for pastoral purposes as annual leases, on application, or they may be offered by auction or tender. They may be obtained also by "after auction" tender, or "after tender" tender. No conditions of residence or improvement are attached to annual leases, which convey no security of tenure, the land being alienable by conditional purchase, auction sale, &c. The area in any one lease is restricted to 1,920 acres. In certain circumstances an annual lease may be converted into a lease under improvement conditions for a term not exceeding ten years.

The number of annual leases current at 30th June, 1917, was 6,292, embracing 2,649,284 acres, with an annual rent of £20,408.

##### *Conditional Purchase Leases.*

This form of tenure was created in 1905; but, as in the case of homestead selections and settlement leases, it is obsolete for the purposes of selection, as lands are not now made available under it. There are, however, considerable numbers of conditional purchase leases still standing. Areas set apart for disposal by way of conditional purchase lease were subdivided as the Minister for Lands determined. The lease was for forty years, at a rental of 2½ per cent. per annum on the capital value. The value of existing improvements was appraised by the Land Board, and special conditions were imposed regarding improvements, cultivation, preservation, or planting of timber, &c.

Any male of or above the age of 16 years, and any female of or above 18 years, who was not disqualified under the provisions of the Land Act, might apply for a conditional purchase lease. A female applicant was required to be unmarried, or widowed, or living apart from her husband under a decree of judicial separation.

Residence on the lease was continuous for five years, and must have commenced within twelve months from the date of confirmation, but the commencement of residence might be deferred for five years.

The holder may convert the area into a conditional purchase by payment of a deposit of 5 per cent. on the capital value of the land, provided that the proper conditions have been observed, and subject to all the unperformed conditions of the lease, except payment of rent. The balance of purchase money is payable by equal annual instalments at the rate of 5 per cent. of the price, consisting of principal and interest at the rate of  $2\frac{1}{2}$  per cent. on the unpaid balance, the first instalment becoming due twelve months after the date of application for conversion. In accordance with the provisions of the Crown Lands Amendment Act, of year 1912, conditional purchase leases might be converted also into homestead farms.

A holder of a conditional purchase lease may acquire additional conditional purchase leases, but in no case may the total area of the lands held by him under any tenure, except under lease having less than five years to run without right of purchase, exceed a home-maintenance area.

No applications were received or confirmed for conditional purchase leases during the year 1916-17. One special conditional purchase lease was confirmed, for an area of 23 acres. Five leases of 159 acres were converted from other tenures. The increase in area amounted to 68 acres. Reversals of forfeiture numbered 1 lease of 469 acres. The leases forfeited during the year were 12 of 12,400 acres, while 64 leases of 46,458 acres were converted into conditional purchase. The leases holding good at 30th June, 1917, numbered 695 with an area of 457,173 acres, the rent amounting to £14,844.

#### *Special Conditional Purchase Leases.*

Under the Crown Lands Act, 1908, land might be set apart for disposal as special conditional purchase lease, provided that for six months the land had been available for some class of residential holding. The areas must be not less than 20, nor more than 320 acres. There were no conditions of residence, but substantial improvements of value of £1 per acre, or any lesser value not being less than 10s. per acre, must be completed within three years. Although no lands are now set apart for special conditional purchase lease, there are areas still available for application in certain districts.

No applications were received during 1916-17. One application was confirmed for 23 acres, as above.

#### *Conditional Leases.*

A conditional lease may be obtained by any holder of a conditional purchase (other than non-residential), or a conditional purchase within a special area in the Eastern Division. Lands available for conditional purchase are also available for conditional lease, with the exception of lands in the Western Division, or within a special area or a reserve.

Applications must be accompanied by a provisional rent of 2d. per acre and a survey fee, unless as otherwise provided. The area which an applicant may obtain as conditional purchases and conditional leases is restricted to 1,280 acres in the Eastern Division, and 2,560 acres in the Central Division; but the Land Board may specifically permit larger areas. The area that may be leased is limited to three times the area of the conditional purchase in virtue of which it is obtained. The lease is for a period of forty years, at a rent determined by the Land Board, payable yearly in advance. The conditions of fencing, or substitution of improvements in lieu of fencing, which attach to a residential conditional purchase, apply equally to a conditional lease, and residence is required as in the case of an additional conditional purchase.

After confirmation, a conditional lease may be converted, either wholly or in part not less than 40 acres, into a conditional purchase.

Applications for 127 leases, of an area of 32,599 acres, were lodged during 1916-17, and 85, including applications outstanding from the previous year, representing 17,471 acres, were confirmed.

Eleven hundred and five conditional leases, embracing 538,629 acres, were converted into conditional purchase and conditional leases, containing an area of 145,129 acres, were created by conversion. Leases in existence at 30th June, 1917, numbered (gazetted) 27,925, embracing 15,226,444 acres, rent £192,945, and not gazetted (under provisional rent), 97 leases of 43,068 acres, and rent £359.

#### *Leases of Scrub and Inferior Lands.*

Scrub leases may be obtained by application, by auction, by tender, by after-auction tender, or by after-tender tender, but inferior-lands leases may be acquired only by auction or by tender, after-auction tender, or after-tender tender. There is no limitation as to area, and in the case of a scrub lease obtained by application the rent is appraised by the Local Land Board. The initial rent of an inferior-lands lease prevails throughout the whole term; but the terms of a scrub lease may be divided into periods, the rent for each period being determined by reappraisal. The term of each class of lease may not exceed twenty-eight years. The holder of a scrub lease must take such steps as the Land Board may direct for the purpose of destroying the scrub, and keep the land clear afterwards. During the last year of any of the leases application may be made for a homestead grant of an area not in excess of a home maintenance area.

There were in existence at 30th June, 1917, 248 scrub leases with an area of 1,812,694 acres, and rental of £6,822, and 32 inferior land leases, embracing 75,451 acres, and rent, £288.

#### *Occupation Licenses.*

Occupation licenses may be (a) preferential occupation licenses, consisting of the area within the expired pastoral leases, and (b) ordinary occupation licenses, which relate to the parts of the holdings formerly known as resumed areas. They may be acquired by auction or tender, after-auction tender, or after-tender tender. Occupation licenses extend from January to December, being renewable annually at a rent determined by the Land Board.

The area under occupation license (Crown Lands Act) was represented at 30th June, 1917, by ordinary 707 of 5,163,417 acres, rental £8,982, and preferential 341 leases, representing 1,184,341 acres, and rent, £6,569.

#### *18th Section or Pastoral Leases.*

Under the Crown Lands Amendment Act of 1903, the registered holder of any pastoral lease, preferential occupation license, or occupation license, could apply for a lease, for not more than twenty-eight years, of an area not exceeding one-third of the total area of the land comprised within the lease or license, subject to such rent, conditions of improvement, and withdrawal for settlement as may be determined. These are known as 18th Section Leases, having been granted under Section 18, Act of 1903, which has now been repealed.

At 30th June, 1917, these leases numbered 133 with an area of 802,941 acres, and rental of £7,444. There were also in existence on 30th June, 1917, 9 pastoral leases of 1,136,475 acres, and rent £734, in the Western Division, and not brought under the provisions of the Western Lands Act.

### *Special Leases.*

Special leases are issued chiefly to meet cases where land is required for some industrial or business purpose, and may be obtained by application, auction, or otherwise, the term of the lease not to exceed twenty-eight years. The conditions attached are suitable to the circumstances of each case, being, like the rent, determined by the Minister. The Crown Lands Act, passed in 1908, provides for the conversion of special leases, for certain purposes, and of agricultural or pastoral Church and School lands leases, into original or additional conditional purchase leases; or original or additional conditional purchases; or original or additional homestead selections; or original or additional settlement leases; or conditional leases; or homestead farms.

The number of special leases granted during 1916-17 numbered 454 of 40,903 acres, and 226 leases representing 28,862 acres were converted into other tenures. After allowance has been made for leases which were terminated, were forfeited, surrendered, &c., and those which expired by effluxion of time, 6,622 leases (exclusive of leases within the Commonwealth territory) with an area of 650,384 acres and rental of £36,837, were current at 30th June, 1917.

### *Residential Leases.*

The holder of a "miner's right" within a gold or mineral field may obtain a residential lease. A provisional rent of 1s. per acre is charged, the maximum area is 20 acres, and the longest term of the lease twenty-eight years; the annual rent is appraised by the Land Board. The principal conditions of the lease are residence during its currency, and the erection within twelve months of necessary buildings and fences. Tenant-right in improvements is conferred upon the lessee. The holder of any residential lease may apply after the first five years of his lease to purchase the land.

Nine hundred and thirty-two leases embracing 13,365 acres and a rental of £1,646 were current at 30th June, 1917.

### *Improvement Leases.*

Improvement leases may consist of any scrub or inferior land not suitable for settlement in the Eastern or Central Divisions, and are obtained only by auction or tender, after-auction tender, or after tender tender. The rent is payable annually, and the lease is for a period of twenty-eight years, with an area not exceeding 20,480 acres. Upon the expiration of the lease the last holder will have tenant-right in improvements. During the last year of the lease the lessee may apply for a homestead grant of an area not in excess of a home maintenance area, including the area on which his dwelling-house is erected. Should the Advisory Board, constituted under the Closer Settlement Act, 1907, report that land comprised in an improvement lease or scrub lease is suitable for closer settlement, the Minister may resume the lease, the lessee being compensated.

During 1916-17, four leases, comprising 12,650 acres, were let by tender at a total rental of £49 18s. 6d., and 2 leases of 1,340 acres and rent £14 10s. 10d. were, under improvement conditions, granted. Three improvement leases were converted into homestead selections. After allowance has been made for leases, which were forfeited, voided, surrendered, expired and resumed, there remained current at 30th June, 1917, 977 leases with an area of 4,686,246 acres and rental £34,364.

### *Settlement Leases.*

Under this tenure, which now has been superseded practically by that of Crown lease, farms gazetted as available for settlement lease were obtainable on application, accompanied by a deposit consisting of six months' rent

and the full amount of survey fee. The maximum area of agricultural land which might be taken up was 1,280 acres; but where the settler combines agriculture with grazing, the farms might contain any area not exceeding 10,240 acres. These areas, however, could be exceeded by means of additional holdings, which need not adjoin the original holding, but had to be situated within a reasonable working distance thereof.

The lease was issued for a term of forty years, divided into four periods. The annual rent for the first period was that notified before the land was made available for lease; but the lessee might require that the rent be determined by the Land Board, and the annual rent for each succeeding period might be determined separately in like manner. Residence was compulsory throughout the whole term, this by the Crown Lands Amendment Act, 1917, has been altered to residence of five years, and the land had to be fenced within the first five years, and noxious weeds and animals on the land destroyed within eleven years. The lessee may apply at any time after the first five years of the lease for an area not exceeding 1,280 acres, on which his house is situated, as a homestead grant.

Under the Crown Lands Act of 1908, the holder of a settlement lease may convert such lease into a conditional purchase, or into a conditional purchase and conditional lease under certain provisions, but the area of the land to be converted into conditional purchase may not exceed a home maintenance area.

During 1916-17, two applications for additional leases relating to 2,640 acres were lodged. Twelve settlement leases for 3,408 acres were created by conversion, and 55 leases for an area of 194,824 acres were converted into other tenures. After making allowance for leases forfeited, &c., and subdivision, there remained current at 30th June, 1917, 1,590 leases, comprising 4,730,130 acres, and rent, £58,615.

#### *Snow Leases.*

Vacant Crown lands which for a portion of each year are usually covered with snow, and are thereby unfit for continuous use or occupation, may be leased by auction or tender, by after-auction tender, or by after-tender tender as snow leases. Not more than one snow lease may be held by the same person. The maximum area is 10,240 acres. The term of the lease is seven years, but may be extended for three years.

At 30th June, 1917, there were three leases current, embracing 10,909 acres; and rent, £173.

#### *Crown Leases.*

Crown leases were constituted under the Crown Lands Amendment Act, 1912, and lands are specially set apart by notification in the *Gazette* as available for Crown lease. Crown lands available for conditional purchase (unless otherwise specified in the *Gazette*) are also available for Crown lease. Land may be set apart for Crown lease to be acquired only as additional holdings. The term of lease is forty-five years, and the annual rent  $1\frac{1}{4}$  per cent. of the capital value, as determined every fifteen years. The rent payable for the first year may be remitted if, in addition to the improvements required as a condition of the lease, an equal sum be spent by the lessee in improving the land. The lessee is required to reside on the land for five years, and during the last five years of the lease, unless debarred by notification setting the land apart, may apply to convert into a homestead farm so much of the land as will not exceed a home-maintenance area. Under certain conditions, conversion may also be made into a conditional purchase, with or without a conditional lease. The lease may be protected against sale for debt in certain circumstances. Any person qualified to apply for a homestead farm may apply for a Crown lease.

Operations under this class of lease during the past six years were as follow :—

Year ended 30th June.	Application.		Confirmed.		Leases current at 30th June.		
	No.	Area.	No.	Area.	No.	Area.	Rent.
		acres.		acres.		acres.	£
1912	116	311,360	54	168,392	54	168,392	1,588
1913	477	554,424	278	390,096	330	555,864	5,621
1914	836	697,425	493	356,727	805	880,785	9,259
1915	628	643,189	598	487,155	1,000	1,563,684	16,114
1916	571	864,158	501	780,373	1,760	1,896,765	21,561
1917	541	595,409	445*	441,313	2,033*	2,134,446	24,845

\* Includes 40 leases of an area of 99,385 acres and annual rental of £1,448, for returned soldiers.

*Church and School Land Leases.*

Certain grants were made under special enactments, and instructions from the Imperial authorities to Sir Thomas Brisbane, then Governor (1821-25), directed him to reserve one-seventh of the Crown lands in each county for Church and School purposes.

The aggregate area of such reserves up to the year 1832, shown by survey to be actually 454,050 acres, did not attain the proportional area specified in the instructions. These lands were administered by the Clergy and School Land Corporation until its abolition by Order of Council on the 4th February, 1833, when the lands reverted to the Crown, and an agent was appointed to determine the claims of purchasers, to whom deeds of grant were made and confirmed by a subsequent Act of Council, dated the 5th August, 1834.

Of the reserves mentioned above, 171,746 acres were alienated up to the year 1880, when, by the Church and School Lands Dedication Act of that year, the balance of 282,304 acres came under the control of the State Legislature to be administered for the purpose of Public Instruction. Subsequently the Church and School Lands Act, 1897, re-vested all these lands in the Crown, free from any trust or condition, but subject to the provisions of the Crown Lands Act of 1884 and its subsequent amending Acts, thus determining the land as Crown land. Until a notification classifying any area of Church and School lands has been published in accordance with the Crown Lands Act, such area may be dealt with only by reservation, dedication, license, or held under special or annual lease.

The total area of Church and School lands held under lease at 30th June, 1917, in the Eastern Division was 3,859 acres, at a rental of £373 per annum, the subdivisions being as follows :—

	No.	Area. acres.	Rent. £
Pastoral ... ..	4	3,843	44
Agricultural ... ..	3	6	3
Ninety-nine Year ... ..	37	10	326
<b>Total ... ..</b>	<b>44</b>	<b>3,859</b>	<b>373</b>

In addition to the above, there was one water race, aggregating about 10 miles, with a rental of £3.

Other leases in existence at 30th June, 1917, were as follow :—

Leases to outgoing pastoral lessees, 133, with an area of 802,941 acres, and rental £7,444.

Homestead leases in the Western Division not brought under the provisions of the Western Lands Act were forty-three, containing an area of 351,374 acres, and rent £614.

Artesian well leases in the Western Division numbered six for an area of 61,440 acres ; rent, £138.

There was also one block-holder's lease, 1 acre, and rent £6 ; and 129 prickly-pear leases, embracing an area of 45,433 acres, with a rental of £638. Permissive occupancies in existence at the same date were 2,997, for an area of 1,009,090 acres, and rental £10,047.

In addition to the foregoing leases, there were at 30th June, 1917, exclusive of leases to mine on private lands, 203,360 acres, approximately, held under mineral and auriferous leases. Permits to mine under roads and reserves covered an area of 2,181 acres.

#### WESTERN DIVISION.

The administration of the Western Division under the Western Lands Acts, 1901 and 1905, is vested in three Commissioners, constituting "The Western Lands Board of New South Wales," who, sitting in open Court, also exercise all the powers conferred upon Local Land Boards by the Crown Lands Acts.

Subject to existing rights and extension of tenure granted under certain conditions, all forms of alienation (other than by auction) and lease prescribed by the Crown Lands Acts, ceased to operate within the Western Lands Division from 1st January, 1902.

The registered holder of a homestead selection or grant, pastoral, homestead, settlement, residential, special, artesian well, improvement, scrub, or inferior lease or occupation license, of land in the Western Division, may apply to bring his lease or license under the provisions of the "Western Lands Acts of 1901 and 1905" ; in cases where application has not been made, such lease or license is treated as if the Acts had not been passed.

Crown lands within this division are not available for lease until so notified in the *Gazette*, but leases for special purposes may be granted upon certain conditions, and holders of areas, which are considered too small to maintain a home or to make a livelihood, may obtain an additional area under certain conditions as a lease. Lands are gazetted open for lease at a stated rental under specified conditions with respect to residence, transfer, mortgage, and sub-letting.

All leases issued or brought under the provisions of the "Western Lands Acts of 1901 and 1905," except special leases, expire on 30th June, 1943. In cases where a withdrawal is made for the purpose of sale by auction or to provide small holdings, the lease of the remainder may, as compensation, be extended for a term not exceeding six years.

The rent on all leases brought under the provisions of the Act is determined by the Commissioners for the unexpired portion. The minimum rent or license fee is 2s. 6d. per square mile or part thereof, the maximum is 7d. per sheep on the carrying capacity determined by the Commissioners.



The following statement shows the tenure under which the areas leased with right or provision to convert into freehold, under the Crown Lands (Amendment) Act of 1908, are held :—

	acres.
Conditional Leases ... ..	15,269,512
Conditional Purchase Leases ... ..	457,173
Settlement Leases ... ..	4,730,130
Special Leases ... ..	650,384
Residential Leases on Mineral Fields... ..	13,365
Church and School Land Leases ... ..	3,559
Total ... ..	21,124,423

The areas under long contracts of lease, in some cases with right of renewal, are given below :—

	acres.
Crown Leases ... ..	2,134,446
Pastoral Leases .. ..	1,136,475
Leases to outgoing Pastoral Lessees ... ..	802,941
Homestead Leases ... ..	351,374
Scrub Leases and Inferior Land Leases ... ..	1,888,145
Artesian Well Leases ... ..	61,440
Snow-land Leases ... ..	10,909
Improvement Leases ... ..	4,686,246
Western Land Leases ... ..	65,837,147
Other Leases ... ..	251,046
Total ... ..	77,160,169

#### AREA AVAILABLE FOR SETTLEMENT.

In 1895 attention was directed to the question of land legislation, as it was contended that the Lands Acts of 1884 and 1889 had failed to prevent the accumulation of extensive landed estates in the hands of a very limited number of proprietors. In consequence, the Crown Lands Act of 1895 was passed. Many radical changes were effected by that Act ; but immediate remedial action could be taken only in connection with Crown lands which had not been alienated or leased to Crown tenants for a definite period of years. Leases granted under certain conditions, such as those attached to conditional leases, which carry with them the right of purchase at any time during their currency, may be considered as a form of alienation, because only a comparatively small portion of these areas is ever likely to return to the public estate. Lands under homestead leases in the Western Division not brought under the Western Lands Act, scrub lands, snow-covered areas, inferior lands, settlement leases, improvement leases, leases to outgoing pastoral lessees, leases for long periods of fixed tenure, and under the Western Lands Act for long terms, form another category of lands concerning which past legislation prevented immediate action.

The lands which can be affected beneficially by the Act of 1895 and subsequent enactments are, therefore, limited to the area which is unalienated, or for which contracts have not been made, and is further reduced by reserves for public purposes, for gold-fields and other forms of mining enterprise, and for railway and other purposes. As has been

shown previously, the area which had been placed practically beyond State control at the end of June, 1917, was as follows:—

	acres.
Area alienated ... ..	41,549,337
Area conditionally purchased standing good ... ..	18,693,429
Area under Lease with right to convert... ..	21,124,423
Total area placed practically beyond State control ...	81,367,189

Adding together 81,367,189 acres practically beyond State control, and 77,160,169 acres of land leased on long contracts, a total of 158,527,358 acres shows the extent of territory which can now be more closely settled and intensely cultivated only by voluntary action of the holders, or by more systematic and probably costly resummptions. The balance is 39,516,802 acres; of this 2,969,080 acres represent the water area, and a considerable area, probably 3 or 4 million acres, must be deducted for roads and for useless land, leaving perhaps 32 million acres available for occupation under various tenures. There is, however, a difficulty attending any calculation of the area included in land under long leases, which might be made available for settlement. This is apparent when the conditions under which the leases are now held are taken into consideration. Except where right to renewal on expiration of the lease exists, certain areas are continually reverting to the Crown by effluxion of time, and again in respect of certain leases provisions have been made whereby the Minister may at his discretion withdraw a part, and in some cases the whole, of a leased area, or he may resume such leases for the purposes of settlement.

#### AREAS FOR SETTLEMENT, 1916-17.

With a view to classifying and bringing forward those areas which are suitable for settlement, systematic inspections of Crown lands are made in each district. To meet the demand for land, 1,037,087 acres were made available during the year 1916-17, for the classes of holdings specified below:—

	For Ordinary Settlement. acres.	For Soldiers' Settlement. acres.	Total. acres.
For Crown Lease ... ..	773,746	186,347	960,093
„ „ (Additional areas) ... ..	164,398	31	164,429
Homestead Farms ... ..	28,343	203,581	231,924
„ „ (Additional areas) ... ..	19,916	1,776	21,692
Suburban Holdings ... ..	2,964	1,035	3,999
Additional Holdings (ordinary) ... ..	14,002	...	14,002
Irrigation Farms and Allotments ... ..	273	...	273
Week-end Leases ... ..	804	...	804
Area acquired (Closer Settlement) ... ..	2,550	48	2,598
Town Lands Leases ... ..	215	...	215
Returned Soldiers Social Holdings ... ..	...	14,653	14,653
Closer Settlement Promotion Act. ... ..	29,876	...	29,876
	1,037,087	407,471	1,444,558
Area gazetted prior to 30th June, 1917, but not available until after that date ... ..	86,335	43,802	130,137
Total ... ..	1,123,422	451,273	1,574,695

## RESERVES.

The total area of reserved lands in the State as at 30th June, 1917, was 25,729,121 acres. A classification of reserves according to the purpose for which used is shown below :—

Class of Reserves.	Acres.
Travelling Stock ... ..	6,133,772
Water ... ..	1,498,352
Mining ... ..	1,246,299
Forest ... ..	5,322,406
Temporary Commons ... ..	509,941
Railway ... ..	280,711
Recreation and Parks ... ..	231,594
Pending Classification and Survey ... ..	5,421,694
For Conditional Purchase, within Gold-fields ... ..	841,131
Miscellaneous ... ..	4,243,221
Total ... ..	25,729,121

The extent of land set apart for timber conservation amounts to 5,322,406 acres ; for routes and camping-places for travelling stock 6,133,772 acres have been reserved, 3,711,551 acres being in the Western Division ; water reserves embraced 1,498,352 acres, of which 602,419 acres are in the Western Division.

Reserves are not necessarily unoccupied, and are in part held under Annual, Special, or Scrub Leases, occupation license, or permissive occupancy.

A revision of the reserved lands is being made in each Land District with the object of withdrawing from reserves any area the continued reservation of which is not required in the public interest.

## LAND RESUMPTIONS.

Land required by the State may be obtained by resumption, purchase, exchange, surrender, or gift. Resumptions are those made under the Public Works and Lands for Public Purposes Acquisition Acts, and are treated by the Government Land Valuer, except those made for purposes of Public Instruction or of Railways. Resumptions under the Commonwealth Lands Acquisition Act, 1906, are also included.

The following statement shows the area of such resumptions and purchases which were made during the past five years :—

Year.	Resumptions and Purchases.			Gifts.			Total.		
	a.	r.	p.	a.	r.	p.	a.	r.	p.
1913	102,187	3	11	15	2	23	102,203	1	34
1914	14,514	0	16	27	3	31	14,542	0	7
1915	19,107	3	8	17	0	10	19,124	3	18
1916	25,111	2	15	13	0	25	25,124	3	0
1917	12,789	0	9	7	0	0	12,796	0	9

Resumptions and purchases, and the purposes thereof, during 1916-17 were:—

	Area.				Area.		
	a.	r.	p.		a.	r.	p.
Defence ... ..	379	3	14·83	Quarantine Purposes ...	5	3	21·75
Federal Capital Purposes	2,045	3	7	Railways and Tramways ... ..	2,895	3	13·55
General Purposes ...	7,300	2	30·10				
Postal ... ..	1	3	9·45				
Public School sites ...	145	0	20·25				
Port in connection with Seat of Commonwealth Government and Defence ... ..	21	0	12	Total... ..	12,796	0	8·93

REVENUE FROM PUBLIC LANDS, 1913-17.

The following statement shows the Revenue received from Public Lands during the years ended 30th June, 1913 to 1917, also the Revenue per capita:—

Head of Revenue.	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.
<b>ALIENATION—</b>	£	£	£	£	£
<b>Auction and Special Sales—</b>					
Auction Sales ... ..	63,001	43,762	31,630	27,329	25,330
Improved Purchases ... ..	3,149	2,427	2,753	2,982	1,793
Newcastle Pasturage Reserve Sales ... ..	904	619	619	453	297
Miscellaneous Purchases ... ..	25,801	18,233	10,698	15,655	9,311
<b>Total ... ..</b>	<b>£ 92,855</b>	<b>65,041</b>	<b>45,700</b>	<b>46,419</b>	<b>36,731</b>
<b>Conditional Purchases—</b>					
Deposits and Improvements (Acts, 1884 and 1889) ... ..	62,303	42,068	25,782	37,083	37,601
Instalments and Interest (Acts of 1875, 1884, and 1889) ... ..	660,703	721,470	715,697	794,267	780,924
Interest (Act of 1861) ... ..	17,094	17,279	16,131	18,319	15,352
Balances (Acts, 1861, 1875, 1894, and 1889) ... ..	138,013	101,210	71,231	128,502	71,777
Homestead Selections (Improvements and Rent) ... ..	40,768	43,409	38,621	39,656	35,499
<b>Total ... ..</b>	<b>£ 918,881</b>	<b>925,436</b>	<b>867,462</b>	<b>1,017,827</b>	<b>941,153</b>
<b>OCCUPATION—</b>					
<b>Leases—</b>					
Pastoral ... ..	720	735	769	734	736
Conditional ... ..	207,043	211,662	201,526	206,530	198,481
Conditional Purchase ... ..	20,729	20,704	16,987	18,927	14,844
Occupation Licenses ... ..	25,051	23,060	21,242	20,621	20,120
Homestead and Farm ... ..	1,551	1,114	1,085	1,343	1,359
Annual and Snow Scrub and Inferior Settlement ... ..	40,607	37,405	35,639	31,902	31,038
Improvement ... ..	79,147	72,238	67,743	68,204	62,723
Artesian Well ... ..	46,203	40,947	37,693	37,167	34,644
Church and School Land ... ..	144	144	118	169	118
Western Land Division ... ..	515	406	399	391	365
Leases under 18th Section, Land Act, 1903 ... ..	89,613	84,662	87,488	90,073	87,588
Crown Leases ... ..	10,146	9,934	9,160	8,199	7,550
Suburban Holdings ... ..	4,059	7,268	11,748	18,167	21,191
<b>Total ... ..</b>	<b>£ 526,468</b>	<b>512,160</b>	<b>494,290</b>	<b>506,619</b>	<b>484,882</b>

Head of Revenue.	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.
<b>OCCUPATION (continued)—</b>	£	£	£	£	£
<b>Mining—</b>					
Mineral Leases ... ..	18,796	19,682	15,426	15,602	15,168
Leases of Auriferous Lands ...	1,837	1,755	1,668	1,315	1,226
Gold and Mineral Dredging Leases ... ..	821	834	793	651	591
Miners' Rights ... ..	3,004	2,780	2,484	2,399	2,201
Business Licenses ... ..	691	656	565	517	471
Residential Leases ... ..	1,703	1,611	1,816	1,830	1,894
Royalty on Minerals ... ..	103,851	110,893	99,345	111,194	104,129
Fees—Warden's Courts and Department of Mines ... ..	1,715	1,959	1,439	1,322	1,382
Other Receipts ... ..	5,015	5,032	3,842	3,344	2,956
<b>Total ... ..</b>	<b>£ 137,433</b>	<b>145,202</b>	<b>127,378</b>	<b>138,174</b>	<b>130,018</b>
<b>Miscellaneous Land Receipts—</b>					
Timber Licenses, &c. ... ..	96,929	98,972	88,908	66,922	68,218
Rents, Special Objects ... ..	44,546	47,174	52,800	57,087	53,650
Fees on Preparation and Enrol- ment of Title-deeds ... ..	5,346	4,609	3,742	4,058	3,358
Survey Fees ... ..	27,428	23,992	22,623	24,898	23,121
Fees on Transfer of Leases ... ..	2,254	2,742	2,653	2,769	.....
Quit Rents and Other Receipts	27,859	38,479	24,254	27,804	28,788
<b>Total ... ..</b>	<b>£ 204,362</b>	<b>215,968</b>	<b>194,980</b>	<b>183,538</b>	<b>177,135</b>
Gross Revenue ... ..	£ 1,879,999	1,863,807	1,729,810	1,892,577	1,769,919
Refunds ... ..	£ 44,051	34,920	31,729	27,264	22,910
<b>Net Revenue ... ..</b>	<b>£ 1,835,948</b>	<b>1,828,887</b>	<b>1,698,081</b>	<b>1,865,313</b>	<b>1,747,009</b>

## REVENUE PER CAPITA.

	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Auction and Special Sales ... ..	0 1 0	0 0 9	0 0 6	0 0 6	0 0 5
Conditional Purchases ... ..	0 10 4	0 10 1	0 9 4	0 10 11	0 10 1
Pastoral Occupation ... ..	0 5 11	0 5 7	0 5 4	0 5 5	0 5 3
Mining Occupation ... ..	0 1 7	0 1 7	0 1 5	0 1 6	0 1 5
Miscellaneous Land Receipts ... ..	0 2 4	0 2 4	0 2 1	0 1 11	0 1 10
<b>Gross Revenue ... ..</b>	<b>£ 1 1 2</b>	<b>1 0 4</b>	<b>0 18 8</b>	<b>1 0 3</b>	<b>0 19 0</b>
<b>Refunds ... ..</b>	<b>£ 0 0 6</b>	<b>0 0 5</b>	<b>0 0 5</b>	<b>0 0 3</b>	<b>0 0 3</b>
<b>Net Revenue ... ..</b>	<b>£ 1 0 8</b>	<b>0 19 11</b>	<b>0 18 3</b>	<b>1 0 0</b>	<b>0 18 9</b>

## CLOSER SETTLEMENT.

Under the Closer Settlement Act, 1901, provision was made for the acquisition of private lands, or of lands leased from the Crown, for purposes of closer settlement. The lands so acquired were to be divided into farms and leased for a term of ninety-nine years, at an annual rental not exceeding 5 per cent. of the capital value of the land. No power of compulsory resumption was conferred, and, consequently, the Act was practically inoperative.

Under the Closer Settlement Act, 1904, which repealed the 1901 enactment, provision was made for compulsory resumption of private land for purposes of closer settlement when the value exceeds £20,000, exclusive of improvements, and owners could offer to surrender private lands at specified

prices, such offer to be binding on the owner for a period of nine months. These provisions have been repealed by the Closer Settlement (Amendment) Act, 1914.

The Closer Settlement Amendment Act, 1907, constituted three Advisory Boards to report upon lands suitable for closer settlement, the land being purchased by agreement with the owner, or acquired by resumption when the value, without improvements, exceeds £20,000. Within six months after the passing of an Act sanctioning the construction of a line of railway, the Governor may notify a list of estates within 15 miles of a railway line; within six months of this notification the Governor may notify his intention to purchase or resume for purposes of closer settlement land so notified the property of one owner and exceeding £10,000 in value.

Land comprised in an improvement or scrub lease, or section 18 lease, may also be resumed for closer settlement upon the recommendation of an Advisory Board constituted under the Act of 1907.

Before land acquired is available for settlement, the areas and values per acre of the proposed settlement purchases must be approved by the Minister. The area available may include not only land acquired under the Act but also any adjacent Crown lands set apart for the purpose. Settlement areas are notified for disposal in farms of three classes, viz., agricultural lands, grazing lands, and township settlement allotments.

In the Closer Settlement Amendment Act, 1909, provision is made that at any time after a proclamation of intended acquisition of an estate, if an agreement be made that the land shall be subdivided for closer settlement by the owner, the power of resumption may be suspended for a term not exceeding two years. Any sale or lease made under such agreement must be submitted to the Minister, and if it be found that the owner has failed to fulfil the conditions, the suspension of the power of resumption shall cease.

Males over the age of 16 years, and females over 21 years, may apply for land under the Act, if they are not holders, except under annual tenure, of land which, with the area sought, will substantially exceed a home-maintenance area; but if any person divests himself of land in order to apply for a settlement purchase, his application will be disallowed, unless the Minister's consent in writing be obtained to the making of an application.

The person applying, if a woman, must be unmarried or widowed, or if married, be living apart from her husband under a decree for judicial separation; but with the Minister's consent a married woman not living apart from her husband may apply for a settlement purchase, in which case the lands held by her husband will be considered in estimating whether the area held, together with that sought, substantially exceeds a home-maintenance area; and in considering any application by a married man not so living apart, the total area held by husband and wife will be similarly considered.

Unless otherwise prescribed or notified under the present regulation, applications, on or after the 1st September, 1917, accompanied by a deposit of  $6\frac{1}{2}$  per cent. of the notified capital value of the land, must be lodged with the Crown Land Agent of the district, or with any other officer duly appointed. The purchase money is payable in thirty-two annual instalments at the rate of  $6\frac{1}{2}$  per cent. of the capital value of the land, including interest at  $5\frac{1}{2}$  per cent. on the unpaid balance of purchase money. Where the settlement purchase is within a settlement purchase area notified prior to 1st

January, 1913, the deposit and subsequent instalments are at the rate of 5 per cent. per annum, and the interest is at the rate of 4 per cent. per annum.

Residence for a period of ten years is required, and commences at any time within twelve months after the decision of the Land Board allowing the purchase; but the term may be extended to any date within five years of the allowance of purchase, and on such terms and conditions as to improvements and cultivation as may be arranged between the applicant and the Land Board. Residence implies continuous and *bona fide* living upon any farm or township settlement allotment in the same settlement purchase area. Subject to the approval of the Land Board, the condition as to residence may be observed in any adjacent town or village; or by permission may be suspended. Residence may be permitted on another holding (within reasonable working distance) which was held and on which the holder had his home at date of making or acquiring the settlement purchase.

On unimproved land, the purchaser is required to effect substantial and permanent improvements to the extent of 10 per cent. of the capital value within two years from the date of application, with an additional 5 per cent. within five years, and a further 10 per cent. within ten years from the same date. Existing improvements on the land are held to fulfil this condition to the amount of their value. Every purchaser is subject to conditions as to mining, cultivation, destruction of vermin and noxious weeds, &c.

The Minister may give consent to the temporary occupation, subject to certain conditions, of any lands within a settlement purchase area which remain unselected. The permit to occupy does not exempt the land from settlement purchase.

The three Advisory Boards constituted under the Closer Settlement Act to inspect and report upon suitable estates for closer settlement were replaced in January, 1911, by one central Board to deal with closer settlement for the whole State; an additional Board has since been appointed.

The following table contains information regarding areas administered under the Closer Settlement Acts as at 30th June, 1917:—

Name of Settlement Purchase Area.	Lands comprised in Settlement Areas.			Price paid for Acquired land.	
	Acquired land.	Adjoining Crown land.	Total.	Total.	Per Acre.
	acres.	acres.	acres.	£	£ s. d.
Myall Creek, Inverell ... ..	53,929	19,271	73,200	138,866	2 11 6
Gobbagombalin, Wagga ... ..	61,866	4,631	66,497	207,560	3 7 1
Marrar, Wagga ... ..	26,608	781	27,389	68,777	2 11 8
Walla Walla, Albury ... ..	50,156	1,580	51,736	250,687	5 0 0
Sunny Ridge, Cowra ... ..	12,031	420	12,451	49,038	4 1 8
Boree Creek, Urana ... ..	17,002	242	17,244	61,385	3 12 3
Peel River, Tamworth ... ..	99,618	114	99,732	405,416	4 1 5
Mungery, Parkes ... ..	55,159	47,371	102,530	115,878	2 2 0

Name of Settlement Purchase Area.	Lands comprised in Settlement Area.			Price paid for Acquired land.	
	Acquired land.	Adjoining Crown land.	Total.	Total.	Per acre.
	acres.	acres.	acres.	£	£ s. d.
Coreen and Back Paddock, Corowa	37,862	1,492	39,354	140,000	3 14 1
Brookong, Urana ... ..	12,006	156	12,162	42,170	3 10 3
Piallaway and Walhallow, Tamworth	12,447	348	12,795	61,950	5 0 0
Everton, Dubbo ... ..	6,477	6,049	12,526	19,426	3 0 0
Pine Ridge, Dunedoo... ..	7,845	197	8,042	28,790	3 13 5
Richlands, Goulburn ... ..	8,719	302	9,021	34,885	4 0 1
Larras Lake, Molong... ..	11,538	42	11,580	53,830	4 13 4
Crowthier, Young ... ..	10,563	325	10,888	52,201	4 18 10
North Logan, Cowra ... ..	11,441	243	11,684	54,461	4 15 3
Hardwicke, Yass ... ..	6,141	112	6,253	26,100	4 5 0
Tuppall, Corowa ... ..	49,178	1,073	50,251	221,224	4 10 0
Nangus, Gundagai ... ..	7,517	212	7,729	29,819	4 0 0
Gunninghland, Parkes ... ..	12,404	109	12,513	37,212	3 0 0
Tibbereenah, Narrabri ... ..	12,357	528	12,885	49,022	3 19 8
Wandary, Forbes ... ..	8,998	439	9,437	36,963	4 2 6
Cole Park, Malton, and Rossville, Goulburn	3,141	769	3,910	14,090	4 10 0
Bibbenluke, Boubala ... ..	16,174	410	16,584	60,339	3 15 0
Maharatta, Bombala ... ..	20,256	454	20,710	72,190	3 11 11
Warrah, Murrurundi ... ..	45,006	.....	45,006	192,747	4 5 8
Boorabil, Wyalong ... ..	8,717	1,781	10,498	17,423	2 0 0
Eulabil ... ..	907	.....	907	6,449	7 2 3
North Barellan ... ..	4,366	.....	4,366	18,022	4 2 7
Bygalore ... ..	19,264	324	19,588	48,867	2 11 0
Forest Vale ... ..	20,642	.. ..	20,642	56,765	2 15 0
Gorman's Hill West ... ..	3,880	2,134	6,014	8,457	2 2 6
Ungarie South ... ..	11,668	87	11,755	33,546	2 17 6
Emu Park, Casino ... ..	1,321	.....	1,321	6,463	4 17 10
Total ... ..	747,204	91,996	839,200	2,721,058	3 12 10

NOTE.—In addition to the above eleven estates of an area of 169,480 acres, valued at £747,165, have been acquired for Soldiers' Settlements.

Of the total area of Closer Settlement lands, 27,323 acres have been reserved for roads and other purposes, and 811,877 acres have been divided into 1,683 farms, the average area per farm being 482 acres.

Particulars of the subdivisions are shown in the following statement :—

Name of Settlement Purchase Area.	Farms.	Capital value of Areas contained in Farms.			Farms allotted to 30th June, 1917.	Area allotted.	Capital value of Farms allotted.
		Acquired Lands.	Crown Lands.	Total.			
Myall Creek .. .. .	No. 134	£ 128,581	£ 25,135	£ 163,716	No. 134	acres. 67,038	£ 163,716
Gobbagombalin .. .. .	142	225,663	12,472	238,135	142	64,501	238,135
Marrar .. .. .	46	75,133	2,040	77,173	46	27,048	77,173
Walla Walla .. .. .	126	255,262	3,845	259,107	126	50,601	259,107
Sunny Ridge .. .. .	24	50,292	1,236	51,528	24	12,267	51,528
Boree Creek .. .. .	30	67,606	527	68,133	30	17,034	68,133
Peel River .. .. .	289	438,578	126	438,704	289	97,412	438,704
Mungery .. .. .	62	117,497	81,962	199,459	62	95,111	199,459
Correen and Back Paddock .. .. .	63	150,173	3,849	154,022	63	38,353	154,022
Brookong .. .. .	20	43,155	341	43,496	20	12,006	43,496
Piallaway and Walloway .. .. .	38	63,485	1,371	64,856	38	12,631	64,856
Everton .. .. .	18	19,886	11,571	31,457	18	12,306	31,457
Pine Ridge .. .. .	16	29,556	625	30,181	16	7,946	30,181
Richlands .. .. .	37	36,161	922	37,083	37	8,917	37,083
Larras Lake .. .. .	30	57,137	3	57,140	30	11,484	57,140
North Logan .. .. .	51	58,486	676	59,162	46	11,279	58,683
Hardwicke .. .. .	21	26,857	276	27,133	21	6,172	27,133
Tuppai .. .. .	117	232,110	2,362	234,472	117	49,573	234,472
Nangus .. .. .	17	31,067	485	31,552	17	7,649	31,552
Gunningbland .. .. .	19	38,792	118	38,910	19	12,389	38,910
Tibbereenah .. .. .	75	51,324	868	52,192	75	12,713	52,192
Wandary .. .. .	18	37,985	642	38,627	18	9,075	38,627
Crowther .. .. .	22	53,687	694	54,381	22	10,677	54,381
Cole Park, Malton, & Rossville	19	14,644	5,784	20,428	19	3,845	20,428
Bibbenluke .. .. .	31	62,108	1,289	63,397	31	16,087	63,397
Maharatta .. .. .	46	80,555	993	81,548	46	20,369	81,548
Warrar .. .. .	83	209,994	..	209,994	83	44,318	209,994
Boorabil .. .. .	8	19,630	3,219	22,849	4	4,565	11,649
Eulabil .. .. .	5	6,449	..	6,449	5	907	6,449
North Barellan .. .. .	8	18,022	..	18,022	8	4,366	18,022
Bygalore .. .. .	19	59,846	434	60,280	..	..	..
Forest Vale* .. .. .	25	68,879	..	68,879	..	..	..
Gorman's Hill West .. .. .	6	8,623	4,097	12,720	..	..	..
Ungarie South .. .. .	15	41,952	203	42,155	13	9,793	37,450
Emu Park .. .. .	3	6,463	..	6,463	3	1,321	6,463
Total .. .. .	1,683	2,895,638	168,175	3,063,813	1,622	759,753	2,905,550

\* Twenty-two farms on this Estate are being utilised in connection with Government scheme of share farming.

Up to 30th June, 1917, the total farms allotted were 1,622, containing 759,753 acres, of the capital value of £2,905,550, representing an average cost to the settler of £3 16s. 6d. per acre and of £1,791 per farm.

Of the above number, 46 farms, with 24,943 acres and valued at £110,094, have been converted into homestead farms, leaving 1,576 farms allotted under the Closer Settlement Act, in existence at 30th June, 1917, the area of which is 734,810 acres and the capital value £2,795,456.

On the 30th June, 1917, there were 61 farms containing 52,124 acres unallotted; 22 of these of 17,864 acres are being utilised in connection with the Government scheme of share-farming, leaving 39 farms of 34,260 acres available for settlement.

The farms which have not yet been selected are let under permissive occupancy, and remain available for settlement purchase application.

#### *Closer Settlement Promotion Act, 1910.*

The Closer Settlement Promotion Act, 1910, enables three or more persons qualified to hold settlement purchases to negotiate with an owner of private lands, and to apply to have such lands brought under the Act. Upon approval by the Minister, the vendor surrenders the land to the Crown, and the purchaser acquires it as a settlement purchase, obtaining an advance secured by mortgage on the land, from the Commissioners of the Government Savings Bank, who may make advances up to 93½ per cent. of the Crown valuation of the farm, with a maximum of £3,000; the total advances by the bank under this Act in any financial year may not exceed £1,000,000. Each farm is worked independently, the co-operation of the applicants ceasing with the allotment of an area, for which each has to lodge a deposit of £5 and costs of surveys, &c., with 6½ per cent. of the Crown valuation of the farm on allotment. Repayments of advances from the Government Savings Bank are subject to the regulations in force at the date of commencement of title. At present the regulations provide for repayment at the rate of 6½ per cent. per annum of the capital value of the farm; this includes interest at 5½ per cent. on the outstanding balance, the whole indebtedness being discharged in thirty-two years. Under the Returned Soldiers' Settlement (Amendment) Act, 1917, any one or more discharged soldiers, within the meaning of the Act, if duly qualified, may also apply.

Under the Closer Settlement (Amendment) Act, 1914, instead of the Government Savings Bank advancing the purchase money, the Minister for Lands is authorised to pay same from the Closer Settlement Fund, or to issue Closer Settlement Debentures covering the amount. In the latter case the principal is repayable by seven equal quinquennial payments, with interest at 4½ per cent. per annum, payable half-yearly.

Extension of time to pay instalments of purchase may be sanctioned in special circumstances, and holders of farms may obtain advances on account of improvements effected.

From the commencement of the Act in September, 1910, till 30th June, 1917, 1,281 farms, of a total area of 524,253 acres, were applied for, the amount involved being £2,664,627. Of this number, 985 farms, embracing an area of 391,920 acres, at a cost of £2,058,165, were allotted and finally dealt with at 30th June, 1917.

The transactions for each year were as follows :—

Year.	Estates.	Farms.	Area.	Amount Advanced.
			acres.	£
1910-11	4	26	10,785	54,131
1911-12	31	209	84,280	418,941
1912-13	36	274	107,791	599,145
1913-14	32	183	62,598	361,351
1914-15	16	95	35,963	201,163
1915-16	23	141	61,626	300,103
1916-17	13	57	28,877	123,331
Total ...	155	985	391,920	2,058,165

Of the estates shown to have been dealt with during the year 1915-16, there was one containing 3 farms with an area of 1,321 acres, which was settled by certificates and cash from the Closer Settlement Fund, to the extent of £6,464. This, together with 2 estates, 13 farms of an area of 5,273 acres and value £24,471, dealt with in like manner in 1914-15, have now been included in Closer Settlement Areas.

In addition to the land acquired by the State for closer settlement a number of estates have been subdivided for that purpose by private owners.

#### LABOUR SETTLEMENTS.

In the Labour Settlements Act, 1902, provision was made for land to be set apart for lease as a labour settlement, under the control of a Board, which was empowered to enrol approved persons; to make regulations concerning the work to be done, to apportion the work among the members; and to distribute equitably wages, profits, and emoluments, after providing for the cost of maintenance of members; to establish any trade or industry, and apportion the profits among the enrolled members. The land was under the control of a Board, in trust for the members of the settlement.

With a sufficient enrolment of members a Board might apply for monetary assistance on behalf of the members of the settlement, to a maximum amount of £25 for each enrolled member who was the head of a dependent family; £20 for each married person without a family; and £15 for each unmarried person. On the expiration of four years from the commencement of the lease, and at the end of each year following, 8 per cent. of the total sum paid to the Board became a charge on its revenue, until the total amount advanced, with interest at the rate of 4 per cent. per annum, had been repaid.

On 30th June, 1917, the only settlements in existence were those at Bega and Wilberforce. At Bega an area of 1,036 acres is attached to the settlement, and on the date specified there were 25 men enrolled, the total population being 130. A sum of £2,420 has been advanced by the Government, and the value of improvements, exclusive of crops, is £3,000. At Wilberforce, an area of 409 acres has been granted for settlement. On 30th June, 1917, there were 9 men enrolled, the total population being 43. Loans from the Government amount to £2,479, the value of improvements, exclusive of crops, being £1,600.

The Labour Settlement Act of 1902 was repealed by the Bega and Wilberforce Labour Settlement Act, 1917. That act dissolves the Boards of Control and provides for the exclusive right of the present settler or his representatives to acquire, within a specified period, the block set down opposite his name in the schedule under the Act, as a homestead selection under the Crown Lands Consolidation Act, 1913.

## FOOD AND PRICES.

IN the portions of this Year Book dealing with primary and manufacturing production, sufficient evidence is adduced regarding various industries to show to what extent the State is independent of external sources of supply; but as the community is yet in a comparatively early stage of development, the raw materials form a much larger proportion of production than the manufactures which usually accompany a more advanced social growth.

For purposes of review, the summary at the end of this chapter gives the value of production from local industries; and the extent to which food products are imported from oversea countries may be seen by reference to the section in this volume relating to Commerce.

### FOOD CONSUMPTION.

With the cessation, on the 13th September, 1910, of the system of keeping records of interstate trade, it became impossible to determine accurately the quantity and value of commodities consumed; consequently, tables which had been published previously were discontinued. In view of the special interest attached to the question of food consumption, particularly in relation to the cost of living, and to State control of supplies and regulation of prices during wartime, efforts were made with considerable success to obtain information to enable estimates of consumption to be given again, and their publication was resumed in the 1916 issue.

The results have been compiled carefully, and in spite of the absence of official records of interstate trade, they are published with a large degree of confidence as indicative of the consumption of the more important articles of diet.

The estimates for 1916-17 are shown in the following table, in comparison with those for the period 1907-09:—

Commodity.	Unit.	Consumption per head.		Commodity.	Unit.	Consumption per head.	
		1907-09.	1916-17.			1907-09.	1916-17.
Meat—Beef ...	lb.	141·8	95·0	Flour ... ..	lb.	228·4	215·9
Mutton ...	lb.	96·5	69·8	Bread ... ..	2-lb.	102·0	96·0
Pork ...	lb.	3·2	3·6	Rice ... ..	lb.	8·2	7·5
Bacon and Ham	lb.	7·9	9·6	Sago and Tapioca	lb.	2·0	2·0
				Oatmeal ... ..	lb.	7·6	6·4
Total Meat	lb.	249·4	178·0	Sugar ... ..	lb.	103·8	112·9
				Salt ... ..	lb.	38·5	34·1
Fish—Fresh and Smoked	lb.	6·4	10·1	Jam ... ..	lb.	16·7	14·7
Preserved ...	lb.	4·3	4·7	Butter ... ..	lb.	26·1	30·0
Total Fish	lb.	10·7	14·8	Cheese ... ..	lb.	3·5	3·4
				Milk—Fresh ... gal.		17·4	20·1
Potatoes ... ..	lb.	181·0	131·3	Preserved ...	lb.	4·4	6·1
				Tea ... ..	lb.	7·3	8·1
				Coffee ... ..	oz.	11·0	14·5

In the preceding table may be seen a marked decline in some leading articles of diet; and that decline is not accompanied apparently by a corresponding increase in other articles, from which might be inferred either a lowering of the standard of living, or an elimination of waste, and an adjustment of a

dietary regimen to human requirements. There is little doubt that the great cheapness of meat caused a wasteful consumption, and much of it taken for individual use was practically thrown away. It is remarkable, however, that the table shows also a decline in the consumption of bread; and as meat is rich in proteids (tissue formers), and moderately supplied with fat, while bread is largely the source of the supply of the necessary carbohydrates (work and heat producers) in a bread-and-meat diet, a correlative decline in the consumption of both bread and meat points to a more economic dietary, subject to certain modifications which will be considered later.

In comparison with the previous year there were decreases in 1916-17 in the consumption of the following important articles of diet:—Meat 3·8 lb., fish 1·6 lb., potatoes 18 lb., flour 27·7 lb., and jam 2·5 lb.; but there was an increase of 7·8 lb. in the quantity of sugar consumed. The figures relating to other leading items did not vary greatly.

During the interval between the periods 1909 and 1917 the consumption per head of meat declined by 71·4 lb., and of the varieties affected the decrease was greatest in the use of beef, in which the difference amounted to 46·8 lb., mutton coming next with a decrease of 25·7 lb.; but there were increases in the consumption of pork and bacon amounting to 0·4 lb. and 1·7 lb., respectively. There was during the period an increase of 4·1 lb. per head in the consumption of fish, to which the quantity preserved contributed only 0·4 lb. per head, the remainder used as food being either fresh or smoked. The decline in the consumption of meat, has apparently not found a counterbalancing increase in the consumption of fish, which is an inferior food in every respect, if considered from the view-point of weight for weight. It is, however, very probable that a growing consumption of rabbits has partially replaced the decline in the consumption of meat. During the year 1916-17 the local consumption of this type of food was doubtless as great as for the whole period represented by the years 1907, 1908, and 1909; and there is no question that the meat shortage occasioned by the drought of 1914-15 was greatly mitigated in its effects by the local consumption of rabbits and hares, which is estimated at perhaps 60,000 pairs per week.

It is highly probable also that the diminution in the consumption of meat has been partially made good by an increased consumption of eggs. There is, however, no means of ascertaining the number of eggs used directly as food, so many being produced privately, and large quantities entering into the manufacture of cakes and pastry, besides being used in other forms of cookery.

There were decreases per head in the consumption of the following carbohydrate foods:—Flour 12·5 lb., potatoes 49·7 lb., bread 12 lb., oatmeal 1·2 lb., and rice 0·7 lb., whilst that of sago and tapioca was undisturbed as regards per capita consumption.

Refined sugar is classed as a practically pure carbohydrate, and its food-value is very high. The consumption has increased by 9·1 lb. per head, but in computing the average it is not possible to make allowance for the quantities used in the manufacture of products such as jam, of which the exportation has increased largely; thus, the quantity of jam exported overseas increased from 300,000 lb. per annum during the period 1907-09 to nearly 13,000,000 lb. in 1916-17. Jam, the consumption of which decreased by 2 lb. per head, is used as a substitute for butter to some extent, and is dependent on its sugar contents for its measure of efficiency in this respect. It is interesting to note that the increase in the consumption of butter amounted to 3·9 lb. per head. Preserved milk increased by 1·7 lb. per head, and fresh milk by 2·7 gallons per head. There was not an increase in the consumption of cheese. The increase per head in the consumption of tea

amounted to 0·8 lb., and of coffee to 3·5 oz. Salt decreased in consumption per head by 4·4 lb., due in all probability to the recent decline in the operations of meat-preserving establishments.

The foregoing facts, relative to the consumption per head of specific articles of food in 1909 and in 1917, appear to be the result of a more economic dietary at the present time than that which obtained seven years ago. But it must be remembered that the constitution of the community in 1909 was not analogous to that in 1917. There has been a withdrawal of young men of the beef-and-bread-eating ages amounting—roughly speaking—to 110,000. There has never before been such a levy upon the youth of the State. This remarkable withdrawal of young and vigorous manhood was reflected in the falling-off in consumption of the virile foods, rich in proteid and carbohydrate; and this has been accompanied by an increase in the consumption of the conservative foods, such as butter and milk, and of the stimulative and energy-sparing beverage of tea. The increases are along the lines of those classes of nutriment affected by women and children, as contrasted with the decreases along the lines of nutriment proper to young men engaged in callings which make large demands upon the expenditure of muscular energy. In other words, the incidence of the war has disturbed the balance per capita of general consumption by altering the relative constitution of the population. But even if every allowance be made for a consideration of this aspect of the question, a decline in the standard of dietary is also evident—a decline largely brought about by protracted conditions of drought, which reduced the flocks of the State within a few years from 60,000,000 to 26,000,000 sheep. Since the days of wasteful profusion the price of meat has advanced 200 and 300 per cent., and this has inevitably brought about a decrease in the demand for meat.

#### *Meat.*

The quantity consumed is very large, though it has declined since 1909 from 249·4 lb. per head to 178 lb., or by 28·7 per cent. The decrease, which has been general for all kinds of meat except bacon and ham, was greatest during the years 1914–16, and reference to a subsequent table shows that there has been a correspondingly steep rise in the price-levels. Approximately, one-third of the meat is bone and waste, though there is reason to believe that there is a marked difference between what might be designated as essential waste and the waste which is incidental to cheapness and profusion.

The following statement shows the average annual consumption per head of the various kinds of meat in each year since 1910 :—

Year.	Beef.	Veal.	Mutton and Lamb.	Pork.	Bacon and Ham.	Total.
	lb.	lb.	lb.	lb.	lb.	lb.
1910	142·2	3·1	100·0	5·9	9·1	260·3
1911	147·6	3·3	101·3	5·0	10·7	267·9
1912	161·0	4·4	90·9	6·2	11·1	273·6
1913	148·3	4·1	93·8	3·8	9·8	259·8
1914–15	118·3	3·3	78·8	3·0	9·4	212·8
1915–16	97·1	1·6	73·1	2·0	8·0	181·8
1916–17	93·0	2·0	69·8	3·6	9·6	178·0

The quantity of meat consumed increased in each year from 1909 to 1912, when it reached 273·6 lb. per head; in 1913 it dropped to slightly below the level of 1910, and subsequent decreases brought it to 178·0 lb. in 1916–17, or 34·9 per cent. lower than in 1912. The consumption of beef, pork, and bacon was highest in 1912, and of mutton in 1911.

In the last issue, the consumption of mutton and of lamb was quoted separately, but it has been discovered that the information previously supplied in regard to the slaughtering of lambs was inaccurate, and as it is practically impossible to obtain correct particulars it has seemed advisable to include mutton and lamb together, as in the above statement.

The consumption of beef rose in 1912, when the supply of sheep was lessened, owing to the unfavourable season in the sheep districts, but it decreased by 20 per cent. in 1914-15, and by 19 per cent. in the following year. As regards mutton and lamb the most notable decrease occurred in 1914-15, when it was 16 per cent. lower than in 1913; in the succeeding years there were further decreases, and the average consumption is now 30 per cent. below the level of 1910. The consumption of pork declined during the period by about 39 per cent., though increases occurred in 1912 and in 1916-17. The quantity of bacon and ham has varied between 11.1 lb. per head in 1912 and 8 lb. in 1915-16, and is now slightly higher than in 1910. The decrease in the consumption of beef, veal, mutton, and lamb has been most marked since 1913—the year immediately preceding the declaration of war, also the year before a period of drought.

The decrease in the consumption of meat has been accompanied by an advance in the quantity of fish consumed since 1909, though it is in no respect compensatory, as the increase of all kinds of the latter amounted only to 4.1 lb. as compared with a decline of the former amounting to 71.4 lb. The local production of fish, which constitutes the bulk of the supply, amounted in 1916-17 to 19,520,500 lb., exclusive of 9,156 dozen crayfish, 1,356 dozen crabs, 328,860 lb. of prawns, and about 22,000 sacks of oysters.

The unsatisfactory condition of the fishing industry and its effect on supplies and prices are mentioned on a subsequent page. During 1916-17, the supply was augmented by 1,637,070 lb. caught by the State trawlers, and the facilities for distribution were improved by the establishment of State fish-shops.

#### *Potatoes.*

The consumption of potatoes decreased from 181 lb. per head to 131.3 lb. during the period under review. Local production varies greatly, and is not equal to the demand, large supplies having to be imported from the neighbouring States. The average annual production during the last three years was 43,500 tons as compared with 80,800 tons during the period 1907-09.

#### *Bread and Flour.*

The average consumption of bread in 1916-17 was 96 loaves (2 lb.) per head, and of flour 215.9 lb. per head, inclusive of manufactured articles in the shape of biscuits, cakes and pastry. The flour consumed includes approximately 134,100 tons (144 lb. per head) used for bread, and 11,486 tons (12.3 lb. per head) used in biscuit factories, but the quantity used by pastrycooks is not recorded. Exclusive of the quantity used for bread, biscuits, etc., it is estimated that the average household consumption of flour by a family of five persons is about 4 lb. per week, or 42 lb. per head per annum.

The reduction in the consumption of bread from 102 loaves per head in 1907-09 to 96 in 1916-17, a reduction equivalent to 12 lb. of bread per annum, or 6 per cent., is a matter for attention. In this connection it is interesting to record the opinion of those in the trade, who consider that the introduction of day-baking in the middle of 1914 reduced the consumption of bread by about 10 per cent., as a result of a comparative staleness of the loaf baked the day preceding delivery. Bread now is delivered generally from eighteen to twenty-four hours after baking, and after that interval is less appetising than when eaten hot, as was usually the custom prior to day-baking. A good

loaf, as to volume, consists three-fifths of gas, and of the solid part about 40 per cent. by weight consists of water. A loaf of bread twelve hours old is said to lose about an ounce and a half in weight, due to evaporation of water; and it takes seventy-two hours to reduce its weight by 15 per cent.

#### *Oatmeal, Rice, and Sago.*

The consumption of oatmeal has declined from 7·6 lb. to 6·4 lb. per head, probably on account of an increased consumption of other breakfast foods. The consumption of rice, sago, and tapioca shows slight alteration, but the quantity of rice has decreased from 8·2 lb. to 7·5 per head.

#### *Sugar.*

The quantity of sugar consumed—112·9 lb. per head—appears high, but it includes sugar used in the production of other foods, such as jam—of which large quantities have been exported—biscuits, confectionery, beer, etc. The records of the manufacturing industry in 1916–17 show that 8,934 tons of sugar (10·7 lb. per head) were used for jam and canned fruit, 2,227 tons (2·7 lb. per head) for biscuits, 635 tons (0·8 per head) in condensed milk factories, and 5,361 tons (6·4 per head) in breweries, but the quantity used in other factories is not available. The average household consumption of sugar is estimated at 6 lb. per week for a family of five persons, or 62 lb. per head per annum.

#### *Salt.*

Salt is an ingredient of almost all foods, large quantities being used in bacon-curing and meat-preserving, as well as in the preparation of bread, butter, cheese, &c. The average annual consumption amounts to 34·1 lb. per head. Ordinary domestic consumption in a family of five persons probably does not exceed 1 lb. per week.

#### *Butter, Cheese, and Milk.*

Butter is an important item of food in New South Wales, and the consumption has increased from 26 lb. per head in 1909 to 30 lb. in 1917. During the last three years the production of butter in New South Wales exceeded, on the average, 74,000,000 lb. per annum, which was more than sufficient to supply the local demand, and a considerable quantity was exported.

The quantity of cheese consumed decreased slightly, but the quantity of milk consumed has increased from 17·4 gallons to 20·1 gallons per head.

#### *Tea and Coffee.*

Tea enters largely into consumption amongst all classes, the average annual consumption being 8·1 lb. per head. Of coffee, on the other hand, the average was only 14·5 oz. per head. There are indications, however, that the consumption of coffee is increasing.

### CONSUMPTION OF INTOXICANTS.

As with other commodities, so with alcoholic beverages, the figures relating to local consumption in years later than 1909 were not published until the issue of the Year Book for 1916. To supply an approximate basis for later

years, however, information was obtained from spirit merchants, and the consumption for the last ten years has been estimated to be as follows:—

Year.	Aggregate Consumption of Spirits.			Per Head of Population.		
	Australian.	Foreign.	Total.	Australian.	Foreign.	Total.
	gallons.	gallons.	gallons.	gallons.	gallons.	gallons.
1907...	224,100	1,207,200	1,431,300	·15	·79	·94
1908...	99,900	1,087,700	1,187,600	·07	·70	·77
1909...	123,800	1,171,100	1,294,900	·08	·74	·82
1910...	165,200	1,211,100	1,376,300	·10	·75	·85
1911...	194,300	1,337,800	1,532,100	·12	·80	·92
1912...	245,000	1,426,700	1,671,700	·14	·82	·96
1913...	285,600	1,449,300	1,734,900	·16	·80	·96
1914-15	314,400	1,369,000	1,683,400	·17	·73	·90
1915-16	385,900	1,072,900	1,458,800	·21	·57	·78
1916-17	433,500	849,700	1,283,200	·23	·46	·69

In August, 1907, a proposal to amend the tariff was introduced into the Federal Parliament, and it is probable that a quantity of spirits was withdrawn from bond in that year in anticipation of increased duties, but did not pass into actual consumption until 1908 or later. For this reason, the actual consumption was probably lower in 1907, and higher in 1908, than indicated by the figures in the table.

The consumption of spirits, which had been increasing slowly for five or six years, declined after 1913, the decrease being in foreign spirits, as the quantity of Australian spirits increased by 51 per cent. A noticeable feature is the growth in popularity of Australian rum, of which the consumption in 1916-17 was over 100,000 gallons more than in 1913.

The departure of large numbers of men for military service abroad, the restriction of imports owing to difficulties of transport and high freights, the early closing of hotels and increased prices have all contributed to the general decline in the consumption of spirits. Hotels in the County of Cumberland and in places within five miles of any military training camp were closed by order of the Defence authorities at 8 p.m. from 24th February to 21st July, 1916, when the closing hour of all licensed premises in the State was fixed at 6 p.m. as the result of a referendum to the electors.

The consumption of beer has declined also since the commencement of the war, but in a less degree than that of spirits. The quantity per head, which increased by 48 per cent. between 1906 and 1913, decreased by 17 per cent. during the last three years. Of the beer consumed, 99 per cent. is brewed in Australia:—

Year.	Quantity of Beer consumed.			Per head of population.		
	Australian.	Imported.	Total.	Australian.	Imported.	Total.
	gallons.	gallons.	gallons.	gallons.	gallons.	gallons.
1907	14,278,800	945,700	15,224,500	9·41	·62	10·03
1908	14,856,800	906,800	15,763,600	9·61	·59	10·20
1909	15,240,600	973,500	16,213,500	9·66	·62	10·28
1910	16,287,600	1,033,600	17,321,200	10·08	·64	10·72
1911	18,332,900	1,200,100	19,533,000	11·01	·72	11·73
1912	20,777,300	1,349,600	22,126,900	11·95	·78	12·73
1913	22,973,400	1,338,000	24,311,400	12·70	·74	13·44
1914-15	23,175,100	934,300	24,109,400	12·44	·50	12·94
1915-16	22,586,600	568,700	23,155,300	12·08	·31	12·39
1916-17	21,159,200	204,000	21,363,200	11·35	·11	11·46

The consumption of both Australian and foreign wines has declined progressively, not only since the commencement of the war, but for several years before, as will be apparent from the subjoined statement.

Year.	Consumption of Wine.					
	Aggregate.			Per Inhabitant.		
	Australian.	Foreign.	Total.	Australian.	Foreign.	Total.
	gallons.	gallons.	gallons.	gallons.	gallons.	gallons.
1907	892,700	43,300	936,000	·59	·03	·62
1908	905,600	42,900	948,500	·58	·03	·61
1909	955,500	41,300	996,800	·60	·03	·63
1910	816,900	46,900	863,800	·50	·03	·53
1911	908,700	57,900	966,600	·55	·03	·58
1912	975,500	60,600	1,036,100	·56	·04	·60
1913	927,800	58,500	986,300	·51	·03	·54
1914-15	851,700	50,400	902,100	·46	·03	·49
1915-16	767,200	32,800	800,000	·41	·02	·43
1916-17	764,500	30,300	794,800	·41	·02	·43

The wine entering into consumption in New South Wales is chiefly the produce of Australian vineyards, but the quantity produced in the State is much less than might be expected in a country so eminently adapted for viticulture.

The decrease in the consumption of Australian wine reflects a steady decline in the production, the average annual production in New South Wales in the three years ended June, 1917, being only 583,000 gallons, as compared with 967,000 gallons in the period 1905-07, ten years ago.

The amount of money expended on intoxicating liquors in New South Wales in the year ended 30th June, 1917, was estimated at £6,667,000, or £3 11s. 7d. per head. There was a steady increase between 1908 and 1914-15, but during the last two years of the period reviewed in the following table the drink bill decreased by £648,000, or 6s. 11d. per head of population :—

Year.	Drink Bill.		Year.	Drink Bill.	
	Total.	Per head of Population.		Total.	Per head of Population.
	£	£ s. d.		£	£ s. d.
1907	5,064,000	3 6 9	1912	6,592,000	3 15 10
1908	4,778,000	3 1 10	1913	7,001,000	3 17 5
1909	5,050,000	3 4 0	1914-15	7,315,000	3 18 6
1910	5,304,000	3 5 8	1915-16	7,246,000	3 17 6
1911	5,962,000	3 11 8	1916-17	6,667,000	3 11 7

## CONSUMPTION OF TOBACCO.

The amount of tobacco consumed in New South Wales, as estimated, in each year since 1907, is shown in the following statement, special data having been obtained for estimates subsequent to 1909 :—

Year]	Total Consumption (000 omitted).				Per Head of Population.			
	Tobacco.	Cigars.	Cigarettes.	Total.	Tobacco.	Cigars.	Cigarettes.	Total.
	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.
1907	3,608	220	622	4,450	2·38	·14	·41	2·93
1908	3,748	245	690	4,683	2·42	·16	·45	3·03
1909	3,724	223	720	4,667	2·36	·14	·46	2·96
1910	3,707	239	873	4,819	2·29	·15	·54	2·98
1911	3,827	271	1,076	5,174	2·30	·16	·65	3·11
1912	3,796	293	1,353	5,442	2·18	·17	·78	3·13
1913	3,853	306	1,413	5,572	2·13	·17	·78	3·08
1914-15	3,921	296	1,391	5,608	2·10	·16	·75	3·01
1915-16	3,979	236	1,331	5,546	2·13	·13	·71	2·97
1916-17	4,098	263	1,283	5,644	2·20	·14	·69	3·03

The quantity of tobacco (including cigars and cigarettes) consumed in 1916-17 was 5,644,000 lb., which represents an average of 3·03 lb. per head of population. The average has remained fairly constant throughout the period reviewed, the lowest being 2·93 lb. in 1907, and the highest 3·13 lb. in 1912.

As regards the description of tobacco used, an unsatisfactory feature is the increased consumption of cigarettes; during the period under review the proportion of cigarettes consumed advanced from 14 to 23 per cent., and the proportion of ordinary tobacco declined from 81 to 73 per cent.

Of the total tobacco consumed in 1916-17, about 91 per cent. was manufactured in Australia, the proportions of the different descriptions being of ordinary tobacco 93 per cent. made in Australia, cigarettes 87 per cent., and cigars 69 per cent. The proportion of tobacco and cigarettes made in Australia has not changed greatly since 1907, when the percentages were 87 and 93 respectively, but a marked increase—from 32 to 69 per cent.—has occurred in the proportion of cigars of Australian manufacture.

The following statement shows the quantity of Australian and of imported tobacco consumed in 1907 and in 1916-17 :—

Description.	Total Consumption.			Per Head of Population.		
	Australian.	Imported.	Total.	Australian.	Imported.	Total.
	lb.	lb.	lb.	lb.	lb.	lb.
Tobacco ... {						
1907	3,135,100	472,600	3,607,700	2·07	·31	2·38
1916-17	3,827,500	270,200	4,097,700	2·05	·15	2·20
Cigars ... {						
1907	71,100	149,400	220,500	·04	·10	·14
1916-17	182,700	80,800	263,500	·10	·04	·14
Cigarettes ... {						
1907	578,000	44,000	622,000	·38	·03	·41
1916-17	1,117,600	165,100	1,282,700	·60	·09	·69
Total ... {						
1907	3,784,200	666,000	4,450,200	2·49	·44	2·93
1916-17	5,127,800	516,100	5,643,900	2·75	·28	3·03

Although the tobacco is called "Australian," the bulk of it is made from imported leaf, as only about 12 per cent. is made from leaf grown in Australia.

#### MEAT SUPPLY.

In the chapter relating to the Pastoral Industry particulars are supplied regarding the production of live stock and the number of stock slaughtered for the meat supply.

The subdivision of large estates and the encroachment of agricultural settlement on large areas used previously for stock-raising have an important relation to the meat supply, tending to encourage the breeding of sheep for mutton rather than for wool, and the substitution of crossbred sheep for the smaller merino. These conditions have an opposite tendency in the case of cattle; cattle for beef thrive best on large, sparsely-populated areas, and if land is suitable for sheep, it is not profitable to use it for cattle-raising. As a result, cattle-breeding is becoming restricted to the coastal belt, and in that division the cattle are of the dairying strain and not so suitable for beef as the classes which are being displaced.

Another influence operating to restrict supplies of the best classes of cattle is the opening up of new outlets for Queensland fat cattle which used to be sent directly to the Sydney market from the south-western portions of that State. The cattle latterly imported from Queensland were "stores" and required to be fattened for six or nine months, which increased the cost of placing them on the local market. In consequence of the passing of the "Meat for Imperial Uses Act" in the Queensland Parliament in 1915, the transfer of fat cattle from Queensland has been prohibited, and a charge of 10s. per head has been made for permits to transfer "stores."

It should be noted, as a fact of considerable economic importance in connection with the supply of meat, that to produce a given quantity of meat, a much larger number of animals is required now than formerly. This is attributable partly to a decrease in the average size and weight of cattle slaughtered, and partly to the preference for choice cuts fostered by the prosperity of the period prior to the war. Naturally the price of meat is affected directly.

The following statement shows the estimated number of live stock (cattle, sheep, and pigs) slaughtered for the meat consumed in New South Wales in each year since 1910. These figures differ from those published elsewhere in this volume showing the animals killed in slaughtering establishments, as they are exclusive of animals slaughtered for export, treated in boiling-down works, and condemned at abattoirs. Moreover, the number of pigs includes those imported for consumption as bacon, as New South Wales does not produce enough bacon for local requirements:—

Year.	Bullocks.	Cows.	Calves.	Sheep and Lambs.	Pigs.
1910	227,691	153,206	50,238	3,894,589	315,786
1911	233,141	179,122	54,493	4,068,349	335,403
1912	263,656	202,596	74,599	3,991,784	383,869
1913	232,796	230,041	70,919	3,896,880	309,976
1914-15	156,886	246,659	59,350	3,521,833	289,224
1915-16	167,870	163,278	30,296	3,358,469	234,633
1916-17	164,548	140,173	36,764	2,940,981	304,846

#### METROPOLITAN MEAT INDUSTRY BOARD.

The Meat Industry Act, 1915, which came into force on 1st March, 1916, created the Metropolitan Abattoir Area (comprising the county of Cumberland), and placed all operations in connection with the sale, slaughter, and

inspection of cattle, and with the sale of meat in that area, under the control of a Board of three members, known as the Metropolitan Meat Industry Board.

Under the provisions of the Act the Board may—

- (1) Establish, maintain, and conduct abattoirs, or saleyards for the sale of cattle, or markets for the sale of meat, in any part of the Metropolitan Abattoir Area.
- (2) Establish, maintain, and conduct works for canning, preserving, chilling, or freezing meat.
- (3) Take delivery of cattle, and slaughter the same, either on its own behalf or on behalf of any other person.
- (4) Purchase cattle or meat.
- (5) Sell cattle or meat, either on its own behalf or on behalf of any other person.
- (6) Export meat on behalf of any person, and sell the same in any place on behalf of such person, and enter into all contracts and do all things that may be necessary or expedient in that connection.
- (7) Deliver or contract to deliver to any person any meat, either from a public abattoir, meat market, or from any other place.
- (8) Make arrangements with regard to the purchase, collection, and disposal of offal or other matter, and apply any manufacturing process thereto, and convert it into a merchantable article and sell the same.

The Act vests in the Board the land and buildings contained in the Public Abattoir at Glebe Island, the Stock Saleyards at Flemington, the new Public Abattoir at Homebush Bay, and the Meat Distributing Depot at Pyrmont.

The new Public Abattoir at Homebush Bay was opened officially in April, 1915, when advantage was taken of an offer by a leading firm of exporters to slaughter export mutton for Imperial army requirements. Owing to the shortage of supplies and the consequent stoppage of export, operations were discontinued on 22nd May, 1915. On 1st July, 1916, the Abattoir was again brought into operation, when the slaughter of cattle, calves, and pigs was transferred from Glebe Island.

During the year 1917, 101,289 cattle, 23,552 calves, 404,119 sheep, and 76,780 pigs were slaughtered at Homebush Bay, and 1942 cattle, 22 calves, and 589,755 sheep at Glebe Island.

The following table shows the slaughtering at these abattoirs during each month of 1917 :—

Month.	Cattle.	Calves.	Sheep.		Pigs.
			Homebush Bay.	Glebe Island.	
January ...	8,288	1,870	14,341	78,867	4,689
February ...	7,438	1,244	11,858	52,340	4,935
March ...	8,769	1,767	13,789	55,742	6,147
April ...	9,868	2,013	15,132	78,544	6,020
May ...	12,817	2,928	19,089	124,994	7,752
June ...	10,599	2,254	14,306	80,662	7,041
July ...	9,559	2,286	18,042	84,118	7,582
August ...	8,571	2,161	22,935	34,488	5,463
September ...	5,496	1,843	40,818	...	4,917
October ...	7,157	1,603	73,896	...	5,962
November ...	7,613	2,212	89,288	...	7,149
December ...	7,056	1,387	70,625	...	9,123
Total for year...	103,231	23,574	404,119	£89,755	76,780

The cattle saleyards at Flemington, covering an area of 66 acres, and capable of accommodating on one day from 75,000 to 80,000 head of sheep and lambs, and 2,500 head of cattle, are controlled by the Metropolitan Meat Industry Board.

Auction sales are held twice each week, and pens are allotted for consignments of stock arriving. Sales are held in rotation, and are limited in time—according to the number of consignments, the dues charged being at the rate of 1d. per head for sheep, and 6d. for cattle.

The following table shows the number of stock yarded annually at the Flemington Cattle Saleyards:—

Year.	Sheep.	Cattle.	Year.	Sheep.	Cattle.
1908	3,104,025	117,496	1914*	2,805,207	276,440
1909	3,810,445	132,050	1915*	3,381,937	255,876
1910	4,064,650	155,833	1916*	2,317,602	158,453
1911	3,407,835	193,953	1917*	1,711,246	149,604
1912*	3,648,138	211,705	1917†	722,958	63,942
1913*	2,721,356	265,126			

\* Year ended 30th June.

† Six months July-December.

The new Pig and Calf Saleyards and Markets were opened on 2nd July, 1916, and superseded the Sydney Municipal Small Stock Markets in Sussex-street. These markets are provided with ample railway siding accommodation, and with every facility for the conduct of the business.

The monthly yardings during 1917 are shown hereunder:—

Months.	Pigs.	Calves.	Months.	Pigs.	Calves.
January ...	4,481	1,331	July ...	7,043	1,337
February ...	3,714	720	August ...	2,802	969
March ...	5,163	920	September...	4,626	791
April ...	4,515	1,081	October ...	6,974	1,328
May ...	6,901	1,468	November...	5,281	1,080
June ...	5,140	1,340	December ...	6,864	910
			Total ...	63,504	13,275

The Meat Distributing Depôt is situated on the main Darling Harbour railway line, and is intended as a temporary distributing depôt for the city meat supply, pending the provision of more extensive accommodation elsewhere.

The new saleyards are in course of construction in the vicinity of the new abattoir area, and will supersede the present Stock Saleyards at Flemington. The plans provide for 70,000 sheep and from 5,000 to 6,000 cattle. A separate railway service will be provided to meet the requirements of these yards.

*Prices of Live Stock.*

The governing factor in the price of meat is the price paid for live stock at Flemington. The following statement shows the movement of the prices of fat stock during the years 1914 to 1917. Accurate quotations for lambs in 1916 are not available, as they were sold in most cases with the grown sheep, owing to the abnormal conditions and limited supply :—

Stock.	1914.			1915.			1916.			1917.		
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
<b>Cattle.</b>												
<b>Bullocks and Steers—</b>												
Extra prime ... ..	14	12	6	24	0	0	25	0	0	24	0	0
Prime medium ... ..	13	5	0	22	0	0	21	4	0	19	11	0
Prime handyweight ... ..	11	10	0	18	12	6	19	18	6	17	9	0
Prime light ... ..	...	...	...	16	17	6	17	0	0	15	17	0
Good light ... ..	7	5	0	10	10	0	12	13	6	14	5	0
Medium light ... ..	5	7	6	8	2	6	10	15	0	12	16	
<b>Cows and Heifers—</b>												
Extra prime ... ..	10	2	6	16	0	0	17	15	0	17	13	0
Prime ... ..	8	17	6	13	7	6	14	16	0	15	0	0
Good ... ..	7	0	0	10	12	6	11	14	0	12	17	0
<b>C. lves, Vealers—</b>												
Best ... ..	2	19	3	3	14	0	4	7	6	5	6	6
Good ... ..	2	11	0	3	2	0	3	17	3	4	7	6
Medium ... ..	2	1	0	2	13	0	3	3	3	3	15	0
<b>Calves, Bobbies—</b>												
Best ... ..	1	10	3	2	3	6	2	3	0	2	14	9
Good ... ..	1	4	6	1	12	6	1	17	0	2	7	9
Medium ... ..	0	17	9	1	6	0	1	9	3	1	14	0
<b>Sheep.</b>												
<b>Cross-breds—</b>												
<b>Wethers—</b>												
Extra prime ... ..	1	3	9	1	10	6	2	2	3	2	1	3
Prime ... ..	1	0	6	1	6	0	1	16	9	1	16	0
Good ... ..	0	17	3	1	0	3	1	10	0	1	12	3
Medium ... ..	0	14	0	0	15	6	1	5	6	1	9	0
<b>Ewes—</b>												
Extra prime ... ..	1	2	0	1	8	3	1	15	3	1	16	9
Prime ... ..	0	19	6	1	4	0	1	11	9	1	12	6
Good ... ..	0	16	3	0	18	9	1	5	3	1	9	0
Medium ... ..	0	13	0	0	14	6	1	0	0	1	3	6
<b>Merinos—</b>												
<b>Wethers—</b>												
Extra prime ... ..	1	2	3	1	7	6	1	18	3	1	18	0
Prime ... ..	0	19	6	1	3	9	1	13	6	1	13	0
Good ... ..	0	16	0	0	19	0	1	8	3	1	9	6
Medium ... ..	0	12	6	0	13	9	1	5	0	1	6	0
<b>Ewes—</b>												
Extra prime ... ..	0	19	0	1	3	9	1	12	0	1	10	9
Prime ... ..	0	16	9	1	0	3	1	8	9	1	7	0
Good ... ..	0	13	9	0	16	3	1	4	3	1	4	3
Medium ... ..	0	10	9	0	12	0	0	19	9	1	1	3

Stock.	1914.	1915.	1916.	1917.
<b>Lambs, Woolly—</b>				
Extra prime ... ..	0 18 3	1 2 6	...	1 11 6
Prime ... ..	0 15 9	0 19 0	...	1 8 9
Good ... ..	0 12 6	0 15 3	...	1 4 0
Medium ... ..	0 9 9	0 11 3	...	1 0 3
<b>Pigs.</b>				
<b>Porkers—</b>				
Best ... ..	2 7 3	2 15 6	3 6 9	3 4 3
Good ... ..	2 5 0	2 7 0	2 9 0	2 17 6
Medium ... ..	1 14 6	1 18 6	2 8 0	2 7 9
<b>Baconers—</b>				
Best ... ..	3 14 6	4 15 0	5 6 9	4 15 3
Good ... ..	3 7 6	4 2 0	4 15 6	4 6 3
Medium ... ..	2 18 9	3 13 0	4 3 3	3 16 9
<b>Backfatters--</b>				
Best ... ..	5 18 6	8 15 0	7 19 6	7 14 6
Good ... ..	5 3 0	6 15 0	6 17 0	6 12 9
Medium ... ..	4 1 9	5 5 0	5 7 6	5 9 6

The continued dry weather, as well as the abnormal conditions in Europe, caused prices to rise in 1914; and the upward tendency was maintained until August, 1915, when the market became gradually easier, although extremely high prices were still ruling at the end of the year.

In 1916, the prices were considerably above the level of the previous year, as supplies of stock for slaughtering were scarce, owing to the great demand for re-stocking which set in as a result of a favourable season, and of high values of wool; the high prices were maintained throughout 1917.

The movement of wholesale prices since 1901 is illustrated below. The prices, compiled from returns published in the *Australian Meat Trades' Journal*, represent the highest and lowest in each year, the range covering "firsts" and "seconds" in the case of mutton, and "hinds" and "fores" in the case of beef:—

Year.	Mutton.		Beef.		Year.	Mutton.		Beef.	
	per lb.		per lb.			per lb.		per lb.	
	d.	d.	d.	d.		d.	d.	d.	d.
1901	$\frac{7}{8}$	to 2 $\frac{1}{4}$	2	to 3 $\frac{1}{4}$	1910	1 $\frac{1}{4}$	to 2 $\frac{1}{4}$	1 $\frac{1}{4}$	to 3 $\frac{1}{4}$
1902	1 $\frac{1}{8}$	„ 5 $\frac{1}{2}$	2	„ 7	1911	1 $\frac{5}{8}$	„ 2 $\frac{3}{4}$	1 $\frac{1}{2}$	„ 3
1903	2 $\frac{1}{2}$	„ 3 $\frac{1}{4}$	2 $\frac{1}{4}$	„ 5	1912	2	„ 4 $\frac{3}{4}$	1 $\frac{1}{2}$	„ 5
1904	2 $\frac{1}{8}$	„ 3 $\frac{3}{4}$	1 $\frac{5}{8}$	„ 3 $\frac{3}{4}$	1913	2	„ 3 $\frac{1}{4}$	1 $\frac{3}{4}$	„ 3 $\frac{3}{4}$
1905	1 $\frac{5}{8}$	„ 3	1 $\frac{1}{2}$	„ 3 $\frac{3}{4}$	1914	2 $\frac{1}{2}$	„ 4 $\frac{3}{8}$	2	„ 4 $\frac{1}{2}$
1906	1 $\frac{7}{8}$	„ 2 $\frac{1}{2}$	1 $\frac{3}{8}$	„ 3 $\frac{1}{2}$	1915	2 $\frac{3}{4}$	„ 7 $\frac{3}{4}$	3	„ 9 $\frac{1}{4}$
1907	1 $\frac{1}{4}$	„ 3	1 $\frac{5}{8}$	„ 3 $\frac{3}{4}$	1916	4 $\frac{3}{8}$	„ 7 $\frac{1}{2}$	4	„ 8 $\frac{1}{2}$
1908	1 $\frac{5}{8}$	„ 3 $\frac{1}{2}$	1 $\frac{1}{2}$	„ 3 $\frac{5}{8}$	*1917	4 $\frac{3}{4}$	„ 6 $\frac{5}{8}$	4	„ 7 $\frac{1}{4}$
1909	1 $\frac{1}{4}$	„ 2 $\frac{3}{8}$	1 $\frac{1}{4}$	„ 3 $\frac{1}{4}$					

\* January to August only, no further quotations owing to strike and abnormal conditions.

The retail prices reflect the movements of the wholesale. The following statement shows the average retail prices charged by cash butchers in Sydney; if delivered, an additional charge, ranging from  $\frac{1}{2}$ d. to 1d. per lb. was made, but during the last two years very little delivery was done:—

Year.	Sirloin Roast.		Rump Steak.		Leg of Mutton.		Shoulder of Mutton.		Loin Chops.	
	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.
1901	4	to 5	6	to 7	2 $\frac{1}{2}$	to 3	1 $\frac{1}{2}$	to 2	3 $\frac{1}{2}$	to 4
1902	4	" 5	6	" 7	2 $\frac{1}{2}$	" 5	1 $\frac{1}{2}$	" 2	3 $\frac{1}{2}$	" 4
1903	4	" 5	6	" 7	2 $\frac{1}{2}$	" 3	1 $\frac{1}{2}$	" 2	3 $\frac{1}{2}$	" 4
1904	4	" 5	6	" 7	2 $\frac{1}{2}$	" 3	1 $\frac{1}{2}$	" 2	3 $\frac{1}{2}$	" 4
1905	4	" 5	6	" 7	2 $\frac{1}{2}$	" 3	1 $\frac{1}{2}$	" 2	3 $\frac{1}{2}$	" 4
1906	4	" 5	6	" 7	2 $\frac{1}{2}$	" 3	1 $\frac{1}{2}$	" 2	3 $\frac{1}{2}$	" 4
1907	4 $\frac{1}{2}$	" 5	6	" 7	3d.		1 $\frac{1}{2}$	" 2	4d.	
1908	4 $\frac{1}{2}$	" 5	5 $\frac{1}{2}$	" 7	3d.		1 $\frac{1}{2}$	" 2	4d.	
1909	4	" 5	6	" 7	2 $\frac{1}{2}$	to 3	1 $\frac{1}{2}$	" 2	3	to 4
1910	4	" 5	6	" 7	2 $\frac{1}{2}$	" 3	1 $\frac{1}{2}$	" 2	3	" 4
1911	4 $\frac{1}{2}$	" 5	6 $\frac{1}{2}$	" 7	2 $\frac{1}{2}$	" 3	1 $\frac{1}{2}$	" 2 $\frac{1}{2}$	3 $\frac{1}{2}$	" 4
1912	4 $\frac{1}{2}$	" 5 $\frac{1}{2}$	6 $\frac{1}{2}$	" 7 $\frac{1}{2}$	3	" 3 $\frac{3}{4}$	2 $\frac{1}{4}$	" 3	4	" 5
1913	4 $\frac{1}{2}$	" 5 $\frac{1}{2}$	7	" 8 $\frac{3}{4}$	3 $\frac{1}{2}$	" 4	3	" 3 $\frac{3}{4}$	4 $\frac{1}{2}$	" 5
1914	5 $\frac{1}{2}$	" 6	8	" 9	4 $\frac{3}{4}$ d.		3 $\frac{3}{4}$	" 4	5 $\frac{1}{2}$	" 6 $\frac{1}{2}$
1915	7 $\frac{1}{2}$	" 12 $\frac{1}{2}$	9 $\frac{1}{2}$	" 16 $\frac{1}{2}$	5	to 8	4	" 7 $\frac{1}{2}$	6 $\frac{1}{2}$	" 9
1916	10 $\frac{1}{2}$	" 11 $\frac{1}{2}$	13	" 14 $\frac{1}{2}$	6 $\frac{3}{4}$	" 8 $\frac{1}{2}$	5 $\frac{1}{2}$	" 7 $\frac{1}{2}$	8	" 9 $\frac{3}{4}$
1917	10 $\frac{1}{2}$	" 12	13	" 16	7 $\frac{1}{2}$	" 9 $\frac{1}{2}$	6 $\frac{1}{2}$	" 8	9	" 11

The causes of increase in the price of meat in New South Wales were the subject of investigations by the Inter-State Commission in 1917-18. The reports state that the rise in prices is due partly to loss through drought in 1914-15, with consequent shortage of stock, and to increased costs of raw material and labour, but particularly to the control of the wholesale market by powerful interests. The Commission found that as regards the effect of the export trade in normal times the export prices for beef and mutton may tend to keep local prices up to London parity, but in the absence of this trade production would be seriously reduced, and eventually this reduction in supply might lead to higher prices.

The Commission recommended that the Imperial contract prices, less a deduction of  $\frac{3}{8}$ d. per lb. (freezing charges), be fixed as the maximum wholesale prices for meat in Sydney, and that the prices so fixed be used as a basis for fixing the price on the hoof of stock in centres where there is no wholesale meat trade. With regard to retail prices no action was deemed necessary, as evidence indicated that they would conform to the wholesale prices.

The cost of treating a bullock from pen to retailer in Sydney was stated at 18s., or, taking 650 lb. as an average weight, .33d. per lb.

#### *Meat Export Trade.*

The maintenance and extension of the export trade, apart from its economic value to the State generally in providing a remunerative outlet for surplus stock, benefits the local meat market by encouraging the breeding of a class of sheep more suitable for mutton than the merino, and tends to lessen the expense of slaughtering and handling, by enabling the buyer for local consumption to handle larger numbers.

Since the outbreak of war, permits for the export of meat must be obtained from the Collector of Customs, Sydney.

*Meat Supply for Imperial Uses Act.*

In February, 1915, the Imperial Government made a request for the co-operation of the New South Wales Government in securing the whole of the Australian supply of beef and mutton available for export during the continuance of the war, the object being to obtain supplies for the armies of Britain and her Allies, and to prevent any excessive advance in the price of Australian meat in the United Kingdom. Consequently the Meat Supply for Imperial Uses Act was passed on 17th February, 1915, and all stock and meat in New South Wales were declared subject to the Act. Upon a written order of the Minister, all stock and meat mentioned therein become the property of the Crown, free of all mortgages and other encumbrances, and the owners are entitled to payment at prices fixed by a board appointed under the Act. Proclamations have been issued periodically, extending the period of operation of the Act to the 30th June, 1919.

The prices fixed for meat taken into cold storage as at 31st December, 1917, are indicated below. The prices are conditional upon delivery by the vendors of the meat free on board ship; no interest or charges may be claimed by the vendors for the meat until it has been 28 days in cold storage, but thereafter they may be paid interest at the rate of 6 per cent. on the value of the meat, and the storage charge will be paid by the Government :-

Mutton.	Price.	Beef.	Price.
	per lb.		per lb.
F. a. q. and g. a. q.—(3rds $\frac{1}{2}$ d. less)	d.		d.
Wether ... ..	5 $\frac{1}{2}$	Ox ... ..	4 $\frac{7}{8}$
Ewe ... ..	5	Cow ... ..	4 $\frac{5}{8}$ -4 $\frac{7}{8}$
Teg ... ..	5 $\frac{3}{4}$	Bull—hinds and crops ... ..	4 $\frac{3}{8}$
Lamb ... ..	6 $\frac{1}{2}$	Buttocks ... ..	5 $\frac{3}{4}$
Stag ... ..	4 $\frac{1}{2}$	Rumps, loins—trimmed ... ..	5 $\frac{1}{4}$
Cut Carcases ... ..	5 $\frac{1}{4}$	Forequarter ribs ... ..	5
Hindquarters ... ..	5 $\frac{1}{2}$	Chuck and blade ... ..	4
Forequarters ... ..	4 $\frac{1}{2}$	Boneless—in bags ... ..	5 $\frac{1}{2}$
Loins—trimmed ... ..	5	„ in crates ... ..	5 $\frac{1}{4}$

The purchase and shipment are arranged by the Metropolitan Meat Industry Board.

Up to the end of December, 1917, the quantity of meat requisitioned under the authority of the Act and shipped from Sydney was 99,079,475 lb., consisting of 1,835,361 carcasses of mutton and lamb, and 136,068 pieces of beef. The Imperial Government purchased also 1,482,314 lbs. of cheese, the prices paid being 9 $\frac{1}{4}$ d. per lb. for first quality and 9d. per lb. for second quality. The total cost to the Imperial Government, including storage and interest, to the end of December, 1917, was £2,201,294 for meat, and £57,108 for cheese.

## FISH SUPPLY.

In the section relating to Fisheries it is shown that, although the sea-board waters, rivers, estuaries, and coastal lakes of New South Wales contain immense quantities of edible fish, the industry has not been developed, and consequently the position of the fish supply is far from satisfactory. Supplies are irregular and inadequate, there is no effective system of distribution, and as a result prices are high.

Communication between the inshore fishing-grounds and the Sydney market depends mainly on ocean transport, as only those between the Macleay

River on the north and the Shoalhaven River on the south are connected by rail. The fish are taken to the point of shipment in the fishermen's boats, then washed, packed in cases with ice, except in the case of short distances in winter, and consigned to agents in Sydney. For sea-carriage the capacity of the cases varies from 252 lbs. to 640 lbs. of fish, exclusive of ice; fish carried by rail are packed in cases of a capacity of 65 lbs. to 80 lbs. In some instances the cases are the property of the agents, who charge a small rental for their use, but the leading fishermen own sufficient for their requirements.

The packing and handling of fish have greatly improved, but the undesirable practice of unpacking fish on the Sydney wharves into baskets still prevails.

The quantity of fish supplied is restricted by the want of regular and frequent communication with grounds not connected with Sydney by rail, also the cost of freight by steamer from some of the more prolific grounds tends further to restrict the supply of the commoner varieties, though of late the abnormally high price of meat, and the excellent prices realised for inferior kinds of fish, have largely stimulated their shipment.

There are two fish markets in Sydney, the Municipal Fish Market and the Commonwealth Co-operative Fish Exchange, Redfern. The former is controlled by the Sydney Municipal Council, which acts as selling agent, although private agents are allowed to conduct business in the Council's building. The Co-operative Fish Exchange is owned and controlled by a private company, most of the agents operating on its premises being shareholders.

Fish is sold in the markets by agents both by auction and by private treaty; the Municipal Council sells by auction only. Inspection in the Municipal Market is made by an officer of the Council and by a Government Inspector, and in the Commonwealth Fish Exchange by a Government Inspector acting under the Pure Food Act.

The marketing charges, in addition to rail or steamer freight, are as follows:—

Wharfage dues	... ..	per basket.
Cartage, wharf to market	... ..	1d.
		6d.
Market dues—		
Municipal Market	... ..	Fish, 4d. ; Prawns, 6d.
Commonwealth Market...	... ..	Fish, 3d. ; Prawns, 6d.

Case rent—1s. per trip—is charged also by some agents, and on any fish placed in cool storage additional dues of 9d. per basket per week must be paid. The private agents charge a selling commission of 10 per cent., out of which they pay the market dues. The Municipal Council charges 5 per cent. commission, and debits the fisherman with the market dues.

The need for an effective system of general distribution of fish to private consumers is urgent. The buyers at the markets consist mainly of wholesale and retail dealers, and hotel, restaurant, and boarding-house keepers; few private consumers attend the sales. In the nearer suburbs a few dealers maintain regular rounds for the purpose of house-to-house distribution, but the more distant suburbs are supplied only by hawkers whose visits are intermittent.

Reliable statistics regarding the movement of prices are not obtainable but there is sufficient evidence to show that the wholesale prices of all classes of fish have increased considerably.

The main cause of the high prices is the steadily increasing demand, with which the supply has not kept pace. The increase in the demand is not due solely to growth of population, as during the period 1900-17 the quantity of fish marketed in Sydney increased by over 172 per cent. while the increase in the population was 58 per cent. The increase in the demand is attributed to the high cost of meat food, and to changes in the domestic and housing conditions of the people which have led to increased consumption in hotels and in boarding-houses where fish is more regularly an item of food than in the average private household.

The crayfishing industry should experience an extensive development, because there is an increasing demand for this article of diet, the number marketed in 1917 being 97,752 as compared with 25,932 in 1901. As regards nutriment value, crayfish is equal to that of ordinary fish, but it is less digestible.

Oysters are marketed in sacks of 3-bushel capacity; they are gathered by hand on beds in shallow water or between tide-marks, and by means of the oyster dredge or tongs in deep-water. Owing to the increased demand oysters are marketed at a smaller size now than formerly.

All the Sydney oyster merchants hold oyster leases, and, in addition to production from their own leases, they market oysters for other lessees. The prices paid to producers by merchants, and to the latter by retailers, are fixed by private treaty. Competition in the oyster trade has been very keen during recent years, and producers have received high prices.

As in the case of other fish, the demand for oysters is far in excess of the supply, and prices are relatively high. The output during 1917 was 21,171 bags. Oyster culture differs from other branches of the fishing industry as to trade conditions, and is apparently more remunerative; the oyster leases form an important source of revenue to the Department of Fisheries.

There is a permanent demand for preserved fish, especially in country districts, where fresh fish is rarely obtainable; at the present time this demand is supplied wholly by importation. In local waters there are large numbers of fish eminently suitable for preserving; a duty of 1½d. per lb. is imposed on the imported article.

Fish preserving has not proved successful in New South Wales, owing partly to lack of experience of persons engaged, and partly to irregularity of supplies.

#### STATE TRAWLING.

During 1915 a Government deep-sea fishing scheme came into active operation. Three modern steam steel trawlers, using the full-sized commercial otter-trawl net, are engaged regularly in trawling along the coast. Operations have been confined principally to an area known as the "Home," or Botany ground, a few miles to the south of Port Jackson, and to the Eden ground in the vicinity of Eden and Green Cape, in depths ranging from 35 to 90 fathoms. The catches are landed several times a week at a central receiving depôt at Woolloomooloo Bay, where there are cold storage facilities. The fish are cleaned, and distributed by light delivery cars to retail depôts situated in various parts of the Metropolitan area.

There are now six State fish-shops in the Metropolitan area, and one at Newcastle, at which are offered for sale deep-sea (or tiger) flathead, leather-jacket, john dory, nannygai, morwong, boarfish, sea perch, barracouta, gurnard, skate, ray, and other kinds. Fish are sold also as flake, fillets, and in various other ways, including smoked, smoked-salted, brine salted, and cooked. Varieties of fish not known previously among general consumers have been placed successfully on the market.

The following statement shows the average prices charged during 1917 in the State fish shops, the rate being at per lb., except where otherwise stated :—

<i>Fresh.</i>				<i>Smoked.</i>	
Flake ... ..	} 3d.	John Dory ... ..	} 6d.	Flake ... ..	5d.
Sawfish ... ..		Jackass Fish ... ..		Barracouta ... ..	} 7d.
Salmon ... ..		Morwong ... ..		Mullet ... ..	
Gurnard ... ..		Nannygai ... ..		Sawfish ... ..	
Barracouta ... ..		Silver Dory ... ..		Skate ... ..	Gurnard ... ..
Skate ... ..	Flathead (salt or fresh) ... ..	Trevally ... ..	Tailor ... ..		
Blackfish ... ..	Kingfish ... ..	Flathead ... ..	Leatherjacket ... ..	9d.	
Mullet ... ..	Giant Boar-fish ... ..	Garfish ... ..	Gurnard fillets ... ..	} 1s.	
Spotted Rock Cod (or Thetis) ... ..	} 4d.	Sergeant Baker ... ..	Snapper ... ..		
Cucumber Fish ... ..		Garfish ... ..	Bream ... ..		
Gurnet Perch ... ..	} 5d.	Jewfish ... ..		<i>Sundries.</i>	
Sea Perch ... ..		Gurnard fillets ... ..		Roes (fresh), 8d.	
Tailor ... ..		Black Rock Cod (fillets 10d. lb.) ... ..		„ (smoked), 1s.	
Trevally ... ..		Whiting ... ..		Crayfish (Lobster), 1s. to 1s. 6d. each.	
Leatherjacket (salt or fresh) ... ..		Murray Cod ... ..			
Short Boar-fish ... ..	Red Bream ... ..				
Eels ... ..	Snapper ... ..				

These prices are subject to fluctuation, but do not vary greatly; gurnard, which has come into great prominence, is frequently sold at the low rate of 2d. per lb., and as much as 30,000 lb. of this fish have been sold in one week.

Four additional trawlers are nearly completed at Walsh Island Dockyards, and a wooden general fishing vessel is on the stocks in Sydney Harbour. It is expected that all these vessels will be commissioned during the year 1918.

In order to improve the condition of the fishing industry, whereby the fishermen obtained but a poor and precarious return for their labour, while the consumers were forced to pay high prices for a poor supply, the State has undertaken to erect a chain of coastal receiving depôts north and south of Sydney, at which fishermen's catches will be received into cold storage to be distributed by rail, road, or water. In this connection a large fish-carrying vessel of special design has been built, and is being fitted with machinery.

Many thousands of baskets of fish go to waste annually for lack of proper handling and distributing facilities, and the proposed State scheme is designed to obviate this great loss. At the end of 1917 a central distributing depôt had been completed at Newcastle, and a receiving and refrigerating depôt had been opened at Pindimar on the Northern shores of Port Stephens; the opening of a similar depôt at Maclean on the Clarence River is contemplated.

When the coastal depôts are in operation and the extra trawlers are in commission, fresh fish will be distributed to many parts of the State where it is not obtainable now, and preserving works will be erected for the treatment of any surplus. Fish-meal for poultry and pig and cattle food, also fish guano for fertilising, will be manufactured in due course.

An interesting new industry established in connection with State trawling is that of net-braiding. Six women are employed as net-braiders, making trawl-nets for the State vessels, pure Manilla twine of local manufacture being used.

## BREAD.

The Sydney bread supply is produced by about 200 master bakers, and for the most part bread is sold by them directly to the consumers. The quality of the bread is good, and the conditions of production satisfactory.

The price of bread was fixed ordinarily by the Master Bakers' Association. About 160 of the Sydney master bakers are members of the Association, but the price was observed generally by non-members also. Until the Necessary Commodities Control Act, 1914, came into operation the price was fixed with relation to the declared price of flour, but owing to the practice on the part of the millers of giving extended terms of delivery for flour purchases, the declared price was not always the actual price paid by the baker.

The price of flour was fixed by an association of millers, and was higher than the price obtainable for export, higher also than it would be under competitive conditions. The excess, however, was due to special conditions in the trade, and was not great enough to cause any substantial addition to the price of bread. The prices of bread, and of food products generally, have been regulated under Commonwealth supervision since July, 1916.

The price of bread in Sydney, as fixed at various times from 1900, is shown below in conjunction with the declared price of flour at the time when the price of bread was fixed:—

Date.	Price of 2 lb. Loaf.	Cost of Flour per ton.
	d.	£ s. d.
1900 ... ..	2 $\frac{1}{2}$	6 15 0
1902—April ... ..	2 $\frac{3}{4}$	8 15 0
September ... ..	3	9 10 0
November ... ..	3 $\frac{1}{4}$	10 10 0
1903—February ... ..	3 $\frac{1}{2}$	12 0 0
December ... ..	3 $\frac{1}{4}$	10 10 0
1904—February ... ..	3 $\frac{1}{4}$	9 10 0
September ... ..	3	9 0 0
1907—June ... ..	3 $\frac{1}{4}$	8 15 0
October ... ..	3 $\frac{1}{4}$	10 0 0
1909—March ... ..	3 $\frac{1}{2}$	10 0 0
1910—June ... ..	3 $\frac{1}{4}$	8 15 0
1912—May ... ..	3 $\frac{1}{2}$	9 15 0
1913—October ... ..	3 $\frac{1}{2}$	8 15 0
1914—December ... ..	4	11 17 6
1915—July ... ..	5	17 5 0
October ... ..	4	11 17 6
1916—March ... ..	*3 $\frac{1}{2}$	11 5 0
August ... ..	*3 $\frac{1}{4}$	11 5 0
1917—June ... ..	*3 $\frac{3}{4}$	11 0 0
December ... ..	*3 $\frac{1}{2}$	11 0 0

\* Price over counter: 4d. if delivered.

At an investigation into the price of bread in Sydney, conducted by the Interstate Commission in 1918, it was stated that day-baking tends to diminish the returns of bakers by reducing the consumption, the bread being at least eighteen hours old when delivered, and to increase the cost, as more dough is required to make a loaf which will satisfy the requirements of the law in regard to weight. Nevertheless, the average number of loaves obtained from a ton of flour is greater in Sydney than in Melbourne, where the bread is baked at night.

The average cost of producing bread in Sydney is estimated by the Interstate Commission at 2-9d. per loaf, and the delivery cost is about  $\frac{3}{4}$ d. per loaf.

*State Bakery.*

A bakery was purchased by the State, and proclaimed a State industrial undertaking as from 12th February, 1914. The price paid for the land, buildings, and plant was £8,200, and with additional costs the capital was £16,474 as at 30th June, 1917.

The capital employed during the year 1916-1917 was about £14,800, and the trading operations resulted in a profit of £2,603, or 17·6 per cent; the net profit after providing interest and sinking fund was £1,959, or 13·2 per cent. The sales amounted to £61,925, as compared with £84,577 in the previous year, the decrease being due to the cessation of supplies to the military. Bread was sold to Government institutions at 2·88d. per 2lb. loaf.

## FRUIT.

The fruit supply of Sydney is derived mainly from orchards within the State, from Victoria, Tasmania, America, Sicily, and Italy. Relatively small quantities are obtained from Queensland and South Australia, and the bulk of the banana supply comes from Fiji.

From November or December to February or March the supply is for the most part locally grown; from March to October the market for all fruits, except citrus, is supplied chiefly from Victoria and Tasmania; in October shipments arrive from America. From May to December local supplies of citrus fruits are available, though importations from America of oranges and lemons are made from October to December, and from Italy from December to March.

The following statement shows an average of the wholesale prices of various fruits in Sydney during the last four years:—

Fruit.	1914.	1915.	1916.	1917.
Apples, per bushel... ..	6s. to 9s.	7s. to 10s.	6s. 6d. to 10s.	9s. to 13s.
„ cooking, per bushel	7s. 6d.	8s.	6s.	9s. 6d.
Oranges, per bushel ... ..	8s. to 14s.	8s. to 13s.	7s. 6d. to 15s.	7s. to 13s.
Mandarins „ ... ..	11s.	8s.	11s.	9s. 6d.
Pears „ ... ..	12s.	11s.	11s.	9s. 6d.
Passion fruit, per $\frac{1}{2}$ bushel ...	7s.	7s.	6s. 6d.	7s.
Bananas, per $1\frac{1}{2}$ bushel ... ..	18s.	20s.	15s. 6d.	16s. 6d.
Pineapples „ ... ..	9s.	8s.	7s. 6d.	9s.

## VEGETABLES.

No details are available regarding the local production of the different kinds of vegetables, except potatoes and onions, as the figures are included under a general heading, “Market Gardens,” as shown in the chapter relating to Agriculture. Large supplies of vegetables are obtained from other Australian States.

The average wholesale prices of vegetables in Sydney during 1913-17 were as follows:—

Vegetables.	1913.	1914.	1915.	1916.	1917.
Cabbages... per doz.	6s. to 7s.	5s. to 6s.	6s. to 8s.	5s. to 7s.	6s. to 7s.
Cauliflowers „ „	7s. to 10s.	6s. to 8s.	6s. to 8s.	7s. to 8s.	8s.
Peas ... per bush.	6s. 3d.	5s. 6d.	6s. 6d.	7s.	8s.
Beans ... „	6s.	3s. to 4s.	5s. to 6s.	4s. to 5s.	5s. to 6s.

Imported potatoes are sold by private treaty on the wharf shortly after arrival, and the prices are fixed by arrangement between sellers. Locally-grown potatoes are sold by auction in the railway yards.

The average wholesale prices of Tasmanian and Victorian potatoes and of onions are shown below in half-yearly periods between 1901 and 1917 :—

Year.	Potatoes.				Onions.	
	Tasmanian.		Victorian.		Jan.-June.	July-Dec.
	Jan.-June.	July-Dec.	Jan.-June.	July-Dec.		
	per ton. £ s. d.					
1901	5 0 0	6 0 0	*	*	10 0 0	10 5 0
1906	8 0 0	8 5 0	7 0 0	7 0 0	6 12 6	7 10 0
1911	7 0 0	6 7 6	5 7 6	5 15 0	3 2 6	5 0 0
1912	9 5 0	13 5 0	7 10 0	9 0 0	12 15 0	12 15 0
1913	7 18 6	6 11 6	6 13 0	3 17 6	7 1 6	7 14 6
1914	6 9 0	7 3 0	5 4 0	*	7 17 0	10 4 0
1915	7 1 6	12 10 6	6 9 0	10 15 6	8 3 0	7 14 6
1916	11 0 0	7 10 9	8 10 0	*	4 12 3	5 9 9
1917	6 14 3	8 3 9	4 15 9	6 2 3	7 5 6	14 4 6

\* None offering.

#### MILK.

The milk supply of Sydney is derived partly from dairies in the metropolitan area, and partly from dairies in country districts, viz., the South Coast district between Wollongong and Nowra, the districts traversed by the Main Southern Railway between Liverpool and Moss Vale, the Penrith, Windsor, and Richmond Districts, and the districts around Brantxton, Singleton, and Gosford, on the Northern Railway line.

The proportion of the city supply derived from metropolitan dairies is decreasing steadily. The chief reasons for the decline are the increased land values in the suburban areas and the high price of fodder—cows kept in the city and suburbs must be hand-fed throughout the year. The average yield per cow is increasing in the metropolitan district, as the high cost of maintenance necessitates the elimination of unprofitable animals from the herds.

On the other hand, there is strong evidence of diminishing productiveness in many parts of the South Coast District, where the bulk of the country milk is obtained; although recently there has been an increase in the quantity obtained from the Maitland District. This has an important bearing on the city milk supply, as, unless an improvement is effected, milk will have to be brought to the city from more distant parts of the State.

The law governing the conditions of milk production and distribution is contained mainly in the Dairies Supervision Act of 1901, the Pure Food Act of 1908, and the Dairy Industry Act of 1915. The duty of registering dairies, and supervising and inspecting dairy premises and cattle, is vested in local authorities, but in actual practice the administration is conducted by the Board of Health. There are now 17,751 registered dairymen in the State, and the cattle in their dairy herds number 743,751. In the metropolitan district there are 338 registered dairymen, with 7,864 cattle; there are also 3,354 registered milk vendors.

The standard for milk is fixed by regulation under the Pure Food Act. It must contain not less than 8.5 per cent. of milk solids (not fat), and 3.2 per cent. of milk fat.

The Dairy Industry Act, 1915, was passed to regulate the manufacture, sale, storage, transit, and export of dairy produce, including margarine, and for prescribing standards; to provide for the testing, blending, mixing, and grading of cream, and for the grading and branding of butter.

The milk from the metropolitan dairies is distributed direct to the consumer, and the country milk is handled by three large distributing companies. The milk which is sent to two of these companies is delivered at the country railway stations in 10-gallon cans, and carried in louvered vans to Sydney, where it is subjected to a pasteurising process. A preferable method is adopted in the case of the milk sent to the third company; it is treated at a country factory and sent in 600-gallon tanks to Sydney, where it is cooled again before distribution.

The present system of distribution—especially in the case of raw milk—is expensive and ill-adapted for facilitating proper supervision of the milk.

The distribution of country milk in the city is already conducted on somewhat similar lines, but the system is only partially co-operative, and a large proportion of the milk is sold wholesale to milk vendors, and not directly to the consumers.

The range of wholesale and retail prices of milk during each year since 1901 is shown below. The wholesale price represents that paid by the distributing companies to the farmer for milk delivered on trucks at country railway stations; the retail price for country milk is that charged by these companies, or by milk vendors, to the householder; and for fresh milk the retail price is that charged by the metropolitan dairyman. The prices quoted from July, 1915, to June, 1916, were fixed by the Necessary Commodities Control Commission, and the later prices by the Commonwealth authorities under the War Precautions (Prices) Regulations:—

Year.	Wholesale.		Retail.		Year.	Wholesale.		Retail.	
			Country.	Fresh.				Country.	Fresh.
	per gal. d. d.		per qt. d.	per qt. d.		per gal. d. d.		per qt. d.	per qt. d.
1901	6 to 7		4	4-5	1912	6 to 9		5	6
1902	6 „ 10		4-5	5-6	1913	6 „ 9		5	6
1903	6 „ 10		5	5	1914	8 „ 11		5	6
1904	5 „ 6		3-4	4-5	29-7-15	11d.		5½	6
1905	5½ „ 7		4	4	4-9-15	9d.		5	6
1906	6 „ 7		4	4	10-1-16	9d.		5	6
1907	6½ „ 9		4-5	4-5	16-6-16	1s.		...	6
1908	6 „ 12		5	5	17-7-16	1s.		...	6
1909	7 „ 10		5	5	26-9-16	10d.		5	6
1910	6 „ 9		4-5	5	25-10-16	10d.		5½	6
1911	6 „ 9		4-5	5	31-5-17	10d.		5½	6

The price paid to the farmer for country milk has varied from 5d. to 1s. per gallon; in view of the increased costs of production since 1901, it is generally agreed that in an average year the minimum price payable is 8d. per gallon. The milk received by the distributing companies is retailed to the householder at an advance of from 10d. to 1s. 2d. per gallon on the price paid to the farmer, but considerable quantities are sold to vendors at wholesale rates about 4d. per gallon higher than the price paid to the farmer.

#### PROTECTION AND STANDARDISATION OF FOODS.

Prior to the passing of the Pure Food Act, 1908, limited powers of supervision regarding the preparation and sale of foods had been exercised by the Board of Health and by the various local governing bodies under acts relating to public health, local government, dairies,

supervision, cattle slaughtering, etc. Since the enactment of a specific measure, a definite system of regulation has become possible. The administration of the pure food law is entrusted primarily to the Board of Health, with an Advisory Committee, consisting of the President of the Board, and medical men, chemists, merchants, and others, on whose recommendations the Board makes regulations regarding the standardisation, composition, methods and conditions of manufacture, storage, sale, etc., in order to secure the wholesomeness, cleanliness, and purity of the food supply. Officers, appointed under the Act, may enter for the purpose of inspection any place used for the sale, storage, delivery, manufacture, or preparation of any article intended for use as a food or a drug. The first code of regulations, prescribing the standards for foods and drugs, was gazetted on 15th July, 1909. The Commonwealth Department of Trade and Customs has control as to the composition and labelling of foods and drugs imported into Australia.

#### MUNICIPAL MARKETS.

The Sydney Corporation (Consolidating) Act of 1902 empowers the City Council to establish public markets within its boundaries for the sale of fruit, vegetables, fish, produce, or general merchandise; the Council may grant licenses for hawking and selling in the city, poultry, fish, vegetables, garden produce, and other articles, as provided under the by-laws. The Council had a practical monopoly, within the city and within 14 miles of the city boundary, of cattle saleyards, and power to exercise a similar monopoly in regard to sheep, calves, pigs, horses, etc., until 1st July, 1912, when this control, so far as it affects sheep and fat stock, and until 3rd July, 1916, so far as it affects pigs and calves, was assumed by the Government.

Under the Amendment Act of 1905, the Council has power to make by-laws, consistent with the traffic regulations, for the regulation and control of all stands and stalls used, in any public way in the city, for the sale of refreshments or fruit.

Under the Local Government Act of 1906, municipalities (excluding Sydney) exercise among their primary functions control as to the regulation and licensing of the hawking of goods; both shires and municipalities have power to lease buildings, wharfs, markets, etc. Among the specific powers of shires is included dairy supervision; among the additional powers which may be acquired by shires and municipalities are those relating to the construction, establishment and maintenance of cattle saleyards and abattoirs and public markets; inspection and regulation of the wholesale and retail sale and of the storage and exhibition for sale of fish, and of rabbits, poultry, and game; and the regulation and supervision of the sale, storage, and exhibition for sale, conveyance, and mode of delivery, by carcass or otherwise, of meat for human consumption, and of the disposal and removal of other meat, and of any offal, or other refuse.

#### SYDNEY MUNICIPAL MARKETS.

The Municipal Council of Sydney has undertaken the provision of an extensive scheme of markets. Land, amounting to about 12½ acres, was resumed in 1908 in the Engine-street area, then a closely-populated district, and a growing manufacturing centre. Handsome structures have been erected for the marketing, in separate buildings, of vegetables, farm produce, fruit, fish, and poultry.

The vegetable market has 288 stalls, which are occupied by the *bonâ fide* grower, who brings his own produce to market, and conducts the sale by private treaty; the charges are on the dues system at 1s. 6d. per cart load; the minimum amount payable for each stall is 3s. per week. The quantity of vegetables sold per annum, in favourable seasons, is estimated to range from sixteen to twenty thousand tons.

The produce market is occupied almost entirely by agents, who receive products from the country and oversea; these agents are allotted stands on the scale of 1s. 6d. per load, with an additional reserving fee of 1s. per week for the particular stand. Surrounding this market are stores, which are leased to the agents, who distribute to suburban and distant centres.

The fish market is managed on an entirely different plan. Fish are consigned direct to the Council from the various districts, and are sold by the Council's officers at auction. Salt water, pumped from the harbour, is supplied to the markets for cleansing the fish, and there is a cooling chamber available for the use of shopkeepers and others in the trade.

The catches from the State trawlers do not pass through this market, but are distributed to the public from shops in the city and suburbs.

The fruit market was designed with every convenience for the speedy and careful handling of this delicate food product. Fruit may be conveyed to the market directly by means of a special railway siding, 292 feet in length, which connects with the main railway system. Provision is made for sales by auction, if the consignors so desire, instead of by private treaty.

In all these markets the officers of the Council are charged with the necessary authority for inspection and condemnation.

The poultry market provides accommodation for from fifteen to twenty thousand head of poultry; there is also a special floor for eggs, bacon, butter, cheese, etc. The market is subdivided into stands, which are let to poultry auctioneers; the Council supervises the cleanliness of the market, but has no power in regard to inspection.

The area and cost of the several markets are as follows:—

Market.	Floor Space.	Cost of Market.	Market.	Floor Space.	Cost of Market.
	sq. ft.	£		sq. ft.	£
No. 1—Vegetable.	95,560	127,000	Fish ... ..	47,517	49,000
No. 2—Produce ...	45,300	48,300	Poultry ... ..	2,200	27,500
No. 3—Fruit ...	143,000	119,500			

#### *Municipal Cold Storage Works.*

These works, situated in the Market area immediately adjoining the Fruit Markets, are equipped with chilling and freezing rooms for the storage of fruit, dairy and farm produce, mutton and rabbits; the cost was £94,000.

The total storage capacity of the chambers, excluding passages and grading rooms, is 208,130 cubic feet. Provision is made to supply power for an ice-making plant; also for a further addition of cooling space as may become necessary.

These works supply a popular demand, and have proved a valuable asset to the Council.

#### WHOLESALE PRICES.

The determination of average prices of food products is a difficult matter in view of the extensive area of New South Wales, its scattered population, the varying methods of transport, and the sparsity of large central markets. Consequently an average of prices prevailing throughout the State has not been attempted. The following figures represent prices determined in metropolitan markets; for country districts due allowance must be made for cost of transportation, etc.

Average wholesale prices at Sydney sales of the principal kinds of farm and dairy produce are given for the seven years, 1911 to 1917. The average for the year represents the mean of the prices ruling during each month,

and does not take into account the quantity sold during the month. The figures are those quoted by the middleman and not those obtained by the producers :—

Farm and Dairy Produce.	1911.		1912.		1913.		1914.		1915.		1916.		1917.	
	£	s. d.												
Wheat ...bush.	0	3 6	0	4 1	0	3 7	0	4 2	0	5 5	0	5 0	0	4 10 $\frac{1}{2}$
Flour ... ton	8	9 10	9	8 11	8	12 9	9	9 8	13	7 0	11	5 4	11	1 0
Bran ...bush.	0	0 11 $\frac{3}{4}$	0	1 2 $\frac{1}{2}$	0	0 11	0	1 1	0	1 3 $\frac{1}{4}$	0	0 10 $\frac{1}{2}$	0	0 9 $\frac{1}{2}$
Pollard ... „	0	0 11 $\frac{3}{4}$	0	1 3 $\frac{1}{4}$	0	0 11 $\frac{3}{4}$	0	1 1	0	1 5 $\frac{1}{2}$	0	1 0 $\frac{1}{4}$	0	1 0 $\frac{1}{2}$
Barley ... „	0	2 9	0	4 4	0	2 11 $\frac{3}{4}$	0	2 11	0	5 5 $\frac{1}{2}$	0	3 4 $\frac{1}{4}$		*
Oats ... „	0	2 8	0	3 6 $\frac{1}{2}$	0	3 0	0	3 0	0	4 7	0	2 10 $\frac{1}{2}$	0	3 3
Maize ... „	0	3 0	0	4 8	0	4 1 $\frac{1}{4}$	0	3 11 $\frac{1}{2}$	0	5 2 $\frac{1}{4}$	0	4 6	0	3 9 $\frac{1}{2}$
Potatoes... ton	6	1 3	8	12 9	4	16 6	4	14 8	7	9 1	8	14 0	6	3 0
Onions ... „	4	7 9	12	4 3	7	18 9	9	2 10	7	19 0	5	0 9	10	5 0
Hay— Oaten or Wheaten ton	4	15 3	6	6 6	4	15 3	4	17 2	8	4 8	4	7 0	4	16 0
Lucerne „	3	5 0	4	18 9	4	19 0	4	9 4	5	16 7	4	6 0	3	12 0
Chaff ... „	4	4 3	5	14 0	4	7 9	5	3 6	7	3 8	4	8 6	4	6 5
Butter ... lb.	0	0 10 $\frac{5}{8}$	0	1 0	0	0 11	0	0 11 $\frac{1}{2}$	0	1 2 $\frac{1}{4}$	0	1 3	0	1 4 $\frac{1}{4}$
Cheese ... „	0	0 7 $\frac{1}{4}$	0	0 8 $\frac{1}{2}$	0	0 7	0	0 7 $\frac{1}{2}$	0	0 9 $\frac{1}{2}$	0	0 9	0	0 9 $\frac{1}{2}$
Bacon ... „	0	0 7	0	0 8 $\frac{1}{2}$	0	0 9 $\frac{1}{2}$	0	0 9 $\frac{1}{2}$	0	0 10 $\frac{1}{2}$	0	1 0	0	0 11 $\frac{1}{2}$
Eggs ... doz.	0	1 0 $\frac{1}{2}$	0	1 2 $\frac{1}{4}$	0	1 2 $\frac{3}{4}$	0	1 1	0	1 4 $\frac{1}{4}$	0	1 3	0	1 0
Milk ... gal.	0	0 9 $\frac{1}{4}$	0	0 11 $\frac{1}{4}$	0	0 11	0	0 11 $\frac{3}{4}$	0	1 0	0	1 2 $\frac{1}{4}$	0	1 2 $\frac{1}{4}$
Poultry— Fowls ... pair	0	4 8	0	5 0	0	4 10	0	5 5	0	5 6	0	5 9	0	5 9
Ducks ... „	0	3 3	0	3 3	0	4 4	0	4 5	0	3 11	0	4 11	0	4 9
Geese ... „	0	5 8	0	6 3	0	7 0	0	6 8	0	6 4	0	8 0	0	9 9
Turkeys.. „	0	11 3	0	15 9	0	11 0	0	11 2	0	13 3	0	14 3	0	15 9
Bee produce— Honey ... lb.	0	0 2 $\frac{1}{2}$	0	0 3	0	0 3 $\frac{1}{2}$	0	0 3 $\frac{1}{2}$	0	0 4 $\frac{1}{4}$	0	0 4 $\frac{3}{4}$	0	0 4 $\frac{1}{2}$
Wax ... „	0	1 1 $\frac{1}{2}$	0	1 2 $\frac{1}{2}$	0	1 2 $\frac{3}{4}$	0	1 2 $\frac{1}{2}$	0	1 4	0	1 4 $\frac{1}{2}$	0	1 6 $\frac{1}{2}$

\* No quotations.

These figures call for little comment beyond the caution already given that, in regard to the prices of commodities generally, the averages are irrespective of the quantities sold. As regards most of the articles in the list, the lower the price the larger the consumption. The exception to this rule is poultry, which is most in demand before the Christmas season, when prices are correspondingly high.

In comparison with the yearly prices, the averages of the wholesale prices current during each month of 1917 are quoted for the more important articles of New South Wales agricultural production:—

Month.	Wheat (Milling).	Flour (in 150 lb. bags).	Bran.	Pollard.	Oats.	Maize.	Hay (Oaten).
	per bushel. s. d.	per ton. £ s. d.	per bushel. d.	per bushel. d.	per bushel. s. d.	per bushel. s. d.	per ton. £ s. d.
January ...	4 10 <sup>3</sup> / <sub>4</sub>	11 2 6	9·0	12·0	2 9 <sup>3</sup> / <sub>4</sub>	3 6 <sup>1</sup> / <sub>2</sub>	3 16 9
February ...	4 10 <sup>3</sup> / <sub>4</sub>	11 2 6	9·0	12·0	2 9 <sup>3</sup> / <sub>4</sub>	3 3	3 18 3
March ...	4 10 <sup>3</sup> / <sub>4</sub>	11 2 6	9·0	12·0	2 10 <sup>1</sup> / <sub>2</sub>	3 3	3 17 6
April ...	4 10 <sup>3</sup> / <sub>4</sub>	11 2 6	9·0	12·0	2 6 <sup>1</sup> / <sub>2</sub>	3 0 <sup>7</sup> / <sub>8</sub>	4 2 6
May ...	4 10 <sup>3</sup> / <sub>4</sub>	11 1 9	8·8	13·2	2 10	3 3 <sup>3</sup> / <sub>8</sub>	5 13 6
June ...	4 10 <sup>3</sup> / <sub>4</sub>	11 0 0	8·4	13·2	2 10 <sup>7</sup> / <sub>8</sub>	3 5	5 10 0
July ...	4 10 <sup>3</sup> / <sub>4</sub>	11 0 0	8·4	13·2	2 10 <sup>7</sup> / <sub>8</sub>	3 3 <sup>3</sup> / <sub>4</sub>	4 18 3
August ...	4 10 <sup>3</sup> / <sub>4</sub>	11 0 0	9·6	13·2	3 3 <sup>1</sup> / <sub>4</sub>	3 11 <sup>3</sup> / <sub>4</sub>	4 17 6
September ...	4 10 <sup>3</sup> / <sub>4</sub>	11 0 0	9·6	13·2	3 4 <sup>5</sup> / <sub>8</sub>	4 4 <sup>7</sup> / <sub>8</sub>	5 1 3
October ...	4 10 <sup>3</sup> / <sub>4</sub>	11 0 0	9·6	13·2	3 6 <sup>3</sup> / <sub>8</sub>	4 5 <sup>1</sup> / <sub>2</sub>	4 5 9
November ...	4 10 <sup>3</sup> / <sub>4</sub>	11 0 0	9·6	13·2	3 6 <sup>3</sup> / <sub>4</sub>	4 6 <sup>3</sup> / <sub>8</sub>	5 6 9
December ...	4 10 <sup>3</sup> / <sub>4</sub>	11 0 0	9·6	13·2	3 8 <sup>3</sup> / <sub>8</sub>	5 2 <sup>3</sup> / <sub>8</sub>	6 3 3
	Potatoes (Local).	Butter (Good Brands).	Cheese (Prime).	Bacon (Sides).	Lard (Bulk).	Eggs.	
						Country Consign- ment	New Laid.
	per ton. £ s. d.	per lb. d.	per lb. d.	per lb. d.	per lb. d.	per doz. s. d.	per doz. s. d.
January ...	6 0 0	16	9 <sup>1</sup> / <sub>2</sub>	12	8 <sup>1</sup> / <sub>2</sub>	0 9 <sup>1</sup> / <sub>8</sub>	1 0 <sup>7</sup> / <sub>8</sub>
February ...	5 7 6	16	9 <sup>1</sup> / <sub>2</sub>	12	9 <sup>3</sup> / <sub>4</sub>	1 2 <sup>1</sup> / <sub>4</sub>	1 7
March ...	4 4 3	16	9 <sup>1</sup> / <sub>2</sub>	12	10 <sup>1</sup> / <sub>2</sub>	1 3	1 8 <sup>1</sup> / <sub>2</sub>
April ...	5 16 9	16	9 <sup>3</sup> / <sub>4</sub>	11 <sup>7</sup> / <sub>8</sub>	10 <sup>3</sup> / <sub>4</sub>	1 5	2 2 <sup>3</sup> / <sub>4</sub>
May ...	4 13 6	16 <sup>1</sup> / <sub>2</sub>	9 <sup>3</sup> / <sub>4</sub>	11 <sup>3</sup> / <sub>4</sub>	11 <sup>1</sup> / <sub>8</sub>	1 7 <sup>1</sup> / <sub>2</sub>	2 4 <sup>3</sup> / <sub>8</sub>
June ...	5 0 0	17	9 <sup>3</sup> / <sub>4</sub>	10 <sup>7</sup> / <sub>8</sub>	11 <sup>1</sup> / <sub>8</sub>	1 4 <sup>1</sup> / <sub>2</sub>	1 9
July ...	4 13 3	17	9 <sup>3</sup> / <sub>4</sub>	10 <sup>1</sup> / <sub>2</sub>	11	1 3	1 5 <sup>1</sup> / <sub>2</sub>
August ...	6 13 3	17	9 <sup>3</sup> / <sub>4</sub>	11 <sup>1</sup> / <sub>2</sub>	10 <sup>1</sup> / <sub>4</sub>	0 11	1 0 <sup>3</sup> / <sub>8</sub>
September ...	6 1 9	16 <sup>7</sup> / <sub>8</sub>	10 <sup>1</sup> / <sub>2</sub>	12	10 <sup>1</sup> / <sub>4</sub>	0 10	0 11 <sup>1</sup> / <sub>8</sub>
October ...	7 18 3	16 <sup>1</sup> / <sub>2</sub>	11 <sup>1</sup> / <sub>2</sub>	12	10 <sup>1</sup> / <sub>4</sub>	0 9 <sup>1</sup> / <sub>4</sub>	0 10 <sup>3</sup> / <sub>4</sub>
November ...	5 5 0	16	10 <sup>3</sup> / <sub>8</sub>	12	10 <sup>1</sup> / <sub>4</sub>	0 9 <sup>7</sup> / <sub>8</sub>	1 0
December ...	4 6 9	16	9 <sup>3</sup> / <sub>8</sub>	12	10 <sup>1</sup> / <sub>2</sub>	0 10 <sup>3</sup> / <sub>8</sub>	1 1 <sup>7</sup> / <sub>8</sub>

The price quoted for wheat represents the average official f.o.b. price of grain used for flour for home consumption; this includes 3<sup>1</sup>/<sub>4</sub>d. handling and commission charges, but city millers handling grain for their own mills obtain it for 1<sup>1</sup>/<sub>4</sub>d. per bushel less than the f.o.b. price. On 25th March,

1916, the f.o.b. price was reduced to 4s. 10<sup>3</sup>/<sub>4</sub>d. per bushel, and since that date the price for flour for home consumption has been 4s. 9d. per bushel (on trucks) at Sydney.

Of barley and oats, the bulk are imported, and the prices of these cereals during 1916 were much lower than in the previous year. The price of oats increased during 1917 from 2s. 9<sup>3</sup>/<sub>4</sub>d. per bushel in January to 3s. 8<sup>3</sup>/<sub>4</sub>d. in December. Maize is largely of local growth; there was a shortage during 1915, and the price was high; it decreased in 1916, but rose again during 1917, the price at the end of that year being the highest since February, 1916.

Prices for the various kinds of fodder declined during 1913 in consequence of favourable seasons and remained steady until October, 1914, when want of rain caused a large increase, which continued until July, 1915, and prices showed a downward tendency. Early in 1916 they decreased to a normal level, and remained fairly constant until May, 1917, when a sharp rise occurred.

Root crops show very great range; thus locally-grown potatoes varied between £7 18s. 3d. in October and £4 4s. 3d. per ton in March.

Prices of the items set forth in the tables just given are determined by the local demand, wheat excepted, its price being fixed usually by that ruling in the markets of the world; since 1914 it has been fixed by law.

The prices of pastoral and other primary produce, which form so large a proportion of the exports of the State, are not sensibly affected by local consumption, but are established by the prices ruling in London.

In the following table are given for six years the Sydney average f.o.b. prices of the principal pastoral products; leather is included as a pastoral product, although it might be regarded as a manufactured article:—

Pastoral Produce.	1912.	1913.	1914.	1915.	1916.	1917.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Beef ... .. lb.	0 0 2 <sup>3</sup> / <sub>4</sub>	0 0 3 <sup>1</sup> / <sub>4</sub>	0 0 3 <sup>3</sup> / <sub>8</sub>	0 0 5 <sup>1</sup> / <sub>2</sub>	0 0 6 <sup>1</sup> / <sub>2</sub>	0 0 6
Mutton ... .. „	0 0 3	0 0 3	0 0 3 <sup>7</sup> / <sub>12</sub>	0 0 4 <sup>8</sup> / <sub>8</sub>	0 0 5 <sup>3</sup> / <sub>4</sub>	0 0 5 <sup>1</sup> / <sub>2</sub>
Wool—Greasy ... .. „	0 0 9	0 0 9 <sup>3</sup> / <sub>4</sub>	0 0 9 <sup>1</sup> / <sub>4</sub>	0 0 9 <sup>7</sup> / <sub>8</sub>	0 1 1	0 1 3 <sup>1</sup> / <sub>2</sub>
Scoured ... .. „	0 1 3 <sup>1</sup> / <sub>4</sub>	0 1 5	0 1 4	0 1 4 <sup>1</sup> / <sub>8</sub>	0 1 8 <sup>3</sup> / <sub>4</sub>	0 1 10 <sup>1</sup> / <sub>4</sub>
Sheepskins with Wool ... .. bale	19 16 0	22 17 0	20 18 0	21 4 7	25 16 2	28 18 9
Hides ... .. each	1 4 0	1 9 4	1 8 0	1 12 0	1 9 3	2 13 0
Leather ... .. bale	34 16 8	39 19 9	47 15 4	50 2 0	55 5 8	56 9 7*
Tallow ... .. cwt.	1 9 3	1 10 3	1 8 4	1 12 5	1 16 6	2 1 7

\* January to June only; no later quotations.

In 1913 the prices of all the products shown in the table, with the exception of wool, sheepskins, hides, and tallow, were the highest throughout the period 1907-13. In 1914 the prices were affected by the war—the price of meat rose considerably, and that of leather was maintained at a high level; but trade dislocations resulted in a decline in the prices of wool, skins, hides, and tallow; towards the close of the year, however, there was a marked improvement. The influence of the war may still be seen in the prices for

1915, all products showing a decided increase, which continued in 1916, except for hides, which were slightly lower than in the previous year. There was a marked advance in 1917 in all except the meat prices.

The following statement shows the fluctuations during 1917 in the prices obtained in London for the more important articles of New South Wales produce :—

Month.	Wheat.	Flour.	Butter.*	Wool.		Tallow.
				Greasy.	Scoured.	
	per qr. s. d.	per ton. £ s. d.	per cwt. s.	per lb. d.	per lb. s. d.	per cwt. s. d.
January ...	82 0	21 4 0	203	17 $\frac{3}{4}$	2 1 $\frac{3}{4}$	44 6
February ...	82 0	22 15 0	205	19 $\frac{1}{4}$	1 11	43 5
March ...	82 0	23 5 6	209 $\frac{1}{2}$	20	2 2 $\frac{1}{2}$	45 2
April ...	82 0	25 0 0	191	19 $\frac{1}{4}$	2 3	46 9
May ...	83 0	27 17 0	192	18 $\frac{3}{4}$	2 3 $\frac{3}{8}$	47 3
June ...	83 0	28 2 6	185	17 $\frac{3}{8}$	2 1	46 10
July ...	84 0	28 18 6	191 $\frac{1}{2}$	18 $\frac{1}{2}$	2 2 $\frac{3}{8}$	47 7
August ...	84 0	28 18 6	204 $\frac{1}{2}$	18 $\frac{1}{2}$	2 2 $\frac{1}{2}$	49 11
September ...	77 6	†.....	§206	‡...	‡.....	‡.....
October ...	79 0	†.....	§206	‡...	‡.....	‡.....
November ...	79 0	†.....	§220	‡...	‡.....	‡.....
December ...	79 0	†.....	§220	‡...	‡.....	‡.....

\* Average price for Australian butter only. No separate quote received for New South Wales butter.  
 † No quotations. ‡ Not available. § Proclaimed price.

#### PRICES OF METALS.

The next table shows the Sydney average f.o.b. prices of the principal metals and of coal produced in the State. These, like pastoral products, are not affected by the local demand, but depend upon the prices obtained in the world's markets :—

Metals.	1912.	1913.	1914.	1915.	1916.	1917.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Silver ...oz.	0 2 4	0 2 3 $\frac{3}{8}$	0 2 1 $\frac{1}{4}$	0 1 11 $\frac{3}{4}$	0 2 7 $\frac{1}{4}$	0 3 4 $\frac{3}{4}$
Copper ...ton	72 10 0	68 13 4	60 16 8	73 0 0	115 15 0	125 3 4
Tin ...,,	209 1 8	202 5 0	153 0 0	164 17 1	181 15 0	237 16 8
Lead ...,,	17 3 4	18 15 0	19 1 8*	22 19 2	31 1 8	30 10 0
Coal ...,,	0 10 8	0 10 9	0 10 7	0 10 7	0 11 3	0 14 9.

\* No quotations during three months, August-October.

During 1912 there was a steady advance in the prices for all these metals, but, with the exception of lead, they were slightly lower in 1913. In 1914 the prices were affected adversely by the war, but in 1915 prices of copper, tin and lead rose again owing to the increased demand for war purposes, and during the last two years high prices were realised for all the industrial metals, notably tin, copper, and silver. The export price of coal, which had been fairly constant for some years, rose slightly during 1916, and there was a marked advance in 1917.

INDEX NUMBERS—EXPORT PRICES.

The following statement shows the variation since 1901 in price levels of the principal articles of domestic produce exported from New South Wales calculated on the average f.o.b. prices at Sydney. The average prices prevailing in 1901 were adopted as the basis and called 1,000 :—

Period.	General Index— All articles.	Pastoral Products— Wool, Tallow, Hides, Leather, etc.	Metals— Silver, Lead, Copper, Tin.
1901	1,000	1,000	1,000
1906	1,277	1,316	1,432
1911	1,194	1,194	1,189
1912	1,327	1,263	1,454
1913	1,367	1,408	1,451
1914	1,365	1,451	1,302
1915	1,620	1,686	1,464
1916	1,878	1,988	1,948
1917	2,116	2,212	2,241

SYDNEY RETAIL PRICES.

The following table shows the average retail prices in Sydney of various commodities at intervals from 1890 to 1910. The quotations are based on the prices charged in the shops in the metropolitan district. The 1913 edition of the Year Book gives average prices of commodities in each year from 1900 to 1910, and the 1905-6 edition the average prices in each year from 1870 to 1900 :—

Commodity.	1890.	1895.	1900.	1905.	1910.
	s. d.				
Bread ... .. 2 lb. loaf	0 3½	0 2¾	0 3	0 2¾	0 3½
Tea ... .. lb.	1 6	1 6	1 4	1 3	1 3
Coffee ... .. "	2 0	1 9	1 6	1 6	1 6
Sugar ... .. "	0 3½	0 2½	0 2¼	0 2½	0 2½
Rice ... .. "	0 4	0 2½	0 2½	0 2½	0 2½
Oatmeal ... .. "	0 3	0 2	0 2½	0 2½	0 2½
Starch ... .. "	0 5	0 4	0 3½	0 5	0 5
Soap ... .. "	0 3½	0 2	0 3	0 3½	0 3½
Potatoes ... .. cwt.	6 0	4 3	6 9	10 6	7 6
Butter ... .. lb.	1 0	1 0	0 11	1 1	1 1
Cheese ... .. "	0 8	0 8	0 7½	0 8	0 9
Eggs ... .. doz.	1 6	1 0	0 11	1 0	1 3
Bacon ... .. lb.	1 0½	0 7½	0 7½	0 9	0 10
Beef, fresh ... .. "	0 4	0 3	0 3½	0 5½	0 5½

Since the beginning of 1911 particulars are available regarding a larger number of articles, and returns of prices are now collected monthly. The mean of the monthly prices during 1911 and subsequent years is shown in the following statement :—

Article.	Average Prices.				
	1911.	1914.	1915.	1916.	1917.
	s. d.	s. d.	s. d.	s. d.	s. d.
Bread ... .. per 2lb. loaf	0 3·5	0 3·5	0 4·2	0 4	0 4
Flour ... .. 25-lb. bag	2 8	2 10	4 0·7	3 6·1	3 4·1
Tea ... .. lb.	1 3·5	1 3·8	1 5	1 6·1	1 6·2
Coffee and Chicory ... ..	1 5	1 6	1 6	1 6	1 6
Cocoa ... .. ½ lb.	0 4·2	0 4·2	0 4·2	0 4·6	0 5·4
Sugar ... .. lb.	0 2·7	0 2·7	0 2·9	0 3·5	0 3·5
Rice ... .. "	0 2·7	0 3	0 3	0 3·2	0 3·3
Sago ... .. "	0 2·7	0 2·7	0 2·7	0 3·2	0 3·9
Jam (Australian) ... .. "	0 4·4	0 5	0 5·2	0 6	0 5·7
Oatmeal ... .. 5 lb.	1 0·5	1 1·2	1 5·8	1 2	1 1·4
Raisins ... .. lb.	0 6·2	0 6·4	0 6·5	0 7·7	0 7·7
Currants ... .. "	0 7	0 7·1	0 7·8	0 9·1	0 8·3
Starch ... .. "	0 5·5	0 5·4	0 5·5	0 6·4	0 7
Blue ... .. doz. squares	0 9	0 8·7	0 9·1	0 9·2	0 9·5
Candles ... .. lb.	0 7	0 6·6	0 6·9	0 8	0 9·3
Soap ... .. "	0 3	0 3·3	0 3	0 3·4	0 4
Potatoes ... .. 14 lb.	1 0·2	1 1·1	1 5·3	1 6·5	1 4
Onions ... .. lb.	0 1	0 1·5	0 1·5	0 1·1	0 1·9
Kerosene ... .. gal.	0 11·1	1 0·7	1 1·5	1 6·7	1 10·8
Milk ... .. qt.	0 4·3	0 5·3	0 5·1	0 5·5	0 6
Butter ... .. lb.	1 1·5	1 2·2	1 5	1 5·3	1 6·7
Cheese—New ... .. "	0 8·7	0 10	1 0	1 0·1	1 0·6
Matured ... .. "	0 10	0 11·3	1 0·6	1 0·2	
Eggs—New laid ... .. doz.	1 6·5	1 7·6	1 11	1 9·5	1 7·5
Fresh ... .. "	1 3·5	1 4·2	1 7·5	1 6·4	1 4·7
Bacon—					
Middle cut ... .. lb.	0 10·5	1 0·1	1 3	1 4·5	1 4·3
Shoulder ... .. "	0 7	0 8·2	0 10·2	1 0·4	0 11·5
Ham ... .. "	1 1	1 1·8	1 3·3	1 5·5	1 5·4
Beef (fresh)—					
Sirloin ... .. "	0 4·5	0 5·9	0 9·8	0 11·1	0 11·1
Ribs ... .. "	0 3·8	0 5	0 8	0 9·5	0 9·5
Flank ... .. "	0 3·5	0 3·9	0 7·3	0 8·5	0 9·2
Gravy beef ... .. "	0 3	0 3·8	0 6·2	0 7·6	0 8·0
Steak—Rump ... .. "	0 7	0 8·7	1 0·2	1 1·8	1 2·6
Shoulder ... .. "	0 3·5	0 4·5	0 7	0 8·5	0 9
Buttock ... .. "	0 4	0 4·5	0 7·3	0 8	0 8·7
Beef (corned)—					
Round ... .. "	0 4	0 5	0 7·8	0 9·6	0 9·5
Brisket with bone ... .. "	0 2·2	0 3·5	0 5·7	0 6·5	0 6·4
Mutton—					
Leg ... .. "	0 3	0 4·8	0 6·2	0 7·8	0 8·2
Shoulder ... .. "	0 2·5	0 3·9	0 5·4	0 6·7	0 7·1
Loin ... .. "	0 3·8	0 5·1	0 6·7	0 7·9	0 9·1
Neck ... .. "	0 3	0 4	0 5·8	0 7	0 7·9
Chops—Loin ... .. "	0 4·2	0 6	0 7·8	0 9	0 10
Leg ... .. "	0 4	0 5·9	0 7·3	0 8·6	0 9·6
Neck ... .. "	0 3·5	0 4·7	0 6·1	0 7·3	0 7·9
Lamb—					
Fore-quarter ... .. each	1 9	2 8·4	†3 3	*0 7·7	*0 8·6
Hind-quarter ... .. "	2 9	3 11·2	†4 5	*0 8·7	*0 9·9
Pork (fresh)—					
Leg ... .. lb.	0 7·8	0 9·3	0 11	1 0·1	1 1·1
Loin ... .. "	0 7·5	0 9·3	0 11·1	1 0·1	1 2·4
Belly ... .. "	0 6·5	0 7·8	0 9·8	1 0	1 0
Chops ... .. "	0 8·5	0 10·5	0 11·8	1 0·1	1 3·5

\* Per lb.

† Mean of months January to July. From August to December the averages were Forequarter, 7d. per lb., hindquarter, 7½d.

While the above tables are useful for comparative purposes, in regard to the cost of living, the figures do not disclose a most interesting feature in a history of prices, namely, the fluctuations during the year, which are pronounced, especially in the case of perishable produce. The prices in each month of the year 1917 are shown below :—

Article.	Jan.	Feb.	Mar.	Apl.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.
Bread ... .. 2 lb. loaf	4	4	4	4	4	4	4	4	4	4	4	4
Flour ... .. 25 lb. bag	40	40	39.7	39.7	39.7	39.7	39.7	40	40	40	40	42.2
Self-raising ... 2 lb.	5.9	5.9	5.9	5.9	5.9	5.9	6	6	6	6	6.4	6.2
Tea ... .. lb.	18.2	18.2	18.2	18.2	18.2	18.2	18.2	18.2	18.2	18.2	18.2	18.2
Coffee and Chicory ...	18	18	18	18	18	18	18	18	18	18	18	18
Cocoa ... .. ½	4.6	4.6	5.2	5.2	5.2	5.7	5.6	5.6	5.6	5.6	5.6	5.9
Sugar ... .. lb.	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Rice ... .. "	3.2	3.2	3.2	3.2	3.2	3.2	3.4	3.4	3.4	3.4	3.4	3.4
Sago ... .. "	3.6	3.7	3.7	3.7	3.7	3.7	3.7	3.9	4.4	4.2	4.4	4.7
Jam (Australian) ...	5.8	5.7	5.9	5.7	5.7	5.9	5.7	5.7	5.6	5.6	5.6	5.7
Oatmeal ... .. 5 lb.	13.4	13.4	13.4	13.4	13.4	13.7	13.4	13.4	13.4	13.4	13.4	13.4
Raisins ... .. lb.	7.9	7.9	7.9	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.6	7.6
Currants ... .. "	8.6	8.6	8.6	8.5	8.5	8.2	8.4	8.2	8.2	8.2	8.1	8.1
Starch ... .. "	7	7.1	7.1	7.1	6.8	7.1	7.1	7.1	6.7	7	7	7
Blue ... .. doz. squares	9.2	9.2	9.2	9.4	9.4	9.6	9.6	9.6	9.6	9.6	10	10
Candles ... .. lb.	8.2	8.2	8.2	8.4	9	8.7	9	9.4	9.5	9.6	9.6	9.7
Soap ... .. "	3.7	3.7	3.7	4.1	4.1	4.4	4.4	4.1	4.1	4.1	3.8	4.2
Potatoes ... .. 14	15	15.7	15	15	13.5	14	15	17	17.5	18	18.5	17.3
Onions ... .. lb.	1.7	1.7	2	1.5	1.5	1.5	1.5	2	2.2	3.3	2.5	1.7
Kerosene ... .. gal.	21.6	21.6	21.6	21.6	21.9	22.8	22.4	22.9	24.1	24.2	24.2	24.3
Milk ... .. qrt.	6	6	6	6	6	6	6	6	6	6	6	6
Butter ... .. lb.	18.2	18.2	18.2	18.2	18.4	19.5	19.5	19.7	19.2	18.9	18.4	18.5
Cheese—New and Matured lb.	11.2	11.8	11.8	11.8	12	12.6	13.4	13.6	13.7	14	13.2	12.5
Eggs—												
New laid ... .. doz.	16.8	22.7	26.5	31.6	33.7	25.3	21.4	15.3	13.5	13.7	14.5	16.6
Fresh ... .. "	14	20	23.5	28.5	31	22	18.2	12.3	11.1	10.7	11.5	13.5
Bacon—												
Middle cut ... .. lb.	16.9	17	17	17	16.7	16.1	14.7	15.6	16.2	16.2	16.2	16.2
Shoulder ... .. "	12.2	12.2	12.4	12.4	12.2	12	10.5	10.7	10.8	11	10.8	11
Ham ... .. "	17.7	17.7	17.7	17.7	17.6	17.3	16.5	16.9	17.2	17	17	19.1
Beef (fresh)—												
Sirloin ... .. "	10.5	11	11	11	10.7	10.2	10.5	11.7	12.1	12	11.3	11
Ribs ... .. "	9	9.5	9.5	9.5	9.2	8.3	8.5	9.9	10.9	10.5	9.8	9.5
Flank ... .. "	8.5	8.5	8.5	8.5	8.2	8	8.2	9.3	10.7	11	10.9	10.5
Shin (without bone) }	8.5	8.5	8.5	8.5	8.2	8	8.2	9.3	10.7	11	10.9	10.5
Gravy beef ... .. }	7.7	7.7	7.7	7.7	7.5	6.7	7	8	9.6	9.2	9	8.5
Steak—												
Rump ... .. "	13	14	14	14	13.7	14	14.5	15.4	16	16	15.9	15
Shoulder ... .. "	8.2	8.7	8.7	8.7	8.5	8.6	9	9.6	9.7	9.6	9.5	9
Buttock ... .. "	7.7	8.2	8.2	8.2	8	8.2	8.2	9.5	10	9.9	9.5	8.5
Beef (corned)—												
Round ... .. "	9	9.5	9.5	9.5	9.2	9.3	9.7	10.5	9.8	9.4	9.1	9.2
Brisket (with bone) }	6.2	6.2	6.2	6.2	6	5.4	5.7	6.7	7	7	6.8	7
Mutton—												
Leg ... .. "	8	8	8	8	7.5	7.6	7.7	8.7	9.2	9.1	8.8	8.2
Shoulder ... .. "	7	7	7	7	6.5	6.3	6.5	7.7	8	7.7	7.3	7
Loin ... .. "	8.5	9	9	9	8.2	8.3	8.5	9.7	10.4	10.1	9.6	9.2
Neck ... .. "	7.7	7.7	7.7	7.7	7.2	7.1	7	7.0	9.1	9.1	8.5	8.5
Chops—												
Loin ... .. "	9.8	10	10	10	9.2	9.1	9.2	10.3	11	10.7	10.3	10
Leg ... .. "	8.7	9.2	9.2	9.2	8.5	8.6	8.7	10.8	11	10.7	10.3	9.9
Neck ... .. "	7.7	7.7	7.7	7.7	7.2	7.1	7.2	8.3	9.2	8.9	8.3	8
Lamb—												
Forequarter ... .. "	8	8.2	8.2	8.2	8	8.1	8	9	10	9.5	9	8.5
Hindquarter ... .. "	9.5	9.7	9.7	9.7	9.5	9.1	9	10	11	11	10.8	9.6
Pork (fresh)—												
Leg ... .. "	14.1	13	13	13	11.5	12.3	12	13.5	13.7	14.2	13.5	13.5
Loin ... .. "	14.5	14.5	14.5	14.5	13.7	13.8	13.5	14.8	14.6	14.9	14.5	14.5
Belly ... .. "	12	12	12	12	11.2	11.6	11.5	11.9	12.7	13.1	12	12
Chops ... .. "	14.1	13.5	15.1	16	15.2	14.2	14.5	16.1	16.9	17	16.8	16

The retail price of flour per 25 lb. bag, as fixed by proclamation, was increased in November, from 3s. 4d. to 3s. 7½d.

Towards the close of the year increases were recorded in the prices of kerosene, candles, blue, sago and cocoa; the average prices of other important grocery lines remained fairly constant.

In average seasons the local production of potatoes is far below the demand, and the deficiency is met by importation from Tasmania and Victoria. The prices rose steadily from May to November, but a decline was recorded in December.

As in the case of potatoes, the local production of onions is supplemented by importation, mainly from Victoria. The price increased between August and October, but decreased towards the end of the year.

The price of butter has been fixed by proclamation since April, 1915; the prices usually advance at the beginning of winter, when supplies decrease, and drop with the approach of spring weather. High prices ruled throughout 1917.

The prices of cheese, which were high in 1917, increased from 11½d. per lb. in January to 1s. 2d. in October, but a decline of 1½d. per lb. was recorded in December.

The price of hams was high at the beginning of the year; a decrease occurred in July, but the price advanced again towards the end of the year in response to the increased demand for the Christmas season.

#### FOOD SUPPLIES AND PRICES DURING WAR.

##### *Wheat Acquisition Act.*

The Wheat Acquisition Act was passed in December, 1914, and authorised the Government to acquire wheat in New South Wales, and to provide for compensation, and for the sale and distribution of wheat so acquired; also for varying or cancelling certain contracts for the sale and delivery of wheat. The Act, with subsequent amendments, was in operation until 31st December, 1915.

The Governor, by notification in the *Gazette*, could declare that any wheat was acquired by the Crown, and the wheat became the absolute property of the Crown, freed from all mortgages, liens, pledges, interests and trusts; and the rights and interests of every person in the wheat were converted into a claim for compensation under the provisions of the Act.

The amount of compensation was fixed at 5s. per bushel of wheat of fair average quality, delivered at the nearest railway station; and a further amount per bushel was to be paid if so determined by the Commissioners appointed under the Necessary Commodities Control Act.

The administration of the Act was entrusted to a Board of five persons appointed by the Governor, who were empowered to dispose of the wheat on behalf of the Government. All contracts made in New South Wales prior to the passing of the Act in relation to New South Wales wheat of the 1914-15 season to be delivered in the State were declared void; also contracts for the sale of flour to be delivered after 1st January, 1915.

On the 18th and 22nd December, 1914, the wheat in certain areas and in transit to Sydney was acquired, and on 24th December a notification was made of the acquisition of all wheat in New South Wales, except the quantity which at that date was actually in transit to the other Australian States.

The validity of the Wheat Act was challenged by the Federal Government on the ground that the detention of wheat under contract for delivery in another State was in contravention to provisions of the Commonwealth Constitution Act relating to trade and commerce. The case was heard

before the Interstate Commission, who determined (the Chief Commissioner, Mr. A. B. Piddington, K.C., dissenting) that the State Government had acted in contravention to the Commonwealth law, but on appeal to the High Court the Wheat Acquisition Act was declared valid.

The Necessary Commodities Control Commission regulated the price of wheat until the 15th December, 1915, and the control has since been in the hands of the Australian Wheat Board, consisting of the Commonwealth Prime Minister and the Ministers of Agriculture of New South Wales, Victoria, South Australia, and West Australia. On the above date, the price was fixed at 5s. 3½d. per bushel, f.o.b. Sydney, and on 22nd March, 1916, a reduction was made to 4s. 10¾d., f.o.b. Sydney, or 4s. 9d. on trucks. These prices were still in operation at the end of June, 1918. The State Wheat Office has charge of all wheat operations in New South Wales, and, though it is not now compulsory for farmers and others to hand over all wheat to the Government, the export is prohibited, except through the State Wheat Office. Particulars of the operations of the Wheat Board are given in the chapter relating to Agriculture.

#### *Necessary Commodities Control Act.*

The Necessary Commodities Control Act passed in August, 1914, provides for the review of prices of necessary commodities during the present war, and for a further period not exceeding six months, as determined by proclamation. A "necessary commodity" is defined as follows:—

- (a) Coal, firewood, coke, or other fuel.
- (b) Gas for lighting, cooking, or industrial purposes.
- (c) Any article of food or drink for man or for any domesticated animal.
- (d) Any article which enters into, or is used in the composition or preparation of any of the foregoing.
- (e) Any article which, after a report of the Commission has by resolution of both Houses of Parliament, been declared to be a necessary commodity.

The Act provides for the appointment of a Commission of three persons, one being a judge of the Industrial Arbitration Court, to inquire into and report as to prices of necessary commodities, and to advise the Governor as to maximum selling prices.

The Governor, by notice in the *Gazette*, may declare the maximum prices at which any necessary commodity may be sold for consumption in New South Wales, and may fix different prices according to differences in quality, description, or quantity sold, also for different parts of the State, and may vary any price fixed or annul any such notice.

Any person who sells or offers for sale, any necessary commodity at a price higher than the declared price, is liable to a penalty of £100, or in case of sale, may be required to refund the excessive amount to the purchaser; and any person who refuses to sell at the declared or lower prices any necessary commodity in his possession, in excess of his family requirements for six months, is liable to a penalty not exceeding £100.

The Governor, on the recommendation of the Commission, may order to be furnished returns of all necessary commodities in the State, and may authorise the seizure and distribution of necessary commodities withheld from sale, paying the declared price less a reasonable amount to cover expenses. The following commodities were considered by the Commission, and prices fixed:—wheat, flour, bread, biscuits, oatmeal, butter, cheese, hams, bacon, pork, pigs, milk, cream, condensed milk, sugar, jam, tinned fruit, wine and spirits, plum puddings, rice, cordials, baking powder, bran, pollard, sharps, chaff, hay, oil (kerosene, benzine, etc.) and gas.

The Commission operated until 20th July, 1916, when the Commonwealth Government assumed the control of prices of foodstuffs, necessary commodities and services. When the railway and tramway strike occurred in August, 1917, the Necessary Commodities Commission declared the maximum prices of all foodstuffs to be those ruling on 1st August, 1917. As the strike extended prices were declared for several commodities, viz., meat, salt, rabbits, coal, methylated spirits, and cheese. The proclamations regarding meat were annulled on 26th September, 1917, and those regarding other commodities on 14th November.

*Regulation of Prices by Commonwealth.*

The Commonwealth Prices Adjustment Board was appointed under the Commonwealth War Precautions Act, also a Commissioner in each State to collect evidence for submission to the Board; on his advice the Board recommends to the Minister the prices and rates to be fixed.

Commonwealth proclamations have been issued in respect of wheat, bread, flour, bran and pollard, soap, butter, milk, plum puddings, cheese, bacon, hams, Glaxo, Lactogen, rabbits, oil, biscuits, confectionery, wheatmeal, semolina, cream, infants' and invalids' foods, baking powder, cocoa, hides, sulphate of ammonia, salt, white lead, cases and tins, galvanised iron, tin, soda ash, bi-carbonate of soda, broken glass and glass bottles, canned fruit, caustic soda, tobacco, matches, rice, and oatmeal. The prices of other commodities already proclaimed by the Necessary Commodities Commission were allowed to remain operative in New South Wales, the Minister having adopted those prices when the Commonwealth Government assumed control.

In August, 1917, the Inter-State Commission commenced an investigation into the causes of increase in the prices of commodities in general use, viz., bread, meat, butter, cheese, bacon, vegetables and fruit, milk, groceries, clothing and boots, also as to house rents. Reports issued in relation to bread and meat have been discussed elsewhere in this chapter.

With regard to groceries the Commission stated that the local manufacture of these commodities is extensive; and, by reason of the expansion of manufactures arising from war conditions, the consumption of local products has increased rapidly. In New South Wales and Victoria the following articles are made locally, in most instances up to 90 per cent. or over of the consumption, and are independent of oversea imports, except as to tins or containers:—Sugar, arrowroot, all cereal foods such as wheatmeals and oatmeals, pickles and sauces, canned jams and fruits, biscuits, infants and invalids' foods, candles and soap, dried currants and raisins, tinned meats and vegetables, cheese, butter, bacon, and condensed milk.

The following are manufactured or handled locally, but to a great extent are dependent upon imported raw material:—baking powder, cocoa, self-raising flour, rice, tapioca, starch, matches, olive oil, confectionery, mustard, and proprietary medicines.

The manufactured articles which are still largely imported are:—tinned fish, olive oil, tea, coffee, matches, bi-carbonate of soda, chemicals, rice, cheese, confectionery, dates, spices, cocoa beans, proprietary medicines, &c.

The distribution of local and imported groceries is conducted generally by wholesale merchants; the great bulk of the trade with the retail grocer, especially in the country districts and towns, is in their hands, and much of the finance of the retail trade is conducted by them.

The principal causes of the high prices of groceries are stated by the Inter-State Commission to be:—The higher cost of materials used in connection with the manufacture, preparation, and packing of food stuffs, and in the construction, equipment, and maintenance of factories; increased cost of importing; increases in wages; wasteful methods of distribution; the

heightened spending power of the community arising from the Government's large war expenditure, the high export prices obtained for primary products, and an expanded currency. A contributing cause is the dominating position occupied by associations of wholesale merchants and (in some lines) of manufacturers.

As regards the existing methods of distribution the Commission directed attention to the great waste involved by the excessive number of retail shops and the lack of co-operation in buying both local and imported goods.

#### HOUSE RENTS.

Information regarding Housing is given in the chapter of this Year Book relating to "Social Condition," and particulars below show the actual average amounts paid by tenants of various types of houses in Sydney and suburbs during each of the past five years. The figures represent the average predominant rents paid for each class of house, as the range of rents varies considerably according to locality, position, and class of building rented:—

Class of House.	1913.	1914.	1915.	1916.	1917.
	s. d.				
Under 3 rooms and kitchen..	12 0	12 6	12 3	12 3	12 3
3 rooms and kitchen ...	14 3	15 6	14 6	14 9	14 9
4 " " " ...	18 6	18 6	18 0	18 0	18 0
5 " " " ...	21 9	22 0	20 9	20 6	20 6
6 " " " ...	26 0	26 6	25 0	24 6	24 6

It has been established that the average householder usually spends about a quarter of his income on rent, and therefore any fluctuation in rents exerts a large influence on the cost of living. During the ten years prior to the outbreak of war, rents in Sydney and suburbs increased by about 40 per cent., but the war has had a steadying effect, and the past three years have shown a slight decrease. Rents vary in the suburbs in accordance with the class of people constituting the population.

The increase in house rents was the subject of an investigation by a Select Committee of the Legislative Assembly of New South Wales appointed in 1911. The rise was ascribed to the increase of population, the increased cost of labour and material, the demolition of buildings by public authorities, the growing demand resultant upon general prosperity, and the increased popularity of cottages in preference to the less costly terrace houses.

Following the recommendations of the Committee the Fair Rents Act was passed on the 29th December, 1915, for the purpose of determining the fair rental of dwellings valued at less than £156 per annum. The Act provided for the establishment of Fair Rents Courts, consisting of a Stipendiary or Police Magistrate, and for the appointment of Registrars and other necessary officers.

#### FAIR RENTS COURT.

In order to determine the fair rent the Court must ascertain the capital value of the dwelling, which is the unimproved capital value of the land plus the estimated cost of erecting a dwelling similar to that existing at the date of the application, less a fair sum for depreciation.

The rental is fixed on the capital value at a rate not less than that charged on overdrafts by the Commonwealth Bank of Australia, and not more than  $2\frac{1}{2}$  per cent. above such amount, plus rates, taxes, repairs, maintenance, insurance, and depreciation. The amount fixed by the Court remains in

force from six months to three years when specifically stated, but if no special period be mentioned the duration is three years. The Act does not apply to houses leased for a period exceeding three years.

The first sittings of the Fair Rents Court were held on the 13th March, 1916. The operations of the Act may be applied to any localities proclaimed by the Governor, but up to the present, the cases have been confined to the metropolitan area.

The number of applications dealt with during the two years ended 31st March, 1918, are shown in the following statement:—

Particulars.	1916-17.	1917-18.	Total.
Cases withdrawn or struck out ...	141	53	194
Rent fixed as at date of application	137	49	186
„ Increased ... ..	7	19	26
„ Decreased ... ..	294	102	396
Total ... ..	579	223	802

With few exceptions, the period of adjustment was twelve months.

The districts from which the 802 applications came were:—City, 149; Suburbs—North western, including Balmain, Leichhardt, Annandale, and Glebe, 74; West Central, including Newtown, Erskineville, and St. Peters, 61; East Central, including Redfern, Waterloo, Alexandria, and Mascot, 66; Eastern, including Paddington, Randwick, Waverley, and Woollahra, 217; Western, including Ashfield, Burwood, Enfield, Drummoyne, Marrickville, and Petersham, 147; Southern, including Canterbury, Bexley, Hurstville, and Kogarah, 29; and Northern, including North Sydney, Mosman, Willoughby, Lane Cove and Manly, 59.

The majority of dwellings affected by the decisions of the Court were small, and the rents did not exceed £1 per week. In the following statement the figures for the year 1916-17 are exclusive of 14 cases relating to premises which contained shops:—

Rents (at date of Application).	1916-17.				1917-18.			
	Fixed as at date of Appl'n.	Increased.	Reduced.	Total.	Fixed as at date of Appl'n.	Increased.	Reduced.	Total.
10s. and under	6	...	9	15	1	...	4	5
10s. to 12s. 6d.	3	...	32	35	6	3	11	20
12s. 6d. to 15s.	21	1	100	122	8	2	31	41
15s. to 17s. 6d.	28	2	56	86	6	4	14	24
17s. 6d. to 20s.	27	1	39	67	13	4	23	40
20s. to 25s. ...	32	1	24	57	5	4	10	19
25s. to 30s. ...	7	2	6	15	7	1	5	13
30s. to 40s. ...	7	...	9	16	2	...	3	5
40s. to 50s. ...	3	...	6	9	1	...	...	2
50s. to 60s. ...	...	...	2	2	...	...	1	1
Total ...	134	7	283	424	49	19	102	170

In the first year of its operations the Court granted reductions in 67 per cent. of the decisions, and increases in only 2 per cent.; in the following year the reductions represented 60 per cent., and the proportion of increases rose to 11 per cent.

In the year ended 31st March, 1918, the minimum rent appealed against was 6s. for a property at Darlinghurst, which was not altered. The next lowest was for premises valued at 7s. 6d. per week, for which a reduction of 1s. 6d. was granted. The highest amount for a dwelling was £2 15s. per week, which was reduced to £2 9s.

The amount of reduction varied from 6d. to 7s. per week, the latter being in respect to a property of which the rent was reduced from £1 10s. to £1 3s.

The amount of reduction and of increase in the rents of dwellings during the year 1917-18 may be seen in the following statement:—

Amount of Reduction, or of Increase.	Rents Increased.	Rents Reduced.	Amount of Reduction, or of Increase.	Rents Increased.	Rents Reduced.
6d.	4	8	3s. 6d. to 4s.	4	5
1s.	5	27	4s. 6d. to 5s.	1	4
1s. 3d. to 1s. 6d.	1	20	over 5s.	1	2
2s.	3	19	Total ...	19	102
2s. 6d.	...	9			
2s. 9d. to 3s.	...	8			

The reductions were on the average 10·6 per cent. and represented, in the aggregate, a sum of £9 17s. per week, or 1s. 11d. per dwelling per week.

In nineteen cases the rents were increased, the total increases amounting to £2 4s. 9d. per week or 12·1 per cent. or 2s. 4d. per dwelling.

The rents reviewed by the Court during 1917-18 represented £160 13s. 6d. per week, the net reduction being £7 12s. 3d. per week or 4·7 per cent.

#### COST OF LIVING.

Particulars given above in connection with the food supply of Sydney show that the cost of various food commodities has increased considerably in New South Wales during the past decade, the increase being more pronounced since the outbreak of war.

In connection with industrial awards of wages, investigations regarding the cost of living have been made by the Court of Industrial Arbitration, and a Board of Trade has been appointed under the provisions of the Industrial Arbitration Amendment Act, 1918, one of whose functions is to inquire annually as to the increase or decrease in the average cost of living, and to determine the living wage for employees.

An important decision relating to the cost of living was given in February, 1914, in the Court of Industrial Arbitration of New South Wales, where an inquiry was conducted in order to obtain an authoritative declaration as to the living wage to serve as a basis of awards of wages by the Industrial Boards.

The living wage was defined as the standard wage which will do neither more nor less than enable a worker of the class to which the lowest wage would be awarded, to maintain himself, his wife, and two children—the average dependent family—in a house of three rooms and a kitchen, with food, plain and inexpensive, but quite sufficient in quantity and quality to maintain health and efficiency, and with an allowance for the following other expenses:—fuel, clothes, boots, furniture, utensils, rates, life insurance, savings, accident or benefit societies, loss of employment, union pay, books and newspapers, train and tram fares, sewing machine, mangle, school requisites, amusements and holiday, intoxicating liquors, tobacco, sickness and death, domestic help, unusual contingencies, religion or charity.

The evidence placed before the Court included statistical information supplied by the Government Statistician, budgets collected by employers and employees, municipal records, and returns supplied by house and estate agents. The decision of the Court was that the living wage in Sydney, calculated on the basis shown above, was not more than £2 8s. per week.

The weekly expenditure was apportioned amongst the various items as follows:—Food and groceries, £1 2s. ; rent, 12s ; other expenditure, 14s. ; total, £2 8s.

On the 17th December, 1915, a further pronouncement concerning the living wage was made by Mr. Justice Heydon in the Court of Industrial Arbitration, wherein the view was expressed that the minimum wage for ordinary labourers should be 1s. 1½d. per hour; or 8s. 9d. per day, or £2 12s. 6d. per week

This judgment was further amended on the 20th August, 1916, when the Judges of the same Court fixed the minimum living wage at 9s. 3d. per day or £2 15s. 6d. per week, an advance of 3s. per week on the previous award, which in its turn was 4s. 6d. above that fixed in February, 1914.

As a result of comparisons of inquiries as to the cost of living in several countries, it has been estimated that the salary of a typical worker's family of two adults and two dependent children is spent in the following proportions:—

Food and groceries ... ..	46 per cent.
Rent ... ..	25 ,, ,,
Clothing ... ..	13 ,, ,,
Fuel and light ... ..	5 ,, ,,
Miscellaneous ... ..	11 ,, ,,
Total ... ..	100 per cent.

Applying these percentages to the £2 15s. 6d. living wage, the average amounts spent under the several heads would be:—

	£	s.	d.
Food and groceries ... ..	1	5	6½
Rent ... ..	0	13	10½
Clothing ... ..	0	7	2½
Fuel and light ... ..	0	2	9½
Miscellaneous ... ..	0	6	1
Total ... ..	£2	15	6

In the Commonwealth Court of Industrial Arbitration, a judgment given on 20th September, 1916, in the matter of a dispute in the meat industry, the basic living wage was stated as £3 per week. This has since been increased to £3 3s., viz., in a judgment in the case of the Glassfounders' Association, delivered on 9th March, 1917. Later, in awards in cases of Gas Employees, and of Pastoral Employees, 63s. per week was again fixed as the basic wage.

The following table shows the variations in the cost, in Sydney, of food and groceries since July, 1914, the month before the outbreak of war. The prices in July, 1914, are taken as a basis and called 100, and the 41 commodities for which the price levels are computed are those in every-day

consumption. In the statement meat is distinguished from other food and groceries, and the two groups are combined :—

Month.	Meat.	Other food and Groceries.	Meat, other food and groceries combined.	Month.	Meat.	Other food and Groceries.	Meat, other food and groceries combined
1914.				1916.			
July ...	100	100	100	July ...	170·6	120·7	133·6
August ...	98·9	100·1	99·8	August ...	166·1	119·6	131·6
September ...	97·1	99·0	98·5	September ...	166·2	119·5	131·6
October ...	98·5	98·0	98·1	October ...	164·1	118·9	130·6
November ...	95·3	97·2	96·7	November ...	161·4	121·2	131·6
December ...	99·7	103·7	102·7	December ...	163·1	119·9	131·0
1915.				1917.			
January ...	107·1	104·2	104·9	January ...	165·7	119·4	131·3
February ...	106·1	103·3	104·0	February ...	170·4	121·1	133·8
March ...	107·3	105·2	105·7	March ...	170·8	121·6	134·3
April ...	113·8	106·2	108·2	April ...	171·0	122·2	134·8
May ...	128·6	106·1	111·9	May ...	162·4	122·0	132·4
June ...	140·8	109·4	117·5	June ...	158·8	122·1	131·6
July ...	158·1	116·0	126·9	July ...	162·5	121·6	132·1
August ...	178·9	125·2	139·1	August ...	182·7	122·6	138·1
September ...	166·8	121·5	133·2	September ...	193·4	122·8	141·0
October ...	160·1	124·7	133·8	October ...	189·5	123·5	140·5
November ...	144·3	121·3	127·3	November ...	181·5	122·5	137·7
December ...	153·5	121·8	130·0	December ...	174·8	122·3	135·9
1916.				1918.			
January ...	155·0	119·8	128·8	January ...	180·4	122·2	137·2
February ...	162·0	122·6	132·8	February ...	179·9	122·9	137·6
March ...	167·2	118·8	131·3	March ...	170·5	124·2	136·2
April ...	165·7	116·7	129·3	April ...	165·5	124·6	135·2
May ...	166·4	118·6	131·0	May ...	163·2	126·8	136·2
June ...	167·6	118·7	131·3	June ...	161·3	125·9	135·1

From the above table it will be seen that the effects of the war were not felt by housekeepers until early in 1915, and since that time the levels have tended upwards, except where seasonal variations occurred in prices of commodities.

The following statement shows the extent to which the war has affected the prices of the principal articles of food in other countries: the figures have been obtained from British and Canadian Official Labour Gazettes :—

Country.	Increase in Prices of Food and Groceries from July 1914 to—			Country.	Increase in Prices of Food and Groceries from July 1914 to—		
	July, 1915.	July, 1916.	July, 1917.		July, 1915.	July, 1916.	July, 1917.
	per cent.	per cent.	per cent.		per cent.	per cent.	per cent.
New South Wales...	27	34	32	Holland ...	30	50	65*
Australia ...	30	30	26	Denmark ...	28	46	66
United States ...	(-) 1	9	42	Sweden ...	24	42	77
New Zealand ..	12	19	27	United Kingdom..	32	61	104
Canada ...	5	14	57	Germany (Berlin)	70	118	111‡
Italy ...	20	32	72	Austria (Vienna)..	79	121	196
Switzerland ...	19	40	†73				

\* February, 1917. † June, 1917. ‡ November, 1916.

The comparison shows that prices have risen considerably in all the countries enumerated, the lowest increases being in Australia. New South Wales is third on the list, being somewhat higher than the Commonwealth as a whole, and New Zealand; the highest increases have occurred in Austria and Germany.

It must be borne in mind that the price levels quoted above in regard to New South Wales relate to food and groceries only, and in estimating the increased cost of living the percentages must be applied only to that proportion of the total family expenditure which is expended on food and groceries, and not to the total family expenditure.

In order that the increase in the cost of living may be studied further, particulars are given below showing the advance since 1911, which year may be considered to represent a fair average for the previous decade. The same procedure has been followed as in the case of the table relating to the war period, except that the prices used are the average of the twelve monthly figures during each year.

The figures are based on Sydney prices; but, in the light of several special investigations into the cost of living in certain country towns as compared with Sydney, it may be assumed safely that a corresponding relative increase has occurred in country towns where no abnormal conditions prevail.

Columns are included showing the fluctuations in rents, also the price levels of food, groceries, and rent combined. The basis of the table is the year 1911, the price-level for which is called 100 :—

Year.	Meat.	Other Food and Groceries.	Meat, other Food and Groceries combined.	Rent.	Food and Rent combined.
1911	100	100	100	100	100
1912	113·0	113·9	113·7	108·8	111·5
1913	114·8	106·2	108·0	114·7	111·0
1914	136·6	107·2	113·4	117·6	115·3
1915	196·0	121·7	137·2	111·7	125·8
1916	232·5	127·9	149·7	111·7	132·7
1917	245·2	130·5	154·4	111·7	133·3

From the figures given in this and preceding tables, it will be seen that the great increase in the cost of living in recent years is due, in a large measure, to the price of meat, which, in six years, increased by 145 per cent.

In order to demonstrate the effect of the increased prices in relation to the amount consumed, the weekly food bill of a family of five persons for the principal commodities in 1911 and 1917 is shown below. The statement

is based upon the average rate of consumption as shown on a previous page, except in the case of flour and sugar, where allowance has been made for the quantities included in bread, jam, etc. The average consumption in 1911 has been assumed to be identical with that in 1907-9:—

Article.	Unit of Quantity.	1911.			1917.		
		Weekly Consumption.	Average Price.	Weekly Cost.	Weekly Consumption.	Average Price.	Weekly Cost.
			d.	s. d.		d.	s. d.
Beef ... ..	lb.	13·6	4·1	4 7·8	9·1	10·1	7 7·9
Mutton ... ..	lb.	9·3	3·3	2 6·7	6·7	8·4	4 8·3
Pork ... ..	lb.	·3	8·1	2·4	·3	14·2	4·3
Bacon and Ham ...	lb.	·8	9·6	7·7	·9	14·6	1 1·1
Fish—fresh, &c. ...	lb.	·6	8·7	5·2	1·0	11·5	11·5
„ preserved ...	lb.	·4	9·5	3·8	·5	12·8	6·4
Potatoes ... ..	lb.	17·4	·9	1 3·7	12·6	1·1	1 1·9
Flour ... ..	lb.	4·0	1·3	5·2	4·0	1·6	6·4
Bread ... ..	2lb. loaf	10·0	3·5	2 11	9·2	4·0	3 0·8
Rice ... ..	lb.	·8	2·7	2·2	·7	3·3	2·3
Sago and Tapioca ...	lb.	·2	2·7	0·5	·2	3·9	·8
Oatmeal... ..	lb.	·7	2·5	1·8	·6	2·7	1·6
Sugar ... ..	lb.	6·0	2·7	1 4·2	6·0	3·5	1 9·0
Jam ... ..	lb.	1·6	4·4	7	1·4	5·7	8·0
Butter ... ..	lb.	2·5	13·5	2 9·8	2·9	18·7	4 6·2
Cheese ... ..	lb.	·3	9·4	2·8	·3	12·6	3·8
Milk—fresh ... ..	qt.	6·8	4·3	2 5·2	7·7	6·0	3 10·2
Tea ... ..	lb.	·7	15·5	10·9	·8	18·2	1 2·6
Coffee ... ..	oz.	1·1	1·1	1·2	1·4	1·1	1·5
Total ... ..		...	...	22 3·1	...	...	32 10·6

The weekly expenditure for the commodities enumerated rose from 22s. 3d. to 32s. 10½d., an increase of 47·7 per cent. In spite of the lower rate of consumption, the meat bill increased from 8s. 0½d. to 13s. 9½d., while the expenditure on milk and butter rose from 5s. 3d. to 8s. 4½d., the prices being higher and the consumption greater.

Taking rent into consideration—the averages being 17s. in 1911 and 19s. in 1917—the total weekly expenditure was 39s. 3d. as compared with 51s. 10½d., and the increase per week during the quinquennium amounted to 12s. 7½d., which represents 32·2 per cent.

In the table on p. 460, the price level of food in 1917 is quoted as 54·4 per cent. higher than in 1911, and of food and rent combined as 35·3 per cent. higher; the differences from the increases quoted above, viz., 47·7 and 32·2 per cent. respectively, are due to the fact that in computing the price levels the regimen was assumed to be constant. The difference was most marked in regard to meat, the price level of which increased by 145·2 per cent., but, on account of reduced consumption, the weekly bill was only 71·4 per cent. higher.

### VALUE OF PRODUCTION OF LOCAL INDUSTRIES.

During the year ended 30th June, 1917, the total value of production from the principal industries, reached £89,797,000, which is the highest on record. For many years the pastoral industry was the chief source of the wealth of the State, the production of 1916-17 being £26,842,000. The production from the manufacturing industry has increased very rapidly since 1906, the value in 1916-17 being £26,748,000, or slightly below the pastoral which it exceeded during the four preceding years.

The value of agricultural production during 1915-16 was more than double the value in the previous year, the increase being due mainly to the greatly increased wheat yield, but this high rate of production was not maintained during 1916-17.

The following statement shows the estimated value of production of the various industries, at the place of production, at intervals since 1891:—

Value of Production. (*In thousands, 000 omitted.*)

Year.	Pastoral.	Agricultural.	Dairying. *	Poultry, Bees, Rabbits. *	Forestry and Fisheries.	Minig.	Manu- facturing. (Value added to raw materials.)	Total, all Industries.
	£	£	£	£	£	£	£	£
1891	14,725	3,615	2,735	...	758	6,434	7,799	36,066
1896	11,774	5,374	2,546	...	715	4,465	7,302	32,176
1901	12,552	7,060	3,046	...	733	5,681	9,742	38,814
1906	19,743	7,518	3,425	1,693	1,536	7,913	11,906	53,734
1911	19,434	9,749	5,215	2,055	1,155	9,410	19,143	66,201
1912	19,440	11,817	5,758	2,089	1,303	11,229	22,464	74,100
1913	20,738	12,378	5,455	2,416	1,400	11,651	23,482	77,520
1914-15	18,848	10,031	6,231	2,301	1,307	9,603	24,011	72,332
1915-16	21,576	20,362	5,473	3,215	1,370	10,516	24,927	87,439
1916-17	26,842	11,488	7,478	3,395	1,282	12,564	26,748	89,797

\* Poultry and bee farming included with dairying in 1901 and previous years.

The following table shows the equivalent values, per head of population, of the products of local industries at intervals since 1891:—

Year.	Pastoral.	Agricultural.	Dairying. *	Forestry, Fisheries, Poultry, &c. *	Mining.	Manu- facturing.	Total, all Industries.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	d.	£ s. d.	£ s. d.
1891	12 17 10	3 3 4	2 7 11	0 13 3	5 12 8	6 16 7	31 11 7
1896	9 5 4	4 4 7	2 0 1	0 11 3	3 10 4	5 14 11	25 6 6
1901	9 3 8	5 3 4	2 4 7	0 10 9	4 3 1	7 2 6	28 7 11
1906	13 6 0	5 1 3	2 6 2	2 3 6	5 6 7	8 0 5	36 3 11
1911	11 13 6	5 17 2	3 2 8	1 19 0	5 13 0	11 10 0	39 15 4
1912	11 3 8	6 15 11	3 6 3	1 19 0	6 9 2	12 18 5	42 12 5
1913	11 9 3	6 16 10	3 0 3	2 2 2	6 8 9	12 19 7	42 16 10
1914-15	10 2 3	5 7 8	3 6 10	1 18 8	5 3 1	12 17 8	38 16 2
1915-16	11 10 10	10 17 10	2 18 7	2 9 1	5 12 6	12 6 8	46 15 6
1916-17	14 7 11	6 3 2	4 0 2	2 10 2	6 14 9	14 6 11	48 3 1

\* Poultry and bee farming included with dairying in 1901 and previous years.

The exceptionally dry season during 1914-15 caused a relative decrease in all the above industries except dairying, the aggregate value of production showing a decrease on the year 1913 equal to £4 0s. 8d. per head of population. But in 1915-16 all the industries except dairying showed an increased value per head, especially agriculture, which advanced to £10 17s. 10d., as compared with £5 7s. 8d. in the previous year. In 1916-17 the agricultural production dropped back to the normal level, being about £6 3s. 2d per head; in the other industries substantial increases were recorded.

The following table shows the total value of production in various years, from 1871 onwards, and the resultant return per head of population:—

Year.	Value of Production.		Year.	Value of Production.	
	Aggregate (,000 omitted).	Per head of Population.		Aggregate (,000 omitted).	Per head of Population.
	£	£ s. d.		£	£ s. d.
1871	15,379	30 5 3	1912	74,100	42 12 5
1881	25,180	32 18 3	1913	77,520	42 16 10
1891	36,066	31 11 7	1914-15	72,332	38 16 2
1901	38,814	28 7 11	1915-16	87,439	46 15 6
1906	53,734	36 3 11	1916-17	89,797	48 3 1
1911	66,201	39 15 4			

These figures show that since 1871 the aggregate value of production has increased by nearly 74½ million pounds, and the value per head of population by £17 17s. 10d. From the primary industries alone the return in 1916-17 was £63,049, equal to £33 16s. 2d. per head. The figures afford ample justification for the investment of the capital which has secured such results.

Variations in prices, due mainly to causes beyond local control, and to the general conditions of the season, are the most powerful factors in regulating the volume and value of production; but making due allowance for these factors, the steady advance made throughout the period covered by the figures given above is ample testimony to the wealth of the State, and an assurance of the prosperity of its future.

## SOCIAL CONDITION.

### PUBLIC HEALTH.

LAWs with respect to immigration, trade, commerce, quarantine, and to the provision of old-age and invalidity pensions, are functions of the Commonwealth; whilst matters pertaining to public health (other than quarantine), to the maintenance of high standards in regard to food, to the supervision of sources of supply and distribution, and to the enforcement of sanitary and hygienic conditions are functions of the State Government.

Practical measures to promote the well-being of the people, through the prevention or relief of sickness and destitution, are directed by the State towards the protection of infant life, the removal of children from unsuitable environments, the housing and care of mental defectives and of the aged and infirm, and the enactment of laws to safeguard the public from preventable disease. State establishments are maintained for the alleviation of sickness and destitution, and many institutions controlled by private organisations are assisted with Government subsidy.

### DEPARTMENT OF PUBLIC HEALTH.

The Department of Public Health undertakes the general medical work of the Government, safeguards public health, and advises Local Government bodies. Acts relating to public health, hospitals, pure food, supervision of dairies and dairy cattle, noxious trades, sanitation, cattle slaughtering and diseased animals and meat, for preventing the spread of tuberculosis and other diseases, and for regulating sanitation in local government areas, in factories and shops, and in premises licensed under the Liquor Act, are administered by the Department, and the various State hospitals and asylums are under its control.

The Board of Health consists of ten members, nominated by the Government, with the President, who is Director-General of Public Health, and Chief Medical Officer to the Government. Several other Boards have been established in connection with the Public Health Department, such as the Tuberculosis Advisory Board, to furnish expert advice for the treatment and prevention of tuberculosis; the Metropolitan Hospitals Advisory Board, consisting of the secretaries of the hospitals, to co-operate with the Department in matters concerning hospital administration; the Pre-Maternity, Baby Clinics, and Home Nursing Board, to organise measures with the object of lessening the infantile death rate, and safeguarding the health of women and children generally.

In July, 1908, the laboratory of the Public Health Department, previously used for investigation regarding hygienic conditions, and infectious diseases of human beings and animals, was constituted as a bureau of microbiology, and its functions were extended to embrace matters pertaining to parasitic and microbic diseases of plants and stock; also to farming and other problems in connection with the industrial development of the State. In August, 1913, the bacteriological and chemical work affecting agriculture was transferred to the Department of Agriculture; the bureau ceased to be a separate establishment, and was attached to the Department of Public Health, which now deals exclusively with matters directly appertaining to public health.

The State institutions under the control of the Director-General of Public Health include the Coast Hospital, for the treatment of general and infectious cases; the Leper Lazaret; David Berry Hospital, in the Shoalhaven district; Lady Edeline Hospital for Babies; Sanatorium for Consumptives at Waterfall; two Convalescent Hospitals; and five Asylums for the Infirm, which, since the inauguration of the old-age and invalidity pension system, are utilised to a great extent for the treatment of the sick.

#### STATE EXPENDITURE ON HOSPITALS AND CHARITABLE RELIEF.

The State expenditure on hospitals and charities for the year 1916-17 amounted to £1,025,248; in addition, the State expended a sum of £127,087 on matters arising out of the war, principally for the assistance of soldiers and their dependents.

The expenditure on hospitals and charities includes the cost of maintenance of State institutions and departments administering relief and subsidies to other institutions, granted on condition that an equal amount be raised by private annual contributions, and that the Government through approved officers have the right of recommending the admission of patients. The following is a statement showing the growth of expenditure in the five years ended 30th June, 1917:—

Payments from—	1913.	1914.	1915.	1916.	1917.
	£	£	£	£	£
Consolidated Revenue ...	693,090	734,511	782,500	872,501	946,418
Public Works Account ...	87,857	52,919	44,780	69,334	78,830
Total ...	£ 780,947	787,430	827,280	941,835	1,025,248

Sums paid from the Consolidated Revenue to augment the National War Relief Funds have been excluded from the table, viz., £44,049 in 1914-15, £52,062 in 1915-16, and £127,087 in 1916-17.

Grouping the items of expenditure from the Consolidated Revenue Fund under various headings, a comparison of the respective items for the last two years is shown below:—

	1915-16.	1916-17.
	£	£
General Hospitals and Charitable Institutions ...	205,797	238,287
Mental Hospitals and Institutions ...	308,507	336,419
Children's Relief ...	156,953	175,659
Government Asylums for the Infirm ...	116,016	126,287
Destitute and Deserted, Sick and other ...	46,864	39,342
Aborigines Protection ...	18,351	16,620
Charitable Societies ...	10,737	3,330
Miscellaneous ...	9,276	10,474
Total ...	872,501	946,418

To these figures are to be added the cost shown subsequently of State subventions to Friendly Societies, the maintenance of the Department of Public Health, and similar agencies for the public benefit.

#### PROTECTION OF THE ABORIGINES.

For the protection and training of the aboriginal natives in New South Wales, a Central Board was appointed in June, 1910, under the Aborigines Protection Act, 1909, replacing local boards in the various districts of the State. All officers in the police force of the State are guardians of the aborigines, and two inspectors have been appointed to supervise the reserves and stations. The Central Board, consisting of the Inspector-General of

Police, and a maximum of ten other members appointed by the Governor, controls the disbursement of moneys available for education, maintenance, and relief.

The area of the reserves was about 23,000 acres at the end of December, 1916. At the various stations and camps the residents are encouraged to work; dwellings have been erected, and assistance in the form of food and clothing is supplied when necessary; the stations are under the control of managers appointed by the Board.

Aboriginal children are required to attend school until the age of 14 years, and they may be apprenticed under supervision. The Board is authorised to assume control of any of these children, and may apprentice them or place them in training homes. Several schools have been established for their exclusive use. In 1916 there were 998 children attending the schools.

On 1st September, 1916, there were in New South Wales 6,599 aborigines, viz., 1,573 full-bloods and 5,026 half-castes. The following statement shows the classification as recorded at that date:—

Types.	Adults.		Children.	Total.
	Males.	Females.		
Full-bloods ... ..	669	450	454	1,573
Half-castes ... ..	1,280	1,025	2,721	5,026
Total ... ..	1,949	1,475	3,175	6,599

The ages were as follows:—Under 20 years, 3,175; 20-40 years, 1,951; 40-60 years, 1,079; over 60 years, 394.

The expenditure by the Aborigines Protection Board during 1916 amounted to £31,234, including £19,143 for general maintenance, £3,989 for the purchase of stores, £3,608 as disbursements from the Board's produce and sale store account, £3,685 for educational purposes, £707 for medical attention, and £102 for other services. An amount of £4,425 was received as revenue from sales, so that the net expenditure was £26,809.

#### CHILD HYGIENE.

The law of New South Wales relating to the protection of children, and to the condition of child-life, is contained for the most part in the following statutes:—State Children Relief Act, 1901; Deserted Wives and Children Act, 1901, and Amendment, 1913; Children's Protection Act, 1902; Infant Protection Act, 1904; and Neglected Children and Juvenile Offenders' Act, 1905.

Under the State Children Relief Act, the Controlling Board has power to board-out children who are inmates of an asylum or charitable institution, wholly or partly supported by grants from the public revenue, also children whose admission to such institutions has been authorised. The Board may issue licenses for the reception of these children as boarders, may apprentice them to suitable persons, or arrange for their adoption or restoration to parents or natural guardians. Children may be boarded out with their own mothers, and the period of boarding-out usually terminates at 12 years of age; but in special cases it may be extended to age 14. At the end of the boarding term the children may be apprenticed for a maximum term of five years.

The Children's Protection Act regulates the adoption of young children. The reception of a child under 3 years of age, to be maintained for payment apart from his parents or guardians, is allowed only on the written authority of a Justice of the Peace; persons who receive two or more children under 3 years of age must apply annually for registration; the children, and the

premises of persons having custody of them, are subject to inspection by the officers of the State Children Relief Board; persons in charge of maternity homes must furnish records of all births occurring in the homes; the employment of young children in dangerous or unsuitable occupations is prohibited; and provision is made for the protection from neglect or ill-treatment of any boy under 14 years of age, or of any girl under 16 years.

The Infant Protection Act regulates the protection and maintenance of infants, and the supervision of institutions used for the reception of children up to 7 years of age. The Act provides for the payment by the father of expenses, up to a maximum amount of £20, incidental to the birth of an illegitimate infant, and for the maintenance of the child up to the age of 14 years, if a boy, and to 16 years if a girl. The mother also may be required to contribute towards the maintenance of an illegitimate infant. Cases in respect of the provisions of the Act are heard at the Children's Courts, and disobedience of an order of the Court may be punished by imprisonment. Institutions used for the reception and care of children under 7 years of age must be licensed, and are subject to inspection by officers of the State Children Relief Board.

The Deserted Wives and Children Act, which relates to the maintenance of wives and legitimate children, provides that a man who has left his wife or child without means of support may be ordered to contribute towards their maintenance, and may be required to enter into recognisances for his obedience to the order. In default of finding security he may be imprisoned for a period not exceeding twelve months; non-compliance with a maintenance order may be punished by imprisonment. An important amendment of this Act, passed in 1913, prescribes that any person committed to prison for failing to find security, or for non-compliance with an order under the Deserted Wives and Children Act, or under the Infant Protection Act, may be required to perform work, the earnings, after deducting his cost of living, being applied to the satisfaction of the order. The Act provides also that in cases of wife desertion the court may place any child of the marriage under the legal custody of the wife, or other approved person, and may order the husband to contribute towards the child's maintenance; similar procedure is authorised in cases of child desertion. Orders in respect of children cease at age 16.

The Neglected Children and Juvenile Offenders Act authorises the establishment of shelters for the temporary detention of children, and provides for industrial schools and reformatories. Special courts were established to deal with cases in respect of children over 5 years and under 16 years of age, and of offences by and against children, and with affiliation cases under the Infant Protection Act. In 1913 the jurisdiction of the Children's Courts was extended to complaints under the Deserted Wives and Children Act. Where practicable the Children's Courts must be held in proximity to a shelter, and not in the ordinary Courts; persons not directly interested may be excluded from the court-room. In the disposal of children the Courts may release on probation to an asylum or person willing to undertake care, may commit to an institution, or may sentence according to law, in which case the child may be detained in a reformatory for a term ranging from one to five years. Pending removal to an institution, children may be placed in a shelter for a maximum term of three months; children in an institution may be removed to another institution or to an asylum, or may be apprenticed or transferred to the State Children Relief Board for boarding-out. Children released on probation, or sent to an asylum, are supervised by probation officers.

The Neglected Children and Juvenile Offenders Act regulates also the issue of licenses to children engaged in street-trading, this part of the Act being administered by the State Children Relief Board.

The Juvenile Smoking Suppression Act of 1903 restricts the use of tobacco by juveniles. Any person who supplies a child under 16 years of age with tobacco, cigars, or cigarettes is liable to a fine of £5.

Under the provisions of the Liquor Act, children may not be supplied with intoxicating liquor, nor be allowed in the bar of licensed premises, nor sent to licensed premises to obtain liquor.

The laws relating to factories and shops, and to apprenticeship, &c., regulate the conditions of child labour. Particulars are shown in the chapters of this volume relating to the manufacturing industry and employment.

The Testators' Family Maintenance and Guardianship of Infants Act, 1916, assures to the widow or widower and children of a testator an adequate maintenance from the estate, and amends the law regarding the guardianship of infants. An important provision provides that after the death of the father of an infant the mother shall be guardian notwithstanding any appointment made by the father.

The Public Instruction Act was amended in 1916 to cause regular attendance at a school of all children between the ages of 7 and 14 years, and to render the laws relating to truancy more effective.

#### THE STATE CHILDREN RELIEF BOARD.

The State Children Relief Board is charged with the administration of the State Children Relief Act. The Department also administers the Children's Protection Act, and supervises institutions licensed under the Infant Protection Act, and children placed under its jurisdiction by the Children's Courts as boarded-out wards, children on probation, or inmates of institutions. The Board's officers undertake also the licensing of children engaged in street-trading, and the supervision of the school attendance of all children subject to enrolment at State schools.

The total number of children under supervision by the officers of the Board in terms of the various Acts, at 5th April, 1917, was 15,876, as compared with 16,025 in the previous year:—

	1914.	1915.	1916	1917.
Boarded out apart from their mothers ... ..	4,695	4,880	5,681	4,653
"    with their mothers ... ..	5,970	6,612	7,310	7,323
Registered under Children's Protection Act ... ..	925	925	693	590
In institutions licensed under Infant Protection Act ... ..	331	535	500	382
Engaged in street trading ... ..	477	680	695	785
Employed in theatres ... ..	280	265	180	240
Released on probation ... ..	1,213	1,184	1,566	1,903
<b>Total .. ..</b>	<b>13,891</b>	<b>15,081</b>	<b>16,025</b>	<b>15,876</b>

The supervision of these children is undertaken by salaried inspectors, whose efforts are supplemented by honorary officers. Women inspectors, charged specially with the supervision of the conditions of infant life, visit and inspect infants placed out apart from their mothers; and the regulations prescribe that all such infants in the Metropolitan area must be submitted to medical examination every fortnight during the first twelve months of life.

#### EXPENDITURE OF STATE CHILDREN RELIEF DEPARTMENT.

The gross amount expended by the Government during the year ended April, 1917, on account of the services of the State Children Relief Department, was £174,503; of this amount £64,378 represented the cost of maintenance of children boarded-out apart from their parents, while allowances to widows and deserted wives towards the support of their own children amounted to £79,405. Contributions by parents and relatives and repayments of maintenance allowances amounted to £4,505. The Department realises the need of comprehensive and remedial legislation to ensure the recovery of contributions for maintenance from any near relative of a destitute person.

The following statement shows the expenditure of the State Children Relief Department during the five years ended April, 1917.

Year ended April.	Boarding-out.	Widows, &c.	Cottage Homes.	Children's Protection and Neglected Children's Acts and Supervision of School Attendance.	Total Expenditure.	Contributions by Parents and other Revenue.	Net Expenditure by Government.
	£	£	£	£	£	£	£
1913	50,680	44,461	12,541	8,972	116,654	5,884	110,770
1914	56,127	54,975	11,496	9,785	132,383	6,371	126,012
1915	52,940	61,890	9,962	9,654	134,446	6,194	128,252
1916	57,996	76,989	11,599	10,047	156,631	6,357	150,274
1917	64,378	79,405	17,892	12,828	174,503	5,880	168,623

#### THE PRESERVATION OF INFANT LIFE.

Reference to the chapter of this volume relating to vital statistics will show that much of the infantile mortality is due to preventable causes. With the object of reducing this wastage, preventive measures were commenced by the Sydney Municipal Council in 1904, and trained female inspectors were appointed to visit mothers and to instruct them. This work was extended subsequently to the more populous suburbs.

#### *Baby Clinics.*

In 1914 the Baby Clinics, Pre-Maternity and Home-Nursing Board was appointed by the Government as an Advisory Board to establish organisations in the Metropolis and large country centres, for supplying advice and instruction in the care and nurture of infants.

The Board consists of eight members, including three women and two medical practitioners. At the end of 1917 eleven clinics had been opened in the most thickly-populated suburbs of Sydney, two in Newcastle, and one in Cessnock; those at Alexandria and Newtown continue the work conducted previously by a private organisation—the Alice Rawson School for Mothers.

There are an honorary medical officer and two nurses attached to each clinic; the nurses instruct the mothers, and make arrangements for medical treatment when necessary; dental defects of children up to 5 years of age are treated at the dental hospital. Particulars relating to the work of the clinics during 1917 are shown below:—

Patients seen by doctor	... 5,810	Cases—Ophthalmia	... .. 610
„ sent to hospital	... 2,163	Gastro-enteritis	... 5,584
Total attendance at Clinics	... 71,101	Miscellaneous	... 30,212
Babies weighed	... 45,907	Pre-maternity	... 1,155
New-born babies visited	... 8,951		
Subsequent visits	... 13,992		

#### *Notification of Births.*

The Notification of Births Act, which is operative only in districts to which it is applied by proclamation, was passed in February, 1915, to provide that a written notification of every birth must be sent within a prescribed period to the Under Secretary of the Department of Public Health, or to any other authorised person. Previously the Health authorities were dependent upon the notification of births to the Registrar-General in connection with which a period of sixty days is allowed; consequently the benefits of the baby clinics were not applied during the period when they might have been most effectual.

The Act was proclaimed in Sydney and Newcastle and their more populous suburbs, and in these areas a notification must be sent within thirty-six hours after birth.

#### Maternity Allowances.

The payment of maternity allowances to mothers of children born in Australia is made under the Maternity Allowance Act, passed by the Commonwealth Parliament in 1912. A sum of £5 is payable in respect of each birth, one allowance only being payable in cases of plural births. The allowance is payable to women who are inhabitants of the Commonwealth or who intend to settle therein; Asiatic women and aboriginal natives of Australia, Papua, and the Pacific Islands are excluded from the benefits of the Act.

The following statement shows the number of maternity allowances passed for payment in New South Wales during the years ended 31st December, 1913-17:—

Year.	Maternity Allowances.	Year.	Maternity Allowances.
1913	51,564	1916	51,992
1914	53,690	1917	52,600
1915	52,028		

#### Infants' Homes.

Homes licensed under the Infant Protection Act are classified in two groups—those for the reception of five or less children, being generally private homes, and those for six children or more, mainly institutions of a charitable nature for the care of infants.

The number of licensed places during the years 1912-16 is shown below:—

Year.	Private Dwellings Registered.	Institutions.	
		Number.	Inmates under 7 years of Age.
1912	155	19	229
1913	173	21	331
1914	184	21	309
1915	81	20	389
1916	44	20	382

With the exception of the Infants' Home, Ashfield, subsidised by the Government, the institutions are supported entirely by voluntary contributions.

The Sydney Benevolent Asylum, for the reception of children, operates under a special Act, and is exempted from the provisions of the Infant Protection Act.

The twenty institutions licensed during 1916 provided accommodation for 529 children, but the provisions of the Act apply only to those under age 7; the number in each age group is shown below:—

Age group.	Number.	Age group.	Number.
Under 1 year ... ..	47	5-6 years ... ..	69
1-2 years ... ..	36	6-7 years ... ..	81
2-3 years ... ..	36		
3-4 years ... ..	50	Total ... ..	382
4-5 years ... ..	63		

Three Homes for Mothers and Infants are maintained in the metropolitan area under the direction of the State Children Relief Department. They were established on the principle that the accommodation of a small number of inmates in a cottage home is more efficacious for the preservation of infant-life than the aggregation in large institutions. During the year ended 5th April, 1917, 104 mothers and 187 infants were admitted; 6 infants died; and 85 mothers and 158 infants were discharged.

The Lady Edeline Hospital for Sick Babies, under the direction of the Public Health Department, provides accommodation for children up to 2 years of age suffering from gastro-enteritis and other diseases peculiar to infancy. The children admitted during 1917 numbered 241; there were 50 deaths.

*Registrations under Children's Protection Act.*

The number of children registered under the Children's Protection Act during 1916 was 1,098, and at 31st December there were 590 under supervision; 121 theatre licenses for children were issued, as compared with 180 during the previous year. Theatre licenses may be issued to children over 10 years of age in the metropolitan area, but those under 14 years are not permitted to travel with touring companies. Strict supervision is necessary to protect the interests of children engaged in this class of work.

The transactions under the Children's Protection Act during the years 1912-16 may be seen in the following statement:—

Particulars.	1912.	1913.	1914.	1915.	1916.
Registrations from Lying-in Homes ...	2,830	4,430	7,884	8,064	8,250
Foster Homes registered ... ..	95	82	140	126	113
Children registered ... ..	1,215	1,447	1,648	1,268	1,094
„ died ... ..	41	41	59	52	33
„ discharged from supervision ...	491	481	664	523	471
„ under supervision at 31st Dec....	683	925	925	693	590
Theatre Licenses for Children ... ..	321	280	265	180	121

**DEPENDENT, NEGLECTED, AND DELINQUENT CHILDREN.**

Since its inception in 1881, 25,611 children have been placed under the control of the State Children Relief Board to be boarded-out apart from their parents. Of this total 20,958 children had been removed from the control of the Board, so that there were 4,653 remaining under its charge on 5th April, 1917, of whom 2,733 were boys and 1,920 were girls. In addition the Board was paying allowances towards the support of 7,323 children living with their mothers, who are widows or deserted wives; thus the total number of children under the supervision of the Board, in terms of the State Children Relief Act, was 11,976.

*Children maintained apart from parents.*

The State wards are boarded out to persons deemed to be eligible after strict inquiry by the Board, the maximum number of children under the care of one guardian being three, except in cases of families comprising a greater number, brothers and sisters being placed usually in the same home. Strict supervision is exercised by the officers of the Board to prevent ill-treatment or neglect, and visiting ladies voluntarily assist in the various districts,

keeping a constant watch upon the children, and the conditions under which they live. The distribution of the children provided for apart from their parents at 5th April, 1917, was as follows:—

Classification.	Boys.	Girls.	Total.
Boarders ... ..	1,761	1,294	3,055
Without subsidy ... ..	54	77	131
Apprentices ... ..	500	324	824
Adopted ... ..	60	97	157
In Hospitals ... ..	33	8	41
Cottage Homes ... ..	256	79	335
Depôt ... ..	21	22	43
Absconded ... ..	45	17	62
Unofficial ... ..	3	2	5
<b>Total ... ..</b>	<b>2,733</b>	<b>1,920</b>	<b>4,653</b>

The Central Depôt for State Children at Paddington is used as the reception-house into which children, under the Board's control, are received from their parents, and from the police or inspectors who may have rescued them from unsuitable surroundings. It serves also for the housing of State children in transit from one foster home to another, and as a shelter in connection with the Children's Court for girls and for boys under 7 years of age.

The number of children who were wards of the State Children Relief Board is shown in the following table, at five-year intervals since 1881:—

Year ending April.	Boys.	Girls.	Total.	Year ending April.	Boys.	Girls.	Total.
1881	24	35	59	1906	2,114	1,776	3,890
1886	779	587	1,366	1911	2,551	1,947	4,498
1891	1,417	952	2,369	1916	3,029	2,052	5,081
1896	1,954	1,502	3,456	1917	2,733	1,920	4,653
1901	2,205	1,705	3,910				

The following table shows, for a period of five years, the ages of children when received by the Board for boarding out apart from their mothers:—

Age.	Year ending April—				
	1913.	1914.	1915.	1916.	1917.
Under 1 year ... ..	170	188	186	116	139
1 year ... ..	71	85	84	118	43
2 years ... ..	48	55	54	62	43
3 „ ... ..	42	46	48	60	30
4 „ ... ..	40	49	47	65	51
5 „ ... ..	55	49	50	71	43
6 „ ... ..	53	48	51	62	44
7 „ ... ..	53	50	52	74	45
8 „ ... ..	53	75	72	73	56
9 „ ... ..	58	59	52	99	63
10 „ ... ..	58	82	81	130	79
11 „ ... ..	87	74	78	129	86
12 „ and over ... ..	290	217	214	296	222
Unknown ... ..	31	127	126	104	37
<b>Total ... ..</b>	<b>1,109</b>	<b>1,204</b>	<b>1,195</b>	<b>1,459</b>	<b>981</b>

The reduced number of children in 1917, in comparison with those received in 1916, is due to the adoption more generally of the practice at the Children's Court of releasing children on probation to their parents, instead of committing them to institutions; in other cases, the increased rate of allowances paid by the State for children boarded out to their own mothers enables the mothers to retain their children.

Of the 981 children received by the Board during 1916-17, 371 came from the Children's Courts, 26 were transferred from the Sydney Benevolent Asylum, 7 from other institutions, and 77 were received from the police, while 500 were boarded-out direct from the State Children's Dépôt.

#### *Children boarded-out with their mothers.*

In April, 1917, 2,505 widows and deserted wives were receiving allowances towards the support of 7,323 of their own children under 14 years of age. The new applications during 1917 numbered 1,279; allowances were granted in 947 cases. The mothers receiving allowances in April, 1917, were 1,388 widows, 508 deserted wives, and 609 wives deprived of their husbands' support through insanity (201), imprisonment (126), detention in hospital (204), or in asylum for infirm (78). There is no law in operation in New South Wales to compel relatives, other than parents, to contribute towards cost of maintenance.

#### *Payment for Children Boarded-out.*

Payments for the maintenance of children vary according to age and physical conditions. The State Children Relief Board may determine necessary rates of payment, and with the sanction of the Minister may continue the payments after the age of 14 years is attained. The rates generally paid are 12s. per week for young ailing infants; 10s. per week for children under 1 year; 8s. per week for children up to 2 years; 7s. per week for children up to 3 years; 6s. per week for children between 3 and 14 years.

#### *Cottage Homes for Children.*

Cottage homes have been established by the State Children Relief Board for State children requiring special treatment. The homes form a valuable adjunct to the boarding-out system; there are now eleven at Mittagong, and three in the Pennant Hills district, all situated amid rural surroundings. At Mittagong of the eleven homes which are administered under the title of the "Farm Home," three are for the use of invalids and delicate State children, and two are maintained for the care and instruction of feeble-minded boys; and at Parramatta one home is for feeble-minded girls, and two for delicate children.

The Farm Home at Mittagong provides suitable industrial occupation and training for boys committed from the Children's Court for reasons which do not warrant the more drastic measure of detention in a reformatory. The boys are taught regular and industrious habits, and the products of the farm are available for the children in the Cottage Homes. There were 193 boys under supervision in the Farm Home at 5th April, 1917.

The admissions to the Cottage Homes during the year ended April, 1917, were 633 and the discharges 699. On 1st April, 1917, 335 children remained in the various homes, 256 boys and 79 girls.

In addition to the Cottage Homes there is a home at Raymond Terrace for feeble-minded boys who are not suitable for boarding with private families; 31 boys were admitted during the year, and 28 discharged, 32 being under supervision at 5th April, 1917.

*Permanent Adoption of Children.*

The State Children Relief Act provides that orphan children, or those who have been surrendered for adoption, may be permanently adopted; the permanent adoption of 157 State wards—60 boys and 97 girls—has been arranged by the State Children Relief Board; and 54 boys and 77 girls are boarded without subsidy. The law, however, does not forbid private arrangement of adoptions, and many are arranged without the cognisance of the Board.

*Apprenticeship of State Children.*

The following statement shows the number of apprentices placed by the Board during the five years ended 5th April, 1917:—

	1913.	1914.	1915.	1916.	1917.
Boys ...	220	298	257	155	123
Girls ...	103	174	162	90	84
Total ...	323	472	419	245	207

At the end of April, 1917, there were 824 apprentices (500 boys and 324 girls) under indentures. The terms of indenture prescribe a wage payment and pocket-money on a specified scale, the wages being banked half-yearly to the credit of the apprentice; one-third of the accumulated amount is paid over on completion of the apprenticeship, the balance remaining at interest till age 21 is attained, unless exceptional circumstances arise, when the Board may allow the money to be paid earlier.

From 1887 to April, 1917, the total collections of the Apprentices Fund were £90,506, of which £74,078 had been paid over on completion of the indentures, and £16,427 remained to the credit of the fund, the collections for the year having been £4,798. The majority of the girls are apprenticed in domestic service, and the boys to farmers, orchardists, and artisans in country districts; as a preliminary to the apprenticeship system, and to give opportunity for the children in a wider range of industrial occupations, training homes are essential.

*Reformatories and Industrial Schools.*

The number of children sent to reformatories has diminished considerably since the development of the probationary system; such institutions are needed, however, for a certain number of delinquents who show positively criminal tendencies. In addition to the Farm Home at Mittagong, where truants and minor delinquents are detained for short periods, there are two State institutions, viz., the Farm Home for Boys at Gosford, and the Girls' Industrial School at Parramatta, to which a training home is attached.

The Gosford Home is used for the reception and treatment of the older juvenile offenders. The work of establishing this institution was commenced in July, 1912, and the labour of the boys was utilised largely in clearing the site, which was practically virgin forest, and in constructing the necessary buildings, &c. The plan of the institution was designed to allow the inmates to be classified and segregated; for this reason it would be suitable for the reception of youths from 16 to 20 years of age, who, under existing legislation, are received in prisons.

In connection with this phase of the reformatory system, a number of youths between the ages 16 and 18 years have been transferred under license from the gaols to complete their term of detention at the Gosford Farm Home.

During the year 1916, 80 boys were admitted, and 75 discharged; of the latter 5 were apprenticed, 59 were released on probation, and 2 were transferred to the Mittagong Farm Home.

At the Girls' Industrial School a training home was established in 1912, to enable a more effective classification of the inmates. On 31st December, 1916, there were 155 girls in the institution—125 in the Industrial School, and 30 in the Training Home; 79 girls were admitted during the year, and 63 were discharged.

There are a number of institutions conducted by religious bodies and other organisations, in which destitute children are placed by their natural guardians in preference to boarding-out. These institutions receive a small number of children from the Children's Courts, and at the end of the year 1916, supported 2,017 children:—

Institutions.	Boys.	Girls.	Total.
General Public ... ..	180	138	318
Church of England ... ..	16	146	162
Roman Catholic ... ..	442	736	1,178
Methodist ... ..	6	47	53
Presbyterian ... ..	86	41	127
Salvation Army ... ..	82	97	179
Total ... ..	812	1,205	2,017

#### *Children's Courts.*

The majority of cases in respect of neglected children and juvenile offenders are conducted at the Metropolitan Children's Court, the transactions in the Country Children's Courts being comparatively few. Two shelters have been established in Sydney in connection with these Courts; they are used for the detention of children apprehended by the police, or awaiting decisions of the Courts, or due for transfer to institutions to which they have been committed; they serve also for the detention of those sentenced to imprisonment in default of payment of fine, or on remand for discipline, medical examination, or other inquiry.

As the number of girls passing through the shelter is small, the work is conducted at the Central Dépôt for State Children, where also boys under 7 years of age are received. The shelter for boys over 7 years is attached to the Metropolitan Children's Court.

A medical officer from the Department of Education examines juvenile offenders, prescribes treatment, and advises the magistrate where delinquency is the outcome of physical or mental disability. During the year ended 5th April, 1917, 401 boys were examined at the shelter, 100 were found to be suffering with physical defects, and recommended for hospital treatment; tested by the Binet-Simon method, the mental capacity of 56 boys was below normal.

During the year ended 5th April, 1917, the number of children brought before the Metropolitan Children's Court was 2,255, of whom 2,006 were boys and 249 were girls; 411 were uncontrollable children; 158 were neglected or under improper guardianship; 81 were charged with breaking terms of probation. Of the 2,255 cases dealt with 636 were either withdrawn or

dismissed, so that the actual number of proved cases was 1,619. The disposal of the children brought before the Court is shown in the following statement:—

Disposal.	Boys.	Girls.	Total.
Released on Probation to Parents .. .. .	1,143	59	1,202
Do do do Other persons .. .. .	44	22	66
Committed to care of State Children's Relief Board.	5	10	15
Do do do Ormond House, Paddington.	20	33	59
Do do do Farm Home, Mittagong .. .. .	186	..	186
Do do do Farm Home, Gosford .. .. .	38	..	38
Girls' Training Home, Parramatta .. .. .	..	31	31
Committed to care of Industrial School, Parramatta.	..	18	18
Do do do Private Institutions .. .. .	2	..	2
Fined .. .. .	2	..	2
Withdrawn .. .. .	519	74	593
Dismissed or Discharged .. .. .	41	2	43
Total .. .. .	2,006	249	2,255

Further particulars regarding offenders charged at the Children's Courts are given in the chapter of this volume relating to Law Courts.

#### *Release on Probation.*

The probationary system by which truants and other juvenile offenders are released under supervision has proved a more effective measure for the reform of juvenile delinquents than the former method of committing them to institutions. Where parental control has been lax, or home conditions unsatisfactory, the children may be released to the care of their parents, whose supervision is subjected to periodic investigation by probation officers; where natural guardians are unfit or incompetent the children may be placed under the care of other persons.

At 5th April, 1917, there were 1,578 children under probation from the Children's Courts, 1,478 boys and 100 girls; 112 had been brought before the Court as neglected, 345 as uncontrollable, 814 were convicted for stealing, and 307 for other offences.

The terms of probation were:—One year and under, 1,482; one to two years, 64; over two years, 32. Cases in which the term of probation exceeds one year usually relate to children committed to the care of relatives or private establishments, the length of term implying legal authority to retain custody of the children apart from their parents.

Since its inauguration approximately 9,374 children have been released on probation by the Metropolitan Children's Court; the proportion of failures has been very small. During the year ended April, 1917, 325 children were released by the State Children Relief Board, after a probation of one year.

#### *Street-trading by Children.*

Street-trading is defined by law as hawking newspapers, matches, flowers, or other articles, singing, or performing for profit, or any like occupation carried on in a public place. Girls are not allowed to engage in street trading. Licenses are issued by the State Children Relief Department to boys under 16 years; the trading hours prescribed for boys between ages 12 and 14 are from 7 a.m. to 7 p.m., and for boys over 14 years of age, from 6 a.m. to 10 p.m. The minimum age at which a license is granted is 12 years, and in case of certain occupations, 14 years. Licenses are renewable half-yearly, and licensees are required to wear a metal arm-badge whilst trading.

Precautions are taken by supervisors to ensure the regular school attendance of licensees under 14 years of age.

During the year ended 31st March, 1917, 663 boys were licensed, their ages and the purposes for which licenses were granted were as follows:—

Street-trading.	12 years and under 14.	14 and under 16.	Total.
Hawking newspapers ... ..	363	261	624
„ flowers, &c. ... ..	11	2	13
„ other articles ... ..	19	7	26
Total ... ..	393	270	663

Particulars regarding the licenses granted and refused during the last five years are shown below:—

Period ended 31st March.	Boys Licensed.			Applications refused.	Licenses withdrawn during year.
	12 years and under 14.	14 years and under 16.	Total.		
1913	477	175	652	191	10
1914	317	160	477	170	33
1915	469	211	680	130	40
1916	482	213	695	122	38
1917	393	270	663	122	42

#### MEDICAL INSPECTION OF SCHOOL CHILDREN.

The question of physical fitness of children is of considerable importance to the community, and the medical reports of the Education Department point out the necessity for organised attention to physical disabilities, which retard educational progress, also to the prevention of epidemic disease, and to the checking of children's ailments in the early and curable stages.

A Medical Branch of the Department of Education has been created, with a staff of medical officers and nurses, and a bacteriological laboratory for the investigation of outbreaks of disease in schools. The work of the medical branch includes the medical inspection of school children, the inspection of school buildings, the delivery of lectures to teachers, senior students, and parents, and the investigation of outbreaks of infectious disease. Dental inspections are conducted in conjunction with the medical.

A medical examination will be made every three years of all children present at each school; as the term of compulsory attendance is seven years, the children will be examined at least twice during their school life.

Recent developments of the school medical system have been in the direction of providing facilities for treatment of defective children. A travelling hospital, a travelling ophthalmic clinic, a metropolitan dental clinic, and 6 travelling dental clinics have been established.

Where there are no resident doctors or dentists the travelling hospital visits parts of the State with a staff of two medical officers, a nurse, and a dentist; one doctor gives general treatment and performs minor operations, the other treats eye defects. The travelling ophthalmic clinic treats eye defects at the larger country schools. The number of school children treated by the hospital and clinics during 1916 was 19,909, and the staff of the hospital treated 32 adults and children below school age, under emergency conditions requiring immediate attention.

For the purpose of inspection the children are classified in three groups, viz., those attending schools (1) in the metropolitan district, (2) in the large country towns on or near the railway, (3) in small country towns,

villages, and remote settlements. The number of children examined during 1916, including 4,011 examined by the travelling hospital, was 76,929, of these, 44,643 showed defects needing treatment.

Schools.	Enrolment at Schools examined.			Pupils examined.			Pupils notified as defective.		
	Boys.	Girls.	Total.	Boys.	Girls.	Total.	Boys.	Girls.	Total.
<b>State Schools—</b>									
Metropolitan district .. .. .	21,718	19,400	41,118	19,409	16,559	35,968	11,556	10,090	21,645
Large country towns .. .. .	9,622	8,800	18,422	8,482	7,683	16,165	4,898	4,785	9,678
Small country areas .. .. .	8,442	7,883	16,325	7,622	7,111	14,733	3,788	3,728	7,516
<b>Total .. .. .</b>	<b>39,782</b>	<b>36,083</b>	<b>75,865</b>	<b>35,513</b>	<b>31,353</b>	<b>66,866</b>	<b>20,236</b>	<b>18,603</b>	<b>38,839</b>
<b>Private Schools—</b>									
Metropolitan district .. .. .	3,193	2,977	6,170	2,349	1,980	4,329	1,325	1,112	2,440
Large country towns .. .. .	2,404	3,426	5,830	1,881	2,581	4,462	1,094	1,576	2,670
Small country areas .. .. .	751	852	1,603	619	653	1,272	313	381	694
<b>Total .. .. .</b>	<b>6,348</b>	<b>7,255</b>	<b>13,603</b>	<b>4,849</b>	<b>5,214</b>	<b>10,063</b>	<b>2,735</b>	<b>3,069</b>	<b>5,804</b>
<b>Total, all Schools .. .. .</b>	<b>46,130</b>	<b>43,338</b>	<b>89,468</b>	<b>40,362</b>	<b>36,567</b>	<b>76,929</b>	<b>22,971</b>	<b>21,672</b>	<b>44,643</b>

The proportion of pupils who showed defects was 58·0 per cent. of those examined; it was lowest in the small country areas, being 51·3 per cent., as compared with 59·9 in the large country towns. The following table shows the percentage of pupils found defective during the years 1915 and 1916:—

Schools.	1915.			1916.		
	Boys.	Girls.	Total.	Boys.	Girls.	Total.
	per cent.					
Metropolitan district ... .. .	58·0	60·7	59·4	59·2	60·4	59·8
Large country towns ... .. .	63·5	63·9	63·7	57·8	62·0	59·9
Small country areas ... .. .	51·4	53·1	52·2	49·8	52·9	51·3
<b>Total, all Schools ... .. .</b>	<b>58·4</b>	<b>60·0</b>	<b>59·2</b>	<b>56·9</b>	<b>59·3</b>	<b>58·0</b>

The investigation disclosed that defects of the teeth were very numerous, the majority being in the first teeth; other common ailments were enlarged glands, defective tonsils, and adenoids. A summary of the defects is shown below:—

Defects.	Total.	Defects.	Total.
Eyes—Vision ... .. .	3,698	Hair ... .. .	3,148
Other ... .. .	1,136	Skin ... .. .	361
Ears—Hearing ... .. .	2,063	Deformities—Round Shoulders	359
Other ... .. .	131	Other ... .. .	48
Nose and Throat—		Hernia ... .. .	22
Tonsils, Adenoids ... .. .	6,399	Enlarged Glands ... .. .	15,524
Other ... .. .	240	Anæmia ... .. .	79
Teeth—Second, gross ... .. .	5,312	Defective Nutrition ... .. .	1,164
slight ... .. .	27,028	Defective Speech ... .. .	855
First ... .. .	7,392		

It has been found difficult to ensure satisfactory treatment for all children suffering from defects. Returns received by the Medical Branch with respect to notifications sent to parents show the following results; the returns are incomplete as, at the date of compilation, full particulars had not been received from many schools, especially those in remote districts:—

Division.	Notifications sent.	Children subsequently treated.	Percentage treated of number notified.
Metropolitan area ... ..	24,085	13,281	55.1
Large country towns ... ..	12,348	6,305	51.1
Small country towns ... ..	5,912	3,136	62.6
Total ... ..	41,445	22,722	54.8

Although the non-treatment of some children is due to the indifference of parents, in many other cases it is due to inability to afford the cost of treatment, or to the absence of facilities, as, even in some of the larger country towns, treatment is not obtainable for serious defects of vision and of teeth.

#### *Infectious Diseases of School Children.*

During 1916, 43,637 pupils of Public Primary Schools were compulsorily absent on account of infectious diseases, 31,547 being patients, and 12,090 contacts; the former represented 11.1 per cent. of the total enrolment, and the latter 4.3 per cent.; the average period of absence was 4.6 weeks. The absence of over one-third of these pupils was due to an epidemic of mumps.

In 1915, when an epidemic of measles affected a large number of children, there were 43,711 patients and 20,532 contacts, the ratios to the net enrolment being 16 per cent. and 7.5 per cent. respectively; the average period of absence was 4.5 weeks.

Cases of ophthalmia occur mainly in the western districts, and pamphlets and drugs are provided for the prevention and cure of this disease.

#### *Anthropometric Survey.*

In conjunction with the medical inspection an anthropometric survey of children is made in order to show the physical development in relation to mental progress, and the effect of environment on physical condition, as well as to establish a basis of comparison of the children of this State with those of other countries; a comprehensive investigation is now in progress.

#### PUBLIC HOSPITALS.

Public hospitals embrace all institutions for the care of the sick, except those owned and maintained entirely by private persons; hospitals conducted by charitable and religious organisations, some of which are not subsidised by the Government, and the Thomas Walker Convalescent Hospital, maintained by private endowment, are included. The Public Hospitals Act of 1898, and its amendment, define the procedure in the election of officers, and in matters relating to the property of the public hospitals to which the provisions of these Acts have been extended. With few exceptions the hospitals receive financial assistance from the public funds.

There were in New South Wales, at the end of 1916, 151 general hospitals for the treatment of the sick; 26 were in the metropolitan area, and 125 in country districts. The accommodation provided was 6,538 beds,

including 473 in the open air, viz., 2,849 in the metropolitan hospitals, or an average of 109 beds per hospital; and 3,689 in country districts, or an average of 30 beds per hospital. The cubic capacity of metropolitan hospitals was 3,122,706 cubic feet, or an average of 1,203 cubic feet per bed; in the country hospitals the average was 1,199 cubic feet, the average for New South Wales being 1,200 cubic feet per bed. The average daily number of patients was 2,474 in all the metropolitan hospitals, and 2,255 in the country.

The following statement shows the extent to which the general hospital services have increased since 1901:—

Particulars.	1901.		1911.		1916.	
	Metro-politan.	Country.	Metro-politan.	Country.	Metro-politan.	Country.
Hospitals ... ..	15	103	21	120	26	125
Beds, including those in open air	1,453	1,938	2,113	2,976	2,849	3,689
Indoor patients ... ..	16,919	16,093	29,610	26,954	40,628	35,228
Outdoor patients ... ..	72,645	7,614	104,466	11,880	161,427	17,012
Average daily number of patients	2,045		3,302		4,729	
Indoor patients per 1,000 of mean population ... ..	24.1		34.0		40.6	
Average annual cost per occupied bed ... ..	£72 12s. 11d.		£85 18s. 9d.		£96 10s. 5d.	

The number of indoor patients is exclusive of those treated in Government asylum hospitals; the outdoor patients are exclusive of 2,829 treated at the Dental Hospital.

PRIVATE HOSPITALS.

In addition to the public hospitals, there are numerous private hospitals which, prior to 1909, were entirely free of State supervision; but since the passing of the Private Hospitals Act, 1908, a private hospital (which includes any place in which medical, surgical, or lying-in cases are received) is not allowed to carry on business unless it is licensed by the Department of Public Health, and complies with the regulations as to structure and management. The hospitals thus licensed on 31st December, 1916, numbered 555, viz., 173 in Sydney, and 382 in the country.

The following statement shows the classification and accommodation of private hospitals:—

District.	Classification.				Accommodation.			
	Medical, Surgical, and Lying-in.	Medical and Surgical.	Lying-in.	Total.	1 to 3 Beds.	4 to 10 Beds.	11-20 Beds.	Over 20 Beds.
Sydney ... ..	49	8	116	173	69	63	18	23
Country ... ..	124	12	246	382	196	157	28	1
Total ... ..	173	20	362	555	265	220	46	24

Country hospitals were licensed in 168 towns; in the majority the accommodation provided was from 1 to 10 beds; only in 24 hospitals, 23 in Sydney and 1 at Richmond, were more than 20 beds available.

### HOSPITAL FINANCE.

The following statement shows the revenue and expenditure of the public hospitals for the year 1916:—

Items.	Metropolitan.	Country.	New South Wales.
	£	£	£
Receipts—			
State aid ... ..	141,473	143,912	285,385
Subscriptions and donations ... ..	74,969	88,049	163,018
Contributions by patients ... ..	39,719	45,832	85,551
Miscellaneous ... ..	13,935	11,046	24,981
Total Receipts ... ..	£ 270,096	288,839	558,935
Expenditure—			
Buildings and repairs ... ..	24,042	56,140	80,182
Salaries and Wages ... ..	103,299	90,725	194,024
Provisions, Stores, &c. ... ..	123,986	115,329	239,315
Miscellaneous ... ..	19,091	18,455	37,546
Total Expenditure ... ..	£ 270,418	280,649	551,067

The expenditure in connection with the institutions controlled entirely by the Government has been included in the figures stated above.

According to the hospital accounts the total amount of State aid received by the hospitals in the metropolitan area in 1916 was £141,473, and by the country hospitals £143,912. The total for the State was £285,385, comprising special grants amounting to £42,457 to metropolitan and £55,044 to country hospitals; and subsidies, £99,016 to metropolitan and £88,868 to country institutions. These amounts do not include payments for attendance on aborigines, expenses in connection with special outbreaks of disease, which are met from the general Medical Vote, nor cost of maintenance of a large number of chronic and incurable cases in hospitals and asylums for the infirm.

The revenue and expenditure of public hospitals at intervals since 1900 are shown below:—

Year.	Revenue.					Expenditure.				
	State aid.	Subscriptions and Donations.	Contributions by Patients.	Other.	Total.	Buildings and Repairs.	Salaries and Wages, Provisions, Stores, &c.	Other.	Total.	
	£	£	£	£	£	£	£	£	£	
1900	88,463	65,634	20,458	16,474	191,029	17,362	131,932	14,339	163,633	
1905	100,976	72,430	27,635	14,824	215,865	34,541	167,815	22,808	225,164	
1910	146,638	102,690	45,417	19,603	314,348	33,652	241,607	29,054	304,313	
1915	265,580	133,780	73,615	25,048	498,023	82,747	389,105	36,139	507,991	
1916	285,385	163,018	85,551	24,981	558,935	80,182	433,339	37,546	551,067	

*Hospital Funds.*

The balances of the funds of the hospitals as at the beginning and end of the year 1916 are shown in the following statement:—

Hospitals.	Current Account.		Invested Funds.	
	At 1st Jan., 1916.	At 31st Dec., 1916.	At 1st Jan., 1916.	At 31st Dec., 1916.
	£	£	£	£
Metropolis ...	(—) 72,784	(—) 75,869	134,168	136,931
Country ...	21,314	26,721	83,066	85,849
Total ...	(—) 51,470	(—) 49,148	217,534	222,780

(—) Indicates debit balance.

*Cost of Maintenance of Hospital Patients.*

The average annual cost of maintenance per patient in the hospitals during 1916 was £96 10s.; the average is calculated on the average daily number of patients, and is exclusive of cost of buildings, repairs, outdoor treatment, and district nursing:—

Average Daily Number Resident.	Number of Hospitals.	Average Annual Cost per Occupied Bed.			
		Wages.	Provisions, Stores, &c.	Miscellaneous.	Total.
		£	£	£	£
Under 1	7	379·95	299·21	83·90	763·06
1 to 3	12	136·38	109·37	18·30	264·05
3 „ 5	14	96·98	84·39	18·79	200·16
5 „ 10	31	70·04	60·64	12·12	142·80
10 „ 15	15	51·85	55·27	8·62	115·74
15 „ 20	16	41·71	55·65	7·34	104·70
20 „ 25	8	37·06	49·33	5·93	92·32
25 „ 30	6	24·73	46·07	5·47	76·27
30 „ 35	6	29·37	42·65	6·24	78·26
35 „ 40	8	32·55	43·25	6·20	82·00
40 „ 100	15	25·37	37·22	6·93	69·52
Over 100	10	42·15	51·10	6·26	99·51
Total ...	148	40·23	49·27	7·02	96·52

## STAFFS AND PATIENTS IN PUBLIC HOSPITALS.

The following statement shows the medical and nursing staffs attached to public hospitals during 1916:—

Hospitals.	Medical Staff.		Nursing Staff.			Total.
	Honorary.	Salaried.	Qualified Nurses.	Nurses Training.	Wardsmen & Wardmaids.	
Metropolitan ...	384	66	691	306	72	1,069
Country ...	203	116	454	363	66	883
Total ...	587	182	1,145	669	138	1,952

During the year 75,856 persons were under treatment as indoor patients, 40,628 in metropolitan, and 35,228 in country hospitals, and the number remaining in hospitals at the close of the year was 4,187 (2,242 males and 1,945 females).

The following statement shows the number of indoor patients treated, and the discharges and deaths during the past five years:—

Year.	Patients under Treatment.	Discharges.	Deaths.	Patients at the end of Year.
1912	61,711	53,538	4,488	3,685
1913	65,190	56,908	4,458	3,824
1914	70,154	61,759	4,310	4,085
1915	73,183	64,088	4,788	4,307
1916	75,853	66,642	5,027	4,187

The increase in the number of patients treated has been steady, and has been more rapid than the growth of population, the proportion of the population treated in hospitals having risen gradually from 28 per 1,000 in 1906 to 41 per 1,000 in 1916.

*Outdoor Hospital Patients.*

During 1916, 181,268 persons were treated as outdoor patients of the general hospitals, viz., 164,256 at metropolitan hospitals, including 2,829 at the Dental Hospital, and 17,012 at country hospitals.

*Sickness in Public Hospitals.*

The principal diseases of patients under treatment in the public hospitals during 1916 are shown below; patients treated at the hospitals attached to the Government asylums are not included, but are shown separately on a subsequent page. The cases under treatment during 1916 numbered 75,856—males 39,776, and females 36,080. The number who died, or were discharged as recovered, relieved, or unrelieved, numbered 71,669, leaving 4,187 under treatment at the end of the year. These figures include transfers,

and represent the aggregate of the number of cases treated at each hospital; cases admitted more than once during the year are counted each time admitted:—

Disease.	Total under Treatment.		Number of those discharged during the year who—					
			Recovered.		Were un-relieved.		Died.	
	Males.	Females.	Males.	Females.	Persons.	Persons.	Males.	Females.
Typhoid ... ..	951	693	767	551	9	5	89	81
Smallpox ... ..	84	60	83	60	...	...	...	...
Scarlet fever ... ..	914	1,530	812	1,385	38	8	27	29
Diphtheria and Croup ... ..	2,224	2,678	1,882	2,304	332	8	112	106
Influenza ... ..	769	437	732	416	26	2	7	...
Tuberculosis of lungs ... ..	1,127	685	94	65	648	174	239	125
organs ... ..	349	298	84	81	315	30	27	23
Veneral diseases ... ..	853	504	141	66	970	65	23	8
Cancer ... ..	924	648	278	203	334	304	215	120
Rheumatism, Gout ... ..	1,035	580	608	345	490	21	17	19
Diseases of the eye ... ..	797	578	550	401	337	42	...	2
Heart diseases ... ..	935	487	83	58	753	37	257	115
Hæmorrhoids, &c. ... ..	1,034	418	925	350	90	28	1	2
Diseases of nose ... ..	1,091	1,113	1,036	1,075	32	46	4	...
Bronchitis ... ..	867	481	613	367	251	6	44	16
Pneumonia ... ..	2,317	1,295	1,832	1,042	60	7	389	189
Diseases of the stomach ... ..	892	759	661	560	273	13	27	18
Diarrhoea and Enteritis ... ..	1,268	881	872	600	122	14	225	157
Appendicitis, Typhlitis ... ..	1,519	1,910	1,316	1,683	123	17	57	45
Intestinal obstruction ... ..	1,487	413	1,329	331	59	33	49	36
Nephritis, Bright's disease ... ..	494	345	89	138	263	25	197	81
Diseases, female genital organs ... ..	...	4,452	...	3,735	368	90	...	61
Puerperal condition ... ..	...	5,891	...	5,249	170	123	...	126
Diseases of skin, &c. ... ..	1,213	686	952	562	240	13	23	9
Accidents ... ..	5,936	1,404	4,671	1,049	763	81	261	85
All Diseases ... ..	39,776	36,080	27,126	27,028	10,656	1,832	3,094	1,933

## STATE ASYLUMS FOR THE INFIRM.

Five asylums for the infirm are maintained by the Government—four for men and one for women. These institutions were established as asylums for aged and destitute persons, but the introduction of the Old-age and Invalidity pension systems and the prosperous conditions prevalent throughout the State have caused a considerable decrease in the number of persons requiring relief. In consequence, the character of the work of the institutions has changed considerably and the treatment of the sick has developed into a primary feature of administration, the majority of inmates being those requiring medical care.

The average number resident during the year 1916 was 3,022, as compared with 3,156 during the previous year. The weekly cost per inmate for each of these years is shown below:—

Head of Expenditure.	1915.		1916.	
	s.	d.	s.	d.
Salaries and money allowances ... ..	3	5½	3	9
Provisions, extras, medical comforts, and forage ... ..	7	0	8	7
All other expenses ... ..	0	8	1	2
Gross weekly cost for maintenance ... ..	11	1½	13	6
Average weekly contribution towards Revenue ... ..	1	6½	2	2
Net weekly cost ... ..	9	7	11	4

## ASYLUM HOSPITALS.

In the hospitals attached to these institutions 5,646 cases of illness were treated during 1916—males, 4,499, and females, 1,147; at the end of the year, 1,232 cases remained under treatment.

## CONVALESCENT HOSPITALS.

Two State Convalescent Hospitals have been established—Denistone House, at Eastwood, for men; and the Strickland Convalescent Home, for women, Carrara, Rose Bay. These institutions receive persons who are convalescent from serious illness, and thereby accommodation is made available for urgent cases at the metropolitan public hospitals. During 1916 the number of persons treated was 227 men and 531 women; 9 men and 24 women remained in the institutions at the end of the year.

At the Carrington Centennial Convalescent Hospital, Camden, patients from the metropolitan district are accommodated for rest and change in the bracing climate of the southern highlands; the hospital is subsidised by the Government. The Thomas Walker Convalescent Hospital, Parramatta River, is privately endowed.

## TREATMENT OF COMMUNICABLE DISEASES.

Measures for the treatment and prevention of infectious diseases are taken under the authority of the Public Health Act. Cases of such diseases as leprosy, bubonic plague, smallpox, scarlet fever, typhoid fever, diphtheria, infantile paralysis, acute malarial fever, and cerebro-spinal meningitis must be notified to the Board of Health; no case of typhus, yellow fever, or cholera has occurred in New South Wales, and bubonic plague is practically non-existent. Pulmonary tuberculosis is notifiable in the Metropolitan and Hunter River districts, also in the Katoomba municipality and in the Blue Mountain shire.

Where necessary, special provision is made for the isolation of infectious cases. The majority in the metropolis are treated at the Quarantine Station, or at the Coast Hospital, and the country cases are accommodated in special wards of the local hospitals.

The cases of infectious disease notified during 1916 were as follows:—

Disease.	Sanitary District.		Other Districts.	Total.
	Metro-politan.	Hunter River.		
Smallpox ... ..	15	33	59	107
Typhoid Fever ... ..	653	105	984	1,742
Scarlet Fever... ..	2,743	209	2,807	5,759
Diphtheria ... ..	2,814	260	3,514	6,588
Infantile Paralysis ... ..	198	15	98	311
Acute Malarial Fever ... ..	58	.....	3	61
Cerebro-Spinal Meningitis ... ..	132	6	171	309
Tuberculosis ... ..	1,423	32	44	1,499

There were also 5 cases of leprosy, 1 from the Metropolitan district, and 4 from country districts.

*Leprosy.*

The Leper Lazaret for the segregation of persons suffering from leprosy was opened for the admission of patients in 1883, though statutory provision for the compulsory notification of the disease and detention of lepers was

not made until 1890. The number of cases in the lazaret on 1st January, 1916, was 22, during the year 5 were admitted, 1 died, and 1 was discharged, leaving 25—21 males and 4 females—in the lazaret at 31st December, 1916. The birthplaces of the inmates of European descent were New South Wales, 9; Victoria, 1; England, 3; and Fiji, 1. There were 11 coloured inmates, 3 were born in China, 6 in the Pacific Islands, 1 each in Syria and Java.

The cost of management was £2,789, or an average of £120 13s. 4d. per inmate.

#### *Smallpox.*

There was an outbreak of smallpox of a very mild type in Sydney in 1913. Only a small proportion of the population was protected by vaccination, but the disease had apparently a very low infective power, and did not spread rapidly, being transmitted, as a rule, by personal contact only. Stringent measures were taken to restrict the epidemic; where practicable the patients were transferred for treatment to the hospital in the Sydney Quarantine Area, and a large number of people were vaccinated.

The number of smallpox cases notified during 1913 was 1,073, and during the following year, 628; the death-rate was remarkably low, one death occurring in 1913, and three in 1914. In 1915 there were 471 cases; the majority were from mining centres in the Newcastle and Hunter River districts—only 41 occurred in Sydney; one patient died, but the primary cause of death was gastro-enteritis. In 1916 there were 107 cases, of which 15 were in the Metropolitan area, and 33 in Newcastle.

#### *Tuberculosis.*

A remarkable reduction in the mortality from tuberculosis has been effected since the enactment of the Dairies Supervision Act of 1886, the Pure Food Act and other legislation for the protection of the food supply from insanitary conditions, but the fact, as shown in the chapter dealing with vital statistics, that 6·7 per cent. of the deaths in New South Wales during 1916 were caused by tuberculosis, demonstrates the necessity for drastic measures to prevent the spread of the disease. In July, 1912, an Advisory Board was appointed to assist the Government in matters relating to the treatment of tuberculous diseases. This Board is composed of medical practitioners representing the University, the hospitals, the Government Medical Service, the general practitioners, and the various branches of medical science, medicine, surgery, pathology, State medicine, and diseases of women and children, also a veterinary scientist.

Under the by-laws of the City of Sydney, medical practitioners have been required, since 1904, to notify cases of phthisis within the city area; in August, 1915, pulmonary tuberculosis was proclaimed under the provisions of the Public Health Amendment Act of 1915 as notifiable in the Metropolitan and Hunter River sanitary districts, and in October, 1916, in the Katoomba municipality and the Blue Mountain shire. The Metropolitan combined sanitary district includes Sydney and suburbs, the municipalities of Granville, Parramatta, Liverpool, Bankstown, the shires of Ku-ring-gai, Hornsby, and Warringah. The Hunter River district embraces Newcastle and the surrounding municipalities as far west as Singleton.

Persons suffering from pulmonary tuberculosis may receive treatment of a temporary character at the general hospitals, and there are special institutions for their care and treatment, such as the State Hospital at Waterfall, the Queen Victoria Homes for Consumptives, at Wentworth Falls and Thirlmere, and the R. T. Hall Sanatorium, at Hazelbrook, as well as various private hospitals; tuberculous cases are received also at the Sacred Heart

Hospice for the Dying, Sydney. At the hospitals attached to the State asylums at Lidcombe and Newington, accommodation is reserved for a limited number of tuberculous patients.

The Waterfall Hospital was established in 1909, and persons suffering from pulmonary tuberculosis in early as well as advanced stages of the disease are treated there; male patients only were admitted prior to 1912, when a department for females was opened. There are 350 beds, of which 50 are in the open air; 544 males and 307 females were accorded hospital treatment during 1916. The expenditure during the year 1916 was £18,780, the average cost of treatment, excluding buildings, repairs, &c., was £53 15s. per occupied bed.

It is proposed to establish a wattle plantation in the Tenterfield district to provide remunerative occupation as well as curative treatment for patients in whom the disease has been arrested.

The National Association for the Prevention and Cure of Consumption has opened the first Anti-tuberculosis Dispensary in Sydney. Medical advice is given at the dispensary to persons suffering from tuberculous diseases, and a nurse is employed to visit their homes and instruct the inmates in precautionary measures to prevent the spread of tuberculosis.

The dispensary system is being extended with the co-operation and financial assistance of the Government; throat and chest dispensaries have been established in connection with metropolitan hospitals, and at Newcastle.

#### *Malarial Fever.*

Acute malarial fever was proclaimed as a notifiable disease on 17th March, 1915; this precautionary measure was taken to prevent its spread amongst the residents of the State by soldiers returning from service in the tropics. To the end of the year 105 cases had been reported; with 14 exceptions, the patients were men from the warships or members of the Expeditionary Force who had been employed in New Guinea and other malarial regions in the Pacific. In 1916, 58 cases were notified.

#### *Venereal Diseases.*

Two clinics for the treatment of venereal diseases have been established in Sydney; the results of their work have been so successful that it is proposed to open others in suburban and country centres. Special wards for these cases have been provided at the Newington and Liverpool State Asylum Hospitals. In the chapter relating to police and prison services, particulars are given of persons treated in Lock Hospitals under the Prisoners Detention Act.

### CHARITABLE INSTITUTIONS AND SOCIETIES.

In addition to hospitals for the treatment of sickness or disease, the State asylums for the infirm, and the cottage homes for State children, there exist, both in the metropolis and in the country, other institutions, such as homes for women, and for the blind, deaf, and dumb; for granting casual aid to indigent persons; and for the help of discharged prisoners.

A number of charitable institutions are maintained partly by State aid and partly by private contributions, and others are wholly dependent on private aid.

During 1916 the recorded admissions to the various charitable institutions numbered 16,151, and at the end of the year there were 6,549 persons in the institutions, viz., 2,680 men, 1,390 women, and 2,479 children. The

estimated value of outdoor relief afforded at institutions and by societies during 1916 was £26,526. State aid amounted to £317,429, and the total revenue and expenditure were respectively £509,171 and £497,695.

The following is a comparative statement of the revenue and expenditure of the charitable institutions and societies:—

Particulars.	1905.	1910.	1915.	1916.
Number of Institutions and Societies ...	167	179	199	202
Revenue—	£	£	£	£
State Aid... ..	164,040	189,584	275,513	317,429
Subscriptions, &c. ... ..	49,670	66,815	107,773	109,901
Other ... ..	50,357	67,806	77,937	81,841
Total ... ..	264,067	324,205	461,223	509,171
Expenditure—				
Buildings and Repairs ... ..	9,195	13,912	18,862	24,617
Maintenance, Salaries and Wages ... ..	223,198	278,590	401,273	448,097
Other ... ..	29,088	26,103	45,232	24,981
Total ... ..	261,481	318,605	465,367	497,695

#### *Ambulance and First Aid.*

In the work of rendering first aid, and transporting invalid or injured persons, several organisations are engaged, viz., the St. John Ambulance Association and Brigade, the Civil Ambulance and Transport Corps, and the New South Wales Marine Ambulance. An ambulance service is maintained in connection with the Public Health Department, and during 1916 2,248 persons were removed by two motor ambulances.

The primary object of the St. John Ambulance Association is the dissemination of general information as to the preliminary treatment of the sick and injured; a large number of classes of instruction are held throughout the State, certificates of competency being awarded by the Association. Ambulance Corps connected with the Railway and Tramway Department and the Department of Mines also encourage first-aid instruction.

The strength of the Railway and Tramway Ambulance Corps in 1917 was 9,808.

The Royal Life-saving Society promotes technical education in life-saving and resuscitation of the apparently drowned. During the year 1916-17 this society conducted examinations in connection with 180 classes, at which 1,288 certificates and awards were gained.

#### *Nursing Associations.*

In the matter of nursing, the District Nursing Association, the Bush Nursing Association, and the Sydney Day Nursing Association are active. The District Nursing Association restricts its operations to Sydney and its suburbs, and during 1916 eight nurses connected with the Association made 25,410 visits to 1,448 patients. The Association is maintained by public subscriptions, but received a grant of £100 from the Government in 1916.

To provide nursing for the sick in districts sparsely settled or remote from an established hospital the Bush Nursing Association was instituted during 1911, and during its first year four nurses were installed. In each centre a cottage was furnished and equipped for the use of the nurse; the costs of equipment and services are guaranteed by local committees, promoted and subsidised by the Association which was inaugurated with an endowment provided by public subscriptions, and is maintained by annual contributions subsidised by the Government.

During 1914 the Association was reorganised with Government representation and endowment in order to extend the service to all remote settlements, and at the end of the year twelve nurses had been appointed in various parts of the State. Arrangements were made also to subsidise doctors in small centres where the resident population is insufficient to provide a fair remuneration to medical practitioners. Where practicable the residents are expected to guarantee a certain sum to the doctor, and his earnings are further supplemented by Government subsidy. The subsidised doctors and nurses are required to co-operate with the medical officers attached to the travelling hospitals of the Education Department. In 1916 eighteen nurses were at work in various parts of the State.

#### GOVERNMENT RELIEF ORDERS.

To the various hospitals and asylums the Government issues orders authorising the holders to secure relief from the institutions. During 1916 11,793 orders were granted, of which 6,147 were to the Government asylums, 3,426 were to the Coast Hospital, and 1,000 were for out-door treatment at hospitals; the balance were distributed among other institutions. The total applications numbered 12,084 in 1916, as compared with 13,152 in 1915; 291 were refused, but it frequently happens that applicants who have been refused Government orders receive recommendations to institutions not under State management.

#### PUBLIC CHARITABLE COLLECTIONS.

Numerous public collections have been made for the relief of distress occasioned by war, mining disasters, floods, drought, &c. A fund thus established is usually administered by a committee formed at a public meeting of citizens summoned for the purpose of inaugurating the fund.

With the object of increasing the revenue of the hospitals and charitable agencies, public collections are made in the Metropolitan and several country districts.

#### *National Relief Fund of New South Wales.*

The National Relief Fund of New South Wales was formed in 1914 by the amalgamation of certain funds which had been established by public subscription. A Board consisting of the Colonial Secretary, the Lord Mayor of Sydney, the Public Trustee, and six other members appointed by the Governor was constituted to administer the fund; the moneys, &c., are vested in the Public Trustee, and will be used for the relief of persons injured, or of the dependents of those killed or injured in war or public disasters.

The funds absorbed by the National Relief Fund were as follows:—The Patriotic Fund inaugurated in 1899 to relieve distress arising from the South African War; the New South Wales Public Disaster Fund and the Education Department Relief Fund initiated for the relief of sufferers by the disaster at Mount Kembla mine in 1902; the Bulli Colliery Disaster Fund, established in 1887 in connection with the mining disaster at Bulli. On the resolution of both Houses of Parliament any other fund may be amalgamated with the National Relief Fund.

The relief distributed during the year 1916 was valued at £1,514, and administrative expenses £87.

#### *War Relief Funds.*

On the outbreak of the present war numerous relief funds were initiated in New South Wales; those subsidised or assisted by grants or expenditure from the Consolidated Revenue of the State are audited by the Auditor-General in terms of the Trustees Audit Act.

Particulars as to the more important funds are given below:—

The Lord Mayor's Patriotic Fund was inaugurated in August, 1914, to alleviate distress arising from the war, and provides, *inter alia*, monetary assistance for the direct benefit of soldiers and their dependents.

The Red Cross Fund is devoted to the needs of sick and wounded soldiers and sailors. The Red Cross Society supplies medical equipment, ambulances, food, clothing, surgical appliances, and other comforts, and provides free accommodation at convalescent and rest homes. An important branch of its work is an agency for obtaining news of wounded, sick, and missing men.

The Australia Day Fund—30th July, 1915—was collected for the sick and wounded Australian soldiers and sailors; it supplies funds to the Red Cross Society and the Amelioration Committee, the latter affording assistance to returned men.

The Chamber of Commerce Fund provides Australian foodstuffs for soldiers and their dependents.

The Citizens' War Chest Fund, established for immediate assistance in any emergency arising from the war, is intended primarily for the benefit of soldiers while on active service.

The Belgian, French, Polish, Servian, and Montenegrin Funds are used for the relief of distress in the Allied nations. On 14th May, 1915, a special collection was made for the Belgians, and on Allies' Day, 19th November, for the other Funds.

The Australian Soldiers' Repatriation Fund was created in April, 1916, upon the authority of the Commonwealth and State Governments, to re-establish soldiers in civil life when they return from the war, and to assist their dependents. The fund is vested in the Repatriation Commission. The amount of subscriptions shown below represents money actually received, and is exclusive of money promised, land, stock, &c.

On 25th April (Anzac Day), 1916, the anniversary of the landing of Australian troops at Gallipoli, the Returned Soldiers' Association appealed for funds to erect a memorial building. The Young Men's Christian Association receives public subscriptions for the prosecution of its work amongst the troops. Donations in money and kind to the Tanned Sheepskin Clothing Fund are for providing sheepskin vests for soldiers; and to the Pastoralists Union Patriotic Fund for sending supplies of meat to the allied troops, and for the alleviation of distress caused by the war. Numerous regimental comforts committees collect gifts for the various divisions of the military and naval forces.

The total amount of contributions to the War Relief Funds from the commencement of the war to 31st December, 1917, was £3,464,329, the amount contributed to the principal funds being as follows:—

Fund.	Amount.	Fund.	Amount.
	£		£
Australia Day ... ..	217,700*	Anzac Day ... ..	11,862
Australia Day Amelioration Committee ... ..	187,034	Air Squadron Fund (N.S.W.)	56,169
Belgian Relief ... ..	687,479	Repatriation Fund ... ..	30,926
Lord Mayor's Patriotic Red Cross ... ..	216,847	Polish Relief ... ..	103,626
Chamber of Commerce... ..	702,217	French Relief ... ..	315,133
Citizens' War Chest ... ..	110,659	Servian and Montenegrin ... ..	52,863
Tanned Sheepskin Clothing ... ..	338,892	Miscellaneous ... ..	105,892
Y.M.C.A. Field Service ... ..	41,516		
Pastoralists' Union ... ..	257,024		
	28,490	Total ... ..	£3,464,329

\*Exclusive of £450,000 transferred to Red Cross Fund, and £170,000 to Amelioration Committee.

In addition to the amount shown above, goods in kind were supplied to a very large extent.

Of the total cash contributions, viz., £3,464,329, an amount of £2,835,917 had been disbursed at 31st December, 1917.

#### *Hospital Saturday Fund.*

The Hospital Saturday Fund of New South Wales, inaugurated in 1893, is registered under the Companies Act, and is managed by a Board of thirty members and eight honorary officers, all of whom are elected annually. Indoor collections at places of business, household collections by means of boxes, and an annual out-door collection are made; the money is distributed among certain hospitals and auxiliary medical charities in the metropolitan area.

During the year ended 31st May, 1917, £10,536 was collected and £10,000 was distributed; the expenses amounted to £870.

#### *United Charities Fund.*

The United Charities Fund is administered by a general committee, composed of delegates of the Associated Charities within Sydney and suburbs, except the medical charities aided by the Hospital Saturday Fund; usually an annual collection is made throughout the metropolis.

During the year ended 1st February, 1917, the collections amounted to £3,934. The amount distributed was £3,000, the expenses being £654.

#### INSANITY.

Under the Lunacy Act, 1898, the Judge in Equity is constituted a court to deal with matters relating to persons of unsound mind or incapable of managing their own affairs, and the Master in Lunacy has power to manage the estates of such persons, and controls trust funds which at December, 1916, amounted to £268,285. The Act authorises the appointment of an Inspector-General of Lunacy, who is empowered to visit every hospital, reception-house, ward, cell, or licensed house, and to inquire generally as to the care, treatment, and health, mental and physical, of the patients. Persons deemed to be insane may be examined and detained on the order of a Justice; and in public hospitals, and in gaol establishments, wards are reserved for the reception and observation of mental patients, but special hospitals are maintained by the Government for their treatment and care.

#### MENTAL HOSPITALS.

For the treatment of mental patients there were during 1916 nine Government hospitals, in addition to a hospital for criminal insane at Parramatta, three licensed houses at Tempe, Ryde, and Mt. Colah, and reserved accommodation in a South Australian hospital for patients from the Barrier District of New South Wales.

Each institution admitting new cases is provided with a department specially designed and fully equipped for the treatment of curable patients.

The medical staff of the hospitals and licensed houses numbered 21, the nursing staff and attendants numbered 613 men and 491 women, and the average daily number of patients resident, excluding patients on leave, was 6,821, comprising 4,084 males and 2,737 females.

At the end of the year 1916 there were in the New South Wales hospitals 6,787 patients—4,041 males and 2,746 females; in the South Australian hospitals the patients from New South Wales numbered 20 men and 24

women; in addition there were 203 men and 250 women on leave from various institutions, making a total number of 7,284 under official cognisance—4,264 males and 3,020 females.

In the following table is stated the number of mental patients under official notice at the close of each year, with their proportion per 1,000 of the population at intervals since 1881:—

Year.	Number of Mental Patients.			Proportion per 1,000 of Population.		
	Males.	Females.	Total.	Males.	Females.	Total.
1881	1,354	726	2,080	3·16	2·06	2·66
1891	1,912	1,222	3,134	3·04	2·29	2·70
1901	2,684	1,804	4,488	3·72	2·75	3·26
1911	3,810	2,573	6,383	4·30	3·19	3·77
1912	3,866	2,640	6,506	4·13	3·13	3·66
1913	3,935	2,739	6,674	4·09	3·15	3·64
1914	4,092	2,846	6,938	4·23	3·17	3·73
1915	4,169	2,930	7,099	4·38	3·19	3·80
1916	4,264	3,020	7,284	4·62	3·23	3·92

From these figures it appears that generally the proportion of patients treated in the mental hospitals is increasing steadily. To ascertain the general insanity rate it would be necessary to consider the extent to which patients are treated in private houses, and the proportion of persons whose mental condition, while not calling for certification, might be relieved by treatment if provision were made for the admission of voluntary patients.

#### *Admissions and Discharges.*

The steadily increasing number of admissions overtaxed the accommodation available in the large hospitals to such an extent that additional accommodation had to be secured, and the opportunity was taken in 1910 of giving experience of open-air treatment to select patients, housing them in tents with wooden framework and flooring; the resultant benefit to health was regarded as highly satisfactory.

Prior to 1893 there was no law in force to prevent the influx of insane into New South Wales, but in that year legislation rendered the owner, charterer, agent, or master of a vessel liable for the maintenance of any insane person landed in the State. In 1916 30 insane patients were received from places beyond the State, 15 being discharged after a few days' treatment at the Reception House, and 15 admitted to mental hospitals.

The numbers of admissions and re-admissions to mental hospitals during the last five years are shown below:—

Year.	Admissions.			Re-admissions.		
	Males.	Females.	Total.	Males.	Females.	Total.
1912	624	394	1,018	117	78	195
1913	643	415	1,058	125	88	213
1914	760	462	1,222	118	81	199
1915	685	435	1,120	124	102	226
1916	747	477	1,224	109	93	202

Of the admissions in 1916 natives of New South Wales numbered 821, England 209, Ireland 97, Scotland 52, other British countries 169, foreign countries 78.

The next table shows the numbers of patients who died or who were discharged from the mental hospitals, on account of recovery, permanent or temporary:—

Year.	Discharged.						Deaths.		
	Recovered.			Relieved.			Males.	Females.	Total.
	Males.	Females.	Total.	Males.	Females.	Total.			
1912	287	199	486	62	43	105	335	166	501
1913	300	211	511	51	41	92	340	153	493
1914	341	222	563	69	48	117	301	168	469
1915	338	230	568	84	44	128	310	179	489
1916	313	233	546	56	37	93	396	214	610

PER CENT. OF AVERAGE NUMBER RESIDENT.

1912	7·7	8·2	7·9	1·7	1·8	1·7	9·0	6·9	8·2
1913	8·0	8·4	8·1	1·4	1·6	1·5	9·0	6·1	7·9
1914	8·7	8·5	8·7	1·8	1·8	1·8	7·7	6·4	7·2
1915	8·5	8·7	8·6	2·1	1·7	1·9	7·8	6·8	7·4
1916	7·7	8·5	8·0	1·3	1·4	1·4	9·7	7·8	8·9

*Causes of Insanity.*

The records of persons admitted during 1916 show that among the exciting causes of insanity intemperance in drink is most prominent, particularly among men; among predisposing causes the most important are congenital defects, hereditary influence, and old age.

*Cost of Maintenance.*

The weekly cost of maintaining mental patients in Government hospitals during the year 1916 was 17s. 5½d. per patient, of which the State paid 14s. 7½d., the balance being derived from private contributions. The sub-joined table shows the average weekly cost per patient from 1912 to 1916:—

Year.	Annual Cost of maintenance of Patients.	Cost of maintenance of Patient per week.		
		To State.	Private Contributions.	Total.
	£	s. d.	s. d.	s. d.
1912	231,186	12 3⅓	2 5¼	14 8⅝
1913	248,105	12 9¼	2 8	15 5¼
1914	249,832	12 2⅘	2 8½	14 11½
1915	268,795	13 0⅝	2 9	15 9⅝
1916	306,569	14 7½	2 9⅝	17 5⅝

The increase in the cost of maintenance is due mainly to benefits conferred on the staff, such as increased remuneration and shorter hours of work, and to the higher cost of commodities.

*Reception Houses for the Mentally Afflicted.*

Reception houses have been established at Sydney, Newcastle, and at the local gaols in some country towns where affected persons are placed under observation. At Darlinghurst (Sydney) and Newcastle treatment is

provided for attacks of short duration and for alcoholic cases, which have developed mental symptoms. The number of patients under care during 1916 was 1802; 981 were transferred to mental hospitals, and 770 were discharged as recovered or relieved.

Persons who become mentally deranged in gaol are placed in the observation ward at the State Penitentiary at Long Bay; 64 persons were under observation during 1916.

#### *Mental Ward.*

A small hospital was established in 1908 by the Lunacy Department on a site adjoining the Reception House at Sydney, for the treatment of patients in the earlier and curable stages of mental diseases, wherein restraint or the special conditions of a hospital are not required. Accommodation is provided for 20 male patients; and during 1916 the number of cases treated was 138; 118 were discharged, 1 died, and 19 remained at the end of the year.

#### CARE OF THE FEEBLE-MINDED.

At present the only provision made by the State for the feeble-minded is at four cottage homes established by the State Children Relief Department, where State children who are feeble-minded are accommodated, and at the Newcastle Hospital for the Insane, which is used for children who are certified as imbeciles or idiots. In connection with the medical inspection of school children, data are being collected by the medical officers as a preliminary to the establishment of special schools for mentally defective children.

#### DEAF MUTISM.

The number of persons who were deaf and dumb, as ascertained at the Census of 1911, was 640, equivalent to one person in every 2,573 of the population.

The rate at ages 10 to 20 is the highest; whereas, since deaf-mutism is an affliction of childhood, it is reasonable to expect that the rates below those ages would be the highest. This probably arises from the unwillingness of parents to make known this infirmity in their children.

Excluding children under 10, the rate declines more or less regularly as the age advances. At all ages over 30 the female rate is higher than the male.

#### BLINDNESS.

The number of persons afflicted with blindness at the census of 1911 was 1,011; this is equivalent to one person in every 1,629. The higher proportion which exists among males is probably due to the greater risk of accident to which they are exposed.

Among both sexes the rate increases from the lowest to the highest ages, and rapidly after age 60. Practically at all ages the male rate is higher than the female. The majority of young persons afflicted with blindness were probably so at birth.

The care and education of the blind and the deaf and dumb are undertaken at several institutions in New South Wales. The New South Wales Institution for Deaf and Dumb and the Blind is maintained partly by Government subsidy and partly by public subscriptions; special educational courses are provided, the fees being remitted in cases of financial inability. Denominational institutions for the instruction of male deaf mutes are conducted at Waratah and at Westmead, and one for blind girls at Liverpool.

The Sydney Industrial Blind Institution undertakes the care of the adult blind, and provides industrial training to enable them to earn a livelihood. Homes for the blind are conducted in connection with this institution, and a free circulating library of embossed books is provided.

Under the Commonwealth invalid pension system provision is made for the payment of pensions to permanently blind persons above the age of 16 years.

### FRIENDLY SOCIETIES.

The first Friendly Society in New South Wales was founded in 1834, when the Australian Union Benefit Society was established; this society is still existent.

The first Act of Parliament to regulate Friendly Societies, passed in 1843, conferred certain legal advantages on societies established for the purpose of raising funds for mutual relief of the members.

In 1873 a more comprehensive Act was passed, and a Registrar was appointed to certify as to the accordance of the rules of the societies with the law. To obtain the registration of a society under this Act it was essential that the table of contributions be certified by an actuary; but after registration, the society had power to vary the rates of subscription and the amount of benefits, so stultifying the requirements as to certification.

It was not until 1899 that these defects were remedied. In that year an Act was passed under which the supervision of the State was imposed upon societies in the conduct of their business, and in the safeguarding of their funds, collection of data as to membership, sickness and mortality experience, investigation of accounts; and expert advice was made available in their financial concerns, with actuarial oversight by means of periodic valuations.

In 1906, under further legislation, compulsory registration of all Friendly Societies was required, the only exception being as to dividing societies which annually distribute all their funds amongst their members, and stringent provisions were made to prevent misapplication of benefit funds.

In 1908 a new feature was introduced in the form of Subventions to Societies from the Public Revenue of the State, under the Subventions to Friendly Societies Act, 1908. This system is detailed subsequently.

The whole of the existing legislation was consolidated in the Friendly Societies Act, 1912, but in 1913 an amending Act was passed which provides that after valuation the Registrar may authorise surplus moneys belonging to any one fund or benefit to be used in any manner for the purpose of any other fund or benefit. An amending Act in 1916 provided that where the benefit funds are administered by one central body for the whole society they may be treated as one fund.

#### *Benefits and Actuarial Valuations.*

The benefits assured are fairly uniform in all societies, and consist usually of medical attendance and medicine for a member and his family, with sick pay for the member, and funeral allowances for the member and his wife. The average sickness benefit is 21s. per week during the first six months, 10s. 6d. for the next six months' illness, and 5s. per week for rest of illness, this last provision being rendered possible by the system of State Subventions, of which more detailed mention is made later. The funeral benefits usually range from £20 to £40 at death of the member, with a maximum benefit of £200; a contingent benefit of £10 or £15 is payable on death of the wife. A separate benefit for widows of members, usually £10, may be assured in most of the societies for a stated contribution.

The first quinquennial valuation of Friendly Societies required in compliance with the Act of 1899 was undertaken as at 31st December, 1904. Eighteen affiliated societies and thirteen single societies were valued.

At this valuation 96,422 members were valued for sickness benefit, and 97,511 for funeral benefits, with 51,155 subsidiary funeral benefits.

The valuation showed that there was a net deficiency of £271,620 on a total liability of £3,981,252, equal to 1s. 4d. per £1, or, in other words, a sum of only 18s. 8d. was available to meet each £1 of liability.

In his report, the Registrar made recommendations designed to strengthen the financial position of the societies, and to improve their status. Their effect was visible in the result disclosed by the second valuation, as at the 31st December, 1909, which showed that the position of the societies as a whole was sound.

The second quinquennial valuation was made on a 3½ per cent. rate on the basis of the experience of the Friendly Societies in this State during the nine years 1900-8. Sickness and funeral benefits were valued for 116,186 members, funeral benefit only for 5,258, and sickness benefit only for 13,109 members. In addition, there were subsidiary risks on account of 54,391 persons, comprising members, their wives, and children.

In the third Quinquennial Valuation as at 31st December, 1914, the experience used in 1909 was again made the basis, but as the interest-earning rates had improved considerably during the quinquennium, a 4 per cent. rate was adopted in many cases. The risks valued for both Sick and Funeral benefits amounted to 156,443, whilst there were 22,582 for sickness only and 3,844 for funeral only. The usual subsidiary risks on account of wives, children, &c., were 72,448.

The combined results of the valuations of the seventeen affiliated societies showed a surplus of £311,753 in the Funeral Fund, and a deficiency of £162,539 in the Sickness Fund, the net result being a surplus of £149,214 on a total liability of £5,312,991. The single societies showed assets of £3,030 in excess of liabilities of £98,405. The liabilities of all societies for Sick and Funeral benefits were £5,411,716, whilst the total assets were £5,563,960, showing a surplus of £152,244; so that the assets were equal to £1 0s. 7d. for every £1 of liabilities. The results showed uniformly strong positions in the Funeral Funds, but there was a tendency to weakness in the Sickness Funds, necessitating an adjustment of the contributions in some cases.

#### Societies.

The societies may be divided into two classes, viz., Friendly Societies proper, and Miscellaneous Societies, whose objects bring them within the scope of Friendly Societies' legislation, but whose benefits differ somewhat from those of ordinary Friendly Societies.

At 31st December, 1916, there were 64 Societies, including 25 Miscellaneous; 18 possessed branches, and 46, including 2 with juvenile branches, were classed as Single Societies.

At the end of the year 1917 the Friendly Societies proper numbered 39, of which 18 were affiliated and 21 were classed as single societies, though in 2 cases juvenile branches were attached, and there were 24 miscellaneous societies.

The following summary shows the branches, membership, and funds as at 31st December, 1916:—

Classification.	Societies and Branches.		Members.	Funds.
	No.	No.		
Friendly Societies Proper—				
Affiliated ... ..	1,862	174,828	1,916,103	
Single ... ..	23	4,049	54,168	
	1,885	178,877	1,970,271	
Miscellaneous Societies ... ..	25	1,215	19,345	
Total... ..	1,910	180,092	1,989,516	

*Friendly Societies Proper.*

The societies classified as "Friendly Societies proper" offer such a wide range and appeal so strongly to individual sympathies that the field of operations for new societies is limited, and consequently few are now formed; the existing societies, however, extend their sphere of operations by opening branches in new centres. Only one new Society has been established since 1913, and only one dissolved since 1915.

*Membership.*

The following table shows the number of members during the ten years ended 31st December, 1916:—

Year.	Aggregate Membership.		Year.	Aggregate Membership.	
	Members.	Percentage of Population.		Members.	Percentage of Population.
1907	117,130	7·6	1912	179,932	10·1
1908	123,440	7·9	1913	188,590	10·3
1909	133,273	8·3	1914	182,325	9·8
1910	149,579	9·1	1915	178,705	9·6
1911	164,910	9·7	1916	178,877	9·6

The membership of 178,877 at 31st December, 1916, represented 9·6 per cent. of the total population of the State. The number of members entitled to benefits was 164,173, the remainder being ineligible on account of brief membership or arrears of contributions. The benefits of medical attendance and medicine accrue also to the member's family, and, making allowance for such cases, it is estimated that over 600,000 persons, or one-third of the population, participate in the benefits provided by the societies.

The membership in 1916 comprised 160,850 men, 9,550 women, and 8,477 juveniles. As compared with the previous year there was a decrease of 809 men, 40 women, and 941 juveniles, the total net increase being 172 members. During each of the previous two years there was a decrease in membership, which may be attributed directly to the depression caused by the war.

*Finances.*

Figures regarding receipts and expenditure of Friendly Societies, and the accumulated assets of all funds during each of the last ten years, may be found upon reference to Part Private Finance of this Year Book.

## MISCELLANEOUS SOCIETIES.

In addition to the Friendly Societies proper there were at the end of 1916 twenty-five Miscellaneous Societies registered under the Friendly Societies Act. Twenty-one were medical institutes or dispensaries which have no members in the ordinary sense of the term, but are supported by subscriptions from branches of Friendly Societies within their immediate districts, at a fixed rate per head of membership. The dispensaries supply medicine to all members whose names have been placed on their lists by contributing branches, and in some cases arrange also for medical attendance.

The receipts of the dispensaries in 1916 were £33,832, and the expenditure was £34,822, so that there was an excess of expenditure amounting to £990. These bodies have received liberal grants from the Government, and with this assistance have been able to purchase land and to erect buildings, the shares of the subscribing branches being covered by the issue of interest-bearing debentures; but in addition to making the necessary interest payments, most of the dispensaries have been enabled to make substantial reductions in the principal.

The four remaining societies were Accident Societies.

The following particulars of the Miscellaneous Societies relate to the year 1916:—

Classification.	Dispensaries.	Other Miscellaneous Societies.	Total.
Societies ... .. No.	21	4	25
Membership ... .. No.	.....	1,215	1,215
Receipts ... .. £	33,832	3,755	37,587
Expenditure ... .. £	34,822	3,736	38,558
Funds ... .. £	15,502	3,743	19,245

During the year 1917 one Miscellaneous Society was closed.

#### STATE SUBVENTION OF FRIENDLY SOCIETIES.

To enlarge the sphere of usefulness of the Friendly Societies the Subvention to Friendly Societies Act, 1908, now consolidated with the Friendly Societies Acts, assured to the societies which might elect to be bound by its provisions, the following monetary benefits payable from the Consolidated Revenue of the State:—

##### 1. Sick pay—

- (a) One half of the cost in each year in respect of continuous sickness after twelve months from the commencement of such sickness, for male members less than 65, and for females less than 60 years of age—provided that the maximum cost to the State shall not exceed 5s. per week for each case.
- (b) The whole cost of sick pay in respect of male members aged 65 years and over, and of female members aged 60 years and over—subject to the same proviso as above.

##### 2. Amount equal to contributions payable—

- (a) On account of all male members 65 years and over, and of female members 60 years and over, for medicine and medical attendance, provided that such contributions shall not be more than those payable by members of the same society under the ages stated.
- (b) Under the rules of a society in respect of the aged members above mentioned, to assure payment of funeral allowance at their death.

With one exception all affiliated societies have become applicants under the Act.

The refunds of the societies on account of sick pay in 1916 to 2,794 members amounted to £17,615, and the payments on account of contributions to £10,173; of the latter amount £7,209 provided medical attendance and medicine to 5,415 aged members and widows, and £2,964 paid the contributions to the Funeral Fund of 5,826 aged members and widows.

The following is a summary of the claims for the eight years during which the system has been in operation:—

Year.	Applicant Societies.	Sick Pay.				Contributions.				Total Amount of Claims.
		Continuous Sickness.		Sickness of Aged Members.		Medical.		Funeral.		
		Claimant Members.	Amount.	Claimant Members.	Amount.	Claimants.	Amount.	Claimants.	Amount.	
1909	18	285	£ 925	701	£ 2,763	2,569	£ 1,348	2,486	£ 822	5,858
1910	28	457	2,442	1,188	7,072	3,608	3,402	3,481	1,871	14,787
1911	30	576	2,837	1,417	8,428	3,194	4,028	3,400	2,055	17,348
1912	29	617	3,296	1,519	9,742	3,940	4,549	4,170	2,222	19,809
1913	29	681	3,480	1,622	10,146	4,300	4,874	4,563	2,320	20,820
1914	29	771	4,019	1,652	10,726	4,704	5,976	5,053	2,532	23,253
1915	28	896	4,829	1,833	11,568	4,897	6,459	5,212	2,721	25,577
1916	29	941	5,027	1,853	12,588	5,415	7,209	5,826	2,964	27,788

During the eight years the societies have received £155,240 in subvention. The amount paid in 1909 was comparatively small, as the majority of applicant societies did not register as such until the middle of the year; during 1910 there were ten more applicant societies, and the claims practically covered the whole of the year, consequently there was a large increase in the amount paid. In 1911 and 1912 there were further large increases, due to special causes; it is probable that henceforth the increase will be gradual.

The system has been of benefit to all the societies, but more particularly to those in which the proportion of aged members is large.

#### THE FRIENDLY SOCIETIES' EXPERIENCE OF SICKNESS.

The returns of the Friendly Societies of New South Wales furnish valuable information relating to the sickness and mortality of the members, and a standard of purely local experience is provided as a basis for the quinquennial valuations of the societies, by their experience recorded for the nine years 1900-08.

During this period the sickness of the male members aggregated 859,412 weeks, the annual rate per member being 1·30 weeks. The Victorian male experience for the years 1908-1912 was 1·56 weeks; the experience of the women was too small to be of any practical value.

The membership below the age of 18 years was insufficient to provide reliable quotations, and owing to sparseness of data at the higher ages, the rates were not extended beyond age 65 as the upper limit. The following table shows the average annual weeks of sickness per member in New South Wales at every fifth year of age during the years 1900-08 in comparison with the experience of the Manchester Unity Friendly Society of England, 1893-7, the South Australian Friendly Societies, 1895-1904, and the Victorian Friendly Societies, 1903-7:—

Central Age.	New South Wales Friendly Societies, 1900-1908.	Manchester Unity, England, 1893-1897.	South Australian Friendly Societies, 1895-1904.	Victorian Friendly Societies, 1903-1907.
Years.				
18	·84	·95	·74	·91
23	·76	·90	·77	·86
28	·74	·97	·75	·85
33	·75	1·10	·79	·89
38	·84	1·33	·89	·99
43	1·02	1·65	1·04	1·20
48	1·32	2·11	1·32	1·46
53	1·85	2·98	1·80	2·10
58	2·94	4·41	2·84	3·32
63	4·63	7·15	4·44	6·56

The New South Wales experience approximates closely to that of South Australia, but is considerably below the experience of England and of Victoria.

The male rates decrease down to age 29, and then increase regularly to the end of the observed period of life. The phenomenon of high rates at the early ages is not explained on the ground of paucity of data, as the same result was exhibited in the experience of individual societies whether their membership was large or small. The sickness rates of the Friendly Societies of other States of the Commonwealth disclose a similar feature, and it must be concluded that such high rates are peculiar to this class of experience, and probably induced by the liberal benefits available.

#### *Hazardous Occupations—Extra Sickness Risk.*

The only well-defined class of occupations carrying a heavy risk, the experience of which was deducible from the available records of the societies, was that of the mining section. An experience of all persons engaged in the work of mining could not be secured, but an investigation was made of the branches of which the members were nearly all miners, and the experience obtained may be assumed to fairly represent this particular class.

The following table shows a comparison of the rates of sickness of the mining and non-mining branches as disclosed by the valuation of 1909:—

Branches.	Weeks of Sickness.	
	Total.	Annual Rate per Member.
Mining ... ..	154,251	1·613
Non-mining ... ..	705,161	1·249
Total ... ..	859,412	1·301

The effect of the added sickness of the mining population was to raise the general rate by 4·2 per cent., the mining being 29·2 per cent. above the non-mining rate. It is unfortunate, in view of the results disclosed by this section of persons engaged in hazardous occupations, that other such dangerous occupations could not be traced, but the data were too scanty for exhaustive investigation.

#### MORTALITY.

##### *Experience of Friendly Societies.*

The following figures show the mortality experience per 1,000 men of the principal societies over the valuation period 1905-1908, and the variation from the expected rates derived from the aggregate experience of the societies in the years 1900-8:—

Society.	Age-group.										All Ages.	Percentage of expected.	
	Under 20.	21 to 25.	26 to 30.	31 to 35.	36 to 40.	41 to 45.	46 to 50.	51 to 55.	56 to 60.	61 to 65.			66 and over.
A.O.F. (Sydney)	3·11	2·46	4·10	0·39	4·04	2·73	7·02	14·50	27·67	47·27	86·96	7·36	90
G.U.O.O.F.	3·30	3·11	2·58	3·33	4·13	5·22	7·14	10·62	22·01	30·43	52·73	6·34	83
H.A.C.B.S.	4·08	2·63	3·39	5·28	4·82	6·57	14·49	7·08	23·69	45·92	64·52	6·03	106
I.O.O.F.	1·64	2·92	1·73	2·39	4·63	7·01	9·71	15·49	24·12	40·86	50·80	6·07	93
M.U.	3·02	2·17	2·85	5·15	4·99	5·69	8·51	11·64	20·02	28·73	67·48	7·91	92
P.A.F.S.	1·80	2·78	1·96	2·76	4·45	5·27	6·44	14·13	12·31	25·34	59·36	6·90	78
S.D.T.	2·99	4·90	1·28	5·14	6·12	3·48	7·18	11·99	13·73	45·07	67·89	16·00	85
U.A.O.D.	2·25	2·39	3·14	3·87	3·91	10·36	10·74	14·95	22·19	39·92	79·01	7·66	105
All Societies..	2·80	2·63	2·80	3·91	4·52	6·14	8·66	12·39	20·25	31·93	66·07	7·27	91

In conjunction with the low sickness experience of the members, there was also a low mortality rate. During the nine years 1900-8 the male adult experience comprised 791,856 exposures to risk for one year each, and there were 5,952 deaths, the rate being 7.52 per thousand.

#### PENSIONS.

##### *New South Wales Government Pensions.*

No general pension system, other than the old-age and invalid pensions noted subsequently, is in operation in New South Wales, but three pension funds have been established in connection with sections of the Public Services, and are maintained partly by deductions from officers salaries and partly by public revenue, viz., the Public Service Superannuation Fund, the Police Superannuation and Reward Fund, and the Government Railways Superannuation Fund. The Superannuation Act, 1916, provides for the establishment of a Provident Fund for employees of the State Government and other public bodies, but the main provisions of the Act will not come into operation until after the proclamation of peace.

The Public Service Superannuation Fund was established by the Civil Service Act, 1884; contributions by officers of the service were at the rate of 4 per cent. of salary. Since the Public Service Act of 1895 came into operation no new contributors have been admitted, and at that date the existing contributors were given the option of withdrawing from the fund. The officers who elected to discontinue their contributions are entitled under prescribed conditions to receive refunds and gratuities on retirement; officers who have continued to contribute are entitled to an annual pension equal to one-sixtieth of the average annual salary for the last three years' service, multiplied by the years of service, the pensions being payable on retirement through incapacity or at age 60, or on abolition of office. An Amending Act in 1903 provided that on the Superannuation Account becoming exhausted all amounts payable to or out of that account should be paid to or out of the Consolidated Revenue. During the year 1916-17 the expenditure was £161,068, consisting of pensions, £151,277; refunds of contributions, £9,633; and gratuities, £158; contributions by public servants amounted to £10,360; the balance, £150,708, representing the net charge to Consolidated Revenue. In addition to these amounts, a sum of £3,500 is appropriated annually in terms of the Constitution Act for the payment of pensions to certain Government officers; the pensions paid during 1916-17 amounted to £2,855, the balance unallotted being £645.

The pension fund for the police force was established in 1899, amending legislation being passed in 1906. Annual contributions by members of the service are at the rate of 4 per cent. of salary; other sources of revenue are penalties imposed on members of the police force, and penalties and damages awarded to the police as prosecutors, also the proceeds of the sale of unclaimed goods in possession of the police. The amount of pension payable to members who entered the police service prior to 1906 is graduated in accordance with length of service, and ranges from half the salary, less 3 per cent. on retirement after fifteen years' service, to the whole of the salary, less 3 per cent., after thirty years' service. For the members who entered the service after 1906 the pension is one-fortieth of the salary on retirement for each year of service, less 3 per cent., up to a maximum of three-fourths of the salary on retirement; the retiring age is 60 years, except in cases of incapacitation, but under prescribed conditions the services of any member of the force may be retained until he reaches the age of 65 years. During the year ended 30th June, 1917, the receipts of the Police Superannuation and Reward Fund amounted to £82,779, including deductions

from salaries, £35,770, and special appropriation from Consolidated Revenue, £47,000; the disbursements, £83,209, included pensions, £81,626; gratuities, £1,183; and miscellaneous, £400.

The Railway Service Superannuation Fund was established in October, 1910; the contributions from employees of the Railway and Tramway services are at the rate of  $1\frac{1}{2}$  per cent. of salary, and the State provides all that is necessary beyond such contributions. The amount of pension payable is one-sixtieth of the average annual salary during term of service, multiplied by the number of years of service, the maximum pension being two-thirds of the average salary. At 30th June, 1917, there were 38,137 contributors; the number of pensions in force was 1,377, amounting in the aggregate to £95,095 per annum. The average rate of pension was £67 11s. 9d. per annum. Since the inception of the fund 1,672 pensions have been granted; and 283 pensioners have died; 10 officers under 60 have been re-employed, and 2 pensions have been written off the books. During the year 1916-17 the receipts of the fund amounted to £53,964, the disbursements, representing pensions, gratuities, refunds, &c., amounted to £98,114.

The main provisions of the Superannuation Act, 1916, will come into operation at the beginning of the financial half-year following a period of six months after the proclamation of peace, and within six months the State Provident Fund will be established to provide pensions and other benefits for employees of the New South Wales Government and other public bodies, except those subject to the Railway Service and Police Superannuation Acts. Half the cost will be borne by the employees, except where otherwise provided, and the balance by the employers. The retirement age is 60 years, but women may elect to contribute for retirement at age 55; upon the death of a contributor or pensioner his widow will receive half the amount of pension for which he has contributed and £13 per annum for each child under 16 years. Contributions of employees will vary in accordance with age and salary; the rates in the following table indicate half cost payable twice each month;—

Age next Birthday.	Men.		Women.	
	First £52 to man, £26 to widow, £13 to each child under 16.	Subsequent increment £52 to man, £26 to widow.	Each £52 on retirement at age.	
			55 Years.	60 Years.
Years.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
16	0 2 6	0 2 2	0 2 0	0 1 2
20	0 3 2	0 2 10	0 2 8	0 1 7
25	0 4 5	0 3 11	0 4 0	0 2 4
30	0 5 9	0 5 2	0 5 11	0 3 5
35	0 7 6	0 6 10	0 8 9	0 4 10
40	0 9 11	0 9 2	0 13 4	0 6 11
45	0 13 11	0 13 2	1 2 7	0 10 6
50	1 2 1	1 1 3	2 10 6	0 17 10
55	2 5 11	2 4 10	.....	1 19 2
60	11 3 11	10 19 11	.....	10 4 5

Employees over 30 years of age may contribute at the rates prescribed for age 30 for pensions up to a maximum of £104, or if under 55 years £156, per annum. The amount of pensions will vary in accordance with salary, as shown hereunder:—

Annual Rate of Salary.		Pension.	Annual Rate of Salary.		Pension.
£	£	£	£	£	£
1	to 130	52	365	to 416	182
131	„ 156	65	417	„ 468	208
157	„ 208	78	469	„ 520	234
209	„ 260	104	521	„ 572	260
261	„ 312	130	573	„ 624	286
313	„ 364	156	625	and over.	312

Clauses of the Act, which came into operation when it received Royal assent, authorise the payment of pensions up to £104 per annum, without contribution, to employees who attain the age of 60 years after 1st January, 1914, and are retired after ten years' service. The Superannuation Act does not apply to employees having rights to pension or gratuity under the Civil Service Acts, but they may elect to come under it.

The following statement shows the total pensions and gratuities paid from the sources enumerated during the year ended 30th June, 1917:—

Particulars.	Public Revenue.	Contributions.	Total.
<b>Pensions—</b>	£	£	£
Judges ... ..	1,883	.....	1,883
Stipends to Clergy ... ..	175	.....	175
<b>Public Service—</b>			
Superannuation Act (1903) ...	140,917	10,360	151,277
Superannuation Act (1916) ...	11,016	.....	11,016
Constitution Act ... ..	2,855	.....	2,855
Superannuation Act Repeal Act ...	14	.....	14
Police Superannuation and Reward Fund.	47,000	34,626	81,626
Government Railways Superannuation.	7,000	80,504	87,504
Other ... ..	1,200	.....	1,200
<b>Total Pensions</b> ... ..	<b>212,060</b>	<b>125,490</b>	<b>337,550</b>
<b>Gratuities—</b>			
Railway and Tramway ... ..	3,264	.....	3,264
Public Works... ..	941	.....	941
Imperial and State Contingents, South Africa and China.	618	.....	618
Public Service ... ..	158	.....	158
Police Superannuation and Reward Fund.	.....	1,183	1,183
Government Railways Superannuation Fund.	.....	3,257	3,257
Other ... ..	31,708	.....	31,708
<b>Total Gratuities</b> ... ..	<b>36,689</b>	<b>4,440</b>	<b>41,129</b>
<b>Total Pensions and Gratuities</b>	<b>248,749</b>	<b>129,930</b>	<b>378,679</b>

## WAR PENSIONS.

The War Pensions Act, 1914-16, passed by the Commonwealth Parliament, provides for the grant of pensions upon the death or incapacity, as the result of warlike operations, of members of the Commonwealth Naval or Military Forces, enlisted for or employed on active service outside Australia, or employed on a ship of war, or enlisted or appointed for service in connection with naval or military preparations or operations. The general administration of the Act is entrusted to a Commissioner.

The rates of pensions payable in case of death or total incapacity are based on the following scale:—

Rate of Pay.	Rate of Pension.		Rate of Pay.	Rate of Pension.	
	To widow on death of member.	To member upon total incapacity.		To widow on death of member.	To member upon total incapacity.
per day.	per fortnight.	per fortnight.	per day.	per fortnight.	per fortnight.
s. d.	£ s. d.	£ s. d.	s. d.	£ s. d.	£ s. d.
6 0 <sup>and under.</sup>	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	50s. and over.	6 0 0	6 0 0

In the case of death the rates of pension are as follow:—To the widow or the widowed mother of an unmarried son the rate as specified above; to each child under 16 years of age, 20s. per fortnight for the first, 15s. for the second, and 10s. for each subsequent child; and to other dependents, rates as assessed by the Commissioners, but not exceeding in the aggregate the rates specified above, plus £2 per fortnight. In the case of total incapacity the rates are—to the member, the rate specified above; to his wife, 50 per cent. of that rate; to children under 16 years of age and to other dependents, the same as in the case of death.

In the case of partial incapacity the rates as assessed by the Commissioner; for loss of both legs, feet, arms, hands, or eyes, or of arm and leg, hand and foot, or one eye, together with leg, foot, hand, or arm, the maximum rate is payable to the member; for loss of one eye, half-rate; for loss of leg, foot, hand, or arm, maximum rate for six months, thereafter three-fourths.

Where the pension payable is not more than 30 per cent. of the rate for total incapacity payment of a lump sum may be substituted. The maximum pension payable to a child under 16 years whose parents are dead is £1 per fortnight up to 10 years of age, 25s. at ages 10 to 14 years, and 30s. at ages 14 to 16 years; and except to a wife, child, widow, parent, or grandparent, no pension is payable for more than two years to any dependent who is able to earn a livelihood. Pensions to female dependents may not be continued for more than two years after marriage or re-marriage.

Operations under the War Pensions Act to 19th April, 1918, were as follow:—

		In New South Wales.	In Common- wealth.
Pension claims received	... ..	37,575	115,094
granted	... ..	31,143	99,723
cancelled	... ..	1,401	6,746
Deaths	... ..	160	585
Annual liability at 19/4/18	... ..	£1,107,071	£3,258,920

#### INVALID AND OLD-AGE PENSIONS.

##### *Invalid Pensions.*

Invalid pensions were first paid in New South Wales under the Invalidity and Accidents Pensions Act, passed by the State Parliament in 1907, which allowed pensions up to £26 a year to persons over 16 years of age permanently incapacitated for any work.

The State system was maintained until the payment of invalidity pensions was undertaken by the Commonwealth on 15th December, 1910. The pensions paid during the currency of the State Act amounted to £235,012.

The conditions attaching to invalid pensions payable by the Commonwealth are similar to those prescribed by the State Act; the amount of pension is the same as in the case of old-age pensions. The applicant must have resided for at least five years, and have become incapacitated or blind in Australia; persons permanently incapacitated or blind by reason of congenital defect are regarded as having become so in Australia, if brought to Australia before the age of 3 years. Invalid pensions are not payable to persons whose income or property exceeds the limits prescribed in the case of applicants for old-age pensions, or whose relations adequately maintain them. Aliens, Asiatics (except those born in Australia), and aboriginal natives of Australia, Africa, Pacific Islands, and New Zealand are not qualified to receive invalid pensions.

Prior to the commencement of the Commonwealth invalid pension system, New South Wales was the only State in which such a pension scheme was operative; in Victoria pensions were payable to persons permanently disabled whilst engaged in certain hazardous occupations, but only 111 claims were taken over by the Commonwealth. The pensions taken over from New South Wales at 15th December, 1910, numbered 3,498. Particulars of transactions in New South Wales during the last five years are shown below:—

Year ended 30th June.	New Claims.	Lapses.			Invalid Pensions current in New South Wales at 30th June.		
		Deaths.	Cancellations and Transfers.	Total.	Males.	Females.	Total.
1913	1,631	450	209	659	2,962	2,837	5,799
1914	1,825	530	186	716	3,537	3,371	6,908
1915	2,204	388	150	538	4,158	3,980	8,138
1916	2,011	445	99	544	4,819	4,537	9,356
1917	2,335	362	111	473	5,106	5,697	10,803

The invalid pensions current in New South Wales on 30th June, 1917, represented 5·8 per thousand of population compared with 5·5 for the Commonwealth.

#### *Old-age Pensions.*

The old-age pension scheme sanctioned by the Old-age Pensions Act, 1900, passed by the Parliament of New South Wales, commenced to operate on 1st August, 1901, and virtually expired on 1st July, 1909, when that portion of the Commonwealth Invalid and Old-age Pensions Act, 1908-1909, which relates to the payment of old-age pensions to men, came into operation. The portion of that Act authorising payment of pensions to women on attaining age 60 commenced to operate on 15th December, 1910.

The total amount paid for old-age pensions for the period of nine years during which the State system was in operation was £4,009,127, and the cost of administration £165,560 approximately. On the introduction of the Commonwealth administration, 21,292 State pensions were converted.

The conditions governing the payment of old-age pensions under the Commonwealth have varied but slightly from the conditions prevailing under the State Act; the age qualification is 60 years for women and 65 years for men, with a reduction to 60 years in case of men permanently incapacitated; the length of residence qualification is twenty years in Australia, but absences amounting in the aggregate to one-tenth of the total period of residence are permitted. Naturalised persons are eligible for pensions, but aliens and aboriginal natives are disqualified.

Up to the 12th October, 1916, the maximum pension payable was £26 per annum; since that date it has been £32 10s. per annum, with proportionate reduction in respect of any income or property of the claimant, so that the pensioner's income with the pension shall not exceed £58 10s. per annum; in computing income any benefits accruing from friendly societies are not to be reckoned as income, nor any gifts and allowances from children or grandchildren; in assessing the value of property, the home in which the pensioner permanently resides is not included. Money payable to a pensioner while he is an inmate of a benevolent asylum or hospital may be paid to the asylum or hospital for his benefit.

Prior to the introduction of the Commonwealth system, old-age pensions had been payable in three States—New South Wales, Victoria, and Queensland.

The following statement shows the applications received in New South Wales, and the number of old-age pensions current on 30th June, 1913-17:—

Year ended 30th June.	New Claims.	Lapses.			Old-age Pensions current in New South Wales at 30th June.		
		Deaths.	Cancellations and Transfers.	Total.	Male.	Female.	Total.
1913	4,288	2,459	628	3,087	14,078	16,791	30,869
1914	4,819	2,755	768	3,523	14,217	17,948	32,165
1915	4,732	2,845	834	3,679	14,569	18,335	32,904
1916	4,375	2,884	936	3,820	14,630	18,619	33,249
1917	4,553	2,727	737	3,464	14,591	19,350	33,941

The old-age pensioners in New South Wales represent 18·2 per thousand of population; in the Commonwealth as a whole the rate is 19·2.

The total expenditure by the Commonwealth on invalid and old-age pensions during the year ended 30th June, 1917, was as follows:—

	£
Paid as pensions ... ..	3,518,987
Paid to benevolent asylums for maintenance of pensioners ...	35,148
Cost of administration ... ..	54,393
Total ... ..	£3,608,528

## HOUSING.

### *Occupied Dwellings.*

The number of occupied dwellings in New South Wales at the Census of 1911 was 332,841.

Private dwellings, including tenements, numbered 319,766, or 96·07 per cent. of occupied dwellings; boarding and lodging houses, 5,966, or 1·8 per cent.; hotels, 2,795, or ·8 per cent.

The inmates of private dwellings numbered 1,494,504, or 91·2 per cent. of the total population of the State. Nearly 25 per cent. of the inmates of private dwellings reside in houses containing 5 rooms, while 84 per cent. reside in houses containing from 4 to 9 rooms.

The principal materials used for building are wood and bricks, 49·7 per cent. of the occupied dwellings being built of the former and 36·4 per cent. of the latter; 3 per cent. are built of stone and 2·7 per cent. of iron.

### *New Buildings.*

In regard to population it has been shown that the density of settlement in Sydney and the suburban areas varies considerably. The extent of building operations, as shown by the records of past years, indicates an increase of dwelling-houses in New South Wales, but the major portion of that increase has been in suburban dwellings.

In Sydney improvements and resumptions have been continuous; 88 new buildings were erected during 1917, and 440 were altered or enlarged. Since 1909 many of the old buildings have been demolished, and in the rebuilding on the areas thus made available modern requirements have been kept in view; but apart from them there has been a distinct, though gradual, development of an architectural style adapted to local conditions. In the suburbs the cottage plan of dwelling-house is favoured. During the past five years new buildings have been erected in the city and suburbs at a rate averaging 6,764 per annum:—

Year.	New Buildings.			Net Increase of Population, Sydney and Suburbs.
	Sydney.	Suburbs.	Total.	
1913	281	9,061	9,342	30,600
1914	206	8,342	8,548	27,100
1915	123	5,943	6,066	10,500
1916	90	4,961	5,051	1,600
1917	88	4,723	4,811	12,700

Since 1911 the number of new buildings in the suburban areas has largely increased, but there has been a considerable decline in building operations since the commencement of the war.

#### GOVERNMENT HOUSING AREAS.

With the object of relieving the urgent demands for small dwellings, the Housing Act was passed in 1912, authorising the construction of dwellings by the Government. The administration of the Act is entrusted to a Housing Board, which controls the Government housing areas. The Board may erect buildings for residential and other purposes on land acquired by the Government, and may dispose of such land and buildings by lease or by sale.

The term of a lease may not exceed seven years, and the rental must be sufficient to cover interest at 4 per cent. on capital value, cost of insurance, rates, repairs, and maintenance, a proportionate part of management expenses, and a sinking fund in respect of the capital outlay. As regards disposal by sale, the selling price will be based on valuation by the Government Savings Bank Commissioners; no person may purchase more than one house and  $\frac{1}{4}$  acre of land, and the buyer must satisfy the Board that he is purchasing the land for a home for himself or a member of his family.

The Dacey Garden Suburb, situated in the municipalities of Botany and Mascot, was placed under the Board's control on its appointment, and in May, 1912, the management of the Observatory Hill Resumed Area was transferred from the Harbour Trust Commissioners.

#### *Dacey Garden Suburb.*

The Dacey Garden Suburb is about 5 miles from the centre of the City of Sydney.

An area of Crown lands, covering 336 $\frac{1}{2}$  acres, and valued at £21,872, was appropriated, and a sum of £75,000 was made available for the purposes of the suburb; in April, 1914, the expenditure of an additional amount of £150,000 was authorised. Reservations have been made for roads, parks, gardens, and other open public places, also for public buildings, schools, and for religious purposes, the area allotted for various purposes being as follows:—Roads, 76 acres; park lands, 31 $\frac{3}{4}$  acres; Public Schools and Technical College, 7 $\frac{1}{2}$  acres; churches, 5 $\frac{1}{4}$  acres; police station, administrative buildings, &c., 5 acres; leaving 211 acres on which to erect cottages and shops. Calculated at seven cottages to the acre, this would provide approximately 1,437 cottages and 40 shops for the whole estate. The main roadway is 100 feet wide, with secondary roads 66 feet wide.

Building operations were commenced on 6th June, 1912, and 240 cottages, 6 shops, and 1 picture theatre had been completed at 30th June, 1917. The cottages are built of brick or concrete blocks, on stone or rubble foundations, with tile and slate roofs. The accommodation of the smallest dwellings is three rooms, and of the largest four rooms, kitchen, &c. The rentals ranged from 12s. 6d. to 18s. 6d., and the average cost from £276 to £640, which includes building, kerbing and guttering, asphalted footpaths, turfing, sewerage connection, &c.

The capital employed at 30th June, 1917, amounted to £150,961, of which £117,372 represented the cost of erection of houses. During the financial year 1916-17 the rentals contracted for amounted to £8,992, and the rents received to £8,869; at the end of the year the arrears of rent outstanding amounted to £57.

*Observatory Hill Resumed Area.*

The Observatory Hill Resumed Area is situated on the foreshores of Port Jackson, adjoining the wharves, and contains a number of business premises and residences, including dwellings, erected on the flat system, for waterside workers. The area comprises about 30 acres, and was acquired by the Government in 1900 in connection with the Darling Harbour wharves resumption; being the oldest settled portion of Sydney, practically the whole of the area required improvement. The capital employed amounted to £1,336,595 as at 30th June, 1917; the total revenue during the year 1916-17 was £64,516; and the expenditure £19,034, exclusive of interest on loan capital.

*Sydney Municipal Housing Area.*

An Act was passed in 1912 to enable the Municipal Council of the City of Sydney to erect and let dwelling-houses, and for that purpose to acquire land.

A block of flats has been erected by the Council on land acquired in Chippendale in connection with street improvements. The buildings are three storeys high, and cover a ground space of 279 feet by 78 feet; the total cost, including land, was £49,814. At each end there are four shops opening upon business thoroughfares, and the remainder of the building is divided into 71 suites of self-contained flats of two, four, or six rooms; the rents range from 12s. 6d. to 27s. 6d. per week.

## STATE ADVANCES FOR HOMES.

Under the provisions of an Act passed in 1913 the Commissioners of the Government Savings Bank were authorised to make advances, to an aggregate amount of £300,000 in any financial year, to enable persons to erect or enlarge their homes or to purchase dwellings already constructed.

The Bank advances up to three-fourths of the value of the property to a maximum of £750, and the repayments in the case of new stone, concrete, or brick buildings are to be made within thirty years, and in the case of wooden structures within twenty years. No advance will be made to any person who at the time of the application is the owner of another dwelling in the State.

The system came into operation on 1st July, 1914; and up to 30th June, 1917, the amount of £795,060 had been advanced to 2,152 borrowers; £5,925 remains to be paid on the completion of buildings, so that the total advances to these persons will be £800,985, or an average of £372 each. The transactions during each year were as follows:—

Year ended 30th June	Applications received.		Advances approved.		Advances made.	
	No.	Amount.	No.	Amount.	No.	Amount.
1915	840	£ 337,894	728	£ 283,870	575	£ 221,900
1916	928	333,490	927	346,175	794	298,375
1917	992	347,810	946	329,100	783	274,785
Total ...	2,760	1,019,194	2,601	959,145	2,152	795,060

In the Murrumbidgee Irrigation Area the administrative authority may erect homes for settlers, the cost to be repaid by a deposit of 10 per cent., and the balance in twenty-four half-yearly instalments, with interest at 5 per cent. Settlers who build their own homes may obtain building materials on ten years' terms.

## RELIGIONS.

*Churches in New South Wales.*

New South Wales being originally a Crown colony, the church establishment as existing in England was introduced. Subsequently, there was accorded to the clergy of each of the principal denominations support from the Crown in the form of subventions, which were continued under a statute passed in New South Wales in 1836, as an annual payment of £30,000 divisible between the Church of England, Roman Catholic, Presbyterian, and Wesleyan denominations. In 1862 these subventions were restricted to the clergy then actually in receipt of State aid, and in the succeeding year (1863) the subventions paid by the State amounted to £32,372, distributed as follows:—Church of England, £17,967; Roman Catholic, £8,748; Presbyterian, £2,873; Wesleyan Methodist, £2,784.

The number of recipients of these subventions in June, 1918, was one, the total allowance made during 1916-17 amounting to £175.

*Church Constitution and Government.*

Property belonging to the Church of England may be vested in corporate bodies of Trustees, and trusts for various dioceses have been formed under the Act of Parliament passed in the year 1881. They are entitled to hold, on behalf of the Church, all real and personal property which may be assigned to them by grant, will, or otherwise. There are seven dioceses in the province of New South Wales, under a Metropolitan, viz., Sydney, Newcastle, Goulburn, Bathurst, Armidale, Riverina, and Grafton. In each diocese a Synod, consisting of clerical and lay representatives meets annually to make ordinances for the government of the Church. Each diocesan synod elects from its members representatives to sit at the Provincial Synod of New South Wales, which meets every three years, and to the General Synod of Australia and Tasmania, which meets every five years.

The Roman Catholic Church is under the direction of the Archbishop of Sydney under whom are the Suffragan Bishops of Maitland, Goulburn, Bathurst, Armidale, Wilcannia, and Lismore, the State of New South Wales forming an ecclesiastical province. An Apostolic Delegation for Australasia was constituted in 1914, with headquarters at Sydney.

The various branches of the Presbyterian Church in the State are classified into seventeen Presbyteries, consisting of a number of separate charges, to each of which a Minister is appointed. The management of the affairs of the Presbyterian Church is controlled by a General Assembly, which sits annually. It is presided over by a Moderator, who is elected by the Presbyteries. By Act of Parliament, the Assembly has power to grant permission to trustees to mortgage Church property, and trustees are authorised to hold property for the Church generally. In July, 1901, a scheme of federal union was adopted by representatives from the various States, and the United Church is called the Presbyterian Church of Australia, the General Assembly of which meets alternately in the capital city of the various States every second year.

On 1st January, 1902, the Wesleyan Methodist Church, the Primitive Methodist Church, and the United Methodist Free Church in New South Wales entered into organic union, with a common name, common funds, common laws, and equal rights. The United Church is known as "The Methodist Church of Australasia." The South Sea Mission Districts are under the control of the New South Wales Conference.

The Congregational Union of New South Wales was incorporated in 1882 by an Act which gives it legal status, and empowers it to hold property. The Union allows every separate church to maintain independence in the

administration of its local affairs. Assemblies for the transaction of denominational business, &c., are held every six months.

The churches of the Baptist Denomination, which are independent of each other, are united together in a voluntary association called the Baptist Union of New South Wales, which holds annual and half-yearly meetings. The denomination has a fund controlled by trustees, from which churches are assisted on terms, with easy repayments. At the annual or assembly meetings, officers are chosen by nomination and ballot, and ministers or laymen are eligible for the highest positions. The churches prosecute Home Mission work in this State, and maintain a Foreign Mission Establishment in India.

The Salvation Army was established in Australia in 1881. Melbourne was made the chief centre for Australia under the command of a Commissioner; Sydney, Newcastle, Bathurst, and Armidale, are now district headquarters for New South Wales, each district being under direction of a divisional commander, all officers and members bearing military titles and designations; there are also treasurers and secretaries to corps. Persons who are in sympathy with the Salvation Army and attend its meetings, but who have not subscribed to the "articles of war"—which combine a confession of faith and a pledge against the use of intoxicating liquors and baneful drugs—are regarded as adherents.

The various Jewish congregational movements in Sydney were amalgamated when the Great Synagogue was opened in 1878. A local ecclesiastical court was opened in 1905, when an ordained Rabbi arrived from England to become chief minister of the community, and president of its court. There have been other Jewish congregations, at West Maitland and Newcastle; and there is one in existence at Broken Hill.

#### *Census Records of Religion, 1911.*

The following statement shows for New South Wales the strength of religious denominations, as disclosed by the Census of 2nd April, 1911:—

Religion.	Males.	Females.	Total.
Christian —			
Church of England ... ..	380,324	353,676	734,000
Presbyterian ... ..	96,354	86,557	182,911
Methodist ... ..	75,512	75,762	151,274
Congregational ... ..	10,888	11,767	22,655
Baptist ... ..	9,891	10,788	20,679
Church of Christ ... ..	2,865	3,547	6,412
Salvation Army ... ..	3,475	3,938	7,413
Lutheran ... ..	4,824	2,263	7,087
Seventh Day Adventist ... ..	806	1,193	1,999
Unitarian ... ..	512	332	844
Protestant (undefined) ... ..	21,309	15,595	36,904
Roman Catholic ... ..	190,122	185,269	375,391
Greek Catholic ... ..	885	198	1,083
Catholic (undefined) ... ..	18,214	18,408	36,622
Others ... ..	4,503	4,552	9,055
<b>Total ... ..</b>	<b>820,484</b>	<b>773,845</b>	<b>1,594,329</b>

Religion.	Males.	Females.	Total.
Non-Christian—			
Hebrew... ..	4,062	3,598	7,660
Mohammedan ... ..	776	43	819
Buddhist ... ..	437	11	448
Confucian ... ..	1,198	6	1,204
Pagan ... ..	254	.....	254
Others ... ..	2,238	150	2,388
Total ... ..	8,965	3,808	12,773
Indefinite—			
No Denomination ... ..	328	235	563
Freethinker ... ..	873	164	1,037
Agnostic ... ..	845	131	976
Others ... ..	1,022	613	1,635
Total ... ..	3,068	1,143	4,211
No Religion—			
Atheist... ..	184	20	204
No Religion ... ..	2,228	446	2,674
Others ... ..	59	15	74
Total ... ..	2,471	481	2,952
Object to state ... ..	14,989	6,997	21,986
Unspecified ... ..	7,721	2,762	10,483
Grand Total... ..	857,698	789,036	1,646,734

The above figures are exclusive of 992 males, 722 females, total 1,714 persons, within the Federal capital territory, also 2,012 full-blooded Australian aboriginals living in the State, and 10 within the Federal capital territory.

An interesting comparison of the number of persons belonging to the principal religions at the date of each Census from 1891-1911 is afforded in the subjoined table. In this table "Catholic" (undefined) has been included with "Roman Catholic":—

Religious Denominations.	Number of Persons.			Proportion per cent.		
	1891.	1901.	1911.	1891.	1901.	1911.
Protestant—						
Church of England ... ..	503,054	623,131	734,667	45·32	46·58	45·46
Methodist ... ..	112,448	137,638	151,392	10·13	10·29	9·37
Presbyterian ... ..	109,390	132,617	183,099	9·86	9·91	11·33
Congregational ... ..	24,090	24,834	22,656	2·17	1·86	1·40
Baptist ... ..	13,029	15,441	20,679	1·18	1·15	1·28
Lutheran ... ..	7,950	7,357	7,087	·72	·55	·44
Unitarian ... ..	1,329	770	844	·12	·06	·05
Salvation Army ... ..	10,315	9,585	7,413	·93	·72	·46
Other Protestants ... ..	9,741	14,251	54,395	·87	1·06	3·37
Total, Protestants ... ..	791,346	965,654	1,182,232	71·30	72·18	73·16
Roman Catholic ... ..	286,911	347,286	412,680	25·85	25·96	25·54
Greek Church... ..	253	561	1,083	·02	·04	·07
Others—						
Jew, Hebrew ... ..	5,484	6,447	7,660	·49	·48	·47
Buddhist, Confucian, Moham- medan, &c. ... ..	11,508	8,035	5,114	1·04	·60	·32
Freethinkers, Agnostics, &c. ... ..	6,358	3,564	3,929	·57	·27	·23
No Denomination, No Religion ... ..	8,062	6,265	3,239	·73	·47	·21
	1,109,922	1,337,812	1,615,937	100	100	100
Object to state ... ..	11,237	13,068	22,008	...	...	...
Unspecified ... ..	2,795	3,966	10,503	...	...	...
Total, New South Wales, } including Federal territory }	1,123,954	1,354,846	1,648,448	...	...	...

NOTE.—The figures for 1911, for purposes of comparison with the previous Census returns, include persons within the Federal capital territory.

## EMPLOYMENT AND INDUSTRIAL ARBITRATION.

## EMPLOYMENT.

Complete statements regarding occupations and ages of breadwinners at the Census of 1911 have appeared in previous issues of the Year Book. It is undesirable to repeat them.

## ANNUAL RECORDS OF PRIMARY AND MANUFACTURING INDUSTRIES.

For the intervals between the census periods, records as to the numbers of persons in occupations are restricted to the primary industries, and to the manufacturing section of the industrial group, concerning which groups annual returns are collected in this Bureau of Statistics. The following are the figures showing persons permanently employed in the principal industries of the State since 1911. The majority of women and girls engaged in agriculture and dairying are only partly so employed, in conjunction with, or in addition to, their usual domestic duties. In the manufacturing industry, employees in establishments where no machinery is used are not recorded, unless at least four persons are engaged:—

Year.	Agricultural.		Dairying.		Pastoral.	Mining.		Manufacturing.	
	Males.	Females.	Males.	Females.		Metal.	Coal and Shale.	Males.	Females.
					Males.	Males.			
1911	58,299	5,782	27,488	19,422	43,387	19,360	17,657	82,083	26,541
1912	58,984	5,779	26,537	18,439	41,893	19,807	18,051	88,178	27,383
1913	61,525	6,950	25,961	18,478	40,543	19,914	18,966	93,036	27,364
1915*	59,944	7,875	23,435	15,917	39,131	13,190	18,221	90,409	26,202
1916*	59,256	8,743	21,979	15,404	38,042	14,412	16,892	87,724	28,677
1917*	55,122	9,433	22,363	16,644	38,607	15,479	17,338	88,910	29,087

\* Figures relate to year ended 30th June, except mining, which are for 31st December.

In 1917 the number of persons employed in agriculture decreased, while in pastoral and dairying an increase is evident; but as, in many cases, agriculture is associated with other rural occupations, persons may be returned as engaged in agriculture in one year, and in other rural pursuits in another year.

Grouping the figures shown above in Primary and Secondary Industries, the following results are obtained:—

Year.	Primary.			Secondary.— Manufacturing.	All Industries.		
	Rural.	Mining.	Total.		Males.	Females.	Total.
1911	154,378	37,017	191,395	108,624	248,274	51,745	300,019
1912	151,632	37,858	189,490	115,561	253,450	51,601	305,051
1913	153,457	38,880	192,337	120,400	259,945	52,792	312,737
1915*	146,302	31,411	177,713	116,611	244,330	49,994	294,324
1916*	143,424	31,304	174,728	116,401	238,305	52,824	291,129
1917*	142,169	32,817	174,986	117,997	237,819	55,164	292,983

\* Figures relate to year ended 30th June, except mining, which are for 31st December.

## IMMIGRATION.

Power to legislate with regard to immigration and emigration is conferred upon the Commonwealth Parliament, under the Commonwealth of Australia Constitution Act, and the legislation under this section is contained in the following enactments:—Immigration Act, 1901-1912; Pacific Island Labourers Act, 1901-1906; Contract Immigrants Act, 1905; Emigration Act, 1910.

The enactments relating to immigration operate in the direction of restricting the right of entry of persons to the Commonwealth.

They define the classes of persons who come under the heading of prohibited immigrants, including persons who fail to pass prescribed dictation tests or do not possess the prescribed certificate of health, criminals, and immoral persons, or persons otherwise undesirable. Persons suffering from serious transmissible or communicable disease are debarred specifically; also idiots, imbeciles, feeble-minded or epileptic persons; and the Immigration Act, 1912, makes special provision for the establishment of medical bureaux at places outside the Commonwealth; and for the appointment of medical referees in the Commonwealth or outside it, to conduct the medical examination of immigrants, or intending immigrants. The onus of the introduction of prohibited immigrants lies chiefly upon the masters, owners, agents, or charterers of vessels, a penalty of £100 attaching in respect of each such entrant or stowaway, as well as the liability for maintenance and deportation. A stowaway is defined as any person other than a *bona fide* passenger, or a member of the crew duly entered on the ship's articles. The administration is empowered to search vessels for stowaways.

Exemption from the general provisions of the Acts may be claimed by persons holding exemption certificates, by persons accredited by any Government, by members of the King's regular sea and land forces, and by masters and crews of public vessels of any Government, and of vessels trading to Commonwealth ports, providing, in regard to the vessels last mentioned, that if any of the crew be missing when the vessel clears the port, such person may be declared a prohibited immigrant, and the master be held responsible. The prescribed dictation test may be imposed at any time up to two years after the admission of an immigrant. Provision is made for the conditional entry of prohibited immigrants for a limited period.

*Contract Immigrants.*

The Contract Immigrants Act, 1905, regulates the admission of immigrants under contract to perform manual labour. Contracts in this connection must be in writing, made by or on behalf of some person named and resident in Australia. They are subject to Ministerial approval, which may be withheld if the fulfilment of the contract is likely to be prejudicial to the public welfare, either as affecting an industrial dispute, or as to the conditions of, and standards prevailing in, local industry. It may be withheld, also, if there is insufficient evidence of difficulty in obtaining a worker of equal skill and ability within the Commonwealth. This latter provision is not applicable to contract immigrants who are British subjects, born in the United Kingdom or descended from a British subject there born; nor does the Act apply to domestic servants and personal attendants accompanying their employers.

The following statement shows the number of contract immigrants admitted to Australia since 1908, and also the numbers of those whose contracts designated some locality in New South Wales as the subject place of the contract:—

Year.	Contract Immigrants admitted to Australia.			Contracts relating to New South Wales.
	British.	Non-British.	Total.	
1908	20	2	22	14
1909	152	6	158	34
1910	38	1	39	10
1911	332	20	352	12
1912	201	16	217	89
1913	27	1	28	11
1914	20	...	20	1
1915	10	32	42	33
1916	3	35	38	36
1917	...	...	...	...

#### EMIGRATION.

The Emigration Act, 1910, operates in the direction of restricting the emigration of children and aboriginal natives from Australia, regulating contracts in relation thereto, and supervising the transportation or removal of prohibited immigrants.

#### ENCOURAGEMENT OF IMMIGRATION.

##### *The Commonwealth.*

All activities by the Commonwealth for the encouragement of immigration have ceased for the period of the war; previously the Commonwealth operations in this connection were confined to advertisement of the attractions of Australia generally, with a view to promoting the flow of voluntary immigration to the different States.

##### *The State Policy.*

State-assisted immigration was inaugurated in New South Wales in the year 1832, and maintained until 1885. After an interval of twenty years, the policy was resumed in 1905.

The following statement shows the expenditure on, and the resulting increase of population from, the encouragement of immigration by the State grants, in the period 1910-17:—

Year ended 30th June.	Expenditure, exclusive of Administration.	Immigrants assisted.						Unassisted Immigrants placed in employment.
		Nominated.		Selected.		Total.		
		Males.	Females.	Males.	Females.	Males.	Females.	
	£							
1910	26,815	1,068	1,184	1,455	526	2,523	1,710	1,730
1911	32,786	2,422	2,317	1,960	599	4,382	2,916	2,317
1912	59,186	4,577	4,304	2,942	1,033	7,519	5,337	3,269
1913	69,656	5,002	6,148	1,745	754	6,747	6,902	3,787
1914	33,158	1,983	3,401	662	768	2,645	4,169	3,377
1915	24,501	495	825	126	250	621	1,075	584
1916	13,570	335	553	19	133	334	686	249
1917	3,690	163	363	5	55	163	418	123

Since the outbreak of war the assisted immigration to New South Wales has been confined mainly to domestic servants, but on account of war pressure even this class of immigration has almost ceased.

For the financial year 1917-18 the sum of £2,500 was voted for the promotion of immigration and advertising the State, whilst an additional sum of £2,296 was voted to meet the proportion of the joint expenditure of the amalgamated Immigration Department of New South Wales and Victoria which is chargeable to New South Wales. These votes are supplementary to the usual vote, approximating £14,000, for maintenance and administration of the Immigration Office in London, and of the Immigration and Tourist Bureau in Sydney.

The amalgamation of the Immigration Offices in London of the States of New South Wales and Victoria took place on 1st July, 1913, but owing to the restriction of immigration it was decided to discontinue the amalgamation on 30th June, 1918.

Arrangements exist with various steamship companies for reductions in the ordinary rates for passages from the United Kingdom. Besides these reductions a Government contribution, ranging from £4 to £8, is made towards the fares, these concessions being allowed to persons approved in London by the immigration officials.

The following statement shows the proportion of British subjects, in comparison with foreign-born, among assisted immigrants, in the period 1910-1917:—

Year ended 30th June	Immigrants from—						Total.		
	United Kingdom.		Other British Possessions.		Foreign Countries.		Nominated.	Selected.	Total.
	Nominated.	Selected.	Nominated.	Selected.	Nominated.	Selected.			
1910	2,210	1,958	20	12	22	11	2,252	1,981	4,233
1911	4,675	2,524	4	3	60	32	4,739	2,559	7,298
1912	8,781	3,958	1	...	99	17	8,881	3,975	12,856
1913	10,997	2,482	3	...	150	17	11,150	2,499	13,649
1914	5,197	1,396	23	8	164	26	5,384	1,430	6,814
1915	1,298	369	8	...	14	7	1,320	376	1,696
1916	869	145	7	...	12	7	888	152	1,040
1917	515	60	2	...	9	...	526	60	586

Assisted passages are granted to immigrants who are classified as selected or as nominated; the former include only farmers, agricultural labourers, and domestic servants. Selected immigrants must be under 45 years of age, of good character, and in general must afford satisfactory evidence that they are likely to prove suitable settlers; they are brought to the State for minimum net fares of £6 for domestic servants and £8 for agriculturists, and assistance is given in respect of their wives and families.

As a further encouragement to domestic servants, the Government arranged in 1912 to advance part of the fare, to be repaid in instalments after arrival. Arrangements have been made also whereby a person resident in New South Wales may prepay the cost of the passage for a domestic, who will repay the advance in instalments extending over a period of six months.

The following statement shows the distribution of selected immigrants in their respective occupational classes in each financial year:—

Year ended 30th June.	Rural Workers.			Domestic Servants.	Other.	Families of foregoing.
	Farmers.	Farm Labourers.	Total.			
1910	11	1,428	1,439	434	...	108
1911	12	1,831	1,843	387	...	329
1912	11	2,472	2,483	520	205	767
1913	10	1,662	1,672	549	3	275
1914	13	529	542	579	...	309
1915	1	14	15	508	...	53
1916	1	7	8	126	...	18
1917	...	3	3	51	...	6

Persons nominated for assisted passage by relatives in the State may be granted a reduction on each full fare, the lowest net fares to nominated accepted immigrants being £8 per adult for wives and families of farm workers, £10 for wives and families of other workers, and £12 for all other nominees.

Nominators are required to lodge the reduced steamer fare, and to guarantee that employment awaits nominees, or that adequate provision will be made for their maintenance.

Any immigrant who settles upon the land as owner, lessee, or labourer, within a reasonable time of his arrival, may be granted concessions in regard to railway fares and freight when travelling to the district in which he settles. These concessions may be granted also to nominated immigrants proceeding to the homes of their nominators, or travelling to take up farm work or domestic service.

#### TRADE UNIONS.

The Trade Union Act, 1881, defines a "Trade Union" as "any combination, whether temporary or permanent, for regulating the relations between workmen and employers, or between workmen and workmen, or between employers and employers, or for imposing restrictive conditions on the conduct of any trade or business, whether such combination would or would not, if this Act had not been passed, have been deemed to have been an unlawful combination by reason of some one or more of its purposes being in restraint of trade."

The Act provided simple machinery for the incorporation, free of cost, of Unions, and the practical advantages of registration quickly became evident to those interested in industrial organisation.

In regard to Trade Union contracts, the Act expressly stipulates that nothing contained in it shall enable any Court to entertain any legal proceeding instituted with the object of directly enforcing or recovering damages for breach of—

##### (1) Agreements—

(a) between members of a Trade Union as such concerning the condition on which any members . . . shall or shall not sell their goods, transact business, employ or be employed.

(b) for the payment by any person of any subscription or penalty to a Trade Union.

(c) for the application of funds of a Trade Union to—

- (i) provide benefits to members, or
- (ii) furnish contributions to any employer or workman not a member of such Trade Union, in consideration of such employer or workman acting in conformity with the rules or resolutions of such Trade Union, or
- (iii) discharge any fine imposed upon any person by sentence of a Court of Justice.

(d) made between one Trade Union and another.

(2) Bonds to secure the performance of any of the above-mentioned agreements.

This section does not, however, render unlawful any such agreements as are mentioned above, nor does any provision of the Act affect agreements—

- (i) between partners as to their own business;
- (ii) between employer and employee regarding such employment;
- (iii) in consideration of the sale of goodwill of a business or of instruction in any profession, trade, or handicraft.

The Industrial Arbitration Acts provide for the incorporation of trade unions as industrial unions, and the Industrial Arbitration (Amendment) Act, 1918, extended the powers of trade unions by authorising them to acquire, own, and deal with property, to sue members for payment of subscriptions, fines, &c., in accordance with their rules; to apply money and property to the furtherance of political objects, provided that payments for such purpose be made out of a separate fund maintained by purely voluntary contributions. The Act also compels trade unions to admit to membership all persons of good character who are by nature of their occupation qualified for admission.

#### *Incorporation and Dissolution.*

In the thirty-six years, 1882-1917, 553 unions have been incorporated under the Trade Union Act. The maximum number of registrations of Trade Unions in any year was 46 in 1902. The next highest numbers were 45 in 1917, 38 in 1890, and 35 in 1901. The numbers, for quinquennial periods, of new Unions registered and of such registrations since cancelled or still effective, as at December, 1917, are as follows:—

Period.	Trade Unions Registered.	Registrations of each Period.	
		Since Cancelled.	Still Effective.
1882-6	49	32	17
1887-91	92	77	15
1892-6	23	20	3
1897-1901	43	21	22
1902-6	96	70	26
1907-11	125	63	62
1912	26	15	11
1913	17	5	12
1914	13	7	6
1915	11	4	7
1916	13	4	9
1917	45	...	45
Total to 31st Dec., 1917	} 553	318	235

The majority of unions are of comparatively recent formation, since 195 of those existent have been registered since the beginning of 1900. The

number existent at the end of 1917 represents approximately 42 per cent. of the total unions formed under the Act. The average life of all extinct unions was about seven years.

Cancellations for the most part have been directly consequent upon non-compliance with the requirements of the law in regard to making returns as to the membership and funds, which default was usually attributable to the moribund condition of the union. A number have disappeared by amalgamation with kindred unions, and there is an increasing tendency towards this course.

The progression of recent years is indicated in the following statement:—

Year.	New Unions Registered.	Number of these Unions defunct at 31st Dec., 1917.	Average Membership of Unions Reporting.
1908	25	6	745
1909	27	17	767
1910	29	16	749
1911	31	14	804
1912	26	15	962
1913	17	5	1,019
1914	13	7	1,100
1915	11	4	1,053
1916	13	4	1,090
1917	45	...	...

#### Aggregate Funds and Membership.

The following statement shows the position of all Trade Unions (*i.e.*, for employers and employees) for the five years 1912 to 1916, as regards finances and membership:—

Particulars.	1912.	1913.	1914.	1915.	1916.
Trade Unions ... ..	£ 209	214	219	219	215
Total receipts ... ..	£ 199,157	209,478	297,314	267,060	248,072
Total expenditure ... ..	£ 173,474	183,304	271,570	257,297	256,909
Total funds ... ..	£ 151,543	193,520	186,568	205,020	205,398
Membership ... ..	£ 201,144	218,005	240,798	230,603	234,308
Receipts per member ... ..	19s. 9d.	19s. 3d.	24s. 8d.	23s. 2d.	21s. 2d.
Expenditure per member ... ..	17s. 3d.	16s. 10d.	22s. 7d.	22s. 4d.	21s. 11d.
Amassed funds per member ... ..	15s. 1d.	17s. 9d.	15s. 6d.	17s. 9d.	17s. 6d.

The unions are classified in two groups according to their constitution, *viz.*, of employers and of employees. The following table displays their relative positions as at 31st December, 1916:—

Classification.	Trade Unions.	Membership.				Funds.	
		Males.	Females.	Total.	Per Union.	Aggregate.	Per Union.
Employers ... ..	13	2,609	149	2,758	212	£ 2,448	£ 188
Employees ... ..	202	218,609	12,941	231,550	1,082	202,950	1,005
Total ... ..	215	221,218	13,090	234,308	1,029	205,398	955

The following statement gives a general view of the numerical strength of all trade unions during the last four years:—

Membership.		1913.	1914.	1915.	1916.
Less than... ..	100	48	47	43	50
100 and less than	500	85	79	73	64
500 „	1,000	22	27	25	22
1,000 „	1,500	11	9	10	10
1,500 „	2,000	15	13	11	8
2,000 „	3,000	7	11	14	17
3,000 „	4,000	5	7	9	9
4,000 „	5,000	4	3	1	5
5,000 „	8,000	4	6	9	5
8,000 „	10,000	2	1	...	2
10,000 „	20,000	2	2	2	...
20,000 „	25,000	1	1	...	...
Over „	30,000	...	...	...	1
Not stated	... ..	8	13	22	26
Total	... ..	214	219	219	219

#### EMPLOYERS' UNIONS.

Appended is a list of the employers' unions, showing receipts, expenditure, funds, and membership at 31st December, 1916:—

Group.	Trade Unions.	Receipts.	Expenditure.	Funds.	Membership (Employers' Unions).			
					Males.	Females.	Total.	
		£	£	£				
Licensed Victuallers	...	1	1,469	1,741	231	1,059	149	1,208
Carters	... ..	1	410	379	644	376	...	376
Contractors	... ..	1	43	45	21	20	...	20
Builders	... ..	2	1,291	1,799	1,113	161	...	161
Farriers	... ..	1	1,103	1,057	118	417	...	417
Butchers	... ..	1	438	515	93	120	...	120
Bakers	... ..	1	1,057	1,105	65	150	...	150
Tug and Lighter Owners	...	1	84	13	101	28	...	28
Laundrymen	... ..	1	94	194	11	91	...	91
Electrical Employers	...	1	200	170	50	33	...	33
Hairdressers	... ..	1	199	200	1	154	...	154
Slaters, Tilers, and Shinglers*	... ..	1	...	...	...	...	...	...
Total	... ..	13	6,428	7,218	2,448	2,609	149	2,758

\* Return not received.

## EMPLOYEES' UNIONS.

*Development.*

As regards numbers, membership, and funds, trade unions of employees constitute much the stronger group. Though some of the early unions formed in New South Wales were branches of British or foreign organisations, for the most part unions were of local origin and independent governance. But as the conception of unionism has undergone radical revision in recent years, so the constitution of unions has been subject to alteration in the direction of centralisation. Throughout the first decade of registration—in fact, practically till 1890—separate unions were constituted for the various branches of industries, also for male and female workers in those branches. Since 1900 there has been apparent a movement towards consolidation of allied interests, so that few local unions retain their absolute autonomy, and the sphere of influence of most unions has extended throughout the State, or even outside it. Practically all unions, whether local, State, or federated, are affiliated with Central Councils in Sydney, Newcastle, or Broken Hill. The movement towards consolidation received an impetus during 1912 from the rearrangement of Industrial Boards under the Industrial Arbitration Act, 1912, on the basis of craft unionism, thus making allied interests subject to the oversight of one chairman; this alteration was bound to increase the tendency towards concentration.

The receipts and expenditure during 1916, also the accumulated funds and the membership, as at December, 1916, for employees only, are shown in the following table:—

Industrial Classification.	Receipts.	Expenditure.	Funds.	Membership. (Employees' Unions).			Funds per member.
				Males.	Females.	Total.	
	£	£	£				s. d.
Unions of Employees--							
Building ... ..	21,889	20,495	30,757	20,921	50	20,971	29 5
Clothing ... ..	4,571	4,127	7,890	4,273	4,255	8,528	18 6
Engineering and Metal Working ... ..	34,101	37,281	27,263	21,921	13	21,934	24 10
Food, Drink and Narcotics	14,197	14,272	11,242	17,721	2,478	20,199	11 2
Land Transport, exclusive of Railways and Tramways	6,452	6,173	4,662	6,459	...	6,459	14 5
Mining and Smelting ...	48,642	57,286	27,168	19,429	...	19,429	28 0
Pastoral ... ..	33,591	33,803	23,439	33,587	31	33,618	13 11
Printing, Bookbinding, &c.	8,306	7,207	13,460	3,577	960	4,537	59 4
Railways and Tramways ...	12,018	12,051	7,231	23,224	288	23,492	6 2
Shipping and Sea Transport	18,512	18,310	8,678	18,211	...	18,211	9 6
Manufacturing, n.e.i. ...	14,111	15,532	19,443	14,657	2,574	17,231	22 7
Miscellaneous—							
Labour Councils and Federations of Employees ...	2,367	2,362	565	...	...	...	...
Eight-hour Committees ...	1,504	1,456	6,358	...	...	...	...
Other Miscellaneous ...	21,333	19,336	14,794	34,629	2,312	36,941	11 9
Total Unions of Employees...	241,644	249,691	202,950	218,609	12,941	231,550	17 6

The strongest unions financially are those connected with the printing and bookbinding trades. Next in order of importance, measured by accumulated funds per member, are the building and mining groups.

Local unions are affiliated with the Labour Federations, which have their headquarters at Sydney, Newcastle, and Broken Hill—the three large industrial centres of New South Wales.

The numerical strength of employees' unions in 1916 is displayed in the following statement:—

Membership.			Em- ployees' Unions.	Membership.			Em- ployees' Unions.
Less than 100	...	...	50	5,000 to 6,000	...	...	3
100 to 500	...	...	64	6,000 ,, 7,000	...	...	1
500 ,, 1,000	...	...	22	7,000 ,, 8,000	...	...	1
1,000 ,, 1,500	...	...	10	8,000 ,, 9,000	...	...	2
1,500 ,, 2,000	...	...	8	Over 30,000	...	...	1
2,000 ,, 3,000	...	...	17	Not stated	...	...	9
3,000 ,, 4,000	...	...	9				
4,000 ,, 5,000	...	...	5				
				Total	...	...	202

During recent years considerable progress has been made in the direction of closer unionism of subsidiary or allied industries; various conferences have been held with the object of promoting uniformity of trade conditions and of wages throughout Australia.

#### INDUSTRIAL ARBITRATION ACT, 1901.

The Industrial Arbitration Act, 1901, applied arbitration principles to the regulation of wages and working conditions generally, and extended the definition of industrial disputes so as to include consideration of conditions prevailing in industries in which no dispute existed technically.

The Act provided for the registration and incorporation of industrial unions and for making and enforcing industrial agreements; constituted a Court of Arbitration for the hearing and determination of industrial disputes and matters referred to it; defined the jurisdiction, powers, and procedure of such Court, and provided for the enforcement of its awards and orders. In the year 1905 this Act was extended by the Industrial Arbitration (Temporary Court) Act.

The jurisdiction of the Court of Arbitration extended to all industries except domestic service, and its award applied without limitation of area throughout the State.

On account of the large number of cases promptly cited before the Industrial Court, and the possibility of securing an injunction against the Court, there ensued a state of congestion ultimately culminating in considerable industrial unrest, when experience had proved the Act to be cumbered by technicalities, and in 1908 it was superseded.

#### INDUSTRIAL DISPUTES ACT, 1908.

Under the Act, 1908, no dispute was necessary to bring an industrial matter within the jurisdiction, and provision was made for the constitution of Wages Boards to determine the conditions which should govern employment in specified industries. Boards could be constituted for industries or occupations or local sections of industries or for any division or combination of employees in industries as might be judged expedient by the Court. In practice, boards were constituted for industries, but employees were associated according to trades, to materials worked in, or to goods made, with the result that there were boards for trades, for business, and for industries or associations of trade—all with exemptions for certain classes of employees or employers.

Provision was made for the registration of trade unions as industrial unions, and the expiration of the Industrial Arbitration Act, 1901, did not affect the incorporation of industrial unions registered under that Act, while any trade union registered under the Act might make a written agreement with an employer relating to any industrial matter.

The Industrial Court consisted of a judge, sitting with assessors when necessary. A board could be constituted for an industry on application to the Industrial Court by an employer or employers of not less than twenty employees in the same industry; by a registered trade union having a membership of not less than twenty employees in the same industry; by an industrial union, or by twenty or more employees in an industry.

Each board consisted of a chairman and one or two employers and an equal number of employees.

The boards were authorised to decide all disputes, fix the lowest prices for piece-work, lowest rates of wages, hours, proportion of apprentices and improvers, and other industrial matters, and to rescind or vary any of its awards.

Under the Industrial Disputes (Amendment) Act, 1910, proceedings for the enforcement of awards and penalties were made referable to a Magistrate's Court, and in accordance with this proviso the Industrial Registrar's Court was constituted as a Court of Petty Sessions.

After some three years' experience adverse criticism was directed against this attempt at settlement of the industrial problem, the most serious objections being found in the multiplicity of boards and the danger of overlapping of awards in the absence of co-ordinating provisions; the Act was repealed in 1912.

#### *Clerical Workers Act, 1910.*

Complementary to the Industrial Disputes Act, 1908, and its amendments, the Clerical Workers Act, 1910, was passed to provide a tribunal to fix a minimum wage for persons engaged in clerical work, as difficulty was experienced in applying the machinery of the Industrial Disputes Act as to Wages Boards to work of this nature, which, moreover, was not an industry or calling under the Act. In 1915 the Act was repealed, and the clerical occupation, other than articled, solicitors', or architects' clerks, was brought under the operation of the Industrial Arbitration Act.

#### INDUSTRIAL ARBITRATION ACTS, 1912 TO 1918.

The principal points of the Industrial Arbitration Act, 1912, since amended by the Industrial Arbitration Amendment Acts, 1916 and 1918, relate to the operations of Industrial Boards, &c. The powers of the Court and of its subsidiary tribunals were not limited to the relationships of employment. The range of industries and callings was defined by schedule, and boards might be constituted for any industry or calling or for division or combination in such industry or calling. In practice, old boards were re-established so far as was consistent with the conditions of the Act. Thus a material distinction between the Wages Board system as operative under the Industrial Disputes Acts, 1908-1910, and the Industrial Boards, provided under the Industrial Arbitration Act, 1912, lay in the grouping of allied industries under one Chairman, and in the arrangement of such boards more upon the basis of craft or calling than of industry, the ultimate aim being the maintenance of some thirty-one subsidiary Arbitration Courts, each having power to deal with a group of allied industries, but subject to the general control of the Court of Industrial Arbitration, which in its supreme direction would co-ordinate the work of the minor courts.

Experience showed, however, that this system failed in its object of mitigating the delay in hearing and determination or of preventing the overlapping of awards, and in 1916 the amending Act provided for the appointment of additional Judges to transfer and control the work done by the boards with a view to the gradual abolition of the board system. The schedules of the principal Act were repealed, and provision was made for the

constitution of industrial boards for any industry or group of industries. The Court is empowered to codify into one award all awards affecting an employer or class of employers in an industry or group of industries or the members of an industrial union employed by the same employer or class of employers.

The Industrial Arbitration (Amendment) Act, 1918, provided for further extension of the operations of the Court by the constitution of special and deputy courts; other important amendments were made, such as the establishment of a Board of Trade with extensive powers in connection with industrial matters, and alterations in the powers and jurisdiction of the Industrial Boards and the Court, which are discussed below.

#### *Industrial Unions.*

Provision is made in the Industrial Arbitration Acts for the registration of industrial unions of employers and employees, also for the cancellation of registration by request of a union.

The Court may cancel the registration of a union for instigating to or aiding in a strike or lockout, also any award or industrial agreement relating to the union. The cancellation of the registration of twenty-five industrial unions of employees concerned in the general strike of 1917 was ordered by the Court, and in the Industrial Arbitration (Amendment) Act, 1918, provision was made for their reinstatement at the direction of the Minister, with the concurrence of the senior Judge. An application, on behalf of the unions, for the concurrence of the Judge was unsuccessful, but the Trade Unions Re-registration Act, 1918, was passed to provide for their reinstatement upon certain conditions.

Unions of employees may make industrial agreements with employers, or with any other industrial union, such agreements to be filed and binding for a maximum period of five years.

#### *The Court of Industrial Arbitration.*

The Court of Industrial Arbitration is a superior Court and Court of Records, governed in procedure and decisions by the dictates of equity and good conscience. Appeal from an award of a single Judge lies to the Court constituted by three Judges.

The Court may elect to sit with assessors representing the interests of each of the parties, and matters relating to any log of prices or other basis for payment may be committed for determination and report to the assessors, sitting without a Judge.

In districts proclaimed by the Governor a deputy Court may be constituted by a Judge or by a chairman nominated by the Court, with or without assessors; and the Court must sit as a Special Court with assessors when hearing matters relating to the coal-mining industry or matters exclusively affecting the Crown as employer, or persons employed exclusively by the Crown, or by shire or municipal employees.

#### *Industrial Boards.*

An Industrial Board, consisting of a chairman and two or four other members equally representing the employers and employees, may be constituted for any industry or group of industries on the recommendation of the Court, and the Court may constitute special boards to determine questions of demarcation.

Where employers or employees in the industries or callings consist chiefly of women, members may be appointed who are not engaged in those industries or callings; otherwise for the most part representative board members are men intimately connected with the particular industry or calling.

## JURISDICTION OF COURT AND BOARDS.

In addition to jurisdiction and powers conferred by the Act, the Court may exercise the powers, jurisdictions, and functions of industrial boards, special boards for demarcation, chairmen of boards and conciliation committees, and the industrial registrar and industrial magistrates; and it may amend and codify into one award all awards affecting any employer or class of employers, or the members of an industrial union employed by the same employer or class of employers.

A Board may make an award,—

- (a) fixing the lowest prices for work done by employees, and the lowest rates of wages payable to employees, other than aged, infirm, or slow workers: Provided that no award shall be made for persons occupying managerial positions except by the special Court for Crown matters, or for payment of any remuneration in excess of £10 per week.
- (b) fixing the number of hours and the times to be worked in order to entitle employees to the wages so fixed: Provided that after 1st October, 1918, the hours for cessation of employment in shops under the Early Closing Acts shall be the hours fixed by such Acts for closing such shops.
- (c) fixing the lowest rates for overtime and holidays and other special work, including allowances as compensation for overtime, holidays, or other special work;
- (d) fixing the number or proportionate number of apprentices and improvers and the lowest prices and rates payable to them;
- (e) determining any industrial matter;
- (f) rescinding or varying any award made in respect of any of the industries or callings for which it has been constituted;
- (g) declaring that preference of employment shall be given to members of any trade or industrial union of employees upon such terms and conditions as the Court may prescribe, so long as the members thereof, after the passing of the Industrial Arbitration (Amendment) Act, 1918, shall not have taken part in, aided, or abetted an illegal strike. Where any declaration giving such preference of employment has been made in favour of an industrial or trade union of employees, such declaration shall be cancelled by the Court of Arbitration if at any time such union, or any substantial number of its members, takes part in a strike or instigates or aids any other persons in a strike; and if any lesser number takes part in a strike, or instigates or aids any other persons in a strike, such Court may suspend such declaration for such period as to it may seem just.

The Industrial Arbitration (Amendment) Act, 1918, provides that in prescribing minimum wages the Court may fix the quantity of work to be done; that whenever the minimum wage in relation to a skilled occupation is fixed at a higher rate than the living wage, the amount of excess shall be the same in the case of males and females doing the same class of work; and that as far as is consistent with the maintenance of industrial peace, the Court or a board shall deal only with wages and hours of employment, leaving all other matters to shop committees, conciliation committees, industrial councils or voluntary committees formed for the purpose of adjusting the industrial relationship of employer and employee. A judge or deputy judge of the Court may act as the chairman of any industrial council. All employees engaged in rural industries are entitled to be paid the living wages

declared by the Board of Trade, but, with the exception of employees whose conditions of employment have been regulated by award, they are not otherwise subject to the provisions of the Industrial Arbitration (Amendment) Act, 1918.

Where an institution, carried on wholly or partly for charitable purposes, provides for the food, clothing, lodging, or maintenance of any of its employees or of any of its inmates who are deemed to be employees, the board must make due allowance in its award as to the wages of such persons. The board may exempt such institution from any terms of the award, where the food, clothing, lodging, and maintenance provided by the institution, together with the money paid by the institution to such employees or inmates as wages, are at least equal in value to the value of their labour.

With regard to employees of the Government, the wages fixed must be not less than those paid to other employees doing substantially the same class of work; but the fact that the employment is permanent, and that additional privileges are allowed in the service of the Government may not of itself be regarded as a substantial difference. Where the public interests are likely to be affected, the Crown may intervene in any proceedings before a board or the Court, or appeal from an award of a board.

Awards are binding on all persons engaged in the industries or callings and within the locality covered for the period not exceeding three years specified therein, and after such period until varied or rescinded. Appeal from an award of a board lies to the Court, but the pendency of an appeal does not suspend the operation of the award.

Proceedings before a board may be commenced by reference to the board by the Court or by the Minister; or by application to the board by employers or employees in the industries or callings for which the board has been constituted.

To induce agreement in case of an application or reference the board will inquire expeditiously and carefully into the matter, and may enter, for inspection, premises used in the industry, conduct its proceedings in public or in private, and in respect of witnesses may compel attendance and evidence as under section 174 of the Parliamentary Electorates and Elections Act, 1912. Advocates or agents appearing before the board must have been actually engaged in one of the industries or callings in respect of which proceedings are taken.

#### OPERATIONS OF INDUSTRIAL BOARDS.

During the year ended 30th June, 1917, 6 new Industrial Boards were constituted and 2 boards were dissolved. Between 18th April, 1912, when the Industrial Arbitration Act came into operation, and 30th June, 1917, 498 boards were appointed and 261 were dissolved; the number in existence at the end of the period was 237.

Since December, 1916, the work of the Industrial Boards has been limited to matters part heard at that date, and under the provisions of the Industrial Arbitration (Amendment) Act, 1916, applications and references to the boards have been dealt with by the Court, to which additional judges were appointed to deal with matters previously determined by the boards.

During the year ended 30th June, 1917, the Boards made 169 principal awards and 127 awards of variation, and the Court made 7 principal awards and 99 variations. At the end of the year there were 257 awards in force.

The cost of Industrial Boards during the five years ended June, 1917, is shown in the following summary:—

Year ended 30th June.	Boards at end of Year.	Cost of Industrial Boards.				Average Cost.	
		Fees.	Allowances.	Other.	Total.	Per Award.	Per Board.
1913	195	£ 11,116	£ 1,648	£ 889	£ 13,653	£ 115	£ 66
1914	211	11,922	1,655	878	14,455	59	67
1915	219	7,978	737	439	9,154	43	41
1916	233	12,204	937	1,069	14,210	50	59
1917	237	11,415	868	617	12,900	44	55

#### INDUSTRIAL AGREEMENTS.

Trade Unions were empowered under the Industrial Arbitration Act, 1901, to make written agreements with employers in regard to any industrial matters, and the practice of collective bargaining, which had been followed by well-organised unions for years, then first received statutory sanction. Agreements relating to any industrial matter could be made by an industrial union with another industrial union or with an employer, and when filed, were binding between the parties. Rescissions and variations of agreements also could be filed.

Between 1901 and 1903 twenty-eight industrial agreements were filed, of which eleven were subsequently extended as common rules of the industry concerned. The validity of this procedure being questioned, the High Court of Australia decided in December, 1904, that it was a condition precedent to the exercise of the power of the Court of Arbitration to declare a common rule, that there should be in existence an award, order, or direction made by that Court in pursuance of a bearing or determination upon a reference under the Act. In November, 1905, the Court of Arbitration declared, by judgment, that the Court had no power to make an award, unless a dispute had been initiated and referred to the Court for determination. Thus an agreement was not convertible into an award for the purpose of making it a basis for a common rule.

Under the Industrial Disputes Act, 1908, the power of the industrial union of employees to make an agreement was continued. Each agreement was binding on the parties, and on every person while remaining a member of the contracting trade union or branch. Under the Industrial Arbitration Act, 1912, the agreement may be enforced in the same manner as an award; its maximum duration is fixed at five years, as against three years under the previous enactments. Otherwise, conditions relating to agreements have not been altered materially.

The following shows the number of agreements filed in each year since 1902:—

Year.	Agreements Filed.	Year.	Agreements Filed.	Year.	Agreements Filed.
1902	} 28	1908	12	1913	36
1903		1909	28	1914	50
1904	18	1910	21	1915	33
1905	6	1911	27	1916	51
1906	13	1912	44	1917	53
1907	11				

In December, 1917, 84 agreements were in force.

## ENFORCEMENT OF AWARDS AND INDUSTRIAL AGREEMENTS.

In May, 1911, an Investigation Officer was appointed, whose chief function was to receive and record complaints as to breaches of awards and agreements, and as to failures to comply with obligations imposed under the Act, to review the reports of inspectors, and to direct prosecutions consequent thereon.

During the year ended 30th June, 1917, 1,272 complaints as to breaches of awards, &c., were received at the Investigation Office; 432 prosecutions were initiated; and 390 convictions were recorded. The penalties in fines amounted to £678.

Proceedings before the Court of Industrial Arbitration for the enforcement of awards, and recovery of penalties, included the following:—

Year.	Orders for Recovery of moneys due under Awards.	Convictions for—		
		Lock-outs.	Strikes.	Unlawful dismissal.
1909	8	2	5	3
1910	20	2	5	1
1911	12	...	132	...
1912	4	...	108	...
1913	3	...	362	...
1914	...	...	407	...
1915	...	...	628	1
1916	...	...	48	...
1917	...	...	188	...

Since 1901, breaches of awards and industrial agreements have constituted grounds for prosecution of offences in the Arbitration and lower Courts of the State, the penalties recoverable being subject to some limitations.

The following statement shows the cases under the Industrial Arbitration Act, 1912, heard by the Industrial Magistrates during the two years ended 30th June, 1917:—

Classification.	1916.		1917.	
	Cases.	Con- victions.	Cases.	Con- victions.
Non-payment of wages awarded ...	97	33	112	41
Non-payment of fines and subscrip- tions to union ... ..	321	140	155	92
Breach of award or industrial agree- ment, ... ..	1,033	851	412	325
Failure to keep time-sheets and pay- sheets of employees ... ..	484	457	115	104
Failure to exhibit copy of award ...	441	387	81	77
Obstructing inspector ... ..	6	6	6	4
Failure to give notice of change affecting employment ... ..	7	3	4	2

## THE BOARD OF TRADE.

Under the terms of the Industrial Arbitration (Amendment) Act, 1918, a Board of Trade has been created, comprising a president (who is a judge of the Court), a deputy president, and four commissioners. The Minister, as an associate commissioner, may take part in the deliberations of the board, but may not vote in connection with its determinations. The board, after public inquiry as to the increase or decrease in the cost of living, will declare annually the rate of living wage for adult employees of each sex in any defined area of the State.

A separate public inquiry will be made into the cost of living of employees engaged in rural occupations, and a separate declaration as to living wage of such employees and deductions to be made therefrom for board and residence and any customary privileges or payments in kind conceded to such employees.

An industrial agreement or award may not be made for wages lower than the declared living wage, but aged, infirm, or slow workers engaged in rural occupations who are unable to earn the living wages may obtain permits to work for less.

The Board of Trade has the administration of matters relating to apprenticeship, and the Act requires it—

- (a) To encourage and create councils of employers and employees for the purpose of encouraging the proper apprenticeship of all minors and provide for the welfare of juvenile labour.
- (b) To acquire and disseminate knowledge on all matters connected with industrial occupations, with a view to improving the industrial relationship between employers and workers, and to combat the evils of unemployment.
- (c) To collect and publish information relating to or affecting industrial conditions.
- (d) To propound schemes for welfare work, and report to the Governor on all matters relating to such work, and to the insurance of employees against loss or injury caused by unemployment, sickness, or accident, or industrial diseases.
- (e) To report on any matter referred to as to the prices of commodities, and as to whether or not monopolies or trade rings exist for the purpose of unfairly keeping up the prices of commodities.
- (f) To investigate and report on the existence of sweating in an industry.
- (g) To report upon the productivity of industries, the number of employees in any industry, and the effect or probable effect of the regulation of the conditions of any industry upon such productivity.
- (h) To consider and report upon the industrial efficiency of the community, the organisation of the labour market and opportunities of employment, and all questions relating to unemployment.
- (i) To collect and publish from time to time statistics of vital, social, and industrial matters, and on labour employment and unemployment in specific industries, and on other prescribed matters.
- (j) To encourage and assist in the establishment in different industries of mutual welfare committees and industrial councils, and of subsidiary shop committees for individual enterprises.
- (k) To encourage and assist schemes for mutual co-operation and profit sharing between employers and employees.
- (l) To encourage and assist in the establishment of hostels for women workers, and workmen's clubs and libraries.
- (m) To report and advise on schemes for the better housing of the people.
- (n) To consider and report upon any other matter referred to it by the Minister.

In its investigations the Board of Trade has all the powers of a Royal Commission.

#### CONCILIATION.

In October, 1911, an active policy of conciliatory intervention between industrial disputants was undertaken, and concurrently with the

procedure for the enforcement of awards, &c., the Investigating Officer was engaged in mediatory services wherever disputes or dislocations were known to be pending.

Statutory authority was given to this process of intervention with the commencement of the Industrial Arbitration Act, 1912, and the Investigating Officer was appointed a Special Commissioner on 1st July, 1912; but the range of his work was limited on account of a judgment delivered in the Industrial Court in March, 1914, to the effect that parties to a dispute could not be compelled to meet in conference when a strike or lockout had actually occurred.

The Amendment Act, 1918, extends the Commissioner's power to cases where a strike has occurred, and provides for the notification by proclamation of industrial districts for which conciliation committees may be constituted, consisting of a chairman and two or four members equally representing employers and employees. The chairman of a conciliation committee may be a Judge appointed by the Minister, or he may be chosen by unanimous agreement of the other members, or be appointed by the Governor.

#### INDUSTRIAL DISLOCATIONS.

The Industrial Disputes Amendment Act, 1909, provided for a penalty of twelve months' imprisonment for any attempt to instigate or aid in anything in the nature of a strike or lock-out or discontinuance of work in any industry.

The Industrial Arbitration Act, 1912, repealing previous Acts, was intended to prevent strikes and lock-outs. The inefficiency of penal proceedings for all cases was postulated, and a strike or lock-out was regarded, not as criminal, but rather as an extravagant expedient, liable to penalisation extending to a charge on any moneys then or thereafter due to the person ordered to pay such penalty. The Court also was authorised to grant a writ of injunction to restrain any person from continuing to instigate or to aid in a lock-out or strike, the maximum penalty being imprisonment for six months.

The Industrial Arbitration Amendment Act, 1918, repealed the provisions of the 1912 Act regarding strikes and established the principle that, with certain exceptions, strikes may be recognised as lawful, the following, and no others, being illegal:—

- (a) Any strike by employees of the Government or its Departments, or of any city, shire, or municipal council, or by employees engaged in military or naval contracts.
- (b) Any strike by employees in an industry of which the conditions are regulated by award or industrial agreement: Provided that where an award has been in operation for at least twelve months a union of employees may decide to withdraw from its conditions by a majority vote taken at a secret ballot, in which not less than two-thirds of the members take part.
- (c) Any strike which has been commenced prior to the expiry of fourteen days' notice to the Minister.

When a strike is contemplated or at any time during the currency of a strike the Minister may direct that a secret ballot be taken of the members of any industrial or trade union, or of any association of employees, in order to ascertain whether the majority is or is not in favour of the strike.

Any trade union whose members are taking part or aiding or abetting an illegal strike may be fined £500, and a penalty not exceeding £50, or six months' imprisonment, may be imposed on any person aiding or instigating an illegal strike or obstructing a ballot. Penalties are imposed also for picketing in connection with an illegal strike or for inducing persons to refrain from handling any commodity during the currency of a strike.

The following statement shows, as far as can be ascertained, the number of workers involved, and the time lost by industrial dislocations, since July, 1907. Figures relating to 198 dislocations during the period 1907-13 have been excluded, as complete data were not available:—

Year.	Dislocations.			Workers Involved.			Working Days Lost.		
	Mining.	Non-mining.	Total.	Mining.	Non-mining.	Total.	Mining.	Non-mining.	Total.
1907*	30	11	41	21,645	496	22,141	204,966	712	205,678
1908	130	51	181	30,243	13,550	43,793	130,746	106,683	237,429
1909	85	43	128	35,956	6,667	42,623	1,969,920	47,047	2,016,967
1910	39	42	81	7,032	7,204	14,236	61,508	39,262	100,770
1911	41	30	71	10,831	9,479	20,310	246,875	110,346	357,221
1912	75	35	110	27,389	3,775	31,164	67,869	28,100	95,969
1913	91	69	160	28,848	13,378	42,226	237,577	129,196	366,773
1914	220	93	313	56,372	18,884	75,256	573,641	174,096	747,737
1915	225	89	314	66,211	28,135	94,346	309,507	160,700	470,207
1916	209	135	344	129,920	27,182	157,102	649,292	246,046	895,338
1917	185	104	289	77,147	67,557	144,704	1,184,594	1,677,001	2,861,595

\* July-December.

A most serious strike commenced on 2nd August, 1917, when employees in the Government railway workshops ceased work as a protest against the introduction of a "time-card" system. The strike became general in the railway and tramway services and extended to the coal-mining, transport, gasmaking, and meat trade industries.

The railway and tramway employees resumed work on certain conditions on 11th September, 1917; the gasworkers and the majority of manufacturing trades resumed in the same month, and the coal-miners, wharf labourers, and slaughtermen in October.

The number of workers involved in the strike was 73,536, and they lost 2,563,100 working days.

The number of workers affected by dislocations lasting one day or less during 1917 was 43,366, and the loss of working days 40,228. Thus these brief dislocations accounted for approximately 52 per cent. of the total number, 30 per cent. of the workers involved, and 1½ per cent. of the working days lost.

More complete information is given in the following table regarding the duration of the dislocations in 1917:—

Duration in Days.	Dislocations.	Workers involved.	Working days lost.
Under 1 day	19	5,590	2,452
One day	144	37,776	37,776
Over 1 and not exceeding 7	96	21,603	69,195
" 7	14	3,356	30,882
" 14	1	12	216
" 21	4	910	9,756
" 28	3	21,582	631,741
46 days	1	8,300	346,800
47	1	80	3,760
49	1	3,633	163,210
52	1	1,391	60,449
55	1	9,698	445,230
56	1	130	7,280
60	2	1,036	53,264
73	1	28,416	925,002
74	1	360	23,760
79	1	8	632
107	1	823	45,190
<b>Total</b>	<b>289</b>	<b>144,704</b>	<b>2,861,595</b>

\* Reckoned as one in Total.

*Causes of Dislocations.*

An analysis of the causes, as set down by the participants, reveals that the majority of dislocations during 1917 were the result of disagreement as to wages. The following statement shows the causes, the workers affected, and the time lost:—

Cause.	Mining.			Non-Mining.			All Industries.		
	Disloca- tions.	Workers in- volved.	Work- ing days lost.	Disloca- tions.	Workers in- volved.	Work- ing days lost.	Disloca- tions.	Workers in- volved.	Work- ing days lost.
Wages .. .. .	41	11,382	64,237	44	7,124	39,523	85	18,506	153,760
Hours .. .. .	13	3,061	26,840	4	212	2,277	17	3,273	29,117
Employment of persons or classes of persons.	40	12,761	26,756	20	4,114	23,692	66	16,875	50,445
Trade unionism .. .. .	5	1,148	5,196	11	21,926	631,387	16	23,074	636,583
Working conditions .. .. .	53	12,619	27,148	3	294	1,026	61	12,813	28,174
Sympathy .. .. .	2	23,021	1,015,689	7	28,549	926,021	9	51,570	1,941,710
Miscellaneous .. .. .	15	11,049	18,232	9	5,333	3,075	24	16,387	19,307
Not stated .. .. .	11	2,106	2,496	..	..	..	11	2,106	2,496
Total .. .. .	185	77,147	1,184,594	104	67,557	1,677,001	289	144,704	2,861,565

*Settlement of Dislocations.*

Of the 289 dislocations during 1917, 262 were brought to a conclusion by the defeat of one of the parties or by the arrangement, without intervention, of a truce between them; 22 were settled by arbitration and 5 by replacement.

*Results of Settlements.*

Of the dislocations in 1917, 94 or 32 per cent., resulted in resumption of work with modified conditions, more or less in accordance with the workers' claims. In 155, or 54 per cent., no modifications were granted, while the results of the remaining 42 cases were not recorded.

The following statement shows, as far as can be ascertained, the workers involved and the time lost classified according to the results of the dislocations; complete information was not available in respect of a number of dislocations which occurred during the years 1908-13. In 1917, 82 per cent. of the workers involved, and 97 per cent. of the time lost, was in respect of dislocations in which no modifications were granted:—

Year.	Modification.			No Modification.		
	Disloca- tions.	Workers involved.	Working days lost.	Disloca- tions.	Workers involved.	Working days lost.
1908	104	27,703	194,778	40	8,566	23,317
1909	69	29,685	1,651,926	25	2,507	7,998
1910	38	9,696	96,250	26	2,793	5,043
1911	51	14,408	183,382	10	4,160	170,282
1912	65	16,092	69,012	28	9,297	18,359
1913	102	31,663	329,581	39	7,429	32,269
1914	120	23,822	286,308	153	40,205	613,465
1915	171	51,063	306,188	136	42,355	162,441
1916	152	49,703	621,017	156	99,050	244,234
1917	94	19,345	82,554	155	118,745	2,762,492

## COMMONWEALTH INDUSTRIAL ARBITRATION.

The legislation of the Commonwealth Parliament relating to arbitration is embodied in the Commonwealth Conciliation and Arbitration Act, 1904-15, and the Arbitration (Public Service) Act, 1911.

The main objects of the Conciliation and Arbitration Act are:—  
(a) To prevent lockouts and strikes in relation to industrial disputes; (b) to constitute a Court of Conciliation and Arbitration having jurisdiction for the prevention and settlement of industrial disputes; (c) to provide for the exercise of the jurisdiction of the Court by conciliation, with a view to amicable agreement between the parties; (d) in default of amicable agreement between the parties, to provide for the exercise of the jurisdiction of the Court by equitable award; (e) to enable States to refer industrial disputes to the Court, and to permit the working of the Court and of State industrial authorities in aid of each other; (f) to facilitate and encourage the organisation of representative bodies of employers and of employees, and the submission of industrial disputes to the Court by organisations, and to permit representative bodies of employers and of employees to be declared organisations for the purposes of this Act; (g) to provide for the making and enforcement of industrial agreements between employers and employees in relation to industrial disputes.

The Court of Conciliation and Arbitration consists of a President appointed from among the Justices of the High Court; any Justice of the High Court or Judge of the Supreme Court of a State may be appointed as deputy to the President to exercise such functions and powers of the President as may be assigned to him.

The President is charged with the duty of endeavouring to reconcile the parties to industrial disputes, and to prevent and settle industrial disputes in all cases in which it appears to him that his mediation is desirable in the public interest. In the discharge of these duties he may convene compulsory conferences.

The Court has jurisdiction to prevent and settle industrial disputes certified by the Registrar as proper to be determined by it in the public interest, or submitted by an organisation by plaint or by a State industrial authority, or referred by the President after a compulsory conference at which no agreement has been reached. The Court endeavours to induce the settlement of disputes by amicable agreement, or, failing an agreement, determines the disputes by award. The awards are made for a specified period up to a maximum of five years, and after the expiration of the definite period they continue until a new award is made, unless the Court orders otherwise.

A State law or an award or order of a State industrial authority becomes invalid if inconsistent with an award or order of the Commonwealth Court of Conciliation and Arbitration.

An award of the Court may not be challenged or questioned, but in any proceeding before the Court the President may state a case for the opinion of the High Court upon a question of law.

The extensive powers conferred upon the Court include the power to hear and determine disputes, to make orders or awards, to impose penalties for breach or non-observance of orders, &c., and to grant a minimum rate of wages and preference for members of organisations.

Registration applies to organisations of employers or of employees, representing at least 100 employees. Registered organisations are entitled to submit disputes to the Court, and to be represented before the Court in the hearing of disputes.

Any organisation may make an industrial agreement with any other organisation or with any person for the prevention of disputes by conciliation and arbitration.

The Arbitration (Public Service) Act, 1911, extends the provisions of the Commonwealth Conciliation and Arbitration Act to organisations of employees in the Public Service of the Commonwealth; an association of less than 100 employees in any industry in the Public Service may be registered

as an organisation, if its membership comprises at least three-fifths of all employees in that industry in the Public Service of the Commonwealth. Registered organisations may submit to the Court by plaint any claim relating to salaries, wages, rates of pay, or terms or conditions of service or employment of members.

At 30th December, 1917, there were 64 Commonwealth awards and 465 industrial agreements in force, of which 41 awards and 137 agreements applied in New South Wales.

A claim for preference to unionists has been included in nearly every dispute dealt with by the Commonwealth Court, but it is the usual practice to refuse to order preference in the cases of respondents who undertake not to discriminate against members or officials of the associations.

#### WAGES.

After the inauguration of the Commonwealth of Australia in 1901 there was a decided impetus in developmental work, thus leading to increased production. At the close of the same year an Industrial Arbitration Act was passed by the State Parliament; and the operation of this Act, with the succeeding legislation in the direction of adjustment of wages and conditions of work, has assisted materially to improve the status of the workers.

Since 1908 the number of trades in which wages are regulated by awards has extended so rapidly that but few occupations remain without the jurisdiction of industrial tribunals; and the principle permeating the awards of boards, &c., is the stipulation of an adequate living wage. The question of the cost of living enters into the determination of a living wage, and judgments and awards tend more and more to embody all the factors determining effective wages, rather than to compromise between the standards of employer and employee.

Early in 1914, as a result of an inquiry into the cost of living, the living wage for adult males was assessed in the Court of Industrial Arbitration by his Honor Judge Heydon at 48s. per week; in a further pronouncement in December, 1915, the Court expressed the view that the wage of ordinary labourers should be 52s. 6d. per week, and on 18th August, 1916, the minimum was raised further to 9s. 3d. per day or 55s. 6d. per week. In making new awards in relation to wages above the living wage, the Court has adopted the principle that, where an industry appears to be benefiting by or during the war, the wages shall be increased by the same amount as the basic living wage; but where an industry has not benefited by or during the war, the amount of increase shall diminish as the margin above the living wage increases.

As stated above the determination of the living wage is now a function of the Board of Trade, appointed under the provisions of the Industrial Arbitration (Amendment) Act, 1918.

#### *Wages in the Principal Industries.*

Adhering to the general classification of the principal industries as (a) rural, viz., agriculture, dairying and pastoral, (b) mining, (c) manufacturing, a comparison of wages paid in typical branches of such industries at intervals since 1895 has been given in previous issues of this Year Book, and should be consulted. Space does not permit of information being now presented in detail, and only rates of wages paid in a few of the trades and callings in each industry in December, 1917, are quoted below.

*Rural Industry.*—Per week with board and lodging—Boundary-riders, £1 to £1 5s.; bullock-drivers, £1 5s. to £1 15s.; bush carpenters, £1 10s. to £1 15s.; station cooks, £1 5s. to £1 15s.; farm labourers and horse team drivers, each

£1 5s. to £1 10s.; orchard hands and milkers, £1 to £1 10s.; harvest hands, per day, 7s. to 12s.; stockmen, £52 to £65; vigneron, £52 to £55; a rate of £1 10s., without rations, was paid to shearers per 100 sheep shorn.

*Mining.*—Coal miners received 2s. 9 $\frac{3}{4}$ d. to 5s. 2 $\frac{1}{10}$ d. per ton, and labourers 10s. 11d. to 11s. 5d. per day. Metal miners received 12s. 11 $\frac{1}{2}$ d. and labourers 10s. 10 $\frac{1}{2}$ d. per day.

*Manufacturing Industry.*—Per week—Bakers, £3 8s. to £4 10s.; blacksmiths, £2 12s. 6d. to £4; hairdressers, £2 18s. to £3 8s.; journeymen tailors, £3 to £3 7s. 6d.; tailoresses, £1 5s. to £1 18s.; upholsterers, £3 7s. to £3 13s. Per hour—Boilermakers, 1s. 4 $\frac{1}{2}$ d. to 1s. 6d.; bootmakers, 1s. 4 $\frac{1}{2}$ d.; bricklayers, 1s. 8d. to 2s.; carpenters and joiners, 1s. 8d. to 1s. 9 $\frac{1}{2}$ d.; coopers, 1s. 4 $\frac{1}{2}$ d. to 1s. 6 $\frac{1}{2}$ d.; engine-drivers, 1s. 0 $\frac{1}{2}$ d. to 1s. 9 $\frac{3}{4}$ d.; ironworkers, 1s. 1 $\frac{1}{2}$ d. to 1s. 6 $\frac{1}{2}$ d.; general labourers, 1s. to 1s. 9d.; painters, 1s. 6 $\frac{3}{4}$ d.; plumbers, 1s. 8d. to 2s.; wheelwrights, 1s. 3d.

Figures relating to various branches of domestic service were as follow:—*Hotel, Club, Restaurant, &c.*—Per week with board—Cooks (men), £2 4s. 3d. to £5, (women), £1 to £3; waiters, £1 7s. 6d. to £2 11s. 6d.; waitresses, 7s. 6d. to £1 4s.; barmen, £2 1s. 6d.; barmaids, £1 9s.; storemen, £2 2s. 6d. to £2 10s. *Domestic*—Cooks (women), £1 to £1 15s.; cooks and laundresses, £1 to £1 5s.; housemaids, 15s. to £1 3s.; general servants, 12s. 6d. to £1 8s. 6d.; nursemaids, 10s. to 15s.; gardeners, £1 5s. to £1 10s.; grooms and coachmen, £1 to £1 10s. In connection with domestic service, the question of a rising wage is a question primarily of supply and demand for such labour, which has not hitherto been subject to regulation by award.

#### *Minimum Wage.*

The Minimum Wage Act, 1908, which was consolidated with the Factories and Shops Act, 1912, provided for the whole State that the minimum wage should be not less than 4s. per week in respect of any person employed in preparing or manufacturing any article for trade or sale, or in any factory under the Factories and Shops Act, or working at any handicraft; or any shop-assistant as defined by the Early Closing Act.

The provisions do not apply where all persons employed as workmen and shop-assistants are members of the employer's family, related in the first or second degree by blood or first degree by marriage to the employer.

#### *Aged, Infirm, and Slow Workers.*

Under the Industrial Arbitration Acts permits may be granted to pay less than award rates to aged, infirm, and slow workers. During the year 1917, 560 permits were granted and 91 were refused; the number in force at the end of the year was 584.

#### HOURS OF WORK.

In 1855, after a strike, the principle of an eight-hour working day for operative masons was established. In the fifteen years following, the spread of the movement was not great, but in 1871 the Eight-hour Day celebration (since held annually) was inaugurated by the four classes then working the eight-hour day, viz., stonemasons, brickmakers, carpenters, and general labourers; subsequently a forty-eight hour week became the standard of custom for the majority of trades. In practice the eight-hour principle is applied in five working days of eight and three-quarter hours each and four and a quarter hours on Saturday. Under the Factories and Shops Act, 1912, the maximum working week for women and juveniles is forty-eight hours, with a maximum period of five hours' continuous labour and an overtime limitation of three hours per day.

*Eight Hours Act, 1916.*

This Act, which is construed with the Industrial Arbitration Act, 1912, regulates the hours of work and the payment of overtime, and must be observed by the Court of Industrial Arbitration, by the Industrial Boards in making awards, and by parties in making industrial agreements. The working hours are limited as follow:—

Mining Industries—workmen underground—Coal: Fireman, examiner, &c., 96 hours in 14 days; men engaged in handling and transit of coal, 48 hours in 6 days; others, 8 hours during 24. Metalliferous: 8 hours during 24 hours, or 88 hours in 14 days. In underground occupations a shift may not exceed 6 hours if, during 4 hours, the temperature is above 81 degrees Fahrenheit.

Other Industries.—(1) 8 hours per day on 6 days, (2) 48 hours per week, or (3) 96 hours in 14 days—as determined by agreement or award.

Overtime in excess of the above must be paid at prescribed rates, or it may be prohibited or restricted in any industry by the Court of Industrial Arbitration. The number of days or hours to be worked may be increased by award if the Court or Board consider that in the public interest an increase should be allowed. Subject to this provision the ordinary time of work in any industry or calling as fixed by agreement, award, or well-established practice, at the commencement of the Act, may not be exceeded in any future award or agreement.

The majority of industrial awards have declared 48 hours as a normal working week, but there are cases in which a shorter working week has been prescribed. The shortest week fixed is 36 hours; this applies to rock-choppers and sewer-miners, and to employees engaged on night-duty for the Metropolitan Board of Water Supply and Sewerage, and for the Sydney Municipal Council.

In several awards relating to transport services the hours are limited by fortnightly computation to ninety-six, but subject to a provision that such hours are to be worked, as far as practicable, in twelve shifts of eight hours each.

Of the trades working more than forty-eight hours per week, the most prominent are those connected with transport services and food supplies.

*Early Closing of Shops.*

Under a voluntary system of early closing of shops in the city of Sydney and in adjacent suburbs, the working hours of many employees were reasonable. Infringement of agreements in regard to this voluntary system caused considerable dissatisfaction, and the Early Closing Act was passed, to operate from 1st January, 1900. It was applicable to the Metropolitan and Newcastle districts and to all municipalities, while its operation might be extended to unincorporated areas. The Act provided that in Metropolitan and Newcastle districts each shopkeeper should be given the option of closing his shop at 1 o'clock on either Wednesday or Saturday of each week, and where this option was not taken Wednesday was deemed to be the day chosen.

*Universal Half-holiday.*

In 1905 a movement in favour of a universal half-holiday was initiated; and in 1909 a Royal Commission of Inquiry was appointed to investigate the desirableness of amending the Early Closing Acts so as to provide for a universal half-holiday in the Metropolitan and Newcastle districts; but in September, 1909, the Commission reported adversely. In August, 1910, the Saturday Half Holiday Act was passed.

Shops are permitted to remain open till 10 p.m. on Friday, 6 p.m. on other week nights, and 1 p.m. on Saturday.

Many factories complete the full week's work within five days, so leaving the Saturday a full holiday.

#### PREFERENCE TO UNIONISTS.

In the majority of industrial awards a clause has been inserted granting, unconditionally, preference to unionists, all other things being equal. In occasional cases preference has been made subject to restrictions providing that the existing employment of non-unionists should not be prejudiced, and that preference should not be extended to women.

In a few cases the preference clause is in the nature of a prohibition of discrimination against unionists, and recently a proviso has been added that there shall be no preference against returned soldiers. Preference may not be granted to members of a trade or industrial union who shall have taken part in, aided, or abetted an illegal strike after the passing of the Industrial Arbitration (Amendment) Act, 1918.

#### APPRENTICESHIP.

Under the Apprentices Act, 1901, any person resident and trading in New South Wales may take apprentices under certain conditions regulating the apprenticeship, *e.g.*, as to age limitation and probation before completion of indentures. The Act limits the working time of apprentices to forty-eight hours per week, with saving clauses as to rural industries and domestic service. An amendment of the Apprentices Act was made in 1915 to protect the interests of apprentices enlisting for active naval or military service.

The minimum age of apprentices is 14 years, and limitations upon the proportion of apprentices to adults are fixed in many cases in industrial awards. In the majority of awards the proportion of apprentices or improvers to adult workers is one to three, with a maximum, as in the printing trades, of seven apprentices in any institution or business. Information is not available as to the total number of persons now serving in this State under indentures of apprenticeship (which are three-party contracts binding the employer, the employee, and his guardian), nor as to the extent of instruction imparted, and premiums usually paid.

The Board of Trade is authorised, under the provisions of the Industrial Arbitration (Amendment) Act, 1918, to exercise the powers previously vested in the Industrial Arbitration Court in regard to apprenticeship, and the provisions of awards relating to such matters will cease to have effect upon the publication of regulations by the Board.

The functions of the Board of Trade regarding apprenticeship are as follows:—

- (a) To determine in what occupations and industries apprenticeship shall be a condition of employment.
- (b) To prescribe hours of employment, wages, and conditions of apprenticeship.
- (c) To determine whether and to what extent there shall be a limitation of the number of apprentices indentured in any trade or calling.
- (d) To determine to what extent technical education if procurable shall be obligatory upon apprentices and their masters.
- (e) To co-operate with the Department of Education in encouraging young persons to attend technical, trade, and continuation schools.

- (f) To establish and maintain an apprenticeship register and record therein all indentures or other contracts of apprenticeship, and protect the contracts and interests of apprentices and all workers of minor age who are learners, and ensure the attendance of apprentices and learners at technical or trade schools.
- (g) To prescribe standard forms of apprenticeship for different trades and callings, and the manner in which and the persons by whom the making, carrying out, and transfer of indentures or other contracts of apprenticeship shall be supervised.
- (h) To control and direct the conditions in all respects of apprenticeship in any industry.

## RELIEF OF UNEMPLOYMENT.

*Labour Exchanges.*

The work of bringing together intending employers and persons seeking employment is conducted by State and private agencies. The State maintains Labour Exchanges in Sydney, and at Newcastle, Lithgow, Lismore, Tamworth, and Wagga Wagga. At these exchanges persons wanting work may register their requirements and capabilities; and employers may state what class of labour they desire. Constant endeavour is made to suit the one to the other, and employees are assisted to reach their employment. All these operations are conducted at the cost of the State, no fees being charged to employers nor to employees. Railway and steamer fares are issued on credit, terms for repayments being arranged according to circumstances.

In addition to the Labour Exchanges, a self-registration system has been introduced, by which persons seeking employment are enabled to register at the Department of Labour and Industry by transmitting post-free letter-cards; and post-free cards are provided for the use of employers requiring workers. The operations of the employment agencies during the last five years are shown below:—

Year ended 30th June.	Registrations.			Persons sent to Employment.		
	Men.	Women.	Total.	Men.	Women.	Total.
1913	3,021	...	3,021	3,165	...	3,165
1914	8,750	574	9,324	7,382	32	7,414
1915	11,977	3,583	15,560	8,808	1,979	10,787
1916	12,731	4,771	17,502	8,742	2,767	11,509
1917	20,513	4,972	25,485	11,931	3,578	15,509

The Women's Employment Agency in Sydney was opened in May, 1914; a former office for the registration of women workers was closed in January, 1906, after an existence of nearly four years.

The Industrial Arbitration (Amendment) Act, 1918, provides that persons carrying on private employment agencies must be licensed and must keep registers of persons applying for labour or employment, and of engagements made. The scale of fees chargeable shall be as prescribed, and where an applicant has paid a registration fee and does not obtain labour or employment within fourteen days, the fee must be repaid, less out-of-pocket expenses. Licensees are prohibited from sharing fees with employers, and from keeping as lodgers persons seeking employment.

*State Labour Depôt.*

At the State Labour Depôt, Randwick, where a pig, poultry, vegetable, and flower farm, and a State dairy have been established, destitute men unable to maintain themselves are given lodging, food, and a small money allowance in exchange for labour. Competent tradesmen, if employed at their trade, are paid extra. The period of residence must not exceed three months, nor recommence without a similar interval. A certain amount of training is given, and whenever possible trainees are sent to employment with private employers.

*Insurance against Unemployment.*

Under the provisions of the Industrial Arbitration (Amendment) Act, 1918, payments may be made from the Consolidated Revenue Fund to assist in the creation of funds for insurance against unemployment or loss of work due to adverse weather or sickness, or the casual nature of the employment offering in any industry. No fund may be assisted unless the Board of Trade certifies that contributions by employers and employees are in proper proportions, and that the fund is administered by a suitable committee representative of employers and employees.

## FACTORY INSPECTION.

The provisions of the Factories and Shops Acts are applicable only in localities specifically proclaimed as factory districts. On 1st July, 1915, these provisions were applied to the whole of the State, and earlier proclamations relating to six factory districts were revoked.

Inspectors under the Factories Act, the Early Closing Act, and the Industrial Arbitration Act are under the control of the Department of Labour and Industry. The total number of inspectors is 32, of whom 6 are women; inspectors can be called upon to deal with complaints relating to any phase of industrial legislation. A legal officer is attached to the administrative staff for the purpose of advising and assisting the administrative officer in control of the inspectors.

*Outworkers.*

Under the Factories and Shops Act, 1912, occupiers of factories are required to keep, and to supply to the factory inspectors, full records regarding outworkers employed. Permission to engage outdoor workers is required by certain awards.

*Shearers' Accommodation.*

The Shearers' Accommodation Act, 1901, applies only to shearing sheds where at least six shearers are employed, and is administered in conjunction with the inspectorial work under the Factories and Shops Act, &c. During the year ended 31st March, 1918, 1,474 stations were visited, 1,909 huts inspected, of which 1,817 were regarded as satisfactory; the new huts built numbered 38.

## INDUSTRIAL ACCIDENTS.

*Factories.*

In regard to the factory districts, accidents, fatal or otherwise, are reported from year to year, the responsibility resting upon factory inspectors of seeing that all dangerous portions of machinery are properly and securely fenced and guarded.

The following table shows in comparative form the accidents reported in factories during the years 1915-16, and the accident rate per 10,000 employees.

Accidents.	Number.		Rate per 10,000 Employees.	
	1915.	1916.	1915.	1916.
Fatal ... ..	9	7	·91	·75
Permanent disablement ... ..	...	...	...	...
Partial disablement ... ..	75	107	7·56	11·55
Temporary incapacitation ... ..	348	407	35·07	43·93
Total ... ..	432	521	43·54	56·23

On the figures shown above, temporary incapacitation is the result of approximately 78 per cent. of the accidents; records are not available to show the time lost through these mishaps. The remaining 22 per cent. of accidents resulted in death or disablement.

#### *Scaffolding and Lifts Act.*

The Scaffolding and Lifts Act, 1912, which regulates the construction and use of scaffolding, lifts, cranes, hoists, and derricks, is administered by the Department of Labour and Industry. The Act operates in the Metropolitan Police District and in the Newcastle District. There are 7 inspectors, 3 of whom are engaged upon lift inspection and 2 each upon crane and scaffolding inspection. There were 5,577 notices of intention to erect scaffolding during 1917, and 8,202 inspections were made. Three fatalities and three casualties occurred in connection with the direct use of scaffolding, whilst associated with building, painting, general renovation, or demolishing activities there were twenty-one casualties. The following table shows the type and number of lifts used during the year 1917:—

Type.	Number.	Type.	Number.
Passenger ... ..	602	Service ... ..	234
Goods ... ..	858	Whips, etc. ... ..	463
Passenger-Goods ... ..	120	Mill Hoists ... ..	4
		Total ... ..	2,311

For proposed new lift installations 60 permits were granted in 1917, and 4,206 lift inspections were made. There were two fatalities and eight casualties during the year. 610 certificates were issued to persons to operate electric lifts, 70 for hydraulic lifts, and 72 for electric and hydraulic lifts. The cranes, hoists, &c., erected during 1917 numbered 237, and there were 1,115 total inspections. Two fatalities and seven casualties occurred in connection with the use of cranes, hoists, &c. Pursuant to the Scaffolding and Lifts Act, and upon examination and recommendation by the Chief Inspector, the Government Architect, during 1917, issued 8 first-class certificates, 28 second-class certificates, and 13 third-class certificates to drivers respecting the driving of power-operated cranes and hoists.

#### *Boiler Inspection.*

Under the Factories and Shops Act, 1912, regulations have been made regarding precautions against the risk of accidents arising from or by the use of steam boilers and other pressure vessels in factories. Inspections

are made by officers of the Department of Labour and Industry. The following statement shows the number of inspections made to the end of the year 1917:—

	Total inspected to 31 Dec., 1917.	Re-inspected during 1917.	First Inspections during 1917.
Boilers ... ..	3,001	1,309	783
Other Pressure Vessels ... ..	1,602	781	610
Total.. ... ..	4,603	2,090	1,393

#### INDUSTRIAL DISEASES.

As regards industrial diseases, no reliable records are available; but certain avocations are, with good reason, regarded as unhealthy; for instance, rock-chopping and sewer-mining, insulating work involving handling of charcoal, and, notably, manufactures in which industrial poisons are employed, as in the manufacture of metals, lead colours, and electric accumulators, in the pottery, painting, gem-polishing, file-cutting, and similar industries. The use of white phosphorus in the manufacture of matches is prohibited by the White Phosphorus Matches Prohibition Act, 1915.

In the majority of unhealthy trades there are frequent compensating advantages in the way of short hours and high wages. The Workmen's Compensation Act, 1916, provides for compensation in respect of certain industrial diseases.

#### WORKMEN'S INSURANCE.

##### *State Legislation.*

The Workmen's Compensation Act, 1916, which relates to employers' liability, came into operation on 1st July, 1917, the earlier enactments, viz., the Employers' Liability Act, 1897, Miners' Accident Relief Acts, 1900-1912, and the Workmen's Compensation Act, 1910, being repealed as from that date.

##### *Miners' Accident Relief (Repeal) Act, 1916.*

The Miners' Accident Relief (Repeal) Act, 1916, provides for the closing of the Miners' Accident Relief Fund at the date of the commencement of the Workmen's Compensation Act, 1916, viz., 1st July, 1917. Provision is made for the payment from the Consolidated Revenue Fund of allowances for accidents before that date.

##### *Employers' Liability Act, 1897.*

The Employers' Liability Act, 1897, gave to a workman, who had suffered personal injury in the course of his employment, the same common law remedies against his employer as if the workman had not been in the service of the employer, nor engaged in his work.

##### *Workmen's Compensation Act, 1910.*

This Act, which came into operation in January, 1911, provided for compensation to workmen for injuries suffered in the course of their work.

Compensation in case of death ranged from £200 to £400. If the workman left no dependents, the compensation was limited to medical and funeral expenses up to £12. Where total or partial incapacity resulted, the employer was required to make a weekly payment, not exceeding 50 per cent. of the

average weekly earnings during the preceding twelve months, up to a maximum of £1 per week, and a total liability to the employer of £200. In the case of employees under 21 years of age receiving less than 20s. a week, 100 per cent. of average earnings was substituted for 50 per cent. up to a maximum of 10s. per week.

The Act did not exclude the operation of the common law or the Employers' Liability Act, 1897.

During 1916 returns were received from 554 employers, who employed an average number of 83,825 males and 6,399 females to whom the Act applied. Compensation amounting to £12,431 was paid in respect of 52 deaths; 123 cases of non-fatal accidents were settled by the payment of lump sums amounting to £10,036, and in 5,154 cases of disablement £29,635 was paid in weekly instalments; the duration of such compensation was as stated below:—

Duration of Compensation.	Number of Cases.	Duration of Compensation.	Number of Cases.
Less than 2 weeks ... ..	2,536	26 weeks and less than 52 ... ..	49
2 weeks and less than 3 ... ..	781	1 year and less than 2 ... ..	7
3 " " 4 ... ..	554	2 " " 5 ... ..	3
4 " " 13 ... ..	980	Not terminated at end of year ..	67
13 " " 26 ... ..	177	Total... ..	5,154

The particulars disclosed by the returns received during the last four years are compared in the following statement:—

Particulars.	1913.	1914.	1915.	1916.
Returns Received ... ..	488	448	467	554
Employees covered—				
Males ... ..	77,088	120,707	94,046	83,825
Females ... ..	3,774	2,384	3,782	6,399
Total ... ..	80,862	123,091	97,828	90,224
Compensation—				
Cases—Deaths ... ..	62	65	52	52
Disablement—Weekly payments	6,061	6,250	5,778	5,154
Lump sums ... ..	156	136	76	123
Total ... ..	6,279	6,451	5,906	5,329
Amount—Deaths ... ..	£ 14,797	£ 15,256	£ 12,072	£ 12,431
Disablement—Weekly payments...	30,275	30,159	27,073	29,635
Lump sums ... ..	9,079	8,043	5,426	10,036
Total ... ..	54,151	53,458	44,571	52,102

#### *Workmen's Compensation Act, 1916.*

The Workmen's Compensation Act, 1916, which came into force on the 1st July, 1917, relates to all employees whose remuneration does not exceed £312 per annum, with the exception of casual hands employed otherwise than for the purpose of the employer's trade or business, members of the Police force, outworkers, and members of the employer's family dwelling in his house.

The Act applies in respect of certain industrial diseases, as specified in a schedule, and in respect of accidents to seamen employed on ships whose first port of clearance and whose destination are in New South

Wales, but seamen who claim compensation under this Act must agree not to proceed also under the Seamen's Compensation Act of the Commonwealth. The amount of compensation shall be:—

(a) Where death results from the injury—

- (i) if the workman leaves any dependents wholly dependent upon his earnings, a sum equal to his earnings in the employment of the same employer during the three years next preceding the injury, or the sum of £300, whichever of those sums is the larger, but not exceeding in any case £500: Provided that the amount of any weekly payments made under this Act and any lump sum paid in redemption thereof shall be deducted from such sum, and if the period of the workman's employment by the said employer has been less than the said three years, then the amount of his earnings during the said three years shall be deemed to be 156 times his average weekly earnings during the period of his actual employment under the said employer;
- (ii) if the workman does not leave any such dependents, but leaves any dependents in part dependent upon his earnings, such sum, not exceeding in any case the amount payable under the foregoing provisions as may be agreed upon, or, in default of agreement, may be determined, on arbitration under this Act, to be reasonable and proportionate to the injury to the said dependents; and
- (iii) if he leaves no dependents, the reasonable expenses of his medical attendance and burial not exceeding £20.

(b) Where total or partial incapacity for work results from the injury, a weekly payment during the incapacity not exceeding 50 per cent. of his average weekly earnings during the twelve months, if he has been so long employed, but if not, then for any less period during which he has been in the employment of the same employer, such weekly payment not to exceed £2, and the total liability in respect thereof shall not exceed £750.

Provided that as respects the weekly payments during total incapacity of a workman who is under 21 years of age at the date of the injury, and whose average weekly earnings are less than 20s., 100 per cent. shall be substituted for 50 per cent. of his average weekly earnings, but the weekly payment shall in no case exceed 15s.

#### *Commonwealth Legislation.*

In addition to the general enactments of the State, specific enactments of the Commonwealth provide for compensation to men in a particular class of work which is subject to special risks, and to officers in the service of the Commonwealth Government. Particulars regarding war pensions in connection with military and naval services are shown in the chapter "Social Condition."

#### *Seamen's Compensation.*

The Seamen's Compensation Act, 1911, provides for compensation to seamen for injuries suffered in the course of their employment. It is applicable to seamen (a) on ships in the service of the Commonwealth, other than naval or military service; (b) on ships trading with Australia or engaging in any occupation in Australian waters, and being in territorial waters of any territory which is part of the Commonwealth; and (c) on ships engaged in trade and commerce with other countries or among the States. In case of ships

not registered in Australia, the two last clauses apply only in relation to seamen shipped under articles of agreement entered into in Australia, and while the ships are subject to the law of the Commonwealth. Compensation is not payable in respect to any injury which does not disable the seaman for at least one week; in case of death, the amount of compensation, when deceased leaves dependents, is the equivalent of three years' wages in the particular employment, or £200, to a maximum amount of £500.

The compensation is reducible with the measure of dependence, but the minimum for a seaman leaving no dependents is the cost of medical attendance and burial to the value of £30.

In case of total or partial incapacity, a weekly payment during the incapacity not exceeding 50 per cent. of the average weekly earnings during the twelve months, or for any less period, previous to the injury.

## LOCAL GOVERNMENT.

LEGISLATION passed in the years 1905 and 1906 gave the State of New South Wales full local government, except in the Western Division, where, however, there are eight municipalities which were incorporated under the Municipalities Act of 1897, viz.:—Balranald, Bourke, Brewarrina, Broken Hill, Cobar, Wentworth, Wilcannia, and Wrightville.

The Act of 1842, under which the City of Sydney was incorporated, was the first provision in this State for conferring municipal privileges. In 1843 a further step was taken by the incorporation of Campbelltown, Appin, Camden, Narellan, and Picton as one district council, which was subdivided into three, during the same year, by the formation of Campbelltown and Appin into separate councils.

In 1844 the number of country district councils had increased to eight, and these, in conjunction with the Municipal Council of Sydney and the Road Trusts, subsequently established, constituted the whole of the local government system prior to 1858, the year in which the first Act relating to general Municipal Government was passed. That Act dissolved the district councils, and placed the areas under municipal bodies; and under it thirty-five districts have been incorporated, which, with the exception of Cook, joined in 1870 to Camperdown (now a ward of the City of Sydney), and East St. Leonards and Victoria (united to St. Leonards to form North Sydney), still exist, although the boundaries have been altered.

Under the Act of 1858 the municipal council was elected by the rate-payers, and its most important functions were to make by-laws for the general government of the municipality, to control roads, bridges, and ferries, and to remove nuisances. The general rate was limited to one shilling in the £ on the annual value of ratable property, but a special rate for water supply, sewerage, and street lighting was permissible. Endowment by the Government was provided during a term of fifteen years, based on the amount of general rates actually collected. No district, however populous, was obliged to become incorporated; and it was only on the presentation of a petition, signed by at least fifty of the prospective rate-payers, and containing a larger number of signatures than those attached to any counter petition, that a municipality could be formed.

The Act of 1858 was repealed by the Municipalities Act of 1867. Under the new Act the existing municipalities were continued as boroughs, and all areas incorporated in the future were to be classified either as boroughs or municipal districts. Boroughs might include any city, town, or suburb of the metropolis, or any country district with a population exceeding 1,000 persons and an area not less than 9 square miles. Municipal districts might include any area not containing a borough, with a population not less than 500 and an area not more than 50 square miles. The powers of the councils were extended slightly, and the rating power remained as before. It was left optional for any district to become incorporated, and consequently local government was not generally adopted under this Act.

The Municipalities Act of 1897 consolidated the previous Acts and Amending Acts, but did not alter their principles. The voluntary principle of incorporation was retained, but it was not conducive to the adoption of a general system of local government, as it was natural that, so long as the central Government continued to construct local works, the persons benefited would submit to the absence of local management of their affairs.

The Local Government (Shires) Act, 1905, provided for the compulsory division of the State into local government areas, called shires. The city

of Sydney and existing municipalities, the whole of the Western Division, the Quarantine Station, Lord Howe Island, and the islands in Port Jackson were excepted from its operation. The Act provided for the payment of a minimum sum of £150,000 annually, as endowment from the Consolidated Revenue Fund, in the following proportions, viz.:—First-class shires, from nil up to 10s. per £; second-class, 15s. per £; third-class, 20s.; fourth-class, 25s.; fifth-class, 30s.; and sixth-class, 40s. or more. These endowments were made payable on the amount of general rates received during the preceding year, the amount of endowment being fixed triennially, according to the area, revenue, and expenditure of the shires.

The councils were authorised to exercise the following powers:—The care, control, construction, fencing, and maintenance of all public places, except those vested in the Railway Commissioners, or other public bodies or trustees, and except national works; regulation of traffic; street and road lighting; prevention of bush fires; flood relief and prevention; construction and maintenance of streets, jetties, wharfs, and buildings for the transaction of business; and the administration of the Impounding and Public Watering Places Acts. The right was given to acquire other powers, such as the prevention of nuisances; water supply; regulation and licensing of public vehicles and hawkers; management of parks and commons; and the administration of the Public Gates Act and the Native Dog Destruction and Poisoned Baits Act.

The Act also provided for the division of the shires into ridings, each riding having equal representation on the council, and triennial elections were prescribed. All owners and occupiers of ratable property of annual value not less than £5, over 21 years of age, male and female, unless not naturalised, were entitled to be entered on the electors' roll, any male person enrolled being qualified for nomination as a councillor. The usual conditions as to disqualification were provided, and the penalties for acting while not properly qualified.

Under an important provision in the Act rates were charged on the unimproved value of the land, and not on the annual rental. The rate levied could be not less than 1d., nor more than 2d. in the £, unless the minimum rate was more than sufficient to meet the requirements of the shire, in which case a rate of less than 1d. might be levied by permission of the Governor. The ratable value of coal-mines was fixed at 50 per cent. of the gross value of the average annual output for the preceding three years, and of other mining properties at 40 per cent. for the same period. Another important feature of the Act was the provision for suspending the operation of the State land tax when the council had imposed a rate of 1d. in the £ on the unimproved capital value. Commons, public reserves and parks, cemeteries, public hospitals, benevolent institutions, churches and other buildings used exclusively for public worship, free public libraries, and unoccupied Crown lands were exempted from taxation.

In 1906 the Local Government Extension Act was passed by Parliament. The first important provision of this Act is for the establishment of cities. The Governor is authorised to proclaim as a city, any municipality which has had during a period of five years a population exceeding 20,000 persons and a revenue of £20,000, and which is an independent centre of population. During the year 1907 Broken Hill was proclaimed a city, and is the only municipality which has taken advantage of the Act in this respect.

It was also enacted that all municipalities not receiving statutory endowment under the existing Act, if found to be in necessitous circumstances, should be entitled to a sum not exceeding 3s. 4d. in the £ on the general rate collected; but if the revenues were sufficient to meet the reasonable requirements under proper management of the corporations, endowment would not be paid. When, however, the estimated responsibility for

expenditure (transferred with the land tax) exceeds the amount of the suspended tax, the amount of 3s. 4d. in the £ may be increased, provided that the endowment be not greater than the excess of that expenditure.

The rates are levied on the unimproved value, at a minimum amount of 1d. in the £, but if this rate proves more than sufficient to meet the requirements of the municipality, it may be reduced. Having levied the general rate of 1d. on the unimproved value, a council is empowered to impose, either on the improved or on the unimproved value, such additional rate as may be required. Special, local, and loan rates may be imposed on the improved or unimproved value, at the option of the council. The conditions as to ratable value and the franchise of electors are similar to those of the Local Government (Shires) Act.

Other important provisions are the power to borrow up to 10 per cent. of the unimproved value, such loans to be guaranteed by the Government; redistribution and reconstruction of existing areas, so that the municipalities might form portions of shires; acquisition of land and works; control of cattle-slaughtering and public health; dealing with noxious animals and plants; safety of the public; regulation of hoardings and other structures; the appointment of auditors, and the inspection of accounts by Government examiners. The Governor is authorised to proclaim any park, road, bridge, or other public work as a national work to be maintained by the State, but which may be handed over to the council at any time.

#### LOCAL GOVERNMENT ACT, 1906.

The Local Government Act, 1906, deals fully with both shires and municipalities, and came into operation on 1st January, 1907, as regards shires, and on 1st January, 1908, as regards municipalities. It repeals the Local Government (Shires) Act, 1905, and the Local Government Extension Act, 1906, and consolidates their provisions. Under an amending Act passed at the end of 1908, councils must cause a valuation of all ratable land to be made at least once in every three years, provided that they may adopt for any period the whole or any part of the valuations in force at the close of the preceding period. Other amending Acts have been passed in subsequent years, but no essential features of the original Act have been affected, the principal alteration being the power given to shires to borrow, which was granted under the Shire Loan Act of 1914.

Prior to the inception of the Local Government Act, 1906, a very small portion of the State had been incorporated, as will be seen in the statement below, which gives the area incorporated and unincorporated in 1906 in the three great land divisions of the State, exclusive of the Federal Territory:—

Division.	Incorporated.	Unincorporated.	Total.
	sq. miles.	sq. miles.	sq. miles.
Eastern ... ..	1,932	92,881	94,813
Central ... ..	571	88,579	89,150
Western ... ..	282	125,216	125,498
Total ... ..	2,785	306,676	309,461

On 31st December, 1916, the area incorporated, excluding Lord Howe Island and the federal territory of Canberra and Jervis Bay, was as follows,

the only part of the State unincorporated being that portion of the Western Division not included in municipalities; the population in the different groups is also given:—

	Area (sq. miles).	Population.
In Metropolitan Municipalities... ..	149	750,260
In Country Municipalities ... ..	2,722	446,800
In Shires ... ..	180,655	646,320
<b>Total (incorporated)... ..</b>	<b>183,526</b>	<b>1,843,380</b>
Western Division (portion unincorporated) ... ..	125,913	14,540
<b>Total ... ..</b>	<b>309,439</b>	<b>1,857,920</b>

The area of Lord Howe Island is 5 square miles, and the area transferred to the Federal Government was 928 square miles. These amounts added to the total incorporated shown above, viz.:—309,439 square miles, give a total of 310,372 square miles for the whole State, as already shown in previous chapters of this publication.

#### GREATER SYDNEY.

The amalgamation of the metropolitan municipalities is a question which has attracted considerable attention, and various schemes have been suggested. Particulars relating to proceedings and results of Select Committees and Royal Commissions which have considered the question of Greater Sydney will be found in a former issue of this publication.

#### CITY OF SYDNEY.

The City of Sydney was incorporated on 20th July, 1842, under the Sydney Municipal Council, the election of aldermen taking place on the 9th November. The city was originally divided into six wards, but at a subsequent adjustment the number was increased to eight.

Great dissatisfaction soon arose as to the manner in which the affairs of the Corporation were conducted. A Select Committee of the Legislative Council was appointed in 1849 to inquire into the matter, and reported in favour of the abolition of the Municipal Council, with a recommendation that its powers should be vested in three Commissioners. This was not carried into effect until 1853, when the Corporation was dissolved, and its authority was transferred to a commission of three persons, who administered the affairs of the city from the beginning of 1854 to the end of 1857, when a new Council, consisting of sixteen aldermen—two for each ward, came into existence. By the Sydney Corporation Act of 1879 the number of aldermen was increased to twenty-four, being three representatives for each ward.

In 1900 an Amending Act was passed, dividing the city into twelve wards, each returning two aldermen. The innovation of retiring the whole of the aldermen simultaneously was introduced, with a provision for the election of a new Council on the 1st December in every second year, re-election of qualified persons being permitted. Important changes were effected under this Act as to the franchise, sub-tenants and lodgers being placed on the rolls, and extended powers were conferred on the Council as to resumption of lands for city improvements.

In 1902 an Act was passed consolidating statutes previously passed in regard to the City of Sydney. In 1905 an amending Act was passed to provide for the better government of the city, especially with regard to the

control of hoardings, the proper cleansing of footways, the prevention or regulation of the smoke nuisance from furnaces and chimneys, the regulation and control of refreshment stalls and stands, the control of juvenile hawkers and shoeblacks, the prevention of betting in public places, while the tenure of office of the aldermen was altered to three years.

The Municipality of Camperdown was amalgamated with the City of Sydney as from 1st January, 1909, and the Council now consists of twenty-six aldermen elected every third year by thirteen wards. The Lord Mayor is elected by the aldermen from their own number, but under an Act passed in 1916, in the event of an equal number of votes being polled, the Governor in Council may appoint one of the aldermen to the position. The Act also regulated the election of the city members of the Metropolitan Board of Water Supply and Sewerage, and of the Fire Brigades Board, and extended the power of the Council as regards resumptions, in order to provide workmen's dwellings, and further provision was made for the extension of the city boundaries.

In 1908 a further Amending Act was passed, containing several important provisions. Commencing with the year 1909, the Council was compelled to levy a rate, not less than 1d. in the £, upon the unimproved capital value, in addition to any rate imposed under the Act of 1902. Under the former Act the rate levied in 1915, the last year affected by the 1908 Act, was 1½d. in the £ on the unimproved capital value, and under the 1902 Act 2½d. in the £ on the assessed annual value. It is provided, however, that the total amount leviable shall not exceed the amount which would be yielded by a rate of 3d. in the £ on the unimproved capital value, and 2s. in the £ on the average annual value, taken together, of all ratable property. On the Council imposing such rate on the unimproved capital value, the State land tax is suspended automatically. The valuation of the unimproved capital value is to be made at least once in every five years. The Council was empowered also to establish public libraries and milk depôts, to control certain parks, and to widen certain streets. The Lending Branch of the Public Library, and various parks and public ways were vested in the Council by the Government under certain conditions.

The Sydney Corporation (Dwelling-houses) Act, 1912, enables the City Council to erect and let dwelling-houses, and for that purpose to acquire land.

Another amending Act, passed in April, 1916, empowers the Council to levy rates on persons owning pipes, wires, cables, and rails on, under, over, or through any public places under the control of the Council, excepting properties owned by the Crown. Also, under the same Act, the Sydney Council may levy a general rate, not exceeding 6d. in the £, on the unimproved value of all ratable property in the city. This Act amends the 1908 Act so far as the latter relates to the land tax on the unimproved capital value and the city rate on the assessed annual value.

#### VALUATIONS.

The Unimproved Capital Value of land is the amount for which the fee-simple estate in such land could be sold under such reasonable conditions as a *bonâ-fide* seller would require, assuming that the actual improvements had not been made.

The Improved Capital Value is the amount for which the fee-simple estate of the land, with all improvements and buildings thereon, could be sold.

The Assessed Annual Value is nine-tenths of the fair average rental of land with improvements thereon.

Property in the City of Sydney was up to 1915 rated on the basis of the annual rental value, and the following is a comparison of the capital and annual values in the city during the three years 1914-1916. As previously stated, however, the rating for 1916 was on the unimproved value only.

	1914.	1915.	1916.
	£	£	£
Unimproved capital value ... ..	27,395,826	27,226,283	31,168,904
Improved capital value ... ..	75,786,580	78,580,300	80,264,720
Assessed annual value... ..	3,271,102	3,391,759	3,466,550

These figures show that the unimproved capital value has increased by 13·8 per cent., and the corresponding increases of the improved capital value and the assessed annual value were 5·9 per cent., and 6·0 per cent. respectively.

In the following table the unimproved and improved values for 1915 and 1916 are compared:—

Division.	Unimproved Value.			Improved Value.		
	1915.	1916.	Increase, 1916.	1915.	1916.	Increase, 1916.
	£	£	per cent.	£	£	per cent.
Sydney—City ... ..	27,226,283	31,168,904	14·5	78,580,300	80,264,720	2·1
Suburbs ... ..	33,403,223	34,719,417	3·9	91,198,244	96,394,785	5·7
Metropolis... ..	60,629,506	65,888,321	8·7	169,778,544	176,659,505	4·0
Country ... ..	22,843,195	23,378,626	2·3	57,949,558	59,422,910	2·5
Total Municipalities	83,472,701	89,266,947	6·9	227,728,102	236,082,415	3·7

The difference between the unimproved and improved capital values is, of course, the value of improvements, and the following statement shows that in both the suburbs and country the value of improvements increased in 1916:—

Division.	Value of Improvements.		
	1915.	1916.	Increase.
	£	£	per cent.
Sydney—City ... ..	51,354,017	49,095,816	*4·4
Suburbs ... ..	57,795,021	61,675,368	6·7
Metropolis ... ..	109,149,038	110,771,184	1·5
Country ... ..	35,106,363	36,044,284	2·7
Total Municipalities	144,255,401	146,815,468	1·8

\*Decrease.

The unimproved capital value of ratable land in municipalities was £89,267,000, and in shires £105,698,000, the total being £194,965,000. If to this be added £10,000,000, the estimated unimproved value of

unincorporated land in the Western Division, the unimproved value of the land of the State, excluding a small area exempt from taxation, is £204,965,000. The value placed upon land in the Western Division in 2s. 6d. per acre, which is over 25 per cent. lower than in the shire in the west of the Eastern Division, with the lowest value per acre, and cannot be considered high.

The capital and annual values of properties in all municipalities show a great increase since 1908, which was the year when the Local Government Act was fully applied. The expansion is shown in the following table:—

Municipalities.	1908.			1916.		
	Unimproved Capital Value.	Improved Capital Value.	Assessed Annual Value.	Unimproved Capital Value.	Improved Capital Value.	Assessed Annual Value.
	£	£	£	£	£	£
City of Sydney...	20,207,812	49,060,600	2,249,760	31,168,904	80,264,720	3,466,550
Suburbs... ..	23,799,856	56,441,828	3,803,338	34,719,417	96,394,785	7,129,820
Metropolis ...	44,007,668	105,502,428	6,053,098	65,888,321	176,659,505	10,596,370
Country... ..	20,104,983	44,784,238	2,997,762	23,378,626	59,422,910	4,302,878
Total Municipalities.	64,112,651	150,286,666	9,050,860	89,266,947	236,082,415	14,899,248

The increases, both absolute and relative, during the eight years from 1908 to 1916, were as follow:—

Municipalities.	Unimproved Capital Value.		Improved Capital Value.		Assessed Annual Value	
	Total Increase.	Increase per cent.	Total Increase.	Increase per cent.	Total Increase.	Increase per cent.
	£		£		£	
City of Sydney ...	10,961,092	54·2	31,204,120	63·6	1,216,790	54·1
Suburbs ... ..	10,919,561	45·9	39,952,957	70·8	3,326,482	87·5
Metropolis ... ..	21,880,653	49·7	71,157,077	67·4	4,543,272	75·0
Country ... ..	3,273,643	16·3	14,638,672	32·7	1,305,116	43·5
Total Municipalities	25,154,296	39·2	85,795,749	57·1	5,848,388	64·6

The ratio of increase in the unimproved capital value was highest in the City of Sydney, and lowest in the country municipalities. The suburbs show the highest ratio for the improved capital value, and for the assessed annual value, while the lowest for these values appear in the country districts.

A comparison of the improved and unimproved capital values with the assessed annual value is given below. The highest rates were levied in the suburban municipalities, which returned 7·40 per cent. and 20·53 per cent. respectively. These ratios were closely followed by the country areas with

7.24 per cent. and 18.40 per cent., while the City of Sydney yielded only 4.32 per cent. and 11.12 per cent., the average for the whole of the municipalities being 6.31 per cent. and 16.69 per cent. respectively:—

Municipalities.	Assessed Annual Value	Ratio of Assessed Annual Value to Improved Capital Value.	Ratio of Assessed Annual Value to Unimproved Capital Value.
	£	per cent.	per cent.
City of Sydney ... ..	3,466,550	4.32	11.12
Suburbs ... ..	7,129,820	7.40	20.53
Metropolis ... ..	10,596,370	6.00	16.09
Country ... ..	4,302,878	7.24	18.40
Total Municipalities...	14,899,248	6.31	16.69

The value of improvements in municipalities was £146,815,000, or 164 per cent. of the unimproved value. The total for the City of Sydney was £49,096,000, or 157.5 per cent.; for the suburbs, £61,675,000, or 177.6 per cent.; and for the country, £36,044,000, or 154.2 per cent. The value of improvements is not available for all the shires, but it has been assumed that it is the same proportion of the unimproved value as the average in those which are known, namely, about 23.6 per cent. greater than the unimproved value. In the Western Division it may be placed at £10,000,000, so that for the whole of the State the following values for 1916 are obtained:—

Division.	Unimproved Value of Land.			Value of Improvements.		
	Total.	Per Head.	Per Acre.	Total.	Per Head.	Per Acre.
Sydney—City ... ..	£ 31,169,000	£ 294	£ s. d. 9,368 10 0	£ 49,096,000	£ 463	£ s. d. 14,756 16 10
Suburbs ... ..	34,719,000	54	377 13 2	61,675,000	96	670 17 6
Metropolis ... ..	65,888,000	88	691 13 5	110,771,000	148	1,162 16 10
Country Municipalities	23,379,000	52	13 8 5	36,044,000	81	20 13 9
Shires ... ..	105,698,000	164	0 18 3	130,643,000	202	1 2 7
Western Division (part unincorporated).	10,000,000	688	0 2 6	10,000,000	688	0 2 6
Total State ... ..	204,965,000	110	1 0 8	287,458,000	155	1 8 11

#### CITY OF SYDNEY RATINGS.

The Sydney Corporation Act of 1902 directed that improved property within the city should be assessed at a fair average annual value, with an allowance for outgoings not exceeding 10 per cent., and the unimproved property at a maximum of 6 per cent. on its capital value. On the

value of such assessment a city rate not exceeding 2s. in £ might be levied, exclusive of lighting. In 1902, the rate was reduced from 24d., which had been imposed in 1901, to 22d., and still further reduced to 21d. in 1903, which was also levied from 1904 to 1915. The Act provided for a special local rate not exceeding 6d. in the £ of annual value, for any work for the particular benefit of one locality, but then only if two-thirds of the ratepayers of such locality petitioned for the same. Occasional advantage of this power has been taken for street-watering, though not of late years, and the amount levied in 1915, covered the expenses of street-lighting and street-watering. As already mentioned, the amending Acts of 1908 and 1916 repealed the former provisions, and the rate is now 6d. in the £ of unimproved capital value, which covers all services.

#### COUNTRY AND SUBURBAN RATINGS.

The other municipal councils were formerly empowered to raise revenue by rates not exceeding 1s. in the £ for ordinary purposes and the same amount for special purposes, with 6d. in addition for street-watering. The amount of each rate was calculated upon the fair average rental value, which was represented by nine-tenths of the fair average annual rental of all buildings and cultivated lands, or lands let for pastoral, mining, or other purposes, plus 5 per cent. of the capital value of the fee-simple of all unimproved lands.

Municipalities which avail themselves of the provisions of the Country Towns Water and Sewerage Act of 1880 are empowered to levy a rate for each service not exceeding a maximum of 10 per cent. on the assessed annual value of land and tenements, in addition to the ordinary municipal rates. Under the Local Government Act, however, a water rate equivalent to this maximum of 10 per cent. on the assessed annual value must be levied either on the unimproved or the improved capital value of lands within the reticulated area.

In order to aid municipalities in their formative stages, the 1867 and Consolidating Acts provided for endowment by the State during a period of fifteen years. In each of the first five years after incorporation, every municipality is entitled to a sum equal to the whole amount actually received from general rates; in each of the next succeeding five years, a sum equal to one-half; and in each of the next five years, a sum equal to one-fourth of such receipts. After the expiry of fifteen years, the State assistance ceases, and any further aid from the State is in the nature of a special grant. At the close of the year 1916 there were only three Municipalities entitled to the original statutory endowment.

Since 1st January, 1908, under the Local Government Act of 1906, suburban and country municipalities have been obliged to 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 the improved capital value. The only rates based on the annual value are those charged by the Metropolitan and the Hunter District Water-Supply and Sewerage Boards.

The general rate must be not less than 1d. in the £ on the unimproved capital value of all ratable land, and the total amount to be derived from the general rate and additional rates taken together must not exceed the amount yielded by a rate of 2d. in the £ on the unimproved value and 2s. in the £ on the assessed annual value of all ratable land. In 1916 only ten municipalities levied additional general rates, the remainder confining themselves to one general rate. The variation in the rates is rather

remarkable, as in the suburbs of Sydney for 1916 they ranged from 2d. to 6d., and in the country from 1d. to 16d. The following general rates were struck for the year 1916:—

General Rate Levied.				Suburbs of Sydney.	Country.
1d. and under 2d.	...	...	...	.....	13
2d. ,, 3d.	...	...	...	2	17
3d. ,, 4d.	...	...	...	6	42
4d. ,, 5d.	...	...	...	28	42
5d. ,, 6d.	...	...	...	5	17
6d. and over	...	...	...	1	13
Total				40	144

The majority of suburban councils in 1916 levied general rates between 4d. and 5d., the next in number being between 3d. and 4d., and in the country the proportions were the same. The councils which levied 6d. and over in the £ during 1916 were Rockdale, Aberdeen, Bathurst, Braidwood, Murrurundi, Singleton, and Warialda, each 6d.; Scone, 6½d.; Lambton, 7d.; Cobar, 8d.; Broken Hill, 8½d.; Bourke, 10½d.; Hillgrove, 12d.; and Wrightville, 16d. These rates are exclusive of the amounts levied on mines. None of the suburban councils levied 1d. in the £; but this rate was imposed in four country municipalities.

One hundred and nine municipalities levied special, local, and loan rates on the unimproved capital value, ranging from  $\frac{1}{30}$ d. to 24d. in the £, and thirty-three on the improved capital value, ranging from ¼d. to 9½d. in the £.

#### FINANCES.

The Local Government Act, 1906, prescribes that there must be a general fund in each area, to which must be paid the proceeds of all general and additional general rates, moneys received by way of grant, endowment, &c., from the Government, and miscellaneous income not required by law to be carried to other funds. The expenditure from the general fund must be on administration, health, roads, and other public services.

In addition, there must be a special fund for each special rate levied, and for each work or service carried on by the council in respect of which the special rate has been made, and the fund may be used only for the purposes of such work or service. A local fund also must be kept for each local rate levied, with restrictions similar to those in the case of special funds. The expenditure of the local fund is restricted to works in the specified portion of the area.

Where any borrowed money is owing by a council, a separate loan account must be kept for each work or service on which the amount has been spent. If the Loan fund has no revenue from rates, the attendant obligations, such as provision for the repayment of principal and interest, may be met by transfers from the General fund or other appropriate fund. The object of the loan, as a rule, determines the source from which the Loan fund shall obtain its necessary revenue. When the loans have been

raised for general purposes, transfers are made from the General fund, and the profits of trading concerns provide for the disbursements of their corresponding loan funds.

The foregoing remarks have reference more particularly to those loan funds which must be kept in respect of loans raised before the present Act came into operation, that is to say, when the law did not require (as it does now) a loan rate to be levied to pay interest and provide for the extinction of each loan within a fixed period. It is apparent, therefore, that all new loans will be self-supporting, quite apart from the question whether the undertakings are profitable or not. In these latter cases the councils may either use profits to swell the amount which is being provided for repayment, or retain them in the working accounts of the Special, Local, or Trading Funds.

The revenue of special and local funds may be used in a similar manner; for example, the Street Lighting Special Fund must provide the money to meet not only the ordinary cost of maintaining the street lighting for the year, but also the obligations of the Street Lighting Loan Fund; and similarly with regard to other Special and Loan Funds.

The Regulations under the Act prescribe the system of accounts to be adopted. The accounts must be "Income and Expenditure Accounts," kept by double entry, and each "Fund" must have a separate banking account. Thus there is shown for each General, Special, Local, Loan or Trading Fund a Revenue Account, or Profit and Loss Account, giving the total expenditure chargeable for the period, whether paid or unpaid, and the total income for the same period, whether received or outstanding. A balance-sheet is also required for each fund with appropriate liabilities and assets. Only "realisable" assets may be shown, so that the whole of the roads, bridges, drains, and other constructive work, are excluded.

#### CITY OF SYDNEY ACCOUNTS.

The Council of the City of Sydney conducts its affairs under the City Corporation Act, and therefore is not bound by the provisions of the Local Government Acts. The various accounts of the city were formerly kept on a "cash" basis, except those relating to the Electricity Fund, but from the year 1913 the system has been altered, and the Revenue and Capital transactions are shown separately in the same manner as those of all other Local Bodies. As details cannot in many instances be allocated to the headings of expenditure and income as set out in the system of accounts prescribed under the Local Government regulations, it is obvious, when discussing the financial transactions of the whole municipal area of the State, that an endeavour to collate similar information from two different sources would serve no useful purpose, and the figures for statistical comparison would be of doubtful value. For these reasons, the following particulars relating to municipal accounts are divided into two parts, one dealing with the City of Sydney, and the other with the suburbs of Sydney and country municipalities.

#### *City of Sydney—Receipts.*

The receipts from the various funds, exclusive of the Electric Lighting Fund, in 1916, amounted to £763,989, the City Fund contributing £606,659, the Public Markets Fund £72,362, and the Resumption Account £84,968.

The total receipts exceeded the disbursements by £80,050. Although abstracts of receipts and disbursements in respect of the Public Markets Fund and the Resumption Account are shown separately in the city accounts, these funds are really subsidiary to the City Fund, their balances at the end of the year being transferred to the last-mentioned fund.

The following is a statement for the year 1916 of the receipts of the City Fund under appropriate headings:—

	£
General Purposes ... ..	527,282
Works ... ..	5,646
Health Administration ... ..	18,660
Public Services... ..	29,911
Municipal Property ... ..	11,039
Miscellaneous ... ..	14,121
Total ... ..	£606,659

City rates, £525,869, which include interest, form by far the greater part of the receipts under the heading "General Purposes." As provided by the amending Act of 1908, rating on the unimproved value of land was first brought into force in 1909, and that such a large amount should be realised with the minimum rating of 1d. in the £ shows the importance of the transfer of the State Land Tax as an addition to the city finances. Under the amending Act of 1915, the City rate is now levied on the unimproved capital value.

*City of Sydney—Disbursements.*

The disbursements in 1916 amounted to £683,939, viz.: City Fund, £454,711; Public Markets Fund, £88,654; and Resumptions Account, £140,574. Shown under the same headings as the receipts, the following were the disbursements of the City Fund:—

	£
General Purposes ... ..	45,839
Works ... ..	90,487
Health Administration ... ..	118,853
Public Services... ..	70,952
Municipal Property ... ..	23,810
Miscellaneous (Interest, Sinking Fund, &c.) ... ..	104,770
Total ... ..	£454,711

Salaries, which amounted to £30,994, absorbed a very large share of the expenses for General Purposes. Of the sum spent on Public Works, street maintenance accounted for £53,014, footpaths for £18,885, and wood-paving for £9,546. On city cleansing £88,360 was expended, and this was the main item in Health Administration. The large amount shown under "Miscellaneous" includes the Annual Debenture indebtedness, which in 1916 was £48,526 for interest, commission, &c., and £17,011 for Sinking Fund contributions.

The receipts and disbursements of the Public Markets Fund, as stated, were £72,362 and £88,654 respectively, the latter amount being inclusive of interest and sinking fund, showing a deficit of £16,292 on the year's transactions, which has been included in the City Fund. The Queen Victoria Markets brought in revenue to the extent of £17,829, or nearly 25 per cent. of the total; and the receipts from the Municipal Markets amounted to £25,229, or slightly more than one-third of the whole.

The receipts and disbursements of the Resumption Account were £84,968 and £140,574 respectively, showing a debit of £55,606 after paying interest and contribution to sinking fund, and this deficit was also transferred to the City Fund.

*City Electricity Undertaking.*

The next account to be considered is the Electricity Works Fund, and the expenditure and income for the year ended 31st December, 1916, are shown below:—

Expenditure.		Income.	
	£		£
Generation of Electricity ...	81,732	Private Lighting ... ..	222,649
Distribution ... ..	65,474	Public Lighting ... ..	51,508
Management ... ..	63,717	Power Supply ... ..	138,743
Bad debts written off ...	340	Rentals—Meters, Motors, Lamps, &c. ... ..	20,808
Total ... ..	£211,263	Miscellaneous ... ..	290
Balance carried to Net Revenue Account ... ..	222,733	Total ... ..	£433,996
Total ... ..	£433,996		

Generation forms the largest item of expenditure, accounting for 38·7 per cent. of the whole. Distribution cost 31·0 per cent., Management 30·1 per cent., and amounts written off 0·2 per cent.

The sales of current to the public for light and power amounted to £380,491, and to the Council £32,407.

The charges against the gross profit of £222,733 carried to the Net Reserve Account were:—Interest on Debentures and Overdraft, £89,938; Sinking Fund contribution, £17,893; Depreciation Reserve Account, £79,827; and written off, flotation expenses, &c., £4,413, making a total of £192,071. It will be seen from the foregoing that the net gain for the year 1916, after paying interest and Sinking Fund, was £30,662, which is carried forward to profit and loss account for 1917.

Below is a summary of the balance-sheet of the Electricity Works Fund on 31st December, 1916:—

Liabilities.	Assets.
	£
Debenture Loans... ..	1,954,500
Sinking Fund ... ..	115,584
Reserve and Suspense Accounts	459,288
Sundry Creditors... ..	75,975
Deposits (Consumers) ...	14,761
Bank of New South Wales debit balance ... ..	428,573
Balance—Net Revenue Account	30,662
	£3,079,343
	Capital Expenditure—Land, Buildings, Machinery, Plant, &c. ... ..
	2,664,049
	Commonwealth War Loan ...
	33,090
	New South Wales Treasury— Sinking Fund Investments ...
	52,418
	Debentures—Sydney Municipal Council... ..
	29,410
	Stores, Materials, Cables, Coal, &c. ... ..
	196,926
	Consumers' Balances ... ..
	76,352
	Other ... ..
	27,098
	£3,079,343

The loan capital, which forms 63·5 per cent. of the liabilities, returned about 7 per cent. profit for the year; and consideration of the fact that the interest payments and Sinking Fund contribution for the year amounted to £107,831, that £79,827 was allowed for depreciation, and that the Sinking Fund is represented by an investment of £114,918 in Commonwealth War Loan, State Government Stock, and Sydney Municipal Council Debentures, will show that the finances of the Sydney Electricity Works Fund are in a healthy condition.

Each year's returns emphasise the rapid and at the same time profitable expansion of the electric lighting undertaking. The lights were used for the first time on 8th July, 1904, when parts of the city were illuminated, and since that date great progress has been made, and the public parks, as well as the remainder of the streets under the control of the council, are now included.

The following is a Summary of Liabilities and Assets of all funds of the City of Sydney as at 31st December, 1916:—

Liabilities.		Assets.	
£		£	
Debentures current ... ..	7,050,100	Bank Balances, Cr. ... ..	557,784
Bank Balances, Dr. ... ..	519,830	Landed Properties, Baths, and Sundries ... ..	5,676,499
Sundry Creditors ... ..	560,166	Machinery, Plant, Furniture, Stores, &c. ... ..	2,440,822
Sinking Funds ... ..	637,313	Sundry Debtors ... ..	223,985
Reserves, Revenue Accounts, and Sundries... ..	983,602	Sinking Funds ... ..	634,946
	£9,751,011	Other Investments ... ..	254,045
Excess of Assets ... ..	254,221	Flotation Expenses and Sundries	145,253
	£10,005,232	Revenue Accounts ... ..	71,898
			£10,005,232

Notwithstanding the large Loan indebtedness the assets exceed the liabilities by £254,221. It should be noted that the Debentures include £1,954,500 borrowed in connection with Electric Lighting, and £1,023,800 for Public Markets, and as the proceeds of those loans have been spent on reproductive municipal works, such works should provide the annual interest charges and sinking fund contributions. The Electricity Works Fund is quite self-supporting; but the deficiency in the Public Markets Fund becomes a charge on the city rates. Landed properties, baths, &c., which comprise about 56 per cent. of the assets, include such large items as Public Markets, £1,316,267; Town Hall, &c., £764,194; Resumptions, £2,636,132; Electric Light, Land, and Buildings, £458,411. The accumulated Sinking Fund, £637,313, as against a Debenture Debt of £7,050,100, must be regarded as a satisfactory cover.

## PROGRESS OF SYDNEY.

The following table shows the progress of the City of Sydney during the five years ended 1916:—

Particulars.	1912	1913.	1914.	1915.	1916.
Area ... .. Acres	3,327	3,327	3,327	3,327	3,327
Population ... No.	116,400	115,900	110,700	104,200	106,000
	£	£	£	£	£
Unimproved Capital Value	23,988,480	23,837,157	27,395,826	27,226,283	31,168,904
Improved Capital Value ...	57,395,288	64,080,440	75,786,580	78,580,300	80,264,720
Assessed Annual Value ...	2,582,788	2,753,408	3,271,102	3,391,759	3,466,550
City Fund—					
Income—Rates ...	226,688	242,303	285,024	295,529	} 525,869
Land Tax ...	100,267	151,212	170,653	168,703	
All other sources ...	102,755	61,378	62,255	76,962	
Total ...	429,710	454,893	517,932	541,194	606,659
Expenditure ... ..	444,997	401,373	419,970	442,303	454,711
Public Markets Fund—					
Income ... ..	44,639	48,240	52,055	69,924	72,362
Expenditure ... ..	60,226	65,230	71,827	76,640	88,654
Cattle Saleyards Fund—					
Income ... ..	9,434	*	*	*	*
Expenditure ... ..	3,780	*	*	*	*
Resumption Account—					
Income ... ..	.....	112,379	64,098	75,470	84,968
Expenditure ... ..	.....	154,948	114,596	127,448	140,574
Electricity Works Fund—					
Income ... ..	234,325	301,637	350,146	388,559	433,996
Expenditure ... ..	197,253	244,291	287,296	323,800	403,334
Total Income—All Funds	718,108	917,149	984,231	1,075,147	1,197,985
Total Expenditure—All Funds ... ..	706,256	865,842	893,689	970,191	1,087,273
Excess of Income ... ..	11,852	51,307	90,542	104,956	110,712
Liabilities—All Funds ...	5,654,811	7,195,657	8,142,616	8,877,853	9,751,011
Assets—All Funds ... ..	6,030,411	7,456,600	8,397,918	9,124,125	10,005,232
Excess of Assets ... ..	375,600	260,943	255,302	246,272	254,221
Loans outstanding ... ..	4,977,500	5,627,300	6,163,800	6,715,100	7,050,100
Sinking Fund ... ..	355,524	402,448	471,403	550,633	637,313

\* Taken over by State Government.

## EXPENDITURE.

*Suburbs of Sydney and Country Municipalities.*

The net expenditure during 1916 by the various municipalities under the Local Government Act amounted to £1,718,679, which was £79,345 less than the income. The following statement shows the expenditure allocated to the various funds in 1908 and 1916.

Funds.	1908.			1916.		
	Suburbs of Sydney.	Country.	Total.	Suburbs of Sydney.	Country.	Total.
	£	£	£	£	£	£
General Fund ... ..	348,765	330,327	679,092	704,855	476,749	1,181,604
Trading Accounts ... ..	7,078	50,167	57,245	...	114,243	114,243
Special and Local Funds	4,856	67,629	72,485	57,654	280,542	338,196
Loan Funds ... ..	33,288	25,133	58,421	113,941	53,555	167,496
Reserves and Renewals Account ... ..	...	...	...	662	8,531	9,193
Gross Expenditure ... ..	393,987	473,256	867,243	877,112	933,620	1,810,732
Deduct Transfers... ..	44,358	29,657	74,015	44,773	47,280	92,053
Net expenditure ... ..	349,629	443,599	793,228	832,339	886,340	1,718,679

The greatest expenditure was naturally from the General Fund, which in 1916 accounted for 69 per cent. of the whole. The trading concerns of the municipalities are gas and electricity; the special and local funds relate to water supply, sewerage, sanitary and garbage, street-watering, street-lighting, old loans interest, and other miscellaneous matters.

An amendment of the Local Government Act in 1908 provided that, except when exemption had been granted by the Governor, the cost of night-soil and garbage removal must be paid out of a Special Fund, and not out of the General Fund; and the cost of lighting streets and roads must also be defrayed from a Special Fund. When, however, the whole area of a municipality is within 20 miles of the General Post Office, Sydney, or when the whole area of a municipality is benefited by the expenditure on street lighting, the council, in its discretion, may pay such costs out of the General Fund. The effect of this enactment is reflected clearly in the figures given in the next table, which show an increased expenditure on Health Administration and Public Services.

Details of the expenditure from the General Fund are shown below:—

Head of Expenditure.	1908.			1916.		
	Suburbs of Sydney.	Country.	Total.	Suburbs of Sydney.	Country.	Total.
	£	£	£	£	£	£
General Purposes—						
Rates and interest abandoned ... ..	...	...	...	406	465	871
Administrative expenses	45,187	60,385	105,572	56,568	64,441	121,009
Public Works ... ..	150,404	115,036	265,440	421,872	264,495	686,367
Health Administration ... ..	39,930	68,709	108,639	81,062	42,985	124,047
Public Services ... ..	59,766	43,219	102,985	99,306	56,201	155,507
Municipal Property ... ..	6,591	7,875	14,466	23,228	31,636	54,864
Transfers ... ..	44,358	29,657	74,015	16,104	12,293	28,397
Other ... ..	2,529	5,446	7,975	6,309	4,233	10,542
Total expenditure ... ..	348,765	330,327	679,092	704,855	476,749	1,181,604

The proportion of expenditure under each head to the total expenditure was as follows:—

Head of Expenditure.	1908.			1916.		
	Suburbs of Sydney.	Country.	Total.	Suburbs of Sydney.	Country.	Total.
General Purposes—	per cent.	per cent.	per cent.	per cent.	per cent.	per cent.
Rates and interest abandoned	...	...	...	...	0·1	0·1
Administrative Expenses ...	13·0	18·3	15·5	8·0	13·5	10·2
Public Works ... ..	43·1	34·8	39·1	59·9	55·5	58·1
Health Administration ... ..	11·5	20·8	16·0	11·5	9·0	10·5
Public Services ... ..	17·1	13·1	15·2	14·1	11·8	13·2
Municipal Property ... ..	1·9	2·4	2·1	3·3	6·6	4·6
Transfers ... ..	12·7	8·9	10·9	2·3	2·6	2·4
Other ... ..	0·7	1·7	1·2	0·9	0·9	0·9
Total ... ..	100·0	100·0	100·0	100·0	100·0	100·0

In 1916, of the expenditure by municipalities from the General Fund, 10·2 per cent. was spent on administrative expenses, and 58·1 per cent. on public works. Of the administrative expenses, salaries were the largest, and the actual and relative expenditure under each heading is shown below. The total amount for all funds was £145,050, of which 41 per cent. was incurred in the suburbs, and 59 per cent. in the country districts. Salaries comprised 48 per cent. of the total:—

Services.	Total Administration Expenses.			Proportion to Total.		
	Suburbs.	Country.	Total.	Suburbs.	Country.	Total.
	£	£	£	per cent.	per cent.	per cent.
Salaries .....	28,853	40,597	69,450	48·4	47·5	47·9
Elections (including Rolls).....	1,541	1,228	2,769	2·6	1·4	1·9
Office Expenses (Rent, Light- ing, &c.)	3,647	6,813	10,460	6·1	8·0	7·2
Printing, Stationery, Advertis- ing, &c.	9,789	14,239	24,028	16·4	16·7	16·6
Audit Fees .....	1,583	3,964	5,547	2·7	4·7	3·8
Valuation Fees .....	5,433	4,901	10,334	9·1	5·7	7·1
Law Costs .....	2,595	3,611	6,206	4·4	4·2	4·3
Mayoral Allowance .....	2,458	4,734	7,192	4·1	5·6	4·9
Sundries .....	3,734	5,330	9,064	6·2	6·2	6·3
Total.....	59,633	85,417	145,050	100·0	100·0	100·0

The ratios of Administrative expenses to the total Income and Expenditure for the year ended 31st December, 1916, are given in the subjoined statement, the various districts being shown separately:—

District.	Gross Income from all sources.	Gross Expenditure on all services.	Administrative Expenses on all funds.		
			Total amount.	Proportion to—	
				Gross Income.	Gross Expenditure.
City of Sydney ... ..	£ 1,197,985	£ 1,087,273	£ 45,839	per cent. 3·83	per cent. 4·22
Suburbs ... ..	862,829	877,112	59,633	6·91	6·80
Metropolis ... ..	2,060,814	1,964,385	105,472	5·12	5·37
Country ... ..	1,027,248	933,620	85,417	8·31	9·15
Total ... ..	3,088,062	2,898,005	190,889	6·18	6·59

The relative cost of administration in the country is high, being 13·5 per cent. of the total expenditure; the suburban municipalities spend only 8 per cent. under the same heading. The high relative cost of administration in the country is due, no doubt, to the sparse population and small revenue of many of the municipalities, as in such cases the expenses on account of salaries, &c., would naturally be larger proportionately than in the more closely-settled localities in the suburbs. Public Services for 1916 include—Pounds, £3,137; street-watering, £13,596; street lighting, £78,439; and all other services, £60,335. The greatest part of the expenditure on Public Works was for roads, streets, &c., as will be seen below:—

Services.	1908.			1916.		
	Suburbs of Sydney.	Country.	Total.	Suburbs of Sydney.	Country.	Total.
Supervision ... ..	£ *.....	£ *.....	£ *.....	£ 15,805	£ 8,507	£ 24,312
Roads, streets, culverts, &c....	147,472	108,316	255,788	378,436	231,669	610,105
Bridges ... ..	148	2,717	2,865	669	9,513	10,182
Drains, sewers, &c. ... ..	1,583	2,028	3,611	12,299	4,071	16,370
Ferries, wharfs, and jetties	986	1,801	2,787	3,674	2,398	6,072
Sundries ... ..	215	174	389	10,989	8,337	19,326
Total ... ..	150,404	115,036	265,440	421,872	264,495	686,367

\* Included in Roads, Streets, &c.

Of the expenditure on roads, streets, &c., in 1916, the amount spent on maintenance, renewals, and repairs was £328,843; £81,774 was expended on construction, £51,854 on street and gutter cleaning, £46,265 on kerbing and guttering, £63,292 on footpaths and gutter bridges, £30,131 for interest on loans, and £7,946 on sundries.

The Trading Accounts, which relate to the supply of gas or electricity, will be treated later under those headings, and the special Water and Sewerage Funds will also be discussed separately.

## INCOME.

The net income in 1916 of all the municipalities brought under the provision of the Local Government Act was £1,798,024, including £58,399 received as endowments or grants from the Government. Under the same funds as shown in the expenditure the income for 1908 and 1916 was as follows:—

Funds	1908.			1916.		
	Suburbs of Sydney.	Country.	Total.	Suburbs of Sydney.	Country.	Total.
General Fund ... ..	£ 382,739	£ 360,039	£ 742,778	£ 724,638	£ 480,451	£ 1,205,089
Trading Accounts ... ..	6,863	59,814	66,677	.....	148,327	148,327
Special and Local Funds	3,192	70,312	73,504	59,089	300,321	359,410
Loan Funds ... ..	43,601	39,082	82,683	73,638	68,045	141,683
Reserves and Renewals Account ... ..	.....	.....	.....	5,464	30,104	35,568
Gross Income ... ..	436,395	529,247	965,642	862,829	1,027,248	1,890,077
Deduct Transfers... ..	44,358	29,657	74,015	44,773	47,280	92,053
Net Income ... ..	392,037	499,590	891,627	818,056	979,968	1,798,024

Details of the items of the General Fund for 1908 and 1916 are as follows:—

Source of Income.	1908.			1916.		
	Suburbs of Sydney.	Country.	Total.	Suburbs of Sydney.	Country.	Total.
General Purposes—	£	£	£	£	£	£
Rates levied (including interest)	327,255	235,396	562,651	607,855	353,219	961,074
Government Endowments, &c.	606	4,791	5,397	975	4,178	5,153
Sundries ... ..	4,398	4,932	9,330	9,337	8,468	17,805
Public Works* ... ..	18,247	19,605	37,852	52,183	45,960	98,143
Health Administration*	19,462	60,069	79,531	18,594	12,318	30,912
Public Services*... ..	2,678	16,765	19,443	13,251	18,007	31,258
Municipal Property ... ..	7,306	17,516	24,822	19,437	36,947	56,384
Miscellaneous ... ..	2,787	965	3,752	3,006	1,354	4,360
Total ... ..	382,739	360,039	742,778	724,638	480,451	1,205,089

\* Including Government grants.

To the income from public works and other services in 1916 the Government contributed £46,656 as grants for roads, streets, &c., £376 for ferries, £1,770 for Parks and Reserves, and £1,448 for other purposes, making a total of £50,250.

Stating the receipts under each head as a percentage of the total income of the General Fund, the following results are obtained:—

Source of Income.	1908.			1916.		
	Suburbs of Sydney.	Country.	Total.	Suburbs of Sydney.	Country.	Total.
General Purposes—	per cent.	per cent.	per cent.	per cent.	per cent.	per cent.
Rates levied (including interest)	85·6	65·4	75·7	83·9	73·5	79·8
Government Endowments, &c.	0·2	1·3	0·8	0·1	0·9	0·4
Sundries	1·1	1·4	1·3	1·3	1·8	1·5
Public Works*	4·8	5·4	5·1	7·2	9·5	8·1
Health Administration*	5·1	16·7	10·7	2·6	2·6	2·6
Public Services*	0·6	4·6	2·6	1·8	3·7	2·6
Municipal Property	1·9	4·9	3·3	2·7	7·7	4·7
Miscellaneous	0·7	0·3	0·5	0·4	0·3	0·3
Total	100·0	100·0	100·0	100·0	100·0	100·0

\* Including Government grants.

The bulk of the general income was received from rates, the average for all municipalities being 79·8 per cent., the proportion for 1916 in the suburbs being 83·9 per cent., and in the country 73·5 per cent. The next important source of income was from Public Works, but it should be remembered that about 51 per cent. of the contribution was provided by the Government as grants. By the transfer of the Sanitary and Garbage Services from the General Fund, as provided by the 1908 Amendment of the Act, Health Administration lost its most important factor of revenue, contributing only 2·6 per cent. of the total for 1916 as against 10·7 per cent. in 1908. The difference is still more marked in the country, where the proportion was 16·7 per cent. in 1908 and 2·6 per cent. in 1916. In the suburbs, the Metropolitan Sewerage Board levies charges in addition to those made by the municipalities, reference to which is made later on.

#### SPECIAL AND LOCAL FUNDS.

The expenditure and income of the Special and Local Funds for the years 1908 and 1916 are shown in the following table:—

Funds.	1908.			1916.		
	Suburbs of Sydney.	Country.	Total.	Suburbs of Sydney.	Country.	Total.
<b>Expenditure—</b>	£	£	£	£	£	£
Water Supply	.....	51,139	51,139	.....	92,494	92,494
Sewerage	.....	4,468	4,468	.....	16,847	16,847
Sanitary and Garbage	.....	.....	.....	43,243	139,071	182,314
Street Lighting	2,270	6,342	8,612	110	25,981	26,091
Street Watering	1,887	208	2,095	629	554	1,183
Old Loans' Interest	327	2,182	2,509	2,897	1,450	4,347
Cemetery	.....	.....	.....	8,020	.....	8,020
Miscellaneous	372	3,290	3,662	2,755	4,145	6,900
Total	4,856	67,629	72,485	57,654	280,542	338,196
<b>Income—</b>						
Water Supply	.....	53,991	53,991	.....	103,466	103,466
Sewerage	.....	3,159	3,159	.....	16,399	16,399
Sanitary and Garbage	.....	.....	.....	44,696	146,333	191,029
Street Lighting	.....	5,996	5,996	122	27,268	27,390
Street Watering	2,724	308	3,032	624	737	1,361
Old Loans' Interest	442	2,217	2,659	3,075	1,596	4,671
Cemetery	.....	.....	.....	7,717	.....	7,717
Miscellaneous	26	4,641	4,667	2,855	4,522	7,377
Total	3,192	70,312	73,504	59,089	300,321	359,410

The Sanitary and Garbage funds are the most important of those mentioned above, both in the suburban and country districts. The Water and Sewerage Services are next in order, as far as the country is concerned, the suburbs of Sydney being supplied by the Metropolitan Board of Water Supply and Sewerage.

## BALANCE-SHEET.

The financial position of the municipalities, at 31st December, 1908 and 1916, is shown by the following statement of liabilities and assets of the various funds:—

Funds.	1908.			1916.		
	Suburbs of Sydney.	Country.	Total.	Suburbs of Sydney.	Country.	Total.
<b>Liabilities—</b>	£	£	£	£	£	£
General Fund .. ..	60,468	97,884	158,352	180,721	94,636	275,357
Trading Accounts ...	2,337	22,492	24,829	.....	87,115	87,115
Special and Local Funds	254	766,653	766,907	11,125	1,405,118	1,416,243
Loan Funds ... ..	784,585	623,341	1,412,926	869,408	676,370	1,545,778
Reserves and Renewals Account ... ..	.....	.....	.....	4,802	22,778	27,580
<b>Total</b> ... ..	<b>847,644</b>	<b>1,515,370</b>	<b>2,363,014</b>	<b>1,066,656</b>	<b>2,286,017</b>	<b>3,352,073</b>
<b>Assets—</b>						
General Fund ... ..	230,562	510,251	740,813	407,715	507,364	915,079
Trading Accounts ...	1,890	65,151	67,041	.....	169,784	169,784
Special and Local Funds	2,639	791,382	794,021	38,845	1,572,196	1,611,041
Loan Funds ... ..	153,698	402,854	556,552	172,496	646,771	819,267
Reserves and Renewals Account ... ..	.....	.....	.....	4,802	22,778	27,580
<b>Total</b> ... ..	<b>388,789</b>	<b>1,769,638</b>	<b>2,158,427</b>	<b>623,858</b>	<b>2,918,893</b>	<b>3,542,751</b>

Every municipality must keep a General Fund, the liabilities of which consist mostly of amounts due to temporary and other loans, and sundry creditors, the latter being chiefly advances from the State Departments; but the assets are more than sufficient to meet them, and in only six municipalities in 1916 was there an excess of liabilities. The liabilities and assets of the General Fund in the suburban and country municipalities, as at 31st December, 1908, and 1916, are shown below:—

Classification.	1908.			1916.		
	Suburbs of Sydney.	Country.	Total.	Suburbs of Sydney.	Country.	Total.
<b>Liabilities—</b>	£	£	£	£	£	£
Temporary loans ... ..	11,191	25,079	36,270	67,356	29,036	96,392
Overdrafts ... ..	8,817	13,293	22,110	.....	121	121
Sundry creditors (including amounts due to other Funds) ... ..	39,238	51,367	90,605	113,207	65,479	178,686
Other ... ..	1,222	8,145	9,367	158	.....	158
<b>Total</b> ... ..	<b>60,468</b>	<b>97,884</b>	<b>158,352</b>	<b>180,721</b>	<b>94,636</b>	<b>275,357</b>
<b>Assets—</b>						
Outstanding rates (including interest) ... ..	49,353	92,462	141,820	52,981	88,389	141,370
Stores and materials ...	2,902	5,505	8,407	9,167	8,975	18,142
Bank balance and cash ...	31,811	48,102	79,913	38,882	42,266	81,148
Land and buildings ... ..	117,694	263,187	380,881	216,065	242,764	458,829
Plant and furniture ... ..	14,525	69,957	84,482	61,923	74,393	136,316
Other ... ..	14,272	31,038	45,310	28,697	50,577	79,274
<b>Total</b> ... ..	<b>230,562</b>	<b>510,251</b>	<b>740,813</b>	<b>407,715</b>	<b>507,364</b>	<b>915,079</b>

The principal asset of the general fund consists of land and buildings, which were at the end of 1916 valued at £458,829, or 50·1 per cent. of the total assets. Outstanding rates and interest amounted to £141,370, while bank balances and cash in hand were equal to £81,148.

#### LOANS.

Under the Local Government Act a municipality may borrow to an amount which, with existing loans, does not exceed 10 per cent. of the unimproved capital value of ratable lands. Where, at the commencement of the Act, any municipality had exceeded the statutory maximum, it could not borrow further until the total amount owing had fallen below the limit.

The total amount of loans raised during 1916 was £513,114, including £335,000 borrowed by the City of Sydney, £97,876 by the Suburbs, and £80,238 by Country municipalities. The sinking funds of the City of Sydney were increased by £86,680, and of the Country by £6,239; while in the Suburbs a decrease of £4,738 is shown, due to the application of the funds in redemption of the loans. Apart from the liability of the State under the Country Towns Water and Sewerage Act, the total amount of loans outstanding at the close of the year was £8,742,233, and towards this amount there was at the credit of the sinking fund a sum of £674,191.

Rates of interest ranged from 3½ per cent., which was carried by £171,296, to 7 per cent., which, however, was payable only on £600, and the amount paid and due as interest on loans during the year was £344,579. The total indebtedness was £8,742,233, bearing an average rate of interest of 3·94 per cent., viz., 3·93 per cent. on the loans of the City of Sydney, 4·02 per cent. on those of the suburban municipalities, and 3·95 per cent. on those of the country municipalities.

The average rate of interest payable on all loans is hardly, however, an index of the true value of municipal debentures to the investors, as out of a total debt of £8,742,233, the sum of £4,474,807 pays interest at 4 per cent., and £2,173,150 at 3¼ per cent., and of these amounts the metropolitan municipalities are responsible for £4,375,537 at 4 per cent., and the whole floated at 3¼ per cent. The country municipalities borrowed £99,270 at 4 per cent., £168,084 at 4½ per cent., and £201,702 at 5 per cent.

The total debt per head of population in municipalities amounted to £7 6s. 1d., without allowance being made for sinking funds, while the yearly charge for interest is 5s. 5d. per head. These sums, compared with the resources of the municipalities, appear by no means formidable.

The following are the outstanding loans on 31st December, 1916, and the sinking funds set apart to meet them; the New South Wales figures include £13,814 raised in Victoria:—

Division.	Municipal Loans Outstanding.			Sinking Funds.	Interest paid and due on Loans, 1916.
	New South Wales.	London.	Total.		
	£	£	£	£	£
Sydney—City ... ..	6,250,100	800,000	7,050,100	637,313	277,057
„ Suburbs ... ..	975,536	.....	975,536	9,703	39,235
Country ... ..	692,742	23,855	716,597	27,175	28,287
Total ... ..	£ 7,918,378	823,855	8,742,233	674,191	344,579

Temporary loans, amounting altogether to £198,476, which bear interest at current bank rates, and loans payable on demand amounting to £83,172, are included in the above table.

The loans are redeemable at various periods after 1916, and the amount to be repaid in London was £823,855, or nearly 10 per cent. of the total, and the amount of debentures held locally was £7,918,378.

It has been explained previously that, in respect of municipalities operating under the regulations of the Local Government Act, a separate loan fund must be kept relating to each work or service for which loans are raised. There are, therefore, numerous funds relating to such matters as permanent improvements, town hall and other property, street-lighting, baths, wharfs, electricity, gas, cattle sale-yards, street-watering, and others.

## SHIRES.

From the 1st January, 1907, 135 shires had been working under the Local Government Act, 1906, but the number was increased to 136 during 1915, owing to the establishment of the Nambucca Shire, which was separated from Bellingen. These shires are all in the Eastern and Central Land Division, 98 being in the former, and 38 in the latter.

The shires vary in area from 36 square miles in Ku-ring-gai, immediately north of the City of Sydney, to 5,730 square miles in Lachlan, the headquarters of which are at Condobolin, and the smallest shires are in the most closely settled parts of the State.

A general rate, not less than 1d. in the £, and not more than 2d. in the £, may be levied by shires on the unimproved capital value of all ratable land. If, however, the general rate of 1d. is more than sufficient to meet requirements, the Governor may allow the rate to be reduced below 1d., and in 1916 eight shires levied a general rate less than 1d.

The general rates levied in 1916 and the unimproved capital value of the land in each case were as follow:—

No. of Shires.	General Rate levied in £.	Unimproved Capital Value of Land.
	d.	£
1	$\frac{1}{2}$	1,200,497
2	$\frac{1}{2}$	2,449,267
5	$\frac{1}{2}$	5,446,516
20	1	25,367,728
1	$1\frac{1}{2}$	1,359,560
15	$1\frac{1}{2}$	13,478,863
33	$1\frac{1}{2}$	21,503,604
6	$1\frac{3}{4}$	3,180,897
53	2	31,710,859
136	...	105,697,791

The unimproved capital value of shires from 1909 to 1916 is shown below. The total increase during the period mentioned was £22,233,345, or 26.6 per cent.

Year.	Unimproved Capital Value.	Year.	Unimproved Capital Value.
	£		£
1909 ... ..	83,464,446	1913 ... ..	99,452,191
1910 ... ..	89,935,912	1914 ... ..	103,451,177
1911 ... ..	94,189,939	1915 ... ..	104,745,633
1912 ... ..	97,661,454	1916 ... ..	105,697,791

As already stated, the unimproved capital value of the shires in 1916 was £105,697,791, but it is not possible to give the improved capital value, or the assessed annual value, as the shires are not compelled to make those valuations.

In addition to the general rates, additional general, special, and local rates were also levied by thirty-four shires, ranging from one-twelfth of a penny to 5d. in the £.

The purposes for which these special and local rates were imposed were:—Roads and street improvements, footpaths, kerbing and guttering, water supply, drainage, street lighting, bridges, parks, fire brigade, and foreshores improvement. In twenty-nine shires the amounts were raised on the unimproved capital value, and in the other five on the improved value.

The total amount of general and additional general rates levied was £633,973, and of special and local rates £17,464. These figures represent the rates actually levied in respect of the year 1916, and do not agree with the amount shown later, the difference being due to the inclusion of interest on unpaid rates.

In several cases the general rate was not sufficient to meet the requirements, and the State paid endowments to a large number of shires. Endowments are fixed every third year, and are determined according to the extent of the shire, the probable revenue from a rate of 1d. in the £, the necessary expenditure, the extent of roads and other public works to be constructed and maintained, and other matters. The endowment is paid on the general rates actually collected in the preceding year. There are six classes into which the shires are divided for endowment purposes, the classification for the three years 1916-18 being as follows:—

52 shires in 1st class receive no endowment.				
63 „ 1st „ „	from 1s. to 10s. in the £ on General Rate.			
5 „ 2nd „ „	15s. in the £ on General Rate.			
8 „ 3rd „ „	20s. „ „			
4 „ 4th „ „	25s. „ „			
3 „ 5th „ „	30s. „ „			
1 shire in 6th „	receives 40s. „ „			

The highest endowment allotted in 1916 was 40 shillings in the £ to Bellingen shire, but on the whole the endowments are considerably lower than those paid in the preceding three years. In 1916 the Government paid £143,259 as endowment to the shires, and a further sum of £188,175 was paid as grants for special purposes, making the total subvention from the State £331,434.

#### INCOME.

The principal heads of income of shires in 1916 were as follows, and for purposes of comparison the 1908 figures are attached:—

Particulars.	1908.		1916.	
	Income.	Per cent.	Income.	Per cent.
<b>General Fund—</b>	£		£	
General rates (including interest) ...	382,336	61·0	636,303	58·2
Government endowment ...	162,859	26·0	143,259	13·1
Public works ...	65,781	10·5	205,277	18·8
Health administration ...	2,979	0·5	4,087	0·4
Public services ...	7,038	1·1	11,162	1·0
Shire property ...	517	0·1	12,449	1·1
Miscellaneous ...	4,198	0·7	5,177	0·5
Special and local funds ...	1,160	0·1	69,006	6·3
Loan funds ...	.....	...	6,303	0·6
<b>Total Income ...</b>	<b>£ 626,868</b>	<b>100·0</b>	<b>1,093,023</b>	<b>100·0</b>

The income from public works in 1916 increased largely compared with 1908, owing to the fact that the Government grants in aid of roads, streets, bridges, &c., in the first-mentioned year were very large. The greater revenue from Government endowment in 1908 is accounted for by the higher rates granted in the earlier years. The income from special and local funds has increased, owing principally to the establishment of the Sanitary and Garbage Fund, and the expansion in the transactions of the other funds.

Of the total income in 1916, Government assistance, exclusive of grants for public works, provided 13·1 per cent., as against 26·0 per cent. in 1908. The principal items in public works were contributions to roads, bridges, &c., £14,076, Government grants for roads, &c., £177,724; and receipts from ferries, which, including Government grants, amounting to £10,203, were £11,574. The principal item in public services was rent, &c., from public watering places, £8,507. The income derived from special and local funds, consisting of the proceeds of special and local rates and sanitary and garbage fees, claimed 6·3 per cent. of the total.

## EXPENDITURE.

The following statement shows the expenditure of shires during 1916 in comparison with the year 1908:—

Particulars.	1908.		1916.	
	Expenditure.	Per cent.	Expenditure.	Per cent.
General Fund—	£		£	
Rates and interest abandoned ...	.....	.....	1,390	0·1
Administrative expenses ... ..	116,932	17·7	100,224	9·3
Public works ... ..	516,072	78·7	813,803	78·2
Health administration ... ..	4,604	0·7	8,513	0·8
Public services ... ..	11,703	1·8	15,229	1·4
Shire property ... ..	397	0·1	14,969	1·4
Miscellaneous ... ..	6,453	1·0	16,120	1·5
Special and local funds ... ..	58	.....	64,948	6·0
Loan Funds ... ..	.....	.....	13,701	1·3
Total Expenditure ... ..	£ 656,219	100·0	1,078,897	100·0

The administrative expenses in 1916 were £100,224, or 9·3 per cent. of the total expenditure. Of the administrative expenses, £40,190 were on salaries, £18,052 on advertising, stationery, printing, &c., £7,651 on valuation fees, and £14,973 on presidents' allowances and councillors' travelling expenses. It should be mentioned, however, that the amount stated for salaries (£40,190), although charged to the general account, includes payments for the special and local services. The gross administrative expenses were £104,906, so that salaries actually comprised 38 per cent. of the total cost. The salaries paid ranged from £123 to £909, the average being £295. The expenditure on works accounted for 78·2 per cent. of the total. The principal expenditure was £707,271 on roads, streets, footpaths, kerbing and guttering, culverts, &c., of which £408,341 were on maintenance, repairs, and renewals, £295,755 on construction, and £3,175 on sundries. For other

public works—bridges, punts, ferries, wharfs, &c.—£37,514 were spent on maintenance and repairs, and £26,832 on construction. Supervision expenses (salaries of engineers, &c.) amounted to £50,742.

The total receipts from all sources were £1,093,023, and as the administrative expenses, as already stated, amounted to £100,224, the cost of collection only amounted to slightly over 9 per cent.

#### BALANCE-SHEET.

The financial position of the shires on 31st December, 1916, was strong, as there was an excess of assets of £437,011. The combined balance-sheet of the shires on 31st December, 1916, appears as follows:—

Liabilities.				Assets.			
General Fund—				General Fund—			
		£				£	
Temporary Loans	...	45,895		Outstanding Rates	...	52,647	
Due to Trust Fund	...	172		Stores and Materials	...	15,606	
Sundry Creditors	...	51,931		Bank Balance and Cash	...	134,184	
Due on Contracts	...	230		Sundry Debtors	...	13,761	
Other	...	104		Land and Buildings	...	110,731	
				Plant and Property	...	174,497	
				Furniture, &c.	...	17,926	
				Other	...	4,211	
Total, General Fund	...	£98,332		Total, General Fund	...	£523,563	
Special or Local Funds	...	20,322		Special or Local Funds	...	48,350	
Loan Funds...	...	34,123		Loan Funds...	...	17,875	
Total, all Funds...	...	£152,777		Total	...	£589,788	
Excess of Assets	...	437,011					
Total	...	£589,788					

It will be observed that a large proportion of the assets of the General Fund—£134,184, or nearly 23 per cent.—consists of cash in bank or in hand. The liabilities of the special or local funds consist for the most part of amounts due to the General Fund, and sundry creditors; while the assets comprise plant and buildings appropriated to the funds at their inception, outstanding fees and rates, and bank balances.

#### LOANS.

The Local Government (Shires Loans) Act, 1914, empowers Shire Councils to borrow money, not exceeding in the aggregate a sum equal to thrice the amount of the annual income. The loans may be secured and charged upon the income of the general funds of the shire, and are repayable in annual or half-yearly instalments of principal and interest. At the 31st December, 1916, there were eleven shires which had loans current, viz., Ashford, Bannockburn, Coolamon, Culcairn, Hornsby, Kyeamba, Murrungal, Nepean, Sutherland, Urana, and Warringah. The original amount of the loans was £36,323, and £3,553 had been paid off, leaving a balance due of £32,770. The loans were raised for the purpose of making improvements to roads, footpaths, &c., except those of Ashford and Hornsby, where the amounts were floated for the construction of office premises. In addition to the foregoing fixed loans, fifty shires had temporary loans amounting, with accrued interest, to £45,895 on the 31st December, 1916.

## TAXATION BY LOCAL GOVERNING BODIES.

The total revenue collected by all the local governing bodies from rates and charges amounts to £3,256,599, equal to £1 15s. 4d. per head of the population residing in the taxable districts. This includes £1,639,091, rates collected by municipalities; £651,437, rates collected by shires; and £966,071, rates collected by the various Water and Sewerage Boards referred to later. The distribution of the total amount is as follows:—

Local Bodies.	General Rates.	Special and Loan Rates.	Total.	Per head of population living in local areas.
	£	£	£	£ s. d.
Municipalities (including City of Sydney)	1,474,877	164,214	1,639,091	1 7 5
Shires ... ..	633,973	17,464	651,437	1 0 2
Metropolitan water and sewerage charges	866,623	.....	866,623	0 17 11
Hunter District water and sewerage charges.	99,448	.....	99,448	0 17 7
Total ... ..	£ 3,074,921	181,678	3,256,599	1 15 4

## BOARDS AND TRUSTS.

In addition to the ordinary forms of municipal local government, there are various boards and trusts with local jurisdiction. The control of the water supply and sewerage of the Metropolitan and Hunter districts is placed under separate Boards. The Metropolitan and the Country Towns Water Supply and Sewerage Acts, the Fire Brigades Act, the Sydney Harbour Trust Act, the Metropolitan Traffic Act, and the Motor Traffic Act, were all passed with the object of extending the principle of local government, and Boards have been established to carry out the provisions of some of these Acts.

The Metropolitan Board of Water Supply and Sewerage was established in 1887, the Hunter District Board in 1892, and the Sydney Harbour Trust in the year 1900.

In 1900 the Metropolitan Traffic Act was passed, which gives the complete control of street traffic and the licensing of public vehicles, drivers, and conductors to the Inspector-General of Police, and the Motor Traffic Act of 1909 places the supervision of motor vehicles under the same authority. Further information regarding licenses and fees is published in the chapter of this Year Book treating of "Police and Prison Services."

The majority of the Boards dealing with local affairs work mainly in conjunction with the municipalities and shires, although possessing powers independent of those bodies.

## BOARD OF FIRE COMMISSIONERS.

The Fire Brigades Act, 1909, which repealed the Act of 1902, applies to the City of Sydney, to forty suburban municipalities, to eighty-six country municipalities, and to parts of eleven shires, and the operations of the Board may be extended to other districts by proclamation. At the end of 1917 the districts embracing the municipalities and shires numbered seventy-eight. Particulars relating to the financial transactions of the Board will be found in the chapter of this publication dealing with "Private Finance."

The calls attended during 1917 numbered 1,665, of which 1,090 were in the Sydney district. Particulars are shown below:—

Calls.	Sydney District.	Country Districts.	Total.
False alarms ... ..	159	45	204
Chimney alarms ... ..	33	28	66
Fires—Slight ... ..	844	414	1,258
„ Serious ... ..	5	6	11
„ Total destruction... ..	44	82	126
Total ... ..	1,090	575	1,665

#### WATER SUPPLY FOR COUNTRY TOWNS.

The Country Towns Water Supply and Sewerage Act of 1880 was passed with the object of assisting municipalities to construct general systems of water supply and sewerage. To the end of June, 1917, fifty-four municipal councils had availed themselves of the privilege offered as regards the water service, and works were under construction in other municipalities.

The amount required for carrying out the works is advanced by the State. The municipality, however, has the option of supervising and constructing the works, failing which the Government undertakes these duties. Under the original Act, the sum advanced was to be repaid by instalments, with interest at the rate of 4 per cent., on the unpaid balances, each annual instalment to be equal to 6 per cent. of the total cost, and the first payment to be made twelve months after the date of the transfer of the works to the municipality; but as it was found that the municipalities which had contracted liabilities in respect of water supply works were unable to comply with these conditions, the Government, in 1894, passed an amending Act which granted them more favourable terms, the rate of interest being reduced to 3½ per cent., and the number of yearly repayments fixed at a maximum of 100. Under the amending Act of 1905, the rate of interest is fixed at 4 per cent. per annum. This Act also provides for the issue of licenses, for the recovery of rates, for making by-laws for the assessment of lands, and for other purposes.

The total amount of debts owing by the municipalities on the 30th June, 1917, was £1,188,084, and the aggregate annual instalment repayable was £46,401. The last-mentioned sum is approximate only, as in a few cases the payment has not been definitely fixed.

The combined revenue accounts of the municipalities which maintain waterworks for the year ended 31st December, 1916, are shown below:—

Income.				Expenditure.			
			£				£
Rates levied... ..	...	...	69,759	Management ... ..	...	...	14,993
Meter rents ... ..	...	...	691	Working and maintenance	...	...	31,683
Water sales ... ..	...	...	26,256	Repairs and renewals ... ..	...	...	4,609
Garden charges, &c. ... ..	...	...	6,760	Interest payable to Government...	...	...	37,436
				Other... ..	...	...	3,773
				Balance ... ..	...	...	10,972
Total... ..	...	...	£103,466	Total ... ..	...	...	£103,466

With regard to the expenditure, management charges accounted for 16·2 per cent., working and maintenance for 34·2 per cent., repairs and renewals 5·0 per cent., interest payable to Government 40·5 per cent., and miscellaneous items 4·1 per cent.

The income figures show that rates contributed 67·4 per cent. of the receipts, meter rents 0·7 per cent., water sales 25·4 per cent., and garden charges, &c., 6·5 per cent.

The combined balance-sheet on 31st December, 1916, was as follows:—

Liabilities.				Assets.			
			£				£
Amount for which	liable	to		Waterworks—plant, buildings,			
Government ... ..	...	...	966,225	&c. ... ..	...	...	1,023,965
Interest due to Government and				Outstanding rates...	...	...	18,686
unpaid ... ..	...	...	32,860	Bank balances and cash in hand	21,551		
Sundry creditors ... ..	...	...	33,964	Stores and materials ... ..	...	...	4,272
Excess of Assets ... ..	...	...	75,944	Sundry debtors ... ..	...	...	23,742
				Fixed deposits (including interest)	16,777		
Total ... ..	...	...	£1,108,993	Total ... ..	...	...	£1,108,993

The total amount advanced by the Government practically represents the present value of the services; but where the works were not constructed by the Government, the value is included as an asset of the loan fund. The amount of rates outstanding on the date mentioned was £18,686, while the bank balances, cash in hand, and fixed deposits were £38,328. On the whole, the assets exceeded the liabilities by £75,944.

#### SEWERAGE AND DRAINAGE WORKS.

Only seventeen municipal councils have taken advantage of the Act providing for the construction of sewerage and drainage works in country towns, and the capital debt and annual repayments on 30th June, 1917, were £342,139 and £14,211 respectively.

Other sewerage systems are in existence in several places, but they have been constructed apart from the Act, and with few exceptions, the operations have been on a minor scale.

Some of the municipalities named in the above table do not levy special sewerage rates, and therefore do not keep a separate account. The revenue accounts of the other municipalities for the year ended 31st December, 1916, are shown below:—

Income.				Expenditure.			
			£				£
Rates levied ... ..	..	...	14,357	Management ... ..	...	...	2,397
Other ... ..	...	...	2,042	Working and maintenance	4,195		
Balance ... ..	...	...	448	Repairs and renewals ... ..	...	...	328
				Interest payable to Government...	9,739		
				Other... ..	...	...	188
Total ... ..	...	...	£16,847	Total ... ..	...	...	£16,847

Practically the only source of income is from rates. Of the expenditure, management charges represented 14·2 per cent., working and maintenance 24·9 per cent., repairs and renewals 2·0 per cent., interest payable to Government 57·8 per cent., and other expenses 1·1 per cent. The combined balance-sheet was as follows:—

Liabilities.				Assets.			
		£				£	
Amount of Capital Debt for which liable to Government ...	329,981			Works ... ..	335,059		
Due to Government as Interest	10,064			Outstanding rates ... ..	4,796		
Sundry creditors ... ..	8,171			Bank balance and cash ... ..	4,501		
Excess of Assets ... ..	1,018			Stores and materials ... ..	2,953		
				Sundry debtors ... ..	1,925		
Total ... ..	£349,234			Total ... ..	£349,234		

#### • DRAINAGE TRUSTS.

In addition to the water and sewerage works shown in the foregoing tables, thirty-three trusts for reclamation of swamp and other lands were in operation on the 30th June, 1917, with a total length of 123 miles, the total area served being 133,098 acres. The total cost as gazetted was £118,749, and the annual payments were £6,872. The owners of the lands improved by these works are responsible for the repayment of the capital expenditure, and are also required to provide for the cost of maintenance and administration.

#### GAS-WORKS.

The Local Government Act authorises the construction of works for public lighting, and enables municipalities to provide private consumers with gas. In addition, acetylene and other gas plants have been established in twenty-one municipalities.

The operations of the municipalities with gas-works in 1916 will be seen from the subjoined statements showing the Gasworks Trading Undertaking revenue account and balance-sheet, and the loan fund balance-sheet. The following is the revenue account, and particulars for 1908 are appended for purposes of comparison:—

Income.	1908.		1916.		Expenditure.	1908.		1916.	
	£		£			£		£	
Private lighting ...	33,867		65,706		Manufacture ... ..	22,714		45,894	
Public lighting ...	7,652		11,449		Distribution ... ..	1,525		6,187	
Sale of residual products ... ..	4,142		8,195		Management expenses	3,904		12,264	
Other ... ..	1,742		510		Public lighting ... ..	1,700		3,859	
					Other ... ..	2,457		1,245	
					Balance ... ..	15,103		16,411	
Total ...	£ 47,403		85,860		Total ...	£ 47,403		85,860	

On the total operations for 1916 there was a gross profit of £16,411, none of the municipalities showing a loss. The manufacture of gas accounted for 66.1 per cent. of the expenditure, as compared with 70.2 per cent. in 1908, and private lighting for 76.5 per cent. of the income, as against 71.5 per cent. in 1908.

The gross profit in 1916 was reduced in the Net Revenue Appropriation Account by charges amounting to £13,744. Transfers to the loan fund included £5,223 for payment of interest, and £8,521 for other purposes, and the credit balance carried forward amounted to £33,176.

The balance-sheet of the Gasworks Trading Undertakings for 1916 is given below:—

Liabilities.				Assets.			
£				£			
Due to other Funds	...	...	27,028	Buildings, land, stock, plant, &c.	71,666		
Sundry creditors	...	...	17,555	Sundry debtors, including amounts			
				due from other funds	...	26,263	
Reserves	...	...	12,674	Fixed deposits	...	1,992	
Excess of Assets	...	...	53,774	Bank balance and cash	...	11,110	
Total	...	...	£111,031	Total	...	...	£111,031

The total excess of assets amounted to £53,774, to which each municipality, with one exception, contributed.

The following balance-sheet of the loan fund shows the value of the assets of the Gasworks Trading Undertaking for 1916:—

Liabilities.				Assets.			
£				£			
Loans current	...	...	130,281	Land and buildings	...	33,798	
Interest accrued not paid, &c.	...	...	2,318	Plant, mains, lamps, &c.	...	154,256	
Excess of Assets	...	...	76,232	Due from other funds	...	15,470	
				Investments	...	5,064	
				Other	...	243	
Total	...	...	£208,831	Total	...	...	£208,831

Against a total loan indebtedness of £130,281, the municipalities had assets valued at £208,831, the excess of assets being substantial. Land, buildings, plant, &c., made up 90.0 per cent. of the assets; amounts due from other funds, chiefly trading accounts, 7.4 per cent.; and investments, &c., 2.6 per cent.

## ELECTRICITY WORKS.

The following councils have erected electric lighting plants:—Sydney, Albury, Broken Hill, Corowa, Goulburn, Inverell, Moss Vale, Narrandera, Newcastle, Penrith, Tamworth, Temora, Tenterfield and Young. These works were erected under separate Acts, as electric lighting may not be undertaken without special legislation.

The following statement shows the results of the operations of the electricity works in 1908 and 1916 in respect of municipalities operating under the Local Government Act. The City of Sydney electric lighting undertaking has already been dealt with:—

Income.	1908.	1916.	Expenditure.	1908.	1916.
	£	£		£	£
Private lighting ... ..	6,779	35,297	Generation ... ..	6,878	27,019
Public lighting ... ..	9,366	11,542	Distribution ... ..	1,468	3,896
Power supply ... ..	504	11,842	Management, &c. ... ..	943	6,461
Rents of meters, &c. ... ..	133	2,017	Special charges ... ..	952	1,153
Other ... ..	1,819	1,769	Public lighting ... ..	690	1,962
			Other ... ..	2,469	4,303
			Balance ... ..	5,201	17,673
Total ... ..	£ 18,601	62,467	Total ... ..	£ 18,601	62,467

Generation of electricity is the largest item of expenditure, accounting in 1916 for 60·3 per cent. of the whole. Distribution of the current cost 8·7 per cent., management 14·4 per cent., and other expenses 16·6 per cent. The gross profit of this concern to the combined municipalities was £17,673, and after deducting amounts transferred to the net revenue appropriation account, viz., interest £3,169, redemptions and sinking funds £4,390, and miscellaneous £9,933, a total of £17,492, the net profit was £181.

The balance-sheet of the trading fund for 1916 was as follows:—

Liabilities.			Assets.		
	£	£		£	£
Due to other funds... ..	17,785		Materials, stock, &c. ... ..		24,397
Sundry creditors... ..	12,073		Sundry debtors ... ..		16,190
Excess of Assets... ..	28,895		Bank balance and cash... ..		18,166
Total ... ..	£ 58,753		Total ... ..	£ 58,753	

Only two municipalities showed an excess of liabilities, and the position is therefore satisfactory.

The final statement is the balance-sheet of the loan fund for 1916:—

Liabilities.			Assets.		
	£			£	
Loans current ... ..	159,162		Land and buildings ... ..	13,408	
Interest accrued not paid ... ..	16,463		Steam plant ... ..	11,019	
Other ... ..	11,650		Dynamos... ..	14,760	
Excess of Assets ... ..	24,688		Cables, poles, &c. ... ..	102,771	
			Due from other funds ... ..	30,907	
			Bank balance and cash ... ..	17,369	
			Other ... ..	21,729	
Total ... ..	£ 211,963		Total ... ..	£ 211,963	

#### METROPOLITAN BOARD OF WATER SUPPLY AND SEWERAGE.

In March, 1888, the Government passed an Act establishing a Board of Administration, under the title of the Metropolitan Board of Water Supply and Sewerage, to regulate the water supply and sewerage services in the county of Cumberland, including those under the control of the City Council. The management of the water service was transferred to the Board in May, 1888, and of the sewerage in September, 1889. The total length of water mains taken over was 355 miles, and on 30th June, 1917, this had increased to 2,463½ miles, inclusive of trunk and arterial mains. There were 70½ miles of sewers in 1889, lengthened to 1,085½ miles of sewers, and 59½ miles of stormwater drains in 1917.

The 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 within the county of Cumberland supplied with water. The Board is subject to the general control of the Minister for Works—a provision considered necessary, as the Government advances the whole of the money for the construction of the works, the amount so advanced constituting part of the public debt of the State.

#### METROPOLITAN WATER SUPPLY.

As early as 1850 authority was given by the Legislative Council to the City Corporation for the construction of water and sewerage works, and a system of water supply from the Lachlan, Bunnerong, and Botany Swamps was adopted. By this scheme the waters of the streams draining these swamps were intercepted at a point near the shore of Botany Bay. A pumping plant was erected there, and the water raised to Crown-street reservoir, 141 feet above the level of the sea, thence into Paddington reservoir, at an elevation of 214 feet above sea-level; and to Woollahra, 282 feet above sea-level, the cost of these works being £1,719,565. This service has since been superseded by the Upper Nepean system.

The sources of supply under the existing system are the waters of the Nepean, Cataract, and Cordeaux Rivers, draining an area of 347 square miles, a catchment enjoying a copious and regular rainfall. The off-take works are built at a height of 437 feet above the level of the sea, and the water flows by means of tunnel, open canal, and wrought-iron aqueducts to Prospect Reservoir, a distance of 40 miles from the farthest source of supply. The conduits above Prospect Reservoir have a maximum delivery of 150,000,000 gallons per day, and for 10 miles below this reservoir the capacity of the canals and pipes is 50,000,000 gallons. For the last 11 miles the water is conveyed by two 48-inch mains. In this work there are 63½ miles of tunnels, canals, and pipes.

Notwithstanding the size of Prospect Reservoir, it was found in 1902—a very dry year—that the supply was not sufficient for the growing needs of the metropolis. The Government therefore decided to build the Cataract Dam, which was completed in 1908, the catchment area above the dam being about 50 square miles. The water flows from this dam down the Cataract River to a weir at Broughton's Pass, where it enters a tunnel previously existing, and is conveyed by a system of open canals to the Prospect Reservoir. The total distance from Cataract to Sydney, *via* Prospect, is 66½ miles.

The dimensions of the Prospect and Cataract reservoirs are as in the following statement:—

Dam.	Height above Sea-level.	Area.	Capacity.	Length of Dam.	Width at top.	Height.
Prospect	ft. 196·7	acres. 1,266½	gallons. 11,029,180,000*	ft. 7,300	ft. 30	ft. 85½
Cataract	950	2,200	20,743,196,475	811	16½	160

\* When full, about half this quantity is available by gravitation.

From Prospect the water flows 5 miles by open canal to the Pipe Head Basin, thence 5 miles by 6-foot wrought-iron and steel pipes to the Potts' Hill Balance Reservoir, which has a capacity of 100,000,000 gallons, and covers 24½ acres. This reservoir was designed to tide over any interruption in the supply from Prospect, as well as to prevent fluctuation at the head of pressure. A by-pass is laid along the floor to enable mains to deliver water to Sydney direct.

At Potts' Hill the water passes through a series of copper-gauze screens, and is then conducted by two 48-inch mains and three smaller mains to the reticulated area south of Port Jackson. At Lewisham a bifurcation takes place in one of the 48-inch mains; one branch supplying the Petersham Reservoir, the other continuing to Crown-street. The Petersham Reservoir is 166 feet above high-water mark, is built of brick, and has a capacity of 2,157,000 gallons. The other 48-inch main, laid in 1893, delivers water direct from Potts' Hill to Crown-street. These two trunk mains are connected at Petersham as an intermediate spot. The Crown-street Reservoir is 21 miles from Prospect. It is of brick, and contains 3,250,000 gallons, the top water-level being 141 feet above high-water mark.

On account of the elevation of parts of the reticulated area, pumping is necessary for the purpose of supplying the upper zones, and no less than 8,419 million gallons were raised at the various stations during the twelve months ended June, 1917, representing 60·6 per cent. of the total quantity discharged from Prospect. The pumping expenses, including the cost of second lifts, amounted in the aggregate to £49,067. At Crown-street is situated the main pumping station, where are erected three sets of compound high-duty pumping engines. A covered reservoir, of a capacity of 18,500,000 gallons, has been constructed in the Centennial Park at a height of 245 feet, for the purpose of ensuring a larger bulk of water within the city limits. At Ashfield there is a wrought-iron tank at an elevation of 223 feet above high water, with a capacity of 1,000,000 gallons. This tank is supplied from the Centennial Park Reservoir by a main, and provides for the higher

part of the district. Vacluse Reservoir, at a height of 313 feet, is connected with Waverley, and supplies a district of about 1,200 acres around Vacluse and South Head. It has a diameter of 107 feet, a depth of 18 feet, and its capacity is 1,000,000 gallons.

North Sydney receives its supply from Potts' Hill, *via* Ryde, where there is a reservoir containing 2,000,000 gallons, from which the water is pumped into a 1,000,000-gallon tank at Ryde village, 234 feet above sea-level, and, by a continuation of the same main, into a pair of tanks, of a joint capacity of 3,000,000 gallons, at Chatswood, at an elevation of 370 feet above high-water mark. Water can be lifted direct from Ryde to Wahroonga and Pymble, or may be re-pumped from Chatswood, where a small pumping station has been erected. There are two tanks of 1,000,000 and 40,000 gallons capacity at Wahroonga,  $7\frac{1}{2}$  miles distant, at elevations of 717 and 706 feet above sea-level respectively, whence the water flows as far as Hornsby, 13 miles to the north-west of Port Jackson. At a height of 567 feet a concrete reservoir of a capacity of 500,000 gallons has been constructed at Pymble. From this reservoir the districts between Pymble and Chatswood are served, thus reducing the abnormal pressure by reason of the supply being from so great a height as Wahroonga.

From the Ryde tank the districts of Ryde, Gladesville, and Hunter's Hill are supplied; while a 9-inch main extends over the Parramatta and Iron Cove bridges to supply Balmain. An elevated tank, at a height of 354 feet, with a capacity of 72,800 gallons, and a reservoir, with a capacity of 1,925,000 gallons, 302 feet above sea-level, have been erected at Mosman.

The districts of Campbelltown and Liverpool are supplied from the main canal by gravitation. At the latter place, a 4,000,000-gallon earthen reservoir has been constructed, and a tank with a capacity of 250,000 gallons, for the purpose of tiding over any interruption in the flow from the canal. Other districts lying nearer Sydney, *viz.*, Smithfield, Granville, Auburn, and Rookwood, are also supplied *en route*; and at Smithfield there is a 100,000-gallon concrete tank, the top water of which is 175 feet above sea-level. At Penshurst there is a tank 270 feet above sea-level, with a capacity of 1,000,000 gallons, and one 300 feet high, capable of holding 1,500,000 gallons. Works for the supply of water to the towns of Camden and Narellan, from a point on the canal near Kenny Hill, were completed in October, 1899. In 1893, the Board assumed control of the Richmond waterworks. In 1902 of the Manly works, and in 1903 of the Wollongong works. Manly is also connected with the metropolitan system by a main from Mosman, crossing Middle Harbour.

The following statement shows the number of houses in the metropolitan area supplied with water during the last ten years:—

Year ended 30th June.	Houses Supplied.	Average Daily Supply.	Total Supply for Year.	Average Daily Supply.	
				Per House.	Per Head.
	No.	gallons.	gallons.	gallons.	gallons.
1908	124,083	24,567,500	8,967,135,000	197	39·5
1909	128,444	25,911,400	9,457,660,000	201	40·3
1910	133,788	26,903,200	9,819,652,000	201	40·2
1911	139,237	29,006,700	10,587,434,000	208	41·7
1912	146,236	30,354,800	11,079,500,000	207	41·5
1913	155,213	32,594,200	11,897,000,000	209	42·0
1914	166,112	36,539,700	13,337,000,000	220	44·0
1915	175,758	35,909,589	13,107,000,000	204	40·9
1916	183,598	39,380,000	14,374,000,000	214	42·9
1917	193,643	39,637,128	14,467,352,000	204	40·9

The rate levied for water is 6d. in the £ on the assessed annual value of ratable property in the Metropolitan district, while the charge per meter is 11d. per 1,000 gallons up to 10 millions, 10d. from 10 millions to 20 millions, and 9d. over 20 millions. The revenue from the Water Service Branch during the year ended 30th June, 1917, was £468,537, and the expenditure, including interest on capital, £484,175. The net revenue showed a return of 3·73 per cent. on the capital debt of £7,769,200.

The following statement gives the financial transactions of the Metropolitan Water Supply for each of the last ten years:—

Year ended 30th June.	Capital cost.	Revenue.	Working expenditure.	Interest.	Net return after paying working expenses.	Net profit after paying working expenses and interest.
	£	£	£	£	per cent.	£
1908	5,009,012	283,410	75,016	183,033	4·16	25,361
1909	5,146,302	267,519	80,281	185,591	3·64	1,647
1910	5,286,917	284,943	93,027	184,486	3·63	7,430
1911	5,420,813	299,442	99,355	192,486	3·69	7,601
1912	5,606,268	329,605	112,958	198,443	3·86	18,204
1913	5,907,125	361,187	126,795	200,918	3·96	33,474
1914	6,257,976	410,823	145,948	223,145	4·23	41,730
1915	6,644,289	441,966	159,687	235,949	4·24	46,330
1916	7,192,472	470,744	165,210	261,335	4·24	44,199
1917	7,769,200	468,537	177,977	306,198	3·73	15,638*

\* Loss.

In addition to the city and suburbs, various country towns are supplied with water by the Metropolitan Board, and some of their accounts are kept distinct from those of the metropolis. The works at Richmond and Wollongong were constructed under the Country Towns Water Supply and Sewerage Act, and subsequently handed over to the Board; while the districts of Campbelltown, Camden and Narellan, and Liverpool, receive the water by gravitation from the upper canal at Prospect. The following table shows particulars of the capital, receipts, and expenditure for Richmond and Wollongong during the year ended 30th June, 1917; the accounts of the other towns are incorporated with those of the metropolitan area:—

District.	Capital Cost.	Revenue.	Annual Liability.			
			Interest at average yearly rate.	Maintenance, including proportion of Head Office expenses.	Total.	Deficit after paying working expenses, interest, &c.
	£	£	£	£	£	£
Richmond ... ..	19,805	933	749	1,374	2,123	1,190
Wollongong ... ..	190,119	9,820	7,713	2,736	10,449	629
<b>Total ... ..</b>	<b>209,924</b>	<b>10,753</b>	<b>8,462</b>	<b>4,110</b>	<b>12,572</b>	<b>1,819</b>

## THE HUNTER DISTRICT WATER SUPPLY.

The water supply works 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, under the authority of a special Act, a Board was established on similar lines to those of the Metropolitan Water and Sewerage Board, the number of members being the same—three being nominated by the Governor, one elected by the Municipal Council of Newcastle, two by the adjacent municipalities, and one by the municipalities of East and West Maitland and Morpeth. The following districts are within the area of the Board's jurisdiction:—

## Municipalities—

Adamstown, Carrington, Greta, Hamilton, Lambton and New Lambton, East and West Maitland, Merewether, Morpeth, Newcastle City, Wallsend, Waratah, Wickham.

## Shires—

In Bolwarra Shire: Bolwarra, Lorn.

In Cessnock Shire: Aberdare, Abermain, Abermain Government Township, Cessnock, South Cessnock, Bellbird, Hebburn, Heddon Greta, Homeville, Kurri Kurri, Mayfield, Neath, Oakhampton, Rutherford, Telarah, Weston.

In Lake Macquarie Shire: Argenton, Boolaroo, Spier's Point, Teralba, West Wallsend.

In Tarro Shire: Hexham and Ash Island, Minmi, Morpeth Road, Pelaw Main, Stanford Merthyr, Tenambit.

The Government Railways and Tramways' properties, ten in number, are also served by the Board.

The supply of water for the district is pumped from the Hunter River, about a mile and a half up stream from the Belmore Bridge, West Maitland. The pumping engines are situated above flood-level, on a hill about 44 chains from the river. At the pumping station there is a settling tank of 1,390,500 gallons; also six filter-beds, 10,000 square feet each, and one of 15,000 square feet, a clear-water tank of 589,500 gallons capacity, and a storage reservoir of 172,408,100 gallons available capacity. The filtered water is pumped from the clear-water tank into two summit reservoirs, one at Rutherford and one at Buttai. The former, connected by a 10-inch and 12-inch main, with a capacity of 500,000 gallons, supplies East Maitland, West Maitland, Morpeth, Lorn, Bolwarra, Campbell's Hill and neighbouring places. Buttai Reservoir is fed by two rising mains, one a riveted steel pipe, 20½ inches diameter, the other a 15-inch cast-iron main, 5½ miles in length; it has a capacity of 1,051,010 gallons, and supplies Newcastle and environs. Twelve district reservoirs, which are supplied from Buttai, nine by gravitation and three by re-pumping, receive water for distribution.

The length of the mains when the Board was established was 134 miles and 76 yards; at 30th June, 1917, it had been increased to 419 miles.

Particulars relating to the water supply of the Board for the past ten years are given below. A water rate of 10d. in the £ is payable on the assessed annual value of all properties over £12, but if valued at less than

£12, the rate is 10s. per annum. The charge by meter is 2s. per 1,000 gallons, and extra charges are made for water used for other than domestic purposes, the rates on which services range from 10s. to 40s. per annum:—

Year ended 30th June.	Properties Supplied.	Supply.		Average Daily Supply.	
		Daily average.	Total.	Per Property.	Per Head.
	No.	gallons.	gallons.	gallons.	gallons.
1908	14,457	1,654,100	603,755,000	114	22·8
1909	15,679	1,766,300	644,689,000	113	22·5
1910	16,446	1,650,700	602,497,000	100	20·1
1911	17,164	1,849,900	675,214,000	103	21·5
1912	17,907	2,026,100	739,539,000	114	22·7
1913	18,405	2,366,300	863,692,000	129	25·7
1914	19,575	2,791,300	1,018,810,000	143	28·5
1915	20,709	2,859,000	1,043,547,000	138	27·6
1916	22,056	3,507,500	1,283,754,000	159	31·8
1917	22,604	3,435,336	1,253,898,000	152	30·3

The funds necessary for the maintenance and management of the water supply and sewerage services, as well as the sum required to pay interest on the capital debt, are obtained by rates levied on the properties situated in the districts benefited by the systems. The assessments of the Municipal Councils are generally accepted by the Boards as the values on which to strike their special rates. In cases of heavy consumption of water, a charge is made according to the quantity used; but fixed charges are imposed for the use of water in certain trades and callings, for gardens, and for animals. The following table shows the financial position for the period 1908 to 1917:—

Year ended 30th June.	Estimated Capital Debt.	Revenue.	Expenditure.*	Return on Estimated Capital Debt.
	£	£	£	per cent.
1908	454,199	43,609	39,664	4·37
1909	474,485	43,395	41,184	3·90
1910	485,967	46,767	43,126	4·17
1911	495,747	45,711	45,420	3·55
1912	510,897	47,788	47,920	3·53
1913	531,969	53,673	49,042	4·42
1914	567,842	66,323	52,994	5·73
1915	601,983	68,611	55,383	5·53
1916	634,265	79,507	58,436	6·75
1917	704,305	78,040	65,338	5·44

\* Including Interest and Instalments to Sinking Funds for Renewal of Works.

#### . METROPOLITAN SEWERAGE WORKS.

The first sewerage works at Sydney were begun in 1853; and in 1889, the date of transfer to the Board, there were 70½ miles of old city sewers in existence. The original scheme was designed on the "combined"

system, by which street-surface water as well as sewage was removed. The works comprised five main outfalls discharging into the harbour at Blackwattle Bay, Darling Harbour, Sydney Cove, Fort Macquarie, and Woolloomooloo Bay. The pollution of the harbour, consequent on these outlets, led to the appointment of a Commission of Inquiry, and the outcome of the labours of the Commission was the adoption of the present system.

This system consists of three main outfalls—the northern, southern, and western; the northern discharges into the Pacific Ocean near Bondi, and the southern and the western discharge into the sewage farm at Webb's Grant, near Botany Bay. The northern system receives sewage from Waverley, Bondi, Woollahra, Double Bay, Darling Point, Rushcutter's Bay, Elizabeth Bay, and parts of Woolloomooloo.

The southern main outfall commences at a point on the north side of Cook's River, near Botany Bay, and receives the drainage from Alexandria, Waterloo, Erskineville, Newtown, and portions of the Surry Hills district. The inlet-house, into which the sewage passes, is fitted with the latest machinery for straining the sludge, and for ejecting the fluid after filtration. Storm-water channels are also constructed at various points to carry off the superfluous water after heavy rainfalls.

The western outfall, which provides for the western suburbs, starts at a receiving chamber in the Rockdale end of the sewage farm, from which it runs to another chamber about a quarter of a mile to the north-east of Muddy Creek, and thence to a penstock chamber at Marrickville on aqueducts over Wollie Creek and Cook's River. The latter chamber receives the discharges from the eastern, northern, and western branch sewers, and drains part of Marrickville, Petersham, Stanmore, Newtown, Leichhardt, Annandale, Camperdown, Summer Hill, Ashfield, Canterbury, Enfield, Burwood, Five Dock, and Concord. A branch outfall has been constructed at Coogee, which discharges into the ocean, and serves the districts of Randwick, Kensington, and Coogee. On the northern side of the city extensive works have been completed; in the borough of North Sydney septic tanks were built in 1899 to deal with the sewage matter; and at Middle Harbour, Mosman, and Manly, ample provision has been made for the sanitation of the districts.

The subjoined statement gives the transactions relating to Metropolitan Sewerage during the ten years ended 30th June, 1917:—

Year ended 30th June.	Capital cost.	Revenue.	Working expenditure.	Interest.	Net return after paying working expenses.	Net profit(+) or loss (-) after paying working expenses and interest.
	£	£	£	£	per cent.	£
1908	4,053,591	216,258	64,020	148,142	3·75	(+) 4,096
1909	4,225,239	214,212	68,574	151,317	3·44	(-) 5,679
1910	4,351,381	223,131	70,851	151,943	3·49	(+) 337
1911	4,496,290	234,208	79,636	159,070	3·43	(-) 4,498
1912	4,769,449	230,826	82,246	166,771	3·53	(+) 1,809
1913	5,083,263	268,292	91,094	171,957	3·48	(+) 5,241
1914	5,448,968	297,840	104,543	193,389	3·54	(-) 92
1915	5,775,094	344,489	111,809	205,928	4·02	(+) 26,752
1916	6,114,072	363,799	120,244	224,551	3·98	(+) 19,004
1917	6,722,313	387,333	138,417	269,723	3·70	(-) 20,807

The sewerage rate for the city of Sydney and the eastern suburbs up to 1903 was 7d. in the £, the northern and the western suburbs being rated at 1s., but in 1904 a uniform rate of 11d. was imposed. In 1907 it was reduced to 10d. in the £, and in 1908 to 9½d., the latter being the rate ruling in 1916.

The length of sewers in the Metropolitan District and the houses served during the last ten years are shown below:—

Year ended 30th June.	Houses connected.	Length of Sewers.	Length of Storm-water Drains.	Length of Ventilating Shafts.	Length of Sewers Ventilated.
	No.	miles.	miles.	feet.	miles.
1908	96,384	724.37	46.94	286,000	684
1909	99,442	760.16	47.30	299,910	714
1910	104,029	793.55	47.82	361,200	761
1911	108,012	825.20	48.85	376,900	795
1912	110,737	863.29	49.69	382,654	809
1913	114,690	890.53	52.24	401,344	853
1914	118,643	930.06	53.15	408,778	870
1915	124,759	972.14	53.65	429,364	915
1916	130,638	1,022.19	54.98	443,134	953
1917	135,538	1,085.45	59.55	475,474	1,030

#### NEWCASTLE AND SUBURBS SEWERAGE WORKS.

The sewerage scheme for the Hunter District has its outfall at Merewether Gulf, some distance south from Newcastle. Two gravitation sewers which branch from the main, one at Merewether and the other in the city of Newcastle, have been completed and transferred to the control of the Hunter District Water and Sewerage Board, also the reticulation sewers for the areas capable of being drained by gravitation. The districts served so far are Newcastle, Adamstown, Hamilton, Lambton, New Lambton, Merewether, Waratah, and Wickham. The first transfer was made in July, 1907, and the particulars of cost, revenue, and expenditure for the ten years to 30th June, 1917, are shown below:—

Year ended 30th June.	Capital cost— interest- bearing.	Revenue.	Working expendi- ture (including Sinking Fund).	Interest.	Net return after paying working expenses.	Net profit (+) or loss (-) after paying working expenses and interest.
	£	£	£	£	per cent.	£
1908	65,017	17	627	2,374	.....	(-) 2,984
1909	87,127	745	1,461	2,779	... ..	(-) 3,495
1910	128,655	6,192	2,303	3,814	3.02	(+) 75
1911	170,151	8,975	4,217	5,368	2.79	(-) 610
1912	246,915	10,999	6,002	7,331	2.45	(-) 2,334
1913	301,809	12,472	7,722	9,244	1.79	(-) 4,494
1914	331,694	14,622	8,743	11,274	1.77	(-) 5,395
1915	358,480	17,212	9,045	12,281	2.28	(-) 4,114
1916	411,732	18,582	9,820	14,117	2.13	(-) 5,355
1917	454,638	21,408	12,051	17,226	2.05	(-) 7,839

The sewerage rate --1s. in the £ on the annual rental value—came into force on 1st January, 1909, and this was the rate ruling in 1917. As the following table shows, the length of sewers under the control of the Board on 30th June, 1917, was 103 miles, and 8,284 properties were connected :—

Year ended 30th June.	Properties connected.	Length of Sewers.	Ventilating Shafts.	Length of Sewers Ventilated.
	No.	miles.	No.	miles.
1908	52	23·59	.....	.....
1909	228	23·67	183	11·45
1910	661	29·50	183	17·28
1911	1,465	29·91	285	17·68
1912	2,424	37·14	418	37·14
1913	3,457	51·30	623	51·30
1914	4,887	56·75	733	56·75
1915	6,151	63·23	791	63·23
1916	7,240	83·81	808	83·81
1917	8,284	103·10	815	103·10

The position of the combined Water and Sewerage services of the Metropolitan and of the Hunter Districts for the five years ended 30th June, 1917, are shown below. The working expenses for the Hunter District include the instalment paid to Sinking Fund for reconstruction of renewable works :—

Year ended 30th June.	Capital Cost.	Revenue.	Working Expenses.	Interest on Capital.	Net return after paying working expenses.	Net profit after paying working expenses and interest.
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## Metropolitan District.

	£	£	£	£	per cent.	£
1913	10,990,391	629,479	217,889	372,875	3·74	38,715
1914	11,706,944	708,663	250,491	416,534	3·91	41,638
1915	12,419,383	786,455	271,496	441,879	4·15	73,082
1916	13,306,544	834,543	285,454	485,886	4·13	63,203
1917	14,491,513	853,870	316,394	575,921	3·72	(-)36,445*

## Hunter District.

	£	£	£	£	per cent.	£
1913	633,778	66,145	39,228	26,780	4·24	137
1914	899,536	80,945	42,525	30,485	4·27	7,935
1915	960,463	85,823	44,320	32,389	4·32	9,114
1916	1,045,997	98,089	46,454	35,919	4·93	15,715
1917	1,158,943	99,448	51,746	42,909	4·12	4,793

\* Net loss.

## ROADS AND BRIDGES.

Main roads in New South Wales were first formed to connect the towns of Parramatta, Liverpool, Windsor, and Penrith with Sydney. All access to the interior of the country was considered barred by the apparently insurmountable sandstone precipices rising on the farther side of

the Nepean, and until the year 1813 no effort to cross the mountains was attended with success. In that year, however, after a protracted season of drought, involving heavy losses of stock, the settlers recognised that the future of the country depended on an extension of the pastoral area, and three explorers, Blaxland, Lawson, and Wentworth, again essayed the task of finding a way over the mountains. After encountering tremendous difficulties, they succeeded in crossing the range, and discovered the rich pastures of the Bathurst Plains. Shortly after their return, Governor Macquarie despatched a party of surveyors to determine whether a road were practicable. The report was favourable, the construction of a track was at once begun, and the Great Western Road was completed as far as Bathurst on 21st January, 1815.

The access to the fertile lands surrounding Bathurst, by means of this mountain road, gave such an impetus to settlement that it was found impossible to keep pace in the matter of road-making with the demands of the settlers. The authorities, therefore, for many years confined their attention to the maintenance of roads already constructed, and extended them in the direction of the principal centres of settlement. Had the progress of settlement subsequent to 1850 been as slow as that of the preceding years, this system would have sufficed; such, however, was not the case. The discovery of gold completely altered the circumstances, and during the period of excitement and change which followed, so many new roads were opened, and traffic increased to such an extent, that the general condition of the public highways was by no means good. The modern system of road-making may be said to have begun in the year 1857, consequent on the creation of the Roads Department; it was not, however, until 1864 that the whole of the roads, both main and subordinate, received consideration by the Government.

The principal main roads are:—

Northern Road—length, 405 miles, from Morpeth to Maryland, on the Queensland border.

Western Road—length, 513 miles, from Sydney, through Bathurst, and many other important townships, to the Darling River, at Bourke.

Southern Road—length, 385 miles, from Sydney through Goulburn and other important townships to the Murray River to Albury.

South Coast Road—length, 250 miles from Campbelltown, through Coal Cliff, and along the South Coast generally, as far as Bega, whence it extends as a minor road to the southern limits of the State.

None of the roads has so great an importance as it possessed before the opening of the railways, which for the greater part follow the direction of the main roads, and attract nearly all the through traffic. Thus many roads on which heavy expenditure has taken place have been more or less superseded, and the opening of new roads has been rendered necessary to act as feeders to the railways from outlying districts.

#### CONTROL OF ROADS AND BRIDGES.

Prior to 1907, when the Local Government Act came into effect, the State was divided into road districts, each of which was placed under the supervision of an officer directly responsible to the Commissioner for Roads. These officers had under their care the greater part of the roads and bridges of the State outside the incorporated areas, as well as a portion of those within such limits. The road trusts had the supervision of the

expenditure of certain grants for the maintenance of roads in districts chiefly of minor importance, as well as some important roads in the vicinity of the metropolis.

On 1st January, 1907, the administration of the bulk of the works under the control of the Roads and Bridges Department (with the exception of those in the unincorporated areas of the Western Division, and certain bridges and ferries proclaimed as "national works") was transferred by the operation of the Local Government Act to the shires and municipal councils.

The Act authorises payments by way of endowment to municipalities and shires, the minimum endowment payable to shires being fixed at £150,000 per annum, to be distributed in accordance with a classification made every third year. The Minister for Works may withhold payment of endowment from a council if his requirements in respect of main roads are not satisfied.

Between 1906 and 1912 the amount of endowment allotted to shires rose from £150,000 to £360,000 approximately, but the expenditure on the important roadways has not been sufficient to maintain them in a serviceable condition. It was decided, therefore, to amend the conditions under which Government assistance is granted, by reducing the amount of general endowment for each of the years 1915-18, and distributing an additional sum as a special endowment for the upkeep of the main roads.

#### LENGTH OF ROADS.

The length of roads under Government control on 30th June, 1906, prior to the transfer to the shires, was 48,311 miles, while 195 miles were under the care of road trusts, and 1,338 miles within the municipal areas were subsidised by the Government, making a total of 49,844 miles. There were also about 8,000 miles of roads and streets belonging to the municipal councils. Since 1906, statistics of roads, streets, bridges, and public ferries have been collected triennially, the date of the latest available returns being 1915. In that year the length of roads in the State was, approximately, 97,881 miles, of which 31 miles in shires were controlled by the Government, 10,300 miles by the municipalities, 81,075 miles by the shires, and 6,475 miles were in the unincorporated areas of the Western Division. The nature of these roads may be seen in the following statement:—

Divisions.	Metalled, Gravelled, Ballasted, &c.	Formed only.	Cleared only.	Natural surface.	Total.
	miles.	miles.	miles.	miles.	miles.
National ... ..	8	23	.....	.....	31
Municipalities ... ..	4,070	1,988	2,183	2,059	10,300
Shires ... ..	14,342	10,404	24,731	31,598	81,075
Western Division ... ..	100	196	2,752	3,427	6,475
<b>Total ... ..</b>	<b>18,520</b>	<b>12,611</b>	<b>29,666</b>	<b>37,084</b>	<b>97,881</b>

#### BRIDGES.

Many of the earliest bridges erected in the State were built of stone, and are in existence still. Those erected in the period following the extension of settlement to the interior were principally of timber, and have since been replaced after an average life of about twenty-five years. Nearly all the large bridges of recent date are of iron and steel, and some of them have been erected under difficult engineering conditions, owing to the peculiarity of the river flow in certain parts of the country.

## NUMBER OF BRIDGES AND FERRIES.

On 1st January, 1907, the date of the inception of the Local Government Act, the bridges of 20 feet span and over, including those in course of construction, numbered 3,575. Of these, 256 bridges, with an aggregate length of 101,416 feet, which by reason of their cost, size, and extra-local importance constitute a strain on the resources of the local councils, were proclaimed as "national works," to be maintained by the Government.

Where local conditions and limited traffic have not favoured the erection of a bridge, a punt or ferry has been introduced. The most important ferries which are worked otherwise than by hand, have been proclaimed as national services. Prior to 1st December, 1907, it was the practice to charge a small fee for ferry transit; but on that date tolls were abolished, and public ferries are now free.

The latest particulars of the bridges, culverts, and ferries of the State are shown below:—

Classification.	Bridges over 20 feet span.		Culverts.		Ferries.
	Number.	Length.	Number.	Length.	Number.
National Works ... ..	275	ft. 105,330	.....	ft. .....	16
Municipalities ... ..	771	40,917	4,415	178,133	14
Shires ... ..	3,523	211,770	34,668	317,189	96
Western Division (unincorporated)	93	12,530	153	1,709	5
Total ... ..	4,662	370,547	39,236	497,031	131

## GOVERNMENT EXPENDITURE ON ROADS, BRIDGES, &amp;C.

Although the main roads have been largely superseded by the railways, yet they are still the sole means of communication throughout a large part of the interior, and serve as valuable feeders to the railway system. No revenue is derived directly from roads, but their indirect advantages to the country have been very great.

In view of the transference of the administration of roads and bridges, with the exception of those noted previously, from direct State to local government control, the following return will be of interest. It shows the Government expenditure on works of a local character, such as roads, bridges, punts, ferries, public watering-places, &c., during the last five years.

Year ended 30th June.	Expenditure on Services.	Endowments and Grants, including Main Roads.			Total Expenditure.
		Shires.	Municipalities.	Total.	
	£	£	£	£	£
1913	143,843	289,693	15,800	305,493	449,336
1914	251,730	346,973	50,742	397,715	649,445
1915	175,726	288,053	40,314	328,367	504,093
1916	114,011	353,048	62,457	415,505	529,516
1917	100,667	300,258	46,144	346,402	447,069

## EXPENDITURE ON ROADS, &amp;c., BY MUNICIPAL AND SHIRE COUNCILS.

In the subjoined statement the expenditure by municipal and shire councils on behalf of roads, &c., is shown for the year 1916:—

City of Sydney—		£
Salaries—Road Maintenance ... ..		2,609
Streets ... ..		53,014
Footpaths ... ..		18,835
Woodpaving ... ..		9,546
Gullies ... ..		7,145
Street Cleaning ... ..		88,360
Street-lighting ... ..		12,523
Street Watering and Sanding ... ..		10,827
	Total ... ..	£ 202,914
Municipalities (other than Sydney)—		
Maintenance, Repairs, and Renewals... ..		328,843
Construction ... ..		81,870
Street and Gutter Cleaning ... ..		51,907
Kerbing and Guttering ... ..		49,303
Footpaths and Gutter Bridges ... ..		63,292
Street-watering ... ..		14,779
Street-lighting ... ..		104,530
Other, including Tree-planting, &c. ... ..		8,080
	Total ... ..	£ 702,604
Shires—		
General Fund—Maintenance and Construction ... ..		704,096
Local Funds—		12,586
Other Expenditure " ... ..		4,813
	Total ... ..	£ 721,495
	Grand Total ... ..	£ 1,627,013

The figures quoted above are exclusive of expenditure from loan funds raised for permanent improvements, &c.; the bulk of the expenditure in these cases is simply interest and principal payable on the loan.

The amount expended by municipalities, other than Sydney, on account of bridges was £10,182. In the shires the maintenance, repairs, renewals, &c., of bridges cost £17,437; whilst £26,832 was spent on construction. The cost of the upkeep of Pymont Bridge, previously a charge on the City Council, is now defrayed by the New South Wales Government.

## PARKS AND RECREATION RESERVES.

It has always been the policy of the State to provide the residents of municipalities and shires with parks and reserves for public recreation, and the city of Sydney contains within its boundaries a large extent of parks, squares, and public gardens. The most important are—Moore Park, where about 368 acres are available for public recreation, including the Sydney Cricket Ground, the Royal Agricultural Society's Ground, and the Zoological Gardens; the Botanic Gardens and Garden Palace Grounds, 65 acres, with the adjoining Domain, 86 acres, ideally situated on the shores of the Harbour; and Hyde Park, 39 acres, in the centres of the city. The total area covered is 654 acres, or 20 per cent. of the whole of the city proper. This does not include the Centennial Park, 552 acres in extent, situated on the outskirts of the city, formerly reserved for the water supply, but now used for recreation by the inhabitants of Sydney. This magnificent recreation ground has been cleared, planted, and laid out with walks and drives, and is a favourite resort of the citizens.

The suburban municipalities are also well served, as they contain, including the Centennial Park, about 4,060 acres of public parks and reserves, or about 4.4 per cent. of their aggregate area, dedicated to, and in some cases purchased for, the people by the Government.

In addition to these parks and reserves, the National Park, situated about 16 miles south of Sydney, and accessible by railway, was dedicated to the people in December, 1879. This park, with the additions subsequently made in 1880 and 1883, contains a total area of 33,747 acres, surrounding the picturesque bay of Port Hacking, and extending in a southerly direction towards the mountainous district of Illawarra. It is covered with magnificent virgin forests; the scenery is charming, and its beauties attract thousands of visitors.

Another large tract of land, designated Kuring-gai Chase, was dedicated in December, 1894, for public use. The area of the Chase is 35,322 acres, and contains portions of the parishes of Broken Bay, Cowan, Gordon, and South Colah. This park lies about 15 miles north of Sydney, and is accessible by railway at various points, or by water *viâ* the Hawkesbury River, several of whose creeks, notably Cowan Creek, intersect it.

In 1905 an area of 248 acres was proclaimed as a recreation ground at Kurnell, on the southern headland of Botany Bay, a spot famous as the landing-place of Captain Cook; and the Parramatta Park (252 acres) although outside the metropolis, may be mentioned on account of its historic interest.

In country districts, reserves have been proclaimed as temporary commons, and considerable areas have been dedicated from time to time as permanent commons attached to inland townships, which are otherwise well provided with parks and reserves within their boundaries.

A State Nursery is maintained at Campbelltown, from which plants, trees, and shrubs are distributed to the various parks and reserves.

Under the Public Parks Act the Governor may appoint trustees of any lands proclaimed for the purposes of public recreation, convenience, health, or enjoyment. The trustees are empowered to frame by-laws for the protection of shrubs, trees, &c., upon the land vested in them, and to regulate the use and enjoyment of such land by the public.

## MANUFACTURING INDUSTRY.

The manufactures of New South Wales have grown very slowly. In the early days of settlement, when voyages were long and dangerous on account of Great Britain's struggle with continental fleets for the supremacy of the seas, the Colony was thrown largely on its own resources, and its Governors did all in their power to foster and to stimulate industrial enterprise. Beyond this encouragement the manufactures of New South Wales received no aid. They were established largely as the outcome of necessity and as a means of avoiding waste. They were for several decades merely rudimentary handlings and crude processes applied to the preservation of perishable raw material. They treated the production of the pastoral industry, the forests, the mines, and the seas. During the first years of Australian settlement the whale fishery was regarded by many as likely to become the staple industry of the Colony.

In 1895 the first measure of legislative regulation dealing with the Manufacturing Industry was initiated in New South Wales, namely, the Factories and Shops Act, 1896, which required the registration and inspection of factories and the inspection of shops, so as to secure the maximum advantage to the workers in the matter of safety to health and life. Substantially this Act remains the law at the present day, but it has been amended by Acts passed in 1908 and 1909, by the Early Closing Acts, 1899, 1900, 1906, and 1910, and by the Saturday Half-holiday Act, 1910. The Factories and Shops Act, 1896, the Minimum Wage Act, 1908, and the Factories and Shops (Amendment) Act, 1909, have been consolidated in the Factories and Shops Act, 1912.

For purposes of the Act, any place is a factory in which four or more persons are engaged, directly or indirectly, in working at any handicraft, or in preparing or manufacturing articles for trade or sale, and includes laundries and ryeworks, but not any place in which the persons so working are members of a single family, and in which steam or other mechanical power is not used. A factory is also any place in which even one Chinaman is engaged, directly or indirectly, in working at any handicraft, or in preparing or manufacturing articles for trade or sale. The definition includes also any place in which steam or other mechanical power or appliance is used in manufacturing or packing for transit, or in the generation of electricity, water or other power.

Each employer is required to make returns showing the wages and piece-work rates paid to all employees, whether engaged within or outside the factory, and to keep records of employees, their ages, etc. The provisions of the Act are applicable only in proclaimed factory districts.

Sydney is the chief manufacturing centre of the State because it occupies the first settled area, and of necessity all industrial effort began in the only place where there was an adequate aggregation of people to make such industrial effort profitable. As time went on other industrial centres grew up in districts where raw material was treated at first-hand. Butter and cheese were made at the place of production of milk from the beginning of settlement, and even to-day the primary processes of bacon-curing are conducted in the country districts.

Brick-making is largely an extra-metropolitan industry, and large brick-kilns operate in Auburn, Rookwood, Bellambi, Bulli, Waratah, and other places. Against 38 brickyards in the metropolitan area in 1916-17, there

were 131 in the remainder of the State, and whilst the former employed 1,138 persons, the latter employed 1,246, though a number of country establishments were small works engaged in fulfilling local requirements.

At Portland a cement factory competes against a similar establishment at Granville. Certain kinds of coal suitable for the manufacture of coke are treated locally at Wollongong, Scarborough, Lithgow, Clifton, Bulli, and Bellambi. Ironworks are established at Lithgow and at Newcastle, where the Broken Hill Proprietary Company has built smelters and taken up the treatment of iron ores. Woollen mills are in operation at Parramatta and at Liverpool, also at Lithgow, where a Commonwealth small arms factory is engaged in making rifles and munitions for the use of the Australian forces. Rabbits are trapped and treated locally throughout the State, and freezing works are established at almost every important township. Butter factories, as a distinct branch of the dairying industry, are of modern institution, and have been adopted from Denmark.

Newcastle is the centre of a large soap and candle industry, and of the manufacture of biscuits. Many country towns contain soap and candle works, plants for the making of electric light, gas, ice, and aerated waters, tanneries, breweries, wool-scouring and fellmongering establishments, and flour-mills. Saw-milling is, of course, almost entirely a rural industry, and, like coke-making, deals with a primary product at first-hand at the place of production, without any intervening process.

If the accident of first settlement constituted Sydney's pre-eminence in New South Wales as a manufacturing industrial centre, it has certainly not deterred nor debarred the development of manufactures outside the metropolitan area. The growing needs of commerce in the city itself, and the residential requirements of the city workers in the immediate suburbs of the metropolis, have compelled those manufacturing industries which need ample space for their operations to migrate to the outer suburban fringe, and even to extra-metropolitan areas, where land is cheaper and less occupied. Nevertheless, a number of concentrated and intensive manufactures are conducted in the city, which provides the inestimable advantage of accessibility to the deep-sea.

Sydney has direct communication with the world's commercial and industrial centres. Ships of the heaviest tonnage can anchor alongside the rocky foreshores of the port with as much facility and safety as at the wharves of the city-front. The railway policy of a former day, no less than the conditions of settlement, made this city the terminus of lines from every part of the State.

As a manufacturing centre, Sydney has attracted the world's skilled craftsmen and the trained operatives of the factories of Great Britain, and was enabled to retain them by superior conditions of living, shorter hours of labour, and higher rates of pay than those which obtained in the countries from which they had migrated. Newcastle, Lithgow, Wollongong, Broken Hill, Portland, and many other places, are better adapted as centres of manufacturing industry than Sydney, because they are situated in districts producing the raw materials, and doubtless, with the progress of time, there will be a gradual elimination from the metropolis of those manufacturing industries which can be conducted elsewhere more expeditiously and directly, and consequently more profitably.

The records of the manufactories and works of New South Wales at decennial intervals from 1871 and for the last five years show the number of establishments in operation, the number of persons engaged, and their relation to the general population to be as given in the following statement,

in which the figures are for the calendar year down to 1913, and for years ended the 30th June thenceforward, statistics for the first six months of the year 1914 not having been collected:—

Decennium and Year.	Manufacturing Establishments.	Persons Employed in Factories, including Working Proprietors.				
		Males.	Females.	Total.	Per Factory.	Per cent. of Population.
1871	1,813	...	...	13,583	7.5	2.7
1881	2,961	28,819	2,372	31,191	10.5	4.1
1891	3,056	43,203	7,676	50,879	16.6	4.5
1901	3,367	54,556	11,674	66,230	19.6	4.8
1911	5,039	82,033	26,541	108,624	21.6	6.5
1912	5,162	88,178	27,383	115,561	22.4	6.6
1913	5,346	93,036	27,364	120,400	22.5	6.6
1914-15	5,269	90,409	26,202	116,611	22.1	6.5
1915-16	5,210	87,724	28,677	116,401	22.3	6.2
1916-17	5,356	88,910	29,087	117,997	22.0	6.3

In considering statistics relating to the manufacturing industry, it should be remembered that prior to the Census Act of 1891 there was no measure in force within the State which made it imperative for proprietors of manufacturing works to supply the Statistician with annual returns.

## EXPANSION OF INDUSTRIES.

The growth of manufacturing industries in New South Wales since the census year of 1911 is shown in the following table:—

Year.	Capital Invested in Land, Buildings, and Fixtures.	Value of Plant, Machinery, Tools, Implements, etc.	Amount Paid in Salaries and Wages.	Cost of Motive Power, including Fuel	Value of Materials Used.	Value of Goods manufactured, inclusive of Work Performed.
	£	£	£	£	£	£
1911... ..	13,140,207	12,510,600	10,047,662	1,242,613	33,670,951	54,346,011
1912... ..	14,395,026	13,795,195	11,592,052	1,360,141	37,122,441	61,163,328
1913... ..	15,405,018	14,861,676	12,683,384	1,371,425	40,537,476	65,672,495
1914-15 ...	16,843,698	16,866,982	12,667,721	1,364,186	42,559,370	68,253,332
1915-16 ...	17,770,517	18,211,104	13,413,845	1,528,220	44,227,079	70,989,864
1916-17 ...	18,920,057	20,364,122	14,381,309	1,766,664	57,044,667	85,944,320
Increase per cent. 1911 to 1917.	44.0	62.8	43.1	42.2	69.4	58.1

The figures representing goods manufactured or work done include the value of production of butter and cheese factories, which is included also in the records of the Dairying Industry in another part of this volume.

During the last ten years additional plant and machinery, valued at £11,208,350, have been introduced; salaries and wages have increased by over 116 per cent., and output by 115 per cent. Comparing the figures for 1916-17 with those of 1915-16, continued and general expansion is apparent, though the total increase is rather in the form of an augmentation of values

than in volume of output. Moreover, during the course of the War, some manufacturing industries have declined on account of the difficulty of securing essential constituents from overseas, whilst others have advanced greatly from the necessity of supplying locally manufactured articles to take the place of those formerly imported when transit involved no war-risk and when shipping amply subserved import requirements.

#### MANUFACTORIES IN NEW SOUTH WALES.

The following table is a summary of the important facts relating to the manufactories of New South Wales in 1901, 1911, and 1916-17.

Particulars.	1901.	1911.	1916-17.	
Number of Establishments... ..	3,367	5,039	5,356	
Number of Employees ...	{ Male ... ..	54,556	82,083	88,910
	{ Female ... ..	11,674	26,541	29,087
	{ Total ... ..	66,230	108,624	117,997
†Salaries and Wages paid to Employees.	{ Male ... £	*	8,917,583	12,727,172
	{ Female ... £	*	1,130,079	1,654,137
	{ Total ... £	4,945,079	10,047,662	14,381,309
Capital invested in Land, Buildings, and Fixtures ... ..	£ 7,338,628	13,140,207	18,920,057	
Value of Plant and Machinery ... ..	£ 5,770,725	12,510,600	20,364,122	
Value of Materials and Fuel used... ..	£ 15,637,611	34,913,564	58,811,331	
Value added to Raw Materials in process of Manufacture ... ..	£ 10,010,860	19,432,447	27,132,989	
Total Value of Output ... ..	£ 25,648,471	54,346,011	85,944,320	
Average per Factory—				
Employees ... .. No.	19.6	21.6	22.0	
Land and Buildings ... .. £	2,180	2,607	3,532	
Plant and Machinery ... .. £	1,713	2,482	3,802	
Material and Fuel ... .. £	4,643	6,928	10,980	
Value added in process of Manufacture £	2,973	3,856	5,066	
Total Output ... .. £	7,616	10,784	16,046	
Average per Employee—				
Time Worked ... .. months	11.32	11.55	11.55	
†Salaries and Wages	{ Male ... £	*	114	149
	{ Female ... £	*	43	57
	{ Total ... £	81	96	126
Value of Materials and Fuel ... .. £	236	321	498	
Value added in Manufacture ... .. £	151	179	230	
Total Output ... .. £	387	500	728	

\* Information not available. † Excluding drawings of working proprietors.

The table is indicative of considerable industrial progress since 1901, though the continuous development of all Australasian manufactures was greatly influenced by the outbreak of the War in 1914, being in some instances diverted into new channels of production, and in others abruptly terminated. This result was largely determined by the decline of shipping

facilities, outwards and inwards. The incidence of war, as an agency in the development or decline of Australian manufacturing industries, will be considered with reference to specialised production subsequently.

According to the foregoing figures the number of establishments has increased by over 59 per cent., and the number of employees by over 78 per cent. In 1901 the capital invested in land, buildings, fixtures, plant, and machinery amounted to £13,109,353, and in 1916-17 it had increased to £39,284,179, or by nearly 200 per cent. The value of the output was over 235 per cent. higher than in 1901. Side by side with this development, wages had advanced by nearly 191 per cent., and the cost of materials and fuel by over 276 per cent.

#### ESTABLISHMENTS.

Of 5,356 establishments recorded as being engaged in the manufacturing industry of New South Wales during the year 1916-17, no fewer than 3,005 were situated within the boundaries of the metropolitan area, and 2,351 were in the remainder of the State, and ranged from a Government dock-yard or an iron foundry in the important city of Newcastle to a bush saw-mill. Certain widely diffused classes of industry included a great number of small establishments, but they included also a few factories employing a great number of hands, as, for instance, iron and steel works, sugar mills, etc.

The industries grouped under clothing and textile fabrics were represented by the largest number of factories, and next came those associated with the manufacture and commercial preparation of foods and drinks, followed in order by crafts and callings working in wood, in metals, and in the manufacture of machinery; in printing and binding and correlated operations; in coach and waggon building, together with the making of saddlery and harness; in the manufacture of bricks, tiles, and earthenware; in the treatment of raw material; in the making of furniture and bedding; in the production of heat, light, and power; and in the manufacture of chemicals and drugs. The foregoing industries comprised 11 classes; but there were 8 other classes, each of which was represented by fewer than a hundred establishments. These in their order were the miscellaneous industries grouped as minor wares, followed by the industries engaged in jewellery and watchmaking, in the preparation of oils and fats, in building and repairing ships and boats, in the manufacture of leather goods and appliances, in the manufacture of surgical and optical instruments, in the manufacture of musical instruments and sewing machines, and in the manufacture of arms and explosives.

In the metropolitan division, as well as in New South Wales as a whole, the industries connected with clothing and textile fabrics held first place, but only third place in the remainder of the State. The total number of these establishments was 1,035, of which 777 were within the metropolitan area, and 258 in the country.

The manufacture and commercial preparation of articles of food, drink, &c., engaged 787 establishments, of which 536 were situated in the country division, and 251 were within the metropolitan area. The country preponderance in this, its most diffused group of manufacturing industries, was assignable to the magnitude of the butter-making and bacon-curing enterprises throughout the State, and to the fact that many towns operated flour mills, and manufactured locally their own aerated waters.

There were in New South Wales 645 establishments listed as working in wood, of which number 436 were situated in the country, including many forest saw-mills, and 209 were within the metropolitan area. On the other

hand, of 599 establishments engaged in working in metals and in manufacturing machinery, 417 were situated within metropolitan boundaries and 182 in the remainder of the State.

The printing, book-binding, and paper-making industries were represented by 455 establishments, of which number 256 were situated within metropolitan boundaries, and 199, including the plants of country newspapers, in the remainder of the State. Apart from newspaper production, these industries are distinctively metropolitan. Coach and waggon building, saddle and harness making, &c., stood fourth in order of importance outside the metropolis, and seventh in the metropolitan area, the total number of establishments engaged therein being 434, of which number 233 were situated in the country.

Establishments engaged in the treatment of clay, stone, and vitreous substances numbered 278, of which 155 were in the country and 123 within the metropolitan area. This inequality of distribution was due to the fact that most of the towns in the State of any considerable size had their own brickyards. Industries engaged in the treatment of raw material—animal and vegetable—were represented by 256 establishments, of which number 152 (mostly chaff-cutting and corn-crushing) were situated in the country, and 104 (mostly boiling-down and wool-scouring) in the metropolitan area.

Of 253 establishments engaged in the manufacture of furniture, bedding, and upholstery, 224 were situated within the metropolitan area, and only 29 in the remainder of the State. The generation of heat, light, and power engaged the energies of 222 plants, of which number 132 were situated in the country, and 90 within the metropolitan area. Many country municipalities manufactured their own gas, or it was manufactured for them by local companies, and the State's coke supplies were derived also from extra-metropolitan districts.

The manufacture of chemical compounds and similar articles was represented by 113 establishments, of which number 102 were within metropolitan boundaries, and only 11 in the remainder of the State. Of 94 establishments engaged in miscellaneous manufactures, *i.e.*, minor wares, 87 were situated within metropolitan boundaries, and 7 only in the remainder of the State.

Watch and clock making and the manufacture of jewellery and plated ware engaged the attention of 52 establishments, of which number 50 were situated within metropolitan boundaries. The manufacture and treatment of oils and fats were represented by 38 establishments, of which number 25 were situated within metropolitan boundaries, and 13 in the remainder of the State. Ship and boat building and repairing engaged 35 yards and other premises, of which number 31 were situated within metropolitan boundaries.

Twenty-five establishments, all of which were situated within metropolitan boundaries, were engaged in the manufacture of articles of leather. Of 17 establishments engaged in the manufacture of surgical, optical, dental, and other scientific instruments and apparatus, 16 were situated within metropolitan boundaries. Thirteen establishments, all within metropolitan boundaries, were engaged in the manufacture of musical instruments and sewing machines. The manufacture of arms and explosives engaged 5 establishments, of which number 1 only, but the most important of all, was situated in the country, namely, the Commonwealth Small Arms and Munitions Factory at Lithgow.

During the five years 1912-17 the number of establishments in New South Wales increased in number by 194, or by over 3·7 per cent. Some of the classes of manufacturing industry increased in the number of establishments by which they were represented, and others experienced a

decrease. In Class IV, under which were grouped saw-mills and other wood-working plants, the decline in the number of establishments was greatest, and amounted to 39 for the quinquennium, though the figures for 1915-16 and for 1916-17 remained the same. Factories working in animal and vegetable substances (Class I) declined in number during the five years under review by 31, and for the last year of the series by 8. In Class III, which included brickyards, the decline for the quinquennium amounted to 19, though in 1916-17 there were 9 more establishments in operation than in 1915-16. The decline in shipbuilding yards, &c. (Class XII), amounted for the quinquennium to 12, though in the last year of the series there was an increase of 5. In Class II, relating to factories employed in the preparation of oils and fats, the decline during the quinquennium was 7, and for the last year of the series 2. Other quinquennial decreases in the number of establishments were recorded for Class IX (musical instruments and sewing machines), Class X (arms and explosives), and Class XVI (jewellery, timepieces, and plated ware), which each lost one; though the decline during the last year of the series was 4 for Class XVI, 3 for Class X, and 1 for Class IX.

The increases in the number of establishments during the period 1912-17 were highest for Classes V (metal works, machinery, &c.), VII (clothing, textile fabrics, &c.), and XI (vehicles and fittings, saddlery, &c.), being 63 for the first-named, and 41 each for the second and third. For the year 1916-17 the increases in the number of establishments of these three classes were respectively 15, 53, and 30. Class XIII (furniture, bedding, and upholstery) showed an increase in the number of establishments of 33 for the quinquennium, and of 7 for the year 1916-17; Class VIII (books, paper-making, printing, &c.) of 29 for the quinquennium, though a decrease of 3 for the last year of the series; Class XIV (drugs, chemicals, and by-products) respectively of 26 and 19 for the quinquennium and for the year 1916-17; Class XIX (minor wares) respectively of 26 and of 13; Class VI (industries connected with food and drink) respectively of 22 and of 20; and Class XV (surgical and other scientific instruments) respectively of 4 and of 3; whilst Class XVII (heat, light, and power) increased in the number of plants, &c., during the quinquennium by 19, and declined during the year 1916-17 by 6, and Class XVIII (leatherware) increased in the number of establishments by one for the quinquennium, and declined by one during the year 1916-17.

The largest numerical increases of manufacturing industries in the metropolitan area, with regard to the distribution of establishments, between 1912 and 1917 were shown in the classes relating to clothing and textile fabrics, to food and drink, to metal works and machinery, to vehicles and harness, to furniture and bedding, to minor wares, to working in wood, to chemicals and drugs, to books and the printing industries, and to clay, stone, and glass, the increment amounting to 71 for Class VII, 59 for Class VI, 46 for Classes V and XI, 26 for Class XIII, 24 for Class XIX, 22 for Classes IV and XIV, 19 for Class VIII, and 17 for Class III. The increases for the year 1916-17 in the number of metropolitan establishments were as follows:—Clothing and textile fabrics, 56; food and drink, 40; chemicals and drugs, 20; vehicles and harness, 18; metal works and machinery, and minor wares, 12 each; furniture and bedding, and working in wood, 7 each; and books and the printing industries, and clay, &c., 5 each.

In the country division the increases in the number of establishments were shown by Class V, metal works and machinery, 9; Class XVII, heat, light, and power, 16; Class VIII, books and the printing industries, 10; Class XIII, furniture and bedding, 7; Class XIV, chemicals and drugs, 4;

and Class XIX, minor wares, 2. The increases for the year 1916-17 for the corresponding industries were 3 in Class V, and 1 in Class XIX. The number of establishments for Class XIII remained at the same figure, and Classes VIII, XVII, and XIV experienced a declination in the number of country establishments, amounting respectively to 8, to 3, and to 1.

It is noteworthy that industries which increased their area of distribution in one division experienced a diminution in the other. Thus Class XVII, heat, light, and power, showed a greater gain in the country than in the metropolis for the quinquennium, and a much smaller loss in the former than in the latter for the year 1916-17; but this was largely due to the principle of centralisation in one or two city and suburban plants. There was, however, a decline in the number of establishments in the country division during the five years, 1912-17, amounting in Class IV, working in wood, to 61; in Class VI, food and drink, to 37; in Class III, clay, stone, and glass, to 36; in Class VII, clothing and textile fabrics, to 30; and in Class XI, vehicles and harness, to 5. In the year 1916-17 Class VI experienced a decline to the extent of 20 establishments in the country division, Class IV of 7, and Class VII of 3; though Classes III and XI gained, during 1916-17, respectively 4 and 12 establishments.

In Class I, treating animal and vegetable raw materials, there was a decline in the country division during the quinquennium of 28 establishments, and of 12 for the year 1916-17; and though there was an increase of 4 in the metropolitan area for the year, there was a decline of 3 during the quinquennium. In the treatment of oils and fats (Class II), the metropolitan division gained 2 in the number of establishments for the quinquennium, and 4 for the year 1916-17; but the country division declined by 9 and 6 for the corresponding periods.

Shipbuilding (Class XII) declined during the quinquennium in the number of establishments in both metropolitan and country divisions, in the former by 4 and in the latter by 8; but for the year 1916-17 the metropolitan division increased the number by 4, and the country remained at the same figure. The variation in the number of establishments in the metropolitan as contrasted with the country division, as regards Classes IX, X, XV, XVI, and XVIII, relating to musical instruments and sewing machines, arms and explosives, surgical and scientific instruments and apparatus, the manufacture of jewellery and watchmaking, and leatherware, was not of an importance sufficient to warrant comment.

In 1912 the ratio of metropolitan to extra-metropolitan manufactories was as 106 to 100; in 1915-16 the ratio was as 118 to 100; and in 1916-17 as 128 to 100; but the only adequate standard to be found is not in the number of factories, but in the output of manufactured goods, together with the total amount of work accomplished, and in the capacity of employment furnished by the establishments in operation.

The following statement shows the distribution of manufactories as between the metropolitan district and the remainder of the State, together with the number of establishments in which machinery was installed.

Year.	Metropolitan District.			Remainder of State.			New South Wales.		
	With Machinery.	Without Machinery.	Total.	With Machinery.	Without Machinery.	Total.	With Machinery.	Without Machinery.	Total.
1912	1,964	686	2,650	1,811	701	2,512	3,775	1,387	5,162
1913	2,093	658	2,751	1,881	714	2,595	3,974	1,372	5,346
1914-5	2,154	709	2,863	1,832	573	2,405	3,987	1,282	5,269
1915-6	2,250	565	2,815	1,827	568	2,395	4,085	1,136	5,210
1916-7	2,416	589	3,005	1,856	495	2,351	4,272	1,084	5,356



From the foregoing table it may be deduced that small establishments will always bear a considerable ratio to the total number of factories, because they represent a constant requirement of the community, particularly in the districts outside the metropolis. The middle-class factory is declining, both in the metropolitan area and in outside districts, while the establishments with more than 50 workers remain fairly constant in number.

The number of the largest type of factory is, in districts outside the metropolitan area, increasing, but not in the metropolitan district. The tendency is towards a maintenance of small workshops and factories, a gradual elimination of factories of moderate capacity, and a great increase in the number of the largest type of manufactories.

During the period extending from 1912 to 1916-17 the number of establishments in New South Wales increased by 3·8 per cent., and the number of employees by about 2·1 per cent. The distribution of establishments according to capacity of employment did not vary greatly throughout the period, but there was a marked tendency of increased capacity of employment in establishments operating with 101 workers and upwards.

With regard to employment generally, the factories of the metropolitan district are more important than those of all other areas, not only on account of the amount of capital invested and the volume of their output, but also because they provide employment for twice the number of persons. The average number of employees per establishment in the metropolitan district in 1916-17 was 28·4, as compared with 13·8 in the country.

#### CLASSIFICATION OF MANUFACTORIES.

The manufacturing industries have been arranged for purposes of reference and comparison into nineteen classes, in accordance with a standard classification adopted at a Conference of Statisticians.

The term "establishment" includes branches which, whether conducted in separate buildings or not, deal with separate branches of industry, and are therefore counted as separate industrial entities; but this is subject to certain limitations.

The returns of manufacturing industry relate to establishments employing four, or more than four, persons engaged directly or indirectly in working at certain handicrafts, or in preparing or manufacturing articles for trade or sale; and from establishments employing fewer than four persons, where machinery, operated by steam, gas, electric, water, wind, or horse power, is used.

With the exception of tanneries, of bacon, butter, cheese, and soap and candle factories, of brickyards, of quarries, and of gas and lime works, of which it is necessary to ascertain the production in order to ascertain the total output, establishments operating with manual labour only, and with fewer than four workers, are not included.

The foregoing definition, based on the number of workers, applies uniformly to all other industries, and includes within its limitation all tailoring, bootmaking, dressmaking and millinery establishments. The definition does not, however, cover shops engaged only in retail trade and in the distribution or in the importation of goods. Nor does it apply to bakeries, butcheries in which sausages and smallgoods are made, laundries, monumental masonry yards, and waterworks.

With the exception of blacksmiths' and wheelwrights' shops, the definition covers the establishments in which workers are engaged in repairing or assembling manufactured parts of an article.

In cases where a manufacturing business is conducted in conjunction with an importing or a retail business, reference is made to the manufacturing section only; and persons employed in the importing or retail branch of the business, such as salesmen, travellers, collectors, warehouse workers, and carters delivering goods, are not included in connection with a factory or workshop. In cases also where construction (including repairs to the factory buildings or machinery) is in progress, particulars connected therewith are excluded from statistics relating to the establishments in which other specific industries are conducted. But in cases where two or more industries are being conducted, as in large establishments, returns are furnished for each industry; and where power from the same generating plant is used for more than one industry, it is proportionately distributed, as far as possible. If generated on the premises, electric light and power are treated as an independent industry.

The value of production includes that of manufactures executed in educational, charitable, and reformatory, or in other public institutions, excluding penitentiaries. Power and lighting plants are in all cases recorded.

#### CAPITAL INVESTED IN PREMISES.

With regard to capital invested in manufacturing industries, full particulars are not available, as the amount employed as working capital cannot be ascertained. Where the land, buildings, and fixtures in use for manufacturing purposes are the property of the occupier the estimated value is recorded; where they are not the property of the occupier the rental value is recorded.

The following statement shows the extent to which, during the past five years, the capital value and the rental value of premises have increased, also the advance in the value of plant and the machinery installed. The increase undoubtedly would have been greater in some directions but for the retardation in the progress of many manufacturing industries owing to the incidence of the War, the beginning of which practically coincided with that of the statistical year 1914-15.

Year.	Premises.			Value of Machinery, Tools, and Plant.
	Capital Value when occupier is owner.	Value of Rented Premises, based on the rent paid, capitalised at 15 years' purchase.	Total Capital Value.	
	£	£	£	£
1912	8,833,266	5,561,760	14,395,026	13,795,195
1913	9,598,713	5,806,305	15,405,018	14,861,676
1914-15	10,916,283	5,927,415	16,843,698	16,866,982
1915-16	11,892,032	5,878,485	17,770,517	18,211,104
1916-17	12,239,807	6,680,250	18,920,057	20,364,122
Percentage increases, 1912-1916 ...	38·57	20·11	31·43	47·62

The annual value of the land, buildings, and fixtures, used in connection with manufactories and works is shown in the following table for each class of industry as conducted in the metropolitan district, in the remainder of

the State, and in New South Wales as a whole. In stating the value of land and buildings, that of rented premises has been included on the basis of a capitalisation at fifteen years' purchase.

Class of Industry.	Metropolitan District.		Remainder of State.		New South Wales.	
	Land, Buildings, and Fixtures.	Plant and Machinery.	Land, Buildings, and Fixtures.	Plant and Machinery.	Land, Buildings, and Fixtures.	Plant and Machinery.
	£	£	£	£	£	£
Treating Raw Material, etc.	347,943	316,773	116,442	120,531	464,385	437,304
Oils and Fats, etc. ...	267,227	292,257	43,949	70,164	311,176	362,421
Stone, Clay, Glass, etc.	659,992	555,009	294,914	638,374	954,906	1,193,383
Working in Wood ...	630,510	392,329	338,328	465,263	968,838	847,592
Metal Works, Machinery, etc.	2,515,345	2,252,023	834,148	3,408,126	3,349,493	5,660,149
Connected with Food, Drink, etc.	2,475,960	2,269,020	1,288,466	1,577,332	3,764,426	3,846,352
Clothing, Textile Fabrics, etc.	2,124,182	519,445	327,063	109,554	2,451,265	628,999
Books, Paper, Printing, etc.	1,543,087	1,029,022	217,926	252,288	1,761,013	1,251,310
Musical Instruments, etc.	61,095	14,511	...	...	61,095	14,511
Arms and Explosives ...	6,360	1,650	86,818	143,263	93,178	144,913
Vehicles and Fittings, Saddlery, etc.	455,150	87,276	263,583	79,646	718,733	166,922
Ship and Boat Building, etc.	387,357	979,448	253,905	221,138	641,262	1,200,586
Furniture, Bedding, etc.	416,591	78,337	28,464	9,170	445,055	87,507
Drugs, Chemicals, etc...	406,043	138,683	43,300	110,093	449,343	248,776
Surgical Instruments, etc.	30,830	7,830	1,610	100	32,440	7,930
Jewellery, Timepieces, and Plated Ware.	136,597	27,253	2,295	660	138,892	27,913
Heat, Light, and Power	1,802,974	2,815,241	251,045	1,268,920	2,054,019	4,084,161
Leatherware, N.E.I. ...	70,590	13,780	...	...	70,590	13,780
Minor Wares, N.E.I. ...	185,235	107,157	4,713	2,456	189,948	109,613
Total ... ..	14,523,068	11,887,044	4,396,989	8,477,078	18,920,057	20,364,122

#### MACHINERY AND PLANT.

In 1897 the value of machinery and plant used in factories and works, inclusive of engines of indicated horse-power, and all tools and implements used in the various processes of manufacture, as well as conveyance plant, was assessed at £5,294,228. This value had increased to £6,807,843 in 1902; to £9,155,772 in 1907; to £13,795,195 in 1912; and to £20,364,122 in 1917.

The most powerful machinery is used in the supply of heat, light, and power, in the manufacture of machinery, in metal work, and in the preparation of food and drink. In the clothing industries machinery plays a less important part in the necessary equipment of factories.

In the following table are shown comparative figures for each of the last five years of the number of establishments using machinery, the aggregate value of the plant, etc., and the indicated and developed horse-power. The term "full capacity" indicates the power which can be generated by the

boilers or the machinery, and "average used" represents the power generally applied on the average in carrying on the processes of manufacture.

Year.	Establishments equipped with Machinery.	Value of Machinery, Tools, and Plant.	Power of Engines.	
			Full Capacity.	Average Used.
		£	h. p.	h. p.
1912	3,775	13,795,195	212,561	147,961
1913	3,974	14,861,676	220,779	156,612
1914-15	3,987	16,866,982	241,792	175,438
1915-16	4,077	18,211,104	278,363	193,096
1916-17	4,272	20,364,122	292,386	175,128

The capacity of engines as shown is exclusive of electrical power, the development of which is dependent on steam or other agencies. The figures relating to the value of machinery include the plant employed for the generation of electricity.

MOTIVE POWER.

For manufacturing purposes, the power used for driving machinery is derived to a very considerable extent from steam; in some instances, chiefly in the metropolitan district, gas is employed. Other agencies are used only to a limited extent; and, although there are electric engines of considerable voltage, they are employed mainly for lighting and tramway purposes, and the generation of their power usually depends upon some other class of engine.

The subjoined table shows the distribution of motive power through the various agencies of steam, gas, electricity (generated by steam-power), water and oil, expressed in units of horse-power, for each of the five years comprising the quinquennium which ended in 1916-1917.

Year.	Horse-power of Machinery (Average used).				
	Steam.	Gas.	Electricity.	Water.	Oil.
1912	130,479	16,028	26,652	273	1,181
1913	141,025	13,802	35,885	307	1,478
1914-15	158,718	14,552	50,179	283	1,885
1915-16	177,162	13,926	58,075	319	1,689
1916-17	159,712	13,312	61,702	274	1,830

Since the preceding year the employment of electric power has increased in the State as a whole by 3,627 horse-power, and oil-power by 141 horse-power; whilst the employment of steam-power has decreased by 17,450 horse-power, gas-power by 614 horse-power, and water-power by 45 horse-power. The reference to the increase of electric power must be considered with the qualification already expressed in connection with its generation by steam or other agency.

The source of the power used during the period 1913-17 is shown for each year in the following table.

Source.	Developed Horse-power.				Proportion of Total.			
	1913.	1914-15.	1915-16.	1916-17.	1913.	1914-15.	1915-16.	1916-17.
Steam ...	141,025	158,718	177,162	159,712	73·26	70·35	70·53	67·44
Gas ...	13,802	14,552	13,926	13,312	7·17	6·45	5·55	5·62
Electricity ...	35,885	50,179	58,075	61,702	18·64	22·24	23·12	26·06
Water ...	307	283	319	274	0·16	0·12	0·13	0·11
Oil ...	1,478	1,885	1,689	1,830	0·77	0·84	0·67	0·77
Total ...	192,497	225,617	251,171	236,830	100·00	100·00	100·00	100·00

The distribution of the various kinds of power, together with the value of fuel used and the cost of power rented, among the different classes of industries, in 1916-17, was as follow:—

Class of Industry.	Horse-power of Machinery in use.										Value of Fuel Consumed, including Motive Power Rented.
	Full Capacity.					Used on the average.					
	Steam.	Gas.	Electricity.	Water.	Oil.	Steam.	Gas.	Electricity.	Water.	Oil.	
Treating Raw Material: Product of	4,113	658	1,981	12	117	3,092	460	1,650	12	76	£
Pastoral Pursuits, etc. . . . .	889	11	614	..	..	655	8	495	..	..	59,005
Oils and Fats: Animal, Vegetable..	11,229	1,618	9,335	150	139	7,674	1,008	5,612	150	115	208,707
Processes in Stone, Clay, Glass, etc.	13,990	1,129	8,752	46	162	10,256	797	6,014	34	115	28,792
Working in Wood	46,352	2,441	39,988	..	333	25,853	1,775	23,582	..	239	567,186
Metal Works, Machinery, etc. . . .	22,419	4,861	10,265	40	396	15,580	3,588	7,709	25	256	272,132
Connected with Food, Drink, etc. . .	2,188	1,245	3,907	5	13	1,832	1,029	3,587	5	12	54,874
Clothing, Textile Fabrics, and Materials . . . . .	656	1,090	5,534	4	221	475	797	4,050	2	155	41,586
Books, Paper, Printing, etc. . . . .	1	70	296	..	..	1	70	293	..	..	851
Musical Instruments, etc. . . . .	600	..	965	..	..	378	..	615	..	..	4,874
Arms and Explosives . . . . .	327	717	1,132	..	236	222	469	893	..	149	14,531
Vehicles and Fittings, Saddlery, etc.	2,063	44	6,105	..	21	1,899	42	1,871	..	20	21,226
Ship and Boat Building, etc. . . . .	320	432	2,239	8	27	252	265	1,426	5	10	10,530
Furniture, Bedding, and Upholstery	149	266	1,843	..	90	106	215	1,519	..	90	16,640
Drugs, Chemicals, and By-Products	..	4	36	..	..	..	2	32	..	..	239
Surgical and other Scientific Instruments	..	52	303	..	..	..	44	263	..	..	2,058
Jewellery, Timepieces, and Plated Ware . . . . .	170,333	3,967	2,532	106	899	91,111	2,586	1,414	36	592	419,850
Heat, Light, and Power . . . . .	10	112	135	..	..	6	95	112	..	..	1,135
Leatherware, N.E.I. . . . .	411	95	812	5	4	320	62	645	6	4	7,434
Minor Wares, N.E.I. . . . .	..	..	..	..	..	..	..	..	..	..	..
Total ..	270,550	18,812	96,775	376	2,648	159,712	13,312	61,702	274	1,830	1,766,664

#### SALARIES AND WAGES.

The figures representing salaries and wages, as stated throughout this chapter, are exclusive of amounts drawn by working proprietors.

The salaries and wages paid to employees in manufactories and works amounted in 1916-17 to £14,381,309; male workers received £12,727,172, or £149 6s. 11d. per head; and female workers £1,654,137, or £57 9s. 10d.

per head. A comparison of the total amount of salaries and wages paid during each year of the quinquennium, 1912-17, is shown below, together with the average amount received and the average time worked per employee.

Year.	Salaries and Wages (exclusive of drawings by Working Proprietors).				Average time worked per Employee.
	Total.	Average per Employee.			
		Male.	Female.	Total.	
	£	£ s. d.	£ s. d.	£ s. d.	months.
1912	11,592,052	122 10 4	48 7 9	104 8 10	11.59
1913	12,683,384	127 15 4	50 5 10	109 13 2	11.62
1914-15	12,667,721	130 19 3	52 18 10	112 18 11	11.46
1915-16	13,413,845	141 9 1	53 14 6	119 5 11	11.56
1916-17	14,381,309	149 6 11	57 9 10	126 3 3	11.55

In 1905 the general average amounted to £77 12s. 2d. per worker; in 1906 it was somewhat less, but since 1907 it has increased steadily; in 1914-15 it was 42 per cent. higher than in 1906, in 1915-16 it was nearly 55 per cent. higher, and in 1916-17 it was nearly 63 per cent. higher.

In 1916-17 the largest amount of wages was paid in the class metal works and machinery, namely, £4,239,046 out of a total of £14,381,309; next in order are the classes clothing and textiles, food and drink, and books and printing.

The amounts paid in each class of industry during the years 1913, 1915-16, and 1916-17 were as follow:—

Class of Industry.	Salaries and Wages (exclusive of drawings by Working Proprietors).					
	Total Amount.			Average amount per employee.		
	1913.	1915-16.	1916-17.	1913.	1915-16.	1916-17.
	£	£	£	£ s. d.	£ s. d.	£ s. d.
Treating Raw Material, etc.	370,943	392,654	456,731	100 7 3	119 4 9	132 11 7
Oils, Fats, etc.	82,325	119,678	150,175	91 17 7	110 8 1	116 13 9
Stone, Clay, Glass, etc.	754,291	701,306	668,512	119 14 7	132 14 11	130 2 3
Working in Wood	979,464	831,684	856,466	113 13 7	121 6 10	129 18 11
Metal Works, Machinery, etc.	3,676,626	4,065,413	4,239,046	135 12 7	147 13 1	159 1 0
Connected with Food, Drink, etc.	1,568,207	1,618,761	1,849,842	106 9 0	115 14 11	122 9 0
Clothing, Textile Fabrics, etc.	1,840,414	1,932,134	2,052,531	71 16 8	75 10 6	81 2 9
Books, Paper, Printing, etc.	1,099,656	1,105,061	1,151,368	115 10 8	123 4 5	129 7 4
Musical Instruments, etc.	50,618	51,297	58,873	127 16 5	137 3 2	139 16 10
Arms and Explosives	48,424	239,457	239,492	129 9 6	193 5 4	177 5 5
Vehicles and Fittings, Saddlery, etc.	450,123	449,609	462,983	110 12 5	123 0 11	124 11 2
Ship and Boat building, etc.	464,912	590,174	674,056	140 6 7	162 9 1	161 18 4
Furniture, Bedding, and Upholstery, etc.	425,417	385,808	392,566	112 19 3	119 3 9	115 17 5
Drugs, Chemicals and By-products	132,363	170,526	196,135	100 13 2	102 12 1	109 18 10
Surgical and other Scientific Instruments	11,170	13,410	17,336	131 18 3	128 18 10	130 6 11
Jewellery, Time-pieces and Plated Ware.	93,784	89,846	89,171	123 1 6	138 17 4	136 2 9
Heat, Light, and Power	492,510	529,133	586,526	139 8 10	143 9 6	161 8 11
Leatherware, N.E.I.	49,190	56,800	57,703	£9 15 6	10 3 2	99 16 8
Minor Wares, N.E.I.	92,947	141,094	151,797	86 14 1	94 5 0	100 0 0
Total	12,683,384	13,413,845	14,381,309	109 13 2	119 5 11	126 3 3

The increase in the average amount paid per employee has been general throughout almost every class of industry. The high increase in the class arms and explosives is the result of the establishment of the Commonwealth Small Arms Factory, where highly skilled labour is engaged; but in other classes, including those connected with raw material, with oils and fats, with metals and machinery, with heat, light, and power, with ship and boat building, with minor wares, with food and drink, with timber, with clothing and textile fabrics, with paper and printing, with vehicles and harness, with

jewellery and watchmaking, with musical instruments, with drugs and chemicals, with clay, stone, etc., since 1913, the ante-bellum year, the increases in wages and salaries ranged from 32 to 9 per cent. In Class XIII, furniture and bedding, the increase amounted only to 1 per cent., and in Class XVIII, leatherware, it was practically negligible; whilst in Class XV, surgical and scientific instruments and appliances, there was an actual decrease amounting to over 1 per cent.

Reverting to Class X arms and explosives, it must be remembered that the high rate of increase in the average amount paid per employee in wages and salaries does not apply generally, and is confined to the Small Arms Factory at Lithgow, which is an enterprise of the Defence Department of the Commonwealth Government, and of which detailed particulars may not be given.

The average amount per employee is lowest in the class clothing and textiles, where women and juveniles are largely in excess of adult male workers, in leatherware, in minor wares, in drugs and chemicals, in furniture and bedding, and in establishments treating oils and fats. The important classes of industry most affected by the employment of females were those related to clothing, the manufacture of textile fabrics, food and drink, printing, binding, paper-making, and box-making. Female employment in association with the majority of other manufacturing industries was mainly of a clerical nature.

The following comparison shows the average earning per employee of each sex in 1913, in 1915-16, and in 1916-17. During the period shown in the table the general average for male employees has increased by £21 11s. 7d., or nearly 17 per cent., and for females by £7 4s. 0d., or over 14 per cent.; but no allowance has been made for intermittent employment, skilled or unskilled labour, or other important factors affecting the comparison.

Available information indicates that the average time worked in all industries, 11.55 months, was lower than in 1912 and 1913, but higher than in 1914-15, and the same as in 1911; and that the proportion of employees under 16 years of age was 3½ per cent. of males and 8½ per cent. of females in the earlier year, as compared with slightly over 3 per cent. of males and almost 10 per cent. of females in 1916-17.

Class of Industry.	Average Annual Amount of Wages per Employee, excluding Working Proprietors.					
	Males.			Females.		
	1913.	1915-16.	1916-17.	1913.	1915-16.	1916-17.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Treating Raw Material: Product of Pastoral Pursuits, etc. . . . .	101 15 3	121 1 2	134 13 10	51 12 0	55 17 5	62 12 8
Oils and Fats: Animal, Vegetable. . . . .	104 12 1	123 7 2	132 16 7	48 8 11	58 0 9	57 0 0
Processes in Stone, Clay, Glass, etc. . . . .	120 8 6	133 13 5	131 6 3	43 10 11	55 3 3	57 18 6
Working in Wood . . . . .	114 2 7	121 18 7	130 13 5	60 3 11	70 18 11	79 15 11
Metal Works, Machinery, etc. . . . .	136 6 0	149 2 1	160 11 7	57 2 5	57 8 3	72 17 1
Connected with Food, Drink, etc. . . . .	125 2 8	139 18 9	147 1 7	48 0 0	52 13 9	55 13 7
Clothing, Textile Fabrics, etc. . . . .	126 2 1	138 12 5	149 11 11	51 0 7	53 11 6	57 4 6
Books, Paper, Printing, etc. . . . .	141 2 9	150 11 8	156 17 4	47 4 7	52 19 7	58 18 5
Musical Instruments, etc. . . . .	136 8 3	149 9 5	150 4 0	49 4 1	42 7 5	59 3 4
Arms and Explosives . . . . .	131 13 0	193 18 1	177 12 7	50 6 0	36 0 0	55 10 0
Vehicles and Fittings, Saddlery, etc. . . . .	111 9 5	124 12 10	126 15 2	64 1 11	68 12 1	72 4 8
Ship and Boat Building, etc. . . . .	140 6 10	162 10 11	162 7 11	100 0 0	89 8 0	62 12 0
Furniture, Bedding, and Upholstery . . . . .	121 11 10	129 10 11	127 3 9	48 1 2	57 5 7	54 8 3
Drugs, Chemicals, and By-Products . . . . .	137 17 2	138 15 5	151 19 0	47 15 3	49 11 8	52 19 10
Surgical and other Scientific Instruments . . . . .	149 9 7	153 8 7	159 9 8	64 3 4	59 2 3	62 12 0
Jewellery, Timepieces, and Plated Ware. . . . .	130 3 5	148 19 7	146 14 8	68 0 11	73 15 2	69 12 8
Heat, Light, and Power . . . . .	140 16 1	143 19 11	162 4 0	60 12 8	69 15 5	70 10 8
Leather, N.E.I. . . . .	113 2 1	117 0 6	121 12 4	52 3 4	68 2 4	53 3 8
Minor Industries, N.E.I. . . . .	101 13 1	117 13 0	121 6 1	48 15 4	53 7 7	59 4 5
Total . . . . .	127 15 4	141 9 1	149 6 11	50 5 10	53 14 6	57 9 10

The following are the index levels of the average annual amount of wages paid to the total number of employees in manufactories and works during the years 1907-17.

Wages in 1911=1,000.

Class of Industry.	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914-15.	1915-16.	1916-17.
Treating Raw Material, etc. . . . .	777	838	846	962	1,000	969	1,113	1,201	1,322	1,470
Oils, Fats, etc. . . . .	954	1,030	1,029	1,042	1,000	1,100	1,173	1,328	1,469	1,489
Processes in Stone, Clay, Glass, etc. . . . .	808	868	922	883	1,000	1,104	1,080	1,164	1,198	1,174
Working in Wood . . . . .	891	901	931	947	1,000	1,107	1,168	1,214	1,245	1,334
Metal Works, Machinery, etc. . . . .	873	919	932	962	1,000	1,083	1,114	1,075	1,213	1,306
Connected with Food, Drink, etc. . . . .	815	842	897	957	1,000	1,037	1,113	1,198	1,211	1,281
Clothing, Textile Fabrics, etc. . . . .	781	890	869	923	1,000	1,083	1,125	1,168	1,183	1,271
Books, Paper, Printing, etc. . . . .	886	880	957	981	1,000	1,103	1,153	1,221	1,230	1,291
Musical Instruments, etc. . . . .	826	838	912	932	1,000	1,055	1,107	1,124	1,188	1,211
Arms and Explosives . . . . .	1,282	1,114	1,242	729	1,000	1,910	1,905	1,725	2,844	2,608
Vehicles and Fittings, Saddlery, etc. . . . .	907	909	981	1,078	1,000	1,217	1,262	1,344	1,404	1,422
Ship and Boat building, etc. . . . .	1,007	976	986	887	1,000	1,069	1,099	1,124	1,272	1,268
Furniture, Bedding, and Upholstery . . . . .	774	781	883	887	1,000	1,035	1,071	1,070	1,120	1,088
Drugs, Chemicals, and By-products . . . . .	814	870	899	908	1,000	1,064	1,149	1,111	1,169	1,252
Surgical and other Scientific Instruments . . . . .	886	789	1,000	951	1,000	1,119	1,399	1,237	1,368	1,883
Jewellery, Time-pieces and Plated Ware . . . . .	786	874	893	902	1,000	1,068	1,161	1,266	1,310	1,284
Heat, Light, and Power . . . . .	889	933	916	978	1,000	1,002	1,042	1,065	1,072	1,206
Leatherware, N.E.I. . . . .	794	823	851	878	1,000	1,167	1,188	1,103	1,216	1,119
Minor Wares, N.E.I. . . . .	834	863	943	942	1,000	1,104	1,183	1,228	1,286	1,364
Mean of all Industries . . . . .	837	879	906	943	1,000	1,085	1,138	1,172	1,238	1,309

The above table shows that wages in all industries were higher in the year 1916-17 than in 1911, also that with but two exceptions, namely, in Class XV surgical and other scientific instruments and Class XVIII leatherware, the wages further advanced between 1913 and 1916-17.

The wages in each class in the table are called 1,000 in 1911; therefore, the index levels can be compared only horizontally, not vertically.

VALUE OF PRODUCTION FROM MANUFACTORIES.

In a previous table giving the value of production from manufactories, returns from establishments dealing with milk products were included.

The value of goods manufactured or of work accomplished in 1916-17, excluding the production of establishments dealing with milk products, amounted to £80,730,790. Of this amount, £53,982,865 represents the cost of materials used and fuel consumed, the value added by processes of treatment, inclusive of salaries and wages, being £26,747,925.

The following table shows the proportion of each item combined in the process of production to the total output.

Heading.	Industries connected with Milk Products.	Other Industries.	All Industries.	Proportion of Total Output.
	£	£	£	per cent.
Materials . . . . .	4,792,504	52,252,163	57,044,667	66·4
Fuel, including Motive Power rented . . . . .	35,962	1,730,702	1,766,664	2·1
Salaries and wages . . . . .	156,209	14,225,100	14,381,309	16·8
Total . . . . .	4,984,675	68,207,965	73,192,640	85·3
Goods manufactured or work done . . . . .	5,213,530	80,730,790	85,944,320	...
Balance which accrued to Proprietors for general purposes and as profit.	228,855	12,522,825	12,751,680	14·7

The difference between the value of output and the cost of materials, fuel, and wages, as shown, represents the balance accruing to proprietors and manufacturers. Under the heading of fuel is included the cost of rented power, but waste-product used for fuel, as in saw-mills, is for the purposes of these tables regarded as valueless.

Thus, out of every hundred pounds' worth of goods produced in manufactures, the materials used and the fuel consumed in the manufacture thereof cost £68 10s., while the workers received £16 16s., and the proprietors £14 14s. There are, of course, numerous other items of expense, and the proprietors' share does not represent actual profits. A considerable amount must be allowed for depreciation and renewal of plant and machinery, etc., insurance, rent, advertising, rates, taxes (other than duty or income tax), and a sum to cover the interest on invested capital. After deducting from the total value of output the sums represented by these items, all of which are not necessarily incidental to every kind of manufacturing industry, the net balance remains as the actually accruing reward of the investment of capital represented by the individual enterprise. Many persons who work in their own establishments as managing directors, as foremen, or even as skilled artisans and supervising accountants, draw salaries; but the money thus earned by them is included in necessary working expenses, and must not be regarded as profit on capital invested.

The following table shows, in each class of industry, the value of goods manufactured or of work done, the amount paid in wages and salaries, the cost of materials used and of fuel consumed, and the proportionate value of manufactured goods represented by these various charges on production.

Class of Industry.	Goods Manufactured, or work done.	Materials used.	Fuel consumed, including motive power rented.	Salaries and Wages.	Proportionate Value of Manufactured Goods represented by—			
					Materials used.	Fuel, etc.	Salaries and Wages.	Balance.
	£	£	£	£	per cent.	per cent.	per cent.	per cent.
Treating Raw Material, Pastoral Products .. .. .	7,714,062	6,439,773	59,005	456,731	83·4	0·8	5·9	9·9
Oils and Fats, etc. .. .. .	2,030,059	1,537,066	35,014	150,175	75·7	1·7	7·4	15·2
Processes in Stone, Clay, Glass, etc. .. .. .	1,785,329	433,279	208,707	(68,512)	24·5	11·7	37·4	26·4
Working in Wood .. .. .	3,549,616	2,212,511	23,792	856,466	62·3	0·8	24·1	12·8
Metal Works, Machinery, etc. .. .. .	21,420,189	13,377,135	567,136	4,239,046	62·5	2·6	19·8	15·1
Connected with Food and Drink, etc. .. .. .	23,047,635	23,058,427	272,132	1,849,842	82·2	1·0	6·6	10·2
Clothing and Textile Fabrics, etc. .. .. .	7,890,275	4,381,167	54,874	2,052,531	56·2	0·7	26·3	16·8
Books, Paper, Printing, etc. .. .. .	3,504,378	1,532,211	41,586	1,181,368	43·7	1·2	33·7	21·4
Musical Instruments, etc. .. .. .	192,585	100,471	851	58,873	52·2	0·4	30·6	16·8
Arms and Explosives .. .. .	406,476	59,268	4,874	239,492	14·6	1·2	58·9	25·3
Vehicles, Fittings, and Saddlery, etc. .. .. .	1,124,913	425,551	14,531	462,983	37·8	1·3	41·2	19·7
Ship and Boat Building, etc. .. .. .	1,084,808	366,483	21,226	674,056	33·8	2·0	62·1	2·1
Furniture, Bedding, and Upholstery .. .. .	1,190,923	633,017	10,530	392,566	53·2	0·9	32·9	13·0
Drugs, Chemicals, and By-products .. .. .	1,656,748	986,603	16,640	196,135	59·6	1·0	11·8	27·6
Surgical and other Scientific Instruments .. .. .	48,385	16,720	239	17,336	34·6	0·5	35·8	29·1
Jewellery, Timepieces, and Plated Ware .. .. .	238,247	108,486	2,058	89,171	45·5	0·9	37·4	16·2
Heat, Light, and Power .. .. .	3,219,135	763,953	419,850	586,526	23·8	13·0	18·2	45·0
Leatherware, N.E.I. .. .. .	3·6,008	217,608	1,135	57,703	66·7	0·4	17·7	15·2
Minor Wares, N.E.I. .. .. .	604,499	362,938	7,434	151,797	60·0	1·2	25·1	13·7
Total .. .. .	85,944,320	57,044,667	1,766,664	14,381,309	66·4	2·1	16·7	14·8

\* Exclusive of drawings of working proprietors.

It is interesting to note the extent to which the value of materials is enhanced by the processes of treatment. For all industries materials were 66·4 per cent. of the value of the output, but there was great diversity amongst the various classes, the proportion ranging from 14·6 per cent. in those industries engaged in arms and explosives to over 83 per cent. in those treating the raw material of pastoral and agricultural products. These variations can be understood readily when the wide difference between the operations of the industries is considered, and the value of the

plant employed is taken into account. The extensive use of machinery is not, however, always the chief factor controlling the value added to materials, and the industries dealing with food and those engaged in ship-building may be cited as examples. In the former class materials represent over 82 per cent. and wages only 6.6 per cent. of the total value, while in the latter class the wages amount to about twice the value of materials used, and represent 62 per cent. of the total cost. It must be noted that in ship and boat building and repairing a very large proportion of the work consists of repairs and renovations in which the cost of materials is much less than in the manufacture of commodities.

The following table shows the proportion per cent. the cost of wages and materials, including fuel, bears to the total output of manufactories and works during the decennium 1907-17.

Year.	Wages.	Materials and Fuel.	Balance for Profit and Expenses.	Total.
1907	16.6	65.9	17.5	100.0
1908	18.0	65.7	16.3	100.0
1909	17.8	65.8	16.4	100.0
1910	17.5	65.6	16.9	100.0
1911	18.6	64.2	17.2	100.0
1912	18.9	62.9	18.2	100.0
1913	19.3	63.8	16.9	100.0
1914-15	18.6	64.3	17.1	100.0
1915-16	18.9	64.5	16.6	100.0
1916-17	16.7	68.5	14.8	100.0

The following statement shows the progress of manufactories, inclusive of those connected with milk products, the value of production, and the amount paid in wages during each of the last ten years.

Year.	Value of—					Salaries and Wages paid, exclusive of drawings of Working Proprietors.
	Materials Used.	Fuel consumed, including Motive Power rented.	Goods manufactured, or work done.	Production, being Value added to Raw Materials	Production per head of Population.	
	£	£	£	£	£ s. d.	£
1907	25,533,451	843,686	40,018,301	13,641,164	9 0 0	6,650,715
1908	25,507,414	876,565	40,163,826	13,779,847	8 18 4	7,218,556
1909	27,314,486	940,840	42,960,689	14,705,363	9 6 6	7,665,125
1910	31,379,604	1,184,282	49,615,643	17,051,757	10 11 1	8,687,007
1911	33,670,951	1,242,613	54,346,011	19,432,447	11 13 6	10,047,662
1912	37,122,441	1,360,141	61,163,328	22,680,746	13 0 11	11,592,052
1913	40,537,476	1,371,425	65,672,495	23,763,594	13 2 8	12,683,384
1914-15	42,559,370	1,364,186	68,253,332	24,329,776	13 1 3	12,667,721
1915-16	44,227,079	1,528,220	70,989,864	25,234,565	13 10 4	13,413,845
1916-17	57,044,667	1,766,664	85,944,320	27,132,989	14 11 0	14,381,309

The production per head of population has increased by £5 11s., or nearly 62 per cent., since 1907, and the value is now the largest from all industries, having been for the last five years greater than that from the pastoral industry.

The subjoined table shows the cost of materials (including fuel) per individual engaged in manufacturing, under each class of industry, for the five years 1912-17.

Class of Industry.	1912.	1913.	1914-15.	1915-16.	1916-17.
	£	£	£	£	£
Treating Raw Material, etc. ...	1012·41	1153·19	1281·88	1460·83	1776·11
Oils, Fats, etc. ...	892·23	814·84	875·77	932·88	1208·36
Processes in Stone, Clay, Glass, etc. ...	90·77	82·85	90·73	114·78	121·59
Working in Wood ...	254·41	258·89	259·27	284·77	315·19
Metal Works, Machinery, etc. ...	360·49	367·85	293·49	371·55	514·74
Connected with Food, Drink, etc. ...	1035·41	1058·72	1292·43	1206·32	1503·26
Clothing, Textile Fabrics, etc. ...	106·12	112·68	130·02	149·31	169·26
Books, Paper, Printing, etc. ...	98·12	100·93	109·80	131·94	165·16
Musical Instruments, etc. ...	166·55	168·71	170·08	182·43	235·09
Arms and Explosives... ..	*292·23	*318·14	*163·78	*124·53	*162·04
Vehicles and Fittings, Saddlery, etc. ...	100·82	106·90	104·76	113·79	112·19
Ship and Boat Building, etc. ...	62·88	67·12	56·41	64·39	92·64
Furniture, Bedding, and Upholstery ...	144·41	153·65	154·50	162·90	177·00
Drugs, Chemicals, and By-products ...	362·75	413·63	481·94	549·54	553·67
Surgical and Scientific Instruments ...	77·13	88·19	54·94	63·95	115·37
Jewellery, Timepieces, and Plated Ware... ..	154·04	170·72	159·53	152·72	160·44
Heat, Light, and Power ... ..	248·53	234·97	257·63	255·49	322·04
Leatherware, N.E.I. ... ..	285·70	291·13	286·21	301·56	363·36
Minor Wares, N.E.I. ... ..	193·97	187·91	187·09	222·94	233·08
<b>Totals</b> ... ..	<b>333·41</b>	<b>348·90</b>	<b>378·64</b>	<b>396·61</b>	<b>503·57</b>

\*Excluding Commonwealth Small Arms Factory.

The foregoing table shows a general increase for the five years under review, but there have been fluctuations. Persons engaged in one class only of manufacturing industry handled in 1916-17 materials of lower value than in 1915-16. The class to which reference is made included those industries connected with the manufacture of all kinds of vehicles, saddlery, harness, and whips, and the decrease in the value of the materials handled by the individual employed amounted to £1 12s. An examination of the table shows that there had been decreases and recoveries during preceding years in the value of materials per employee in the classes treating raw material, oils and fats, metal works and machinery, arms and explosives, vehicles and saddlery, ship and boat building, surgical and scientific instruments, jewellery, heat and light, leatherware, and minor wares.

The advances in the average value of materials handled by individuals working therein under different heads of industry during the year 1916-17, as compared with the returns for the preceding twelve months, ranged from £4·13 (drugs, chemicals, etc.) to £315·28 (pastoral and agricultural raw products). Food and drink showed an advance of £296·94 per individual working therewith; oils and fats, an advance of £275·48; metal works and machinery, £143·19; clothing and textile fabrics, £66·55; leatherware, £61·80; surgical and scientific instruments, etc., £51·42; arms and explosives, £37·51; and the printing and allied trades, £33·22. The total advance for all industries was £106·96.

An examination of the preceding and following tables reveals some curious results. In the manufacture of clothing and textile fabrics the average value of the work done per individual was £128 per annum—that is, the amount, less the cost of materials and fuel, at which output was listed; and the average value of raw material, less the cost of fuel, treated by each person was £167. The group of miscellaneous industries denominated minor wares came next with an average individual value of labour of £147 applied to an average value of raw material of £228. The amounts under furniture,

bedding, and upholstery were, respectively, £150 and £174; under vehicles and fittings, etc., £159 and £109; under ship and boat building, £166 and £88; under leatherware, £178 and £359; under working in wood, £184 and £311; under jewellery and timepieces, £185 and £157; under books, paper, and printing, £203 and £161; under musical instruments and sewing machines, £212 and £233 under surgical and other scientific instruments and appliances, £214 and £114; under processes in stone, clay, glass, etc., £214 and £82; under arms and explosives (exclusive of the Commonwealth Small Arms Factory), £424 and £161; under metal works and machinery, £276 and £494; under food and drink, £304 and £1,486; under pastoral and agricultural raw products, £332 and £1,759; under oils and fats, £352 and £1,181; under drugs, chemicals, etc., £360 and £544; and under heat, light, and power, £553 and £208. In the first of the foregoing items in each class is represented the value per employee added to raw material, ascertained by deducting from output the cost of raw materials and fuel; and in the second, the cost of raw material per employee; the cost of fuel being excluded from the calculation.

The following table shows the production or value per individual worker added to raw materials in the process of manufacture, during the past five years.

Class of Industry.	1912.	1913.	1914-15.	1915-16	1916-17.
	£	£	£	£	£
Treating Raw Material, etc. ... ..	186·92	192·69	195·89	263·47	332·14
Oils, Fats, etc. .... ..	336·47	257·17	291·29	344·97	352·02
Processes in Stone, Clay, Glass, etc. ....	213·89	201·47	211·65	225·63	213·93
Working in Wood .... ..	156·73	153·31	158·60	156·62	183·98
Metal Works, Machinery, etc. .... ..	241·17	229·72	233·21	254·85	275·96
Connected with Food, Drink, etc. .... ..	283·06	284·97	326·93	301·80	303·93
Clothing, Textile Fabrics, etc. .... ..	102·23	105·19	113·03	120·23	128·37
Books, Paper, Printing, etc. .... ..	171·54	178·25	166·23	190·43	202·60
Musical Instruments, etc. .... ..	204·86	219·50	212·76	206·22	211·75
Arms and Explosives .... ..	*113·75	*136·85	*146·36	*103·83	*423·85
Vehicles and Fittings, Saddlery, etc. ....	143·80	153·28	155·39	165·17	159·01
Ship and Boat-building, etc. .... ..	158·01	167·40	163·14	183·08	166·57
Furniture, Bedding, and Upholstery ....	150·33	152·19	153·26	157·13	150·54
Drugs, Chemicals, and By-products ....	289·35	338·39	313·40	328·48	360·65
Surgical and other Scientific Instruments	184·96	194·99	165·85	200·90	213·78
Jewellery, Timepieces and Plated Ware	177·72	174·94	182·98	200·36	185·34
Heat, Light and Power .... ..	497·43	522·33	553·34	499·43	553·68
Leatherware, N.E.I. .... ..	170·64	169·58	184·66	181·75	178·01
Minor Wares, N.E.I. .... ..	133·72	142·26	143·62	150·10	147·34
<b>Total</b> ... ..	<b>196·54</b>	<b>197·54</b>	<b>208·95</b>	<b>216·55</b>	<b>229·72</b>
	*	•	*	*	*

\* Excluding Commonwealth Small Arms Factory.

It should be noted that the foregoing table does not submit a comparative value of labour as utilised in any particular industry and contrasted with that utilised in any other; nor does it show that the amount of labour done by each worker has increased in value. It shows simply the average cost of the work done in processes of manufacture by each individual; while the table preceding it exhibits the value of raw materials and fuel treated by each individual.

The figures show, moreover, that the production per employee in some manufacturing industries has increased in value during the period under review, as a consequence of the increase in the cost of materials, and in wages, although there have been certain periodic declines. Twelve classes

come within this category, the increase in the value of production per individual employed therein amounting respectively, during the year intervening between 1915-16 and 1916-17, to the following amounts:—Arms and explosives, £149; the treatment of raw pastoral and agricultural products, £69; heat, light, and power, £54; drugs, chemicals, etc., £32; working in wood, £27; metals and machinery, £21; surgical and other scientific instruments and appliances, £13; the printing and allied trades, £12; clothing and textile fabrics, £8; the treatment of oils and fats, £7; musical instruments and sewing machines, £5; and food and drink, £2.

During the year 1916-17 there was a falling off in production per employee under the industries classed as ship and boat building, the manufacture of jewellery and timepieces, processes in stone, clay, and glass, furniture and bedding, vehicles and saddlery, leatherware, and minor wares, amounting, in the order given, respectively to £16.51, £15.02, £11.7, £6.59, £6.16, £3.74, and £2.76.

The ratio of the annual expenditure in wages and salaries to the value of production varies considerably even in establishments devoted to the same industry, and is largely a matter of efficient management. The relative cost of labour declines in periods of activity and increases in periods of slackness; and if the exigencies of increased demand require factories to work overtime the increased outlay in wages is counterbalanced by the impetus which total output gains from full exploitation of its resources. The cost of production, under the industrial laws of the State, is dependent, as far as the human factor is concerned, on the standard minimum of a living wage.

The following table shows the proportion per cent. of the annual expenditure in wages and salaries to the value of production for the five years 1912-1917.

Class of Industry.	1912.	1913.	1914-15.	1915-16.	1916-17.
	per cent.				
Treating Raw Material, etc. ... ..	43.4	48.2	51.5	42.2	37.6
Oils, Fats, etc. ... ..	24.7	24.7	34.7	31.5	32.8
Processes in Stone, Clay, Glass, etc. ... ..	54.8	57.0	58.7	56.8	58.7
Working in Wood ... ..	63.3	68.8	68.6	71.8	65.5
Metal Works, Machinery, etc. ... ..	53.6	57.9	55.1	57.0	56.7
Connected with Food, Drink, etc. ... ..	33.9	36.2	34.0	37.2	39.2
Clothing, Textile Fabrics, etc. ... ..	64.0	65.5	63.5	60.8	61.0
Books, Paper, Printing, etc. ... ..	61.3	61.6	70.1	61.9	61.2
Musical Instruments, etc. ... ..	58.0	56.8	59.3	65.3	64.5
Arms and Explosives ... ..	*75.8	*61.8	*72.9	*88.3	*22.4
Vehicles and Fittings, Saddlery, etc. ... ..	67.0	64.5	68.3	67.2	70.4
Ship and Boat-building, etc. ... ..	85.3	82.7	87.2	88.2	96.7
Furniture, Bedding, and Upholstery ... ..	67.8	69.3	69.8	70.9	71.7
Drugs, Chemicals, and By-products ... ..	31.3	28.7	30.2	30.7	30.0
Surgical and other Scientific Instruments ... ..	49.9	59.1	60.3	58.0	55.2
Jewellery, Time-pieces, and Plated Ware ... ..	59.7	65.6	68.7	65.2	69.8
Heat, Light, and Power ... ..	26.7	26.4	25.4	28.4	28.8
Leatherware, N.E.I. ... ..	53.8	55.3	47.7	53.7	53.8
Minor Wares, N.E.I. ... ..	57.5	57.8	59.5	60.5	64.8
Total ... ..	51.0	53.3	52.0	52.8	52.8
	*	*	*	*	*

\* Excluding Commonwealth Small Arms Factory.

There have been increases in the relative rate of wages in no fewer than 11 industries, and decreases in 8. Of the former, ship and boat building was debited with 8.5 per cent., jewellery, timepieces, and plated ware with 4.6 per cent., minor wares with 4.3 per cent., vehicles, fittings, saddlery, and

harness with 3·2 per cent., manufactures connected with food and drink with 2 per cent., processes in stone, clay, glass, etc., with 1·9 per cent., oils, fats, etc., with 1·3 per cent., furniture, bedding, and upholstery with 0·8 per cent., light, heat, and power with 0·4 per cent., clothing and textile fabrics with 0·2 per cent., and leatherware manufactures with 0·1 per cent. The decreases, in the proportion per cent. of the annual expenditure in wages and salaries to the value of production in 1916-7, were as follow:—Arms and explosives, 65·9 per cent.; working in wood, 6·3 per cent.; treatment of raw materials (animal and vegetable), 4·6 per cent.; surgical instruments, &c., 2·8 per cent.; musical instruments and sewing machines, 0·8 per cent.; printing and allied crafts, 0·7 per cent.; drugs, chemicals, etc., 0·7 per cent.; and metal working and machinery, 0·3 per cent.

The class relating to ship and boat building exhibits the highest ratio per cent. of the annual expenditure in wages and salaries to the value of production for each of the five years of the period under review; the class relating to arms and explosives only excepted, of all the manufacturing industries of New South Wales; and the reason is to be found in the fact that both the classes named include Government establishments. It will, therefore, be convenient to give a statement of the results of the ship and boat building industry for the year 1916-17, apart from figures affecting the Commonwealth Naval Dockyard at Cockatoo Island, Sydney, and the New South Wales Government Dockyard at Walsh Island, Newcastle. During the year 1916-17, in the private ship and boat building establishments of the State 1,541 persons were employed, including 22 working proprietors, all males, and 14 females in the clerical branch; the output was valued at £349,158; the materials used, at £93,744; and the fuel consumed, at £5,926; and the salaries and wages, exclusive of drawings by working proprietors, amounted to £220,476. Hence the relation of these various items to the total value of the output was as follows:—Materials used, 26·9 per cent.; fuel consumed, 1·7 per cent.; salaries and wages paid, 63·1 per cent.; and the balance, representing the manufacturers' margin on production, amounted to 8·3 per cent. The cost of materials (including fuel), per individual engaged, amounted to £64·7; the production or value per individual worker added to raw materials in the process of manufacture, to £161·9; and the proportion per cent. of the annual expenditure in wages and salaries to the value of production, to 63·1 per cent. The full capacity of the machinery installed in private ship and boat building yards in 1916-17 was 2,992 h.p., of which electric power represented 864 h.p., the power actually used was 2,756 h.p., inclusive of 795 electric horse-power. The value of land, buildings, and fixtures, including the rent of occupied premises calculated on a fifteen years' purchase valuation, was £191,262; and the value of plant, machinery, tools, and appliances, £247,740.

The ratio per cent. of the annual expenditure in wages and salaries to the value of production for the remaining eighteen classes of manufacturing industry during the year 1916-7 was as follows:—Furniture, bedding, and upholstery, 71·7; vehicles, fittings, saddlery, and harness, 70·4; arms and explosives, 70·0; jewellery, timepieces, and platedware, 69·8; working in wood, 65·5; miscellaneous industries described as minor wares, 64·8; musical instruments and sewing machines, 64·5; the printing, binding, and allied crafts, 61·2; clothing and textile fabrics, 61; brickmaking and the manufacture of pottery, &c., 58·7; metal working and machinery, 56·7; surgical and other scientific instruments and appliances, 55·2; leatherware manufactures, 53·8; food and drink, 39·2; the treatment of raw material (animal and vegetable), 37·6; the treatment of oils and fats, 32·8; drugs, chemicals, &c., 30; and heat, light, and power, 28·8.

The following table shows the principal facts relating to each class of manufacturing industry conducted in the State during the year 1916-17.

Class of Industry.	Establishments.	Average Number of Employees.			Average time worked per Employee.	Total Salaries and Wages, exclusive of Drawings of Working Proprietors.	Horse-power of Machinery—Average used.	Value of Machinery, Tools, and Plant.
		Males.	Females.	Total.				
Treating Raw Material, etc. ....	256	3,558	101	3,659	10-53	456,731	5,290	437,304
Oils, Fats, etc. ....	38	1,027	274	1,301	11-94	150,175	1,158	362,421
Processes in Stone, Clay, Glass, etc.	278	5,235	86	5,321	10-54	668,512	14,559	1,193,363
Working in Wood ....	645	7,017	94	7,111	11-03	856,466	17,216	347,592
Metal Works, Machinery, etc. ....	599	26,625	465	27,090	11-59	4,239,046	51,446	5,660,149
Connected with Food, Drink, etc. ....	787	11,427	4,093	15,520	11-34	1,849,842	27,158	3,846,352
Clothing, Textile Fabrics, etc. ....	1,035	7,197	19,011	26,203	11-78	2,052,531	6,415	628,999
Books, Paper, Printing, etc. ....	455	6,953	2,176	9,529	11-12	1,181,368	5,479	1,281,310
Musical Instruments, etc. ....	13	382	49	431	11-98	58,873	361	14,511
Arms and Explosives ....	5	1,350	4	1,354	12-00	239,492	993	144,913
Vehicles and Fittings, Saddlery, etc.	434	3,983	154	4,137	11-61	462,963	1,705	166,922
Ship and Boat Building, etc. ....	85	4,165	20	4,185	11-96	74,656	3,832	1,200,586
Furniture, Bedding, and Upholstery	253	3,105	531	3,636	11-24	392,566	1,958	87,507
Drugs, Chemicals, and By-products	113	1,053	759	1,812	11-89	196,135	1,931	248,776
Surgical and other Scientific Instruments	17	106	41	147	11-97	17,336	34	7,930
Jewellery, Timepieces, and Plated Ware	52	599	90	689	11-94	89,171	307	27,913
Heat, Light, and Power ....	222	3,645	31	3,676	11-65	596,526	95,739	4,084,161
Leatherware, N.E.I. ....	25	418	184	602	11-76	57,703	213	13,780
Minor Wares, N.E.I. ....	94	1,065	524	1,589	11-72	151,797	1,036	102,613
Total ... ..	5,356	88,910	29,087	117,997	11-55	14,381,304	236,830	20,364,122

The metropolitan district is the centre of the chief manufacturing industries, particularly those connected with clothing, printing, wool-scouring and fellmongering, ship and boat building and repairing, and the manufacture of furniture, drugs, and musical instruments. The following table shows particulars respecting each class of industry in the metropolitan district during the year 1916-17.

Class of Industry.	Establishments.	Average Number of Employees.			Average time worked per Employee.	Total Salaries and Wages, exclusive of Drawings of Working Proprietors.	Horse-power of Machinery—Average used.	Value of Machinery, Tools, and Plant.
		Males.	Females.	Total.				
Treating Raw Material, etc. ....	104	2,354	98	2,452	11-84	350,688	3,688	316,773
Oils, Fats, etc. ....	25	725	226	951	11-92	115,213	796	292,257
Processes in Stone, Clay, Glass, etc.	123	3,228	50	3,278	10-37	419,539	6,868	555,009
Working in Wood ....	209	3,335	61	3,396	11-70	445,441	9,178	382,329
Metal Works, Machinery, etc. ....	417	17,027	435	17,462	11-83	2,655,741	13,715	2,252,023
Connected with Food, Drink, etc. ....	251	6,468	3,821	10,289	11-78	1,190,365	14,119	2,269,020
Clothing, Textile Fabrics, etc. ....	777	6,019	17,211	28,236	11-79	1,825,121	5,101	519,445
Books, Paper, Printing, etc. ....	256	5,753	2,462	8,215	11-92	1,022,952	4,817	1,029,022
Musical Instruments, etc. ....	13	382	49	431	11-98	58,873	364	14,511
Arms and Explosives ....	4	23	3	26	12-00	2,470	15	1,650
Vehicles and Fittings, Saddlery, etc.	201	2,370	121	2,491	11-54	289,276	923	87,276
Ship and Boat Building, etc. ....	31	2,993	14	3,007	11-94	499,128	3,233	979,448
Furniture, Bedding, and Upholstery	224	2,865	524	3,389	11-19	385,233	1,796	78,337
Drugs, Chemicals, and By-products	102	872	718	1,620	11-88	170,161	1,518	128,683
Surgical and other Scientific Instruments	16	105	40	145	11-97	17,336	33	7,890
Jewellery, Timepieces, and Plated Ware	50	584	89	673	11-94	87,065	307	27,253
Heat, Light, and Power ....	90	2,203	17	2,220	11-86	327,402	68,194	2,815,241
Leatherware, N.E.I. ....	25	418	184	602	11-76	57,703	213	13,780
Minor Wares, N.E.I. ....	87	1,009	518	1,527	11-72	148,036	1,001	107,157
Total ... ..	3,005	58,733	26,671	85,404	11-74	10,057,743	128,884	11,887,044

EMPLOYMENT.

The relative importance of different manufacturing industries, based on their capacity to employ human labour, is shown in the following comparative statement of the average number of persons engaged.

Class of Industry.	Persons engaged, including Working Proprietors.				
	1912.	1913.	1914-15.	1915-16.	1916-17.
Treating Raw Material, etc.: Pastoral Products	3,872	3,992	3,818	3,528	3,659
Oils and Fats: Animal, Vegetable, etc. ...	595	923	1,008	1,103	1,301
Processes in Stone, Clay, Glass, etc. ...	5,932	6,563	6,256	5,470	5,321
Working in Wood ... ..	8,880	9,293	8,185	7,397	7,111
Metal Works, Machinery, etc. ... ..	25,550	27,619	26,407	27,967	27,090
Connected with Food, Drink, etc. ... ..	14,249	15,197	15,390	14,409	15,520
Clothing, Textile Fabrics, etc.... ..	27,059	26,565	24,869	26,440	26,208
Books, Paper, Printing, etc. ... ..	9,441	10,009	9,279	9,368	9,529
Musical Instruments, etc. ... ..	416	406	354	381	431
Arms and Explosives ... ..	188	379	700	1,243	1,354
Vehicles and Fittings, Saddlery, etc....	4,415	4,550	4,080	4,049	4,137
Ship and Boat Building, etc. ... ..	3,169	3,358	4,710	3,223	4,185
Furniture, Bedding, and Upholstery ...	3,974	4,035	3,642	3,464	3,636
Drugs, Chemicals, and By-products ...	1,574	1,365	1,559	1,691	1,812
Surgical and other Scientific Instruments	97	97	112	115	147
Jewellery, Timepieces, and Plated Ware	863	816	714	688	689
Heat, Light, and Power ... ..	3,387	3,577	3,721	3,728	3,676
Leatherware, N.E.I. ... ..	495	525	532	582	602
Minor Wares, N.E.I. ... ..	1,132	1,131	1,275	1,555	1,589
<b>Total ... ..</b>	<b>115,561</b>	<b>120,400</b>	<b>116,611</b>	<b>116,401</b>	<b>117,997</b>

During the quinquennial period 1902-7 the increase in the number of persons engaged in manufacturing industries amounted to 20,198, and during the quinquennial period 1907-12 to 29,094; the increase for the year intervening between 1912 and 1913 was 4,839, and during the quinquennial period 1912-17 it was 2,436; there was, however, a decline of 3,789 persons during the two years 1913-15, and during 1915-16 a further decline of 210 persons, but the following year showed an increase of 1,596. Since 1913 there has been an actual decrease in the number engaged in manufacturing industry of 2,403 workers, or nearly 2 per cent., which is an improvement on the proportional decrease 1913-16, which amounted to over 3 per cent. In quinquennial periods the aggregate figures for all classes give the following increases:—

1897-1902	28.8 per cent.
1902-1907	30.5 „
1907-1912	33.6 „
1912-1917	2.1 „

The incidence of the war is evidenced by great increases in the number of workers employed under classes of industry related to the manufacture of arms and explosives and the building of ships, which were respectively

620 and 32 per cent. The quinquennial increases per cent. of employment relating to other classes, given in their diminishing ratio, were as follow:—Surgical instruments, etc., 51·5; oils and fats, 45·4; minor wares, 43·7; leatherware, 21·6; drugs and chemicals, 15; heat, light, and power, 8·5; food and drink, 7·7; metal working and machinery, 6; musical instruments and sewing machines, 3·6; and books and printing, 1 per cent. Seven classes showed quinquennial decreases per cent. in the number of persons employed, namely:—Jewellery, timepieces, and plated ware, 20; working in wood, 19·9; processes in stone, clay, glass, etc., 10·3; furniture, bedding, and upholstery, 8·5; vehicles, fittings, saddlery, and harness, 6·3; the treatment of raw materials (animal and vegetable products), 5·5; and clothing and textile fabrics, 3 per cent.

There is, of course, a limit to the expansion of existing industries—but it is a limit imposed by the consuming capacity of the community, or by its preference for locally manufactured rather than for imported commodities, plus the power of oversea markets to absorb the country's exports. In certain established industries, New South Wales had almost reached that limit prior to the outbreak of the great war in Europe, when a number of new factors operated in the incidence of manufactured production. It is evident that a great number of secondary industries could be established in New South Wales, as large quantities of raw material now exported in bulk could be treated locally, and there are sources of mineral utility which have not yet been exploited.

During the quinquennial period 1912–17 the increase in manufacturing industrial employment was only 2·1 per cent., as against 33·6 per cent. during the preceding quinquennium. The slow increase here shown cannot be attributed entirely to the War; because the rate of progress had already exhibited signs of a decline during the first half of the period, prior to the declaration of hostilities. Indeed, the War, while acting retardingly with respect to some manufacturing industries, has stimulated others. Industries operating in metal works and machinery suffered a loss in personnel of employment during the year 1914–15, but recovered in 1915–16, and at the latter period furnished with occupation 348 persons more than were employed in 1913. In 1916–17 there were, however, 877 fewer workers engaged in the manufacturing metal industries than during the preceding year, and 529 fewer than in 1913.

The increase of workers for the quinquennium, 1912–17, was 6 per cent. Those working in clothing and textile fabrics in 1912 numbered 27,059, but decreased to 26,565 in 1913, and to 24,869 in 1914–15, though the succeeding year witnessed a recovery to 26,440, followed in 1916–17 by a decline to 26,208, or a loss on the number employed in 1912 amounting to 851 persons, notwithstanding the great demand for the production of cloth for the equipment of soldiers. Those working industries connected with the manufacture of articles of food and drink numbered 14,249 in 1912, and increased to 15,197 in 1913, and to 15,390 in 1914–15, but in the succeeding year the number declined to 14,409. In 1916–17, however, it rose to 15,520, the highest figures yet recorded for the class including these industries. These three classes have, in modern times, stood out consistently in the table of statistics relating to the types of manufacturing industry. Care must be taken, in the consideration of these statistics, to differentiate between the capacity of employment and the volume of output as affecting certain manufactories; for a decrease in the number of persons employed in some industries may be accompanied by an increase in the amount of goods manufactured, owing to the installation of improved and modern machinery.

The following table shows the average number of persons engaged in manufacturing industries in the metropolitan area and in the remainder of the State for the last ten years.

Year.	Employees (including Working Proprietors).			Year.	Employees (including Working Proprietors).		
	Metropolitan District.	Remainder of State.	Total.		Metropolitan District.	Remainder of State.	Total.
1907	57,247	29,220	86,467	1912	83,352	32,209	115,561
1908	60,974	28,124	89,098	1913	86,263	34,137	120,400
1909	63,777	27,925	91,702	1914-15	84,971	31,640	116,611
1910	69,950	29,761	99,711	1915-16	85,365	31,036	116,401
1911	77,592	31,032	108,624	1916-17	85,404	32,593	117,997

Under the classification of "Remainder of State" are included such urban centres as Newcastle, Broken Hill, Goulburn, Bathurst, Albury, and Orange, constituting parts of declared factory districts; yet it is significant that Sydney and the metropolitan suburbs constituted the chief manufacturing centre of the State, and that whereas the number of employees in the metropolitan district increased by 2,052, or nearly 2.5 per cent., from 1912 to 1917, the increase for all other parts of the State was only 384 persons, or 1.2 per cent. The ratios respectively for the preceding quinquennium were 35.5 and 6.2 per cent.

As already pointed out, this is due to priority of settlement, and to the incidence of development, combined with the facts that Sydney, situated on one of the finest and most accessible deep-water harbours in the world, is the port of distribution and exchange for practically the whole State, Newcastle having only recently begun in this connection, and as a manufacturing centre, to contest Sydney's hitherto unchallenged supremacy. Moreover, as all the State's manufacturing industries were operated by imported machinery, it was found convenient to erect mills and other establishments at the port of consignment, which was, in addition, the place of debarkation of the oversea operatives who took up their accustomed work at the end of their voyage. The modern tendency of manufacturing production favours, however, the erection of plant for treating raw material at or near the place of first supply, and to obviate the cartage over long distances of raw material to depôts for treatment.

Causes which have operated hitherto to restrict the development of manufacturing industries to the metropolitan area, and in a secondary sense to the seaboard, are the immense distances traversed by railroad, the consequent high cost of freight on finished articles, added to cost and risk of double-handling, and the great difficulty of securing and retaining workers.

The majority of manufacturing industrial workers emigrate from Great Britain under an understood, if not expressed, guarantee of a metropolitan habitat, and it requires great inducements in the shape of a continuance of the social life to which they have been accustomed, and high rates of remuneration, for them to venture far inland from the pleasures and conveniences of the city. Where, however, as in the case of Newcastle, or of Broken Hill, the environment is similar to that of their English experience, little difficulty is found in securing the maximum amount of labour required.

The following figures show the increase in the employees of both sexes during the decennium 1907-1916:—

Year.	Metropolitan District.		Remainder of State.	
	Males.	Females.	Males.	Females.
1907	39,514	17,733	26,439	2,781
1916-17	58,733	26,671	30,177	2,416
Increase per cent.	48.6	50.4	14.1	(—) 13.1

During the year 1916-17 there was a total increase in the number of persons engaged in manufacturing industries in New South Wales of 1,596; of these, however, 39 only were contributed by the people inhabiting the metropolitan area, as against 1,557 contributed by the remainder of the State; but there was a partial redistribution of labour between the sexes, for whilst the metropolitan area gained only a total of 39 workers, it lost 354 males from the ranks of manufacturing industry, and won 393 females; but in the country division of the State the gain in male workers amounted to 1,540, and only to 17 in female workers. The accretion to the number of male workers for the whole State amounted, therefore, to 1,186, and of female workers to 410.

#### CHILD LABOUR.

The law regulating primary education prescribes that children must attend school until the completion of their fourteenth year, exception being made only in case of those who, prior to reaching that age, have obtained exemption certificates. The Shops and Factories Act of 1896 prohibited the employment of children under the age of 14 in any factory, unless by special permission of the Minister for Labour and Industry; but such special permission may not be given to a child under the age of 13 years. Since the 30th December, 1909, permission has not been granted, except under extreme circumstances, to any girl under the age of 14 years.

Of 5,183 juveniles engaged in manufacturing, 4,321 were employed in factories within the metropolitan area. Reviewing the statistics of juveniles since 1896, it is noticeable that in the past boys formed consistently a larger body than girls, but in 1916-17 the girls outnumbered the boys by 27. Nearly 94 per cent. of the girls employed were working in Sydney and suburbs, while a fair proportion (27 per cent.) of the boys were employed in establishments located outside the metropolitan area.

#### *Certificates of Physical Fitness.*

The employment of juveniles under the age of 16 years is conditional upon a medical certificate as to physical fitness being secured by the factory occupier under the Factories and Shops Acts.

The following table exhibits classified particulars of certificates issued during the last five years:—

Year.	Metropolitan.		Newcastle.		Western.		Broken Hill.		Goulburn.		Albury.		Total.		
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Total.
1912	2,513	2,201	248	146	30	3	14	2	4	3	6	...	2,915	2,355	5,170
1913	2,201	2,014	277	152	48	14	5	1	16	2	...	...	2,547	2,183	4,730
1914	2,287	2,114	214	131	19	6	18	...	18	1	4	2	2,560	2,254	4,814
1915	2,755	2,501	214	135	40	5	21	...	28	9	2	...	*3,106	2,650	*5,756
1916	2,421	2,583	268	135	...	...	27	1	...	...	...	...	†2,816	†2,741	5,557

\* Inclusive of 46 males to whom certificates were issued in districts other than those listed in the table.

† Inclusive of 100 males to whom certificates of fitness were issued in "Rest of State."

‡ Inclusive of 22 females to whom certificates of fitness were issued in "Rest of State."

*Permits to Work.*

The following table exhibits classified particulars of special permits to work issued during the last five years to children, between the ages of 13 and 14 years, arranged in factory districts of the State:—

Year.	Metropolitan.		Newcastle.		Western.	Broken Hill.	Goulburn.	Albury.	Total.		
	Males.	Females.	Males.	Females.	Males.	Males.	Males.	Males.	Males.	Females.	Total.
1912	147	4	3	...	3	...	...	1	154	4	158
1913	149	9	10	...	1	...	...	...	160	9	169
1914	142	8	7	...	2	...	1	...	152	8	160
1915	141	6	2	...	...	...	...	...	143	6	149
1916	158	14	2	...	...	1	...	...	*162	14	176

\* Inclusive of 1 male, to whom a special permit to work was granted in "Rest of State."

In addition to these special permits to work, 6,184 permits were granted "temporarily to children between 14 and 16 years of age," the number being distributed in factory districts as follows:—Metropolitan, 5,580; Newcastle, 452; Broken Hill, 18; "Rest of State," 134. Four applications for certificates of fitness to work, 3 in the metropolitan and 1 in the Broken Hill district, were refused.

SEX AND AGE DISTRIBUTION.

The following table shows the sex and age distribution of the persons engaged in manufactories from 1907, the first year for which statistics respecting child employment are available:—

Year.	Persons Employed in Manufactories, including Working Proprietors.								
	Adults.			Children under 16 years of age.			Adults and Children.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
1907	63,547	18,634	82,181	2,406	1,880	4,286	65,953	20,514	86,467
1908	65,141	19,623	84,764	2,475	1,859	4,334	67,616	21,482	89,098
1909	66,751	20,545	87,296	2,433	1,973	4,406	69,184	22,518	91,702
1910	72,932	22,302	95,234	2,452	2,025	4,477	75,384	24,327	99,711
1911	79,609	24,274	103,883	2,474	2,267	4,741	82,033	26,541	108,624
1912	85,953	25,290	111,243	2,225	2,093	4,318	88,178	27,383	115,561
1913	90,651	25,278	115,929	2,385	2,086	4,471	93,036	27,364	120,400
1914-15	87,972	23,876	111,848	2,437	2,326	4,763	90,409	26,202	116,611
1915-16	85,146	26,072	111,218	2,578	2,605	5,183	87,724	28,677	116,401
1916-17	86,306	26,638	112,944	2,604	2,449	5,053	88,910	29,087	117,997



The foregoing figures show that the proportion of juvenile labour, which in 1911 was 4·36, now stands at 4·28 per cent., and is fairly constant. Each year, to 1913, showed a decline in the proportion, but in 1914-15, owing to causes created by the incidence of the War, with a consequent decrease in the number of male adults, the proportion of juveniles showed a corresponding increase. This increase was arrested, however, in 1916-17, concurrently with a decline in the recruiting for military service.

WOMEN AND JUVENILES.

For reasons already discussed, the average number of women and juveniles engaged in manufacturing industries has increased by more than fourfold since 1896. In proportion to the total employment of men, women and juveniles, the increase in the number of women and juveniles was higher in 1916-17 than in any year shown in the following table, though the actual advance on the figures of 1915-16 amounted only to 436.

Year.	Proportion to Total Average Employment.				
	Females.		Males— Juvenile.	Total— Women and Juveniles.	Adult Males.
	Adult.	Juvenile.			
	per cent.	per cent.	per cent.	per cent.	per cent.
1896	13·61	0·30	1·09	15·00	85·00
1901	17·19	0·44	1·19	18·82	81·18
1906	22·18	0·75	1·13	24·06	75·94
1911	22·35	2·08	2·28	26·71	73·29
1912	21·89	1·81	1·93	25·63	74·37
1913	21·00	1·73	1·98	24·71	75·29
1914-15	20·48	1·99	2·09	24·56	75·44
1915-16	22·40	2·24	2·21	26·85	73·15
1916-17	22·58	2·08	2·20	26·86	73·14

Even the raising of the age limit of so-called juvenile labour from 15 to 16 years would not, prior to the outbreak of the War, account for the fall from 85·0 per cent. to 75·29 per cent. in the proportion of males above those ages to the total number of workers employed during the year 1913, and coincidentally the increase of woman and juvenile labour from 15·0 per cent. to 24·71 per cent. during the same year. In 1914-15 the proportion of woman and juvenile labour fell to 24·56 per cent., but rose during the year ending the 30th June, 1916, to 26·85 per cent., and during the year ending the 30th June, 1917, to 26·86 per cent., the highest figures shown in the foregoing table.

The following table shows, at intervals since 1901, the industries in which women and girls have been employed in greatest numbers, and the proportion to every hundred males employed in the same industries.

Industry.	Average Number of Women and Girls.					Proportion per 100 Males.				
	1901.	1911.	1913.	1915-16.	1916-17.	1901.	1911.	1913.	1915-16.	1916 17.
Food, etc.—										
Aerated waters ...	49	152	139	120	114	4	11	10	10	11
Baking Powder and Self-raising Flour ...	...	88	96	134	111	...	100	104	142	156
Biscuits ...	350	705	846	759	787	71	108	113	121	104
Condiments, Coffee, and Spices ...	167	216	237	289	419	42	102	101	109	129
Confectionery ...	225	483	489	632	715	39	64	52	63	74
Cornflour, Oatmeal	71	199	256	263	160	46	73	89	91	60
Jam and Fruit Canning ...	140	449	396	358	354	28	114	105	85	75
Meat Preserving ...	24	121	157	68	122	3	13	15	23	22
Pickles, Sauces, and Vinegar ...	58	174	184	202	207	129	125	102	114	127
Tobacco ...	428	755	805	1,085	1,062	71	112	116	123	122
Clothing, etc.—										
Dressmaking and Millinery ...	2,526	5,053	4,814	5,005	5,660	4,141	5,677	4,150	3,627	3,272
Hats and Caps ...	198	1,029	975	1,044	895	150	192	171	203	191
Waterproofs and Oilskins ...	290	98	77	149	185	203	377	233	292	370
Shirts, Ties and Scarfs ...	337	1,655	1,950	1,934	1,712	1,021	1,191	1,089	1,179	1,206
Slop Clothing ...	2,636	5,503	4,910	4,822	4,152	434	528	541	533	541
Tailoring ...	1,437	3,004	3,424	3,041	3,159	100	136	147	171	178
Woolen and Tweed Mills ...	72	389	416	668	590	44	111	116	133	133
Hosiery and Knitted Goods ...	180	320	522	514	44	529	533	621	547	547
Tents and Tarpaulins ...	86	241	268	259	273	88	178	203	161	184
Boots and Shoes ...	1,118	1,593	1,559	1,659	1,702	39	57	58	65	63
Chemicals, Drugs and Medicines ...	66	365	329	396	488	20	79	71	74	82
Bedding, Flock, and Upholstery ...	98	105	130	139	161	26	26	26	28	33
Brooms and Brushware ...	5	15	24	70	55	3	7	10	28	21
Furnishing, Drapery, etc. ...	...	166	227	249	283	...	231	311	351	393
Inks, Polishes, etc. ...	...	...	108	131	141	...	...	65	47	59
Leatherware ...	5	74	110	169	184	4	19	26	41	44
Manufacturing Jewellery ...	3	70	74	72	76	3	14	13	16	17
Paper, Paper Bags, and Boxes ...	148	754	778	766	775	149	157	154	129	124
Printing and Book-binding ...	703	1,539	1,821	1,732	1,772	16	26	27	29	29
Rubber Goods ...	...	62	80	215	182	...	29	37	69	53
Soap and Candles ...	60	169	190	205	263	9	34	36	32	38
Tinsmithing ...	...	38	49	198	238	...	5	6	23	28
Other industries ...	376	1,097	1,126	1,322	1,576	1	2	2	2	2
Total ...	11,674	26,541	27,364	28,677	29,087	21	32	29	33	33

OCCUPATIONAL STATUS.

Of all the persons engaged in manufacturing industries during the year 1916-17, approximately 83 per cent. were actually employed in the different processes of manufacture, or in the sorting and packing of finished articles.

The following statement shows the occupational status of the persons engaged in each class of industry for 1916-17.

Class of Industry.	Working Proprietors, Managers, and Overseers.	Clerks, etc.	Engine-drivers, etc.	Workers in Factory, Mill, etc.	Carters, Messengers, and others.	Persons regularly employed at their own homes.	Total.
Treating Raw Material, etc. . . . .	349	88	176	2,911	134	1	3,659
Oils, Fats, etc. . . . .	73	127	21	1,047	29	4	1,301
Processes in Stone, Clay, Glass, etc.	394	207	206	4,368	146	...	5,321
Working in Wood . . . . .	810	412	368	5,153	362	1	7,111
Metal Works, Machinery, etc. . . . .	1,168	977	471	24,166	290	15	27,090
Connected with Food, Drink, etc.	1,076	1,072	830	11,960	568	14	15,520
Clothing, Textile Fabrics, etc. . . . .	1,576	448	50	23,306	232	596	26,208
Books, Paper, Printing, etc. . . . .	828	768	38	7,576	292	27	9,529
Musical Instruments, etc. . . . .	23	42	1	360	5	...	431
Arms and Explosives . . . . .	22	46	9	1,273	4	...	1,354
Vehicles and Fittings, Saddlery, etc.	567	213	10	3,279	61	7	4,137
Ship and Boat-building, etc. . . . .	108	188	29	3,742	118	...	4,185
Furniture, Bedding, and Upholstery	332	87	9	3,168	35	5	3,636
Drugs, Chemicals, and By-products	122	159	14	1,477	40	...	1,812
Surgical and other Scientific Instruments	22	9	...	109	6	1	147
Jewellery, Timepieces, and Plated Ware..	63	51	1	548	26	...	689
Heat, Light, and Power . . . . .	271	168	601	2,191	443	2	3,676
Leatherware, N.E.I. . . . .	37	53	2	506	4	...	602
Minor Wares, N.E.I.... . . . .	134	52	9	1,349	41	4	1,589
Total . . . . .	7,975	5,167	2,848	98,494	2,836	677	117,997

The occupational status of workers employed varied greatly in the nineteen standard classes of manufacturing industry. The proportion per cent. of working proprietors, managers, and overseers was 6.76 for all classes, but fell as low as 1.63 in arms and explosives, and rose as high as 14.97 in surgical and other scientific instruments, 13.71 in vehicles, fittings, saddlery, and harness, and 11.39 in working in wood. This was due to the fact that the largest employer in the first-mentioned class was the Government of the Commonwealth; that the special knowledge required by the scientific instrument maker frequently constituted himself his most expert artificer; that country waggon-builders, wheelwrights, and blacksmiths were invariably masters of their crafts, who owned their own businesses; and that many forest saw-mills were operated by a few hands, of whom the proprietor was principal workman. The proportion per cent. of the proprietary and managerial type among other workers was as follow, according to the other classes of industry affected:—Treating raw materials, 9.54; jewellery, timepieces, etc., 9.14; furniture and bedding, 9.13; books, paper, and printing, 8.69; minor wares, 8.44; processes in stone, clay, glass, etc., 7.40; heat, light, and power, 7.37; connected with food and drink, 6.93; drugs, chemicals, and by-products, 6.73; leatherware, 6.15; clothing and textiles, 6.01;

oils and fats, 5·61; musical instruments, 5·34; metal works and machinery, 4·31; and ship and boat building, 2·58, or, exclusive of Commonwealth and State dockyards, 1·43 per cent.

The workers actually employed in mill, workshop, and factory ranged from 94·01 per cent. of the total number engaged, under arms and explosives, to 59·60 per cent. under heat, light, and power. The proportion per cent. in the other classes was as follows:—Ship and boat building, 89·41; metals and machinery, 89·20; clothing and textiles, 88·93; furniture and bedding, 87·13; minor wares, 84·90; leatherware, 84·05; musical instruments, 83·53; processes in stone and clay, etc., 82·10; drugs, chemicals, etc., 81·51; oils and fats, 80·48; treatment of raw materials, 79·56; jewellery, timepieces, etc., 79·54; books, printing, etc., 79·51; vehicles, fittings, etc., 79·26; connected with food and drink, 77·06; surgical and other scientific instruments, 74·15; and working in wood, 72·54.

The highest proportion of clerical workers, 9·76 per cent., was shown in the class relating to oils and fats; and the lowest, 1·7 per cent., in the class relating to clothing and textiles. Owing to the time-payment system mainly, it was as high as 9·74 per cent. in the class relating to musical instruments. Engine-drivers represented 16·35 per cent. of the workers engaged in the generation of heat, light, and power; and, respectively, 5·34 per cent., 5·18 per cent., 4·82 per cent., 3·87 per cent., 1·75 per cent., and 1·62 per cent. in the classes ranged in their order as follows:—Connected with food and drink, working in wood, treating raw materials, processes in stone, clay, etc., metals and machinery, and oils and fats; for other classes of manufacturing industry the proportion was less than 1 per cent. Carters, messengers, etc., were represented by 12·05 per cent. in the class relating to heat, light, and power; by 4·08 per cent. in the small class relating to surgical and other scientific instruments; by 3·77 per cent. in jewellery and timepieces; by 3·67 per cent. in treatment of raw materials; by 3·66 per cent. in food and drink; and by 3·06 per cent. in books and printing. Of workers in their own homes, the class relating to clothing and textiles was represented by 2·27 per cent.

#### BOUNTIES ON MANUFACTURED PRODUCTS.

In order to develop the manufactures, products, industries, and commerce of the Australian Commonwealth, and generally to promote its manufacturing interests, the Federal Government inaugurated a scheme of bounty endowment, the necessary powers being conferred by section 51 (iii) of the Constitution Act, under the provisions of which such payments could be made uniformly throughout the States of the Federation. Though these bounties were payable only on articles manufactured in Australia from Australian products, an exception was made in the case of wire-netting, if woven from wire manufactured in the United Kingdom.

The enactments in this connection include the Sugar Bounty Acts, 1903–12; the Bounties Act, 1907–12; the Manufactures Encouragement Act, 1908–15; the Iron Bounty Act, 1915; the Shale Oils Bounties Act, 1910–12; and the Wood Pulp and Rock Phosphate Bounties Act of 1912. The payments under the Bounties Act of 1907–12, for the encouragement of manufactures, included one of  $\frac{3}{4}$ d. per lb. on preserved fish, operative for ten years from the 1st July, 1907; another of 2d. per lb. on cigar leaf, with a similar decennial currency; and a third, for a period of two years, from the 1st July, 1914, on combed wool, or tops, amounting to 1d. per lb. for the first 1,000,000 lbs. made by one manufacturer; and  $\frac{3}{4}$ d. per lb. in excess of that quantity made by any one manufacturer. The last Act terminated in its operation in 1916, and the first and the second in 1917.

Under the Manufactures Encouragement Act of 1908-14, bounties amounting to 12s. per ton were made available from the 1st January, 1909, to the 30th June, 1915, on pig iron, puddled bar iron and steel, and bounties amounting to 10 per cent. on the value were granted from the 1st January, 1909, to the 30th June, 1914, on galvanized sheet or plate iron or steel, on wire-netting (other than prison-made), and on iron and steel tubes or pipes, of not more than 6 inches internal diameter, provided that these were not riveted or cast.

Under the Iron Bounty Act of 1914, a payment of 8s. per ton was granted on pig iron made from Australian ore, and was operative from the 1st July, 1914, to the 31st December, 1915. The Wood Pulp and Rock Phosphate Bounties Act of 1912, conferred for five years, from the 1st January, 1913, a bounty of 15 per cent. on the market value of locally-made wood pulp; and, for a similar period, 10 per cent. on that of rock phosphates manufactured into marketable phosphatic manure.

The amounts paid in New South Wales during the financial years 1910-17, in respect of the bounties on manufactured products, were as follows:—

Product.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.
	£	£	£	£	£	£	£	£
Combed wool or tops, exported.	4,933	8,522	16,898	13,061	12,706	7,727	1,049	..
Pig iron	23,510	20,462	15,611	16,943	40,121	31,813*	17,213	11,454
Puddled bar iron	1,254	2,080	671	33	..	..	..	..
Steel	1,491	1,939	723	..	7,130	..	..	..
Galvanized sheet iron	287	122	74	..	..	..	..	..
Wire netting	6,036	4,824	5,968	1,110	4,554	..	..	..
Kerosene	..	920	2,629	2,792	152	..	..	..
Refined paraffin wax	..	553	739	967	176	..	..	..
Cigar Leaf	..	..	..	..	..	36	16	16
Total	37,511	39,422	43,313	34,917	64,845	39,576	18,278	11,470

\* Including £19,808 under Iron Bounty Act.

### INDIVIDUAL INDUSTRIES.

In the following pages are shown the results of a more detailed examination with regard to the separate industries included in each of the 19 classes of manufactures, group particulars of which have already been given.

#### I.—TREATING RAW MATERIAL: PASTORAL AND AGRICULTURAL PRODUCTS.

The industries in which raw material, as derived from pastoral and agricultural operations, is treated, form five distinct orders. Details for 1916-17 for these orders are as follow:—

Industry.	Establishments.		Average number of Employees, including Working Proprietors.		Power used.			Value of Machinery, Tools and Plant.
	Total.	Using Machinery	Males.	Females.	Steam.	Electricity	Other.	
Boiling-down, Tallow Refining, etc.	23	22	374	11	335	150	60	69,981
Sausage-skin Making	4	..	63	..	..	..	..	100
Tanning	75	63	1,029	11	593	245	245	98,586
Wool-scouring and Fellmongering	49	47	1,533	77	1,551	1,077	106	215,720
Chaff-cutting, Corn-crushing, etc.	100	100	559	2	613	178	137	52,917
Total	256	232	3,558	101	3,092	1,650	548	437,304

The average time worked by the employees listed under this class was as follows:—Order (3) tanning, 11·83 months; order (1) boiling-down, tallow-refining, etc., 10·99; order (4) wool-scouring and fellmongering, 10·90; order (2) sausage-skin making, 10·13; and order (5) chaff-cutting, corn-crushing, etc., 6·68. The average time made by the whole class was 10·53 months.

*Boiling-down, Tallow Refining, etc.*

In the figures given above regarding establishments, particulars are not included concerning boiling-down or wool-washing plants in operation on sheep stations and on farms. Such plants are necessarily operative for more or less restricted periods, and their activities are manifested generally during definite seasons of the year.

Of the 28 establishments engaged in these processes, 18 were situated within the metropolitan boundaries, of which no fewer than 11 were at Alexandria. The operations included the manufacture of manures and fertilizers, glue and gelatine, the extraction of fat and of fish and animal oils, the relining of tallow, the treatment of knackers and by-products, the milling of bone-dust, and boiling-down. Three establishments in the metropolitan division and one at Riverstone, in the country, permanently employed 63 persons in cleaning and manufacturing sausage-skins and meat-casings, of which the output in 1916–17 was valued at £23,927. The 28 establishments operating under order (1) furnished permanent employment to 385 persons, the greatest number employed at one time during the twelvemonth being 432. The full capacity of power provided was 913 horsepower; the value of plant and machinery was £69,981, and of output £586,587.

Exclusive of operations on stations and large farms, for which details are not available, the value of carcases, fat, refuse, bones, etc., treated during 1916–17 in boiling-down works, was £412,159; the output included 215,031 cwt. of raw and refined tallow, valued at £449,803; and 268,873 cwt. of manure, valued at £100,316; whilst the value of hides, skins, etc., was £8,101; oils, £3,782; grease, £3,400; bones, horns, etc., £10,891; gelatine 160 cwt., £1,300; glue-pieces, sinews, etc., £20,081.

*The Metropolitan Meat Industry.*

Under an Act (No. 69 of 1915), the Metropolitan Meat Industry Board is empowered to conduct its operations as a State industrial service, and it includes boiling-down and the preparation of animal by-products among its activities. During the year ended the 30th June, 1917, the carcases of 1,542 head of cattle (including calves), 90 sheep (including lambs), and 364 swine, of a total value of £1,729, were treated; besides 43,449 cwt. of fat, valued at £17,806, and 95,091 sets of heads and feet and tail-tips, valued at £6,348. The value of the casks, bags, etc., used was £4,551. The output included 34,743 cwt. of raw tallow, valued at £71,571; 6,794 cwt. of glue-pieces and sinews, valued at £3,187; 1,391 cwt. of bones and hoofs, and 169,233 horns, valued together at £3,060; 6,985 vells, valued at £280; 7,255 gallons of neatsfoot oil, valued at £1,009; 21,081 cwt. of bone-dust, valued at £8,277; and 175 cwt. of hides and skins, valued at £748.

*The Newcastle District Abattoir, &c.*

Under the provisions of the Newcastle District Abattoir and Sale-yards Act, 1912, boiling-down is carried on at Waratah. During the year ended the 30th June, 1917, the carcases of 151 head of cattle (including calves), of 10 sheep (including lambs), and 51 swine were treated, besides £5,937

worth of fat. The output included 7,800 cwt. of raw tallow, valued at £15,600; 236 cwt. of glue-pieces and sinews, valued at £300; 150 cwt. of bones, horns, hoofs, &c., valued at £200; 1,000 gallons of oil, valued at £166; 5,000 cwt. of bone-dust, valued at £2,000; and 1,000 cwt. of other manures, valued at £600; or a total value of £18,866. The raw materials represented a total cost of £8,789, and the value of the casks, bags, &c., used £1,000.

A small amount of tallow and a few hides were produced at the Yanco abattoirs on the Murrumbidgee irrigation areas, a State experiment in settlement which is classed as an industrial undertaking. The net loss for the twelve months ended the 30th June, 1917, on the Yanco abattoirs was £1,900.

*Tallow Refining.*

Tallow refining as an industry is dependent, in a measure, upon seasonal conditions, activity being greatest when there is a surplus of live-stock or when a prospective or actual falling-off in available pasturage is experienced through adverse conditions of climate and rainfall. The boiling-down industry had its origin in a period of financial stress, though it has remained an expedient to meet critical periods in pastoral enterprise, but it is resorted to only under necessity on any considerable scale, on account of the wastefulness involved in the process.

The following statement shows the estimated production for the last five years, together with the output from all sources, including station plants, and the amount used locally constituting the raw material for soap and candle making. The balance of the local production is exported.

Year.	Estimated Quantity of Tallow.	
	Produced.	Used Locally.
	cwt.	cwt.
1912 ... ..	568,500	131,600
1913 ... ..	795,020	143,590
1914-15 ... ..	711,857	165,143
1915-16 ... ..	274,000	147,758
1916-17 ... ..	379,660	154,018

*Tanning.*

The tanneries in operation in the State numbered 76, and of these 51 were situated within the boundaries of the metropolitan area, mainly in Botany and on the North Shore, and only 8 in the remainder of the State were outside the county of Cumberland. During the year 1916-17 these establishments treated 21,411 calf and yearling, and 454,288 other hides, 5,822 cwt. of hide-pieces, 3,093,811 sheep pelts, and 309,675 other skins, for the production of 6,269,969 lb. of leather, valued at the works at £1,348,255, and basils weighing 2,615,704 lb., valued at £205,822; whilst pickled pelts, numbering 547,441, were valued at £41,747. The selling value of other skins after treatment was estimated at £127,506, and of fleshings, £3,869. The bark used in the tanneries amounted to 11,051 tons. The number of persons permanently employed was 1,040, and the greatest number during the year at any one time 1,209. The full capacity of power provided was 1,461 horse-power; the value of plant and machinery was £98,586, and the total value of output £1,709,689.

*Wool-scouring and Fellmongering.*

All the wool-scouring and fellmongering plants within the metropolitan area were situated in the southern suburbs. Botany alone had 15 establishments, which treated wool in its natural state, inclusive of a wool-combing and a top-making business, the only works of the kind in the State. The remaining wool-scouring plant within the metropolitan area was in the neighbouring suburb of Alexandria. Of 47 plants occupied with the cleansing and treatment of wool, 31 were in the country division. The order included pelt pickling and basil tanning, in combination with fellmongering. During the year 1916-17 these establishments treated 47,173,172 lb. of greasy wool, and 3,754,144 skins, for the production of 35,402,589 lb. of scoured wool, valued at £3,516,136; and 3,141,451 pelts, valued at £129,038. The two wool-combing works treated 5,743,694 lb. of scoured wool, for a production of 5,541,630 lb. of wool-tops and noils, valued at £1,262,188. The total value of wool-tops and noils, including those made at the woollen mills, was £1,293,181. The 47 wool-scouring and fellmongering plants in the State furnished permanent employment for 1,610 persons; and the greatest number employed at any one time during the twelvemonth was 1,867. The full capacity of power provided was 3,348 horse-power; the value of plant and machinery was £215,720; and the total value of output £4,928,325.

*Chaff-cutting, Corn-crushing, &c.*

Chaff-cutting is essentially an extra-metropolitan industry. Of 15 establishments operating within Sydney and suburban boundaries, 9 are listed as gristing, corn or oat crushing, and wheat-cleansing, and 6 only as chaff-cutting. There are in the country division 85 establishments thus classified, and they include 10 travelling chaff-cutting plants, besides the preparation of lucerne as fodder for stock, corn, oats, and general grain-crushing and cracking plants, and combined chaff-cutting and threshing plants. The 100 establishments listed under this order furnished permanent employment to 561 persons, the greatest number employed at one time during the twelvemonth being 597. The full capacity of power provided was 1,159 horse-power; the value of plant and machinery was £52,917, and of output £465,534.

## II.—OILS, FATS, &amp;c.

The industries in which oils and fats, animal and vegetable, are treated, are grouped under two heads, and particulars for each group for 1916-17 are shown in the following table.

Industry.	Establishments.		Average Number of Employees, including Working Proprietors.		Power used.			Value of Machinery, Tools and Plant.
	Total.	Using Machinery.	Males.	Females.	Steam.	Electricity.	Other.	
					h. p.	h. p.	h. p.	£
Oil and Grease ...	11	9	335	11	349	424	8	147,898
Soap and Candles ...	27	22	692	263	306	71	...	214,523
Total ...	38	31	1,027	274	655	495	8	362,421

The products listed under the first order are commercially designated mineral, compound lubricating, resin, disinfectant, and linseed oils; anti-friction, axle and skip grease; oil-cake and deodized fats. The establishments treating oil and grease numbered 11, of which 1 only was outside the metropolitan area, and they included plants for oil-milling, the preparation of lubricants, packing, compounding, and hydrogenating. Establishments dealing with mineral oils are included in the class engaged in the generation of heat, light, and power. The average time made by the employees listed under Class II was 12 months for those working in oil and grease, and 11·91 months for those working in soap and candles. The average time made by the whole class was 11·94 months.

The 11 establishments engaged in the treatment of oil and grease furnished with permanent employment 346 persons, and 383 were employed in the busy season of the year. The full capacity of power provided was 950 horse-power: the value of plant and machinery was £147,898; and the total value of output £1,172,942. The 27 soap and candle works in the State furnished with permanent employment 955 persons, which number at one period of the year was increased to 1,025. The full capacity of power provided was 564 horse-power; the value of plant and machinery was £214,523; and the total value of output £857,117.

There were in the State 27 manufactories engaged in the production of soap and candles, 15 of which were within the metropolitan area. Besides 7 soap works so described, these included factories for the manufacture of toilet soap, toilet requisites, sand soap, soap powder, candles, soda, glycerine, and oil, separately or in combination with one or more branches of industry under Class II. The 12 soap factories in the remainder of the State include a leading soap and candle making establishment at Newcastle, and a soap-making and tallow-refining plant at Jesmond.

The candles manufactured in 1916-17 weighed 4,212,750 lb., valued at £124,356, while the soap manufactured included household, 230,978 cwt., valued at £383,108; toilet, 19,235 cwt., valued at £108,496; sand, 38,768 cwt., valued at £39,164; soft, 10,266 cwt., valued at £15,342, making the total value for all soaps £546,110. In addition, 4,089,352 lb. of soap extract and powders, valued at £54,575, 1,474,878 lb. of glycerine, valued at £83,863, oleine valued at £23,985, stearine valued at £40,872, pitch valued at £440, and soda crystals valued at £24,396.

The materials used in production included 152,971 cwt. of tallow, 7,628,600 lb. of alkali, 2,337,785 lb. of wax, 24,979 cwt. of resin, 29,792 cwt. of copra oil, 4,885 cwt. of fish and whale oil, and 13,360 cwt. of sand.

#### *Soap and Candle Factories.*

The following table gives certain particulars relating to the soap and candle manufacturing industry for the last five years.

Year.	Soap and Candle Factories.	Average Number of Employees, including Working Proprietors.	Quantity Manufactured.		Horse-power of Plant (full capacity).
			Soap.	Candles.	
			cwt.	lb.	h.-p.
1912	34	689	290,953	5,581,858	837
1913	31	725	278,899	5,563,404	645
1914-15	32	753	286,425	4,958,741	829
1915-16	30	836	299,439	4,748,460	883
1916-17	27	955	299,247	4,212,750	564

## III.—STONE, CLAY, GLASS, &amp;c.

The majority of the industries in this class are associated with building and construction, and their operations reflect, to a great extent, the condition of that trade. Details of each industry for 1916-17 were as follow:—

Industry.	Establishments.		Average Number of Employees, including Working Proprietors.		Power used.			Value of Machinery, Tools and Plant.
	Total	Using Machinery.	Males.	Females.	Steam	Electricity.	Other	
Bricks and Tiles ... ..	169	90	2,345	39	h.-p. 4,117	h.-p. 2,021	h.-p. 1,062	£ 688,501
Glass (including Bottles) ... ..	9	2	1,111	8	130	30	6	33,211
Glass (Ornamental) ... ..	21	13	248	14	4	120	106	10,193
Lime, Plaster, Cement, and Asphalt ... ..	41	23	910	11	2,548	2,536	63	372,869
Marble, Slate, etc. ... ..	16	16	18)	2	20	359	...	25,598
Pottery, Earthenware ... ..	22	21	441	12	855	196	36	63,011
Total ... ..	278	165	5,235	86	7,674	5,232	1,273	1,193,383

With the exception of 115 horse-power derived from oil-engines, and 150 horse-power derived from water-mills, and used in brick, tile, lime, and cognate works, all the "other" power used was derived from gas. With the exception of a modelling establishment, which worked full time, all the other orders listed in this class made less than twelve months during the year 1916-17. The average time made by employees listed under this class was as follows:—Order (6) pottery, earthenware, &c., 11.91 months, order (3) glass (ornamental) 11.81, order (5) marble, slate, &c., 11.62, order (4) lime, plaster, cement, and asphalt 11.26, order (1) bricks and tiles 10.54, and order (2) glass (including bottles) 8.93 months. The average time made by the whole class was 10.54 months.

The brick and tile making plants operating in New South Wales numbered 169, and of these no fewer than 131 were outside the metropolitan area. The metropolitan brickworks are situated mainly in the southern and south-eastern suburbs, the majority being in St. Peters, though there are a number also in North Sydney. At various establishments engaged mainly in brick-making associated industries include the manufacture of pipes, tiles, pottery, fire-bricks, retorts, sand-lime bricks, &c. Outside the metropolitan area, but within the boundaries of the county of Cumberland are a number of important brick-making works, particularly at Auburn, Liverpool, Bankstown, Granville, and Lidcombe, the articles manufactured including terra-cotta hollow building bricks and magnesite bricks. There are a number of brickworks in the neighbourhood of the coalfields in the county of Northumberland, and near such mining areas as Broken Hill. Most of the country towns of the first rank are well equipped with brick-making works; Armidale possesses a pottery; tiles are made at Bathurst, Cowra, and Cootamundra; dry-press and fire-bricks at Woonona; pipes and silica fire-bricks at Lithgow; and sandstone bricks at Cessnock. The persons permanently employed at the 169 brickworks in the State numbered 2,384, the highest number working at any one time during the year being 2,905. The full capacity of power provided was 10,981 h.p.; the value of plant and machinery was £688,501, and the total value of output £607,285.

The following figures present detailed statistics of the industry during the last five years.

Year.	Brickworks.	Average Number of Employees, including Working Proprietors.	Bricks made.	Horse-power of Plant (full capacity).
				h. p.
1912	202	3,128	383,656,000	7,956
1913	217	3,665	389,435,000	10,788
1914-15	188	3,230	331,107,000	11,192
1915-16	168	2,590	272,579,000	10,911
1916-17	169	2,384	229,559,426	10,981

The output of bricks for 1916-17 was valued at £545,679. It is to be noted that orders 1 and 7 overlap considerably in the character of their output, bricks and tiles being manufactured also at plants devoted mainly to the making of pottery, and *vice versa*. The output of bricks included, in addition to those shown in the preceding table, which were designed for building purposes, calcined magnesite bricks valued at £2,392, fire-bricks valued at £960, terra-cotta fire-bricks, valued at £700, fire-clay blocks valued at £6,191, and hollow building blocks valued at £1,440. The production of tiles during the year 1916-17 was valued at £45,531.

The impetus given to brick-making prior to the beginning of the Great War in Europe was the result of remarkable activity in the building trades in the metropolitan and suburban areas. Since the middle of the year 1914 there has, however, been a marked suspension of activity in this direction, and renewed enterprise is awaiting the conclusion of hostilities. In the meantime building and construction of only an imperative character is being undertaken.

#### *State Brickworks, Homebush.*

In the latter part of 1911 the Government established State Brickworks at Homebush, near Sydney, where a considerable area of suitable clay had been found. Most of the output in the period of inauguration was used in constructing and amplifying the works, but there is now considerable production for general supply, outside the quantity made for use in building conducted under the supervision of the Public Works Department.

The output in 1916-17 of manufactured bricks was 29,720,259, showing a decrease of 8,417,125, and on sales a decrease of 9,732,611, while the cost of manufacture was £1 12s. 1.29d., or an increase of 6s. 8.83d. per 1,000. The actual trading profit on the year's operations was £7,147, and the net profit, after providing interest on capital, and contribution to sinking fund, was £3,672. This was equivalent in the first instance to 8.04 per cent., and in the latter to 4.13 per cent. on the capital employed, or if the capital only for which the undertaking is liable be taken, the returns would be 9.67 and 4.97 per cent. respectively. Over and above this profit, savings of £10,225 were effected to the Government in the price of bricks supplied.

Out of the profits bonuses were paid during the year to the employees on account of 1915-16, and absorbed £1,356. The hands employed during the year 1916-17 numbered 130, the full capacity of horse-power was 943, land and buildings were valued at £13,964 and plant at £43,315. The salaries and wages paid amounted to £22,652, the cost of material and fuel to £7,661, and the value of output to £55,726.

The business results of the past and previous years are regarded as highly satisfactory, the undertaking having been enabled to repay £15,000 on account of capital expended, and to set apart £5,000 for purposes of renewals, replacements, and new works. Besides supplying the requirements of the different Government Departments, the State Brickworks at Homebush have sold their manufactures to the public at prices below those ruling outside, and this latter branch of business shows an increase of 116·66 per cent. over the figures of the previous year, notwithstanding the decline in building activities. The sale prices given were for bricks loaded into trucks, and at the yard, Homebush Bay. Those for 1916 continued without alteration to the 5th March, 1917.

The following table gives particulars of the State Brickworks at Homebush Bay since 1913.

Particulars.	1913.	1914.	1915.	1916.	1917.
Number of Bricks manufactured	14,676,279	27,110,056	32,334,801	38,137,384	23,720,259
Used for Public Works...	10,901,932	21,922,083	27,999,787	35,287,615	22,255,645
Sold to Private Purchasers ...	1,593,635	5,102,817	3,616,009	2,828,262	6,127,621
Stocks at 30th June ... ..	.....	.....	321,317	282,521	1,472,876
Balance used at Works...	2,174,712	85,156	719,005	60,303	146,638
Cost of manufacture per 1,000 £	.....	1 6 10	1 5 7	1 5 4·46	1 12 1·29
Sale price per 1,000 ... ..	£ 1 10 0	1 19 6	1 15 0	.....	.....
Seconds... ..	£ .....	.....	.....	1 10 0	1 15 0
Commons ... ..	£ .....	.....	.....	1 15 0	1 17 6
Face ... ..	£ .....	.....	.....	3 0 0	3 5 0

#### *State Sand-lime Brickworks, Botany.*

Operations at the State Brickworks, established in 1913 at Botany for the manufacture of sand-lime bricks, ceased during the year 1917. The trading loss of the last period was £2,635, and the net loss £3,926, after provision of £1,291 for interest on capital and for sinking fund. The accumulated loss to date is £14,528 on a capital of £29,975, or 48 per cent. of the amount employed; and unless some action be taken immediately to have this business removed from under the provisions of the Industrial Undertakings Act, the losses will be considerably increased by the recurring statutory charges for interest on capital and for sinking fund. The number of bricks made during the year was 4,440,000, valued at £11,644; the cost of raw materials, £1,840; of motive power, £420; of wages and salaries, £3,704, for a staff of 27 males, including a manager and two accountants. Eighteen electric motors represented the full capacity and actual use of 344 horse-power; whilst land and buildings were valued at £8,200, and plant and machinery at £13,000.

#### *Glass Manufactories.*

The manufacture of glass in New South Wales is in its infancy, and relates mainly to articles in common use such as bottles, jars, &c. Under order 2 of Class III, of nine factories supplying returns 7 were occupied with the making of glass bottles, and three of these with the making of

glass jars in addition, two only being stated simply as glass factories. Under order 3, dealing with ornamental glass, 21 establishments were listed, and of these 5 were vaguely described as glass-works; 8, as engaged in making lead-lights; 4, in bevelling, silvering, and bending glass, and others as manufacturing stained glass, mirrors, &c.

The incidence of the War has placed a premium on the production of articles of glassware, and the continual advance in prices should afford an ample measure of protection to the industry, as importations have practically ceased. It is interesting to record that in the leading glass-bottle factories American mechanical methods have largely replaced glass-blowing, and that some firms have a complete equipment of the modern devices. All the glass-works in the State are situated within the city and suburbs of Sydney. It should be noted that certain establishments included under this industry do little actual manufacturing. They set and glaze leads, sashes, and casements for the use of builders, employing imported glass. The bulk of the manufacture of vitreous articles is comprised in bottle and jar making and of utensils of domestic use, such as butter dishes, &c. The nine glass-works under order 2 gave permanent employment to 1,119 persons, a number which increased to 1,316 at one time during the twelve months owing to the incidence of the busy period at the bottle factories. The full capacity of power provided was 608 horse-power; the value of plant and machinery was £33,211, and the total value of output £211,292. The 21 glass works under order 3 gave permanent employment to 262 persons, and the highest number employed at any one time during the twelve months was 296. The full capacity of power provided was 172 horse-power; the value of plant and machinery was £10,193, and the total value of output £164,629.

*Lime and Cement Works and Allied Industries.*

Lime is manufactured chiefly at Capertee and Goulburn, though small quantities are obtained from other localities. Under this classification (order 4 of Class III), manufactories of a number of different materials are grouped. Of 18 country establishments, all were described as working in lime, excepting 2 great cement manufacturing companies, a gypsum company, and an asbestos company. Within metropolitan boundaries, 11 factories made fibrous-plaster ware, and 2 worked in asbestos, whilst separate establishments were returned as treating ironite, cement, paving material, reinforced cement sanitary ware, concrete pipes and concrete ware, patent asphalt paving, "permasite," "val-de-travers" paving, tracholyte paving, and granite paving. Order 4 (lime, plaster, cement, &c.) gave permanent employment to 914 persons, and at one time during the year to 1,085. The full capacity of power provided was 8,516 horse-power; the value of plant and machinery was £372,739, and the total value of output £604,818.

The manufacture of cement has become an important industry, and the production was increased considerably on account of the construction of the Burrinjuck dam, and of extensive railway and other works. The principal cement manufactories are in operation at Granville, and at Portland, the limestone being obtained from quarries in the neighbourhood of Capertee.

The production of lime and cement during the last five years was as follows:—

Year.	Lime Manufactured.		Value of Cement Manufactured.
	Quantity.	Value.	
	tons.	£	£
1912	35,657	44,478	368,280
1913	33,272	41,428	402,249
1914-15	36,405	46,091	410,020
1915-16	27,852	39,335	414,150
1916-17	27,621	44,510	389,902

*State Lime-works, Taree and Botany.*

To work extensive limestone deposits in the locality of the Manning River, State works were established during 1912 at Taree; but during the past two years they have not been operated as a Government undertaking, transactions being limited to the acquisition of limestone on a royalty basis by the Broken Hill Proprietary Company. This arrangement terminated during the first half of the year 1916-17, but in January following the company renewed activities under an agreement to pay rent for the use of the plant, and royalty on lime manufactured at the kiln, Taree. The capital of the State undertaking stands at £14,387, and the accumulated net loss to date at £8,232, or 57·22 per cent. of the amount employed. The annual statutory charges for interest, sinking fund, and depreciation will soon exhaust the capital, which is within measurable distance of complete extinction, and action is urgently needed to avert further loss.

*State Monier Pipe and Reinforced Concrete Works.*

The Monier pipe works were acquired by the Government on the 2nd February, 1914, and subsequently have been conducted under the Special Deposits Act (1912) as a State industrial undertaking. On the 30th June, 1917, the property account amounted to £18,922, and the stock in hand to £28,202, while the sales amounted to £42,946, showing a profit on trading of £8,362, or a net profit of £6,225, after making a provision for interest on capital and sinking fund of £837, and reserving £1,300 to cover obsolescence in methods of manufacture, &c. The profit on trading showed an improvement on that of 1915-16, amounting to an increase on earnings of 2·42 per cent., notwithstanding the higher price of materials and the augmentation of wages under a new award. The land was valued at £4,024, whilst the approximate value of plant and machinery was £8,100. The aggregate electric motor horse-power, actual and used, was 32; the value of materials used, £14,000; and of goods manufactured, £30,000.

*Marble, Slate, and Stone Dressing.*

Workers in marble, slate, and stone (under order 5) were all operating within the metropolitan area. The plants numbered 16, and were listed as marble quarries, stone-cutting and stone-dressing works, marble and slate works, preparing stone for building, marble works, stone-working, and stone dressing and polishing. Including working proprietors, 182 hands were employed, the full capacity of the motive power of machinery was 720 horse-power, the value of plant and machinery was £25,598, and the total value of output was £59,318. Persons permanently employed in this industry numbered 182, and the greatest number working at any one time during the twelvemonth was 222. The total capacity of power provided was 720 horse-power; the value of plant and machinery was £25,598; and the total value of output £59,318.

*Quarries.*

The quarries of the State are manufacturing plants, inasmuch as they comprise the workings at which material for building, and for the formation of roads, is prepared for subsequent treatment. During the year 1916-17 the following quantity of building stone was produced:—Sandstone, 137,554 tons, valued at £38,257; granite, 150 tons, valued at £400; syenite (trachyte), 455 tons, valued at £532; marble, 70 tons, valued at £290; porphyry, 6,700 tons, valued at £1,675; slate, 146 tons, valued at £1,166; and other, 16,045 tons, valued at £10,662; or a total of 161,120 tons of building stone, valued at £52,982.

During the same period the quantity of macadam, ballast, lime-kiln supply, &c., produced was as follows:—Sandstone, 251,451 tons, valued at £28,699; bluestone, basalt, &c., 778,382 tons, valued at £125,310; limestone, 78,347 tons, valued at £16,734; gravel, 41,713 tons, valued at £5,058; sand, 32,038 tons, valued at £2,718; ironstone, 91,985 tons, valued at £10,325; shale and clay, 35,297 tons, valued at £4,365; quartzite, 51,470 tons, valued at £7,839; and granite, 2,611 tons, valued at £628; or a total of 1,363,294 tons of macadam, ballast, &c., valued at £201,676. During the year 1916-17 the production of crude limestone was 185,931 tons, valued at £50,077; of magnesite, 6,483 tons, valued at £6,652; and of kaolin clay, 20 tons, valued at £12. The total production of the quarries for 1916-17 was 1,716,848 tons, valued at £311,399.

#### STATE QUARRIES.

The Government controls, as State industrial undertakings, a sandstone quarry at Maroubra, on the coast, within the metropolitan boundary; and blue-metal quarries at Kiama and Port Kembla. The sandstone quarry is really a subsidiary service to the Building Construction industrial undertaking, to which practically all its sales are made; those to the public, consisting mainly of quarry-waste, comprise but a small percentage of the output. The year 1916-17 closed with a trading profit of £1,295, or a net profit of £697. The earnings amounted to £2,422, or 9·3 per cent. in excess of those in 1915-16, nevertheless the trading profit was 1·71 per cent. lower, the result of an increase in the various items of working expenses, particularly of wages. The operations for the year included the production of 6,654 tons of building stone, valued at £7,984; and 1,587 tons of macadam, ballast, &c., valued at £308. The sales were made at a slight increase above cost.

The quarries operated by the State at Kiama and at Port Kembla are respectively about 70 and 45 miles from Sydney, on the South Coast. They are worked as a single industrial undertaking, and the year 1916-17 closed with a trading profit of £11,836, or a net profit of £8,700. A large proportion of the earnings, practically 32 per cent., however, represented rail freight and purchase of spalls, charges which were really transfers from one Government account to another—a fact which must have due consideration when estimating the profit contributed to the State by this enterprise. During the year the sum of £10,000 was withdrawn from accumulated profits and paid into the Treasury in reduction of capital, and a further sum from the same source was withdrawn and paid into a reserve account, as provided for under section 4A of the Industrial Undertakings Act of 1916. The strength of the financial position is attested by the fact, that after a rebate of £3,345 to councils and shires, the accumulated profits and reserve for renewals represented 32·68 per cent. and 22·95 per cent. respectively, or in all 55·63 per cent. of the capital employed. This result was, moreover, achieved by sales at prices below those of general competitors, and irrespective of the direct savings to Government and local governing bodies.

During the year 1916-17 the output in macadam, ballast, &c., of bluestone and other materials at the Kiama quarry amounted to 170,000 tons, valued at £17,000. The number of men employed varied from 130 to 140, including managers, overseers, engine-drivers, firemen, and clerical staff. The approximate value of land, buildings, and fixtures was estimated at £20,000, and of plant and machinery at £30,000; of raw material at £700; and of fuel at £1,000. The output at Port Kembla amounted to 158,191 tons, valued at £20,893. A third State metal quarry at Martin's Creek, in the county of Durham, is situated on the North Coast Railway line, 135 miles north from Sydney. It began operations in August, 1917, with 18

males in regular employment, and a full steam capacity of 115 h.p., of which 90 h.p. was used. The value of land and buildings was stated as £7,000; and of plant and machinery, £6,000.

#### *Pipes, Pottery, &c.*

The manufacture of pipes and earthenware is carried on usually in conjunction with brick and tile making, although some establishments are exclusively devoted to this branch of the industry.

Of 22 establishments listed under this classification, 6 were outside the metropolitan area, and they were all described as potteries, though there was a certain amount of overlapping with order 1 of the class. There were within the metropolitan area 11 potteries so described, 3 establishments engaged in the manufacture of earthenware drain pipes, and individual plants engaged in the manufacture of filters and of dry-cell batteries. The total number of persons permanently employed in this industry during 1916-17 was 453, and the greatest number at any one time in the year 527. The full capacity of power provided was 1,469 h.-p.; the value of plant and machinery was £63,011, and the total value of output £136,038.

The values of the pipes and earthenware manufactured in 1916-17 were as follow:—Pipes, £70,494; pottery, £64,874; and sundries £126; making a total value of £135,494.

The marked increase in pottery products since the 30th June, 1914, is due to restricted shipments from Europe, whence the bulk of household earthenware was derived. Although a considerable import trade in this class of commodities has since grown up with Japan, some branches of pottery manufacture have been established in this State, which is now practically producing all the sanitary-ware for building requirements, for which the State was previously dependent on importations from abroad.

#### IV.—WORKING IN WOOD.

Wood-working industries are connected generally with the preparation and supply of building materials, and, as in the class immediately preceding, they afford a reliable index to the state of the building trade in 1916-17.

The following figures present detailed statistics of the industry.

Industry.	Establishments.		Average Number of Employees, including Working Proprietors.		Power used.			Value of Machinery, Tools, and Plant.
	Total.	Using Machinery.	Males.	Females.	Steam.	Elec- tricity.	Other.	
					h.-p.	h.-p.	h.-p.	
Boxes and Cases ... ..	46	45	790	11	374	963	125	54,438
Cooperage ... ..	12	9	175	1	20	153	36	34,013
Joinery ... ..	146	137	1,675	25	651	1,869	540	149,181
Saw-mills ... ..	397	397	4,110	53	9,109	2,693	216	578,776
Wood-turning, etc. ... ..	44	43	277	4	102	316	29	31,184
Total ... ..	645	631	7,017	94	10,256	6,014	946	847,592

Of the 7,017 persons employed in these industries, 3,396 were engaged in the metropolitan district, and 3,715 in the country, the employment in the latter being almost wholly in connection with saw-mills, which provided work for 3,168 persons. The average time made by employees listed under this class was as follows:—Order (3) joinery 11-83 months, order (2) cooperage 11-80, order (1) boxes and cases 11-40, order (5) wood turning, &c., 11-15, and order (4) saw-mills 10-59 months. The average time made by the whole class was 11-03 months.

*Box and Case Making.*

Of the 46 box and case making factories operating, 4 only were situated outside the metropolitan area. This branch of wood-working was occupied with the manufacture of boxes and cases for packing butter, fruit, washing-blue, and other laundry requirements, &c. In some instances, leading manufacturing firms had a branch establishment engaged in making the boxes and cases required by their special industries.

Employment in box factories has extended considerably in recent years, mainly on account of the development of the export trade; though it received a check shortly after the declaration of War, on account of the restricted shipping space. The number of persons permanently employed in 1916-17 was 791, and at one time during the year reached 953. The full capacity of power provided was 1,944 h.p.; the value of plant and machinery was £54,438, and the total value of output £544,082.

*Cooperage.*

There are 12 establishments in New South Wales occupied with the cooperage industry, but only 2 so returned were in the country division, and one of these made casks and barrels for a large soap and candle factory. Of the metropolitan cooperages, 2 were associated with great breweries, and one with an important firm engaged in the manufacture of soap. The number of persons permanently employed in this industry was 176, and the greatest number during the year 213. The full capacity of power provided was 298 h.p.; the value of plant and machinery was £34,013, and the total value of output £71,776.

*Joinery.*

Joinery is an intimate index of the activities of building enterprise, but this general condition must be taken with a certain amount of modification, for under the term are included a multiplicity of branches having little or nothing to do with building. Joinery is a term which covers a very large range of industrial operations applied to timber in a prepared condition. Of 91 establishments within the metropolitan area, 44 were called simply joineries or joinery works; whilst others restricted themselves to shop-fronts, show-cases, certain kinds of furniture, and the manufacture of coffins. Of 146 joinery establishments in New South Wales, 55 were situated in the country division, usually in association with a timber-yard or saw-mills. The number of persons permanently employed in joinery was 1,700, and the greatest number during the year 2,052. The full capacity of power provided was 4,407 h.p.; the value of plant and machinery was £149,181, and the total value of output £619,677.

*Timber-yard, Uhr's Point.*

The State timber-yard and building workshops, where timber used in constructional work may be properly seasoned, is situated at Uhr's Point, on the Parramatta River, and was proclaimed an industrial undertaking on the 1st July, 1913. The year 1915-16 concluded with a trading profit of £9,202, or a net profit of £2,855; but on the transactions of 1916-17 it suffered a trading loss of £3,801, or a total loss of £10,857, after making provision for the statutory charges for interest on capital for sinking fund, which together amounted to £7,056. Purchases and wages alone amounted to 82.92 per cent. of the earnings. The accumulated trading loss was £13,240; the interest on capital, £21,613; sinking fund, £1,527; holiday pay, £4,312—constituting a total deficiency of £40,692. On the accumulated trading loss of £13,240, bad debts incurred on behalf of private individuals amounted to £3,094, and depreciation was estimated at £15,249, though up

to date no amount had been charged for depreciation on reclamation, dredging, and sewerage. The Government joinery works at Uhr's Point employed between 217 and 230 males and 5 females during the year; the approximate value of land and buildings was £44,000, and of plant and machinery £30,000; whilst the amount disbursed in salaries and wages was £32,693. The saw-mill employed from 30 to 36 males during the year.

#### Saw-mills.

Details concerning the saw-milling industry during the last five years were as follow:—

Year.	Saw-mills.	Average Number of Employees, (including Working Proprietors).	Plant and Machinery.		Year.	Saw-mills.	Average Number of Employees (including Working Proprietors).	Plant and Machinery.	
			Power (full capacity).	Value.				Power (full capacity).	Value.
			h.-p.	£				h.-p.	£
1912	469	5,590	15,016	597,097	1914-15	414	4,808	16,126	571,525
1913	477	5,788	16,262	619,264	1915-16	402	4,344	17,436	547,471
					1916-17	397	4,163	16,767	578,776

Saw-mills were classed as metropolitan, country town, and forest. In the first category there were only 29; in the second, 219; and in the third, 149; showing a total for the State of 397, of which number 368 were in the country division. Besides general saw-milling, some mills undertook moulding, planing, and the cutting of wood-paving blocks. In the more important centres, saw-mills were associated with yards dealing with imported timbers and joinery.

During 1916-17 the output of sawn timber obtained from logs, the product of New South Wales, amounted to 125,243,420 superficial feet, of which 88,205,655 superficial feet, or over two-thirds, were hardwoods. From imported logs 4,553,252 superficial feet of timber were sawn, of which 4,246,124 superficial feet were of softwood. The value of the timber sawn from native logs was stated as £326,166 for softwood and £623,140 for hardwood, at the works, and the imported timber, when sawn, as £65,171 for softwood and £4,647 for hardwood. The number of persons permanently employed in saw-mills was 4,163, and the greatest number at any one time during the year 4,765. The full capacity of power provided was 16,767 h.p.; the value of plant and machinery was £578,776, and the total value of output £2,199,001.

#### Craven and Gloucester State Saw-mills.

The Craven and Gloucester State Saw-mills were purchased as a going concern from a private owner, in connection with the acquisition of an approach and an addition to a State forest reserve, and began operation as an industrial undertaking on the 19th February, 1917. Up to the 30th June, 1917, a period of four and a half months, the investment proved highly successful, and resulted in a considerable return on the capital advanced. The saw-mills are situated on the North Coast railway line, about 180 miles distant from Sydney, with a large State forest reserve and an immense supply of raw material near at hand. The undertaking labours, however, under severe disabilities, created by discrimination in freight on different classes of timber carried by the railways. The gross profit for the period

extending from the 19th February to the 30th June, 1917, was £1,892, and the major portion of the sales was effected in the open market by competition. It is stated that, by a small outlay of additional capital, the normal output could be doubled, such a contingency having been foreseen in the original construction.

The saw-mills were taken over by the Government as a going concern, hence returns can be supplied for the completed year 1916-17. The number of employees, including manager, overseers, and clerical staff, was from 42 to 46 males, and 1 female, on a salaries and wages roll of £3,024. The motive power was furnished by a steam engine of 20 horse-power full capacity, but employing only 10 horse-power. The logs treated contained 2,160,267 super. feet, valued at £6,425; and the output amounted to 1,440,178 super. feet of cut timber, valued at £12,299.

*Wood-turning and other Woodware Industries.*

Order 5 of Class IV, comprised a number of allied branches of manufacture, and included besides wood-turning, so described, wood-carving, the making and repairing of tobacco pipes, pattern-making, embossing on wood, the manufacture of blocks and pulleys, shoemakers' lasts, and other furnishings, washing machines, chair frames, mantelpieces, and wooden drain pipes. In some instances wood-turning was associated with cabinetmaking, and with working in bone and ivory. Of 44 establishments in New South Wales, 7 only were listed for the country division. The number of persons permanently employed was 281, and the greatest number at any one time during the year 355. The full capacity of the power provided was 664 horse-power; the value of plant and machinery was £31,184, and the total value of output £115,080.

V.—METAL WORKS, MACHINERY, &C.

The industries included in this class are by far the most important to the industrial workers in the State, although the clothing trade employs a greater number of persons, of which number, however, over 72 per cent. are females.

The following table shows the average number of employees and other particulars for each branch of industry in this class during 1916-17.

Industry.	Establishments.		Average Number of Employees, including Working Proprietors.		Power used.			Value of Machinery, Tools, and Plant.
	Total.	Using Machinery.	Males.	Females.	Steam.	Electricity.	Other.	
Agricultural Implements ... ..	21	19	437	7	29	126	93	36,184
Art Metal Works ... ..	5	3	83	1	...	58	60	30,088
Brass and Copper ... ..	32	32	298	8	26	108	38	23,472
Cutlery ... ..	12	12	49	3	...	94	...	6,821
Engineering ... ..	210	210	6,614	61	2,150	3,851	590	1,029,972
Galvanized Iron ... ..	43	31	604	2	22	203	152	45,087
Ironworks and Foundries ... ..	86	86	3,430	23	14,348	6,910	163	1,728,778
Railway Carriages and Rolling Stock ... ..	5	5	415	7	540	235	...	87,674
Railway and Tramway Workshops ... ..	35	35	8,865	25	1,223	3,229	587	1,050,540
Smelting and Ore Dressing ... ..	31	30	3,660	15	7,293	6,904	10	1,300,852
Stoves and Ovens ... ..	11	11	408	4	...	205	120	45,984
Tinsmithing ... ..	61	34	838	238	56	211	58	79,942
Wireworking ... ..	19	18	427	19	...	628	6	88,242
Other Metal Works (including Lead Mills) ... ..	28	27	467	52	160	820	114	76,668
<b>Total ... ..</b>	<b>599</b>	<b>553</b>	<b>26,625</b>	<b>465</b>	<b>25,853</b>	<b>23,582</b>	<b>2,011</b>	<b>5,660,149</b>

The average time made by employees listed under this class was as follows:—Orders (1) agricultural implements, (4) cutlery, (8) nails, (9) railway carriages and rolling stock, and (12) stoves and ovens, full time; order (10) railway and tramway workshops, 11·99 months; order (3) brass and copper, 11·95; order (5) engineering, 11·91; orders (6) galvanized iron, and (14) wire-working, 11·80; order (16) other metal works (including lead mills), 11·78; order (13) tinsmithing, &c., 11·57; order (2) art metal works, 11·39; order (11) smelting and ore-dressing, 10·90; order (7) ironworks and foundries, 10·60; and order (15) lead mills, 6·96 months. The average time made by the whole class was 11·59 months.

On the figures of last year, the returns of 1916–17 show a decline, some manufacturing industries in this class having suffered from the effects of the War. It is, moreover, to be noted that very little agricultural or pastoral machinery is manufactured in New South Wales, the primary industries relying chiefly on imported implements. Some large firms have extensive assembling plants, appliances, and staffs, and the parts are brought overseas and the machines put together in Sydney. The few firms actually engaged in the manufacture of agricultural and pastoral machinery in this State show increasing business, a result, probably, of shipping limitations. Among the articles recorded as being made or assembled in the State, in addition to agricultural implements, were wool-presses, sheep-shearing machines, and other pastoral appliances. The number of persons permanently employed under this order numbered 444, and the greatest number at any one time during the year 643. The full capacity of power provided was 353 horse-power; the value of plant and machinery was £36,134, and the total value of output £417,450.

Art metal works are mainly concerned with stamped ceilings, linings, mouldings, and entablatures, but a curious industry in this connection has been stimulated into vigorous existence by the incidence of the war, namely, that of the manufacture of badges and emblems. The number of persons permanently employed was 84, and the greatest number during the year 90. The full capacity of power provided was 195 horse-power; the value of plant and machinery was £30,083, and the total value of output £52,418.

Brass and copper working is essentially a metropolitan industry. Of the 32 establishments classed thereunder, all are situated within metropolitan boundaries, and include foundries, finishing and moulding works and copper boiler factories. Several establishments associate working in brass and copper with other branches of industry, such as engineering, electro-plating, ships' plumbing, tinsmithing, sheet-metal working, motor engineering, and the manufacture of soda fountains and aerated-water machines, supplies, and accessories. The number of persons permanently employed was 306, and the greatest number at any one time during the year 362. The full capacity of power provided was 216 horse-power; the value of plant and machinery was £23,372, and the total value of output £123,937.

Cutlery, another exclusively metropolitan industry, includes saw manufacturing, though the actual making of saw steel is not locally essayed. The discs are imported, ready for the treatment of sharpening, setting, tempering, and otherwise preparing for work in the saw-mills. Saw repairing and saw sharpening are also distinct branches. Establishments under this order are known individually as cutlery and leather manufactories, cutleries and grinders, knife manufactories, &c. Fifty-two persons were permanently employed; the full capacity of power provided was 105 horse-power; the value of plant and machinery was £6,821, and the total value of output £12,693.

Of 210 establishments classed under engineering, 161 are within metropolitan boundaries, and 49 in the remainder of the State. Besides 100 establishments designated simply as engineering works, a certain number associate in their returns other branches of allied manufacture, as metal-working, boiler-making, iron and brass founding, sheet-iron working, brass-finishing, the fabrication of fencing and steel roofing material, of air, gas, and lighting plant, of structural steel work, of fire appliances, of marine motors, of oil engines, of mechanical parts, and the manufacture of many varieties of specialised machines. In the extra-metropolitan division this order includes the aviation manufacturing plant at Richmond, and the locomotive works at Auburn. In this connection it may be noted that the operations carried on at the railway and tramway workshops at Eveleigh and Randwick, and at certain railway depôts at important junctions in the country districts, are, to a large extent, of a character similar to that classed as engineering, under order 5 of Class V; and to some extent the two orders may be correctly associated in results and in type of industry. Apart from the Government railway workshops for manufacture and repairs, certain large firms have establishments at Auburn, and there are also plants at Silverton and Deniliquin, where rolling stock can be renovated. The number of persons permanently employed in the engineering industry was 6,675, and the greatest number at any one time during the year 7,863. The full capacity of power provided was 10,599 horse-power; the value of plant and machinery was £1,029,972, and the total value of output £2,376,016.

Working in galvanized iron and sheet metal is taken as a separate order of industrial manufacturing, together with zinc founding, japanning, &c.; but, like the orders under this class already reviewed, considerable allowance has to be made for overlapping. There were 32 establishments engaged in this industry in the metropolitan area, and 11 in the remainder of the State; but 5 only of the total number were returned simply as working in galvanized iron. In association were included engineering, ironworking, tinsmithing, japanning, sheet-metal working, electro-galvanizing, brass-finishing, the manufacture of metal ceilings, plumbing, cast-iron cistern fitting, tank-making, gate-making, and lead working. The number of persons permanently employed was 606, and the greatest number at any one time during the year 711. The full capacity of power installed was 530 horse-power; the value of plant and machinery was £45,087, and the total value of output £339,204.

In addition to the great establishments at Lithgow and Newcastle, there were 84 ironworks, of which 59 were within metropolitan boundaries. Here, as elsewhere, there was a certain amount of overlapping. Twenty-five firms were entered as iron foundries, but there were also establishments described as ironworks, iron and brass foundries, iron and steel works, steel or cast-steel foundries, iron-rolling and iron-moulding mills, engineering works and foundries, plants for the manufacture of steel castings, fish-plates, &c., blast furnaces, blooming mills, porcelain enamelling, works connected with the manufacture of steel rails, wrought iron and steel tubes, springs, ice-chests, bedsteads, mattresses, nuts and bolts, tools and metal ware, zinc mouldings, locks, safes, strong-room doors, &c., and oxygen-acetylene welding. One firm, classed as a distinct order, was engaged in the manufacture of wire nails, with barbed wire as an additional industry. The number of persons permanently employed in iron works and foundries was 3,453, and the greatest number at any one time during the year 4,089. The full capacity of power installed was 33,618 horse-power; the value of plant and machinery was £1,728,778, and the total value of output £3,628,963.

There was only one factory in the State returned as being engaged in the nail-making industry so defined. The building of railway carriages and rolling stock was represented by 5 establishments, of which 2 were situated

in the country division. The number of persons permanently employed was 422, and the greatest number at any one time during the year 544. The full capacity of the power installed was 1,264 horse-power; the value of plant and machinery was £87,674, and the total value of output £258,249. The railway and tramway workshops were represented by the New South Wales Railways and Tramways Department, the Silverton Tramway Company, Limited, and the Deniliquin-Moama Railway Company. The total number of persons permanently employed in the railway and tramway workshops specified was 8,920, and the greatest number at any one time during the year 9,298. The full capacity of power installed was 10,908 horse-power; the value of plant and machinery was £1,050,540, and the total value of output £2,248,894. Full particulars of this industry are published in the Year Book in the chapter on Railways and Tramways.

### *Smelting.*

The smelting and treatment of ores occupied 31 plants or establishments, of which 4 were in the metropolitan division. Of the 27 plants in the remainder of the State, 12 were in the neighbourhood of Broken Hill, and included machinery, &c., for dressing, separating, re-treating, milling, concentrating, and otherwise dealing with zinc and other local metals. There were copper smelting, ore dressing, lead smelting, gold recovery and cyanide plants at the copper and other mines of Burruga, Cangai, Canbelego, Cobar, Wrightville, Mount Hope, Peak Hill, Boolaroo, Wollongong, Waratah, Nymagee, and Lithgow. The 4 metropolitan works comprised an ore-treatment plant at Pyrmont, a metallurgical establishment in the city of Sydney, a metal refinery at Alexandria, and a tin smelting plant at Woolwich. It is convenient here to refer to three establishments listed under order 15A as lead mills. Of these a plant at Broken Hill was engaged in the production of pig lead; there were lead works also in the western quarter of the city of Sydney; at Woolwich were situated lead rolling mills, and there was a lead pipe and shot factory at Blackwattle Bay. At the 27 smelting and ore treatment plants in the country division 3,584 persons were employed, and 91 in the 4 metropolitan establishments. Though the bulk of the work performed involved the treatment of silver and lead ores won in New South Wales, some of the establishments recorded dealt with gold, copper, tin, and other ores, brought from all parts of Australia, and even from New Caledonia. The three lead mills listed under order 15A furnished permanent employment for 131 persons, the greatest number employed at one time during the twelvemonth being 140. The full capacity of power installed was 1,520 h.p.; the value of plant and machinery was £35,715, and the total value of output £262,912. Quartz batteries are excluded from these figures, but cyanide plants are included. During the year 1916-17 the smelting works at Waratah were idle, no ores being purchased for treatment.

Smelting as a distinct industry is carried on in several centres in New South Wales, the most important works being at Cockle Creek, Boolaroo, in the Northern District, and at Port Kembla in the Southern. At Cockle Creek the ores treated are obtained from Broken Hill, as well as from mines in other parts of the State; the greater portion of the output of the Electrolytic Refining and Smelting Works, at Port Kembla, is derived from copper produced at Mount Morgan (Queensland) and at Mount Lyell (Tasmania), though a small proportion of blister copper is derived from mines in this State. It is considered that an economy could be effected, both in regard to the producing mine and the smelter, if all copper won in Australia, either in the form of ore, matte, or metal, were refined in New South Wales.

The following statement shows the operations of New South Wales smelting companies during 1916-17.

Works.	Output.						Value.
	Gold.	Silver.	Lead.	Copper.	Tin.	Spelter.	
	oz. fine.	oz.	tons.	tons fine.	tons.	tons.	£
Cockle Creek ...	5,447	1,649,437	20,817	...	...	7	944,973
Port Kembla ...	165,485	453,450	...	26,043	...	...	3,970,071
Woolwich ...	...	...	...	...	1,109	...	240,410
<b>Total ...</b>	<b>170,932</b>	<b>2,102,887</b>	<b>20,817</b>	<b>26,043</b>	<b>1,109</b>	<b>7</b>	<b>5,155,454</b>

The output shown for the works at Woolwich is derived from ores mined exclusively in this State. At Port Kembla ores won in New South Wales, treated in the Company's works, yielded as follow:—Gold 15,831 oz. fine, valued at £63,324; silver, 76,444 oz., valued at £13,412; copper, 5,604 tons fine, valued at £706,104. The total value of metals treated at Port Kembla by the electrolytic plant was for the year £3,970,071, or gold, 165,485 oz. fine, valued at £696,416; silver, 453,450 oz. fine, valued at £75,575; and copper, 26,043 tons, valued at £3,198,080.

Persons permanently employed at the 31 smelting works above detailed numbered 3,675, but the greatest number engaged during the year 1916-17 was 4,225; the full capacity of the power supplied was 21,486 h.p.; the value of plant and machinery was £1,330,852, and the total value of output £10,502,882.

The manufacture of stoves and ovens is a metropolitan industry, notwithstanding the convenience to such a centre as Newcastle, but the 11 firms at present operating during the year 1916-17 were probably amply sufficient to supply local needs. Moreover, only 5 establishments confined their activities to stove and range making, and one to the manufacture of ovens. Three were returned as iron foundries in addition, one was engaged in plumbing and coppersmithing, and another in coppersmithing and enamelling. This division, like others of Class V, evidenced overlapping of industrial manufactures. The number of persons permanently employed in the manufacture of stoves and ovens was 412, and the greatest number at any one time during the year 449. The full capacity of power provided was 262 h.-p.; the value of plant and machinery was £45,984, and the total value of output £164,672.

Order 13 comprised mainly those manufacturing industries in which the material used consisted of tin plates; but in this, as in other crafts under the classification of metal works and machinery, there was considerable overlapping. In the extra-metropolitan division tinsmithing tended to association with plumbing, gas-fitting, sheet-metal working, tank-making and ironwork. In the metropolitan division many tinsmithing establishments worked extensively in sheet-metal generally. Some associated industries were galvanized-iron, lamp, and tank works or factories. A number were listed as making tins and canisters; but certain leading preserving businesses make their own canisters and conduct a separate tinsmithing department. The number of establishments classed under this order was 61, of which number 34 were within the metropolitan area. The number of persons permanently employed was 1,076, and the greatest number at any one time during the year 1,301. The full capacity of power provided was 736 h.-p.; the value of plant and machinery was £79,942, and the total value of output £546,064.

Wire-working is a distinctive order (14), and comprehends those industries in which manufactured wire chiefly furnishes the basic material. There

are 19 establishments so classed, only one, a wire mattress factory at Lismore, being outside the metropolitan area. The wire mattress factories in the State, returned as such, numbered 5; but there were a number of factories engaged in the manufacture and working of wire, as netting, barbed wire, nails, gates, cushions, coat-hangers, fences, bedding, springs, strainers, and wire-cloth. The number of persons permanently employed was 446, and the greatest number at any one time during the year 495. The full capacity of power provided was 892 h.-p.; the value of plant and machinery was £88,242, and the total value of output £300,995.

Order 15 included all the manufacturing industries arranged under Class V not otherwise classified under any of the fourteen preceding orders, and consisted of the manufactures of scales, cash railway systems, steel lathing, steel tools, revolving shutters, water and gas meters, printing type, medals, rheumatic rings, metal spinning, die sinking, engraving, locksmithing, &c. All these miscellaneous manufacturing mechanical industries, 24 in number, were within the boundaries of the metropolis. They furnished permanent employment to 345 persons, the greatest number employed at any one time during the year being 417. The full capacity of power provided was 128 h.-p.; the value of plant and machinery was £29,466, and the total value of output £108,086.

#### VI. FOOD AND DRINK.

This class includes the preparation of articles of food and drink, also certain associated processes, such as refrigerating, distilling, and malting. It deals also with narcotics, as represented by plug and cut tobacco, snuff, cigars, and cigarettes; and grocers' sundries, which cover a wide range of miscellaneous commodities that cannot be strictly regarded as articles of human consumption.

The following table shows the average number of persons employed, together with the quantity of h.-p. used, and the value of machinery, tools, and plant, in each industry during 1916-17.

Industry.	Establishments.		Average Number of Employees, including Working Proprietors.		Power used.			Value of Machinery, Tools and Plant.
	Total.	Using Machinery.	Males.	Females.	h.-p. Steam.	h.-p. Electricity.	h.-p. Other.	
Bacon-curing .. .. .	21	20	220	6	202	122	50	£ 27,798
Butter and Milk Factories and Creameries	129	129	875	28	2,196	116	662	291,798
Butterine and Margarine .. . . .	4	4	75	3	13	121	52	14,450
Cheese Factories .. . . .	31	30	105	1	113	..	5	12,713
Condensed Milk .. . . .	4	4	64	12	56	..	..	25,630
Meat Preserving and Refrigerating ..	10	10	564	122	268	53	3	34,178
Biscuit Manufacture .. . . .	9	9	759	787	437	361	12	112,086
Confectionery .. . . .	58	50	970	715	75	608	121	118,313
Cornflour, Oatmeal, etc. .. . . .	15	15	266	160	387	482	97	96,356
Flour-mills .. . . .	62	62	1,084	13	3,633	294	1,043	842,141
Jam and Fruit Canning .. . . .	19	16	473	354	223	145	11	48,064
Pickles, Sauces, and Vinegar .. . . .	22	18	163	207	45	73	..	20,972
Sugar Mills and one Sugar Refinery ..	4	4	980	61	1,631	1,865	17	987,248
Aerated Waters, Cordials, etc. .. . . .	207	203	1,018	114	244	390	323	172,765
Breweries .. . . .	22	21	990	13	1,465	1,053	128	678,879
Condiments, Coffee, Spices, etc. .. . .	38	31	323	419	30	193	41	51,311
Distilleries .. . . .	3	3	34	..	8	122	2	62,165
Ice and Refrigerating .. . . .	110	110	1,539	16	4,514	1,169	1,312	599,503
Malting .. . . .	4	4	57	..	40	129	..	41,602
Tobacco, Cigars, etc. .. . . .	15	8	868	1,062	..	462	10	131,878
<b>Total .. . . .</b>	<b>787</b>	<b>751</b>	<b>11,427</b>	<b>4,093</b>	<b>15,580</b>	<b>7,709</b>	<b>3,869</b>	<b>3,846,352</b>

The average time worked under the foregoing classification was as follows:—Orders 1, 3, 5, 7, 14, 16, 17, 18, engaged in industries relating respectively to bacon-curing, butterine and margarine, condensed milk, biscuits,

sugar-refining, brewing, the manufacture of condiments, &c., and distilling, each twelve months; order (21) tobacco and cigars 11·98 months, order (12) pickles and sauces 11·94, order (2) butter factories 11·91, order (8) confectionery 11·76, order (15) aerated waters 11·79, order (4) cheese factories 11·76, order (10) flour-milling 11·39, order (9) cornflour and oatmeal 11·34, order (11) jam and fruit canning 11·34, order (19) ice and refrigerating 11·07, order (20) malting 9·53, order (6) meat preserving 7·57, and order (13) sugar milling 6·36 months. The average time made by the whole class was 11·34 months.

*Butter, Cheese, and Bacon Factories.*

Factories operating in the curing and distribution of bacon and hams numbered 21, of which 6 were situated within the metropolitan area, and 15 in the remainder of the State. There were 129 establishments classed under butter factories, 4 of which were within the metropolitan area. A small proportion of the butter factories were milk-receiving depôts for subsequent distribution, and at a few such it was pasteurized and chilled; whilst at a limited number the manufacture of butter was combined with the making of ice and the curing the bacon. The four factories engaged in the manufacture of butterine and margarine were all within the metropolitan area. At 31 establishments cheese was made, and these were all in the country division; and 4 country factories were engaged in the manufacture of condensed milk.

The 21 factories engaged in the curing and smoking of bacon, and classed under order 1, gave permanent employment to 226 persons, the greatest number at any one time during the year being 257; the full capacity of power used was 434 h.p.; the value of plant and machinery was £25,530, and the total value of output £719,848. The 129 establishments classed under order 2 as butter factories gave permanent employment to 903 persons, the greatest number at any one time during the year being 1,030; the full capacity of machinery was 4,169 h.p.; the value of plant and machinery was £288,412; and the total value of output £5,026,832. The 31 cheese factories classed under order 4 gave permanent employment to 106 persons, the greatest number at any one time during the year being 124; the full capacity of power used was 161 h.p.; the value of plant and machinery was £12,718, and the total value of output £186,698.

There has been a gradual but almost continuous increase in the quantity of butter made in creameries during recent years; but creameries operated as subsidiary branches of butter factories are not treated as separate establishments, and the workers operating in them are included in the total of the whole order. The number, either of factories or of employees, does not coincide with that shown in the preceding table, from which were excluded the dairy production of farms and of employees (90 males and 2 females in 1916-17) partly occupied in general farm labour.

Particulars of the machinery in use and the number of persons employed during each of the last five years are given in the subjoined table:—

Year.	Factories.							Estimated Value of Plant and Machinery.	Machinery in use.					Persons employed.		
	Butter only.	Creameries only.	Cheese only.	Bacon and Hams only.	Butter and Cheese.	Butter and Bacon.	Total.		Engines.		Butter Workers.	Churns.	Cream Separators.	Cheese Presses.	Males.	Females.
									Number.	Horse-power.						
1912	152	615	52	21	3	..	843	£ 409,909	959	6,250	165	259	681	152	1,883	42
1913	142	677	50	19	3	..	897	435,619	1,027	6,996	133	266	752	145	1,927	22
1914-15	142	609	66	21	4	1	843	446,507	963	6,947	109	258	704	146	1,949	33
1915-16	151	652	58	19	2	..	882	434,356	1,002	7,041	93	258	730	126	1,900	43
1916-17	128	846	60	21	5	..	1,060	506,968	1,205	7,946	73	238	714	143	2,167	49

The foregoing figures show rather a readjustment than a revolution in the dairy produce industry. On the figures of the preceding year there was a decrease in the number of factories at which butter only was made amounting to 23, and of butter-workers (machines) amounting to 20; but every other column exhibited an increase. The number of workers was greater than in 1915-16 by 258 males and 6 females, and the machinery in use by 905 h.p. The results in production were highly satisfactory, the output of butter showing an increase on that of the preceding year of 19,712,393 lb. in quantity, and of £1,573,155 in value; of cheese, of 1,721,537 lb. in quantity, and of £69,256 in value; of bacon and hams, of 1,922,471 lb. in quantity, and of £75,630 in value; of lard, of 99,417 lb. in quantity, and of £5,400 in value; and of condensed milk, of 911,926 lb. in quantity, and of £33,416 in value.

During the year ended 30th June, 1917, the bacon factories, apart from farms, cured 13,560,366 lb. of bacon and hams, valued at £641,051, and produced lard weighing 655,511 lb., valued at £27,678, also small goods to the value of £39,123. The butter factories showed during the same period an output of 75,064,384 lb., valued at £4,859,482. Cheese factories produced 5,672,428 lb., valued at £209,015, and at condensed and concentrated milk factories 5,829,990 lb. of condensed and concentrated milk were made, the value being stated as £125,120. The total production of bacon, butter, cheese, and condensed and concentrated milk factories for the year 1916-17 was £5,901,469, or higher than that of the preceding year by £1,759,353.

Bacon, hams, butter, and cheese are made largely also on farms, the special chapter in this Year Book dealing with the Dairying Industry should, therefore, be consulted for complete information regarding these branches of agricultural and manufacturing production.

#### *State Butter, Cheese, and Bacon Factories.*

In connection with the great State industrial undertaking known generally as the Murrumbidgee Irrigation Area, various business and manufacturing enterprises have been commenced, particularly in the production and preservation of dairying and vegetable foods. Among other and related industries, a butter factory was established at Leeton, a cheese factory at Griffith, and bacon-curing works in connection with the State abattoirs at Yanco; but none of these is showing a profitable return. The enterprises have apparently been over-capitalised, and high prices have been paid for supplies of cream, milk, and pigs. Power and fuel were equal to 71·34 per cent., and salaries and wages 68·15 per cent. of earnings in respect of the abattoirs. In the butter factory no less than 83·24 per cent. was absorbed for the purchase of cream; and in the cheese factory 75·54 per cent. for the purchase of milk.

The State butter factory at Leeton employed during the year from 6 to 7 males. The motive power was provided by 1 steam and 7 electric engines of 8 horse-power and 46 horse-power respectively, and a total of 41 horse-power was actually employed. The cost of materials was £19,041, and the value of output £20,970, with an additional £304 from sales of ice and butter-milk; whilst £201 was earned by cutting and wrapping butter, not the production of the factory, for the Coastal Farmers' Society.

The State cheese factory at Griffith (Mirrool) employed during 1916-17 only 3 males; and the motive power was provided by a 3 h.p. steam engine, employing one-third of its capacity. The milk treated for the manufacture of cheese amounted to 114,519 gallons, valued at £3,607; and the output to 128,919 lb. of cheese, valued at £4,494.

The State bacon factory and abattoirs at Yanco employed 9 males during the year; and the power was supplied by 7 electric motors of 62 horse-power, employed at their full capacity. No hams were cured separately, but

192,121 lb. of bacon were made, valued at £7,925; pigs' cheeks and pigs' feet, valued at £145; sausages, at £545; and by-products at £264, making together a total of £9,259. The cost of 2,428 pigs was £8,660, and of curing materials, wrappers, &c., £475, or a total of £9,135.

The accumulated loss on the Leeton butter factory, from its inception to the 30th June, 1917, was £2,374. The loss on the Griffith cheese factory's operations during the year 1916-17 amounted to over £302, exclusive of £148 interest on capital, or a total deficiency of £450. The net loss on the twelvemonth's transactions of the Yanco bacon factory amounted to £1,411.

*Butterine and Margarine Factories.*

There were in 1916-17 four factories for the manufacture of butterine and margarine, at which 78 persons were continuously employed. The value of machinery, tools, and plant was stated as £14,450. The output for the year was 5,314,642 lb. of margariné, valued at £181,234; and there was also a production of 8,522 cwt. of tallow, valued at £21,450; and of 308,541 lb. of stearine, valued at £6,469.

*Condensed Milk.*

Four factories, all operating in the country districts, were engaged in condensing and canning milk. The workers permanently employed therein numbered 76, and the greatest number at any one time during the year was 96; the full capacity of the power installed was 71 horse-power; the value of plant and machinery was estimated at £25,530, and the total value of output at £149,558. During the year 1916-17 the quantity of milk treated measured 1,693,341 gallons; and the output of condensed milk amounted to 5,829,990 lb., valued at £125,120.

*Meat Preserving and Refrigerating.*

There were 10 establishments and 686 persons employed in connection with meat-preserving during 1916-17. Two establishments in the country division were rabbit canneries, and 4 meat preserving factories were within the metropolitan area. The industry gave permanent employment to 686 persons, the greatest number employed at one time during the year being 791. The full capacity of power provided was 406 horse-power; the value of plant and machinery was £34,178, and the total value of output £558,225. The following table shows the number of carcases treated during the last five years in establishments dealing with meat by canning and chilling.

Year.	Meat Preserving Works.				Refrigerating Works.	
	Cattle.	Sheep and Lambs.	Meat and Tongues and Sundries.		Cattle.	Sheep and Lambs.
			Quantity.	Value.		
	No.	No.	lb.	£	No.	No.
1912	50,941	616,435	2,301,418	37,079	11,552	1,191,711
1913	100,827	374,523	7,305,113	81,807	29,887	2,160,484
1914-15	103,778	415,397	7,356,501	90,293	53,605	2,423,638
1915-16	11,466	76,008	4,993,226	195,464	11,835	762,034
1916-17	25,463	28,474	686,652	20,631	27,977	791,752

The output of tinned meat in 1916-17 was 8,491,442 lb., valued at £399,717; sheep and ox tongues, 351,364 lb., valued at £24,847; meat extract, 186,098 lb., valued at £38,592; tallow, 17,172 cwt., valued at £36,882; fat, bones, &c., 10,320 cwt., valued at £4,891; dripping, 1,245 cwt., valued at £3,274; tinned rabbits, 1,048,134 lb., valued at £32,465; hides, wool, skin, and

bones, valued at £36,482; sundries, valued at £4,091; 5,160 cwt. of manures, valued at £1,831; or a total output valued at £558,225, inclusive of by-products.

The meat-preserving industry likewise shows the combined effects of the drought and of the war in the incidence and value of output, when the returns for the period since the year 1914 are compared with those of preceding years, though the figures for 1916-17 show a decided recovery in the quantity and value of preserved and tinned meat, tongues, and rabbits. Drought was not so greatly an operative factor in retarding production, as was the war in restricting exportation, and incidentally production. But the figures relating to the meat-preserving industry should be taken in conjunction with the returns from the boiling-down establishments if the effects of the drought which prevailed throughout many districts of the State during the two and a half years preceding the outbreak of the war in Europe are to be approximately appreciated. In 1912 the total number of cattle slaughtered for the combined purposes of boiling-down, meat-preserving (canning), and refrigerating represented fairly normal operations, for although it was a year of drought, the full effects of the visitation were not felt in all their stringency until the following year, when the number of cattle slaughtered for the purposes specified was more than doubled, and that of sheep increased by more than a third. The number of animals slaughtered in both denominations of live stock continued markedly to increase in 1914-15; but in 1915-16 there came a sudden drop, owing to the breaking of the drought, the restoration of a normal equation of stock to pasturage, a decline in exports of tallow, &c., and a practical cessation of the oversea trade in canned and refrigerated meats; not because there was no demand for them, but on account of the restriction of shipping facilities and the transference of vessels to military transport services.

The detailed figures relating to the freezing and chilling of carcase meat at refrigerating works during the year 1916-17 were as follow:—

Live Stock Treated.	Frozen for Export.	Chilled.	Total.
	No.	No.	No.
Bullocks and Cows .. .. .	22,995	4,500	27,495
Calves ... .. .	155	327	482
Total ... .. .	23,150	4,827	27,977
Sheep ... .. .	519,091	13,761	532,852
Lambs ... .. .	256,873	2,027	258,900
Total ... .. .	775,964	15,788	791,752
Pigs ... .. .	221	2,207	2,428
Total : Carcases ... .. .	799,335	22,822	822,157

#### *Biscuit, Confectionery, and Meal Factories.*

There were in the State 9 establishments engaged in the manufacture of biscuits, 6 of which were within the metropolitan area. The number of persons permanently employed was 1,546, and the greatest number at any one time during the year 1,761. The full capacity of power provided was 1,044 horse-power; the value of plant and machinery was £112,089, and the total value of output £805,940. During the year 1916-17 the flour used in these factories amounted to 11,486 tons, and the production of biscuits to 28,604,495 lb., valued at £779,403, besides cakes, valued at £15,517, and dog biscuits, valued at £11,020, also made at these factories.

The manufacture of confectionery, cakes, pastry, and ice-cream is an important metropolitan industry. Of 58 establishments engaged under this classification in New South Wales, 4 only were listed as being situated in the remainder of the State. The number of persons permanently employed was 1,685, and the greatest number at any one time during the year 1,927. The full capacity of power provided was 1,081 horse-power; the plant and machinery were valued at £118,313, and the total output at £955,757.

Fifteen factories, only one of which number was outside the metropolitan area, were engaged in the various processes of the preparation of oatmeal, rolled oats, cornflour or maize (maizena), ground rice, wheat-meal, flaked meal, semolina, cereal meal, rye, macaroni, starch, and poultry foods. These included both milling and packing establishments. The local manufacture of these prepared grain products was concerned with the treatment of wheat, maize, oats, rice, rye, and the semolina of commerce, and the production of 110,054 cwt. of oatmeal, valued approximately at £127,334; 59,293 cwt. of maize meal, maize flour, and cornflour, valued at £89,523; 5,010 cwt. of dressed rice, valued at £98,341; and flour, bran, pollard, rye, and other meals, semolina, macaroni, and starch, valued at £33,219. The number of hands permanently employed was 426, and the greatest number employed at any one time during the year was 463. The full capacity of power provided was 1,249 h.-p.; the value of plant and machinery was £96,336; and the total value of output £380,954.

*Flour-Mills, Biscuit Factories, &c.*

The amount of mill-power for grinding and dressing grain is ample for treating the flour consumed in the State, and prior to the declaration of War an export trade was progressively developing. The shortage of freight capacity has been a hardship to producers, because the wheat grown could not be despatched oversea, either in the form of grain or of flour. The accumulation, and corresponding deterioration, of wheat became so alarming that many growers seriously contemplated the abandonment of the cultivation of the cereal for the apparently more remunerative pursuit of stock-raising. In 1916-17 the season's production of wheat, after allowing a deduction for use of 6 bushels per head of population for consumption, permitted an exportation of 25,409,200 bushels, less seed wheat; and the year's production of flour at the mills, after allowing a deduction for use of 198-6 lb. per head of population for consumption, equivalent to 185,174 tons, permitted an exportation of 145,889 tons of flour.

The following table shows the average number of persons employed, the wheat treated, the flour made, and the power and value of plant and machinery, in the flour-mills of the State for the past five years:—

Year.	Flour Mills.	Average Number of Employees, including Working Proprietors.	Wheat treated.	Flour made.	Plant and Machinery.	
					Power (full capacity).	Value.
			bushels.	tons.	h.-p.	£
1912	69	964	12,065,733	255,359	6,268	333,068
1913	68	1,035	13,963,806	285,425	6,278	342,367
1914-15	63	901	12,836,354	266,302	6,359	334,602
1915-16	63	1,026	12,300,748	254,393	6,372	336,982
1916-17	62	1,097	15,839,319	331,063	6,399	342,141

In the year 1916-17 the amount of wheat treated at the mills was greater in quantity by 3,538,571 bushels than in 1915-16, but the total value of production was more by only £588,848. From 15,839,319 bushels of wheat

the total output was 331,063 tons of flour valued at £3,586,428; of bran, 75,044 tons, valued at £313,036; of pollard, 64,623 tons, valued at £321,379; of sharps and screenings, 3,106 tons, valued at £24,644; of wheatmeal, semolina, and other meal preparations, 19,030 cwt., valued at £10,819; and of milling sundries to the value of £3,055—total value of the output of the flour-mills of the State for the year 1916-17, £4,259,361. If to this be added 170 tons of flour, valued at £1,785, produced at the meal mills, the total production was of the value of £4,261,146. Of the 62 flour-mills in the State, 9 only were included in metropolitan boundaries, and 53 were situated in the country division, few important towns being unprovided in this prime essential of a branch of food production. The total number of persons permanently employed was 1,097, and the greatest number employed during the year at any one time was 1,336. The full capacity of power provided was 6,399 h.-p., but that actually used was 4,970 h.-p.; and the value of plant and machinery was £342,141.

#### *Preserved Vegetable Products.*

Preserved vegetable products are classified under two orders, namely 11 and 12 of Class VI, and consist of jam, conserves, pickles, sauces, vinegar, and pulped condiments. Of the combined orders there were within the State 41 factories, of which number 32 were within the metropolitan area. The products treated are quoted as jams, canned and preserved fruits, crystallized fruit and preserved ginger, pickles, sauces, flavouring essences, condiments, yeast, vinegar, jelly crystals, and curry and custard powders. There were 19 jam and fruit canning factories in 1916-17, which gave permanent employment to 827 persons, the greatest number at one time during the year being 1,266; the full capacity of power was 650 h.-p., the value of plant and machinery, £48,064; and the total value of output £764,448. The establishments engaged in the manufacture of pickles, sauces, vinegar; &c., numbered 22; they gave permanent employment to 370 persons, the greatest number at one time during the year being 454; the full capacity of power was 143 h.-p.; the value of plant and machinery, £20,972; and the total value of output £202,381.

The principal articles produced in jam, pickle, and sauce factories during 1916-17 were 32,940,804 lb. of jams, valued at £636,068; 5,309,936 lb. of preserves, valued at £95,100; 1,439,951 lb. of dried and evaporated fruit and pulp, valued at £6,198; 390,827 lb. of candied peel, valued at £10,096; 239,680 lb. of crystallized and preserved ginger, valued at £8,973; 2,120,096 pints of pickles, valued at £49,677; 3,638,687 pints of sauces, valued at £74,026; 1,265,776 gallons of vinegar, valued at £41,269; and 198,503 gallons of yeast, valued at £10,606; besides table syrups and cordials. In the manufacture of these goods, 181,126 cwt. of sugar and 457,702 cwt. of fruit and other materials were used.

Jam and fruit-canning is an industry which awaits systematic development in New South Wales; the climate and soil are admirably adapted for fruit growing, nevertheless a large proportion of the local demand is supplied by importation, although there exists the anomaly of hundreds of tons of fruit grown in the State being yearly wasted. The marked increase in the output of jam, and more particularly of canned and preserved fruit, during the statistical years 1915-16 and 1916-17, is due largely to the effort made to fulfil the contract with the Imperial Government for supplies of these articles of food for the British Army.

#### *State Canning and Pulping Factories.*

In connection with the State industrial undertaking of the Murrumbidgee Irrigation Area the Government established a fruit and vegetable cannery at Leeton for the manufacture of jams, pickles, and sauces, and a pulping

factory at Mirrool. The canning factory closed the year with a net loss of £9,577, largely owing to the expense incurred in purchase of raw material, *i.e.*, fruit, vegetables, and ingredients. Production was valued at £27,387; and the amount expended in wages and salaries, raw materials, and motive power at £28,510. The quantity of jam manufactured was 167,448 lb., and of fruit and vegetables, 928,790 lb.; besides 925,647 lb. of fruit pulp, 564 pints of pickles, and 7,356 pints of sauces. The number of hands employed during the year was from 40 to 45 males and 10 females; and the motive power provided comprised 2 steam engines and 10 electric motors of a full capacity of 110 h.-p. and 19 h.-p. respectively; of the steam 75 h.-p. was actually used, together with the whole of the electric power. The pulping factory at Mirrool showed a loss of £968 on the year's operations.

#### *Sugar Mills.*

The manufacture of sugar has long been an important industry. As far back as 1878 there were 50 mills in the State, but there are now only 3, and employment is afforded to a smaller number of persons than were engaged ten years ago.

The reason for the decline in the manufacture of sugar is to be found in the decrease of the area put under sugar-cane in New South Wales. In the prosperous days of sugar production as a primary industry, the northern coast, from Kempsey to the Queensland border, was exploited by the growers, and mills for treating the cane were established at or near the area of cultivation. To-day the cultivation of sugar-cane is confined practically to the Richmond, the Tweed, the Brunswick, and the Clarence Rivers, and the area farmed is yearly diminishing, as other more profitable crops can be grown. Queensland is the great sugar centre of Australia on account of its immunity from the frosts which retard the cultivation of the cane in higher latitudes.

The raw sugar manufactured in 1916-17 was valued at £289,152, and the molasses at £2,792, the quantity of cane crushed being 143,558 tons.

The number of mills and of persons employed, and the quantity of sugar and molasses manufactured, together with the capacity of horse-power used, during the last five years, are shown in the following table.

Year.	Sugar Mills.	Average Number of Employees.	Quantity manufactured.		Horse-power of Plant (full capacity).
			Sugar.	Molasses.	Steam.
			cwt.	gallons.	h.-p.
1912	3	469	336,340	667,100	2,835
1913	3	486	443,840	966,000	2,885
1914-15	3	437	400,580	1,104,000	2,885
1915-16	3	463	382,870	1,099,000	2,032
1916-17	3	427	321,280	781,870	1,638

#### *Sugar Refinery.*

There is but one sugar refinery in the State, and as it treats both local and imported raw product its operations are extending each year. During the year 1916-17 it handled 2,375,000 cwt. of raw sugar, which gave an output of 2,319,900 cwt. of the refined article of commerce, valued at £2,784,518.

The three mills, which were situated respectively at Harwood Island, on the Clarence River, at Broadwater, on the Richmond, and at Condong, on the Tweed, together with the refinery at Pymont, Sydney, during the year 1916-17 furnished with permanent employment 1,041 persons, the greatest number at one time during the year being 1,132; the full capacity of power supplied was 3,713 h.-p.; the value of plant and machinery, £987,248; and the total value of output, £3,076,462.

*Aerated Water and Cordial Factories.*

The total number of factories engaged in the production of aerated waters, cordials, &c., in the State was 207, of which number 30 only were within the metropolitan area. The listed articles manufactured included various kinds of aerated waters and cordials, soda-water, ginger-beer, lemonade, non-intoxicating beers, hygienic beverages, bottled mineral waters, and fruit juices and extracts. These 207 establishments furnished ermanent employment during the year 1916-17 to 1,132 persons, the greatest number at any one time during the year being 1,390; the full capacity of power supplied was 1,490 horse-power; the value of plant and machinery, £172,765; and the total value of output, £568,780.

Particulars regarding the output of aerated-water factories show that during 1916-17 the following articles were produced:—1,150,618 syphons, valued at £20,477, and 4,868,859 dozen bottles of aerated waters, valued at £384,972; 175,200 dozen of cordials and syrups, valued at £88,884; 383,737 dozen of hop beer, valued at £34,695; 551,502 dozen of ginger beer, valued at £52,066; and 114,198 dozen of other cordials, valued at £10,405; the total value at the factories being £601,178. The number of persons employed varies with the season of the year, the greatest number at work in 1916-17 being 1,390. In addition to their output of aerated waters and other non-intoxicant beverages, some of these establishments manufactured vinegar, sauces, and ice, which are included in the general returns for these articles.

*Breweries.*

There were in the State 22 establishments classed as breweries, of which 3, the largest and most important, were within metropolitan boundaries. In 1908 there were 37 breweries in New South Wales, but though the number is decreasing, the output during the last ten years shows an increase. The 22 breweries furnished permanent employment to 1,003 persons, the greatest number employed during 1916-17 being 1,153. The full capacity of power supplied was 4,508 h.-p., plant and machinery were valued at £678,879, and the total value of output was £1,436,733.

The materials used in breweries for manufacturing purposes and the actual output during the last five years were as follow:—

Year.	Malt.	Hops.	Sugar.	Other Materials.	Ale, Beer and Stout manufactured
	bushels.	lb.	tons.	centals.	gallons.
1912	773,194	891,535	5,048	8,286	22,741,332
1913	809,171	909,116	5,218	9,404	24,212,202
1914-15	838,148	893,050	5,192	6,044	24,434,147
1915-16	666,088	849,161	5,223	3,657	23,889,737
1916-17	678,206	805,514	5,366	3,336	22,485,765

In the following table is given the quantity on which excise was paid:—

Year.	Breweries.	Average Number of Employees including Working Proprietors.	Ale, Beer and Stout on which Excise was paid.	Horse-power of Plant (full capacity).
			gallons.	h.-p.
1912	33	1,020	22,126,426	1,926
1913	31	1,043	23,516,656	2,186
1914-15	27	1,045	23,516,877	3,965
1915-16	24	940	22,997,466	4,191
1916-17	22	1,003	21,851,727	4,508

The total value at the breweries of the 21,851,727 gallons of ale, beer, and stout made during 1916-17, and on which excise was paid, amounted to £1,042,309.

#### *Spices and Grocers' Sundries.*

Order 17 relates to a number of miscellaneous articles which, for convenience of reference, may be grouped as spices and grocers' sundries. They overlap and invade not only other orders of Class VI, but also many orders of other classes, comprising, as they do, processes and packing of widely divergent materials for distribution. Tea-blending; coffee and cocoa roasting and grinding; the drying, canning, and packing of vegetables, fruits, and herbs; the preparation for marketing of sugar, salt, spices, sago, rice, cornflour, split-peas, arrowroot, chicory, candied peel, miscellaneous condiments, foods, and perfumes; the bottling of olive, salad, castor, and cottonseed oils; and the manufacture of grocers' requisites of all kinds, come under this classification of industry, of which in 1916-17 there were in the State 38 establishments, inclusive of one outside the metropolitan area. The number of persons permanently employed under this heading during the year was 742, and the greatest number at any one time during the twelvemonth 835; the full capacity of power supplied was 503 h.-p.; the value of plant and machinery, £31,311; and the total value of output, £845,401.

#### *Distilleries.*

There are three distilleries in the State, two of which are wine distilleries, whilst the third is connected with the process of sugar-refining.

During the year 1916-17, the Customs Department issued 26 vigneron's licenses. The greater part of the white spirit distilled from molasses is subsequently methylated; of the remainder, part is used for making rum, and part for fortifying vinegar, perfumes, &c. Almost all the white spirit distilled from wine is used for fortifying the production of vintages. A small but yearly increasing quantity is used for making brandy.

During 1916-17, the quantity of white spirit distilled from 396,424 cwt. of molasses was 1,934,904 gallons, and from 72,655 gallons of wine 10,702 gallons, exclusive of 8,154 gallons distilled by vignerons from 47,704 gallons of wine. The total quantity of white spirit produced during the year by vignerons and at distilleries was 18,856 gallons from 120,359 gallons of wine. The quantity of manufactured spirits produced was as follows:—Brandy, 10,698 gallons; rum, 41,338 gallons; rectified spirit, 414,727 gallons; and methylated spirit, 729,574 gallons.

The State's three distilleries afforded permanent employment for 34 persons, the greatest number at any one time during the twelvemonth being 36. The full capacity of power provided was 144 h.-p.; the value of plant and machinery was £62,165; and the total value of output, £83,805.

#### *Ice and Refrigerating.*

The manufacture and utilization of ice are of paramount importance in a country subject to severe summers, or in which long distances have to be traversed, or perishable food retained in storage awaiting exportation. The refrigerating, freezing, chilling, packing, and cold-storage establishments in the State number 110, of which 30 are within metropolitan boundaries; and the articles treated comprise carcase meat, poultry, rabbits, hares, fish, milk, cream, butter, eggs, general dairying produce, and perishable food products. Factories for the production of ice mainly for distribution numbered 46, and of these 20 were within the metropolitan area. Two aerated water

factories in the country division also produced a small quantity of ice, which is included in the total. Some refrigerating works sell a certain amount of their production of ice to the public, but they are not numerous. The quantity of ice manufactured in 1916-17, for all uses, amounted to 61,185 tons, valued at £98,248; and the total value of the output of ice and refrigerating works was £5,721,333. The number of persons permanently employed was 1,555, with a maximum number during the twelvemonth of 1,951; the full capacity of power supplied was 10,533 h.-p.; and the value of plant and machinery was £599,503.

#### *Malting.*

In connection with the brewing industry, there were 4 establishments engaged in the malting of grain—1 in the metropolitan area and 3 in the country division, at Hornsby, Mittagong, and Tamworth respectively. During the year 1916-17 they treated 337,533 bushels of barley, and produced 325,997 bushels of malt, valued at £110,289. Malting is classed as a distinct order (20), and in 1916-17 the industry furnished permanent employment for 57 persons, 68 being the highest number during the twelvemonth. The full capacity of power supplied was 281 h.-p.; the value of plant and machinery was £41,602; and the total value of output, £112,177.

#### *Tobacco Manufactures.*

Fifteen factories under this classification were in operation during the year 1916-17, and they were all situated within the metropolitan area. Of these, 9 were engaged in the manufacture of cigars, 3 in that of tobacco (so described), 2 in that of cigarettes, and 1 in the manufacture of tobacco and cigarettes. The number of persons permanently employed was 1,930, and the maximum during the twelvemonth, 2,118; the full capacity of power supplied was 664 h.-p.; the value of plant and machinery was £131,878; and the total value of output, £1,983,839.

#### *Tobacco Factories.*

Tobacco of local manufacture but of foreign-grown leaf is to a large extent superseding the imported article; cigarettes made in this State now practically command the Australian market, and the manufacture of cigars is increasing also. About a seventh of the tobacco manufactured in New South Wales is grown in the State. In consequence of the shortage in shipping it might have been expected that an impetus would be given to the manufacture of tobacco of Australian growth, but this expectation has not been fulfilled. It is true that importations of cut and manufactured tobacco released from bond were less than those of the previous year by 20,655 lb. and 70,965 lb. respectively, of cigars by 2,426 lb., and of unmanufactured leaf by 138,210 lb., though cigarettes for which duty was paid showed an increase of 7,888 lb. on those similarly released from bond during 1915-16; but these results were merely incidental to difficulties of importation created by the war, and forshadowed a tobacco famine rather than heralded the creation of a new industry and an extension of the area under cultivation to the tobacco-plant. In 1915-16 tobacco was grown on 1,277 acres; the year's crop was 9,563 cwt., valued at £26,780; in 1916-17 the area under tobacco was 952 acres. The crop was a failure, and returned only 921 cwt., valued at £3,820. There was, therefore, a falling-off on the figures of the preceding year, in the area placed under tobacco cultivation, of over 25 per cent.; of production, of over 90 per cent.; and of value, of nearly 86 per cent. There were 69 fewer operatives employed in tobacco manufacturing during 1916-17 than during 1915-16.

The following table shows details of the operations of tobacco factories for the last five years. The large increase in the number of females employed is due principally to the extension of cigarette making.

Year.	Establishments.	Average Number of Employees.		Tobacco Leaf used, exclusive of waste.		Tobacco, Cigars, and Cigarettes manufactured.		
		Males.	Females.	Australian grown Leaf.	Imported Leaf.	Tobacco.	Cigarettes.	Cigars.
1912	22	694	748	lb. 760,543	lb. 5,305,654	lb. 4,170,853	lb. 2,377,554	lb. 80,537
1913	24	692	805	727,759	5,085,083	3,885,562	2,526,130	86,264
1914-15	18	785	978	924,781	5,756,052	4,523,617	2,866,283	102,260
1915-16	17	884	1,085	988,193	6,363,446	5,041,172	3,043,134	98,626
1916-17	15	868	1,062	863,475	6,239,766	5,013,094	2,790,994	100,342

The value at the factories of the tobacco manufactured in 1916-17 was £1,037,710; cigarettes, £872,069; and cigars, £67,471; the total being £1,977,250. The number of cigarettes and cigars represented by the above-mentioned weights were 1,245,559,867 and 8,882,235 respectively.

VII.—CLOTHING, TEXTILE FABRICS, &c.

Manufactories dealing with the industries relating to textile fabrics and the making of articles of attire afford the greatest numerical employment of any in the State, but with regard to production, and to wages paid per employee, they are much below several other classes. The number of persons engaged in each branch of the industry during 1916-17 is shown in the following table:—

Industry.	Establishments.		Average Number of Employees, including Working Proprietors.		Power Used.			Value of Machinery, Tools and Plant.
	Total.	Using Machinery.	Males.	Females.	Steam.	Electricity.	Other.	
					h.-p.	h.-p.	h.-p.	
Woolen and Tweed Mills .. .. .	6	6	444	590	1,058	1,220	200	£ 188,158
Hosiery and Knitting Factories .. .	20	18	94	514	44	125	6	28,455
Boots and Shoes .. .. .	115	101	2,694	1,702	195	668	490	155,947
Slop Clothing .. .. .	91	83	767	4,152	..	385	7	40,367
Clothing (Tailoring) .. .. .	351	60	1,779	3,159	1	97	3	25,632
Clothing (Waterproof and Oilskin) .. .	5	5	50	185	..	36	..	3,158
Dressmaking and Millinery (makers' materials) .. .. .	234	70	164	4,957	4	189	..	24,567
Dressmaking and Millinery (customers' materials) .. .. .	85	23	9	703	..	30	..	4,397
Dyeworks and Cleaning .. .. .	16	10	83	89	47	30	13	11,164
Furriers .. .. .	9	4	33	60	..	6	26	358
Hats and Caps .. .. .	33	31	468	895	349	294	29	72,401
Shirts, Ties, and Scarfs .. .. .	48	46	142	1,712	4	227	37	22,852
Rope and Cordage .. .. .	6	6	299	16	130	108	235	36,908
Sailmaking .. .. .	5	3	23	4	..	3	2	620
Tents and Tarpaulins .. .. .	11	10	148	273	..	119	8	13,965
Total .. .. .	1,035	481	7,197	19,011	1,832	3,537	1,046	628,999

Most of the industries under the classification showed good average time worked per employee. The orders individualised as waterproof and oilskin clothing, rope and cordage, sailmaking, and tents and tarpaulins, averaged 12 months. Other averages were:—Hats and caps, 11-87; boots and shoes, 11-84; tailoring, 11-83; shirts, ties, and scarfs, 11-83; dressmaking and millinery (makers' material), 11-78; hosiery and knitted goods, 11-72; slop clothing, 11-72; woolen and tweed mills, 11-69; dressmaking and millinery (customers' materials), 11-52; dyeworks and cleaning, 10-74; and furriers, 10-17. The average time made by the class as a whole was 11-78 months.

*Woollen and Tweed Mills.*

Although New South Wales is one of the greatest wool-producing countries in the world, those engaged in the manufacture of woollen materials numbered only 1,034 in 1916-17, or 135 fewer workers than during the preceding year, though the number rose to 1,193 in the course of the twelve-month. Woollen mills were amongst the earliest established in the State, but the industry has progressed very slowly.

In 1916-17 there were 6 establishments under this classification, of which number 3 were situated within the metropolitan area and 3 in the remainder of the State. The full capacity of the power supplied was 2,603 h.-p., and the value of plant and machinery £188,158. The total output of the woollen mills for the year 1916-17 was £712,531.

Details of employment, output, and motive power for the last five years are shown in the following table:—

Year.	Woollen and Tweed Mills.	Average Number of Employees (includes Working Proprietors).			Woollen Cloth and Tweed manufactured.	Horse-power of Plant (full capacity).
		Males.	Females.	Total.		
1912	5	351	413	764	yds. 1,143,046	h.-p. 1,029
1913	5	360	416	776	1,312,363	2,015
1914-15	5	379	576	955	1,718,903	2,493
1915-16	5	501	668	1,169	2,447,910	2,548
1916-17	6	444	590	1,034	2,194,955	2,603

During 1916-17, 3,278,494 lb. of scoured wool, 8,000 lb. of tops, 151,560 lb. of cotton, and other materials (principally imported yarn and dyes) to the value of £127,389, were used in the mills; and, in addition to the tweed and cloth shown above, and valued at £541,949, flannel, blankets, rugs, and shawls, to the value of £120,174, were also manufactured. Until the latter half of 1905 there was only a very small demand for locally woven cloth, and since then the market has grown but slowly. The 8,000 lb. of tops mentioned above were used for the production of 7,200 yards of woollen yarn at the new spinning mill recently established at Erskineville. The spinning was performed entirely by female labour, 28 hands being employed, and the power was supplied by two electric motors, the full capacity of 50 h.-p. of which was used. Nevertheless, the prejudice against Australian tweeds and similar fabrics is now fast diminishing under necessity, and it is possible that, when peace is concluded, the industry will expand beyond local needs, and that exports of manufactured cloth will take the place of exports of raw wool. In the meantime the difficulties confronting overseas communication with Europe should act as a large measure of protection for the fostering of the enterprise.

To these items must be added the production of noils to the value of £11,695, of tops to the value of £19,298, and of woollen yarn valued at £12,067.

*Hosiery and Knitting Factories.*

The industries under this classification during the year 1916-17 numbered 20, of which 2 only were outside metropolitan boundaries, and 1 outside the county of Cumberland. These factories were engaged in knitting fine and ordinary hosiery, woollen articles of apparel, &c., and in making yarn for the manufacture of woollen goods. It is to be noted that the preparation of yarn is a branch of industry pursued also in the woollen mills under the main class. The number of persons permanently employed was 608; and

the greatest number at any one time during the year, 696. The full capacity of power provided was 215 h.-p.; the value of plant and machinery was £28,485; and the total value of output, £194,543.

Statistics of hosiery and knitting factories are available for the past six years; previously they were included with those of woollen and tweed mills.

The following statement shows the number of factories, particulars of employments, the value of goods manufactured, and the full capacity of motive power supplied for the five years, 1912-17:—

Year.	Factories.	Average number of Employees.			Value of Goods Manufactured.	Horse-power of Plant (full capacity).
		Males.	Females.	Total.		
1912	9	65	308	373	£ 71,692	h.p. 88
1913	13	60	320	380	78,718	97
1914-15	16	71	416	487	111,475	138
1915-16	19	84	522	606	180,285	167
1916-17	20	94	514	608	194,543	215

The output of the factories has increased largely since the establishment of the industry as an independent enterprise. The requirements of the Commonwealth Defence Department have been a great stimulus to this branch of textile industry, and some of the factories have been working overtime ever since the opening months of the War.

#### *Boot and Shoe Factories.*

The number of establishments occupied during the year 1916-17 in various branches of boot and shoe manufacture was 115, of which 94 were situated within the metropolitan area, and 21 in the remainder of the State. These included factories for boots, for shoes, and factories which made both boots and shoes. Certain firms made uppers, or cut soles, or supplied heels. Some made only shoes and slippers, or nursery shoes, or infants' shoes and soft-sole shoes, whilst others added repairing as a branch of their business. The greatest number of persons employed during the year 1916-17 was 4,833, but the average number permanently working was 4,396; the full capacity of power supplied was 1,670 h.-p.; the value of plant and machinery, £155,947; and the total value of output, £1,829,323.

For the year 1916-17 the output of boots and shoes was valued at £1,718,556; slippers, &c., at £53,282; and uppers, at £17,922. Other work to the value of £39,942 was performed during the year, and this included repairs, the manufacture of heels, &c. In the manufacture of boots, &c., in 1916-17, approximately 5,417,808 lb. weight of sole leather was used, and 7,585,256 square feet of upper leather, besides other material to the value of £201,998, which included heels, linings, trimmings, facings, eyelets, &c.

Year.	Boot and Shoe Factories.	Average Number of Employees (includes Working Proprietors).			Output (as returned by Manufacturers).		
		Males.	Females.	Total.	Boots and Shoes.	Slippers, Infants' Shoes, Canvas and Cloth Shoes.	Uppers.
1912	103	2,779	1,612	4,391	pairs. 3,885,267	pairs. 399,874	pairs. 61,647
1913	105	2,703	1,559	4,262	3,640,068	310,026	53,295
1914-15	108	2,634	1,471	4,105	3,530,172	311,873	54,777
1915-16	103	2,540	1,659	4,199	3,552,021	291,366	43,735
1916-17	115	2,694	1,702	4,396	3,784,749	369,378	56,231

Ninety-one businesses were, during 1916-17, engaged in the manufacture of slop clothing, 5 only (all in Newcastle) being outside the metropolitan area. Of the 86 metropolitan and suburban businesses of Sydney, 67 worked up proprietors' materials, and 19 the materials supplied by warehousemen. The articles manufactured ranged from men's ready-made clothing, slop suits, and overalls, to women's costumes, blouses, mantles, coats, robes, and gowns, children's frocks, underclothing, and soft goods. The number of persons permanently employed during the year 1916-17 was 4,919, and the greatest number 5,552, over 84 per cent. of the employees being females. The full capacity of power supplied was 435 h.-p., and the value of plant and machinery £40,367. The total output was valued at £1,237,935.

Tailoring, which included ladies' tailoring, and has reference to work performed to order and according to measurements, was represented in the State by 351 establishments, of which number 197 were within metropolitan boundaries and 154 in the remainder of the State. The number of persons permanently employed was 4,938, and the greatest number during the year 5,548, about 64 per cent. of the employees being females. The full capacity of power supplied was 109 horse-power; the value of plant and machinery was £25,652, and of output £1,169,666.

That branch of the manufacturing clothing industry engaged in the making of waterproofs and oilskin garments occupied 5 factories, all within the metropolitan area. The number of persons permanently employed was 235, over 78 per cent. being females. The full capacity of power supplied was 36 horse-power; the value of plant and machinery, £3,158, and of output £106,841.

Orders 6 and 7, under this classification, relate to dressmaking and millinery, and include women's wearing apparel generally. The first of these categories dealt with the fabrication of makers' materials, and the second with that of materials supplied by the customers. Under the first heading were 234 businesses, 53 of which were in the country division; under the second, 85 businesses, with 15 in the country division. Of the total number, 319, only 68 were situated in the country division, which includes the extra-metropolitan portion of the county of Cumberland. The articles manufactured comprised everything defined as dressmaking and millinery, white-work, costumes, mantles, blouses, skirts, underclothing, corsets, brassiers, hose-supporters, fancy work, art needlework, trimmings, fancy lace and collars, fancy linen embroidery, regalia, juvenile clothing, baby linen, ladies' aprons and overalls, hats and toques, feathers, and artificial flowers. The number of persons permanently employed in the combined orders was 5,833, less than 3 per cent. being males; the greatest number employed during the twelvemonth was 6,528. The full capacity of power supplied was 245 horse-power; the value of plant and machinery, £28,964, and of output £905,275.

Under order 8 were listed 16 establishments engaged in dyeing and cleaning, bleaching, and renovating clothing, and curling, cleaning, and dressing feathers. Some businesses associated with their operations tailoring and pressing. All these establishments were within the metropolitan area, and furnished with permanent employment 172 persons, the greatest number employed at any one time during the year being 202. They were supplied with motive power of 117 horse-power full capacity; the value of plant and machinery was £11,164, and the value of output £41,742.

Order 9 relates to the treatment and preparation of furs for manufacture as articles of wearing apparel, &c. There were in the State 9 establishments occupied with this industry, 1 only being outside the metropolitan area. They furnished with permanent employment 93 persons; the full capacity of the power supplied was 57 horse-power; the value of plant and machinery, £358, and of output for the year 1916-17 £30,937.

*State Clothing Factory.*

The State Clothing Factory, which, since the 1st January, 1913, has been classed as an industrial undertaking, showed, on the 30th June, 1917, a trading profit of £2,336, and a net profit of £1,791, an improvement on last year's results of £1,202 and £709 respectively. The value of the manufactured clothing was £47,504, and was supplied to the Public Service only.

The capital at the 30th June, 1917, was £13,170, the addition thereto during the year being £305. The working capital of £12,000 was provided from Expenditure Suspense Account by the Treasurer, at the moderate rate of 3 per cent. The clothing being for the service of Public Departments, any profit of the undertaking through enhanced prices is to the detriment of the votes of the Department concerned, and the losses to their advantage, provided the rates do not exceed those which would obtain if supplies were secured from contracting firms.

*Hat and Cap Factories.*

There has been considerable expansion in the industry organized for the manufacture of hats and caps. Until 1898 it employed fewer than 100 persons, but in 1916-17 there were 1,363, of which number over 65 per cent. were females. The greatest number of persons employed during the twelve-month was 1,512.

There were 33 establishments listed under this classification, of which 1 only was outside the metropolitan area. The order included various branches of the industry relating to the manufacture of men's and women's hats and caps, of tweed, straw, felt, fur, and muslin; the manufacture of men's helmets, and certain operations of millinery. They were supplied with motive power the full capacity of which was 823 horse-power; and the value of plant and machinery was £72,401.

Year.	Hat and Cap Factories.	Average Number of Employees (includes Working Proprietors).			Power of Machinery (full capacity).	Value of Machinery, Tools, and Plant.
		Males.	Females.	Total.		
1912	35	546	1,051	1,597	h.-p. 863	£ 61,873
1913	38	570	975	1,545	786	69,396
1914-15	36	511	918	1,429	821	68,316
1915-16	36	515	1,044	1,559	768	75,941
1916-17	33	468	895	1,363	823	72,401

The hats and caps manufactured during 1916-17 numbered 2,473,333, valued at £396,983. The total output, inclusive of miscellaneous work, was £426,826.

*Shirts, Ties, and Scarfs.*

Shirts, ties, and scarfs were manufactured at 48 establishments, 2 of which, at Newcastle, were outside the metropolitan area. Of the 48 metropolitan businesses, 29 were engaged in the fabrication of articles from makers' materials, and 17 of articles made from materials supplied by customers. The kinds of goods manufactured were identical in each case, and included shirts, pyjamas, handkerchiefs, collarettes, scarfs, ties, neckwear and embroidery, underclothing and sleeping attire, silk knitted goods, certain descriptions of whitework, and various articles of men's mercery. The number of persons permanently employed in 1916-17 was 1,854, and the greatest number at any one time during the twelvemonth 2,101. Of the workers engaged, over 92 per cent. were females. The full capacity of power supplied was 292 horse-power; the value of plant and machinery, £22,852, and of output £477,696.

*Rope and Cordage, Sails, Tents, &c.*

There were in New South Wales 6 establishments engaged in the manufacture of rope and cordage, &c., and they were all within the metropolitan area. Their operations included the fabrication of rope, fishing-lines, and binder and packing twine, and they were arranged under order 12 of Class VII. Order 13 relates to sailmaking, 5 establishments being occupied with this industry, including 1 at Newcastle, outside metropolitan boundaries. The last-mentioned associated tent and tarpaulin with sail making; and one of the metropolitan firms made tents as well as sails. The manufacture of tents and tarpaulins, together with bags and sacks, was listed under order 14. In this description of manufacturing industry 11 establishments were engaged, all situated within metropolitan boundaries. Some of these businesses dealt only with tents, or tarpaulins, or calico and hessian bags and sacks, or loose covers; others made both tents and tarpaulins, one made sails in addition, and canvas and leather goods were associated branches of 2 factories. The 22 establishments of the three orders together furnished permanent employment for 763 persons, of whom over 38 per cent. were females; and the greatest number employed during the twelvemonth was 890. The full capacity of power supplied was 751 horse-power; the value of plant and machinery, £51,493, and of output £666,960.

## VIII.—BOOKS, PAPER, PRINTING, &amp;c.

Order 1 of Class VIII, inclusive of the Government Printing Office, was represented by 9 establishments, all situated within the metropolitan area. Four of these were engaged in linotyping work, 3 in electrotyping and stereotyping, and 1 in tin-pointing. Ninety-four persons were permanently employed, the greatest number at any one time during the year being 102. The full capacity of power supplied was 67 horse-power; the value of plant and machinery was £16,917, and of output £22,585.

Order 2 was represented by 32 establishments, all situated within the metropolitan area. The Industries pursued were diverse in character, and some overlapped with orders of other classes. They included the manufacture of paper, cards, cardboards, and paper-boards, besides articles made from these materials, such as paper patterns, general stationery, paper boxes, paper bags, and cardboard boxes and egg-fillers. Printing was associated as an industry with the manufacture of stationery, paper bags, box-making, and "hand-work." The manufacture of corrugated fibre-board boxes came under this classification, and industries such as confetti and sensitized paper. These factories gave permanent employment to 1,402 persons, of whom over 55 per cent. were females; and the greatest number at any one time during the year was 1,608. The full capacity of power supplied was 1,807 horse-power; the value of plant and machinery, £196,961, and of output £602,161.

Order 3 was represented by 13 establishments, all situated within the metropolitan area. The basic industry was engraving, and included its photographic and process varieties, metal-label and brass-band making, printing as associated with engraving, and the embossing of stationery. These establishments gave permanent employment to 175 persons, the greatest number at any one time during the year being 191. The full capacity of power provided was 92 horse-power; the value of plant and machinery was £17,135, and of output £46,435.

Printing, binding, and correlated crafts were arranged under order 4 and sub-order 4A, the latter relating to newspapers, some of the plants of which engaged in job-printing in addition to their prescribed business of providing periodical literature. Under the first classification 197 establishments were enumerated, of which 22 were outside metropolitan boundaries.

Of printing offices and printeries so described, apart from newspaper businesses, there were in the State 131, inclusive of 18 in the country division; and 10 establishments engaged in printing and binding, inclusive of 3 in the country division. The only other establishment outside the metropolitan area under order 4 was one engaged in printing and binding a book of picturesque views. The 55 other establishments under order 4 were all within the metropolitan area, and included 3 specific branches of the Government Printing Office. The industries listed, in different categories of association, were lithographic, letterpress and commercial printing, the manufacture of stationery, account books, rubber stamps and pattern-cards, paper-ruling, gold-stamping, publishing, and the designing of Christmas cards.

The order printing and binding furnished with employment 7,858 persons, of whom nearly 23 per cent. were females; and the greatest number of persons employed during the year 1916-17 was 8,568. The full capacity of power provided was 5,539 horse-power; the value of plant and machinery was £1,050,297, and of output £2,833,197. Of the 204 newspaper printeries (many of which performed also job-printing), 27 were in the metropolitan area, and 177 in the country division. The metropolitan newspaper plants furnished permanent employment to 1,655 persons, the greatest number employed during the twelvemonth being 1,755. The total capacity of power provided was 2,388 horse-power; the value of plant and machinery was £306,778, and of output £931,276. The country press offices permanently employed 1,141 persons, the greatest number during the twelvemonth being 1,254. The total capacity of power provided was 797 horse-power; the value of plant and machinery was £232,192, and of output £196,449. The newspaper industry was almost entirely masculine in type of employment.

	No. of Establishments.	M.	Total.	Females included in preceding	Greatest number employed at one time.		Full capacity of power provided.	Value of Plant and Machinery.		Output.
					M.	F.		£	£	
Metropolitan.	27	1,534	1,655	121	1,623	132	2,388	306,778	931,276	
Country	177	1,055	1,141	86	1,162	92	797	232,192	196,449	
Total ...	204	2,589	2,796	207	2,785	224	3,185	538,970	1,127,725	

The details of each order arranged under this industrial class are shown in the subjoined table for the year 1916-17. It is necessary to note that all printing establishments did not represent businesses trading as such, as a number of firms engaged in general commerce had a printing department attached to their chief depôts, and performed all the work of printing, &c., connected with their special enterprise.

Industry.	Establishments.		Average Number of Employees (includes Working Proprietors).		Power Used.			Value of Machinery, Tools, and Plant.
	Total.	Using Machinery.	Males.	Females.	Steam.	Electricity.		
						h. p.	h. p.	
Electrotyping and Stereotyping ...	9	9	85	9	h. p.	h. p.	h. p.	£
Paper-making, Paper-boxes, Bags, etc. ...	32	30	627	775	458	741	36	196,961
Photo-engraving ...	13	12	155	20	...	61	...	17,135
Printing and Binding ...	401	375	6,026	1,772	17	3,197	918	1,050,297
Total ...	455	426	6,953	2,576	475	4,050	954	1,281,300

The average time made in each of the four orders of Class VIII was as follows:—Printing and binding 11·96 months; photo-engraving, 11·95; electrotyping and stereotyping, 11·68; and paper-making, paper boxes, bags, &c., 11·68. The average time for the class as a whole was 11·92 months.

#### IX.—MUSICAL INSTRUMENTS, &C.

Thirteen establishments, of which 9 used machinery, were, during the year 1916–17, engaged in the manufacture and repair of musical instruments and sewing machines. The persons employed in these pursuits numbered 382 males and 49 females; and the greatest number employed at any one time during the year was 447. The full capacity of power provided was 367 horse-power, of which 296 was derived from electricity, 70 from gas, and 1 from steam. The value of plant and machinery was £14,511, and included the works of an important piano-making industry. The total value of output for the year 1916–17 was £192,585.

All the establishments enumerated under this class were situated within the metropolitan area, and comprised repairing plants for the treatment of musical instruments, particularly pianofortes, and factories for assembling sewing machines. The average time made by workers in this class was 11·98 months.

#### X.—ARMS AND EXPLOSIVES.

The manufacture of small-arms and ammunition has received the attention of the Commonwealth Government, which, on the 8th June, 1912, formally opened a small-arms factory at Lithgow. There are now four establishments in the State arranged under this classification; but details of employment, average time made, machinery in use, and value of plant and machinery may not be published at present.

#### XI.—VEHICLES AND FITTINGS, SADDLERY, &C.

With the extension of the railways and tramways, and the introduction of other improvements in locomotion, the development of some of the industrial orders under this classification is considerably affected. In many workshops in the metropolitan division plants previously engaged in building vehicles for horse traction have been diverted to the manufacture of automobiles, which are being increasingly utilized, particularly in metropolitan traffic. The chassis are imported, but in most cases the bodies are built locally, and the machines are assembled in the workshops of the State. The industry of cycle-building, especially of machines with motor attachments, is growing in importance, and the whole of the group shows an increasing capacity for employment.

Order 1 of Class XI relates chiefly to coachbuilding, which formerly occupied the place of the most important of these allied industries, and comprised the manufacture of waggons, lorries, carriages, buggies, and sulkies. Establishments engaged in building vehicles of this type numbered 219 throughout the State, 73 being situated within the metropolitan area and 146 in the country division. Many of the metropolitan workshops make motor bodies, and motor engineering and mechanical plants, at which motor and general vehicular repairs can be effected, exist in most of the population centres. Under this classification were also grouped some branches of wheel and spoke manufacture, blacksmithing, wheelwrighting, horse-shoeing, and general farriery. Many country coachbuilding factories included in their plant a motor garage. As instances of the overlapping of class industries

may be cited cases of associated coachbuilding and agricultural implement making, and coachbuilding and undertaking. Coach and waggon building provided permanent employment for 1,968 persons, and the greatest number employed at any one time during the year was 2,229. The full capacity of power provided was 1,319 h.-p.; the value of plant and machinery was £76,942, and the total value of output £532,916.

The work done under the classification of order 2 relates principally to repairing imported machines, and in assembling parts in order to produce completed automobiles, cycles, and motor cycles. There were in 1916-17 142 establishments engaged in this description of work, 90 within the metropolitan boundaries and 52 in the remainder of the State. Motor engineering has become an important calling, and most of the motor depôts described as garages have skilled workmen employed on the premises. The building of motor-car bodies is classified under the preceding order, but such operations as assembling chassis parts, upholstering autocar bodies, manufacturing carburettors, and enamelling, japanning, and nickel-plating car accessories are arranged under order 2. The cycle and motor industry provided permanent employment for 1,327 persons, and the greatest number employed at any one time during the year was 1,433. The full capacity of power provided was 745 h.-p.; the value of plant and machinery was £65,621, and the total value of output £297,959.

The manufacture of babies' perambulators and folding go-carts engaged the plants of three establishments during the year 1916-17. They were all situated within metropolitan boundaries, and gave permanent employment to 63 persons, which increased to 69 during the year's progress. The full capacity of power provided was 10 h.-p.; the value of plant and machinery was £460, and the total value of output £21,408.

Like boot and shoe manufacturing, the production of saddlery and harness is a special industry, and comprises several branches. The number of establishments engaged therein during 1916-17 was 56, equally divided between the metropolitan and country divisions of the State. The difference in the demands of local requirements is shown in the comparison of saddlery, as an individual industry, with harness and saddlery as a combined industry. Of 24 establishments engaged in the production of saddlery, 13 were within metropolitan boundaries; but of 23 establishments engaged in the production of harness and saddlery, 17 were in the remainder of the State. Some establishments dealt specially with saddle-trees, buggy saddles, saddle and harness strapping, whips, horse-collars, &c. The saddlery and harness industry provided permanent employment for 636, and the highest number employed at one time during the year was 699. The full capacity of power provided was 39 h.-p.; the value of plant and machinery was £9,913, and the total value of output £223,521.

Ten establishments, including three forest saw-mills, were engaged during 1916-17 in the production of coachbuilders' supplies, including felloes, spokes, naves, and completed wheels and other requisites. Five of these industries were installed within metropolitan boundaries. Four establishments, all within the metropolitan area, were employed in the manufacture of whips. Spoke manufacturing provided permanent employment for 122 persons, and the greatest number employed at any one time during the year was 142. The full capacity of power provided was 295 h.-p.; the value of plant and machinery was £13,981, and the total value of output £42,036. Whip-making provided permanent employment for 21 persons; no power was installed; the value of plant and machinery was £5, and the total value of output £7,073.

The following table shows the operations of each industry during 1916-17:—

Industry.	Establishments.		Average Number of Employees (includes Working Proprietors).		Power used.			Value of Machinery, Tools, and Plant.
	Total.	Using Machinery.	Males.	Females.	Steam.	Electricity.	Other.	
					h.-p.	h.-p.	h.-p.	
Coach and Waggon Building ... ..	219	114	1,940	23	47	445	364	76,942
Cycles and Motors ... ..	142	138	1,272	55	3	317	244	65,621
Perambulators ... ..	3	3	57	6	...	7	3	460
Saddlery and Harness ... ..	56	12	574	62	...	34	...	9,913
Spokes, etc. ... ..	10	10	120	2	172	60	7	13,981
Whips ... ..	4	...	20	1	...	...	...	5
Total ... ..	434	277	3,983	154	222	863	618	166,922

Of the foregoing orders under this classification, perambulators and whips made full time; the order saddlery, harness, &c., 11.92 months; the order coach and waggon building, 11.79; the order cycles and motors, 11.30; and the order spokes, 11 months.

## XII.—SHIP AND BOAT BUILDING, &c.

Under order 1 of Class XII, 7 plants were returned under the definition of docks and ships, of which 5, including the Commonwealth Naval Dockyard, were within the metropolitan area; and 2, including the New South Wales Government Dockyard at Newcastle, were situated in the remainder of the State. Under order 2 were classed establishments engaged in ship and boat building and repairing; but the industries grouped under the two orders thus differentiated were essentially one as far as the work performed was concerned; the real difference consisting in the extent to which ship and boat construction was conducted under each, and to what extent either order was engaged in the work of repairing and re-fitting vessels. The nature of the work executed was practically the same; but under order 1 it was executed in docks or on slips. The number of plants under order 2 of this class was 28, of which 2 were beyond metropolitan boundaries, one being situated at North Stockton, and the other at Forster. The local ferry steamship and the leading coastal steamship companies have repairing workshops and refitting plants along the foreshores and in the vicinity of the wharves, and the Sydney Harbour Trust has also a construction branch. Many fine ferry steamers have been constructed in the private dockyards of Sydney; but the bulk of the present output consists of small wooden vessels designed for river and island trade, of racing yachts, motor-launches, rowing boats, and other small craft, besides dredges, barges, &c. There were a number of repairing and engineering plants included under order 2, together with marine-motor works, marine-boiler factories, and the classification extended even to the making of sculls. It is not considered advisable to publish details relating to the Commonwealth and to the State dockyards during time of war. Docks and slips gave permanent employment to 3,356

persons, and the greatest number employed at any one time during the year was 3,927. The full capacity of power provided was 7,504 h.-p.; the value of plant and machinery was £1,178,434, and the total value of output £847,806. The industry of ship and boat building and repairing gave employment to 829 persons, and the greatest number employed at any one time during the twelve months was 1,220. The full capacity of power provided was 729 h.-p.; the value of plant and machinery was £22,152, and the total value of production £237,002. The class is essentially of a masculine character, and the 20 females engaged in the two orders were members of the clerical staff.

The following table exhibits particulars relating to each of the two industrial orders under Class XII for 1916-17:—

Industry.	Establishments.		Average Number of Employees (includes Working Proprietors).		Power used.			Value of Machinery, Tools, and Plant.
	Total.	Using Machinery.	Males.	Females.	Steam.	Electricity.	Other.	
					h.-p.	h.-p.	h.-p.	
Docks and Slips... ..	7	7	3,344	12	1,717	1,608	8	1,178,434
Ship and Boat Building and Repairing ...	28	22	821	8	182	263	54	22,152
Total ... ..	35	29	4,165	20	1,899	1,871	62	1,200,586

The order docks and slips made full average time, and the order ship and boat building and repairing made 11.79 months. For the whole class the average was 11.96 months.

XIII.—FURNITURE, BEDDING, AND UPHOLSTERY.

Industries connected with the manufacture of furniture, bedding, upholstery, billiard tables, chairs, furnishing drapery, cabinets, picture-frames, window blinds, and other accessories of household interiors, have greatly expanded during the past decade.

Order 1 of this class, which related mainly to the manufacture of bedding, flock mattresses, and articles of upholstery, was represented by 30 establishments, of which 5 only were situated outside the metropolitan area. Some firms combined furniture polishing and the making of wire mattresses with the leading lines, and specialisations were shown in quilts, motor upholstery, and the making and repairing of ship's linen, sails, awnings, &c.

Billiard tables were, as an individual industry, manufactured at 3 establishments, all within the metropolitan area, and were classed under order 2. Chairs, chair frames, deck chairs, and miscellaneous furniture of a similar character, classed under order 3, were manufactured at 16 establishments, all within metropolitan boundaries. At certain chair factories, cabinet-making was also carried on. Order 4 was represented by 16 establishments or branches, all within metropolitan boundaries, and comprised the manufacture of carpets, furnishing drapery (inclusive of articles of whitework and lace), holland blinds, and blinds and awnings for verandahs and for the use of the sick, window shades, &c., besides allied forms of upholstery. Carpet-sewing was included under this industrial order, which in some instances formed a department of universal providing firms.

Furniture and cabinet making (exclusive of the manufacture of furniture under classes and orders grouped according to the materials used in fabrication), classified under order 5 of Class XIII, were represented by 165

establishments or branches, 142 of which were within metropolitan boundaries, and 23 were in the country division. These industries included certain allied upholstery manufactures in articles of whitewood, sea-grass, pith, cane, bamboo, and similar primary products. Besides household requirements, the order included under its classification the manufacture of show cases, shop fronts, shop, office, studio, and library fittings and furniture; ice chests, sewing-machine cabinets, mantels, french-polishing, and miscellaneous productions of carpentry and general wood-working. In the country towns joinery was sometimes associated with cabinet-making.

Fifteen establishments in the metropolitan division were engaged in the manufacture of picture frames (order 6), and in the business of picture framing to order. Some of these associated with their work the making of household ornaments, photography, and photo-enlargement. Eight establishments (including one in the country division) were engaged in the manufacture of window blinds (order 7), venetian blinds, lattice-work, lath frames, and soft furnishings.

The particulars relating to the industries grouped under Class XIII are shown in the following table for the year 1916-17:—

Industry.	Establishments.		Average Number of Employees (includes Working Proprietors).		Power used.			Value of Machinery, Tools, and Plant.
	Total.	Using Machinery.			Steam.	Electricity.	Other.	
			Males.	Females.				
Bedding, Flock, and Upholstery ... ..	30	25	492	161	h.-p. 40	h.-p. 393	h.-p. 8	£ 13,149
Chair-making ... ..	16	16	206	1	...	104	7	4,758
Furnishing Drapery, &c. ... ..	16	14	72	283	...	49	...	2,633
Furniture, Cabinet-making, and Billiard								
Tables ... ..	168	140	2,194	30	212	836	265	63,765
Picture Frames... ..	15	15	102	51	...	31	...	2,550
Window Blinds... ..	8	5	39	5	...	13	...	652
<b>Total ... ..</b>	<b>253</b>	<b>215</b>	<b>3,105</b>	<b>581</b>	<b>252</b>	<b>1,426</b>	<b>280</b>	<b>87,507</b>

Bedding, flock, upholstery, &c., afforded permanent employment to 653 persons, and the greatest number employed at any one time during the year was 721. The full capacity of power provided was 589 h.-p.; the value of the plant and machinery was £13,149, and the total value of output £302,917. Billiard-table making afforded permanent employment to 84 persons, and the greatest number employed at any one time during the year was 88. The full capacity of power provided was 81 h.-p.; the value of the plant and machinery was £4,909, and the total value of the output £34,668. Chair making afforded permanent employment to 207 persons, and the greatest number employed at any one time during the year was 229. The full capacity of power provided was 151 h.-p.; the value of the plant and machinery was £4,758, and the total value of output £56,346. The making of furnishing drapery, blinds, carpets, &c., afforded permanent employment

to 355 persons, and the greatest number employed at any one time during the year was 378. The full capacity of power provided was 51 h.-p.; the value of plant and machinery was £2,633, and the total value of output £109,012. Furniture and cabinet making afforded permanent employment to 2,140 persons, and the greatest number employed at any one time during the year was 2,410. The full capacity of power provided was 2,103 h.-p.; the value of plant and machinery was £58,856, and the total value of output £617,814. Picture-frame making afforded permanent employment to 153 persons, and the greatest number employed at any one time during the year was 167. The full capacity of power provided was 32 h.-p.; the value of plant and machinery was £2,550, and the total value of output £53,149. The manufacture of window blinds and lattice-work afforded permanent employment to 44 persons, and the greatest number employed at any one time during the year was 51. The full capacity of power provided was 19 h.-p.; the value of plant and machinery was £652, and the total value of output £17,017.

Of the seven orders arranged under Class XIII, the industries grouped under 6 (picture-frame making, &c.) and 7 (window blinds, &c.) made full average time. Order (1) bedding and upholstery, 11·77 months; (4) furnishing drapery, &c., 11·45; (5) furniture and cabinet making, 11·35; (3) chair-making, 9·96; and (2) billiard-table making, 4·82 months. For the whole class the average time made was 11·24 months. Of those engaged in the manufacture of bedding, &c., nearly 25 per cent. were females; in the manufacture of furnishing drapery, &c., nearly 80 per cent.; and in the making of picture frames over 33 per cent.

A factory at Drummoyne, near Sydney, has been acquired by the Department of Public Instruction for the manufacture of furniture for State schools, and its output during the year 1916-17 was valued at £24,677.

#### XIV.—DRUGS, CHEMICALS, AND BY-PRODUCTS.

Several large and a number of small establishments were engaged during the year 1916-17 in the manufacture of drugs and chemicals and the fabrication of their by-products into articles of utility, as baking powder, blue, blacking, &c., for domestic and general use. Owing, however, to the incidence of the war there is a shortage in the importation of raw material, and a corresponding inflation of the prices of these commodities, accompanied by a decrease in the quantity manufactured.

Including two establishments in the country division, 21 firms were engaged in the making, packing, and distribution of baking powder and self-raising flour (order 1), either in combination or separately; 55 establishments, including 7 in the country division, were engaged in the manufacture and preparation of chemicals, proprietary and patent medicines, the requisites of pharmacy, the agencies of manufacturing processes, metallurgical solvents, disinfectants, insect and vermin destroyers, &c. (order 2); 15 establishments, all within the metropolitan area, were engaged in the manufacture and preparation of paint oils, varnishes, paints, dry colours, kalsomines, painters' chemicals and enamels, and the grinding and milling of barytes, oxides, ochres, and other pigmental bases (order 3); and 20 establishments, including 1 in the country division (at Newcastle), were engaged in the manufacture of writing and printing inks, printers' polishes, stains and blacking, boot and other polishes, laundry blue, sealing wax, linoleum creams, leather dressings, phenyle, and superphosphates and other fertilizers.

The following table exhibits particulars relating to the four orders of industrial manufacture listed under Class XIV, for the year 1916-17:—

Industry.	Establishments.		Average Number of Employees (includes Working Proprietors).		Power used.			Value of Machinery, Tools, and Plant.
	Total.	Using Machinery.			Steam.	Electricity.	Other.	
			Males.	Females.				
Baking Powder and Self-raising Flour ...	21	21	71	111	h.-p. ...	h.-p. 124	h.-p. 5	£ 8,006
Chemicals, Drugs, and Medicines ...	55	38	598	488	98	499	100	181,815
Paints and Varnishes ...	15	15	144	19	6	214	107	16,462
Inks, Polishes (including Fertilizers, &c.)	22	19	240	141	2	682	93	42,493
Total ...	113	93	1,053	759	106	1,519	305	248,776

The industries grouped under baking powder and self-raising flour made full time; those classed as manufacturing chemicals, drugs, and medicines, 11.98 months; and those engaged in the manufacture of paints and varnishes (order 3), and inks, polishes, fertilizers, &c. (order 4), each 11.85 months. The average time made by the whole class was 11.89 months.

A considerable proportion of those employed in 3 of the above orders are females, and they are occupied principally in packing and labelling the prepared commodities for distribution. The orders 1, 2, and 4 (the last-named exclusive of fertilizers) represented respectively 61, nearly 45, and nearly 56 per cent. of female labour. The manufacture of baking powder, &c., afforded permanent employment to 182 persons, and the greatest number employed at any one time during the year was 210. The full capacity of power provided was 152 h.-p.; the value of plant and machinery was £8,006, and the total value of output £265,040. The manufacture of chemicals, drugs, and medicines afforded permanent employment to 1,086 persons, and the greatest number employed at any one time during the year was 1,215. The full capacity of power provided was 848 h.-p.; the value of plant and machinery was £181,815; and the total value of output, £913,965. The paint and varnish industry afforded permanent employment to 163 persons, and the greatest number employed at any one time during the year was 184. The full capacity of power provided was 376 h.-p.; the value of plant and machinery was £16,462, and the total value of output £156,946. The manufacture of inks and polishes (exclusive of fertilizers) afforded permanent employment to 252 persons, and the greatest number employed during the year at any one time was £271. The full capacity of power provided was 317 h.-p.; the value of plant and machinery was £13,793, and the total value of output £163,662. The manufacture of fertilizers afforded permanent employment to 129 persons, all males; and the greatest number employed during the year at any one time was 219. The full capacity of power provided was 655 h.-p.; the value of plant and machinery was £28,700; and the total value of output, £157,135.

#### XV.—SURGICAL AND OTHER SCIENTIFIC INSTRUMENTS.

Seventeen establishments (one in the country division) were engaged in making and repairing scientific and surgical instruments and apparatus, electro-medical machines, artificial limbs, spectacles and opticians' goods, and in the grinding of lenses. During the year 1916-17 they employed 106 males and 41 females, who made 11.97 months of average time. The

greatest number employed during the year at any one time was 150. The full capacity of power provided at 15 of the establishments was 40 h.p. (36 h.p. being supplied by electricity and 4 by gas engines); the value of plant and machinery was £7,930; and the total value of output, £48,385.

XVI.—JEWELLERY, TIME-PIECES, AND PLATED WARE.

Under this classification, order 1 represents electro-plating and allied processes, and comprised 14 establishments therein engaged, all within the metropolitan area. The work performed included sheet-metal and pressed production, galvanizing, brass-working and brass-founding, and the manufacture of window fittings, some of these crafts being secondary branches of the main business.

The majority of the establishments under order 2 were returned as manufacturing jewellery; but the work of the watchmaker, the goldsmith, the gem-cutter, and the optician was also included. Very few were so returned, but the principal employment of a considerable number of these establishments consisted in effecting repairs to clocks, watches, and time-pieces generally. The businesses listed under order 2 numbered 38, of which 2 only were in the country division. The average time made in order 2, manufacturing jewellery, was 11.98 months, and in order 1, electro-plating and allied processes, 11.82 months; the average time for the whole class was 11.94 months. Electro-plating afforded employment to 164 persons, and the greatest number employed during the year was 189. The full capacity of power provided was 194 h.p.; the value of plant and machinery was £11,445; and the total value of output, £50,286. Manufacturing jewellery afforded employment to 525 persons, and the greatest number employed during the year at any one time was 580. The full capacity of power provided was 161 h.p.; the value of plant and machinery was £16,468; and the total value of output, £187,961.

The following table exhibits particulars relating to the two orders of industrial manufacture listed under Class XVI:—

Industry.	Establishments.		Average Number of Employees (includes Working Proprietors).		Power used.		Value of Machinery, Tools and Plant.
	Total.	Using Machinery.	Males.	Females.	Electricity.	Other.	
					h.-p.	h.-p.	
Electro-plating ... ..	14	14	150	14	122	44	11,445
Manufacturing Jewellery ... ..	38	32	449	76	141	...	16,468
Total ... ..	52	46	599	90	263	44	27,913

XVII.—HEAT, LIGHT, AND POWER.

The production of heat and light and the generation of power are industrial enterprises which have been systematically pursued throughout the State, wherever a population centre existed sufficiently large to sustain the cost. To Tamworth belongs the credit of being the first Australian municipal town outside the metropolitan area to have its streets lighted by electricity. There are now 21 country municipalities lighted by electricity, and 47 lighted by coal-gas.

Order 1 relates to the production of coke, for which in 1916-17 there were in the State 13 plants, namely, 9 at various coal centres on the South Coast; 2 at Wallsend; and 2 at Lithgow; and the output was employed

mainly to meet the requirements of the smelters, and of the iron and steel works in these districts. The total quantity of coal used for the manufacture of coke was 579,293 tons, and the production of coke was 397,802 tons, valued at £411,093, though to this must be added 253,642 tons produced at gas works and valued at £127,496, thus making the State's total production of coke, 651,444 tons, valued at £538,589. The coke-manufacturing industry (order 1) afforded permanent employment to 544 persons, and the greatest number employed during the year at any one time was 636. The full capacity of power provided was 2,554 h.-p.; the value of plant and machinery was £219,739; and the total value of output, £411,093.

Order 2 relates to the work of the electrical engineers, fitters, and contractors, and to that of manufacturers of electrical appliances. Of the 35 establishments thus classified, all were within the metropolitan area, and included repairing plants, the manufacture of wireless telegraphic apparatus, switch-gear, homo-wiring, electric signs, battery material, carbon brushes, and generally of electrical material, inclusive of the work of installation. In numerous instances mechanical and electrical engineering were associated, and more rarely motor and electrical engineering. The industry afforded permanent employment to 539 persons, and the greatest number employed during the year at any one time was 569. The full capacity of power provided was 422 h.-p.; the value of plant and machinery was £34,289; and the total value of output, £143,863.

There were within the metropolitan area 43 establishments engaged in the generation of electric light and power, with machinery and plant valued at £1,599,648, and employing 654 persons. A few establishments derived their electrical supply from neighbouring private plants. Of the 124 establishments engaged in the generation of electric light and power, there were 81 in the country outside the metropolitan area, with machinery and plant valued at £497,795 out of a total value of £2,097,443 for the State, and employed 502 persons out of a total of 1,156 for the State. The greatest number employed during the year in both divisions at any one time was 1,230. The full capacity of power provided for the generation of electric light and power was 169,134 h.-p., and the total value of output was £1,282,775. A marked development in this class is to be attributed to the necessity of creating a supply of electric power for operating tramways in the Sydney and suburban area, as well as for the demands for extended lighting systems to replace or to duplicate the use of gas.

The electricity generated during the year 1916-17 for lighting purposes measured 38,902,312 kilowatt hours, valued at £434,354; and for the supply of motive power, 207,801,838 kilowatt hours, valued at £848,421. The coal consumed in the process of generation amounted to 404,701 tons, valued at £319,402, besides small quantities of firewood, coke, gas, and oil.

Order 4 relates to light and power generated by the agency of gas, oil, acetylene, &c., and was represented in the State by 44 establishments, of which number 6 were within the metropolitan area, with machinery and plant valued at £1,144,589, and employing 903 persons. The 38 establishments in the country division possessed machinery and plant valued at £551,386, out of a total value of £1,695,975 for the State, and employed 410 persons. The metropolitan establishments included the gas-making plant of the Railway Department, and an acetylene gas works. In the remainder of the State 19 gaslight companies, 17 country municipal councils, an oil corporation, and the Railway Commissioners control the plants of 38 gasworks. The persons permanently employed in gasworks and allied establishments throughout the State numbered 1,313, and the greatest number employed during the year at any one time was 1,674. The full capacity of power provided was £5,386 h.-p., and the total value of output was £1,333,638.

Five metropolitan establishments (order 5) were classified as manufacturing and repairing gas-lamps, fittings, and general accessories. These were mostly associated with other industrial enterprises. They afforded permanent employment to 83 persons, and the greatest number employed during the year at any one time was 103. The full capacity of power provided was 35 h.-p.; the value of plant and machinery was £5,315; and the total value of output, £19,028.

Under order 6 was classified a single establishment, engaged in the generation of hydraulic power. It is situated within the boundaries of the City of Sydney, and affords permanent employment to 41 males. The full capacity of power provided was 801 h.-p., and the value of plant and machinery was £31,400. The gas produced in 1916-17 was 6,399,687,590 cubic feet, valued at £1,088,421; besides 253,642 tons of coke, valued at £127,496; 5,968,207 gallons of tar, valued at £70,544; 2,653,630 gallons of ammoniacal liquor, valued at £8,399; 109,619 gallons of petrol, valued at £5,221; 1,359,674 gallons of gas oil, valued at £28,326; and 98,936 gallons of black oil, valued at £2,061. The materials used in the production of lighting under order gas and kerosene were 421,064 tons of coal, 24,353 tons of shale, 1,396,248 gallons of kerosene oil, and 1,738,361 gallons of crude mineral oil.

Establishments connected with the supply of heat, light, and power show an increase in each year, and the figures for 1916-17 were as follow:—

Industry.	Establishments.		Average Number of Employees (includes Working Proprietors).		Power used.			Value of Machinery, Tools and Plant.
	Total	Using Machinery.	Males.	Females.	Steam.	Electricity.	Other.	
Coke-works ... ..	13	13	544	15	1,347	709	6	219,739
Electrical Apparatus ... ..	35	34	524	8	...	202	60	34,289
Electric Light and Power ... ..	124	124	1,148	41	£7,469	...	2,833	2,097,443
Hydraulic Power ... ..	1	1	41	7	500	1	...	31,400
Gas-works and Kerosene ... ..	44	41	1,306	1	1,795	482	315	1,695,975
Lamps, Fittings, etc....	5	4	82	7	...	20	...	5,315
Total ... ..	292	217	3,645	31	91,111	1,414	3,214	4,084,161

The average time made during the year 1916-17 by the employees of the six orders of Class XVII—heat, light, and power, was as follows:—Orders 4, 5, and 6, gasworks and kerosene, lamps, fittings, &c., and hydraulic power, full time; electric light and power, 11-89 months; coke works, 11-76 months; and electrical apparatus, 11-43 months. The average time made by the class as a whole was 11-85 months.

The following table exhibits particulars relating to the number of establishments, the average number of employees, full capacity of horse-power of machinery and the value of plant, tools, &c., devoted to the generation of electric energy during the five years, 1912-17:—

Year.	Electric Supply Works.	Average Number of Employees (includes Working Proprietors).	Machinery, Tools, and Plant.	
			Power (full capacity).	Value.
			h.-p.	£
1912	113	1,073	110,511	1,350,488
1913	115	1,118	114,371	1,391,007
1914-15	129	1,161	127,551	1,597,624
1915-16	126	1,122	147,950	2,024,328
1916-17	124	1,156	169,134	2,097,443

The electric power for the Sydney tramways is obtained from a principal power-house at Ultimo and several auxiliary stations, and a large power-plant is in course of construction at White Bay, Balmain. Within city and suburban boundaries there are numerous small establishments, the systems of the Government Tramways, the Sydney Municipal Council, and the Electric Light and Power Supply Corporation, Limited (Balmain), being the most extensive. Outside the metropolitan district the largest establishments are connected with mines, as at Broken Hill and Cobar, or are controlled by municipal councils. Practically all the power is generated from coal.

#### *State Power Supply.*

The balance-sheet of the State Power Station, Uhr's Point, after provision for statutory charges of interest on capital, and sinking fund have been made, discloses a net loss of £2,752 for the year 1916-17, and the accumulated loss at the 30th June, 1917, was posted as £6,627. This State industrial undertaking was begun on 1st December, 1914, to obtain cheaper power for four other State industrial undertakings, namely, the State Timber Yards, the Homebush and Botany Bay Brickyards, and the State Abattoirs, under an agreement extending over a period of six years with the Sydney City Council. Under the terms of this agreement, the four undertakings were to be charged 0.6d. per Board of Trade unit, but the agreement so favours the City Council as to prevent an economical working of this particular undertaking during the term of the agreement.

#### *Gasworks, &c.*

Although considerable progress has been made in the installation of electric lighting plants, the use of gas for purposes of illumination, power, and cooking is extending continuously.

The following table shows particulars of the operations of gasworks during each of the last five years.

Year.	Gas-works.	Average Number of Employees.	Gas made (1,000 cubic feet).	Machinery, Tools, and Plant.	
				Power (full capacity).	* Value.
1912	47	1,298	4,820,512	h.-p. 2,223	£ 1,236,541
1913	52	1,351	5,536,139	2,107	1,112,828
1914-15	53	1,485	6,080,270	4,300	1,749,724
1915-16	45	1,440	6,234,785	5,472	1,658,803
1916-17	44	1,306	6,399,688	5,386	1,695,975

\* The value of the plant shown in this column does not include mains.

During 1916-17 the quantity of coal used for gas was 421,064 tons, which, with 3,120 tons of shale and 1,514 tons of coke, produced, in addition to the gas (valued at £1,088,421), 253,642 tons of coke (valued at £127,496), 5,968,207 gallons of tar (valued at £70,544), and 2,653,630 gallons of ammoniacal liquor (valued at £8,399).

*Mineral Oil.*

Extensive works for treating oil-shale have been established at Newnes, in the Wolgan Valley, at New Hartley, at Murrurundi, and at Hamilton, near Newcastle. Only 2 shale-oil plants were operating during the year 1916-17, namely, that of Torbane, near New Hartley, the property of the Commonwealth Oil Corporation, Limited, and that of No. 2 Shale Shaft, Newnes, the property of Messrs. John Fell & Company, and formerly owned by the British-Australian Oil Company. Particulars relating to oil-shale may be found in the chapter on the Mining Industry.

## XVIII.—LEATHERWARE.

In 1916-7 there were 25 establishments, all within the metropolitan area, with 418 males and 184 females employed in the manufacture of leatherware (not elsewhere included), the more important branches of the industry being the manufacture of trunks, travelling bags, portmanteaux, suit-cases, glacé kid, fancy goods, and machinery belting; the dressing of fancy leather was also an important subdivision of the class. All the establishments thus classified used machinery, and the average horse-power utilised amounted to 213, of which 95 h.-p. was generated by gas-engines, 112 by electricity, and 6 by steam, whilst the value of the machinery and plant was estimated at £13,780. The workers in this class permanently employed numbered 602, and the greatest number employed during the year at any one time was 664. The full capacity of power provided was 257 h.-p., and the total value of output was £326,008. The average time made in this class by employees was 11.76 months.

## XIX.—MINOR WARES.

Of the minor industries, not readily assignable to any of the preceding classes, the more important were the manufacture of baskets, wickerware, and mats (order 1), brooms and brushes (order 2), and rubber goods (order 3). The brooms were made principally from millet grown in the State. An interesting feature of the first and second orders of manufacturing industry under this classification was the employment they afforded to blind persons. In 1916-17 there were 107 persons in the Sydney Industrial Blind Institution who were employed in the manufacture of baskets, brooms, brushes, wicker chair-making, &c.

There were in the State 94 of these industries grouped under Class XIX, and of the total 7 only were situated in the country division. Of 11 establishments, all of which were within the metropolitan area, occupied with the manufacture of baskets, wicker furniture, matting, chair-caning, and articles of sea-grass, 3 were branches of the Sydney Industrial Blind Institution.

Twenty-seven establishments, inclusive of 5 in the country division, engaged in the manufacture of brooms, and paint, gum, paste, and other brushes; one was a branch of the Sydney Industrial Blind Institution.

Order 3, represented by the processes of vulcanizing, and the manufacture of rubber stamps, motor tyres, and other rubber ware (including waterproof clothing, boots, waders, camp equipment, &c.), contained 11 establishments, of which 1 was in the country division.

Order 4, represented by the manufacture of toys and children's playthings, contained 13 establishments, of which 1 was in the country division; and 1 within the metropolitan area was managed by the Sydney Prison Gate Home, an institution which directs the efforts of discharged prisoners to earn a livelihood.

There were five industries grouped under order 5, represented by umbrella manufacturing, and they were all within the metropolitan boundaries. All the establishments listed under order 6 were also within the metropolitan area, and they included many diverse industries.

The particulars relating to the different manufactures listed under Class XIX for the year 1916-17 were as follow:—

Industry.	Establishments.		Average number of Employees (includes Working Proprietors).		Power used.			Value of Machinery, Tools, and Plant.
	Total.	Using Machinery.	Males.	Females.	Steam.	Electricity.	Other.	
Baskets, Wickerware, Matting, etc ..	11	1	139	17	h.-p.	h.-p.	h.-p.	£
Brooms and Brushware ... ..	27	23	231	55	...	46	47	242
Rubber Goods ... ..	11	11	346	132	256	372	...	6,471
Toys ... ..	13	13	64	20	...	42	11	76,133
Umbrellas ... ..	5	4	48	88	...	7	...	3,476
Other Industries ... ..	27	18	205	162	64	178	12	784
<b>Total</b> ... ..	<b>94</b>	<b>70</b>	<b>1,065</b>	<b>524</b>	<b>320</b>	<b>645</b>	<b>71</b>	<b>109,613</b>

The average time made by employees in this class was as follows:— Orders (3) rubber goods, (5) umbrellas, and (6) other industries, full time; order (1), baskets and wickerware, matting, &c., 11.78 months; order (2), brooms and brushware, 11.72; and order (4), toys, 8.19.

## AGRICULTURE.

IN New South Wales the cultivation of plants indigenous to cold, temperate, and even tropical regions is possible on account of the wide range of climate and the diversity of fertile soils of varying characteristics in well-defined regions of coast, tableland, slopes, and plain.

Very few parts of the State are so barren or so little watered as to be unsuitable for cultivation; though the country best adapted to farming operations is situated in the Eastern and the Central Land Divisions; the whole area of which, with the exception of portions of the mountain chain, is capable of profitable agricultural exploitation. The ample rainfall within this region favours the successful cultivation under ordinary conditions of about 50,000,000 acres; and this area might be extended by the application of modern scientific methods relating to intensive cultivation. Wherever methods of irrigation are capable of application, semi-arid districts have proved fertile. There is, of necessity, a limit to the possibilities of efficient irrigation, but New South Wales has entered only upon the experimental stage.

The rainfall of the Great Western Plains Land Division is uncertain, and no reliance can be placed upon attaining payable results from agricultural pursuits; moreover, from the point of view of the grazier regarding outlay, results, and markets, the pastoral industry presents superior attractions in this part of the State.

The statistics shown in this chapter are inclusive of figures relating to the Federal Capital Territory, but do not include any information regarding Lord Howe Island.

### AREA UNDER CULTIVATION.

During the season 1916-17 an area of 6,520,187 acres, including grassed lands, was under cultivation, of which total the area under crops contained 5,163,030 acres, and that sown with grasses, 1,357,157 acres.

The progress of cultivation since 1891 is shown in quinquennial periods in the following table:—

Seasons ended June.	Average area under—		Acres per Inhabitant under—	
	Cultivation, Including Grasses.	Crops.	Cultivation.	Crops.
	acres.	acres.		
1891-95	1,398,199	1,048,554	1·18	0·88
1896-1900	2,252,649	1,894,857	1·73	1·46
1901-05	2,942,506	2,436,765	2·10	1·74
1906-10	3,575,873	2,824,253	2·34	1·84
1911-15	5,187,850	4,025,165	2·87	2·23
1916	7,041,934	5,794,835	3·77	3·10
1917	6,520,187	5,163,030	3·49	2·77

Prior to 1891, exceedingly slow progress was made in agricultural development; the average cultivation per inhabitant in 1891-5, even including grass lands, was only a little over 1 acre, and the total area under crop did not reach a million acres until the season 1892-3. During the next six seasons expansion was considerably accelerated, and the recorded area increased to 2,000,000 acres. Since 1899 the rate of growth has been markedly slower; but for the season 1915-16 the area amounted to 7,041,934 acres, an advance of 2,604,710 acres, or 58·7 per cent., over 1911. The increase was due mainly to the patriotic response of the agricultural community to the appeal from the Imperial authorities for an increased supply

of wheat, in order to carry on the war efficiently, to the favourable ploughing seasons, to the high prices of agricultural produce, and to the subdivision of large estates. The wheat yield was abnormally high, namely, 66,764,910 bushels, exceeding by 28,744,529 bushels that of 1914, the highest previous record, when the yield was 38,020,381 bushels. But insufficiency of ocean freight, due to war requirements, retarded exportation; and, as a consequence, large quantities of wheat were lost by stress of weather, and by a plague of mice. Unfavourable conditions in 1916-17 caused a considerable diminution in the area sown for wheat, and the total area under cultivation was reduced by 521,747 acres.

During the period 1890-1900, cultivation increased at a rate of no less than 187 per cent., or nearly nine times that of the population. This increase was due mainly to the cultivation of large areas on holdings previously devoted to pastoral purposes. Since 1900 this phenomenal increase has not been maintained, and the decline in the rapidity of development has been due partly to the check induced by adverse seasons, but more materially to the increased attention given to dairying; nevertheless, in the period 1900-10 the area cropped increased by 90 per cent. more rapidly than the population. During the last six years of the period under review the rate of increase of the crop area was slightly more than three and three-quarter times that of the population.

The following statement gives particulars of the area under crops in the seasons 1906-7, 1911-12, and 1916-17, and shows the districts in which the greatest advances have been made.

Division.	Actual Area under Crops.			Index Numbers. (1906-7=100).	
	1906-7.	1911-12.	1916-17.	1911-12.	1916-17
Coastal Belt—	acres.	acres.	acres.		
North Coast ... ..	99,661	91,177	89,253	91·5	89·6
Hunter and Manning ... ..	105,375	101,912	104,888	96·7	99·5
Cumberland ... ..	46,032	39,836	35,621	86·4	77·3
South Coast ... ..	52,802	47,863	46,129	90·6	87·4
Total ... ..	303,920	280,788	275,891	92·4	90·8
Tableland—					
Northern ... ..	68,326	72,109	74,160	105·5	108·5
Central ... ..	219,903	264,245	323,946	120·2	147·3
Southern .. ..	53,202	60,904	76,615	112·8	144·0
Total ... ..	341,431	396,358	474,721	116·1	139·0
Western Slopes—					
North ... ..	274,574	404,319	516,993	147·3	188·3
Central ... ..	418,141	559,381	780,735	133·8	181·9
South ... ..	454,196	698,936	948,943	153·9	208·9
Total ... ..	1,146,911	1,662,656	2,246,671	145·0	195·9
Central Plains—					
North ... ..	10,153	12,075	43,027	118·9	423·8
Central ... ..	276,268	277,500	558,978	100·4	202·3
Total ... ..	286,421	289,575	602,005	101·1	210·2
Riverina ... ..	729,187	986,024	1,553,138	135·2	213·0
Western Plains ... ..	16,341	13,769	10,604	84·3	64·9
All Divisions ... ..	2,824,211	3,629,170	5,163,030	128·5	182·8

It is evident from these figures that during the ten years between 1907 and 1917 there was a general increase throughout the State, with the exception of the Coastal Belt and the Western Plains.

The largest aggregate increase as compared with the figures shown for 1906-7 took place in the Division of the Riverina, and amounted to 823,951 acres of additional area brought under cultivation during the decade, which represented an advance of 113 per cent. The next largest aggregate increase was recorded for the South-Western Slope, and amounted to 494,747 acres. Taken as a whole, the territorial area of the Western Slopes showed an advance of 1,099,760 acres. The districts exhibiting the heaviest proportion of total cultivation in the year 1916-17 were the Riverina with 30 per cent., and the Western Slopes, with an aggregate of 44 per cent. in its three Divisions. The remaining 26 per cent. was distributed over the Coastal Belt, the Tableland, the Central Plains, and the Western Plains, only 0.2 per cent. of the area under crop throughout the State being credited to the last-named Division.

The great extension of cultivation since 1892 has been fostered by wheat-growing on large estates formerly devoted almost exclusively to grazing, by the added security against bad seasons afforded by wool and wheat-farming in conjunction, by the adoption of the system of farming on shares, and, more recently, by the subdivision of large holdings for closer settlement.

In January, 1916, a Royal Commission was appointed to inquire into the rural, pastoral, agricultural and dairying interests in New South Wales, and the results of its labours were tabled in Parliament in August, 1917. This report, in dealing with the slow progress of agricultural settlement, affirms that whilst the avowed purpose of the various land Acts, particularly since the year 1861, was to settle a "thriving yeomanry" upon the suitable Crown lands of the State, achievement had fallen very far short of the anticipations of the promoters of such legislation, results indicating that the best of the rural holdings had passed into the hands of large private owners, who continued to use them principally for pastoral purposes.

The solution of the problem was made more difficult by the fact that the available area of suitable Crown lands was almost negligible, whilst no fewer than 81,367,189 acres had been placed practically beyond the control of the State at the end of June, 1917. It is mainly on these areas that future settlement must take place. An additional area of 77,160,169 acres is held under long leases, making a total of 158,527,358 acres, which are subject to private control, and could only be more intensively settled under the present system by resumptions, or by voluntary action of the present holders.

The Commission therefore recommended that arrangements should be made by the State to secure the co-operation of private landholders, and that agreements should be drawn up giving it the right of occupancy, with option of purchase, for a period of ten years, the State guaranteeing rent and the maintenance of improvements on behalf of probationary settlers. Under such a system the State would be able to establish returned soldiers, share-farmers, and other assisted settlers, upon the land.

## CULTIVATION IN EACH DIVISION.

The following table shows the total area under crops, together with the total area of each Division, and the area in occupation, during the season 1916-17.

Division.	Total Area of Division.	Area under—			Proportion of area under Crops to—	
		Occupation in Holdings of 1 acre and over.	Crops.	Sown grasses.	Total Area.	Area under Occupation.
Coastal Belt—						
North Coast ... ..	5,409,370	4,007,690	89,253	931,878	1·6	2·1
Hunter and Manning ... ..	10,390,920	6,331,684	104,888	185,945	1·8	1·7
Cumberland ... ..	1,070,989	520,821	35,621	4,167	3·3	6·8
South Coast ... ..	5,484,122	2,418,717	46,129	178,144	0·8	1·9
Total ... ..	22,355,401	13,278,912	275,891	1,300,134	1·2	2·0
Tableland—						
Northern ... ..	8,928,487	7,540,227	74,160	14,304	0·8	1·0
Central ... ..	8,989,259	6,263,389	323,946	5,590	3·6	5·1
Southern ... ..	7,913,100	6,371,341	76,615	2,059	1·0	1·2
Total ... ..	25,831,246	20,174,964	474,721	21,953	1·8	2·3
Western Slopes—						
North ... ..	9,813,555	8,818,884	516,993	4,026	5·3	5·9
Central ... ..	6,252,567	5,195,344	780,735	1,229	12·5	15·1
South ... ..	8,185,759	6,987,662	948,943	4,167	11·6	13·2
Total ... ..	24,251,881	21,001,890	2,246,671	9,422	9·3	10·6
Central Plains—						
North ... ..	10,030,901	8,198,391	43,027	758	0·4	0·5
Central ... ..	16,029,880	15,032,620	558,978	16,361	3·5	3·7
Total ... ..	26,060,781	23,231,011	602,005	17,122	2·3	2·6
Riverina ... ..	19,767,073	18,282,163	1,553,138	8,361	7·9	8·4
Western Plains ... ..	80,368,498	77,722,019	10,604	165	...	...
All Divisions ... ..	198,634,880	173,691,959	5,163,030	1,357,157	2·6	3·0

The area of Lord Howe Island, 3,200 acres, is excluded from the total area, as shown above; the area of the Federal Capital Territory, 593,920 acres, is included.

During the year 1916-17 about 2·6 per cent. of the total area of New South Wales was actually devoted to the growth of agricultural produce; and if the small extent of land upon which grasses had been sown for dairy-farming purposes be added to the area under crops, the proportion reaches only 3·3 per cent., and represents about 3·49 acres per head of population. The proportion of the cultivated area on alienated holdings was 8·39 per cent. of the total area of alienated rural lands in holdings of 1 acre and over; of the area in occupation, 56,698,318 acres were alienated and 116,993,641 acres were leased from the Crown. The area of Crown lands under crops amounted to 406,521 acres only.

Purely agricultural settlements are confined to limited areas in the alluvial lands of the lower valleys of the coastal rivers, to parts of the Southern and Central Divisions of the Tableland, and to the irrigation settlements, the importance of which is increasing yearly; and crops are, to a large extent, cultivated in conjunction with grazing operations. Tenant

occupancy, so general in the United Kingdom, is little known in New South Wales, and of the total area under crop, 4,479,497 acres, or 86·8 per cent., were cultivated by owners, and 683,533 acres, or 13·2 per cent., were cultivated by tenant occupiers, including Crown land lessees.

In addition to the area shown as cultivated and under sown grasses, 75,832,592 acres were ringbarked and partly cleared and under native grasses; and 2,289,548 acres were ready for cultivation on alienated holdings, and this area consisted of 1,972,763 acres which had been cropped previously, 163,213 acres of new land cleared and prepared for ploughing, and 153,572 acres in fallow.

Cultivation is not confined to particular districts, but is conducted in all parts of the State. Some of the best land for producing cereals is in the hands of the pastoralists, so that farmers sometimes find themselves settled on country unsuited to the most efficient cultivation of their crops.

The county of Cumberland, which contains the densest population, has a large area cultivated in proportion to the area under occupation in holdings of 1 acre and upwards; but, in a general sense, the Riverina shows the largest area under cultivation, followed in order by the Southern and Central Divisions of the Western Slopes, the Central Plain, the North-western Slope, and the Central Tableland. There was an increasing but not relatively important area cropped in the Division of the North-Central Plain, but in the Western Plains there was practically no cultivation.

RELATIVE IMPORTANCE OF EACH CROP.

The largest proportion of the area under crops is devoted to the cultivation of wheat, which in 1916-17 accounted for 73·7 per cent. of the total; the area for hay was 16·6 per cent., maize 3 per cent., for green food 2·9 per cent., and oats 1·3 per cent.

The following statement shows the cultivated area for each of the principal crops, in quinquennial periods since 1916-17, and the relative importance of each crop.

Crop.	Area.			Proportion per cent.		
	1906-7.	1911-12.	1916-17.	1906-7.	1911-12.	1916-17.
	acres.	acres.	acres.			
Wheat ... ..	1,866,253	2,380,710	3,806,604	66·0	65·5	73·7
Maize ... ..	174,115	167,781	155,378	6·2	4·6	3·0
Barley ... ..	7,879	10,803	5,195	0·3	0·3	0·1
Oats ... ..	56,431	71,047	67,111	2·0	2·0	1·3
Hay ... ..	453,172	654,149	858,532	16·2	18·0	16·6
Green Food ...	122,914	211,874	149,873	4·4	5·8	2·9
Potatoes ...	36,815	43,148	22,449	1·3	1·2	0·4
Sugar-cane ...	20,580	13,907	10,969	0·7	0·4	0·2
Vines ... ..	8,521	8,231	8,666	0·3	0·2	0·2
Orchards ...	46,177	48,191	57,968	1·6	1·3	1·1
Market-gardens	9,550	9,498	10,710	0·3	0·3	0·2
Other Crops ...	19,250	12,683	13,110	0·7	0·4	0·3
Total ...	2,826,657	3,632,022	5,166,565	100	100	100

The figures include the areas double-cropped, viz., 2,446 acres, 2,852 acres, and 3,535 acres respectively.

The area devoted to wheat has always exceeded that given to other crops, and from the season 1880-1 the proportion, though fluctuating, has remained high. For the year 1916-17 it stood at 73·7 per cent. of the whole area under cultivation, but this does not represent its true relationship to the other crops, since a varying area reaching many thousands of acres, which under normal conditions would be harvested for grain, is in each season "eaten-off" by stock on account of drought. Consequently, the area

under green-fodder crops during any given year may be widely different from that of the preceding season, and the difference is a matter decided by the climatic conditions prevailing during the year. The proportion under maize decreased from 20 per cent. in 1880-1 to 3 per cent. in 1916-17, but other crops did not vary materially.

#### CULTIVATED HOLDINGS.

The number of holdings on which the principal crops were cultivated during the last five years is shown below.

Crop.	Number of Holdings.				
	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.
Wheat ... ..	19,469	21,453	20,419	22,453	20,958
Maize ... ..	18,187	16,831	14,856	14,869	15,222
Barley ... ..	1,869	2,159	2,511	2,538	1,924
Oats ... ..	13,483	14,683	14,112	13,723	13,900
Potatoes ... ..	6,865	7,293	5,776	4,643	5,091
Tobacco ... ..	148	162	120	97	72
Sugar-cane ... ..	764	739	714	694	686
Grapes ... ..	1,437	1,471	1,352	1,292	1,435
Fruit—Citrus ... ..	4,827	5,033	5,303	5,787	5,958
Other ... ..	8,960	9,365	8,967	8,760	8,675
Market Garden Produce ...	3,581	3,373	2,972	3,301	3,158
<b>Total Cultivated Holdings</b>	<b>48,943</b>	<b>50,955</b>	<b>49,269</b>	<b>50,632</b>	<b>49,998</b>

Until 1913-14 the increase in wheat-holdings was pronounced, but during the following season there was a falling-off in their number, due to ploughing operations being restricted considerably as a result of the inadequate rainfall in various districts. During 1915-16 the number of wheat-holdings increased to 22,453, but declined in 1916-17 to 20,958. In comparison to the area cultivated, the number of maize-holdings is far in excess of those of wheat, due to many dairy-farmers cropping small areas for use on the farms; while much of the wheat-acreage—over one-fourth—is cultivated under the “shares” system, under which a number of growers cultivate one holding.

#### VALUE OF PRODUCTION.

The average value of the principal crops during the last five years, with the proportion of each to the total value, is shown in the following table, the values being based on prices realised on the farm and not in the Sydney market.

Crop.	Value.					Proportion per cent.				
	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.
Wheat .. ..	£ 5,238,580	£ 5,988,200	£ 3,274,450	£ 13,352,980	£ 5,642,190	42.2	44.3	32.6	65.6	49.1
Maize .. ..	873,300	760,770	767,030	723,270	722,250	9.2	7.4	7.7	3.6	6.3
Barley .. ..	61,400	61,670	9,970	20,630	12,600	0.3	0.5	0.1	0.1	0.1
Oats .. ..	223,210	214,130	111,350	173,820	128,840	1.8	1.9	1.1	0.9	1.1
Hay and Straw .. ..	3,290,810	3,220,170	3,643,650	3,897,910	3,016,400	21.4	27.6	36.3	19.1	26.2
Green Food .. ..	360,880	348,820	513,000	367,820	281,170	4.3	3.0	5.1	1.8	2.4
Potatoes .. ..	338,710	348,930	277,270	294,390	196,910	5.1	2.9	2.8	1.4	1.7
Sugar-cane .. ..	140,920	179,820	190,130	205,070	208,160	1.5	1.2	1.9	1.0	1.9
Grapes .. ..	90,010	91,060	74,800	98,400	68,260	0.8	0.8	0.7	0.5	0.6
Wine and Brandy .. ..	63,670	46,490	45,120	47,340	54,850	0.7	0.5	0.5	0.2	0.5
Fruit—Citrus .. ..	239,040	219,820	257,870	252,170	254,120	3.0	2.1	2.6	1.2	2.2
Other .. ..	305,660	244,950	233,130	213,210	280,990	3.8	2.6	2.3	1.2	2.4
Market-gardens .. ..	369,480	401,060	405,280	460,860	395,700	3.6	3.1	4.0	2.0	3.5
Other Crops .. ..	251,620	251,760	228,710	283,990	222,390	2.3	2.1	2.3	1.4	2.0
<b>Total .. ..</b>	<b>£ 11,816,790</b>	<b>£ 12,377,650</b>	<b>£ 10,031,760</b>	<b>£ 20,362,360</b>	<b>£ 11,487,830</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

The value of agricultural production in the season 1914-15 was not so high as in that of the two preceding seasons, owing to drought conditions, but the enhanced value arising from war conditions largely compensated growers for diminished production. But the year 1915-16 showed a total increase in the value of all agricultural production amounting to nearly 103 per cent. on the figures of the preceding year, wheat increasing in value by nearly 308 per cent., barley by nearly 107 per cent., and oats by over 56 per cent. In 1916-17 the value of agricultural production dropped back to the normal figures which prevailed prior to the phenomenal returns of 1915-16.

It is apparent that the agricultural wealth of New South Wales at present depends mainly on the return from wheat and hay, the value of these crops in 1916-17 being £8,658,590, or over 75 per cent. of the total. After hay and straw the value of maize was next in importance, but at a considerably inferior level, and showing a lower return than for the previous year; the value of fruit, and the returns from market-gardens, green food, potatoes, vines, and sugar-cane were comparatively of much smaller value. The value of green food was much higher in 1914-15 than usual, owing to the abnormally large area of wheat fed-off on account of the dry weather, but in 1916-17 it was the lowest during the period reviewed, the decline in value on that of the previous year amounting to £86,650. The value of the produce of market-gardens also fell below that of 1915-16, but there were increases on the values of the sugar-cane, wine, and fruit production of the previous year.

The next table shows the area cultivated and the value of production from agriculture, together with the average value per acre over five-year periods since 1892.

Seasons ended June.	Aggregate of Areas Cultivated.	Value of Production.	Value per Acre.
	acres.	£	£ s. d.
1892—1896	5,738,666	19,061,966	3 6 5
1897—1901	10,571,249	27,963,098	2 12 11
1902—1906	12,576,340	31,514,514	2 10 1
1907—1911	14,665,104	42,825,820	2 18 5
1912—1916	22,538,742	64,337,380	2 17 1
1917	5,163,030	11,487,880	2 4 6

For the season 1914-15 the return per acre (£2 1s. 9d.) was the lowest since 1904-5. The effects of the drought were severe throughout the agricultural districts, many crops failing absolutely, whilst others gave but a meagre return. Thus the average value per acre was reduced considerably, although the high prices of all agricultural products partially counter-balanced the diminished production.

At the request of the Imperial Government, the State Ministry made a special appeal, which was backed by substantial guarantees, to the farmers of New South Wales to maintain the area placed under wheat for the season 1915-16. The additional area cropped for all agricultural production during that season was 986,208 acres, and the increased value amounted to £10,330,600, or nearly 103 per cent. over that of the previous year, whilst the productive value per acre increased by £1 8s. 6d.

During the quinquennial period, 1912-16, the aggregate number of acres placed under cultivation increased by 7,873,638, and the value of production by £21,511,560, but the value per acre decreased by 1s. 4d. as compared with the figures of the previous quinquennium.

In 1916-17, owing to the decline in wheat cultivation and the failure of a considerable portion of the crop, there was a decrease in the acreage and in the value of production, the yield per acre being 12s. 7d. below the average of the five years 1912-16.

The annual increase in the aggregate number of acres cultivated, and of the value of production, together with the fluctuations in the value of production per acre, since the year 1912, was as follows:—

Seasons ended June.	Annual Increase in—		
	Area cultivated.	Value of Production.	Value per Acre.
	acres.	£	£ s. d.
1913	108,099	2,067,970	0 9 6
1914	831,572	560,860	(—) 0 9 1
1915	239,786	(—) 2,345,890	(—) 0 12 5
1916	986,208	10,330,600	1 8 6
1917	(—) 631,105	(—) 8,874,530	(—) 1 5 9

(—) Denotes decrease.

#### AVERAGE VALUE PER ACRE.

The average value per acre of various crops during the seasons 1914-17 are shown below in comparison with the average for the last ten years:—

Crop.	Average Values per Acre.				Average Value for 10 Years 1908-17.
	1913-1914.	1914-1915.	1915-1916.	1916-1917.	
Grain—	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Wheat ...	1 17 4	1 3 9	3 3 9	1 9 8	2 0 6
Maize ...	4 17 0	5 6 9	4 13 10	4 13 0	4 15 2
Oats ...	2 1 5	2 11 3	2 19 3	1 18 5	2 5 0
Hay ...	3 19 7	4 11 6	3 9 9	3 9 5	3 12 8
Potatoes ...	9 0 2	9 2 4	15 0 7	8 15 5	10 14 0
Sugar-cane...	29 0 3	31 12 6	34 0 2	39 17 1	26 19 8
Vineyards ...	18 15 6	17 15 0	23 10 5	19 18 8	18 0 7
Orchards ...	12 19 0	13 19 2	13 11 1	13 19 5	12 16 9
Market-gardens ...	37 16 2	38 11 10	35 11 0	37 4 6	34 10 1

#### SHARE-FARMING.

The system of agriculture known as share-farming has reached important dimensions. It is applied to dairy-farming also, especially in certain of the coastal districts, but in comparison with the area cultivated, that devoted to

dairying is inconsiderable. During 1916-17 the share-farming system affected 2,393 holdings, of which number 2,224 were cultivated exclusively for crops, and 169 were used for dairy-farming. In agriculture as an exclusive pursuit 4,046 farmers cultivated 1,124,544 acres, and in dairy-farming 312 farmers utilised 91,331 acres for purposes of depasturing their stock and 6,132 acres for the production of crops.

It will be seen from the figures submitted in the following table, showing the area farmed on shares in the industry of grain-growing, that the area cultivated for wheat was the largest, and in a subsequent table will be shown the increasing importance of share-farming with respect to the growing of this cereal.

Division.	Number of—		Area farmed on shares.	Area for Grain only.					
	Holdings.	Share Farmers.		Wheat.	Maize.	Making Barley.	Other Barley.	Oats.	Broom Millet.
Coastal Belt—			acres.	acres.	acres.	acs.	acs.	acs.	acs.
North Coast ... ..	9	13	1,134	...	864	...	...	...	...
Hunter and Manning ...	18	21	3,363	172	535	...	52	48	2
Metropolitan ... ..	...	...	...	...	...	...	...	...	...
South Coast .. ...	...	...	479	...	116	...	2	5	...
Total .. ...	27	34	4,976	172	1,515	...	54	53	2
Tableland—									
Northern ... ..	12	15	1,154	564	150	...	...	20	...
Central ... ..	150	241	45,953	35,909	120	...	...	1,315	...
Southern ... ..	29	43	7,981	6,396	...	...	...	114	...
Total .. ...	191	299	55,088	42,869	270	...	...	1,449	...
Western Slopes—									
North ... ..	276	494	97,398	89,343	200	...	...	63	10
Central ... ..	426	660	162,664	144,268	70	...	...	1,021	...
South ... ..	501	1,053	326,380	300,156	1,270	...	40	2,653	...
Total ... ..	1,203	2,207	586,442	533,767	1,540	...	40	3,737	10
Central Plains—									
North Central ... ..	28	39	9,220	8,184	...	...	...	...	...
Central ... ..	206	335	115,172	106,166	...	...	...	40	...
Total ... ..	234	374	124,392	114,350	...	...	...	40	...
Riverina ... ..	567	1,130	359,403	337,514	...	107	6	702	...
Western Plains ... ..	2	2	375	25	...	...	...	...	...
Total, N. S. Wales ...	2,224	4,046	1,130,676†	1,028,697	3,325	107	100	5,981	12

† Includes 6,132 acres cultivated on share dairy farms.

The following table shows the area cultivated by share-farmers for crops other than grain:—

Division.	Hay.			Green food.	Potatoes.	Other Root crops.	Grapes and Other Fruit.	Kitchen Garden Produce.	Pumpkins, Melons, etc.	Tobacco.	Sugar Cane.
	Wheaten.	Oaten.	Lucerne.								
Coastal Belt—	acres.	acres.	acres.	acres.	acres.	acs.	acs.	acres.	acs.	acs.	acs.
North Coast ...	4	38	3	178	27	8	...	3	...	...	9
Hunter and Manning	160	20	795	1,433	12	...	74	...	60	...	...
Metropolitan ...	...	...	...	...	...	...	...	...	...	...	...
South Coast ...	...	36	23	296	...	...	...	...	1	...	...
Total ...	164	94	821	1,907	39	8	74	3	61	...	9
Tableland—											
Northern ...	170	216	...	...	34	...	...	...	...	...	...
Central ...	5,029	1,684	546	973	101	...	...	273	3	...	...
Southern ...	466	782	...	117	105	...	1	...	...	...	...
Total ...	5,665	2,682	546	1,090	240	...	1	273	3	...	...
Western Slopes—											
North ...	5,831	40	250	1,505	...	...	...	20	...	136	...
Central ...	14,232	550	141	2,380	...	...	2	...	...	...	...
South ...	18,902	2,195	80	1,084	...	...	...	...	...	...	...
Total ...	38,965	2,785	471	4,969	...	...	2	20	...	136	...
Central Plains—											
North Central ...	822	...	...	214	...	...	...	...	...	...	...
Central ...	8,588	...	...	378	...	...	...	...	...	...	...
Total ...	9,410	...	...	592	...	...	...	...	...	...	...
Riverina ...	18,914	1,047	...	1,113	...	...	...	...	...	...	...
Western Plains ...	250	100	...	...	...	...	...	...	...	...	...
Total, N. S. Wales ...	73,368	6,708	1,838	9,671	279	8	77	296	64	136	9

#### AREA UNDER WHEAT.

In New South Wales, as in most other countries, the area devoted to wheat far exceeds that used for any other cereal, and it is in this form of cultivation that the returns of the State show the greatest expansion. The total area sown with wheat in the season 1916-17 amounted to 4,498,310 acres, or a decrease of 623,935 acres as compared with the preceding season; the area harvested for grain comprised 3,806,604, that reaped for hay 633,605, and that eaten off by stock or used as green food, 58,101 acres.

Ultimate production as grain-crop is largely a matter of season, of failure through undue aridity, or through excessive rains which result in rust and other damage.

The year 1897-8 may be said to mark the beginning of the present era of wheat-growing in New South Wales, for it was in that year that the production for the first time exceeded the consumption, and left a surplus available for export.

The following statement shows the area under wheat in Divisions of the State during the seasons 1907-8 and 1916-17 in comparison with 1897-8.

Division.	Area under Wheat for Grain.			Proportion in each District.		
	1897-8.	1907-8.	1916-17.	1897-8.	1907-8.	1916-17.
Coastal Belt ...	acres. 16,192	acres. 4,940	acres. 6,140	per cent. 1·6	per cent. 0·4	per cent. 0·2
Tableland--						
Northern ...	20,686	6,362	9,702	2·1	0·4	0·2
Central ...	80,318	62,587	152,703	8·1	4·5	4·0
Southern ...	22,421	4,990	21,717	2·2	0·4	0·6
Total ...	123,425	73,939	184,122	12·4	5·3	4·8
Western Slopes--						
North ...	59,330	172,907	394,136	6·0	12·4	10·4
Central ...	102,136	273,025	628,272	10·3	19·6	16·5
South ..	198,268	274,950	784,807	19·9	19·9	20·6
Total ...	359,734	720,882	1,807,215	36·2	51·9	47·5
Central Plains ...	31,589	142,979	490,148	3·2	10·3	12·9
Riverina ...	460,474	445,537	1,317,449	46·4	32·0	34·6
Western Plains ...	1,936	1,894	1,530	0·2	0·1	.....
All Divisions ...	993,350	1,390,171	3,806,604	100·0	100·0	100·0

As might be expected, the proportions of land under wheat in each Division generally followed the same order as shown in a previous table for the total area under cultivation. Between 1898 and 1917, however, the proportions in each Division changed considerably. The Tableland, for instance, in 1916-17 included only 4·8 per cent. of the whole area, as against 12·4 per cent. in 1898, and the Riverina 34·6 per cent., as against 46·4 per cent., while the Western Slopes increased from 36·2 per cent. to 47·5 per cent., and the Central Plains from 3·2 per cent. to 12·9 per cent. The largest relative increase in area was in the Central Plains, where the area was more than fifteen times that of 1898. The North Western Slope came next, followed closely by the Central Western and South Western Slopes.

Since the year 1898 wheat-growing in the Tableland Division has not been so greatly in favour as the conditions of soil and climate, together with the relative nearness to a metropolitan market, might appear to warrant. The area fell to less than a half of that formerly cultivated in the Northern Tableland, though the Central Tableland, after a decline, showed a vigorous recuperation as a wheat-growing region.

The great bulk of the wheat is grown on the Western Slopes and in the eastern part of the Riverina, these Divisions together contributing over 82 per cent. of the whole. On the Coast, on the Western Plains, and in

the Central Plain, with the exception of the eastern fringe, the wheat area and the yield are very small. The expansion in the Central Plains is attributable to the increase around Narromine.

In New South Wales, wherever agriculturists have confined their operations to a restricted area, and have made systematic efforts to till the soil thoroughly, their returns have been much greater than those obtained by imperfect cultivation of areas which are beyond the capacity of the holder's teams and appliances.

The crude methods of farming practised in many of the outlying districts are being replaced gradually, and it is therefore confidently expected that future yields will be considerably increased. The lack of system in farming is almost necessarily characteristic of pioneers in new countries, and in many instances settlers have engaged in the work of agricultural production with insufficient capital and with very little experience or practical knowledge.

#### WHEAT YIELD.

The next statement shows the yield in each of the Divisions in the decennial years 1897-8 and 1907-8, and in the year 1916-17.

Division.	Yield of Grain.			Average yield per Acre.		
	1897-8.	1907-8.	1916-17.	1897-8.	1907-8.	1916-17.
	bushels.	bushels.	bushels.	bushels	bushels	bushels
Coastal Belt ... ..	329,274	23,996	55,232	20·3	4·9	9·0
Tableland—						
Northern ... ..	300,215	90,728	96,012	14·5	14·3	9·9
Central ... ..	933,296	479,404	1,288,895	11·6	7·7	8·4
Southern ... ..	242,556	42,176	224,523	10·8	8·5	10·3
Total... ..	1,476,067	612,308	1,609,430	12·0	8·3	8·7
Western Slopes ... ..						
North ... ..	1,208,859	1,070,344	3,206,812	20·4	6·2	8·1
Central ... ..	1,398,967	2,033,284	4,951,251	13·7	7·4	7·9
South ... ..	1,849,521	2,482,004	6,479,001	9·3	9·0	8·3
Total ... ..	4,457,347	5,585,632	14,637,064	12·4	7·7	8·1
Central Plains ... ..	563,066	611,852	4,057,422	17·8	4·3	8·3
Riverina ... ..	3,725,421	2,306,188	16,222,490	8·1	5·2	12·3
Western Plains ... ..	8,936	15,908	16,362	4·6	8·4	10·7
All Divisions ... ..	10,560,111	9,155,884	36,598,900	10·6	6·6	9·6

In 1916-17 the average yield per acre was highest for the Riverina, 12·3 bushels, for the Southern Tableland the average was 10·3 bushels, for the Central Plains 8·3 bushels, and for the Western Slopes 8·1 bushels, while the average of New South Wales was 9·6 bushels. The Riverina and the South Western Slope, which yield the largest aggregate crops, control the general average of the State.

As a further illustration of the relative extent of the acreage under wheat for grain, and the resultant yield for 1907-8, for 1916-7, and for 1917-8, the following table shows the index numbers of those years in relation to 1897-8, which is taken as a basis, and is equal to 100.

Division.	Area under Wheat.			Yield.		
	1907-8.	1916-17.	1917-18.*	1907-8.	1916-17.	1917-18.*
Coastal Belt ... ..	30.5	37.9	53.9	7.3	16.8	29.1
Tableland—						
Northern ... ..	30.7	46.9	15.6	30.2	32.0	14.3
Central ... ..	77.9	190.1	81.8	51.4	138.1	84.1
Southern ... ..	22.3	96.9	37.3	17.4	92.6	39.5
Total ... ..	59.9	149.2	62.6	41.5	109.0	62.6
Western Slopes—						
North ... ..	291.4	664.3	496.6	88.5	265.3	233.9
Central ... ..	267.3	615.1	525.2	145.3	353.9	469.3
South ... ..	138.7	395.8	347.2	134.2	350.3	385.2
Total ... ..	200.4	502.4	422.4	125.3	328.4	370.6
Central Plains ... ..	452.6	1,551.6	1,592.5	108.7	720.6	1090.9
Riverina ... ..	96.8	286.1	243.5	61.9	435.5	379.6
Western Plains ... ..	97.8	79.0	137.9	178.0	183.1	242.5
All Divisions ... ..	139.9	383.2	325.4	86.7	346.6	358.4

\* Subject to adjustment.

The proportional figures for the year 1917-18, with the actual returns of 1897-8 as a base equal to 100, were calculated from estimates and such data as had been received when the Year Book went to press. These figures, distributed according to Divisions of the State, are shown in the following table.

Division.	Area for Grain.	Yield of Grain.
	acres.	bushels.
Coastal Belt ... ..	8,720	95,800
Tableland—		
Northern ... ..	3,220	42,790
Central ... ..	65,730	785,130
Southern ... ..	8,360	95,770
Total ... ..	77,310	923,690
Western Slopes—		
North... ..	294,610	2,826,960
Central ... ..	536,450	6,565,400
South... ..	688,460	7,124,510
Total ... ..	1,519,520	16,516,870
Central Plains ... ..	503,060	6,142,570
Riverina ... ..	1,121,420	14,143,370
Western Plains ... ..	2,670	21,630
All Divisions ... ..	3,232,700	37,843,930

A great portion of the immense area of the State, hitherto devoted exclusively to pastoral pursuits, consists of land which could be utilised profitably for agriculture, much of it being more suitable for the cultivation of wheat than some of the land now under crop; and the returns show that wheat-growing, which was confined formerly to small farmers, is engaging the attention of a number of the large landholders, who cultivate areas of thousands of acres in extent, and use the most modern and effective implements and machinery for ploughing, sowing, and harvesting.

The following statement shows the area under wheat for grain at intervals since 1875-6, together with the total production and average yield per acre.

Season.	Area under Wheat for Grain.	Yield.		Season.	Area under Wheat for Grain.	Yield.	
		Total.	Average per Acre.			Total.	Average per Acre.
	acres.	bushels.	bushels.		acres.	bushels.	bushels.
1875-6	133,609	1,958,640	14·66	1907-8	1,390,171	9,155,884	6·59
1880-1	253,137	3,717,355	14·69	1908-9	1,394,056	15,483,276	11·11
1885-6	264,867	2,733,133	10·45	1909-10	1,990,180	28,532,029	14·34
1890-1	333,233	3,649,216	10·95	1910-11	2,128,826	27,913,547	13·11
1895-6	596,684	5,195,312	8·71	1911-12	2,380,710	25,088,162	10·54
1900-1	1,530,609	16,173,771	10·56	1912-13	2,231,514	32,487,336	14·56
1901-2	1,392,070	14,808,705	10·64	1913-14	3,205,397	38,020,381	11·86
1902-3	1,279,760	1,585,097	1·24	1914-15	2,758,024	12,830,530	4·65
1903-4	1,561,111	27,334,141	17·51	1915-16	4,188,865	66,764,910	15·94
1904-5	1,775,955	16,464,415	9·27	1916-17	3,806,604	36,598,000	9·61
1905-6	1,939,447	20,737,200	10·69	1917-18*	3,232,700	37,843,930	11·71
1906-7	1,866,253	21,817,938	11·69				

\* Advance figure—subject to revision.

The slow progress in wheat cultivation has not been due to unpayable yields. The highest average recorded was 17·51 in 1903-4. The lowest was 1·24 bushels in the season 1902-3. During the whole period of forty-three years there were only nine seasons when the yield fell below 10 bushels per acre, and it may be said that from equal qualities of soil a better yield is now obtained than was realised twenty years ago—a result due largely to extension of agricultural education, to the use of fertilisers, and to more economical harvesting appliances; furthermore, rust, smut, and other forms of disease in wheat have been less frequent and less general in recent years. The area under wheat in 1916-17 was less than in the previous season when the area reached the maximum for the State. The principal reasons for the decrease were the excessive rainfall which retarded the sowing, and the difficulties in regard to the disposal of the harvest; moreover the high prices obtainable for sheep and wool caused many farmers to substitute stock-raising for wheat-farming.

#### WHEAT SHARE-FARMING.

A considerable portion of the new area which is being brought under wheat in New South Wales is cultivated on the shares system, especially in the southern and western districts. Under this system the owner leases his land, which is cleared, fenced, and ready for the plough, to the agriculturist for a period, and for the purpose of wheat-growing only, the farmer tenant possessing the right of running upon the estate the horses necessary for working the farm, and the owner retaining the right of depasturing his stock when the land is not in actual cultivation. It is usual for the owner

to provide the seed-wheat, the bluestone for pickling the seed, and the bags and twine for his own share of the crop; while the tenant supplies the machinery, horses, and labour necessary to work the land, and the bags and twine for his own share of the crop; and he must also keep gates and fences in good repair. Up to a specified yield the parties to the agreement take equal shares of the produce, any excess going to the farmer as a bonus; the system, however, is subject to local arrangements.

Particulars relating to the area farmed on the shares system in each of the ten seasons ending with 1916-17 are shown below; the figures for 1913-14 and subsequent seasons indicate the area sown with wheat, but earlier information applies to the total area farmed on the shares' system, in which case it is probable that about 95 per cent. was used for wheat-growing.

Season.	Area.	Season.	Area.
	acres.		acres.
1907-8	348,444	1912-13	618,333
1908-9	307,750	1913-14	959,135*
1909-10	364,579	1914-15	1,049,385*
1910-11	473,079	1915-16	1,267,142*
1911-12	616,607	1916-17	1,108,717*

\* Area used for wheat.

Of the wheat areas cultivated in 1916-17 on the shares system 576,804 acres were in the Western Slopes Division, and 357,491 acres were in the Riverina.

According to a report of the Royal Commission appointed to inquire into the rural, pastoral, agricultural, and dairying interests in January, 1916, the share-farming system, as at present conducted, conferred the greater advantages upon the land-holder. The evidence adduced before the Commission indicated that the system did not offer facilities of transition to conditions of permanent settlement. The formulation of special legislation was, therefore, recommended in order to regulate the system equitably, with consideration of the question of rendering financial assistance to share-farmers.

#### AREA SUITABLE FOR WHEAT-GROWING.

In the early days of the industry wheat-growing was confined to the coastal districts, but its cultivation in those areas has been practically abandoned on account of the prevalence of rust, caused by excessive moisture, combined with the discovery that the drier districts are more suitable because the crop there can be grown more cheaply under conditions better adapted to cereal production.

The area suitable for wheat-growing may be defined roughly as that part of the State which has sufficient rainfall (a) to admit of ploughing operations at the right time of the year, (b) to cover the growing period of the wheat-plant—April to October, inclusive, and (c) to fill the grain during the months of September and October; or, in the case of districts where the rainfall in these months is light, to counteract the deficiency by the increased falls in the earlier or later months.

In some of the northern districts much of the land is unsuited to wheat-growing, because it consists of stony and hilly country, too rough for cultivation, and of black-soil plains which bake and crack, and which present mechanical difficulties to tillage. The rich soils of river-flats also

must be omitted from good wheat-growing areas, because such land has a tendency to produce excessive straw-growth, although it can produce excellent hay.

South of the Murrumbidgee, on the average, from 65 to 70 per cent. of the rain falls between the beginning of April and the end of October; in the central wheat areas (*i.e.*, the Central-Western Slope and parts of the Central Plain), the percentage for this period drops to 50 or 60, and in the northern wheat country it ranges from 45 to 55.

The annual rainfall gradually diminishes towards the western limits of the State, the figures ranging from a mean of about 50 inches on the seaboard to 10 inches on the western boundary.

Until recently, land with an average rainfall of less than 20 inches had been excluded from the area considered safe for profitable wheat-growing; and it had been estimated that with the exceptions of the coastal and certain unsuitable northern districts, the area with an average annual rainfall of not less than 20 inches, suitable for wheat-growing, covered from 20 to 25 million acres.

Since 1904 it is estimated that the wheat belt has been increased by about 13,430,000 acres. Of this increase the greatest extension has taken place in the southern wheat areas, especially in the Riverina Division, where the spring rainfall is more suited than on the North-Central Plain to filling and maturing the grain.

Assuming that wheat could be grown profitably in New South Wales in areas with an annual fall of 16 inches, another 9,000,000 acres would be added to the wheat belt.

Considerable improvement has been manifested during recent years in the methods of wheat culture. The old system has been altered gradually, and the adoption of scientific methods—especially in the districts of scanty rainfall—has enabled farmers to secure profitable returns with a precipitation much less than that required formerly; consequently the boundary of successful wheat production, as laid down in 1904, has been extended further westward.

The conservation of moisture in the subsoil by fallowing, and by proper treatment of the fallows, may carry over an equivalent of 5 to 8 or 10 inches of rain to supplement the falls during the growing season; and the risk of failure, in the drier western districts especially, may be greatly diminished, if not entirely eliminated, by these means.

The experience of what was long designated the "arid region" of California is adduced as evidence of what may be accomplished in the more sparsely-watered parts of New South Wales by the system of "Campbellising," or the cutting of the subsoil with a blade having a bulb-end attached to the ploughshare to a depth of 10 inches below the furrow, and the formation of a tunnel which receives the lightest of rains, and holds the moisture in storage for feeding grain rootlets sufficiently below the surface to escape excessive evaporation by the action of the sun. The area of the old explorers' great Australian desert has shrunk with the passing of every decade, and the inland wastes of the old explorers are now brought under cultivation for pasturage and for the growing of hay and grain.

The term "dry-farming," in its general significance, is applied to any method founded on scientific principles for the production of crops without irrigation in arid or in semi-arid districts. Dry-farming has been practised for many years, but advanced methods have not been adopted generally in this State, although conditions are steadily improving, and the problem of effective utilisation of the dry districts is now attracting considerable attention in agricultural and in scientific circles.

During the last nine seasons excellent object lessons have been furnished as to the benefits to be derived from a proper system of fallowing, from the systematic working of the land, and from the scientific use of fertilisers. From almost every district reports indicate that, notwithstanding the dry conditions prevailing during practically the whole period of growth, the average yield from fallowed and properly cultivated land has ranged from 20 to 40 bushels per acre. The general average yield suffers by reason of the large proportion of poor crops from stubble land, and farmers generally should adopt other methods of cultivation, since it has been proved by practical experience that fallowed and properly-worked land will give far better results.

Farmers' wheat experiment plots have been conducted by the Department of Agriculture for the last nine seasons, and the results, as compared with the average yield for the State during the same period, are most instructive, as will be seen from the subjoined table. The conditions under which these plots are cultivated are shown on a later page.

Season.	State Average.	Average of Experiment Plots.
	bush. lb.	bush. lb.
1909-10	14 20	24 23
1910-11	13 7	18 45
1911-12	10 32	20 17
1912-13	14 34	24 8
1913-14	11 52	21 3
1914-15	4 39	13 0
1915-16	15 56	17 51
1916-17	9 37	16 31
1917-18	11 43	24 23

On the map attached to this Year Book are shown the experience lines of profitable wheat cultivation, that is, the western boundaries of the area in which wheat has been successfully cultivated, as determined in 1904 and in 1912, the western boundary of the area over which the average rainfall is not less than 10 inches during the wheat-growing period being defined also.

In determining the present wheat experience line, due consideration was given to low yields attributable to bad farming, and other preventable causes. This is a very necessary precaution, as the average wheat yields for various districts do not always accurately disclose the possibilities of the region. Notwithstanding the improvement made during recent years in cultural methods generally, the majority of farmers do not obtain the maximum results possible under good treatment. The conservation of moisture by fallowing and by subsequent cultivation has not received sufficient attention, and the use of artificial manures should be general.

It must not be concluded that the wheat line as now laid down will remain stationary. There are still large areas, especially in northern and western Riverina, admirably suited to wheat production, and with the advance of settlement, the subdivision of large estates, and the extension of railway communication, there is every reason to believe that the area now known as the wheat belt will be extended considerably in the early future, provided that the farmers are prepared to adopt the latest approved methods of cultivation.

#### MILLING QUALITIES OF NEW SOUTH WALES WHEAT.

Since 1897 Government agricultural experts have been experimenting in order to determine the varieties of wheat most suitable for various districts, and to secure new types which will return the best milling results under local conditions. It is gratifying to record that their efforts have been attended with marked success.

In connection with this branch of agricultural science the name of the late William J. Farrer, Wheat Experimentalist of the Department of Agriculture of New South Wales, has become world-famous. His efforts were directed towards the production of new varieties of greater milling value and more resistant to rust than the old; and his wheats, which rank amongst the most prolific grain varieties, are largely cultivated throughout the State. He and his successors have proved that Australia can produce strong white wheat equal in flour production to the old varieties, and equal in strength to the famed standard Manitoba wheat which had hitherto been imported for blending with Australian soft wheats.

The Department of Agriculture has conducted investigations regarding the strength and gluten-content of New South Wales wheats, and very interesting information regarding the milling quality of the various classes has thus become available.

For the purposes of the investigation, tests were made of five samples, which represent fairly the typical wheats grown in New South Wales:—

1. *Farrer wheats, strong flour varieties*, including such crosses as Bobs, Comeback, Cedar, and similar varieties, as well as Departmental crosses not at present in general cultivation.
2. *Farrer wheats, medium strong flour varieties*, including Federation, Bunyip, Florence, Rymer, Yandilla King, and other varieties, as well as Departmental crosses not in general cultivation.
3. *Farmers' wheats*.—Farmers' wheats under general cultivation, including some of the Purple Straw and Steinwedel type, which are being gradually replaced by the newer varieties.
4. *F.A.Q. wheat*—part of the sample taken annually by the Sydney Chamber of Commerce for the convenience of shippers, and representing the fair average quality of the wheat grown in the State.
5. *Millers' Flour*, including typical samples from both Sydney and country millers.

In this connection it is interesting to cite the British milling order, issued by the Board of Trade in 1916, and determining the percentage of flour that must be extracted from wheat of various qualities. Under this regulation two world wheats stand at the head of the gradation, and these are Australian and choice Bombay, each with 78 per cent. of flour-yield to the quantity of grain milled.

The figures under the term "strength" in the table below indicate the number of quarts of water required by 200 lb. of flour to make a dough of the proper consistency for baking, and it is to be understood that a high figure means not only more loaves from the quantity of flour, but loaves of better texture, lighter, and more nutritious. The figures under "gluten" are the percentages of dry gluten in the flour. The particulars are for ten years ended March, 1918.

Class of Wheat.	Flour.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.
Farrer wheats, strong flour varieties.	Strength	54.5	51.9	53.2	52.5	53.3	51.0	54.1	53.0	50.3	52.1
	Gluten	16.9	14.1	13.2	13.8	14.5	14.3	14.4	13.8	12.7	11.8
Farrer wheats, medium strong flour varieties.	Strength	49.5	47.5	47.1	46.8	47.0	46.6	44.9	49.0	45.7	45.7
	Gluten	17.8	12.1	13.3	12.6	12.2	12.9	10.0	14.6	11.2	10.8
Farmers' wheats .. ..	Strength	48.7	49.1	45.8	44.9	45.0	45.2	45.7	47.8	43.2	44.7
	Gluten	12.3	14.2	11.3	10.4	11.8	10.1	12.3	11.5	10.1	9.6
F.A.Q. for New South Wales	Strength	48.0	48.0	45.0	45.0	46.0	45.0	47.0	45.0	41.5	43.8
	Gluten	12.2	10.4	10.2	11.9	11.9	11.5	12.9	11.4	8.3	9.1
	Strength	49.9	48.5	46.7	47.9	47.4	49.8	47.4	44.9	45.9	44.4
Millers' flour .. ..	Gluten	15.6	10.2	9.8	11.4	11.4	11.5	12.0	12.4	11.5	8.8

COST OF GROWING WHEAT.

Various attempts have been made to secure data to form an accurate estimate of the cost of production; but as, either for grain or for hay, this depends largely upon the area cultivated and the methods of culture, the experiences of individual farmers have caused a wide diversity of opinion.

After taking into account the various producing factors, such as preparation of the soil, different methods of harvesting, and variations in railway and other freights, it appeared, from inquiries made several years ago, when the system of fallowing was not so extensive as at the present time, that the cost of landing wheat in Sydney ranged from 2s. to 2s. 6d. per bushel on the basis of a 10-bushel crop. This did not include any allowance for interest on capital, or for rent. But the increased cost of labour and machinery during recent years, together with the adoption of improved methods of cultivation, necessitate a recasting of this estimate.

The average yield of grain during the ten years ended 1917 was 11½ bushels per acre. This average is based on the returns from all areas, whether they were fallowed or unfallowed, manured or unmanured; though the proportion of new and fallowed land utilised for wheat is increasing steadily, and now represents about one-third of the total area sown. During recent years fallowing has proved of great benefit for increasing the production, and in connection with a large number of trials on private farms, extending over a period of five years, the average yield was 21½ bushels per acre. This is almost double the average yield obtained throughout the State, though it does not follow that the cost of sowing and harvesting a crop on fallowed land is double the cost of an ordinary crop of half the size on unfallowed land. For the purpose of this inquiry, however, it is assumed that modern methods are employed, and that the land is fallowed. The items of expenditure for harrowing and cultivation are therefore greater than would be the case if the land were ploughed, worked, and sown in one season.

Rent or interest on capital value must be included, and in the case of fallowed land it is necessary that two years' rent at 5 per cent. should be debited against the crop. Cartage, although not strictly coming within the scope of an estimate of cost of production, must be considered in its relationship to the profit-making aspect of wheat culture. This charge varies in proportion to the distance from the railway, but 1s. per ton per mile may be taken as a basis—equal to 2d. per bushel for a distance of 6 miles.

Under recent normal conditions the following would be the approximate cost of producing an acre of wheat for grain on fallowed land, the estimated yield being 18 bushels per acre, the data being based on the estimated net costs as deduced by the Department of Agriculture.

	per acre.		
	s.	d.	s. d.
Ploughing, once (6 in.)	6	4	} 14 2
Harrowing—3 times at 7d.	1	9	
Disc-cultivating, once	3	8	
Spring-tooth cultivating, once	2	5	
Drilling	1	5	} 9 2
Seed (45 lb. at 6s. per bushel)	4	6	
Superphosphates (½ cwt. at 6s. per cwt.)	3	0	
Pickling seed	0	3	
Insurance (say)	1	6	} 12 4
Harvesting with Harvester	3	10	
Bags—6 per acre at 10d.	5	0	
Sewing bags, twine, stacking bags, &c.	2	0	
	35	8	
Two years' Rent at 6s.	12	0	} 15
Cartage to Rail at 2d. per bushel (6 miles)	3	0	
			50

If the land were unfallowed the following expenditure would be saved:—

	per acre.	
	s.	d.
Two harrowings at 7d. ... ..	1	4
Disc-cultivating ... ..	3	8
2½ bags at 10d. ... ..	1	11
Cartage ... ..	1	2
One year's rent ... ..	6	0
	<hr/>	
	14	1

During the three seasons ending with 1917-18 the average return to farmers was approximately 4s. per bushel at country railway stations. Applying an average of, say, 3s. 9d. per bushel—to leave a safe margin—to the returns from fallowed and unfallowed land, the results would be as follow:—

Fallowed Land.	£	s.	d.	Unfallowed Land.	£	s.	d.
Total receipts—18 bushels at 3s. 9d. ...	3	7	6	11 bushels at 3s. 9d. ...	2	1	3
Less expenses ... ..	2	10	8	Less expenses (50s. 8d. — 14s. 1d.) ... ..	1	16	7
Profit (2 years) ... ..	0	16	10				
Equal to, per annum ... ..	0	8	5	1 year ... ..	0	4	8

From the foregoing it will be seen that the profit from fallowed land for one year is 8s. 5d. per acre as compared with 4s. 8d. per acre for unfallowed.

Wheat is purchased largely as on trucks at country railway sidings, so that the purchaser would have to pay the freight to Sydney, and other charges incidental to handling and shipping. This additional charge is assessed at about 4½d. or 5d. per bushel, but naturally it varies in accordance with the length of train haulage.

Apart from these charges is the cost of placing the cereals on the London market; the cost for exportation includes charges for freight, transhipment, insurance, and selling, and varies with the type of vessel and other conditions, but it always assists to raise the price by at least 1s. per bushel.

#### GRADING, HANDLING, AND MARKETING WHEAT.

The development of the wheat industry is dependent largely upon the facilities for cheap transportation to the world's markets; and at the present time, when combined efforts are being made by scientists and practical farmers to extend the cultivation and to improve the quality of the cereal, the co-operation of commercial and transport agencies by the introduction of improved methods of handling grain is necessary for the success of the industry.

##### *Grading.*

Australian wheat for export is marketed on the basis of a single standard known as f.a.q., or fair average quality. In New South Wales the standard is fixed annually by a committee of members of the Sydney Chamber of Commerce and of two Government representatives. Samples obtained from each of the wheat districts are weighed on McQuirk's patent scale, and an average struck, which is used as a standard in all wheat export transactions.

The proportion of six different grades of wheat, as well as the amount of broken and pinched grain, oats, whiteheads, etc., in a standard bushel of f.a.q. wheat from the wheat-producing districts of New South Wales for the last five harvests, were as follows:—

Grade.	Harvest.				
	1913-14.	1914-15.	1915-16.	1916-17.	1917-18.
	lb. oz.				
3·00 millimetre mesh ...	1 7	0 12	0 10½	0 3¾	1 7¾
2·75 „ „ ...	10 8·5	12 1·5	5 8¾	4 2¼	9 5
2·50 „ „ ...	20 14·75	17 0·25	18 11¼	10 3¾	12 7¼
2·25 „ „ ...	23 2·25	21 2·75	26 3¼	11 0	25 13
2·00 „ „ ...	5 0	7 3	5 11¾	23 5½	6 5¼
Broken and pinched grain	2 8	1 8·5	3 8¼	7 3	2 2¼
Oats, whiteheads, etc. ...	0 7·5	0 12	0 10½	0 9¾	0 15
	64 0	60 8	61 0	56 12	58 8

The f.a.q. standard of New South Wales for the 1917-18 harvest was fixed at 58½ lb. per bushel.

The chief objection raised by wheat-growers to this method of grading on a single standard is that it discourages the cultivation of grain of superior quality which does not command a price commensurate with its greater value as compared with wheat which just reaches the standard. Moreover, it is stated that the weight of the grain is not a true indication of its quality, the standard varying in accordance with the purpose for which it was required.

The following comparison shows the standard in New South Wales for each season since 1908-9, and the date on which it was fixed in each year.

Year.	Date Fixed.	Standard.	Year.	Date Fixed.	Standard.
		lb.			lb.
1908-1909	22nd Jan., 1909	61½	1913-1914	19th Jan., 1914	64
1909-1910	31st „ 1910	62	1914-1915	15th Feb., 1915	60½
1910-1911	13th Feb., 1911	62¼	1915-1916	21st „ 1916	61
1911-1912	1st „ 1912	61½	1916-1917	12th Mar., 1917	56¾
1912-1913	31st Jan., 1913	62¼	1917-1918	26th Feb., 1918	58½

#### Methods of Transport.

Under the present system the wheat is bagged on the farm and brought to the nearest railway station, whence that intended for export is carried in bags by rail to Sydney for shipment. At some of the stations the Railway Department has erected sheds, and a small charge is made for storage. At Darling Harbour, Sydney, where all the grain ships are loaded, sheds and bag elevators have been provided. As compared with bulk handling and the employment of elevators, this system has many disadvantages, apart from the cost of bags and the great amount of labour required for handling bagged grain.

#### Bulk Handling in Australia.

Though the annual production in the wheat-producing States of Australia cannot yet be compared with that of the United States, Canada, or other large wheat countries, it is increasing rapidly, and has reached already the

stage when the adoption of the bulk-handling system is necessary for its advantageous development. This matter has been the subject of many inquiries and investigations, which have been discussed in former issues of this Year Book, but a scheme was not put into operation until recently, when it was decided, at the request of the Commonwealth Government, to provide silos for the storage of wheat awaiting shipment. In the country districts arrangements have been made for the construction of seventy-two silos, with capacity ranging from 50,000 bushels to 200,000 bushels, the total capacity being 14,200,000 bushels; work has been commenced also on a terminal elevator at Sydney, capable of holding 6,000,000 bushels.

#### GOVERNMENT WHEAT-MARKETING SCHEME.

The wheat-marketing scheme, which has been explained in former issues of the Year Book, was formulated by the Governments of the Commonwealth and of the wheat-producing States—New South Wales, Victoria, South Australia, and Western Australia. Matters relating to shipping and finance as affecting the general scheme are decided by the Australian Wheat Board, consisting of Ministerial representatives of the various Governments, with the assistance of an Advisory Board representing the farmers, the wheat exporting firms acting as Government agents in the States, the Commonwealth chartering agents, and the associated Banks of Australia.

Oversea sales are arranged generally by a Board in London, which consists of the High Commissioner for Australia and the Agents-General for each of the States, co-operating with London representatives of the Australian wheat-buying firms. Arrangements for the internal management of the scheme in each State are made by the State Government. In New South Wales the principal wheat-shipping firms acted as agents to handle and ship the grain on behalf of the wheat pool until 31st December, 1917, when the State Wheat Office assumed control of the stacks and appointed its own agents in the country to supervise the handling of the wheat. The flour millers also act as Government agents, receiving wheat for trade requirements and issuing certificates.

All banking arrangements are with the Commonwealth Bank, which makes subsidiary arrangements with other banks. Advances are made to the growers on certificates issued by the agents upon delivery of the crops.

The quantity of wheat handled by the Australian Wheat Board from its formation to 15th July, 1918, was 403,267,000 bushels, of which 123,777,000 bushels were pooled in New South Wales. Particulars regarding the disposal of New South Wales wheat are shown below:—

Season.	Wheat Shipped.	Wheat Sold Locally.	Shippers' Stocks.	Millers' Stocks.	Total.
	bushels.	bushels.	bushels.	bushels.	bushels.
1915—16	29,091,000	29,088,000	.....	31,000	58,210,000
1916—17	3,700,000	10,222,000	16,972,000	1,180,000	32,074,000
1917—18	94,000	5,517,000	22,100,000	5,782,000	33,493,000
<b>Total as at 15-7-18</b>	<b>32,885,000</b>	<b>44,827,000</b>	<b>39,072,000</b>	<b>6,993,000</b>	<b>123,777,000</b>

The quantity sold locally includes 5,835,000 bushels, which were gristed and shipped as flour, and 1,006,000 bushels used for flour and held in stock at 15th July, 1918. The unshipped balance of the New South Wales quota of wheat purchased by the Imperial Government is being supplied in grain of the 1916-17 harvest and in flour manufactured from an admixture of

wheat of the 1916-17 and 1917-18 seasons. Large quantities of the 1916-17 crop are being sold to Eastern buyers, and a moderate supply of tonnage is available for the shipment of the 1917-18 wheat to America. It is anticipated, however, that much of the wheat will remain in the State for a considerable time, and arrangements are being made in suitable districts to store it in stacks built on modern lines with the object of keeping the grain in good condition and in silos which are being constructed for this purpose.

The expenditure by the Australian Wheat Board to 15th July, 1918, was £80,443,000, advances to farmers amounting to £68,827,000 and expenses to £11,616,000; the amount expended in New South Wales was £24,818,000 as follows:—

Season.	Advances to Farmers.	Expenses.	Total Expenditure in N.S.W.
	£	£	£
1915-16	12,120,000	1,470,000	13,590,000
1916-17	4,636,000	1,117,000	5,753,000
1917-18	4,960,000	515,000	5,475,000
Total to 15-7-18	21,716,000	3,102,000	24,818,000

The receipts during the same period amounted to £68,217,000, of which £21,301,000 were credited to New South Wales, viz., wheat shipped £9,289,000, local sales £9,107,000, and payments in anticipation of shipment £2,905,000.

Farmers may dispose of their interest in wheat certificates; in the case of the 1915-16 and 1916-17 seasons the transfer of ownership is effected by means of the issue of negotiable scrip to the purchaser, but in the case of the 1917-18 season a suitable endorsement is made upon the wheat certificate itself.

The Government of New South Wales has guaranteed the following minimum prices for wheat delivered to the Pool during the seasons mentioned:—

1917-18—4s. per bushel f.o.b. Sydney for f.a.q. grain, with a first payment of 3s. per bushel.

1918-19, 1919-20—4s. per bushel at country stations for f.a.q. grain, to be paid as a first advance.

The wheat pool has supplied seed wheat for the present sowing season on terms to farmers in necessitous circumstances, and arrangements are being made to distribute cornsacks per the State Wheat Office for the next harvest.

#### PRICES OF WHEAT.

The following table gives the average rates ruling in the Sydney market during the months of February and March of each year since 1865. The figures exhibit clearly the tendency towards a gradual reduction in the value of the cereal down to 1895, when the price was the lowest of the series. In 1896, however, owing to a decrease in the world's supplies, the price rose considerably, and led to an extension of cultivation in Australasia. Until a few years ago, with a deficiency in the local production, the price in Sydney was generally governed by the rates obtained in the neighbouring Australian markets where a surplus had been produced. These, however, are now determined by the figures realised in London, which are usually equal to those ruling in Sydney, plus freight and charges.

The prices shown in the table are for an imperial bushel of 60 lb., and being for new wheat are slightly below the average for the year.

Year.	February.	March.	Year.	February.	March.	Year.	February.	March.
	per bushel.	per bushel.		per bushel.	per bushel.		per bushel.	per bushel.
	s. d.	s. d.		s. d.	s. d.		s. d.	s. d.
1865	9 6	9 7½	1883	5 1½	5 2	1901	2 7	2 7
1866	8 4½	8 0	1884	4 3	4 3	1902	3 2	3 2½
1867	4 3	4 4	1885	3 10½	3 7½	1903	*5 11½	*5 9½
1868	5 9	5 9	1886	4 3½	4 5	1904	3 0½	3 0½
1869	4 9	4 10	1887	3 10	3 11	1905	3 4½	3 3½
1870	5 0	5 1½	1888	3 6	3 6½	1906	3 1½	3 2½
1871	5 7½	5 9	1889	4 9	5 3	1907	3 0½	3 1½
1872	5 0½	5 3	1890	3 6	3 6	1908	4 4	4 5½
1873	5 1	5 8½	1891	3 7½	3 10	1909	4 0½	4 6½
1874	6 9	6 1½	1892	4 9	4 9	1910	4 1½	4 1
1875	4 7½	4 6	1893	3 6½	3 6	1911	3 7½	3 5
1876	5 1½	5 6	1894	2 11	2 8	1912	3 9½	3 6½
1877	6 1½	6 6	1895	2 7	2 7	1913	3 6½	3 7
1878	6 1½	5 7½	1896	4 4½	4 5	1914	3 8	3 9½
1879	5 0	4 9½	1897	4 8	4 6½	1915†	5 6	5 6
1880	4 8	4 9	1898	4 0	4 0	1916†	5 1½	5 0½
1881	4 1	4 3	1899	2 7½	2 9	1917‡	4 9	4 9
1882	5 5	5 6	1900	2 9	2 8	1918‡	4 9	4 9

\* Imported Californian wheat—the quotations for South Australian wheat were about 5d. per bushel higher. † Officially fixed. ‡ Official price on trucks of wheat for flour for home consumption, equivalent to 4s. 10¾d. f.o.b.

Since 25th March, 1916, the official f.o.b. price per bushel of wheat for flour for home consumption has been 4s. 10¾d.; but city millers handling their own supplies obtained the wheat at 1¾d. per bushel less than the f.o.b. price.

With regard to recent years, prices did not vary greatly prior to 1903, when, owing to the almost universal failure of the season's crop, there were no quotations, though imported wheat was sold at from 5s. 8d. to 6s. 3d. per bushel during the months of February and March. In 1908-9-10 the prices were higher than in any year since 1897. During the period 1911-14 the prices were considerably lower than those of the previous three years, but since 1915, owing to the abnormal conditions due to drought and to the War, prices have been higher, and have been regulated by the Government, varying from 4s. 10¾d. to 5s. 6d. per bushel.

#### PRINCIPAL WHEAT-GROWING COUNTRIES.

A comparison of the production of this cereal in the principal wheat-growing countries would be misleading if based solely on the yields obtained since 1914. Owing to the disturbed conditions in Europe, the returns for these years are mainly estimates based upon fragmentary data, and do not give an accurate indication of the productivity of the various countries to

which they relate. The following table presents statistics of the latest recorded annual production, together with the average production during the last three years.

Country.	Production.		Country.	Production.	
	Season, 1917-18.	Average 3 seasons, 1915-16 to 1917-18.		1917.	Average 3 years (1915-1917).
	bushels.	bushels.		bushels.	bushels.
New South Wales	37,843,900	47,068,900	United States ...	659,807,000	770,409,000
Victoria ... ..	37,737,500	49,140,500	British India ...	379,306,000	358,014,000
South Australia ...	28,692,600	36,190,700	Canada ... ..	233,743,000	296,022,000
Western Australia	9,305,000	14,548,200	Argentina ... ..	218,600,000	152,825,000
Queensland ... ..	1,405,700	1,427,800	France ... ..	144,150,000	195,625,000
Tasmania ... ..	379,600	573,900	Spain ... ..	141,089,000	144,239,000
Total, Australia	115,364,300	148,950,000	Italy ... ..	140,001,000	162,358,000
New Zealand ... ..	5,051,227	6,268,000	United Kingdom	63,824,000	65,827,000
			Egypt ... ..	29,835,000	35,175,000
			Japan ... ..	26,532,000	26,879,000

From the estimated figures, which constitute the only data available, the world's wheat harvest for 1917 was slightly better than that of the previous season, but showed a considerable deficiency when compared with the average of the three years 1914 to 1916. It must be remembered, however, that a condition of war in many countries prevented the collection of statistics. Statisticians in war-affected countries note that the conversion of the public taste to an appreciation of the value of oats, maize, and barley as foodstuffs is necessarily slow, but the returns of these cereals nevertheless evoked increased interest.

The figures in the foregoing table represent preliminary returns for the 1917-18 crop in the Commonwealth of Australia with the exception of Victoria (which are final), and relate to the actual crop of 1916-17 in the Dominion of New Zealand, and to estimated returns for the year 1917 with regard to countries overseas. Certain foreign countries which appeared in the table of former years are absent in the preceding statement, notably Russia, Roumania, Austria-Hungary, Germany, Turkey (in Europe and in Asia), Algeria, and Belgium, as well as Persia and Chile.

INCREASE IN THE WHEAT YIELD.

It has been shown that the area under wheat for grain in New South Wales in 1916-17 was 3,806,604 acres, which was a small portion of the total area available, and even this area was not worked as profitably as it might have been. Compared with the principal wheat-growing countries of the world, an average yield of 9.6 bushels per acre is low, as will be seen from the following table, the averages shown being based on the latest available returns.

Country.	Average Yield per Acre (1915-17).	Country.	Average Yield per Acre (1915-17).
	bu shels.		bushels.
Germany ... ..	*32.3	United States ... ..	14.4
United Kingdom ... ..	30.4	Italy ... ..	14.0
Canada ... ..	19.6	Russia ... ..	†11.4
Hungary ... ..	†17.1	India ... ..	11.2
France ... ..	15.9	Argentina ... ..	9.2

\*Average 1912-14. †Average 1913-15. ‡Average 1914-16.

A bare statement of average yield is, however, not entirely conclusive, as the relative cost of production also should be taken into consideration. Moreover, in the older countries, the efforts of farmers are more concentrated, and more intensive cultivation is necessary.

#### MAIZE.

Maize ranks second in importance amongst the crops of New South Wales, but its cultivation is small in comparison with that of wheat, and sufficient is not grown for local consumption.

Maize is cultivated chiefly in the valleys of the coastal rivers, where both soil and climate are peculiarly adapted to its growth. On the Tableland also good results accrue, but as the physical contour of the country rises in elevation so does the average yield per acre decrease; although, in compensation, the grain produced is of a more enduring quality for export and for storage. Moreover, encouraging progress is being made, in the uniformity of the variety of selection, to a type which has been proved by experience to be adapted to a particular district; and, at the same time, the yielding capacity is being increased steadily by selection according to the system known as the ear-to-row test. In this connection, experiments with the grain in progress on the Murrumbidgee irrigation areas indicate the probability of its development as a highly profitable crop under this form of culture, as it has already proved to be in irrigated districts of the States of the North American Union; but it will probably be found requisite to select varieties adapted specially to the altered conditions, and to plant the grain at a period more advanced in the season than is customary in districts adjoining the littoral.

The following statement shows the distribution of the area under maize for grain during the season 1916-17, with the production and average yield in each Division.

Division.	Area under Maize for Grain.		Yield.	
	Total.	Proportion in each Division.	Total.	Per Acre.
<b>Coastal Belt—</b>	acres.	per cent.	bushels.	bushels.
North ... ..	59,428	38·3	1,743,822	29·3
Hunter and Manning ... ..	34,170	22·0	1,074,852	31·5
Cumberland ... ..	2,298	1·5	67,569	29·4
South ... ..	12,612	8·1	425,397	33·7
<b>Total ... ..</b>	<b>108,508</b>	<b>69·9</b>	<b>3,311,640</b>	<b>30·5</b>
<b>Tableland—</b>				
Northern ... ..	20,888	13·4	413,925	19·8
Central ... ..	6,104	3·9	190,575	31·1
Southern ... ..	545	0·4	10,630	19·5
<b>Total ... ..</b>	<b>27,537</b>	<b>17·7</b>	<b>615,130</b>	<b>22·3</b>
<b>Western Slopes... ..</b>	<b>18,794</b>	<b>12·1</b>	<b>399,657</b>	<b>21·2</b>
Central Plains, Riverina, and Western Plains ... ..	539	0·3	7,053	13·1
<b>All Divisions... ..</b>	<b>155,378</b>	<b>100·0</b>	<b>4,333,480</b>	<b>27·9</b>

The North Coast, the most important maize-growing district in the State, in 1916-17 yielded 40 per cent. of the total production, the average yield being 29·3 bushels per acre. After the North Coast, the Hunter and Manning Division showed the largest area under crop. On the North Coast

the best counties were Dudley, Clarence, and Raleigh, which gave 39.9, 31.1, and 30.5 bushels per acre respectively. In 1916-17 the average yield on the tableland was 22.3 bushels per acre, compared with 17.3 for 1915-16. On the Western Slopes the yield was 21.2 bushels per acre, the corresponding figure for 1915-16 being 16.9 bushels. At an early period in the history of the North Coast maize displaced wheat as a product, and the pursuit of dairy-farming in turn displaced maize, though latterly the fodder needs of the dairy herds restored its cultivation, and a large proportion of the cereal is cut as green food.

The following statement exhibits a comparative review of the maize crop since the season 1897-8.

Season.	Area under Maize for Grain.	Production.		Season.	Area under Maize for Grain.	Production.	
		Total.	Average per Acre.			Total.	Average per Acre.
	acres.	bushels.	bushels.		acres.	bushels.	bushels.
1897-8	209,588	6,713,060	32.0	1907-8	160,989	4,527,852	28.1
1898-9	193,286	6,064,842	31.4	1908-9	180,812	5,216,038	28.8
1899-0	214,697	5,976,022	27.8	1909-10	212,797	7,098,255	33.4
1900-1	206,051	6,292,745	30.5	1910-11	213,217	7,594,130	35.6
1901-2	167,333	3,844,993	23.0	1911-12	167,781	4,507,342	26.9
1902-3	202,437	3,049,269	15.1	1912-13	176,471	5,111,990	29.0
1903-4	226,834	6,836,740	30.1	1913-14	156,820	4,453,309	28.4
1904-5	193,614	4,951,132	25.6	1914-15	143,663	3,174,825	22.1
1905-6	189,353	5,539,750	29.3	1915-16	154,130	3,773,600	24.5
1906-7	174,115	5,763,000	33.1	1916-17	155,378	4,333,480	27.9

During the last twenty years there have been several fluctuations in the area under cultivation. The largest area—226,834 acres—was cropped in 1903-4, but the largest yield was produced in 1910-11. The yield per acre is somewhat variable, ranging from 15.1 bushels in 1902-3 to 35.6 bushels in 1910-11, though the average has a tendency to decrease, owing to the reduction of the area cultivated in the coastal districts, where the average yield is highest, the most favourable localities yielding as much as 80 to 100 bushels per acre. The yields during the past four years have been below the average for the decennial period ended 1917.

There is no doubt that the uncertainty as to prospective realisable price—an uncertainty which applies to all produce grown only for local consumption—has caused a decrease in the cultivation of this cereal on the Coast and on the Tableland, while on the other hand the profits accruing from dairy-farming have led to its further neglect. Another possible reason for the decline in its cultivation has been the small attention given to scientific experiment with the cereal for purposes of selection and propagation, though there are indications of a revival of interest among agricultural experts who desire to stimulate its successful production.

During the year 1916-17 the Department of Agriculture continued the work of maize-breeding on the State farms, with a view to raising improved pure seed maize; to prevent crossing, only one variety is grown on each farm, except at Grafton, where an early and a late variety may be grown without risk. Maize differs from most other crops in being readily cross-fertilised, and the initial work in breeding consists largely in eliminating the impurities represented by previous crossing with other varieties.

In order to extend the system of selection and breeding to districts other than those in which experiment farms are situated, arrangements are made with reliable farmers to grow a special seed-plot of a suitable variety, so that pure seed may be distributed to growers throughout the district.

## OATS.

The cultivation of oats has been greatly neglected in New South Wales, and the deficiency between the local production and consumption is considerable, although where cultivation has been undertaken the return has been satisfactory. The elevated districts of Monaro, Argyle, Bathurst, and New England contain large areas of land on which oats could be cultivated with excellent results, as it thrives best in regions which experience a winter of some severity. The principal Divisions in which it is sown are the Tableland, the South Western Slope, and the Riverina.

The area under crop for grain in 1916-17 was 67,111 acres, which produced 1,084,980 bushels, being 16.2 bushels per acre, as compared with 58,636 acres, which yielded 1,345,698 bushels in the previous year. During the 1915-16 season, wheat was in great demand owing to the European War, and to the depletion of local stocks due to the low production in the previous year, and the cultivation of oats—in common with that of other cereals—was not undertaken to the extent it had been in normal ante-bellum years. In 1916-17 there was an increase in the acreage sown for grain, but through excessive rains the yield was much smaller than in 1915-16. The Southern Tableland gave the best average, with 23.2 bushels per acre. In the whole of the Tableland Division 21,750 acres were under crop, and yielded 383,034 bushels, or 17.6 bushels per acre; on the South-Western Slope, 18,369 acres gave 270,297 bushels, or 14.7 bushels per acre, while in the Riverina the production was 319,182 bushels from 18,731 acres, or 17.1 bushels per acre. These three Divisions accounted for about 90 per cent. of the total production. In the remainder of the State there were only 8,261 acres under cultivation, which yielded 112,467 bushels.

The following table gives statistics of the cultivation of oats for grain since 1897-8.

Season.	Acres under Oats for Grain.	Production.		Season.	Acres under Oats for Grain.	Production.	
		Bushels.	Bushels per Acre.			Bushels.	Bushels per Acre
1897-8	28,605	543,946	19.0	1907-8	75,762	851,776	11.2
1898-9	19,874	278,007	14.0	1908-9	59,881	1,119,558	18.7
1899-0.	29,125	627,904	21.6	1909-10	81,452	1,966,586	24.1
1900-1	29,383	593,548	20.2	1910-11	77,991	1,702,706	21.8
1901-2	32,245	687,179	21.3	1911-12	71,047	1,155,226	16.3
1902-3	42,992	351,758	8.2	1912-13	85,175	1,674,075	19.7
1903-4	51,621	1,252,156	24.3	1913-14	103,416	1,835,406	17.7
1904-5	40,471	652,646	16.1	1914-15	43,476	513,910	11.8
1905-6	38,543	883,081	22.9	1915-16	58,636	1,345,698	23.0
1906-7	56,431	1,404,574	24.9	1916-17	67,111	1,084,980	16.2

The area under oats for grain, with slight fluctuations, remained practically stationary for a number of years, but in 1913-14 it reached 103,416 acres. The average yield varied considerably, in a fair season exceeding 20 bushels per acre, and in a bad year falling below half that rate, but the average for the last ten years has slightly exceeded 18½ bushels. The lowest average yield was 8.2 bushels per acre in 1903, when the crop almost failed, owing to the unfavourable season; and the highest was 24.9 bushels in 1907.

The market for oats is chiefly in the metropolitan district, and the demand depends mainly on the price of maize. The production is far from sufficient for the want of the State, and large quantities are imported from Victoria, Tasmania, and New Zealand.

**BARLEY.**

Barley is an important crop, but at present it is produced only on a moderate scale, although there are several districts where the necessary conditions as to soil and drainage present inducements for cultivation, particularly with regard to the malting varieties. Barley is grown mainly in the Tamworth district, on the North-Western Slope; in this division 1,968 acres were cultivated in 1916-7, mainly for malting purposes. The areas under crop in other districts are small, and do not call for special notice. The following table shows the area under barley for grain, together with the production during the last ten years.

Season.	Area under Barley for Grain.	Production.		Season.	Area under Barley for Grain.	Production.	
		Total.	Average per Acre.			Total.	Average per Acre.
	acres.	bushels.	bushels.		acres.	bushels.	bushels.
1907-8	11,890	75,148	6·3	1912-13	16,916	289,682	17·1
1908-9	9,507	166,538	17·5	1913-14	20,610	303,447	14·7
1909-10	15,091	272,663	18·1	1914-15	4,861	46,500	9·6
1910-11	7,082	82,005	11·6	1915-16	6,369	114,846	18·0
1911-12	10,803	129,008	11·9	1916-17	5,195	73,370	14·1

The table shows considerable fluctuation as to the area cultivated, also as to the average production per acre, the farmers considering it more profitable to cultivate other cereals from which larger areas are annually cropped.

The grain yield has varied greatly, ranging from 4 bushels per acre in 1902-3, when the crop practically failed, to the excellent rate of 21·9 bushels in 1886-7. The average crop during the last ten years has been 14·3 bushels per acre, a rate which should not, however, be regarded as characteristic, as the returns for many seasons indicate that an average crop of 18 bushels per acre may be expected under normal conditions, and this was the actual return for the season 1915-16.

**RYE.**

Rye is cultivated to a very limited extent, and is grown either in separate areas or in combination with leguminous crops, in the greater number of instances as green food for dairy cattle, the supply for grain being grown mainly on the Tableland. The area under this cereal for grain during 1916-17 was 2,341 acres, with a total yield of 30,860 bushels, at the rate of 13·2 bushels per acre. In 1904 an average of 16·3 bushels was obtained.

**BROOM MILLET.**

Broom millet is a small but valuable crop, and during the last ten seasons the return from fibre alone gave an average of £21,275 per season. In 1916-17, owing to unfavourable conditions, the area under broom millet and the average production per acre were much smaller than in previous years; 1,720 acres were cultivated, 10 acres being cropped for grain only, 914 acres for fibre only, and 796 acres for both fibre and grain. The yield was 8,860 bushels of grain, or 11 bushels per acre, and 8,795 cwt. of fibre, or 5·1 cwt. per acre; the grain and fibre were valued at £1,990 and £13,190 respectively. The average yield of fibre during the last ten seasons was 7·1 cwt. per acre. In 1904, and in the seasons 1910-12, the averages exceeded 8 cwt. per acre. The greater part of the crop is grown in the valleys of the Hunter and the northern coastal rivers. The experimental cultivation of broom millet on

the irrigation areas has proved even more successful, as the plant grown there does not appear to be subject to certain fungoid troubles which are occasionally encountered in the districts of the eastern littoral.

### HAY.

A very considerable portion of the areas under wheat, oats, barley, and lucerne is utilised for the production of hay for farm stock and of cut chaff for the market. This proportion is increasing, but the extent of the increase depends on the climatic conditions of the season.

The following statement shows the area under each crop for hay, the total production, and the average return per acre during the last seven seasons.

Type of Hay.	1910-11.	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.
AREA.							
	acres.	acres.	acres.	acres.	acres.	acres.	acres.
Wheaten ... ..	422,972	440,243	704,221	534,226	569,431	879,678	633,605
Oaten ... ..	142,805	147,710	182,955	211,606	161,320	176,183	161,723
Barley ... ..	1,014	1,246	1,708	1,395	1,179	1,348	866
Lucerne ... ..	70,559	63,824	56,420	52,479	52,582	50,544	61,584
Rye, etc. ... ..	1,227	1,126	1,762	1,424	1,432	1,166	754
Total ... ..	638,577	654,149	947,066	801,130	785,944	1,108,919	858,532
PRODUCTION.							
	tons.	tons.	tons.	tons.	tons.	tons.	tons.
Wheaten ... ..	467,669	423,262	779,500	588,127	354,531	1,211,677	813,768
Oaten ... ..	193,064	155,653	212,266	256,814	147,420	259,476	210,953
Barley ... ..	1,128	1,201	2,108	1,552	1,112	1,575	1,205
Lucerne ... ..	179,860	147,423	112,761	107,045	108,934	100,075	147,365
Rye, etc. ... ..	1,359	935	1,640	1,509	1,238	1,135	759
Total ... ..	843,080	728,474	1,108,275	955,047	613,235	1,573,938	1,174,050
AVERAGE PRODUCTION PER ACRE.							
	tons.	tons.	tons.	tons.	tons.	tons.	tons.
Wheaten ... ..	1.11	0.96	1.11	1.10	0.62	1.38	1.13
Oaten ... ..	1.35	1.05	1.16	1.21	0.91	1.47	1.30
Barley ... ..	1.11	0.96	1.23	1.11	0.94	1.17	1.39
Lucerne ... ..	2.55	2.31	2.00	2.85	2.07	1.98	2.39
Rye, etc. ... ..	1.17	0.83	0.93	1.06	0.86	0.96	1.01
All varieties ...	1.32	1.11	1.17	1.19	0.78	1.42	1.37

In 1916-17 about 73.8 per cent. of the total area under cultivation for hay was taken up by the wheaten variety. Until 1894 the area reaped for wheaten hay increased at a much greater rate than that for grain, but during subsequent years there has been a greater development in the cultivation of wheat for grain. But as it has already been pointed out, the ultimate treatment of a grain crop is largely a matter determined by the characteristics of the season.

In general, oaten crops are grown in parts of the State which, on account of the climate, are unsuitable for maturing the grain, and preference is given to cultivation for hay; moreover, the prices obtainable for the hay are usually so profitable as to prejudice any material development of the grain harvest.

The area under barley for hay is inconsiderable. Lucerne is always in demand, and consequently realises remunerative prices. It gives the best return of all hay crops, the average yield during the last ten years having

been 2·2 tons per acre for lucerne, and a little over a ton each for oaten, barley, and wheaten hay. In favoured districts, and with careful attention, lucerne grows so rapidly that, from a series of crops, even as many as eight cuttings may and have been procured, with an average result of 1 ton per acre for each.

GREEN FOOD AND SOWN GRASSES.

The great advance in dairy-farming, the details concerning which appear elsewhere, has caused a corresponding increase during recent years in the cultivation of cereals, lucerne, and grasses, for green food. The cultural development of grasses has received great attention, particularly in the northern and southern coastal districts, the great centres of dairy farming in the State. Considerable areas have been sown also in the Central Tableland, and smaller cultivations in the Northern and Southern Tablelands and in the Murray Valley.

The following statement shows the increase in the area cropped for green food and sown with artificial grasses since the season 1907-8:—

Season.	Area Cultivated for Green Food.	Area Sown with Grasses.	Season.	Area Cultivated for Green Food.	Area Sown with Grasses.
	acres.	acres.		acres.	acres.
1907-8	260,810	736,080	1912-13	154,535	1,152,449
1908-9	235,539	807,924	1913-14	146,239	1,234,455
1909-10	118,960	888,937	1914-15	949,619	1,251,453
1910-11	179,382	1,055,303	1915-16	162,945	1,247,099
1911-12	211,874	1,119,764	1916-17	149,873	1,357,157

The great advance in this type of cultivation shows that farmers realise the necessity of enriching the deteriorated pastures, and of replacing the grasses which have disappeared.

The largely-increased area under green food during 1914-15 was due entirely to drought, as the crops on numerous holdings failed to mature either for grain or for hay. No less than 815,561 acres sown with wheat were fed-off by stock, or otherwise used for green food; but in 1916-17 the area so treated comprised only 58,101 acres.

Lucerne is grown in considerable quantities on the Hunter River flats, and the cultivation of this fodder plant is extending throughout the country, principally along the banks of the rivers flowing from the western watershed of the Dividing Range. The theory that lucerne can be grown to advantage only on river-flats is not now accepted, and marked success has been obtained from hillside cultivation and from growths on red wheat-lands. In the far western pastoral districts excellent results have attended attempts made to cultivate lucerne under irrigation. During 1916-17 there were 35,929 acres grown for green food, and if to these be added the area cropped for hay there were altogether 97,513 acres under lucerne.

ENSILAGE.

New South Wales is liable, at irregular and indeterminate intervals, to long periods of dry weather, hence the necessity for such precautionary insurance against the sporadic visitations of drought as the conservation of green foods in the form of ensilage. The possession of stocks of ensilage is also highly advantageous to the prosecution of dairy farming in the districts of the coast, where the climatic conditions are unfavourable to the growth of winter fodder.

The quantity of ensilage made during the last six years is shown in the following table.

Division.	Ensilage Prepared.					
	1911.	1912.	1913.	1914-15.	1915-16.	1916-17
	tons.	tons.	tons.	tons.	tons.	
Coastal Belt ... ..	12,099	8,222	6,633	8,333	7,028	7,656
Tableland ... ..	1,649	608	920	1,060	800	688
Western Slopes ... ..	3,097	4,527	3,450	700	5,788	5,064
Central Plains and Riverina ... ..	3,632	5,162	7,363	870	4,595	2,928
Western Plains ... ..	...	...	...	...	300	...
Total ... ..	20,477	18,519	18,366	10,963	18,511	16,336

Comparatively little attention has been devoted to the construction of silos and the storing of ensilage, but the necessities of the grazier will compel him to make provision by preserving and storing green food when opportunities occur in the growing season of the year, and when the policy of closer settlement shall have reduced the large areas of land hitherto available for feeding stock.

The quantity of ensilage made each year during the last decade has varied considerably, especially during the first half of the period. The year of maximum production was 1909, when 34,847 tons were made on 364 farms. The production since decreased steadily until, in 1914-15, the quantity made was only 10,963 tons; this amount was made on 83 farms; and was valued at £18,014. In 1916-17 the production was 16,336 tons made on 119 farms and valued at £20,601. It is particularly noticeable in the foregoing table that on the Western Plains, where there is the greatest need of such provision, the production of ensilage is small. It is, of course, possible that the consideration of the amount of fodder required to tide over even a moderately severe drought is so great as to deter pastoralists from attempting to conserve even small quantities.

In the dairy farming districts, particularly of the South Coast, the making of ensilage is more general, the quantity there conserved being larger than in any other Division, though a marked increase is to be noted in the South Western Slope.

#### POTATOES.

Potatoes are grown mostly on the Tableland, where, in 1916-17, there were 17,716 acres under cultivation and the yield was 33,492 tons. In the coastal division there were 4,171 acres, yielding a total of 10,365 tons.

The following statement shows the area under cultivation and the production at intervals since the season 1907-8:—

Season	Area under Crop.	Production.		Season.	Area under Crop.	Production.	
		Total.	Average per Acre.			Total.	Average per Acre
	acres.	tons.	tons.		acres.	tons.	tons.
1907-8	31,917	55,882	1.75	1912-13	34,124	91,642	2.69
1908-9	26,301	71,794	2.73	1913-14	38,725	106,849	2.76
1909-10	35,725	100,143	2.80	1914-15	30,418	40,709	1.34
1910-11	44,452	121,033	2.72	1915-16	19,589	44,445	2.27
1911-12	43,148	75,166	1.74	1916-17	22,449	45,331	2.19

The continuous fluctuation in the area from year to year since that time clearly shows that the possible advantages of this crop have been much neglected.

The average yield during the last ten years has been 2.3 tons per acre, and the highest 3.11 tons per acre in 1906-7. The small production per acre during 1914-15 was due mainly to the effects of the dry season, but that of the succeeding years showed an approximation to the general average of the decennium.

The average wholesale prices per ton of potatoes at Sydney during the season 1916-17 are shown below.

Month.	Local.	Victorian.	Tasmanian.	Month.	Local.	Victorian.	Tasmanian.
1916.	£ s. d.	£ s. d.	£ s. d.	1917.	£ s. d.	£ s. d.	£ s. d.
July ...	7 16 9	.....	8 11 0	January ...	6 0 0	5 2 9	9 5 0
August ...	7 5 0	.....	8 6 9	February...	5 7 6	5 3 6	6 16 9
September...	6 0 0	.....	7 9 0	March ...	4 4 3	4 8 9	6 1 3
October ...	6 3 3	.....	8 0 3	April ...	5 16 9	5 5 9	6 4 0
November...	7 5 0	.....	8 18 0	May ...	4 13 6	3 16 9	5 11 6
December ...	5 18 3	.....	4 0 0	June ...	5 0 0	4 16 3	6 6 9

The slow progress in the cultivation of potatoes is caused largely by the cost of carriage to market, as compared with the cheap water transport from Victoria and Tasmania. Some years ago the coastal districts produced large quantities; but the cultivation was reduced owing to the prevalence of pests, which continually devastated the crops, and for which at the time no remedy was available.

#### MINOR ROOT CROPS.

The cultivation of root crops other than potatoes requires only brief notice, as, in addition to those included in market gardens, only 1,049 acres were planted with onions, turnips, mangel-wurzels, carrots, sweet potatoes, arrowroot, and artichokes. The area under turnips was 442 acres, which yielded 1,477 tons, or 3.34 tons per acre. The probable reason for the small attention paid to the growth of onions, of which there were only 180 acres yielding 861 tons, is the uncertainty as to the price obtainable for the produce, there being no lack of soil suited to the cultivation of this edible bulb. Consequently, large importations are necessary to meet the local demand. The State Department of Agriculture, in order to encourage the cultivation of the onion, has introduced experiment plots to farm-holdings, and the results have been highly satisfactory.

The area under sweet potatoes was 385 acres, and the estimated yield 2,333 tons. Of mangel-wurzels there were under cultivation only 19 acres, which yielded 226 tons, and in some of the more elevated dairying districts this crop is grown as winter fodder for cattle. Excellent results in the cultivation of arrowroot have been obtained at the Wollongbar experiment farm, near Lismore.

## TOBACCO.

The growing of tobacco has been conducted for many years, but with considerable fluctuation in the annual production. This may be attributed to the necessity for special knowledge and care in its cultivation and curing, and probably no material advancement will be made until trade pressure in other countries forces attention to new fields of production.

With the exception of 6 acres in the Hunter River District, tobacco culture is confined to the northern and southern portions of the Western Slopes and the Central Tableland.

The following statement shows the extent of the cultivation of tobacco during the last ten seasons.

Season.	Area.	Production of Dried Leaf.		Season.	Area.	Production of Dried Leaf.	
		Total.	Average per Acre.			Total.	Average per Acre.
1907-8	acres. 533	cwt. 3,438	cwt. 6·5	1912-13	acres. 1,914	cwt. 13,863	cwt. 7·2
1908-9	618	3,838	6·2	1913-14	1,992	18,117	9·1
1909-10	1,096	6,498	6·8	1914-15	1,563	10,065	6·4
1910-11	959	8,513	7·8	1915-16	1,277	9,563	7·5
1911-12	1,501	15,045	10·0	1916-17	952	921	1·0

For several years prior to 1889 the area under cultivation grew steadily, and in that year it reached the maximum of 4,833 acres. As, however, the local product did not compare favourably with the American leaf, it could not be treated profitably, and a large proportion of the crop remained upon the farmers' hands; hence many growers abandoned tobacco in favour of other crops. The area had declined by 1907-8 to 533 acres, but subsequently it increased, owing to the greater attention paid to the processes of curing, and tobacco manufacturers endeavoured to stimulate the industry by paying adequate prices for good leaf, and by employing expert assistance to instruct growers. In 1916-17 the season was unfavourable; 952 acres were cultivated, but the crop failed owing to the continuous rains, which caused an outbreak of blue mould in the seed beds.

The Commonwealth Government in 1907 provided for the payment of a bounty of 2d. per lb. up to £4,000 per annum on Australian tobacco leaf, for the manufacture of cigars of a prescribed quality, but up to the present the quantity of high-grade leaf produced in New South Wales has been very small.

## SUGAR-CANE.

Sugar-cane was cultivated in New South Wales as early as the year 1824, but it was not until 1865 that systematic attention was given to this industry. In the latter year experiments were carried out on the Clarence, the Hastings, the Manning, and the Macleay Rivers, which on the whole proved successful, and were followed by more extensive planting. The Macleay was the principal seat of the industry during its earlier stages; but it proved to be unsuited to the growth of the cane, and the risk of failure from frosts compelled the planters to migrate farther north. Within a few years the richest portions of the lower valleys of the Clarence, the Richmond, the Tweed, and the Brunswick were occupied by planters.

Mills were erected in the chief centres of the industry, and cane-growing and sugar-manufacturing became established industries in the north-eastern portion of the State, where the soil and the climate are in most respects well adapted to successful cultivation.

The yield of sugar from the cane crushed varies considerably, the variation approximating, between a maximum and a minimum year, to 1 ton of cane in the quantity required to produce 1 ton of sugar, measured by the saccharine density of the cane. As compared with Queensland, where the average yield of cane per acre for 1916 was 20.81 tons, the yield for this State, 31.3 tons, may be regarded as satisfactory, but as compared with the produce which could be gathered by the application of more scientific methods of culture, there is evidence that considerable improvement is possible.

The following table shows the progress of this industry since the season 1910-11. As sugar-cane is not productive within the season of planting, the area under cultivation has been divided, as far as practicable, into productive and non-productive, the former representing the number of acres upon which cane was cut during the season, and the latter the area either newly planted, or during which it was not sufficiently matured for milling, and was on that account allowed to stand for another year. On the average the area cut for cane represented about one-half of the total area planted.

Season.	Area.			Production of Cane.	
	Cut for Crushing.	Not cut.	Total.*	Total.	Average per Acre.
	acres.	acres.	acres.	tons.	tons.
1910-11	5,596	8,167	13,763	160,311	28.65
1911-12	5,244	8,663	13,907	147,799	28.18
1912-13	6,137	7,777	13,914	140,914	22.83
1913-14	6,198	7,034	13,232	185,970	30.00
1914-15	6,012	5,409	11,421	181,606	30.21
1915-16	6,030	5,228	11,258	157,748	26.16
1916-17	5,223	5,746	10,969	143,558	27.49
†1917-18	5,588	5,134	10,722	174,881	31.30

\* Exclusive of areas cut for green food or plants.

† Advance figures—subject to revision.

The largest area on record, consisting of 32,927 acres, was planted in the year 1895-6; but about that time alterations were made in the Customs tariff with regard to sugar, there were great developments in the dairy-farming industry on the Northern Rivers, and both causes diverted attention from sugar-planting. From 1900-1 the area remained practically stationary for six years at a little over 20,000 acres; but a further diminution followed, and in 1917-18 there were only 10,722 acres under cultivation.

In 1896-7 the highest production of 320,276 tons of cane was obtained, but the average production per acre was only 17.6 tons. In the 1916-17 season 5,223 acres were cut for crushing, the production of cane being 143,558 tons. The average yield per acre was 27.49 tons, or about 26 cwt. per acre higher

than in the previous season. Preliminary returns for 1917-18 indicate further improvement, the yield per acre being 31·3 tons; the area cut for crushing was 5,588 acres and the production 174,881 tons.

The county of Clarence is the principal centre of cultivation, and in 1916-17 it contained 4,363 acres devoted to the production of sugar. The yield obtained from 1,852 acres of productive cane amounted to 50,137 tons, showing an average of 27·07 tons per acre. In the county of Rous cane was grown on 3,945 acres, and the yield was 53,884 tons, or an average of 25·29 tons per acre, cut on an area of 2,131 acres. In the county of Richmond the area under sugar-cane was 2,561 acres, of which 1,240 acres were cut, giving a total yield of 39,537 tons of cane, or an average of 31·88 tons to the acre.

The majority of the farmers cultivate sugar-cane in conjunction with dairy-farming, and only a few estates are devoted entirely to its production. Cane was grown during 1916-17 on 686 holdings, 529 of which had areas ranging up to 25 acres, 135 ranged from 26 to 50 acres and 22 from 51 to 100 acres.

Sugar-cane is cut usually in the second year of its growth, the fields being replanted after they have given crops for three or four seasons; and as the cane has been planted at irregular intervals, the seasons of large production have sometimes been followed by small crops in the succeeding year. Sugar manufacturers invariably purchase the year's crop of cane as it stands, and cut it at their own cost. From plantations in full bearing the average weight of the cut cane varied from 25 to 32 tons, and the value received by the grower was, in 1916-17, about £1 3s. per ton of uncut cane. An additional 6s. per ton was paid for cutting, which in most cases was done by the growers. The field work on the sugar plantations of New South Wales has been performed generally by white labour, and in 1913 the number of farmers employing black labour represented only 1·5 per cent. of the total; since that year figures have not been available.

#### GRAPE VINES.

In almost every part of the State, with the exception of the sub-tropical belt and the higher altitudes of the mountain ranges, grape-vines thrive well and bear large crops, equal in size, appearance, and flavour to the viticultural products of Europe. The principal vineyards are situated in the valleys of the Murray and the Hunter Rivers, where capital has been generously expended to introduce skilled labour, and to provide manufacturing appliances.

The great irrigated areas in the Murrumbidgee Valley are now rapidly growing in the favour of vignerons, and they may within a few years become the most important wine-producing districts of the State. Several hundred acres have already been planted with vines, and the results of the culture have proved highly satisfactory.

Under irrigation the vine can be cultivated to produce from 600 to 1,000 gallons of wine per acre, and an area like that embraced by the Murrumbidgee scheme should, therefore, be capable of supplying a demand, already said by some authorities to exist, for a light wine of the "vin ordinaire" type affected by the inhabitants of Southern Europe. Owing to the greater concentration of grape-sugar, the wines of this State are much heavier than the popular vintages of the Old World.

The vine-growing and wine-manufacturing industries are still, however, in their infancy, but with an increasing local demand, and with the establishment of a market in England, where the wines of New South Wales have gained high appreciation, the future of grape culture appears to be fairly assured. At present the production is, speaking comparatively, insignificant.

The following table shows, during the last ten years, the total area under vines in this State, the area devoted to the wine-making industry only, the total production of wine in gallons, and the average number of gallons to the acre.

Season.	Total Area under Vines.	Area under Vines for Wine-making only.	Production of Wine.		Season.	Total Area under Vines.	Area under Vines for Wine-making only.	Production of Wine.	
			Total.	Average per Acre.				Total.	Average per Acre.
1907-8	acres. 8,483	acres. 4,644	galls. 778,500	galls. 168	1912-13	acres. 8,163	acres. 4,403	galls. 719,100	galls. 163
1908-9	8,251	4,472	736,262	165	1913-14	8,153	4,498	561,100	125
1909-10	8,330	4,561	808,870	177	1914-15	7,985	4,113	549,140	134
1910-11	8,321	4,354	805,600	185	1915-16	7,883	3,501	571,000	163
1911-12	8,231	4,260	850,210	200	1916-17	8,666	3,442	628,950	183

The production of wine has fluctuated much during the last ten years, the total area planted being now 8,666 acres, of which 3,442 acres yielded 628,950 gallons of wine. The total number of vineyards in 1917 was 1,282, in 247 of which wine-grapes were grown.

The average area of each vineyard was nearly 6½ acres, and the total planted with vines still in an unproductive stage was 2,490 acres. The average yield in 1916-17 was 183 gallons per acre, and during the last ten years 166 gallons. The wine produced in New South Wales during the year 1916-17 was valued at £52,410, and the brandy distilled by vigneron for fortifying purposes at £2,440.

The area under vines has been enlarged considerably on the Murrumbidgee irrigation area, advancing from 60 acres in 1912-13 to 866 acres in 1916-17.

The necessity for the application of scientific methods to wine-making, for the general cultivation of the vine, and for the extirpation of the phylloxera disease, has led to the establishment of viticultural stations at Howlong, Narara, and Mirrool; and at the Wagga and Yanco experiment farms for the propagation of resistant stocks, and for the conduct of various researches in connection with wine-growing.

Phylloxera has not affected the Hunter Valley District, and the station at Narara was established to supply the demands of clean vineyards there and in other districts.

Arrangements are being made by the Department of Agriculture to conduct a systematic examination of the wines of the State in order to determine the nature of vintages from different varieties of grapes and from a number of districts, also to compare them with those of other countries.

The culture of grapes is not restricted to the production of fruit for wine manufacture, but a considerable area is devoted to their production for table use, particularly in various parts of Central Cumberland, and in the Orange, Yanco, and Mirrool Districts. The extent of country devoted to this branch of the industry in 1916-17 included 2,171 acres, with a production of 2,214 tons of grapes, or an average of 1.02 tons of fruit per acre.

Although there is a large local demand, and a possibility of an export trade for raisin fruits, no extensive areas have as yet been planted. In 1916-17 there were 563 acres cultivated for drying purposes, and the yield was 6,515 cwt., comprising 3,368 cwt. of sultanas, 871 cwt. of raisins, and

2,276 cwt. of currants. At the vineyards conducted in connection with the Wagga experiment farm and the Hawkesbury Agricultural College raisins and sultanas are dried every season and placed on the local market, where they are regarded as equal in every respect to the imported article.

The cultivation of vines is also conducted at the Yanco irrigation farm, which has been established for the education of settlers in connection with the Murrumbidgee irrigation scheme.

#### ORCHARDS.

The cultivation of fruit does not receive sufficient attention, as both the soil and the climate of large areas throughout the State are well adapted to fruit-growing. A larger area of land is, however, being brought each year under fruit culture, and orchardists can ascertain from the Department of Agriculture the varieties which are recommended for planting in specified districts, and the prospects of ultimate success are thus greatly enhanced. With large areas of suitable soil and with climatic conditions ranging from comparative cold on the highlands to semi-tropical heat on the North Coast, a large variety of fruits can be cultivated. In the vicinity of Sydney, oranges, peaches, plums, and passion-fruit are most generally planted. On the Tableland, apples, pears, apricots, and all the fruits from cool and temperate climates thrive well; in the west and in the south-west, figs, almonds, and raisin-grapes can be cultivated; and in the north coastal districts, bananas, pine-apples, and other tropical fruits grow excellently.

Inspectors have been appointed to the several fruit-growing districts, who advise growers in the methods of combating the various diseases that affect orchards, in the extirpation of pests, in the adaptation of varieties of fruit-trees to distinct classes of soil, in spraying and pruning trees, and in grading and packing fruit. Experiments are being conducted for the treatment of fungus diseases and insect pests in the fruit-growing centres of the State, according to modern scientific methods.

#### *Citrus Orchards.*

Orange groves were planted first near the town of Parramatta, and afterwards in the neighbouring districts of Ryde, Pennant Hills, Lane Cove, throughout Central Cumberland, in the valleys of the Hawkesbury and the Nepean Rivers, and on the slopes of the Kurrajong Mountains. Large areas destined to the cultivation of citrus fruits are being planted at Yanco and Mirrool, and with the results and experience of Pera Bore in support of the enterprise, good oranges and lemons produced under irrigation are expected.

Statistics relating to citrus orchards since the season 1909-10 are shown in the subjoined statement.

Season.	Area under Cultivation.			Production.	
	Productive.	Not bearing.	Total.	Total.	Average per Acre.
	acres.	acres.	acres.	bushels.	bushels.
1909 10	17,214	2,644	19,858	1,250,107	73
1910-11	17,465	2,643	20,108	1,478,306	85
1911-12	17,271	3,152	20,423	1,682,310	97
1912-13	17,213	3,360	20,573	1,534,000	89
1913-14	16,643	3,800	20,443	1,153,980	69
1914-15	16,675	5,237	21,912	1,445,624	87
1915-16	17,542	5,717	23,259	1,360,898	78
1916-17	17,542	6,306	23,848	1,559,835	89

In 1900-1 the area under citrus fruit was 14,965 acres; in 1916-17 this had increased to 23,848 acres, of which 17,542 were productive, and the latest production was equal to 89 bushels per acre. The number of orchards in which citrus fruit was cultivated during the year 1916-17 was 5,958, and of these the average area was 4 acres.

The citrus production of 1916-17 represented 910,777 bushels of oranges, 230,830 bushels of lemons, 413,828 bushels of mandarins, and 4,400 bushels of other citrus fruits, namely, pomeloes (or citron apples), shaddocks and limes. The trees of bearing age included 961,842 orange-trees, 228,325 lemon-trees, 416,846 mandarin-trees, and 3,720 other citrus-trees; whilst the young trees which had not yet reached the age of bearing included 400,416 orange-trees, 80,277 lemon-trees, 91,390 mandarin-trees, and 2,682 other citrus-trees.

The production of oranges has attained such proportions that the growers are obliged to seek oversea markets, the supply, both in New South Wales and in the adjacent States, exceeding in some seasons the local demand. The principal market outside Australia is provided by New Zealand. Efforts are being made to establish a trade with the United Kingdom and with America, and in view of the success that has been attained in other countries in carrying citrus fruits long distances by sea, there is ample assurance that a profitable export trade in Australian-grown products will be established.

#### Other Orchards.

The principal crops of fruit other than citrus products, which are more intensively cultivated in the neighbourhood of Sydney, range from natives of comparatively cold to those of temperate and semi-tropical climes, but their successful culture is determined by altitude as well as by parallels of latitude. Peaches and nectarines showed the greatest measure of production, the output for the year 1916-17 reaching 559,819 bushels from 580,820 trees of bearing age. Apples came next, with an output of 533,026 bushels from 589,142 trees; followed by pears, with 152,241 bushels from 153,401 trees; by plums and prunes, with 123,874 bushels, from 121,129 trees; by apricots, with 80,577 bushels from 89,566 trees; by passion-fruit, with 53,767 bushels from 107,991 vines; by cherries, with 47,010 bushels from 121,752 trees; and by quinces, with 40,018 bushels from 31,298 trees, besides some smaller yields from minor fruit crops.

The following table shows the area under orchards and fruit-gardens, exclusive of orangeries, together with the total value of each season's yield, since 1890-1.

Season.	Area of Productive Fruit-gardens and Orchards.	Area of Fruit-Gardens and Orchards not Bearing.	Total Area Cultivated for Fruit-gardens and Orchards.	Total Value of the Production of Fruit-gardens and Orchards.	Approximate Average Value per Acre.
	acres.	acres.	acres.	£	£ s. d.
1890-1	16,081	6,274	22,355	213,934	13 6 0
1895-6	20,635	8,145	28,780	130,735	6 7 0
1900-1	25,766	5,503	31,269	270,081	10 10 0
1905-6	25,189	3,577	28,766	189,195	7 10 0
1910-11	20,498	6,748	27,246	271,930	13 5 4
1911-12	19,602	8,166	27,768	373,800	19 1 5
1912-13	19,375	9,109	28,484	305,660	15 15 6
1913-14	19,248	11,238	30,486	244,950	12 14 6
1914-15	18,500	12,567	31,067	233,130	12 12 0
1915-16	19,006	13,173	32,179	243,210	12 16 0
1916-17	20,761	13,359	34,120	280,990	13 10 0

Owing to the subdivision of orchards for residential and other purposes the area under fruit declined from 32,346 acres in 1901-2 to 25,859 acres in 1909-10; since that season it has increased, and in 1916-17 was the highest on record, although with each successive year numerous sections are segregated as building sites.

About one-third of the area devoted to fruit culture is in the county of Cumberland, the actual acreage in 1916-17 being citrus, 10,394 acres; fruits other than citrus, 8,044 acres.

At the Murrumbidgee irrigation settlement fruit-trees are being planted very extensively, especially peaches, apricots, and oranges. The area under fruit orchards advanced from 212 acres in 1912-13 to 4,446 acres in 1916-17, the great majority of the trees still being in the unproductive stage.

With the exception of oranges, the fruit-production of New South Wales is far below average demands. The State is, therefore, obliged to import large quantities, the greater portion of which could be successfully grown within its own boundaries. As a matter of fact, vast quantities of fruit produced in New South Wales never reach the consumer. This is due to faults of marketing, and to lack of co-operation among growers. Good seasons are rewarded by a glut of fruit, for which, apparently, there is no system of efficient handling; and while consumers are anxious to secure supplies of sound fruit, much of the produce is allowed to spoil.

After citrus fruits, apple and peach trees are the most numerous, and peaches are largely preserved by canning. Efforts have been made to establish an export trade, principally in apples, but during recent seasons the prices in the local markets have been so satisfactory that only small quantities have been exported.

The extent of cultivation of each kind of fruit is shown in the following table for the seasons 1915-16 and 1916-17.

Fruit.	1915-16.			1916-17.		
	Number of Trees not yet Bearing.	Trees of Bearing Age.		Number of Trees not yet Bearing.	Trees of Bearing Age.	
		Number.	Yield.		Number.	Yield.
Oranges ... ..	352,904	930,258	801,144 bushels.	400,416	961,842	910,777 bushels.
Lemons ... ..	66,386	226,625	190,548	80,277	228,325	230,830
Mandarins ... ..	85,911	422,285	363,913	91,390	416,846	413,828
Other citrus ... ..	2,234	4,732	5,293	2,682	3,720	4,400
Apples ... ..	400,040	568,882	499,087	389,175	589,142	533,026
Peaches and Nectarines ...	319,972	505,044	428,669	315,262	580,820	559,819
Pears ... ..	133,723	141,047	120,364	143,395	153,401	152,241
Cherries ... ..	51,782	114,263	58,222	97,480	121,752	47,010
Apricots ... ..	56,973	83,952	75,518	63,784	89,566	80,577
Plums and Prunes ... ..	96,598	118,444	120,804	127,143	121,129	123,874
Quinces ... ..	11,005	31,694	35,510	13,037	31,298	40,018
Persimmons ... ..	2,231	9,151	8,137	2,549	9,266	9,359
Passion Fruit ... ..	*31,493	*128,792	59,448	*30,667	*107,991	*53,767
All other ... ..	17,521	18,181	23,222	22,999	20,696	25,512

\* Vines.

The total yield of fruit and nuts amounted in 1916-17 to 3,185,038 bushels, the production of 3,327,803 trees of bearing age (passion-fruit vines are not included in the total of fruit and nut bearing trees); while the total number of young trees not yet bearing (exclusive of passion-fruit vines) was 1,749,589.

For 1916-17 the number of passion-fruit vines was stated as 138,658, of which 107,991 were bearing fruit, the vines being frequently planted among the trees of other fruits, especially in young citrus orchards. The passion-vine is easily grown and cheaply maintained, and on account of its early maturity forms a valuable means of profit to the grower until the fruit-bearing trees become productive.

The cultivation of the passion-fruit could be extended considerably, as the present supply is not sufficient to meet the local demand, and there is little doubt that an appreciable demand for the fruit could be created in the United Kingdom and in America. A trial shipment was sent to London, but it met with only partial success, as buyers, not knowing its characteristic qualities, imagined the fruit to be worthless on account of its shrivelled appearance.

"All other" included a variety of berry, nut, ficus, stone, pulp, and jelly fruits, of which the more important were loquats, almonds, figs, walnuts, and guavas; but the remainder listed small quantities of mulberries, mangoes, pomegranates, paw-paws, olives, custard-apples, chestnuts, and medlars. Of the foregoing, loquats showed the greatest measure of production, the output for the year 1916-17 being 9,433 bushels from 6,364 trees of bearing age. Almonds came next, with an output of 8,533 bushels from 7,906 trees. The production of figs was 5,888 bushels from 4,289 trees; of guavas, 695 bushels from 939 trees; and of walnuts, 597 bushels from 1,805 trees. The following figures represent the number of young trees not then of bearing age, namely, loquats 1,625, almonds 10,511, figs 7,299, guavas, 315, and walnuts 3,018.

#### OTHER FRUIT CROPS.

Banana culture is becoming an important industry in the Tweed River district of the North Coast division. In 1916-17 an area of 2,352 acres was cultivated; 1,165 acres were productive and the crop was valued at £42,920.

Pine-apples were grown on 47 acres, of which the productive area, 33 acres, yielded fruit to the value of £570. Statistics relating to the total production of gooseberries, loganberries, and currants are not available. From an area of 16 acres strawberries valued at £1,470 were obtained during 1916-17, and this fruit was cultivated also in market gardens.

#### MARKET-GARDENS.

In 1916-17 there were in the State 3,158 holdings, comprising 10,710 acres, cultivated as market-gardens, the average size of each being 3.4 acres. The value of the production for the year was £398,700. Nearly one-third of the total area laid down for market-gardens is in the county of Cumberland, and until recent years the industry was almost entirely in the hands of the Chinese, but latterly it has received much attention from the farmers of the metropolitan districts.

The subjoined statement gives the number and area of market-gardens, and the value of the produce for each year of the decennium ending with 1916-17.

Season.	Market-gardens.	Area.	Value of Production.	
			Total.	Average per Acre.
	No.	acres.	£	£ s. d.
1907-8	3,324	10,052	262,786	26 2 10
1908-9	3,462	10,331	298,740	28 18 4
1909-10	3,808	10,254	311,580	30 7 9
1910-11	3,598	9,813	333,820	34 0 1
1911-12	3,368	9,498	357,230	37 12 3
1912-13	3,581	9,847	369,480	37 10 0
1913-14	3,373	10,607	401,060	37 16 2
1914-15	2,972	10,502	405,280	38 11 10
1915-16	3,301	10,967	400,860	36 11 0
1916-17	3,158	10,710	398,700	37 4 0

One branch of gardening—tomato culture—has not received sufficient attention. As this cultivation entails light labour, and is particularly remunerative, the vegetable could be grown by persons unaccustomed to heavier labour on farms, and it is surprising that the industry should have been so long neglected. In 1916-17 there were 529 acres, exclusive of market-gardens, under cultivation for tomatoes, which yielded 118,280 half-cases, or 224 half-cases per acre. Settlers on irrigation areas cultivate tomatoes as a stock product whilst their orchards are maturing. During the year 1916-17 approximately 100 tons of tomatoes were pulped at the canning factory of Leeton.

#### NURSERIES.

Nurseries for raising flowers, plants, trees, etc., covered an area of 561 acres during 1916-17. The value of the output was £75,880. The State Forest Nurseries are not included, particulars being shown in the chapter relating to Forestry. At the State Nursery at Campbelltown flowers and ornamental trees and shrubs are propagated for distribution to the public parks and recreation reserves.

#### MINOR CROPS.

In addition to the crops already specified, there are small areas under various other products, such as pulse and cucurbit crops.

*Pulse.*—During the season 1916-17 there were 357 acres under crop for peas and beans, which gave a total yield of 9,187 bushels, being 26 bushels per acre.

These peas and beans were grown mainly as hard fodder for horses and pigs, and must not be confounded with the legumes cultivated in the kitchen and market gardens for table use as green vegetables.

*Cucurbit Crops.*—The area devoted to pumpkins and melons during the season 1916-17 was 3,119 acres, and the yield 11,514 tons, being 3.69 tons per acre. The principal places of cultivation are the maize-growing districts and the metropolitan county.

Pumpkins are grown for table use as vegetables, and are also cropped extensively as fodder for cattle and pigs. The number of acres under gourd-vines mentioned above is somewhat below the true figures, as crops of pumpkins and melons are occasionally raised in market-gardens also, and statistics respecting the production are not available.

Other branches of agriculture have received but small attention, although, as the rural population increases, their importance will no doubt gain recognition. Little has been attempted in the cultivation of any of the following, although experiment has proved that they can be successfully grown in the State:—Olives, the castor-oil plant, flax, ramie fibre, hops, arrowroot, chicory, silk, coffee, and cotton. The variety of soil and climate is so diverse that almost any kind of vegetable crop can be cultivated.

The castor-oil plant grows luxuriantly in the humid coastal districts, and hops have been cultivated to a slight extent in the neighbourhood of Orange, while other suitable districts are Armidale, Goulburn and Cooma.

#### IMPORT AND EXPORT OF FRUIT, VEGETABLES, AND PLANTS.

The following quantities of fruit, etc., were received into New South Wales from the other States of the Commonwealth during the year ended June, 1917:—

- 1,776,327 cases and half-cases of fruit, tomatoes, and cucumbers.
- 62,164 bunches and 39,822 cases of bananas.
- 3,270 crates of cauliflowers and cabbages.
- 808,954 bags of vegetables.
- 1,119 cwt. of plants and nuts.

Of the above, 28,047 cases of fruit and 33 bags of potatoes were infected with disease.

Under the Quarantine Act, 509,961 bunches of bananas, 86,908 cases of pineapples and bananas, 96,718 centals of other fruit, 428,196 centals of cereals, seed, pulse, etc., 4,020 centals of vegetables, bulbs, etc., 32,503 centals of nuts, and 69,484 plants were examined. Fruit and grain to the extent of 2,384 centals were treated.

Under the Commerce Act, 114,009 packages of canned and fresh fruit, 35,804 bags of potatoes, 21,653 bags of maize and seed, and 366 packages of plants were passed for export.

#### MACHINERY AND LABOUR.

The application of machinery to the cultivation of the soil has materially reduced the number of processes and the amount of labour formerly necessary to the production of the various crops, and has thereby rendered the pursuit of agriculture less costly than in the past. For harvesting grain-crops the reaper and binder, the stripper, and the harvester are used, and there is considerable difference of opinion regarding the relative efficiency of these different implements. The reaper and binder is employed almost exclusively in moist districts, but over the greater portion of the wheat areas conditions are favourable to the use of the harvester. A modern type of harvester, particularly adapted to Australian conditions, produced and developed locally, has largely contributed to the expansion of wheat cultivation.

The estimated value of the agricultural machinery in use during the 1916-17 season was £5,449,657, or an average of £1 1s. 1d. per acre cultivated.

The subjoined statement shows the area farmed, the value of the machinery used, and the value of the machinery used per acre, in Divisions of the State.

Division.	Area Farmed.	Value of Machinery.	Value per Acre.
	acres.	£	£ s. d.
Coastal Belt .. ...	275,891	624,810	2 5 3
Tableland ... ..	474,721	725,266	1 10 7
Western Slopes ... ..	2,246,671	2,162,094	0 19 3
Central Plains and Riverina ...	2,155,143	1,888,605	0 17 6
Western Plains ... ..	10,604	48,882	4 12 3
<b>Total ... ..</b>	<b>5,163,030</b>	<b>5,449,657</b>	<b>1 1 1</b>

A comparison of the value of farming implements and machinery in use during each year of the decennium ended in 1916-17 in each of the rural industries is shown in the following table.

Season.	Farming.	Dairying	Pastoral.*	Total Value.
	£	£	£	£
1907-8	2,599,156	443,197	1,110,953	4,153,306
1908-9	2,851,974	458,720	1,256,857	4,567,551
1909-10	3,042,364	510,852	1,332,427	4,885,643
1910-11	3,414,621	534,745	1,483,081	5,432,447
1911-12	4,859,037	519,467	1,128,666	6,507,170
1912-13	4,633,809	575,637	1,514,636	6,724,082
1913-14	5,029,938	617,109	1,744,891	7,391,938
1914-15	5,159,959	589,593	1,864,034	7,613,586
1915-16	5,362,027	570,955	2,015,048	7,948,030
1916-17	5,449,657	593,838	2,124,246	8,169,741

\* The figures for years other than 1911-12 include, in many cases, farming implements used on pastoral holdings.

The following statement gives a comparative view of the machinery used and of the labour employed in agricultural pursuits during the last ten years.

Season.	Area farmed.	Value of Machinery.	Persons Employed.			Per 100 acres.	
			Males.	Females.	Total.	Machinery.	Persons employed.
	acres.	£				£	
1907-8	2,570,137	2,599,156	57,327	5,385	62,712	101	2.4
1908-9	2,713,971	2,851,974	55,324	5,409	60,733	105	2.2
1909-10	3,174,864	3,042,364	59,541	4,770	64,311	96	2.0
1910-11	3,381,921	3,414,621	59,091	5,228	64,319	101	1.9
1911-12	3,629,170	4,859,037	56,476	3,496	59,972	134	1.7
1912-13	3,737,269	4,633,809	57,209	2,848	60,057	124	1.6
1913-14	4,568,841	5,029,938	59,337	2,699	62,036	110	1.4
1914-15	4,808,627	5,159,959	57,602	3,356	60,958	107	1.2
1915-16	5,794,835	5,362,027	56,474	3,759	60,233	93	1.0
1916-17	5,163,030	5,449,657	52,259	3,647	55,906	106	1.1

In stating the number of persons employed in agricultural pursuits it must be remarked that these figures are obtained from returns supplied by the farmers; but in cases where agriculture is carried on conjointly with other rural industries it is difficult to differentiate, and persons may be returned as engaged in agriculture in one year, and in other rural occupations in another year. Nevertheless, the decline in the number of persons employed per acre has been continuous since the year 1907-8, and the application of machinery to the pursuits of agriculture has been progressively increasing during the same period. In 1907-8 the total value of machinery employed amounted to £2,599,156, and in 1916-17 to £5,449,657, or an increase of over nearly 110 per cent.; the number of persons employed in the same years was respectively 62,712 and 55,906, or a decrease of nearly 11 per cent.; but in the meanwhile the area farmed expanded from 2,570,137 acres to 5,163,030 acres, or 101 per cent., and shows therefore the increasingly large part taken by machinery in its application to agriculture.

The decrease in the number of workers during the period of the war amounted to 6,130 on the figures of 1913-14, or to 1,078 in 1914-15, to 725 in 1915-16 and to 4,327 in 1916-17; but whereas there was a decline in the number of males employed during the same period of 7,078, or of 1,735 in 1914-15, and of 1,128 in 1915-16, and of 4,215 in 1916-17, there was an increase in the number of females of 948, or of 657 in 1914-15 and of 403 in 1915-16, with a decrease of 112 in 1916-17. The decline in the number of males engaged in agriculture may not have been due entirely to enlistment for military service abroad, because a period of drought synchronised with the first two years of the War; but military service had undoubtedly a great influence in accentuating the decline of adult male employment in every branch of industry.

Prior to the War the majority of the females were engaged only partly in agricultural work, portion of their time being occupied with the discharge of domestic duties. At the census of 1911, there were 79,235 persons—77,599 males and 1,636 females—who were returned as engaged in agricultural pursuits.

The labour employed in all rural industries is discussed in the chapter on Employment and Industrial Arbitration.

#### FERTILISERS.

The most important method of maintaining the productive power of the soil, which is a fundamental principle of a permanent system of agriculture, is its treatment by fertilisers in order to supplement its supply of plant-food, and to improve its physical and biological condition.

As soils show considerable variations in their composition, the most important factor in the use of fertilisers is the determination of the requirements of each soil intended for cultivation. This may be ascertained satisfactorily only by systematic local experiment.

In New South Wales superphosphate is the only artificial fertiliser used in any considerable quantity, the soils in the wheat areas being generally deficient in phosphoric acid. Tests of manure conducted on the farmers' experiment plots indicate that the benefits derived from the application of superphosphates to wheat-lands, as a general rule, are most marked in the southern portion of the wheat-belt, viz., the South-Western Slope and the Riverina. The beneficial results gradually diminish throughout the western districts which form the central portion of the wheat-belt, and in the north-western districts no advantage is gained by the use of this fertiliser. The results may be affected, however, by the fact that fallowing is more common in the south than in the west, and much more than in the north.

The subjoined return shows the area of land and the quantity of manure used during the year 1916-17.

Division.	Total Area Manured.	Quantities of Manure used.	
		Natural (Stable-yard, etc.).	Artificial (Superphosphates, Bone-dust, etc.).
<b>Coastal Belt—</b>	acres.	loads.	cwt.
North Coast ... ..	464	827	551
Hunter and Manning ... ..	3,284	11,114	9,365
County of Cumberland ... ..	17,196	116,688	83,408
South Coast ... ..	8,512	16,142	13,590
<b>Total</b> ... ..	<b>29,456</b>	<b>144,771</b>	<b>106,914</b>
<b>Tableland—</b>			
Northern ... ..	509	796	392
Central ... ..	76,789	5,709	44,903
Southern ... ..	27,526	3,160	14,459
<b>Total</b> ... ..	<b>104,824</b>	<b>9,665</b>	<b>59,754</b>
<b>Western Slopes—</b>			
North ... ..	69	290	100
Central... ..	97,161	344	38,050
South ... ..	759,152	2,965	292,610
<b>Total</b> ... ..	<b>856,382</b>	<b>3,599</b>	<b>330,760</b>
<b>Central Plains—</b>			
North ... ..	18	100	.....
Central... ..	99,793	2,456	29,967
<b>Total</b> ... ..	<b>99,811</b>	<b>2,556</b>	<b>29,967</b>
Riverina ... ..	1,261,280	2,961	486,164
<b>Western Plains—</b>			
East of Darling ... ..	655	2,011	614
West of Darling ... ..	52	811	40
<b>Total</b> ... ..	<b>707</b>	<b>2,822</b>	<b>654</b>
<b>Total, New South Wales</b> ... ..	<b>2,352,460</b>	<b>166,374</b>	<b>1,014,213</b>

The small proportion of the land to which manures have been applied in relation to the total area cultivated shows that the farming community does not fully appreciate the necessity and the practical value of fertilisers as a factor in the enrichment of poor soils, or as a means of restoring fertility to areas depleted by successive croppings. The proportion of manured land in relation to the total cultivated in 1916-17 was only 45·6 per cent.; but, as shown in the following table, a steady increase in the use of fertilisers has taken place since 1907, when the proportion was only 16·5 per cent.; so that, considerable as the increase of manured land in proportion to the total cultivated area may appear, the figures fall far short in the interpretation of the facts of the case. In 1916-17 the total number of cultivated holdings was recorded as 49,998, but the number on which manure was used was only 10,768, or less than 22 per cent.

The subjoined table exhibits the total area cultivated, the total area manured, and the nature of the manures employed, for the successive years from 1907-8 to 1916-17, both inclusive.

Season.	Total Area Cultivated.	Total Area Manured.	Manures Used—		Area Manured per cent. of Total Cultivated.
			Natural.	Artificial.	
1907-8	acres. 2,570,137	acres. 423,678	loads. 144,021	cwt. 276,120	16·5
1908-9	2,713,971	509,262	216,078	310,899	18·8
1909-10	3,174,864	826,197	189,008	433,187	26·0
1910-11	3,381,921	1,030,536	186,204	500,342	30·5
1911-12	3,629,170	1,407,853	178,689	676,409	38·8
1912-13	3,737,269	1,643,788	170,312	779,123	44·0
1913-14	4,568,841	2,226,742	166,753	1,010,596	48·7
1914-15	4,808,627	2,331,239	175,088	1,104,174	48·5
1915-16	5,794,835	2,753,431	177,788	1,132,446	47·5
1916-17	5,163,030	2,352,460	166,374	1,014,213	45·6

The area on which only natural manure is used is comparatively small, comprising in 1916-17 but 7,320 acres, the quantity applied amounting to 72,275 loads. In conjunction with 72,077 cwt. of artificial fertilisers, 94,099 loads of natural manure were used on 19,760 acres, while the balance of the area manured—2,325,380 acres—was treated exclusively with 942,136 cwt. of artificial fertilisers.

The sale of artificial manures is regulated by the Fertilisers Act of 1904, under the provisions of which measure the vendor is required to furnish to the purchaser a statement as to their nature and chemical composition.

#### AGRICULTURAL EDUCATION AND EXPERIMENTS.

In order to obtain a thorough knowledge of local conditions and to afford an education in agriculture on scientific bases, the Government has established the Hawkesbury Agricultural College, eleven experiment farms, four demonstration farms, three viticultural nurseries, an apiary, an irrigation farm, a stud-horse farm, and an agricultural training farm, besides farmers' experiment plots established throughout the State. The agricultural training at the University and in State schools, including the Hurlstone Agricultural High School, has been described in the chapter relating to Education.

Farm schools are in operation at three experiment farms, the number of students at the 30th June, 1918, being: Wagga, 13; Bathurst, 17; and Yanco, 2. The fee is £15 for the first year and £10 for the second year. Notwithstanding the reduced number of regular students at the college and at the farm schools, there were 3,475 young men at the end of the year 1917 who had completed their course of training in scientific agriculture or allied subjects.

Farm-apprentice schools have been established at the Wollongbar, Glen Innes, and Grafton farms. The course enables students to qualify as farm labourers and small farmers, and the fee is £5 for six months, while a second half-year's training may be given in return for labour.

Schools of instruction for dairy-factory workers are held periodically in dairying districts. During the year 1916-17 eight schools for cream-graders and testers were held, and 139 students attended.

In order to secure the maximum advantage of experimental work and to co-ordinate the methods employed, a committee of experts was appointed to supervise all scientific farming investigations and field experiments.

The total area of experiment farms was 41,551 acres, of which 6,719 acres were under crop and 945 acres were under artificially-sown grasses during the season 1916-17, the proportion for various crops being as follows:—

	acres.
Cereals and hay ... ..	5,033
Fruit-trees and vines ... ..	453
Green fodder ... ..	1,016
Root and other crops ... ..	217

Much of the remaining area allotted to these farms was partially cleared, and a portion was under fallow, and a portion was ready for ploughing.

The winter schools at the Hawkesbury Agricultural College for farmers and their sons include a special course in poultry-farming, and in other subjects useful to those engaged in this industry, to which students of both sexes are admitted. During the year 1916-17 the attendance at the ordinary winter school was 78, and at the poultry-farmers' school 47. The summer school in agriculture, also held at the college, during the month of January, was attended by 60 students of both sexes.

The Department of Agriculture has made special provision for the instruction of women in suitable branches of rural work. In addition to the facilities afforded by the summer and winter schools at the Agricultural College, instruction in all branches of agriculture is provided for women at the Cowra Experiment Farm. A fee of £5, which covers board, lodging, and instruction, is charged for the first six months, and a similar period of training may be given free.

In conformity with the policy of the Government to render all the assistance possible to returned soldiers desirous of settling in rural life, various courses have been arranged for specialised training. Courses of instruction for a period of twelve weeks in poultry-farming, vegetable and fruit growing, pig-raising, etc., are provided at the Hawkesbury Agricultural College. Returned soldiers can gain experience also at Wollongbar, in dairy-farming, in the breeding of stud dairy cattle, and in the mixed-farming suited to the semi-tropical conditions of the district. At both institutions instruction and board and lodging are given free.

#### HAWKESBURY AGRICULTURAL COLLEGE.

The Hawkesbury Agricultural College provides accommodation for resident students, and imparts theoretical and practical instruction in a three-years' course, which embraces every department of agriculture. Instruction is given also in dairying, pig-raising, horse, sheep, and poultry breeding, and experimental research work is conducted in connection with cereal and other crops, in cultivation with fertilisers, and in soil culture. All subsidiary branches of farm labour are taught, including blacksmithing, carpentry, sheep-killing, bee-keeping, and other occupations incidental to the pursuit of agriculture. An area of 116 acres has been leased on the banks of the Hawkesbury River, on which a complete system of irrigation is being installed. The education and maintenance fee is £28 per annum, payable half-yearly in advance, and it includes the tuition, board and lodging of the student, medical, dispensing, and sports fees, but not the purchase of text-books and apparatus, or the cost of laundry work.

Special courses of instruction are also provided, notably at the winter and summer schools for farmers, poultry-keepers, and apiarists of both sexes. In June, 1917, there were 131 regular students in residence, and 864 acres out of the total of 3,430 acres attached to the College were under cultivation.

Dairy cattle of the Jersey and Red Poll breeds and Romney Marsh sheep are bred, also stud pigs of various breeds, which are distributed to farmers throughout the Commonwealth and New Zealand. In the poultry section the egg-laying competitions attract a large number of competitors.

#### EXPERIMENT FARMS.

Experiment farms have been established in various districts of the State, with varying curricula adjusted to the particular local climatic conditions. At the Wagga farm the specialities are seed wheats, fruits, Jersey cattle, swine (Berkshire), sheep, and poultry. The area under crop in 1916-17 was 739 acres out of 3,406 acres and 662 acres were in fallow. The course is for two years, a fee of £15 being charged for the first year, and £10 for the second. During 1917 there were in attendance 29 students, but the year closed with only 13, because a number enlisted for military service before the termination of their farm courses.

At Bathurst, particular attention has been devoted to the orchard, and to mixed farming and irrigation. A system of soil culture has been adopted by which a fodder crop rotates with a cereal crop, and a short summer fallow is allowed before sowing the cereal. Experiments with the cross-breeding of sheep are conducted, and a dairy herd of Kerry cattle is maintained. Of the total area of 752 acres, 446 are under crop. The fees are similar to those charged at Wagga, and there were 29 students in attendance during 1917, though accommodation is available for 60.

The Wollongbar farm, with an area of 264 acres, situated about 7 miles from Lismore, is utilised mainly as a stud dairy farm, its chief purpose being to impart instruction in dairying in all its branches, and in mixed farming suitable to the district. A herd of 138 pure-bred Guernsey cattle, one of the largest stud herds of this variety in the world, was on the farm at 30th June, 1917. The nucleus of a stud of pure Berkshire pigs was obtained during the year and the Tamworth breed will be introduced, as the Berkshire-Tamworth crosses are gaining in popularity. Experiments are conducted in the cultivation of maize, lucerne, and other fodder crops, in the conservation of fodder, and with the growing of sub-tropical fruits, such as bananas, pineapples, passion-fruit, etc. The average annual rainfall at the Wollongbar farm is about 60 inches. The establishment is provided with accommodation for twenty apprentices. The branch farm of 470 acres is situated at Duck Creek, and is devoted chiefly to the cultivation of sugar-cane and to experiments with it, and with maize and grasses.

At the Grafton experiment farm, which has an area of 1,074 acres, accommodation has been provided with the view of training apprentices in the mixed farming suited to sub-tropical districts, special attention being given to the improvement of maize by selection and cross-fertilisation, and to experiments regarding methods of cultivation and the adoption of commercial fertilising. Pigs, poultry and Ayrshire dairy cattle are bred, and potatoes and fodder crops are grown.

High-class stock is bred at the Berry experiment farm of 403 acres, situated 84 miles south from Sydney in the centre of the South Coast dairying district. The greater portion of the land consists of river-flats,

the soil of which comprises rich loam and heavy clay. The farm is devoted mainly to the breeding of Shorthorn and Holstein cattle, the herds comprising respectively 138 and 44 head. As the experience of dairy-farmers on the South Coast District has emphasised the need of conserving fodder, in order to meet periods of dry weather, silos and hay-sheds have been constructed. Experiments in the growing of maize, millet, sorghum, grasses, wheat and other cereals for fodder, are also conducted.

The Glen Innes farm, which has an area of 1,073 acres, is devoted to instruction in the mixed farming and fruit-growing suited to the northern tablelands. The stock includes pure-bred Lincoln sheep, Ayrshire cattle, and Berkshire pigs.

The Cowra farm, comprising approximately 1,011 acres, specialises in the production of seed-wheat, with subsidiary undertakings, such as cross-breeding experiments with sheep. The live-stock kept there include Jersey dairy cattle, crossbred sheep, and Berkshire pigs. Experiments are made also in miscellaneous cropping, and with a small orchard of varied fruits. As stated above, a training school is maintained for women students who were transferred from the Pitt Town Agricultural Training Farm during 1917. The Cowra farm is the principal experimental wheat-breeding station in the State.

At Pera Bore farm, which has an area of 1,183 acres, experiments have been made with artesian-bore water applied to agriculture, and with methods of neutralising its chemical constituents. Citrus fruits are cultivated, and a small flock of merino sheep is maintained.

The Yanco experiment farm was established in 1908 in connection with the Murrumbidgee irrigation scheme, for the purpose of testing the suitability of soil and climate to the various crops to be grown under irrigation. The area of the farm is 2,045 acres, of which 500 acres are irrigable, including 71 acres under fruit trees and vines. A large portion of the farm is devoted to raising crops for the breeding stock and for the working horses. Ostrich-farming and mule-breeding are important features of the work at this farm, and a number of imported ostriches and donkeys are maintained there. The dairy cattle of the pure Jersey breed are being replaced by Ayrshires, and the pigs are Berkshires.

In March, 1911, an experiment farm, with an area of 1,945 acres, was established at Coonamble in connection with dry-farming. Wheat cultivation and sheep-farming are there combined, and results indicate that profitable crops can be obtained on the black-soil plains by early sowing of quick-maturing varieties on well-fallowed land. An artesian bore has been sunk, and experiments in connection with the growth of crops by means of irrigation with bore-water are being carried out.

The Trangie experiment farm, with an area of 9,636 acres, was established in 1914; part of the area, which has a frontage to the Main Western Railway, will be devoted to wheat experiments on a large scale, and the remainder will be used for the purpose of a stud-merino farm.

#### DEMONSTRATION FARMS AND ORCHARD.

Demonstration farms have been established in various parts of the State, with the object of exhibiting the commercial results of the scientific principles which have been proved at the experiment farms. Demonstration farms are in operation at Nyngan, Temora, and Condobolin.

At the Nyngan demonstration farm, established in 1909, part of the area is used for experiments relating to problems of dry-farming, which had been conducted previously at Coolabah. Investigations are carried on also in

connection with merino sheep, with the object of originating a strain specially suitable for farmers and small landholders in the dry western areas. Swiss milch goats imported in 1914 were stationed at the Nyngan farm, and the flock of pure and cross-bred goats now numbers 118.

The Temora demonstration farm, established in May, 1912, is situated in the Riverina wheat belt, on a branch of the Main Southern Railway, and has an area of 1,606 acres. The conditions are specially suitable for the production of seed-wheat, and an area has been selected for the purpose of experiment. A flock of Border Leicester sheep formerly located at Cowra was transferred recently to this farm.

The Condobolin demonstration farm has an area of 1,348 acres, and is situated on a branch of the Main Western Railway. It was established for the purpose of demonstrating modern methods of dry-farming and the use of suitable varieties of wheat, the soil being typical of a large portion of the western districts of the State. Operations were commenced in September, 1912, and the results achieved are so far encouraging.

The Forest Vale demonstration farm, which was established in connection with the Government's share-farming area has been transferred to the Returned Soldiers' Settlement Department, and the Dural demonstration orchard has been subdivided and allotted to returned soldiers.

#### VITICULTURAL NURSERIES.

Operations at the Hunter Valley viticultural nursery, Raymond Terrace, were transferred during 1913 to an area of 100 acres at Narara. This new establishment is situated on the Main Northern Railway line, 52 miles north from Sydney, and 3 miles from the station at Gosford. Instruction and advice are imparted with respect to bench-grafting, bud-grafting, field-grafting, and to all matters involved in the reconstruction of vineyards. The main purpose of the nursery, however, is the propagation of phylloxera-resistant rootlings and bench and bud grafted vines, for distribution to vine-growers in infected areas, to enable them to replant the vineyards destroyed by phylloxera.

At the Howlong viticultural nursery there is a mother-stock vineyard to supply the necessary material for the propagation of vines at the Narara nursery, and there are experimental blocks for the culture of wine and table grapes. The area of the nursery is 224 acres, of which 166 are grass and timber lands, 32 are devoted to the growing of phylloxera-resistant vines, from which to obtain the necessary stock for the propagation of vines for distribution among vignerons, 6 are used for growing wine and table grapes for experimental purposes, and 15 are cultivated for hay crops.

In order to increase the output of grape-vines grafted on phylloxera-resistant stocks, it was found necessary to establish a third nursery, and for such a purpose a block of 59 acres was acquired at Mirrool, as experience had shown the suitability of the Murrumbidgee irrigation areas for this description of viticulture. The work of developing the nursery at Mirrool has been energetically advanced, and the necessary grafting-sheds and other buildings have been erected.

#### EMU PLAINS IRRIGATION FARM.

The Emu Plains irrigation farm was acquired in 1914, and is utilised for vegetable-growing and general farm work by prison labour. The area is 107 acres, and the greater portion is watered by sprinklers, by flooding, or by furrowing systems. The farm is controlled by the Prisons Department for the special training of youthful delinquents.

## NORTH BANGAROO STUD HORSE FARM.

This is a property of 5,037 acres, situated at North Bangaroo, near Canowindra, and occupied mainly for the breeding of high-class Clydesdale horses for the various experiment farms, etc., and for sale to farmers. Three stallions from the best established Scottish studs have been imported, together with a number of high-class brood mares from Scotland and from New Zealand, while others have been obtained from interstate and local stock.

## GLENFIELD VETERINARY EXPERIMENT FARM.

An area of 112 acres has been purchased at Glenfield for the establishment of a Veterinary Experiment Farm, for investigations regarding stock diseases and the preparation and distribution of serums and vaccines.

## GOVERNMENT AGRICULTURAL TRAINING FARM, PITT TOWN.

This farm is controlled by the State Labour Branch of the Department of Labour and Industry. At the 31st December, 1915, there were on the farm 10 students and 26 men. The number of students decreased considerably on account of the War, and in 1916 arrangements were made to accommodate women as students, but in the following year these trainees were transferred to Cowra. At the close of the month of May, 1918, there were 27 persons in residence at the farm.

## STATE APIARY.

During the year 1915-16 the Department of Agriculture decided to establish an apiary, capable of being conducted on a commercial basis, which could be utilised for the study of diseases among bees. For this purpose a site was chosen on Crown lands situated  $3\frac{1}{2}$  miles from Wauchope, in close proximity to a forest reserve of some 60,000 acres, heavily timbered with different varieties of eucalypts (principally ironbark and grey-gum), and with some brush-box; all bearing honey-making bloom. The apiary consists of 36 acres, which will be only partially cleared at the beginning of occupation, and it is intended at first to carry about 150 hives, out-apiaries being established at suitable centres on adjoining Crown lands, as opportunity offers. When the undertaking is fully established students will be admitted to a course of training (for probably six months' terms), for which a nominal fee will be charged.

Under the provisions of the Apiaries Acts, inspectors may be appointed, and penalties may be inflicted on bee-keepers who wilfully transgress the clauses for combating the diseases peculiar to bees. The Act further provides that any person keeping bees (other than native or indigenous) in any hive other than a frame hive, will be liable to a penalty not exceeding £20. This clause is levelled especially at the continuance of the use of box-hives, as diseases peculiar to bees are harboured and propagated by this type of apiary.

## DREADNOUGHT FARM TRUST.

An agreement was made early in 1911 between the Government of New South Wales and the trustees of the Dreadnought farm fund as to the introduction of a number of lads from 17 to 20 years of age to this State for the purpose of following rural pursuits.

The trustees advanced a portion of the required fares, subject to the approval of their London representative, a lad being required to deposit only £3 towards his passage and landing money, and to sign an undertaking to repay £8 in instalments, extending over a period of eighteen months. In a number of cases where boys have been without means, the Trustees paid the whole of the passage-money, on condition that £6 would be refunded out of the first year's wages. The lads generally have kept their agreements loyally, and the refunds to 30th June, 1918, amounted to £2,965.

Upon arrival, the boys were either placed in employment with farmers by the Immigration and Tourist Bureau or sent to the Pitt Town training farm, near Windsor, where they received general instruction; and three months afterwards they were engaged to farmers in different localities, or placed in one of the agricultural colleges or farms for twelve months to receive further training. From April, 1911, to 30th June, 1916, the boys arriving numbered 2,164, of whom 1,268 were sent out as workers, 772 as trainees at Pitt Town farm, and 124 as students and apprentices at agricultural colleges and experiment farms; owing to the war, arrangements for immigration have since been suspended.

The total amount of contributions to 30th June, 1918, was £81,322, and with accrued interest, £15,386, the fund increased to £96,708. Of this amount £40,000 was donated towards the establishment of the Royal Australian Naval College at Jervis Bay. The total cost of the management of the fund has been only £1,097. Other payments include passage money, etc., £10,267; fees for students and apprentices at the Pitt Town training farm and the Government experiment farms, £4,663; loan to British Immigration League towards purchase of an immigrants' home at the Glebe, £5,342; and patriotic subscriptions, £155. The balance in hand at the 30th June, 1918, was £34,683.

#### FARMERS' EXPERIMENT PLOTS.

A number of experiment plots, ranging from 1 to 20 acres, have been established throughout the State in order to give practical demonstrations to farmers regarding advanced methods of agriculture, improved varieties of seed, comparative value of manures, and new crops for respective soils and climates. The State has been divided into seven districts, and in each an inspector supervises the plots, gives lectures and demonstrations, and advises the farmers generally on agricultural matters. This system has been extended to the Murrumbidgee irrigation area.

With the establishment of the plots, in 1908, they were conducted on the following terms:—The land was provided by the farmer, the seed and the manure by the Department of Agriculture. The Department paid the farmer for the work of preparing the land, and for sowing, cultivating, and harvesting the crops, the farmer taking two-thirds, and the Department one-third of the resulting produce. It has now become a general rule that the farmer carries out the work without cost to the Department other than for seed, manure, and supervision, and receives the whole of the resultant crop.

These plots have proved valuable media of practical education for the farming community, special attention being directed towards the improvement of cultural methods of wheat and other cereals, potatoes, and grasses; and to the extension of the cultivation of leguminous plants,

either in combination with cereals or separately; with the object of improving the food value of the green fodder, ensilage, and hay to the farmers' stock, and of increasing the fertility of their soils.

In 1916-17 the number of plots cultivated was 160, and the total area was 857 acres.

#### FARRER SCHOLARSHIPS.

The Farrer memorial fund was established by public subscription in honour of the late William J. Farrer, whose work in the production of new wheats has afforded great benefit alike to the industry and to the community. The money subscribed has been vested in trustees, and the interest is used for the Farrer research scholarship, the specific object of which is the improvement of wheat cultivation. The scholarship, which is valued at about £100 per annum, is granted to a candidate selected by the trustees from applicants possessing one of the following qualifications:—

- (a) A graduate in science, to pursue studies with original research in the Cambridge University Laboratory, or elsewhere outside the State. In such a case, the revenue for two years may be given for one year's research.
- (b) Graduate or undergraduate, to pursue the study of plant-breeding in University laboratories under the supervision of the Science Faculty.
- (c) Student who has taken a diploma from the Hawkesbury Agricultural College, or similar institution, to pursue the study of plant-breeding in the field, or in other approved way.
- (d) A young farmer, or other person, possessing necessary qualifications and aptitude for investigating this subject in the field under supervision of the trustees.

The selected scholar presents his results at the close of the year in the form of a paper to be published by the trustees. At the end of the year the holder of the scholarship may be re-appointed, or a new selection made.

The Government Farrer scholarship is offered for competition amongst students wishing to enter the Hawkesbury Agricultural College with a special view to study wheat cultivation. The value of the scholarship is £91, is awarded after competitive examination, and provides for the full education of the recipient during the three years' course, for the purchase of books and apparatus, and for the payment of medical, sport, and other fees. The trustees of the Farrer memorial fund are authorised specially to give priority in the matter of the Farrer research scholarship to a Government Farrer scholar at the close of his college course if he shows special aptitude for research work in connection with wheat cultivation.

The *Daily Telegraph* Farrer scholarship consists of a grant of books, apparatus, etc., to the value of £10, given each year by the *Daily Telegraph* Newspaper Co., Ltd., to the best wheat student at the Bathurst or Wagga experiment farm.

#### AGRICULTURAL BUREAU.

The Agricultural Bureau was established under the direction of the Department of Agriculture. Its objects are to collect and to disseminate information respecting plants, animals, or products likely to prove of value to cultivators; to discover the best methods of cultivating suitable economic crops, the breeding and feeding of domestic animals, and the preparation of products for market; to settle for each district the best times

for fallowing, sowing, and harvesting; to prevent the introduction and dissemination of insect and fungus pests; to encourage social intercourse; and generally to advance the interest of persons engaged in rural industries. Government assistance is granted in the form of subsidies payable to each branch at the rate of 10s. for every £ of membership fees; by lectures and demonstrations by the Departmental experts; and by the supply, free of charge, of the publications of the Department, including the *Agricultural Gazette* and *Farmers' Bulletins*. The Bureau was established in 1911, and at the 30th June, 1917, there were 123 branches, as compared with 113 twelve months earlier.

#### AGRICULTURAL SOCIETIES.

A number of agricultural societies have been formed throughout the State, mainly for the purpose of holding exhibitions of agricultural, horticultural, and pastoral products, of live-stock, machinery and implements, of arts and manufactures, and for other purposes relating to rural industries. The exhibitions assist rural development by maintaining a high standard of products and of other interests represented by exhibits, and by making the public familiar with modern methods and appliances. From 1879 to June, 1916, the sum of £576,797 had been paid to these societies; subsequently the payment of subsidies was discontinued.

#### CO-OPERATION OF AGRICULTURISTS.

Endeavours are being made, through the agency of the Agricultural Bureau, to encourage co-operative efforts among agriculturists. Notable examples of the success of the Bureau are to be found in this State, as exemplified by the dairy factories, and in South Australia, where a large proportion of the exportable wheat is handled by a co-operative union. In addition to the advantages of co-operation, as a means of successful marketing of produce, the principle is capable of extension to the purchase of materials, manures, machinery, and seed. Farmers could combine for the joint-ownership of labour-saving machinery and stud-stock, for herd-testing, and for insurance; and they could, as a body, be able to obtain concessions from manufacturers, agents, etc., and with regard to freight, which, as individuals, they could not obtain.

The matter has been brought for general discussion under the notice of the various branches of the Agricultural Bureau, in order that the best method of applying co-operation to local requirements may be decided.

#### STATE ADVANCES TO SETTLERS.

To meet the demand for capital, and impelled by the necessity for affording assistance to settlers whose prospects had been affected by prevalent drought conditions, the Government inaugurated a system in 1899, by which advances are made to settlers on the basis of the French *Crédit Foncier*, at rates of interest and of repayment which are intended to be available for the benefit of every settler offering adequate security. The original Act of 1899 has received several amendments, and in 1906 the powers of the Advances to Settlers Board were transferred to the Commissioners of the Government Savings Bank of New South Wales, the maximum and minimum advances being fixed at £2,000 and £50 respectively.

On the 30th June, 1917, the advances made to settlers numbered 14,927 (total value, £4,281,698), and were equivalent to £287 per loan, of which 8,765, representing £1,759,204, were repaid, leaving 6,162 advances current at that date, the average balance of the principal being £409 per loan.



The Apple Bounty Act, 1918, provided for the payment of a bounty up to a maximum amount of £12,000 on the export of evaporated apples grown in Australia and sold to the Imperial Government for delivery between 1st April and 31st August, 1918. The bounty is payable to growers at the rate of 10 per cent. of value, which is taken to be 7d. per lb.

The amount of bounty paid in New South Wales in 1916-17 was only £16, in respect of tobacco leaf.

#### THE DEPARTMENT OF AGRICULTURE.

The Department of Agriculture, created in 1890 to advance the interests of the farmers and fruit-growers of New South Wales, deals with all matters essential to agriculture; and its practical functions include the collection of information by scientific investigation and practical experiments relating to the causes of the failures of crops, improved methods of cultivation, means of combating pests, fertilisers, drainage and irrigation, new plants and new implements, and to the disposal of surplus products, and transport of produce. Such information is placed at the disposal of the agricultural producers of the State, and every other kind of assistance is rendered to them.

The Department, in conjunction with the Stock Branch and the Water Conservation and Irrigation Commission, is administered by a Minister of the Crown. The scientific staff has been completely organised, and experts have been appointed to direct operations in agricultural chemistry, viticulture, entomology, botany, irrigation, fruit-growing, tobacco-growing, veterinary science, biology, poultry-farming, apiculture, dairying, cattle and sheep breeding, and cold storage and export; and there are also a number of experimenters, inspectors, and instructors. The Agricultural College and the experiment farms are controlled by the Minister.

The Stock Branch conducts investigations in animal pathology, while similar investigations relating to plant diseases, and to the bacteriology of soils, milk, cheese, wines, etc., are made by the Biological Branch.

Bulletins are issued for the guidance of various classes of rural workers, and most of the publications of the Department are supplied free to persons engaged in rural industry. The officials answer all inquiries for advice or assistance, and visit various parts of the country throughout the year to give demonstrations to the farmers, to conduct experiments, and to advise generally regarding agricultural methods.

The *Agricultural Gazette*, the official organ of the Department, is issued monthly. It presents to the farmers of the State the results of scientific researches and of the investigations of official experts; it gives practical advice on the economic results dictated by these investigations, and supplies seasonable notes on matters of scientific, practical, and industrial interest.

Country newspapers are furnished weekly with notes describing the investigations and educational operations of the Department with respect to improved methods of agriculture, dairying, stock-raising, etc.; and efforts have been made to develop many phases of primary production, fallowing, rotation in cropping, and the cultivation of maize being specially treated.



## 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 liable to dry seasons which affect extensive areas. A large portion 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 excepting only 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 induced the Government to undertake various detached works and schemes, which will constitute portion of the ultimate irrigation system necessary to serve the whole State.

### *The Control of Water Conservation and Irrigation Works.*

The system and the works necessary to its maintenance and development 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, the small irrigation settlements at Hay and Wentworth, natural works of water conservation, shallow boring for settlers, and water trusts and artesian bore trusts operating under the Water Act. The Commission has control also of storages and diversions of water by private persons for purposes of conservation and irrigation.

### *The Murrumbidgee Irrigation Scheme.*

Under this scheme a storage dam across the Murrumbidgee River has been constructed. This will retain the flood water which will be released for use lower down the river during dry periods. Provision has been made for 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; four 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. Towns and villages, roadways to serve each farm, and a general surface-drainage system are included in this scheme.

The site of the storage dam is at Burrinjuck, 3 miles below the confluence of the Murrumbidgee and the Goodradigbee Rivers. The dam-wall has 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 augment the natural flow of the river during the summer months for the benefit of riparian holders downstream. The reservoir will have a capacity of nearly 33,612 million cubic feet or 771,641 acre-feet, the catchment area being about 5,000 square miles, drained by three principal streams—the Murrumbidgee, the Goodradigbee, and the 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 above the dam. 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 sluice-way 40 feet wide in the clear; a lock chamber, 40 feet wide, capable of taking barges up to 100 feet in length; and 55 Channoine wickets manipulated from a punt moored upstream. During the winter freshets the wickets are lowered, thus affording a clear waterway 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 canal to double its present capacity (1,000 cubic feet per second) has been recommended by the Public Works Committee. There are four main branch canals; the Gogeldrie Canal offtakes at 47 miles from Berembé and runs approximately parallel to the Narrandera-Hay Railway through the Yanco area and the Mirrool Branch Canal commences 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 to fruit and vegetable growing, etc. When the areas are fully settled it is estimated that there will be about 6,000 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, cantaloupes, 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 conducted successfully 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 Mirrool Creek, is served by an extension of the railway from Barellan to Griffith. Further areas are being offered for settlement as the construction works are completed, and 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 5s. per acre-foot; but the charge is reduced during the early years of occupation. During the first year the charge is 2s. 6d. per acre-foot; thereafter it is increased annually by 6d. per acre-foot, until in the sixth and following years the full rate (5s.) becomes payable. The average "all-irrigable" farm is about 50 acres; but to suit the requirements of dairymen and other stock-farmers, blocks of larger areas are being made available; these include non-irrigable or "dry" areas in addition to the irrigable portion. Some of these mixed farms are 200 acres and upwards in extent, but the maximum "water right" allowed is 100 acre-feet. Additional water (if available) may be obtained by arrangement.

The conditions for the disposal of irrigation blocks are contained in the Crown Lands Consolidation Act of 1913 and in its 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, or subject to any other statutory disqualification, may (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; and (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 wind-breaks, 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 to afford them 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 maintenance, 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.

Subject to such conditions as to security and terms of repayment as the Commission may require, settlers may obtain an advance, or have payment of rent or of 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 powers to make loans upon mortgage of irrigation farm leases, and many settlers have obtained monetary assistance from the Bank. Concessions in railway fares and freights are made on New South Wales railways to *bona fide* applicants for land.

Towns and villages have been established at the centres of the Yanco and Mirrool irrigation areas, and the Commission is empowered to construct streets and to provide water-supply, sanitary, and other services.

A butter factory is in operation at Leeton; the output at the end of 1917 amounted to 5 tons per week, the average number of suppliers being 120 to 130. The factory supplies ice also to the residents of the town and to the settlers.

A vegetable and fruit canning factory has been provided for the treatment of vegetables and fruits grown by the settlers; the output is rapidly increasing. As an adjunct to the canning factory, a pulping plant has also been installed at Griffith.

A bacon factory and abattoirs have been erected at Yanco. Stock is slaughtered for local consumption, and about 300 pigs are treated weekly, including a considerable number from districts of the Riverina outside the irrigation area.

In order to assist the settlers on the Mirrool area, which is situated over 30 miles from Leeton, a small cheese factory has been established at Griffith, and a good marketable cheese is being produced.

One of the most important Departmental undertakings on the irrigation areas is the State nursery. For some years the Leeton nursery has been supplying trees to settlers, and in 1916 a second nursery was established at Griffith. Every effort is made to supply only the best trees, free from disease, and in order 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 established also at Griffith (in the Mirrool irrigation area) a viticultural nursery for the propagation of vines on phylloxera-resistant stocks, not only for supply to settlers on the area, but to vigneron in all parts of the State.

An electric power-station has been erected near the Yanco siding, and electric light and power are supplied to the various factories and to the residents of Leeton and Yanco. The supply is available also for settlers when the number of applicants in any centre warrants the connections.

On the 31st December, 1917, the farms numbered 831, and represented a total area of 36,433 acres. In addition, 135 town land blocks were held under lease.

The following particulars indicate the extent of the work performed by the settlers in the cultivation of the Murrumbidgee irrigation areas during 1917:—There were 3,112 acres under stone fruit, 346 acres under pome fruit, 1,656 acres under citrus fruits, 1,171 acres under vines, and 327 acres under mixed fruits. Particulars as to the area under fodder crops in 1917 are not available, but, in 1916, the area amounted to 16,347 acres. The estimated population of the irrigation areas is about 5,000.

#### OTHER IRRIGATION SETTLEMENTS.

Irrigation settlements have been established at Hay and at Curlwaa, near Wentworth; and in 1913 these were placed under the control of the Water Conservation and Irrigation Commission.

##### *Hay Irrigation Area.*

The irrigation area at Hay consists of about 4,160 acres; prior to 1913 it was controlled by a trust appointed in 1897. On 31st December, 1917, the area held and used for irrigation purposes was 1,002 acres in 105 blocks, ranging from 3 acres to 34 acres in size; generally the term of lease is thirty years, and the annual rental from 5s. to 12s. per acre. In addition, 2,040 acres of non-irrigated land had been taken up in 43 blocks, as permissive occupancies. The water-rate is fixed from time to time; during 1917 it was £1 an acre per annum. The pumping machinery is similar to that at Curlwaa, the capacity of the pumps being 4,000 gallons per minute. During the season of 1916-17 the quantity of water supplied amounted to 90,182,240 cubic feet. Dairying is the principal industry, the cultivation of fruit being very limited.

##### *Curlwaa Irrigation Area.*

The Curlwaa irrigation area consists of 10,600 acres, of which 1,363 acres have been subdivided in 94 irrigable blocks. On 31st December, 1917, 85 blocks, containing 1,296 acres, had been taken up in areas varying from 1½ acres to 37 acres. There are also 90 non-irrigated blocks, ranging in

size from  $\frac{3}{4}$  of an acre to 336 acres, and containing 7,104 acres; and at the end of 1917, 82 blocks, representing an area of 6,953 acres were in occupation. An area of 1,290 acres has been reserved as a common. During the year 1916-17 approximately 1,100 acres were under cultivation, the area under fruit being 776 acres, of which about 600 acres were bearing. Oranges, peaches, apricots, nectarines, pears, grapes, sultanas, and currants are grown, and it has been proved that the Curlwaa soil is eminently suited to fruit culture, some of the finest oranges grown in New South Wales being the product of this locality.

The estimated weight of dried fruits, the production of Curlwaa irrigation area, during the last five years, was as follows:—

Dried Fruit.	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.
	cwt.	cwt.	cwt.	cwt.	cwt.
Apricots ... ..	127 $\frac{1}{2}$	260	130	188 $\frac{3}{4}$	446
Nectarines ... ..	11 $\frac{1}{2}$	16	3 $\frac{3}{4}$	8 $\frac{1}{2}$	127
Pears ... ..	8	43	138 $\frac{1}{2}$	72 $\frac{1}{2}$	115
Peaches ... ..	517 $\frac{1}{2}$	768	653 $\frac{3}{4}$	505	1,423
Lexias ... ..	520	568 $\frac{1}{2}$	313	620 $\frac{1}{2}$	891
Currants ... ..	1,454	1,539 $\frac{1}{2}$	532 $\frac{3}{4}$	1,455 $\frac{3}{4}$	1,404
Sultanas ... ..	1,462 $\frac{1}{2}$	1,772 $\frac{3}{4}$	1,406 $\frac{1}{2}$	2,323	2,581
Elemes ... ..	146	150	.....	780 $\frac{3}{4}$	35
Total ... ..	4,247	5,117 $\frac{1}{2}$	3,178	5,954 $\frac{1}{2}$	7,022

The value of the dried-fruit production for the twelve months ending the 30th June, 1917, was estimated as being not less than £20,000.

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 4,600 gallons per minute. With eight pumpings during the season of 1916-17, the quantity of water supplied amounted to 89,243,000 cubic feet. The main channels measure about 8 miles and 5 chains in length.

The land may be leased for periods not exceeding thirty years, the annual rent at the present time varying from 1s. to 10s. per acre. The rate for water is fixed from time to time by the Commission, and except in a few special cases is at present 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.

#### 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. Now a severe penalty may be imposed in respect of damage to any work for which a license has been granted, and the security thus provided stimulates the construction of works of a better class. Notwithstanding the favourable season which lessened the necessity for irrigation, during the year ended 31st December, 1917, 95 applications were made for new licenses, and 62 for the removal of existing licenses; at the date mentioned 1,206 licenses were in force.

#### *Water Trusts and Bore Trusts.*

Part III of the Water Act, 1912, provides for the supply of water 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; the works are administered by trustees appointed from among the beneficiaries under the Act, except in the case of trusts in the Western Division, when the Western Land Board is appointed as trustee.

For the supply of water, trusts have been constituted in connection with (a) seventy-six artesian wells; (b) eight 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, including one since dissolved; and (d) two pumping schemes—one from a natural watercourse, and one from a well. The total area included within these trusts amounts to 6,809,537 acres.

#### *Artesian Bores.*

That portion of the great Australian artesian basin which extends into New South Wales covers approximately 70,000 square miles, and is situated in the north-western portion of the State.

The first artesian bore was sunk in 1879 on the Kallara pastoral holding, between Bourke and Wilcannia, and the first Government bore was completed in 1884 at Goonery on the Bourke-Wanaaring road.

The following statement shows the extent of the work which has been successfully effected by the Government, and by private owners, up to the 30th June, 1917.

Bores.	Flowing.	Pumping.	Total.	Total Depth.
				feet.
For Public Watering-places, Artesian Wells, etc.	124	31	155	320,970
For Country Towns Water Supply ... ..	2	1	3	4,354
For Improvement Leases ... ..	39	3	42	66,287
Total, Government Bores ... ..	165	35	200	391,611
Private Bores... ..	222	69	291	423,837

The average depth of Government bores is 1,958 feet, and of private bores, 1,456 feet, and they range from 89 to 4,338 feet.

The deepest wells in New South Wales are in the county of Stapsylton, one at Baronga having a depth of 4,338 feet and a daily outflow of 958,784 gallons; and another at Dolgelly having a depth of 4,086 feet, and an outflow of 577,930 gallons per day. The largest outflow at the present time is at the Wirrah bore, in the county of Benarba, which yields 1,205,190 gallons a day, and has a depth of 3,578 feet.

Of the 541 bores which have been sunk, 387 are flowing, and give an aggregate discharge of 95,427,215 gallons per day; 104 bores give a pumping supply, the balance of 50 being failures.

The flow from seventy-three 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 38,125,605 gallons per day, watering an area of 4,421,461 acres by means of 2,702 miles of distributing drains. The average rating by the bore trusts to repay the capital cost, with 4 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; but, what is perhaps of 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 has been determined that the multiplicity of bores is the chief factor governing the annual decrease in bore flows, also that the limitation of the discharge of water from a bore will prolong its existence as an efficient flow; action has been taken, therefore, to prevent any waste by the control of the bore-flow, and by its adjustment to actual needs. It is anticipated that this action will materially reduce the rate of decrease in the future.

#### *Shallow Boring.*

The scheme described fully in the last issue of the Year Book, for assisting settlers by sinking shallow bores, has met with considerable success.

Operations were commenced with one plant only, and the number has been increased gradually until fifteen are at work; but it is probable that these will be insufficient to cope with the demand, owing to the large number of applications from settlers wishing to take advantage of the liberal conditions offered under the regulations.

Out of 108 bores undertaken up to the 30th June, 1917, 11 have proved failures. The cost to the settler has been on the average about 9s. 6-4d. per foot, the settler supplying wood and water.

The added value of the holdings represented by the bores is considerably in excess of their cost, and in several instances the Government Savings Bank, on the completion of a bore, has made a sufficient advance to enable the settler to pay the total cost in cash.

In addition to the work conducted under the shallow-boring regulations, three plants are engaged in sinking bores on Crown lands in the Pilliga Scrub for the Lands Department and Forestry Commission. The fact that

twenty-five of the bores put down in the Pilliga Scrub are giving a flowing supply is of special interest, as it indicates the possibility of tapping a small and hitherto unknown artesian basin.

#### *Private Artesian Bores.*

Much has been done in the way of artesian boring by private enterprise. As far as can be ascertained, 318 private bores have been undertaken in New South Wales, of which twenty-seven were failures. The yield of the flowing bores is estimated at over 40 million gallons per day. No data are available regarding the pumping bores.

#### PROJECTED IRRIGATION SCHEMES.

The Water Conservation and Irrigation Commission are investigating schemes for storing water for purposes of irrigation on the Darling, the Lachlan, the Macquarie, the Hunter, the Namoi, the Peel, and the Warragamba Rivers.

#### *The Murray River.*

The River Murray Waters Act was brought into operation on the 31st January, 1917. Its principal objective is the storage of 1,000,000 acre-feet of water in a dam to be constructed on the Upper Murray, above the town of Albury, conjointly by the Governments of New South Wales and Victoria. Combined investigation by the two States has been in progress for some years, in order to determine the most suitable site for the construction of this great barrage. A number of proposed sites have been tested, but no decision has been made.

The river-course will not be locked from the storage-dam to Echuca, situated on the southern bank of the Murray, but between that town and 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. Above Wentworth the weirs and locks will be constructed conjointly by New South Wales and Victoria, and below Wentworth by South Australia. The Act provides also for the construction of locks and weirs on the Murrumbidgee River, from its junction with the Murray to Hay; or, alternately, for an equivalent expenditure of £540,000, upon locking the river Darling from its junction with the Murray upwards. A system of storage, the control of which is to be vested in South Australia, will be provided in Lake Victoria.

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 interested States the balance in equal shares.

The effect of creating the River Murray storage system will be to ensure at all times sufficient flow below Albury for diversions for irrigation, and for stock and domestic supplies, besides making good the losses in the water 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 parent stream 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-dam, will amount at least to 120,000

acre-feet per month at Albury during the irrigation season, except in a period of phenomenal drought. An investigation is now being made of the manner in which the New South Wales proportion of the Murray waters can be most profitably applied, but no conclusion has yet been reached.

#### *The Darling River.*

A preliminary investigation has been made of the Darling River, which shows that the most suitable site for the storage of large volumes of water for irrigation purposes is in the lake system to the east of the river. This comprises Lakes Boolaboolka, Ratcatcher, and Victoria, and a number of other lakes (seventeen in all) fed from the river in high floods from the Talyawalka Creek, which takes off from the river about 260 miles above Menindie. Further investigation is required to determine the area which can be commanded from this storage. The question of establishing a small irrigation area in the vicinity of Menindie by direct pumping from the river has also received attention.

#### *The Lachlan River.*

The construction of a storage reservoir at Wyangala, below the confluence of the Abercrombie River, has been investigated, with the intention of affording water in the river-channel for pastoral purposes and for the irrigation of small areas along the river banks by pumping. A proposal is also being investigated for the increase of the storage in Lake Cudgellico, which is fed from the Lachlan River, and for the pumping thence of the water for the irrigation of an area of about 5,000 acres adjacent to the lake. The possibility of regulating the amount of water lost in numerous effluent creeks is being considered, so that the best use may be made of the Lachlan River water.

#### *The Macquarie River.*

The construction of a storage reservoir has been proposed on this river at Burrendong, below the confluence of the Cudgong River, for the purpose of affording water by gravitation for the irrigation of certain lands to the west of Narromine. Smaller schemes for the construction of storage dams at White Rock and on Campbell's River, at Bathurst, have also received consideration. The run-off from this catchment is somewhat uncertain, and before giving consideration to the construction of any State irrigation scheme further investigation is necessary.

#### *The Hunter, Namoi, and Peel Rivers.*

Pumping by private irrigators under the Water Act is increasing at such a rapid rate that in the case of some of the rivers, such as the Peel and the Hunter, it will not be possible to supply the pumps in dry seasons until head storage works have been constructed. Surveys have been completed for storage-dams on the Hunter and Peel Rivers, and for a dam on the Namoi River above Manilla.

*The Warragamba River.*

The Warragamba project will serve the dual purpose of amplifying the Sydney Water Supply and of irrigating the best lands in the Nepean Valley. The rate of increase in the population of the metropolitan area during recent years, if maintained, will in a short space of time cause the consumption of water to overtake the capacity of the present catchment area of the Sydney water supply. The next available source of supply will then be the Warragamba River, and a scheme for the storage of this water has been prepared. It is proposed to construct a large storage-dam capable of supplying about 200 million gallons daily for domestic irrigation, and trade purposes, and for compensation water. Surveys have been made and details prepared, and the scheme has been submitted to the Public Works Committee.

## PASTORAL INDUSTRY.

## LIVE STOCK.

No systematic record of the arrival of live stock was kept in the early days of settlement in New South Wales; but it appears that in the period between Governor Phillip's landing in 1788 and the year 1800 there were some small importations, chiefly of sheep from India. The numbers of each class of stock at various periods up to 1850, prior to the separation of Victoria, were as follow :—

Year.	Horses.	Cattle.	Sheep.	Swine.
1788	7	6	29	12
1792	11	23	105	43
1796	57	227	1,531	1,869
1800	203	1,044	6,124	4,017
1825	6,142	134,519	237,622	39,006
1842	56,585	897,219	4,804,946	46,086
1850	132,437	1,738,965	13,059,324	61,631

In 1851 the severance of Victoria from New South Wales reduced the number of stock considerably; the separation of Queensland at the close of 1859 involved a further reduction, and at the end of the latter year the numbers of each kind of live stock within the existing boundaries of New South Wales were 214,684 horses, 2,190,976 cattle, 5,162,671 sheep, and 119,701 pigs.

The following table shows the number of stock at the end of each decennial period from 1861 to 1911, also at the 30th June, 1917 :—

Year.	Horses.	Cattle.	Sheep.	Swine.
1861	233,220	2,271,923	5,615,054	146,091
1871	304,100	2,014,888	16,278,697	213,193
1881	398,577	2,597,348	36,591,946	213,916
1891	469,647	2,128,838	61,831,416	253,189
1901	486,716	2,047,454	41,857,099	265,730
1911	689,004	3,194,236	44,947,287	371,093
1917*	733,791	2,765,943	36,193,383	359,763

\* At 30th June.

In addition to the live stock shown above at the 30th June, 1917, there were 39,310 goats (including 7,365 Angora), 2,434 camels, 147 donkeys, 198 mules, and 560 ostriches. Since 1891 the sheep have diminished in number to the extent of nearly 26 millions, but the other classes of stock show the following increases, namely :—Horses 264,000, cattle 637,000, and swine 106,000.

Particulars of rural industry now relate to the twelve months ended 30th June ; for 1913 and earlier years the pastoral and dairying statistics were for the calendar year. In order to indicate the Divisions in which the changes in flocks and herds have occurred, the following table has been prepared, and shows the number of live stock in each Division at the end of various years since 1901 :—

Division.	1901.	1906.	1911.	†1916.	†1917.
<b>SHEEP—</b>					
Coastal Belt ... ..	1,097,471	1,316,580	1,433,037	1,110,511	1,021,926
Tableland ... ..	8,859,069	8,842,352	8,961,344	6,583,312	6,784,136
Western Slope ... ..	11,071,524	11,675,425	11,198,621	8,655,530	9,286,840
Central Plains and Riverina ... ..	14,578,523	15,998,996	16,048,376	12,047,361	13,921,213
Western Plains ... ..	5,522,353	6,299,068	7,305,909	4,204,015	5,202,268
Unclassified ... ..	127,559	.....	.....	.....	.....
<b>Total ... ..</b>	<b>41,857,099</b>	<b>44,182,421</b>	<b>44,947,287</b>	<b>32,600,729</b>	<b>36,196,388</b>
<b>DAIRY COWS IN MILK—</b>					
Coastal Belt ... ..	284,099	355,238	492,242	345,398	333,854
Tableland ... ..	70,224	66,745	70,371	31,875	34,598
Western Slope ... ..	39,732	49,062	48,669	28,377	32,267
Central Plains and Riverina ... ..	19,790	21,178	24,137	13,123	21,318
Western Plains ... ..	3,990	2,657	2,906	1,954	1,996
<b>Total ... ..</b>	<b>417,835</b>	<b>494,820</b>	<b>638,525</b>	<b>426,227</b>	<b>424,033</b>
<b>OTHER CATTLE.</b>					
<i>Coastal Belt—</i>					
Dry Cows ... ..	667,282	100,919	136,790	203,826	207,792
Heifers (springing) ... ..		25,052	23,755	50,537	59,794
* All other ... ..		709,484	915,602	786,534	835,760
<b>Total ... ..</b>	<b>667,282</b>	<b>836,055</b>	<b>1,076,147</b>	<b>1,040,897</b>	<b>1,103,346</b>
<i>Tableland—</i>					
Dry Cows ... ..	500,974	26,440	31,207	50,111	50,173
Heifers (springing) ... ..		7,213	5,178	18,010	20,690
* All other ... ..		468,574	549,374	339,451	408,722
<b>Total ... ..</b>	<b>500,974</b>	<b>502,227</b>	<b>586,259</b>	<b>398,572</b>	<b>479,585</b>
<i>Western Slope—</i>					
Dry Cows ... ..	305,789	25,199	26,112	33,697	32,217
Heifers (springing) ... ..		7,051	3,849	12,690	17,125
* All other ... ..		365,980	422,273	231,754	320,609
<b>Total ... ..</b>	<b>305,789</b>	<b>398,230</b>	<b>452,234</b>	<b>278,141</b>	<b>369,951</b>
<i>Central Plains and Riverina—</i>					
Dry Cows ... ..	114,327	15,409	20,153	23,670	25,251
Heifers (springing) ... ..		4,367	3,437	9,487	12,592
* All other ... ..		204,901	302,103	159,310	262,477
<b>Total ... ..</b>	<b>114,327</b>	<b>224,677</b>	<b>325,693</b>	<b>192,467</b>	<b>300,320</b>
<i>Western Plains—</i>					
Dry Cows ... ..	41,247	4,921	4,331	6,064	3,797
Heifers (springing) ... ..		1,058	1,407	1,400	1,168
* All other ... ..		87,956	109,640	62,002	83,743
<b>Total ... ..</b>	<b>41,247</b>	<b>93,935</b>	<b>115,378</b>	<b>69,466</b>	<b>88,708</b>
<i>New South Wales—</i>					
Dry Cows ... ..	1,629,619	172,888	218,593	317,368	319,280
Heifers (springing) ... ..		45,341	37,626	92,124	111,369
* All other ... ..		1,836,895	2,299,492	1,570,051	1,911,311
<b>Total ... ..</b>	<b>1,629,619</b>	<b>2,055,124</b>	<b>2,555,711</b>	<b>1,979,543</b>	<b>2,341,910</b>
<b>Horses—</b>					
Coastal Belt ... ..	160,704	171,485	207,074	221,538	219,346
Tableland ... ..	112,294	110,077	120,602	125,070	126,719
Western Slope ... ..	110,845	130,947	179,728	187,306	192,655
Central Plains and Riverina ... ..	77,650	97,009	140,140	154,744	163,079
Western Plains ... ..	25,223	28,244	35,460	30,884	31,992
<b>Total ... ..</b>	<b>486,716</b>	<b>537,762</b>	<b>680,004</b>	<b>719,542</b>	<b>732,791</b>

\* Including heifers, other than "springing."

† At 30th June.

## SHEEP.

The suitability of the country for grazing was undoubtedly the inducement which led the early colonists to enter upon pastoral pursuits; and the relative ease with which operations could be conducted, in comparison with the difficulties attendant upon other primary industries, confirmed their choice.

In the year 1795, Captain John Macarthur, one of the first promoters of sheep-breeding in New South Wales, had accumulated a flock of a thousand sheep. He was not, however, satisfied with the natural increase of his flocks, but sought also to improve the quality of their fleeces. By good fortune, in 1797 Captain Waterhouse arrived from the Cape of Good Hope with a number of very fine Spanish-bred sheep, which he sold to various stockowners, and some were acquired by Macarthur. With the advantage of this superior stock, the latter gradually improved the strain of his flock, and in a few years he obtained fleeces of very fine texture.

Prior to the nineteenth century the production of the finest wool had been fostered chiefly in Spain, so that woollen manufactures were necessarily somewhat restricted, and it was at this favourable period that Macarthur arrived in England with specimens of the wool obtained from his finest sheep, proving conclusively the capabilities of Australia as a wool-producing country. In this way he established a small trade, which, as Australian wool rose in public estimation, gradually increased until it reached its present enormous dimensions; so that, although not the first to introduce merino sheep into Australia, there is no doubt that to him is due the credit of having been the first to prove that the production of fine wool could be made a profitable industry in this country.

As might have been anticipated, natural conditions in Australia somewhat varied the character of the Spanish fleece. The wool became softer and more elastic, and although diminishing in density it gained in length, so that the weight of the fleece has increased. The quality of the wool improved under the influence of the climate, and now the Australian variety is recognised as the best in the world.

The following table shows the number of sheep at the close of each quinquennial period from 1861 to 1911, and at 30th June, 1916 and 1917, and illustrates the progress of sheep-breeding in New South Wales.

Year.	Sheep.	Year.	Sheep.	Year.	Sheep.
1861	5,615,054	1881	36,591,946	1901	41,857,099
1866	11,562,155	1886	39,169,304	1906	44,132,421
				1911	44,947,287
1871	16,278,697	1891	61,831,416	1916*	32,600,729
1876	25,269,755	1896	48,318,790	1917*	36,196,323

\* At 30th June.

In view of the unimproved condition of the pasturage over a great portion of its area, it became apparent in 1891 that the State was overstocked, and graziers restricted the natural increase of their flocks by breeding only from the better-class ewes. In addition, the following season proved unfavourable, so that during the year there was a large decrease in the number of sheep. The adverse season of 1892 was, unfortunately, the forerunner of many others, so that with the exception of the year 1900, the whole period up

to 1902 was distinctly unfavourable to the pastoral industry. The climax was reached during the 1902-3 season, which was particularly disastrous. The number of sheep fell from 41,857,099 at the beginning of 1902 to 26,649,424 at its close. In 1903 the flocks increased by little more than 2 millions, and as the number of lambs marked during the year exceeded 7 millions, there is abundant evidence that further heavy losses of grown sheep occurred during the early part of the year, when they could not have exceeded in number 25 millions, or 37 millions less than in 1891.

From 1902 there was a steady increase in the number of sheep until 1909, when it had risen to 46,202,578, the highest recorded since 1898. From 1909 to 1916 the flocks decreased considerably, the principal causes being heavy losses in lambs and grown sheep through drought, the subdivision of large holdings, and the development of the dairy industry.

The decrease in the total was accompanied by great changes in the size of individual flocks, and these changes may be traced in the following table, which gives an approximate classification of the flocks for various years, from 1891 to 1917; the number of sheep at the 30th June, 1917, being about three and a half millions in excess of those depastured in the previous year. In the former year there were only 13,187 holdings, but at 30th June, 1917, they numbered 24,420, although the sheep had decreased by over 25 millions. It is significant that while in 1891 there were 73 holdings which each carried over 100,000 sheep, the number of such in 1901 was 12, and in 1917 only 4. The sheep in flocks of over 20,000 comprised 62 per cent. of the total in 1891, but only 22.5 per cent. in 1917, while for 1891 the flocks under 2,000 comprised 9.3 per cent. of the total sheep compared with 26.2 per cent. in 1917. The greatest change has occurred since 1894, when a very large number of sheep perished, and pastoralists realised that the best method of meeting seasons of drought lay in the subdivision of their large flocks. Since 1904 the application to large estates of the closer settlement policy has caused a further subdivision of the flocks.

Size of Flocks.	Number of Flocks.				Number of Sheep.			
	1891.	1901.	1911.	1917.†	1891.	1901.	1911.	1917.†
1—1,000 ...	7,606	11,800	17,773	17,388	2,794,751	3,797,114	5,252,546	4,906,894
1,001—2,000 ...	1,954	2,351	3,510	3,222	2,979,168	3,560,849	5,149,018	4,584,066
2,001—5,000 ...	1,696	1,722	2,735	2,376	5,493,942	5,519,008	8,554,299	7,263,852
5,001—10,000 ...	686	729	847	781	4,943,221	5,210,117	5,977,233	5,380,330
10,001—20,000 ...	495	465	507	419	7,056,580	6,666,429	7,143,273	5,900,551
20,001—50,000 ...	491	344	296	202	15,553,774	10,552,373	8,737,927	5,789,363
50,001—100,000 ...	186	76	53	28	12,617,206	4,835,547	3,434,698	1,850,872
100,001 and over ...	73	12	6	4	10,392,774	1,588,103	697,093	520,455
Total ...	13,187	17,499	25,727	24,420	61,831,416	41,857,099*	44,947,287	36,196,383

\* Includes 127,559 sheep in unclassified flocks.

† 30th June.

After allowing for the causes which naturally impede the increase, such as the demands of the local meat supply, the requirements of the neighbouring States and countries oversea, and the losses occurring from causes other than drought, it is found that the rate of annual increase has been as high as 20 per cent., so that it is possible for the flocks of New South Wales to double themselves within four years, and actual experience shows that this rate of increase occurred in 1904, and in several of the earlier periods. During the five-years' period 1861-6 there was an increase of 100 per cent.; and the flocks of the State were again doubled in the eight years from 1866 to 1874, and in the thirteen years from 1874 to 1887.

The following table shows the approximate number of sheep in each State of Australia during the 1917-18 season, together with the proportion of the total depastured:—

State.	Sheep.	Proportion owned in each State.
	No.	per cent.
New South Wales ... ..	*38,000,000	45.30
Victoria ... ..	14,760,013	17.60
Queensland ... ..	17,204,268	20.51
South Australia ... ..	*5,700,000	6.80
Northern Territory ... ..	*50,000	.06
Western Australia ... ..	6,454,957	7.69
Tasmania ... ..	1,711,116	2.04
Commonwealth ... ..	83,880,354	100.00

\* Subject to revision.

The introduction of sheep and cattle into New South Wales was forbidden for many years, lest the flocks and herds might be contaminated by scab and various diseases prevalent in other countries; but these restrictions were removed at the beginning of the year 1888, and pure-bred sheep are now imported from the United Kingdom, and from other countries. So far, the principal breed imported has been the Merino; but Lincoln, Leicester, Border Leicester, and Romney Marsh, representing the long-woolled varieties, have been introduced on a large scale. Southdowns, Shropshire, Hampshire, Suffolk, and Dorset Horn are the principal importations of short-woolled breeds or those representing the "Downs" family. The Vermont—a type of American merino—was introduced in large numbers, but, after being tried extensively, this breed was found to be unsuited to Australian conditions, and in consequence it has lost favour with breeders. During the year ended 30th June, 1918, the sheep imported from Great Britain numbered 22, and included one Rambouillet ram and a ewe of the same variety, besides 3 rams and 17 ewes of the Dorset Horn breed.

The principal breeds of sheep in New South Wales are the celebrated short-woolled Merino strain, Downs, and varieties of long-woolled English sheep, notably the Lincoln, the Leicester, the Border Leicester, and the Romney Marsh, together with crosses of the long-woolled breeds, mainly with the Merino. Suffolk sheep, which appear to be pre-eminently adapted for farming purposes, and for the production of weighty lambs for the export trade, were introduced into the New England district during 1904, but in the majority of the districts in which raising of early-maturing lambs is an important factor, the Dorset Horn breed has given exceptionally good results. At the close of 1917, the numbers of merino and cross-breeds were

as shown below, the figures being based on returns collected for assessment purposes by the Chief Inspector of Stock, are apparently below the actual number depastured.

Class of Sheep.	Rams.	Ewes.	Wethers.	Lambs.	Total.
Merino ... ..	372,912	14,625,291	6,418,419	5,068,893	26,485,515
Other Breeds— Coarse Wool	152,099	5,188,481	2,243,424	3,385,861	10,969,865
Total ... ..	525,011	19,813,772	8,661,843	8,454,754	37,455,380

Lincolns, and their crosses with Merinos, constitute the largest proportionate number of coarse-woolled varieties. The proportion of English and cross-bred sheep has increased considerably during more recent years. In 1893 the ratio of coarse-woolled and cross-breds rose from about 2½ to 4·3 per cent., but with the development of the meat-export trade it has since advanced to 29·3 per cent.

On account of the mildness of the climate the necessity of housing stock during the winter months, except on the highlands, does not exist in New South Wales. The sheep are kept either in paddocks or under the care of shepherds, although on some stations both methods are followed concurrently.

The paddocking system has many advantages, which are now fully recognized by stockowners. Paddocked sheep thrive well, and are less liable to foot-rot and other diseases; they grow a better fleece, and the wool is sounder and cleaner; the animal increases in size and lives longer; and the working expenses are less than those of the management of a station under any other system.

The increased attention paid to cross-breeding in order to supply the demands of the frozen-mutton trade, and the large increase in the number of settlers on small and moderate-sized holdings who combine grazing with agriculture, have together emphasised the necessity of conducting experimental breeding on a scientific basis, and of providing instruction for sheep-farmers. To meet this necessity a sheep and wool expert of the Department of Agriculture organises the class work conducted at State experiment farms, delivering lectures and giving demonstrations in country centres.

Cross-breeding experiments, which were commenced during 1910, are proceeding on a comprehensive scale at the Wagga, Cowra, Bathurst, and Glen Innes Experiment Farms, the work being carried out especially in the interests of the farmer or small grazier, who has the facilities for breeding high-priced lambs. The Merino has been taken as a base, and both the long and the short woolled breeds have been used with the object of obtaining the most desirable characteristics of each group by crossing, so that all these qualities may be incorporated in a single strain. In the first step in the evolution of a dual-purpose sheep for wool and for mutton long-woolled rams were mated with Merino ewes. Then the early maturing and exceptional mutton qualities of the short-woolled varieties—Southdowns, Shropshires, and Dorset Horns—were utilised by mating rams of these breeds with the cross-bred ewes, for the production of a lamb suitable both for local consumption and for shipping. The experiments are receiving considerable attention, but the final results cannot be obtained for some years.

#### WOOL.

The prosperity of New South Wales depends very largely on the conditions of the wool market of the world, hence the wool-clip constitutes the most

important event of the year in the production of the State. The following table shows the production in quinquennial periods since 1876, distinguishing the exports and the local consumption. The exports comprise both washed and greasy wool, but the actual weight of exports does not show the production clearly with regard to quantity. The proportion of washed and greasy wool varies with each year, and the washed wool should be stated, therefore, as in grease; this course has been followed in the presentation of the subjoined table.

The quantity of the staple used locally in woollen mills has been added to the quantity exported to ascertain the total production, stated as in the grease. Since the collection of interstate trade statistics was discontinued in September, 1910, it has been necessary to rely solely on the particulars of production as disclosed in the Agricultural and Pastoral returns. The amount of wool used locally is known, so that the difference between this quantity and the total production represents the quantity exported, or available for export, either to oversea ports or to the other Australian States. It does not follow that the wool of any particular season is exported during that season, and this applies more particularly to the last three years, during which shipping facilities have been limited, and large quantities of wool have been held in store pending opportunities of shipment. The particulars of wool production (stated as in the grease) are as follow:—

Period.	New South Wales Wool.—Quantity.			Value.		
	Exported, or available for Export.	Used Locally.	Total Production.	Exported, &c.	Used Locally.	Total Value (F.O.B., Sydney).
	lb.	lb.	lb.	£	£	£
1876-1880	713,518,500	4,878,500	718,397,000	31,076,350	222,250	31,298,600
1881-1885	939,605,700	4,208,300	943,814,000	40,381,380	181,720	40,563,100
1886-1890	1,290,919,900	3,861,100	1,294,781,000	44,641,580	130,920	44,772,500
1891-1895	1,808,007,600	5,622,400	1,813,630,000	48,893,010	131,590	49,024,600
1896-1900	1,401,170,000	7,070,000	1,408,240,000	42,782,450	201,250	42,983,700
1901-1905	1,297,118,300	5,466,700	1,302,585,000	46,528,630	190,470	46,719,100
1906-1910	1,811,746,400	5,415,600	1,817,162,000	73,437,200	172,800	73,610,000
1911	369,144,000	2,402,000	371,546,000	13,178,000	86,000	13,264,000
1912	324,384,000	2,420,000	326,804,000	12,727,000	96,000	12,823,000
1913	355,501,000	2,484,000	357,985,000	14,237,500	99,500	14,337,000
1914*	130,310,000	1,500,000	131,810,000	5,244,000	60,000	5,304,000
1915†	314,765,000	4,170,000	318,935,000	12,058,000	170,000	12,228,000
1916†	255,578,000	6,467,000	262,045,000	12,010,000	281,000	12,291,000
1917†	263,968,000	6,557,000	270,525,000	17,453,000	297,000	17,750,000

\* Six months—January to June. † Year ended 30th June.

The values given in this table represent the export prices free on board, Sydney, and consequently differ from those on a later page, which show the values at the place of production. As particulars of the interstate trade have not been collected since the 13th September, 1910, the subsequent figures are approximate.

Prior to 1876 no distinction was made between washed and greasy wool, so that any attempt to estimate the production is surrounded with difficulty. From the information available, it would appear however, that the production in 1861 was 19,254,800 lb., and in 1871 the weight in grease was 74,401,300 lb. An estimate of the production for the intervening years is rendered impossible because in several instances the greater portion of the wool clip was held over for a considerable period, awaiting an opportunity for shipment.

In this connection it must be conceded that all estimates must be more or less approximate, as wool in grease varies greatly, and one lot may in scouring lose between 40 or 50 per cent. as against the loss of another lot between 50 and 60 per cent. Such variations must necessarily be co-ordinated with variations in weight and value; but as the same proportion of wool in grease has been taken over an extended period, the foregoing table can be accepted as a basis of comparison.

The above figures show how greatly the prosperity of the State is affected by fluctuations in the market value of its staple export. If, for instance, the average annual production during the past three years be taken at 283,835,000 lb., a rise of 1d. per lb. in the market price would mean an addition of £1,182,650 to the wealth of the people.

The season for exporting wool does not fall wholly within the calendar year, and the exports for any year consists partly of that season's clip and partly of the previous season's clip.

The following table shows the total number of sheep shorn, according to the returns collected by the Chief Inspector of Stock, during each year since 1891.

Year.	Sheep and Lambs shorn.	Year.	Sheep and Lambs shorn.	Year.	Sheep and Lambs shorn.
1891	57,702,702	1900	38,400,241	1909	43,356,535
1892	55,602,188	1901	40,417,263	1910	43,179,065
1893	54,090,109	1902	27,639,804	1911	42,468,227
1894	54,234,997	1903	26,994,870	1912	36,243,837
1895	45,695,657	1904	31,804,772	1913	38,454,612
1896	45,997,583	1905	37,145,686	1914	34,547,358
1897	42,429,750	1906	41,704,814	1915	30,531,037
1898	41,220,440	1907	40,338,700	1916	31,923,915
1899	34,569,924	1908	41,912,546	1917	35,739,125

### WOOL SALES.

Almost all the wool exported was formerly shipped on the grower's account and sold in London, but during recent years over 85 per cent. has been sold in the Sydney market, as purchasers have realised the advantages of buying on the spot. The following table exhibits the growing tendency to operate in Sydney.

Seasons.	Total deep-sea exports (from Sydney and Newcastle).	Sydney Wool Sales.		
		Offered.	Sold at auction and privately.	Proportion of deep-sea exports sold in Sydney.
	bales.	bales.	bales.	per cent.
1887-88—1889-90	1,318,351	764,520	580,000	43-99
1890-91—1892-93	1,823,085	1,093,766	886,541	48-63
1893-94—1895-96	2,158,220	1,382,517	1,241,858	57-54
1896-97—1898-99	1,971,513	1,318,579	1,294,373	65-65
1899-1900—1901-02	1,766,922	1,330,747	1,309,915	74-14
1902-03—1904-05	1,549,598	1,232,819	1,252,817	80-85
1905-06—1907-08	2,356,811	1,969,061	1,939,916	82-31
1908-09—1910-11	2,771,200	2,265,155	2,364,555	85-33
1911-12	897,814	788,794	779,099	86-78
1912-13	773,458	665,978	669,235	86-53
1913-14	853,323	780,977	779,397	91-34
1914-15	732,810	553,269	549,955	75-05
1915-16	840,515	688,207	707,046	84-12
1916-17	590,372	716,110	705,676	.....*

\* A large quantity of the wool was awaiting shipment at the 30th June, 1917.

Of the wool sold in Sydney during the 1916-17 season, 7,379 bales were the product of other Australian States. On the other hand 134,093 bales of New South Wales wool were sold in other Australian markets.

The proportions of fleece and lamb's wool sold in the Sydney markets were 93.45 per cent. and 6.55 per cent. respectively; only 10.88 per cent. of the wool was scoured.

The great bulk of wool sold in New South Wales is merino, and during 1916-17 it represented 78.86 per cent. of the total wool sold at Sydney.

The average prices per bale realised in Sydney and in London since the year 1908 are shown in the following table :—

Year.	Average Prices per Bale realised.		Year.	Average Prices per Bale realised.	
	In Sydney. Year ended 30th June.	In London. Year ended 31st December.		In Sydney. Year ended 30th June.	In London. Year ended 31st December.
	£ s. d.	£ s. d.		£ s. d.	£ s. d.
1908	13 8 8	13 5 0	1913	13 12 10	16 10 0
1909	11 16 9	15 0 0	1914	13 6 6	17 0 0
1910	13 17 1	16 5 0	1915	12 6 2	19 0 0
1911	12 11 6	15 0 0	1916	14 14 8	27 0 0
1912	12 0 5	15 0 0	1917	19 19 2	...

In comparing the prices of the Sydney and London markets, it should be noted that in the former the season ends with June and in the latter with December, also that a much larger proportion of the lower qualities of wool, such as pieces, bellies, locks, etc., are sold in Sydney.

#### THE IMPERIAL WOOL PURCHASE SCHEME.

Details of the scheme under which the Imperial Government purchased Australian wool during 1916-17 were shown in the previous issue of this Year Book; similar arrangements were made for the acquisition of the wool of the season 1917-18; and subsequently the Imperial Government decided to extend the purchase of the Australian wool clip for the period of the war and for one wool year thereafter.

The management of the scheme in Australia is controlled by the Central Wool Committee, consisting of a chairman, nominated by the Commonwealth Government, two representatives of the wool growers, three representatives of the selling brokers, respectively of Sydney, Melbourne, and Adelaide, one representative each of the manufacturers, the scourers, and the buyers, and a secretary. Committees have been formed in each State, also on a similar basis.

The wool is purchased by appraisalment at a price which was decided at the initiation of the scheme by representatives of the various interests concerned, and was fixed at 15½d. per lb. in the grease. With the object of returning to the wool-growers this average rate, a Clean Cost Basis, divided into 381 different types of wool was established; but at the commencement of the 1917-18 season it was superseded by a Table of Limits, consisting of 848 distinct types, which allows more accurate classification of the various types of wool, and at the same time makes provision for any unusual features in the clip.

Payment for the wool is made shortly after appraisalment, an amount equal to 10 per cent. of the appraised value being retained to meet any contingency that might arise from over-valuation of the wool. Sales of interest in the wool pool and speculation in wool equities are not permitted.

The total quantities of greasy and scoured wool submitted for appraisal in Australia during the 1917-18 season and the appraised value are shown below:—

Wool.	Quantity of Wool Appraised.				Appraised Value.	
	Bales.	Fadges.	Sacks.	Total Weight.	Total.	Average per lb.
	No.	No.	No.	lb.	£	d.
Greasy ...	1,672,483	18,630	206,269	569,629,520	35,577,155	14·98
Scoured...	201,924	713	768	47,340,403	5,054,136	25·62
Total ...	1,874,407	19,343	207,037	616,969,923	40,631,291	14·68

Thus the average price of wool appraised in a greasy state was 14·98d. per lb. and of scoured wool 25·62d. per lb.; the average appraised price of all wool, calculated as in grease, was 14·68d. per lb. Assuming that, on the average, 2 lb. of greasy wool are required to produce 1 lb. of scoured, the wool appraised was equal to 664,310,326 lb. as in grease, and the total value at the flat rate of 15½d. per lb. would be £42,903,375; thus the appraised value was deficient by £2,272,084 or 5·3 per cent. A dividend of 5 per cent. was therefore paid to the wool-growers at the end of the season in August, 1918, in addition to 10 per cent. of the appraised value which had been retained to provide against over-valuation.

The quantity of wool appraised in New South Wales, calculated on a greasy basis, was 243,935,395 lb. and the appraised value was £15,306,167, or 13·94d. per lb; particulars regarding the appraisements in each of the States in 1917-18 are as follows:—

State.	Weight as in grease.	Appraised Value.	
		Total.	Average per lb.
	lb.	£	d.
New South Wales ...	243,935,395	15,306,167	13·94
Victoria ...	160,589,495	10,822,248	15·41
Queensland ...	101,379,752	7,744,305	15·66
South Australia ...	60,050,299	3,515,307	13·59
Western Australia ...	40,960,840	2,502,087	14·48
Tasmania ...	10,054,142	741,177	17·53
Total ...	616,969,923	40,631,291	14·68

To meet the requirements of local manufacturers 15,916,241 lb. of greasy and 1,143,742 lb. of scoured wool were purchased. Woollen manufacturers were required to pay only the appraised value for their purchases, which amounted to 13,185,745 lb. of greasy wool and 1,132,587 lb. of scoured; the appraised value, at an average price of 12·59d. per lb. (greasy), amounted to £810,747 or £45,337 less than the flat rate value.

Manufacturers of wool tops for export, who carry on operations under arrangements with the Commonwealth Government, whereby the latter receives a percentage of the profits, are required to pay the flat rate value for wool, the products—wool tops, noils, and waste—being sold on the parity of prices fixed by the Director of Raw Materials, London. During 1917-18 these manufacturers purchased 2,730,496 lb. of greasy and 11,155 lb. of

scoured wool, the flat rate value being £257,775 or 22.47d. per lb. (greasy). This quantity is exclusive of skin wool, the product of fellmongering operations, used in the manufacture of wool tops.

Particulars regarding the distribution of the 1917-18 wool are shown in the following statement:—

Purchased by—	Quantity of Wool.			Appraised Value.	
	Greasy.	Scoured.	Total weight, as in grease.	Total.	Average per lb. (as in grease)
	lb.	lb.	lb.	£	d.
Local Manufacturers of—					
Woolens ... ..	13,185,745	1,132,587	15,450,919	810,747	12.59
Wool Tops ... ..	2,730,496	11,155	2,752,806	244,124	21.28
Imperial Government ...	553,713,279	46,196,661	646,106,601	39,576,420	14.70
Total ... ..	569,629,520	47,340,403	664,310,326	40,631,291	14.68

The quantity of wool sold to the Imperial Government was 646,106,601 lb. as in grease, which at 15½d. per lb. amounted to £41,727,718, and a premium of £61,798 was added on account of the wool being of superior quality to the general average of the whole clip. A charge of ½d. per lb. to cover handling costs from warehouse to f.o.b., salaries of Government appraisers, remuneration of shipping houses, and other incidental expenses, amounted to £1,562,266 on the total weight of wool purchased by the Imperial Government.

The wool and other credits for the 1917-18 season were as follows:—

Imperial Government—	£
Wool Account ... ..	41,789,516
Handling Charges ... ..	1,562,266
Australian Manufacturers ... ..	1,068,522
Interest to 31st July, 1918 ... ..	61,945
	<u>£44,482,249</u>
Less Cost of Exchange ... ..	93,352
	<u>£44,388,897</u>

Particulars showing the quantity and destination of wool shipped, also the quantity stored for shipment, cannot be disclosed. The carry-over from the 1917-18 clip being considerable, commodious buildings are being erected for its storage.

The appraisement of sheep skins was undertaken by the Central Wool Committee during the seasons 1916-17 and 1917-18, but it has been decided to suspend this method and to purchase in the open market such skins as are required for naval and military purposes by the Director of Raw Materials. Sheepskins weighing 24,243,334 lb. were appraised during 1917-18 at a total value of £1,031,448.

#### CATTLE.

Though still a very important industry, cattle-rearing does not now occupy so prominent a position as formerly it did. The number of cattle returned at the close of various years since 1861, shows that there was a great decline in the total from 1876 to 1886, that the number steadily increased from 1886 to 1896, when it stood at 2,226,163, and subsequently, owing to unfavourable seasons, the number decreased until in 1902, the total fell to 1,741,226.

From 1902 the number increased to 3,194,236 in 1911, but at 30th June, 1917, it was 2,765,943, a total showing an increase of 360,173 on that of the previous year.

The following table exhibits the number of cattle depastured in the State at the close of each quinquennial period from 1861 to 1901, and thence for each year to 1913; the numbers of cattle depastured in 1915, 1916, and 1917 were for years ended the 30th June.

Year.	Cattle.	Year.	Cattle.	Year.	Cattle.
1861	2,271,923	1901	2,047,454	1909	3,027,727
1866	1,771,809	1902	1,741,226	1910	3,140,307
1871	2,014,888	1903	1,880,578	1911	3,194,236
1876	3,131,013	1904	2,149,129	1912	3,040,834
1881	2,597,348	1905	2,337,973	1913	2,822,740
1886	1,367,844	1906	2,549,944	1915*	2,477,592
1891	2,128,838	1907	2,751,193	1916*	2,405,770
1896	2,226,163	1908	2,955,934	1917*	2,765,943

\* At 30th June.

The principal breeds of cattle now in the State are the Durham or Shorthorn, Hereford, Devon, Black-polled, Ayrshire, Alderney, and Jersey, besides crosses from these various breeds. At the close of the year 1917 the numbers of each breed, as far as could be ascertained, were:—

Breed of Cattle.	Pure and Stud.	Ordinary.	Total.
Shorthorns ... ..	95,382	592,665	688,047
Hereford ... ..	31,261	131,934	163,195
Devon ... ..	7,434	30,561	37,995
Black-polled ... ..	2,990	13,107	16,097
Red-polled ... ..	1,725	2,922	4,647
Ayrshire ... ..	9,604	57,792	67,396
Alderneys ... ..	856	2,334	3,190
Guernseys ... ..	1,644	11,712	13,356
Holstein ... ..	698	5,732	6,430
Jersey ... ..	16,267	81,401	97,668
Kerry ... ..	54	.....	54
Highland ... ..	40	120	160
Crosses (first) ... ..	.....	1,687,322	1,687,322
	167,955	2,617,602	2,785,557
The crosses are estimated as follow:—			
Shorthorn—Hereford ... ..	.....	.....	318,369
Shorthorn—Devon ... ..	.....	.....	130,561
Shorthorn—Red-polled ... ..	.....	.....	421
Shorthorn—Guernsey ... ..	.....	.....	5,500
Hereford—Devon ... ..	.....	.....	53,743
Ayrshire—Shorthorn ... ..	.....	.....	211,581
Ayrshire—Jersey ... ..	.....	.....	8,050
Hereford—Black-polled ... ..	.....	.....	2,840
Black-polled—Shorthorn ... ..	.....	.....	70,617
Jersey—Shorthorn ... ..	.....	.....	51,963
Holstein—Jersey ... ..	.....	.....	110
Holstein—Ayrshire ... ..	.....	.....	210
Unrecognisable ... ..	.....	.....	833,417
Total ... ..	.....	.....	1,687,322

The foregoing table does not include the whole of the cattle, as large numbers, principally in the metropolitan centres and in the vicinity of towns, are not returned. As the statistical year now ends in June, it is impossible to estimate to what extent the figures are understated.

In 1916-17 the number of calvings recorded was 690,099, of which 499,292 or nearly 72 per cent. represented survivals.

There has been an appreciable increase in the number of dairy cattle, many of the farmers in the coastal districts having turned their attention to the dairying industry with very satisfactory results. The number of milch cows at 30th June, 1917, was 424,033, an unusually large number having been dried-off on account of drought conditions. In addition to the milking cows, there were 319,230 dry dairy cows, 111,369 heifers within 3 months of calving, and 167,665 other heifers.

The breed of cattle throughout the State is improving steadily—a result due to the introduction of good stud-stock; to the greater attention and care exercised in selection and breeding, more particularly for dairying purposes; to culling from the herds; and to keeping the cattle in paddocks. In order to encourage and assist dairy farmers in improving their breeds, the Government imported some high class stud-bulls from England, and these and their progeny are sold, or they are kept for service at the State farms.

Importations from Europe and America were discontinued for many years, owing to the natural dread of the stockowners lest their herds should contract diseases which have devastated the cattle of other countries. The prohibition was removed in 1888, and cattle are now admitted after quarantine; the number so admitted in 1917 was twenty-nine—twenty-two bulls and seven cows.

The exports of New South Wales cattle to countries oversea during 1916-17 numbered 154. Of these 128, valued at £2,759, were ordinary cattle, and 26, valued at £1,439, were cattle for stud purposes.

#### HORSES.

At an early period the stock of the country was enriched by the importation of some excellent thoroughbred Arabs, and Australian horses have thence acquired a high reputation. The number in the State steadily increased from 326,964 in the year 1883 to 518,181 in 1894; but, owing to the drought, the total fell in 1895 to 499,943. In 1896 there was an increase to 510,636, attributed to extension of settlement, greater attention being given to breeding, and a decline in the sales for export. By successive decrements the number of horses had fallen in 1902 to 450,125; but since that year there has been a substantial increase, and the number at the end of 1913 reached 746,170. On account of losses from drought, the total fell to 733,341 in 1915, and 719,542 in 1916, but with the improved weather conditions during the following season, the decrease was partly made up and the total number of horses in the State on the 30th June, 1917, was 733,791. There was a great advance in horse-breeding between 1910 and 1914 owing to the increased demand which arose as a consequence of widening settlement, prosperous seasons, and, more recently, to defence requirements.

The following table shows the number of horses in New South Wales at the end of quinquennial periods from 1861 to 1901, thence at the end of successive years from 1901 to 1913, and for the last three years at the 30th June.

Year.	Horses.	Year.	Horses.	Year.	Horses.
1861	233,220	1901	486,716	1909	604,784
1866	274,437	1902	450,125	1910	650,636
1871	304,100	1903	458,014	1911	689,004
1876	366,703	1904	482,663	1912	716,457
1881	398,577	1905	506,884	1913	746,170
1886	361,663	1906	537,762	1915*	733,341
1891	469,647	1907	578,326	1916*	719,542
1896	510,636	1908	591,045	1917*	733,791

\* At 30th Ju

For purposes of classification the State's equine stock has been divided into draught, light-harness, and saddle horses, and the number of each particular kind, at the 31st December, 1917, so far as could be ascertained from returns collected by the Stock Department, was as follows:—

Class.	Thoroughbred.	Ordinary.	Total.
Draught ... ..	31,677	251,227	282,904
Light-harness ... ..	11,334	130,498	141,832
Saddle ... ..	25,494	168,855	194,349
<b>Total ...</b>	<b>68,505</b>	<b>550,580</b>	<b>619,085</b>

New South Wales is specially suited to the breeding of saddle and light-harness stock, and it is doubtful whether in these particular classes the Australian horse can be anywhere surpassed. Thoroughbred sires are kept on many of the large holdings and the progeny of these stallions combine speed with great powers of endurance. Although fed only on the ordinary herbage, these animals constantly perform long journeys across difficult country, and become hardy and sure-footed to a high degree. The possession of these qualities gives them great value as army remounts.

The approximate number of animals fit for market is as follows:—Draught, 57,244; light-harness, 34,041; saddle, 41,837; total, 133,122. Of these it is estimated that about 28,365 are suitable for the Indian and other markets.

#### IMPORTATION OF HORSES.

During the year 1915-16 the horses imported from Great Britain numbered 83, all thoroughbred, with the exception of one Welsh cob; whilst a performing pony was imported from America. During the year 1916-17 the horses imported from Great Britain and America numbered 43, including 29 mares. During the year 1917-18 the number of blood horses imported from Great Britain was 46, of which 18 were mares. In this connection it is important to note that the Federal Customs Department does not keep a record of interstate movements of stock. Imported animals are subjected to quarantine.

#### EXPORTATION OF HORSES.

There is a considerable exportation annually to countries outside Australia, and the following table shows the number and the value of horses bred in New South Wales and sent to countries outside Australia in the years 1900, 1905, 1910, and 1916-17:—

Countries.	Number.				Value.			
	1900.	1905.	1910.	1917. *	1900.	1905.	1910.	1917. *
Burmah ... ..	...	95	85	...	£	£	£	£
Fiji ... ..	48	446	190	198	1,220	11,189	4,566	5,143
Hong Kong ... ..	5	404	...	...	115	15,021	...	...
India ... ..	1,688	1,922	925	2,887	18,521	42,774	20,522	56,165
New Zealand... ..	189	118	106	32	3,276	4,188	6,460	4,140
South Africa ... ..	7,714	8	1	...	124,485	1,780	25	...
Straits Settlements ... ..	295	121	42	93	7,440	3,110	6,645	2,245
China ... ..	1,489	85	1	...	41,600	2,041	60	...
Japan ... ..	...	1,631	31	15	...	26,495	1,620	750
Java ... ..	36	265	98	66	720	3,345	2,747	1,747
Philippine Islands ... ..	35	190	397	...	1,060	3,085	9,985	...
Other Countries ... ..	73	121	50	22	4,848	3,311	1,743	644
<b>Total ...</b>	<b>11,572</b>	<b>5,406</b>	<b>1,926</b>	<b>3,313</b>	<b>203,285</b>	<b>118,964</b>	<b>57,116</b>	<b>70,834</b>

\* Twelve months ended 30th June.

For many years India offered the best market for Australian-bred horses, but the trade shows great fluctuations.

The large number exported from New South Wales in 1900 was due to the despatch of mounted troops to the South African war; but, apart from this, and mainly on account of the greater local demand, there has been a considerable decrease in the exportation of horses for ordinary purposes. Since the commencement of hostilities in Europe large numbers have been exported, but particulars are not available.

#### VETERINARY EXAMINATION.

As a means of improving the standard of horses in the State, the Minister for Agriculture decided that all stallions so designated, and entered as competitors for prizes at annual shows connected with agricultural societies desirous of participating in the Government subsidy, should be subjected to veterinary examination, not only with the object of detecting hereditary unsoundness, but in order to decide general suitability for stud service. It was recognised, however, that the accomplishment of a general improvement necessitated compulsory regulation by the State authorities. To this end a system of examination and certification of stallions by Government veterinary officers was initiated in 1909; but it applies only to horses voluntarily submitted by owners for inspection. At first the horses examined were chiefly those submitted at shows held by agricultural and pastoral societies, but arrangements were subsequently made to hold parades at numerous centres throughout the State. Examination at such shows, except in the case of the annual exhibition held in Sydney by the Royal Agricultural Society, has been discontinued for several years.

Lists have been published giving the names of stallions for which certificates for life had been issued to the end of 1913; they include particulars respecting 862 draughts, 477 thoroughbreds, 386 trotters, 157 lights, and 548 ponies.

The scheme had been in operation but for a short period when the outbreak of war disturbed all the conditions, and therefore it is not possible to fore shadow the ultimate effect on the industry. But the scheme had already brought about some desirable results, such as depreciation in selling value of uncertificated stallions and corresponding increase in value of certificated; greater care in selection of animals for importation; and the practical education of owners with regard to various forms of unsoundness. Moreover, it prevented the exhibition of unsound horses, and ensured breeders the production of a certificate as to the status of sires at the time of service. In the course of the examinations the veterinary officers collected accurate information which should prove useful as a basis of future measures in connection with horse-breeding.

During the year ended 30th June, 1915, the number of stallions examined for certificates was 1,019, and of these 380, or 37½ per cent., were rejected, the principal causes, amounting to 25 per cent., being deficiency in type, breeding, and conformation. Since that period the examinations have been practically abandoned

The results of applications for certificates for the year ended 30th June, 1915, with the number of examinations and rejections of stallions as shown in classes, were as follow :—

Class.	Examined.	Rejected.	
		Number.	Per cent.
Draught ...	561	221	39·4
Light ...	261	98	37·5
Ponies ...	197	61	31·0
<b>Total ...</b>	<b>1,019</b>	<b>380</b>	<b>37·3</b>

The temporary discontinuance of veterinary examinations throughout the State was due to the departure of many veterinary officers of the Stock Branch on military service abroad. The examinations of stallions for Government certificates during the war have been limited to a few horses brought to the Stock Office in Sydney, and to those exhibited at the Royal Agricultural Society's annual Easter show. The latter have been conducted by the honorary veterinary officers of the Society, and an arrangement was made that any horses that passed such an examination should be eligible for the Government certificate.

The system of submitting stallions detailed above is purely voluntary, and cannot be regarded as satisfactory; there is, moreover, no means of prohibiting rejected animals from the performance of stud duty. To surmount these objections a Stallion Examination Bill has been prepared, which will make it compulsory for all horses coming under this definition to be submitted to the prescribed examination, annual licenses being issued for those passing the tests, and undesirable animals being debarred from further stud service. Similar legislation is contemplated in the other States of the Commonwealth, and in the Dominion of New Zealand.

#### LIVE STOCK IN PRINCIPAL COUNTRIES.

A comparison of the numbers of horses, cattle, sheep and swine in New South Wales and other countries is afforded by the subjoined table, the figures being the latest available.

Country.	Horses.	Asses and Mules.	Cattle.	Sheep.	Goats.	Swine.
Australia—						
New South Wales	*750,000	345	*2,900,000	*38,000,000	39,310	359,763
Victoria ...	514,061	†33	1,371,049	14,760,013	†27,939	323,159
Queensland ...	733,014	1,047	5,316,558	17,204,268	124,107	172,699
South Australia	257,422	4,452	288,887	*5,700,000	9,542	118,542
Northern Territory ...	21,674	264	420,362	*50,000	11,272	500
Western Australia ...	178,656	5,908	958,484	6,454,957	33,779	111,816
Tasmania ...	42,396	.....	197,938	1,711,116	.....	54,653
<b>Total ...</b>	<b>2,497,223</b>	<b>12,049</b>	<b>11,453,278</b>	<b>83,880,354</b>	<b>245,949</b>	<b>1,141,132</b>

\* Estimated, 1917-18. † Census, 1901.

LIVE STOCK IN PRINCIPAL COUNTRIES—*continued.*

Country.	Horses.	Asses and Mules.	Cattle.	Sheep.	Goats.	Swine.
New Zealand ...	373,600	320	2,575,230	26,354,594	6,836	283,770
United Kingdom ...	2,181,000	.....*	12,342,268	27,770,555	.....*	2,998,657
British Indies ...	1,564,935	1,454,973	120,658,081	23,280,662	30,900,309	.....*
Argentina ...	9,366,455	929,146	30,796,447	81,485,149	4,563,808	3,197,337
Austria ...	1,802,848	73,408	9,160,009	2,428,101	1,256,778	6,432,080
Belgium ...	267,160	11,000	1,894,484	185,000	218,000	1,412,293
Brazil ...	6,065,230	3,221,910	28,962,180	7,204,920	6,919,550	17,329,210
Bulgaria ...	478,222	130,726	1,606,363	8,669,260	1,464,719	527,311
Canada ...	3,412,749	.....*	7,920,940	2,369,358	.....*	3,619,382
Ceylon ...	4,161	.....*	1,518,009	85,169	185,749	61,000
Chile ...	442,642	75,874	1,869,053	4,557,800	385,941	258,025
Denmark ...	572,412	.....*	2,458,158	480,007	32,000	1,650,623
Egypt ...	34,403	543,447	492,650	687,696	263,200	8,580
France ...	2,282,560	474,695	12,443,304	10,586,594	1,177,000	4,202,280
Germany ...	3,341,624	13,000	21,462,071	6,167,469	3,438,296	2,763,610
Holland ...	334,445	232,000	2,301,532	520,275	232,478	1,185,438
Hungary ...	2,005,019	17,062	‡6,206,867	6,659,858	268,752	6,824,657
Italy ...	\$2,235,000	.....	‡6,646,000	‡13,824,000	...	2,722,000
Japan ...	1,579,517	.....*	1,387,922	2,768	97,396	333,276
Mexico ...	859,217	622,426	5,142,457	3,424,430	4,206,011	616,139
Norway ...	189,296	.....*	1,119,875	1,282,271	229,981	221,146
Roumania ...	299,406	12,000	1,049,702	1,655,110	84,197	371,205
Russia in Asia ...	11,346,000	.....*	17,334,000	34,468,000	4,791,000	2,962,000
Russia in Europe...	22,529,000	13,000	32,704,000	37,240,000	873,000	11,581,000
Russia—Poland ...	1,098,000	.....	2,014,000	565,000	9,000	452,000
Spain ...	488,715	1,751,632	3,070,903	16,012,277	3,207,360	2,814,465
Sweden ...	715,101	.....*	3,020,381	1,344,202	131,788	1,029,967
Switzerland ...	136,613	4,348	1,615,645	171,635	358,093	544,021
Tunis ...	30,963	99,209	239,989	1,147,910	521,912	10,252
Union of South Africa ...	719,414	430,641	5,796,949	31,980,705	8,961,696	1,081,600
United States of America ...	21,126,000	4,639,000	63,617,000	48,483,000	.....*	67,453,000
Uruguay ...	556,307	17,671	7,942,212	26,286,296	19,951	180,099

\* Not available.

† Includes goats.

‡ Includes buffaloes.

§ Includes asses and mules.

Of foreign countries and British Dominions oversea, the statistics relating to Great Britain and Ireland, the United States of America and Canada, are for the year 1917; those relating to Denmark, France, Germany (except horses), Holland, Roumania, Sweden, Spain, Switzerland, Egypt, Norway, Chile and Tunis for the year 1916; and those relating to the Argentine and Japan for the year 1915. All other statistics relating to foreign countries and oversea British Dominions are for pre-war years.

## GOATS AND OTHER LIVE STOCK.

The number of goats in New South Wales in June, 1917, was 39,310, including 7,365 Angora goats, which are valued by pastoralists chiefly as effective scrub exterminators, although the dry climate of the western districts is eminently suited to the production of fine mohair. The mohair industry is yet in its infancy, but a shipment from this State, which was sold in London in November, 1910, realised 12½d. per lb.

Camels are used as carriers on the Western Plains, the number in June, 1917, being 2,434, compared with 1,792 at the close of the year 1913.

Donkeys and mules are not extensively used in New South Wales, the numbers in 1917 being 147 of the former and 198 of the latter. It is claimed that mules have many points of advantage over horses for farm work, especially in areas of limited rainfall—for instance, longer period of utility, smaller cost of maintenance, greater adaptability to untoward conditions of labour, and comparative freedom from disease. Mule breeding should, moreover, prove profitable, as there is generally a good demand in the world's markets.

Ostrich farming is successfully conducted, though not on an extensive scale. The number of ostriches at the end of June, 1917, was 560, as compared with 662 at the close of the year 1913. The climate of certain portions of the State is considered specially suitable, and the industry would be profitable if the fashion for wearing the plumes came again into vogue.

#### WATERING-PLACES FOR STOCK.

Watering-places are established on all the main stock routes of the State, and include tanks, dams, wells and artesian bores. At the 30th June, 1918, there were 775 public watering-places, viz., 582 tanks and dams or reservoirs, 119 wells, and 74 artesian bores. Except at dams and reservoirs of large extent and capacity, stock are watered at troughs filled by means of service reservoirs, into which the supply is raised by steam, horse, or wind power. Water is usually drawn from the wells by whims and self-acting buckets.

#### PASTURES PROTECTION DISTRICTS.

New South Wales is divided into sixty-seven Pastures Protection Districts, which are in charge of sixty Inspectors of Stock.

The number of horses, cattle, and sheep travelling the various stock routes during the year ended June, 1918, was:—Horses, 108,552; cattle, 1,919,385; sheep, 33,199,385. There were 27,711 examinations by the Inspectors of Stock, at which 119,688 horses, 1,257,972 cattle, and 14,639,063 sheep were passed in review, and 31,844 permits and 110 renewed permits were issued.

#### SHEEP BRANDS AND MARKS.

Under the Pastures Protection Act, 1912, provision is made for the branding of all sheep above the age of six months, and such sheep must be kept legibly branded with an "owner's brand," which has been duly recorded. Only one fire brand and one paint or tar "owner's brand," and one owner's ear-mark are allotted to each sheep-owner for every run held by him.

During the year 1916-17 the number of sheep brands and ear-marks recorded and transferred were as follow:—

	Recorded.	Transferred.	Total Registered.
Fire Brands ... ..	88	27	115
Tar Brands ... ..	1,985	202	2,187
Ear Marks ... ..	1,779	194	1,973
Total ... ..	3,852	423	4,275

#### HORSE AND CATTLE BRANDS.

The number of horse and cattle brands registered up to the 30th June, 1918, was 132,548. The number of brands registered during the year was:—Horse brands (alone), 237; cattle brands (alone), 697; horse and cattle brands, 2,378; and camel brands, 4; making a total of 3,316. The brands are registered under the provisions of the Stock Act, 1901.

## PRICES OF STOCK.

The following table exhibits the prices of fat stock for 1917. To the fluctuations of supply and demand, to difference of quality, and in the case of sheep, to woolly or shorn skins, the considerable variations enumerated hereunder are to be assigned. The months during which maximum and minimum average prices prevailed are shown also.

Class of Stock,	Highest Price.		Lowest Price.		Average.
	£ s. d.	Month.	£ s. d.	Month.	
<b>Fat Stock—</b>					
<b>Bullocks and Steers—</b>					
Extra Heavy ... ..	28 15 0	October ...	23 0 0	January ...	25 6 0
Prime Heavy ... ..	25 17 0	October ...	19 7 0	May ... ..	22 1 0
Prime Medium Weight ...	23 0 0	October ...	17 4 0	May ... ..	19 11 0
Prime Handy Weight ...	20 10 0	September..	15 0 0	May ... ..	17 9 0
Prime Light ... ..	18 10 0	September..	13 9 0	May ... ..	15 17 0
Good Light ... ..	16 10 0	September..	12 13 0	June ... ..	14 5 0
Medium Light ... ..	14 15 0	September..	11 3 0	June ... ..	12 16 0
Other ... ..	12 10 0	September..	8 8 0	May ... ..	10 7 0
<b>Cows—</b>					
Extra Prime ... ..	20 0 0	September..	15 4 0	May ... ..	17 13 0
Prime ... ..	17 10 0	September..	12 18 0	May ... ..	15 0 0
Good ... ..	15 10 0	September..	11 3 0	May ... ..	12 17 0
Medium ... ..	13 0 0	September..	9 1 0	May ... ..	10 10 0
Light and Inferior ...	10 10 0	September..	6 16 0	May ... ..	8 3 0
<b>Sheep—</b>					
<b>Merinos—</b>					
<b>Wethers and Hoggets—</b>					
Extra Prime ... ..	2 3 3	December...	1 12 0	January ...	1 18 0
Prime ... ..	1 16 9	September..	1 9 0	January ...	1 13 0
Good ... ..	1 13 0	December...	1 6 3	January ...	1 9 6
Medium ... ..	1 9 9	September..	1 3 3	May ... ..	1 6 0
<b>Ewes—</b>					
Extra Prime ... ..	1 15 3	December...	1 7 9	January ...	1 10 9
Prime ... ..	1 9 0	September..	1 4 6	May ... ..	1 7 0
Good ... ..	1 7 9	December...	1 1 6	May ... ..	1 4 3
Medium ... ..	1 3 9	December...	0 18 6	May ... ..	1 1 3
<b>Crossbreds—</b>					
<b>Wethers and Hoggets—</b>					
Extra Prime ... ..	2 6 3	September..	1 15 3	January ...	2 1 3
Prime ... ..	2 1 0	September..	1 12 6	January ...	1 16 0
Good ... ..	1 14 0	Sept., Oct., and Dec.	1 9 3	January ...	1 12 3
Medium ... ..	1 11 0	Sept. and Dec.	1 6 3	January ...	1 9 0
<b>Ewes—</b>					
Extra Prime ... ..	1 19 9	November	1 12 3	January ...	1 16 9
Prime ... ..	1 14 9	December...	1 9 3	January ...	1 12 6
Good ... ..	1 12 0	November	1 6 3	January ...	1 9 0
Medium ... ..	1 5 0	December...	1 1 0	January ...	1 3 6
<b>Lambs—Suckers and Woolly—</b>					
Extra Prime ... ..	1 13 9	September..	1 9 3	November ...	1 11 6
Prime ... ..	1 9 6	March ...	1 6 3	Jan. and Nov.	1 8 9
Good ... ..	1 7 0	September..	1 1 0	January ...	1 4 0
Medium ... ..	1 3 0	September..	0 18 9	January ...	1 0 3

The prices of general live stock, inclusive of equine and dairy stock, swine, goats, and animals of draught and traction, for 1917 were as follows:—

Class of Stock.	Estimated fair average Price.	Class of Stock.	Estimated fair average Price.
<b>Horses—</b>	£ s. d.	<b>Pigs—</b>	£ s. d.
Draught—Extra Heavy ...	22 10 0	Baconers—Best ... ..	4 15 3
Medium ... ..	14 0 0	Good ... ..	4 6 3
Light ... ..	10 0 0	Medium ... ..	3 16 9
Saddle and Harness ... ..	8 0 0	Prime Light ... ..	3 7 6
Working Bullocks—Best ...	14 0 0	Light ... ..	3 2 6
Other ... ..	11 0 0	Backfatters—Best ... ..	7 14 6
<b>Dairy Cattle—</b>		Good ... ..	6 12 9
Milkers—Best ... ..	18 10 0	Medium ... ..	5 9 6
Good ... ..	15 0 0	Prime Light ... ..	4 10 0
Inferior ... ..	9 0 0	Light ... ..	4 0 0
Springers—Best ... ..	14 0 0	Suckers ... ..	1 1 0
Other ... ..	10 0 0	Stores... ..	1 13 0
<b>Pigs—</b>		<b>Goats—Angora ... ..</b>	<b>4 0 0</b>
Porkers—Best ... ..	3 4 3	Other ... ..	0 15 0
Good ... ..	2 17 6	<b>Camels ... ..</b>	<b>14 0 0</b>
Medium ... ..	2 7 9	<b>Mules ... ..</b>	<b>20 0 0</b>
Prime Light ... ..	1 14 0	<b>Donkeys—Jacks (for breeding)</b>	<b>55 0 0</b>
Light ... ..	1 12 0	Jennies ... ..	35 0 0

With regard to equine stock, the average maximum price was £33 for extra heavy draught horses, and the minimum £5 for saddle and harness horses. With fat cattle, £26 7s. was the average maximum for extra heavy bullocks, and the minimum for extra prime cows £16 9s. Working bullocks ranged from £10 to £16. For dairy cattle the maximum for best milkers was £25, and the minimum for good milkers, £12. Pigs brought prices ranging from £7 14s. 6d. for backfatters to £1 12s. for light porkers. The maximum price of Angora goats was £6 6s.; of camels, £16; and of donkeys, £60.

#### VALUE OF PASTORAL PRODUCTION.

The grazing industry long constituted the greatest source of wealth in New South Wales, and information relating to pastoral returns and income is therefore of compelling interest. Unfortunately it is not possible to ascertain with precision the value of holdings occupied for pastoral purposes alone, nor can the worth of the improvements be estimated. Returns collected in respect of all land used other than for residential or business purposes, show that the fair market value of 52,988,070 acres of alienated land at the end of 1911 was estimated at £129,577,500, the improvements thereon

being valued at £77,114,200. The latter included the value of buildings, tanks, and dams, fencing, ringbarking, clearing, &c. On 120,546,052 acres of Crown lands similarly occupied the approximate value of the improvements was set down at £14,775,000.

It is difficult, from the nature of the industry, to estimate the return from pastoral pursuits as at the base of production; but taking the Sydney prices as a standard, and making due allowance for incidental charges, such as agistment, railway carriage or freight, and commission, the value during the season 1916-17 would appear as £26,842,000. The returns received from the different kinds of stock during the years 1891-1917 are shown in the following table.

Year.	Annual Value of Pastoral Production.					
	Sheep for Food.	Wool.	Cattle.	Horses.	Total.	Per Head of Population.
	£	£	£	£	£	£ s. d.
1891	2,367,000	9,996,000	1,535,000	827,000	14,725,000	12 17 10
1896	1,745,000	8,619,000	990,000	420,000	11,774,000	9 5 4
1901	2,071,000	8,425,000	1,374,000	682,000	12,552,000	9 3 8
1906	3,514,000	13,792,000	1,592,000	845,000	19,743,000	13 6 0
1911	2,811,000	12,933,000	1,689,000	2,001,000	19,434,000	11 13 6
1912	3,127,000	12,497,000	1,754,000	2,062,000	19,440,000	11 3 8
1913	2,885,000	13,620,000	2,041,000	2,192,000	20,738,000	11 9 3
1914-15	3,004,000	11,250,000	2,498,000	2,096,000	18,848,000	10 2 3
1915-16	4,295,000	11,380,000	3,729,000	2,172,000	21,576,000	11 10 10
1916-17	4,617,000	16,435,000	4,025,000	1,765,000	26,842,000	14 7 11

The following table, showing the price-level in each year since 1909 as compared with that of 1901, clearly illustrates the extent of variation in values of pastoral production. The figures are calculated on the average prices of exports to the United Kingdom free on board at Sydney. The prices of 1901, represented by the number 1,000, are taken as a basis.

Article.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.
Wool—greasy ...	1,200	1,266	1,200	1,200	1,300	1,227	1,317	1,733	2,090
„ scoured ...	1,245	1,188	1,132	1,151	1,283	1,208	1,217	1,572	1,698
Tallow ...	1,135	1,250	1,188	1,215	1,261	1,181	1,351	1,519	1,733
Leather ...	972	1,100	1,133	1,161	1,333	1,592	1,670	1,843	1,882
Frozen Beef ...	1,250	1,250	1,375	1,375	1,625	1,834	2,750	3,250	2,955
„ Mutton ...	1,063	1,250	1,250	1,500	1,500	1,792	2,188	2,833	2,800
Skins—Hides ...	950	1,100	1,113	1,204	1,467	1,404	1,600	1,463	2,650
„ Sheep, with wool	1,279	1,311	1,164	1,299	1,499	1,371	1,392	1,692	1,898
All articles as above...	1,137	1,214	1,194	1,263	1,408	1,451	1,686	1,988	2,212

#### PASTORAL IMPLEMENTS AND MACHINERY.

A list of the implements and machinery in use on pastoral holdings appeared in a previous issue of this Year Book. The aggregate value of the implements and machinery at the 30th June, 1917, was £2,124,246.

Shearing machines have been installed on all the large holdings devoted to wool-growing. In addition to shearing their own sheep, owners of machines often contract for the treatment of small flocks in the vicinity. The carts and waggons used on all rural holdings are included with farming machinery, as stated in the chapter on Agriculture, in which a comparative table of the value of farming, dairying, and pastoral machinery was shown.

#### MEAT SUPPLY.

The slaughter of live stock for food is permitted only in places licensed for the purpose. Of such establishments there are in the metropolis 56, and in the country districts 949, employing respectively 624 and 2,961 men; in all, 1,005 establishments and 3,585 men employed.

The following table shows the number of stock slaughtered during the year ended 30th June, 1917 :—

Stock.	Metropolis.	Country.	Total.
Sheep ... ..	1,229,473	2,162,977	3,392,450
Lambs ... ..	139,124	227,878	367,002
Bullocks, &c. ...	72,406	142,822	215,228
Cows ... ..	39,502	101,747	141,249
Calves ... ..	30,897	6,148	37,045
Swine ... ..	115,531	163,363	278,894

These figures represent the stock killed for all purposes. Of the sheep and lambs, 2,940,981, including 970,090 killed on stations and farms, represent the local consumption; 28,474 sheep were required by meat-preserving establishments; 775,964 for freezing for export; 6,656 were boiled down for tallow, and 7,377 carcasses were exported to Victoria. All the cattle killed, except the equivalent of 25,963 carcasses treated in the meat-preserving works, 23,150 (including 155 calves) exported frozen, 398 exported to Victoria, and 2,526 condemned and boiled down, were required for local consumption.

The following table shows the stock slaughtered in the various establishments since 1908.

Year.	Establishments.	Employees.	Stock Slaughtered.					
			Sheep.	Lambs.	Bullocks. ‡	Cows.	Calves.	Swine.
1908	1,216	4,056	4,840,367	361,125	233,006	114,689	28,879	210,319
1909	1,249	5,293	5,993,985	430,501	243,150	128,705	40,211	202,303
1910	1,282	4,328	7,032,102	448,932	275,497	156,110	52,340	290,328
1911	1,287	4,343	6,146,739	400,186	306,773	182,178	59,969	316,331
1912	1,271	4,294	5,387,578	424,604	329,173	206,228	77,679	352,178
1913	1,275	4,647	5,909,177	516,398	365,965	236,081	78,161	280,673
1914*	1,123	4,246	2,831,280	273,383	171,704	121,521	35,862	133,370
1915†	1,219	4,658	5,433,147	564,394	319,778	250,210	65,350	262,704
1916‡	1,071	3,722	3,815,477	361,831	187,882	165,134	31,986	219,806
1917‡	1,005	3,585	3,392,450	367,002	215,228	141,249	37,045	278,894

\* Six months ended 30th June. † Year ended 30th June. ‡ Includes a small number of Bulls.

The stock for the supply of meat for Sydney and suburbs is for the most part sold at the Flemington saleyards, near Sydney, and slaughtered in abattoirs at Glebe Island and at Homebush Bay. Animals sold at Flemington are inspected *ante mortem*, and the diseased are declared unfit for food and destroyed, while "doubtful" beasts are marked for further special attention at the abattoirs. The Inspecting Staff at the State abattoir consists of a Chief Inspector, twelve assistants and three branders. Inspectors are stationed also at private slaughtering premises throughout

the County of Cumberland. The operations of the inspectorial staff are supervised by the Veterinary officers of the Metropolitan Meat Industry Board, who pay regular visits to the different establishments.

The carcase meat for food is conveyed from the slaughtering premises in covered louvred vans for distribution to retail shops, which are regulated by the municipal authorities.

The particulars of operations at Glebe Island abattoirs during the years ended 30th June, 1916, and 1917 are shown in the following statement:—

Animals.	Year ended 30th June, 1916.			Year ended 30th June, 1917.		
	Slaughtered.	Condemned.		Slaughtered.	Condemned.	
		Number.	Per cent.		Number.	Per cent.
Bulls ... ..	2,506	143	5.70	216	21	9.71
Bullocks ... ..	62,156	357	0.57	4,640	26	0.56
Cows ... ..	36,132	830	2.30	3,562	114	3.20
Calves ... ..	19,137	980	5.12	80	5	6.25
Sheep and Lambs ... ..	1,309,810	338	0.03	1,129,919	736	0.06
Pigs ... ..	64,884	777	1.20	191	4	2.09

The construction of new abattoirs was necessary to cope with the expanding requirements of the meat trade, and at Homebush Bay facilities are provided both for railway and steamer traffic. The animals slaughtered during the year ended 30th June, 1917, included 145,511 sheep and lambs, 95,091 large cattle, 29,936 calves, and 71,488 pigs. Further particulars relating to the operations of the Metropolitan Meat Industry Board have been shown in the chapter "Food and Prices."

The average prices of the best beef during 1916 ranged from 63s. per 100 lb. in March to 53s. 9d. in July, and during 1917 from 50s. 3d. in May to 63s. in September.

#### MEAT EXPORT TRADE.

The subjoined table shows the growth of the oversea export trade in New South Wales beef and mutton since 1904. The export of frozen meat varies with the seasons. It has been proved that a great expanse of country is suited to the breeding of large-carcase sheep, and pastoralists have lately turned their attention in this direction with a view to securing a greater share in the meat trade of the oversea countries.

Year.	Frozen or Chilled.			Preserved.		
	Beef.	Mutton and Lamb.	Total Weight.	Total Value.	Weight.	Value.
	cwt.	cwt.	cwt.	£	lb.	£
1904	3,721	202,135	205,856	280,899	4,751,029	70,770
1905	18,470	434,940	453,410	599,892	6,919,561	123,054
1906	32,640	455,165	487,805	579,294	3,121,933	62,307
1907	18,905	498,551	517,456	639,253	4,569,718	81,303
1908	6,473	398,594	405,067	535,473	5,756,395	105,702
1909	9,127	503,249	512,376	563,489	11,734,019	202,499
1910	74,868	810,175	885,043	1,101,247	16,492,876	288,341
1911	65,097	535,259	600,356	753,155	20,783,779	401,384
1912	70,516	375,338	445,854	653,801	15,556,834	310,192
1913	162,255	798,748	961,003	1,463,812	25,581,867	574,870
1914*	142,912	217,444	360,356	583,783	10,797,366	276,294
1914-15†	210,950	861,103	1,072,053	2,087,527	24,989,699	924,510
1915-16†	7,000	236,099	243,099	562,262	4,087,618	159,711
1916-17†	93,332	268,108	361,440	928,558	8,289,732	332,506

\* Six months—January to June.

† Year ended 30th June.

In the foregoing table ships' stores, amounting annually to several millions of pounds in weight, are not included, the tabulation being expressly concerned with exports of meat destined for oversea markets.

There was, prior to the War, an encouraging development in the meat export trade, and the prospects of its establishment on a stable foundation appeared highly favourable. European countries were gradually opening their ports to frozen meat, and the trade in the East was increasing. The War not only closed many markets, but through the tremendously augmented value of freight-space it seriously hampered exports. With the restoration of peace the trade will doubtless experience a great revival, because the demand for foodstuffs will be insistent for a long period after the termination of hostilities. It is worthy of remark that the industry had been sufficiently long in existence for the formulation of maxims and regulations for its successful conduct. It was found that in order to establish a high reputation for this product it was necessary for exporters to exercise the greatest care in preparation and transport. Stringent regulations were issued by the Department of Trade and Customs regarding inspection and shipment, which work was carried out for the Commonwealth authorities by the Meat Export Branch of the Department of Public Health. All stock killed for export were examined in a manner similar to that for local consumption, and carcasses which had been in cold storage were re-examined immediately before shipment. In all the large modern steamers visiting the ports of New South Wales, accommodation had been provided for this class of trade.

There were at least seventy-three steamers permanently engaged at 31st December, 1915, in the frozen-meat trade between Australia and the United Kingdom, but owing to military and transport requirements a considerable number has been withdrawn from this service. These steamers were fitted with refrigerating machinery, and had an approximate carrying capacity of three and a half million carcasses.

The following statement, compiled from the British trade returns, shows the imports of frozen mutton into the United Kingdom during the last ten years, for which information is available, and also the quantity imported from New South Wales.

Year.	Total Imports.		Imports into the United Kingdom from New South Wales.	
	Quantity.	Value.	Quantity.	Value.
	cwt.	£	cwt.	£
1907	4,578,523	8,687,407	391,500	723,148
1908	4,385,771	8,140,029	315,998	564,326
1909	4,761,838	7,839,195	448,011	715,764
1910	5,405,923	9,802,858	776,084	1,261,173
1911	5,330,070	9,576,446	612,620	1,000,556
1912	5,021,529	9,698,783	342,422	591,513
1913	5,330,290	10,907,992	695,955	1,285,397
1914	5,199,731	11,410,310	603,435	1,245,185
1915	4,707,859	13,872,141	550,820	1,470,165
1916	3,637,147	13,507,890	208,973	728,424

Since the outbreak of the War, the operations of the frozen-meat trade in the United Kingdom have been abnormal, as practically the whole trade was taken out of commercial hands and placed under official control. In this way the British Government was able to deal effectively with the shipping and other difficulties affecting the maintenance of supplies, a policy of continuous administration which would have been altogether impossible under the control of private traders. The annual importations into the United Kingdom since 1913 were less than formerly, but large quantities of frozen meat were diverted to the continent of Europe and elsewhere for the use of the British forces engaged in the different theatres of the War.

The subjoined statement shows the average wholesale prices obtained during the past ten years for Scottish and frozen mutton sold in London. From an examination of the figures, it would seem that the class of people requiring locally-grown mutton in England is quite distinct from that using frozen mutton.

Year.	Best Scottish.	New Zealand.	Australian.	River Plate.	Year.	Best Scottish.	New Zealand.	Australian.	River Plate.
	d.	d.	d.	d.		d.	d.	d.	d.
1908	7 $\frac{3}{8}$	4 $\frac{1}{4}$	3 $\frac{1}{4}$	3 $\frac{1}{2}$	1913	7 $\frac{3}{8}$	4 $\frac{1}{2}$	4	4 $\frac{1}{2}$
1909	6 $\frac{1}{2}$	3 $\frac{1}{2}$	3	3 $\frac{1}{2}$	1914	8 $\frac{1}{2}$	5 $\frac{1}{2}$	4 $\frac{1}{2}$	4 $\frac{3}{8}$
1910	7 $\frac{1}{4}$	4 $\frac{1}{8}$	3 $\frac{1}{2}$	3 $\frac{3}{8}$	1915	9 $\frac{3}{8}$	6 $\frac{1}{2}$	5 $\frac{1}{2}$	6 $\frac{1}{4}$
1911	6 $\frac{7}{8}$	4 $\frac{1}{8}$	3 $\frac{1}{2}$	3 $\frac{1}{2}$	1916	12 $\frac{1}{2}$	8 $\frac{1}{2}$	7 $\frac{7}{8}$	9
1912	7 $\frac{5}{8}$	4 $\frac{3}{8}$	3 $\frac{1}{2}$	3 $\frac{5}{8}$	1917	14 $\frac{1}{2}$	8 $\frac{7}{8}$	8 $\frac{7}{8}$	10 $\frac{1}{2}$

The frozen beef imported into England from New South Wales in 1915 amounted to 233,694 cwt., valued at £654,883; but in 1916 it amounted to only 44,574 cwt., valued at £148,650. The value of rabbits imported was £910,047 as compared with £602,117 in 1915, while preserved meat, other than salted, was valued at £120,640 in 1916, as compared with £688,680 during the previous twelve months.

#### OTHER PASTORAL PRODUCTS AND BY-PRODUCTS.

The minor products accruing from pastoral occupations include tallow, lard and fat, skins and hides, furs, hoofs, horns, bones, bone-dust, glue pieces and hair. Some of these are more specially discussed in the chapter relating to the Manufacturing Industry, and will be given only brief mention here.

The following return shows the quantity of tallow produced, locally consumed, and exported each year since 1907 :—

Year.	Estimated Quantity of Tallow.		
	Produced.	Locally consumed.	Exported.
	tons.	tons.	tons.
1907	24,527	5,788	18,739
1908	21,031	5,881	15,150
1909	32,006	5,810	26,196
1910	37,110	5,923	31,187
1911	36,467	6,187	30,280
1912	28,425	6,580	21,845
1913	39,751	7,179	32,572
1914*	17,434	3,699	13,735
1915†	35,593	8,257	27,336
1916†	13,648	7,386	6,262
1917†	18,983	7,701	11,282

\* Six months—January to June.

† Year ended 30th June.

Prior to the War the oversea exports of skins and hides from New South Wales were of considerable value, and showed a large increase since 1901, although there was a marked decline during the year 1916-17. The other products of the pastoral industry are of minor importance, and leather, valued at £600,000 during the year ended June, 1917, is classified as a product of the manufacturing industry.

The following table shows the value of pastoral products exported oversea during the quinquennial years 1901, 1906, and 1911, and during the twelve months ended June, 1917.

Products.	Value of Oversea Exports.			
	1901.	1906.	1911.	1916-1917.
<b>Skins and Hides—</b>	£	£	£	£
Cattle ... ..	86,017	84,893	292,193	111,844
Horse ... ..	170	428	790	166
Rabbit and hare ... ..	9,379	293,260	295,476	392,453
Sheep ... ..	151,144	314,722	260,007	317,892
Other ... ..	184,522	140,050	296,672	286,906
	431,232	833,353	1,145,138	1,103,261
<b>Hoofs, horns, and bones ... ..</b>	13,765	14,673	15,390	13,454
Bone-dust... ..	14,848	13,817	33,280	12,295
Hair ... ..	9,833	13,524	16,503	13,560
Glycerine and Lanoline ... ..	7,222	3,296	3,866	12,976
Lard and animal fats ... ..	312	2,557	4,841	15,661
Tallow ... ..	362,631	461,540	871,018	481,281
Glue-pieces and sinews ... ..	6,020	8,103	8,781	12,987
Furs ... ..	767	1,540	117	.....
Sausage Casings ... ..	2,567	17,033	52,562	62,080
<b>Total ... ..</b>	<b>849,197</b>	<b>1,369,436</b>	<b>2,151,496</b>	<b>1,733,555</b>

#### CATTLE AND SHEEP DOGS.

The assistance of well-trained dogs is of great importance in the successful handling of sheep and cattle in large numbers, and much attention has been directed in New South Wales towards breeding dogs possessing the speed, the endurance, and the intelligence necessary for this special work. The merlin or blue heeler, the Welsh heeler or merle, the red and the black bob-tails may be particularly mentioned as selected types of cattle dogs suited to expert herding and high in favour with drovers.

The merlin, or blue heeler, is a variety founded by crossing the blue-grey Welsh merle with the Australian dingo, and by careful breeding and selection a distinct type has been established.

The classes of sheep dogs most sought after are the barbs and the kelpies, and the smooth-haired collies. Numerous cattle and sheep dogs of non-descript types are used, some of which have proved very useful, but owing to their doubtful origins are not considered satisfactory for breeding purposes.

Under the Dog and Goat Act of 1898 all dogs must be registered, the annual fee being 2s. 6d. each, and no exemption is granted for cattle and sheep dogs.

#### NOXIOUS ANIMALS.

The only large carnivorous animals dangerous to stock in Australia are dingoes or so-called native dogs, and foxes; but graminivorous animals, such as kangaroos, wallabies, hares, and rabbits, particularly the last-named, are deemed by the settlers even more noxious.

The estimated losses in sheep by native or other dogs and foxes during the three years ended 30th June, 1918, were as follow :—

Destructive Agents.	Losses in Sheep.					
	Number.			Value.		
	1916.	1917.	1918.	1916.	1917.	1918.
Native Dogs ... ..	42,815	52,346	41,588	£ 47,975	£ 59,900	£ 50,646
Tame Dogs ... ..	13,572	11,383	12,808	12,925	13,358	15,181
Foxes ... ..	75,772	116,825	124,588	44,670	99,189	90,713
Total ... ..	132,159	180,554	178,984	105,570	172,447	156,540

Rabbits, which are the greatest pests to the pastoralists, first found their way into this State from Victoria, where some had been liberated about fifty years ago in the Geelong District. Their presence first attracted serious attention in 1881, when complaints of considerable damage were heard in the south-west portion of New South Wales. They multiplied so rapidly, that, in 1882, they were to be met on most of the holdings having frontages on the Murray River. Attempts to cope with them under the Pastures and Stock Protection Act proved ineffectual, and the Rabbit Nuisance Act was passed, which provided for the compulsory destruction of rabbits by the occupiers of the land, who were to receive a subsidy from a fund raised by an annual tax upon stockowners, but the fund soon proved inadequate, and from the 1st May, 1883, to the 30th June, 1890, when the Act was repealed, it was supplemented by £503,786 from the Consolidated Revenue. The tax upon stockowners yielded £831,457, and landowners and occupiers contributed £207,864, so that the total cost during the whole period exceeded £1,543,000.

The Rabbit Act of 1890 repealed the 1883 Act, and also those provisions of the Pastures and Stock Protection Act relating to rabbits. It provided moreover, as occasion required, for the proclamation of land districts as "infested," and for the construction of rabbit-proof fences. From the 1st July, 1890, to the 30th April, 1902, the State expenditure under this Act was £41,620, nearly all of which was devoted to the erection of rabbit-proof netting. From May, 1902, to December, 1903, the expenditure amounted to £10,548.

Under the Pastures Protection Act of 1902 the State was divided into districts, the protection of the pastures being supervised by a board in each district elected by the stockowners. The pastures protection boards were empowered to levy a rate upon the stock, and to erect rabbit-proof fences on any land, to take measures to ensure the destruction of all noxious animals and to pay rewards for such destruction. The State expenditure on rabbit extermination since the establishment of the boards, consisted mainly of payments to the Railway Commissioners for the maintenance of rabbit-proof fences, and amounted to £12,656 to the end of June, 1917.

#### *Rabbit-proof Fencing.*

In order to prevent the spread of this pastoral pest the Government has erected rabbit-proof fences at numerous places. The longest of these traverses the western side of the railway line from Bourke, *via* Blayney and

Murrumburrah, to Corowa, in the extreme south of the State, a distance of 612 miles; and the Railway Commissioners have undertaken the work of its maintenance. A fence extends from the Murray River northwards, 350 miles along the border between New South Wales and South Australia. On the Queensland border a fence has been erected between Barrington and the river Darling, at Bourke, 84 miles; another, built at the joint expense of the Governments of Queensland and New South Wales, extends from Mungindi to the Namoi River, about 115 miles. The total approximate length of rabbit-proof fences erected by the State up to the 30th June, 1917, was 1,332 miles, at a cost of £69,888; by private persons, 102,588 miles, at a cost of £6,154,084; and by pastures boards, 577 miles, at a cost of £26,011.

The chief means adopted for the destruction of rabbits are poisoning and trapping, but it has long been recognised that these methods are inadequate. In 1906 Dr. Danysz, an eminent French scientist, claimed the discovery of a disease fatal to rabbits and easily propagated amongst them, while proving harmless to other animals and to birds. A liberal offer was made by the pastoralists of the State for the introduction of this disease, and experiments were conducted under the supervision of a Government medical officer, who, in November, 1907, reported that although the microbe employed could be made to infect small animals, there was no reason to apprehend danger from its practical use; but the efficacy of the virus as a destroyer of rabbits had, nevertheless, not been demonstrated.

Bonuses are offered by the pastures protection boards for the destruction of noxious animals, and during the year ended the 30th June, 1917, the total amount paid as bonus was £6,616.

#### RABBITS AND HARES.

The following table shows the exports of frozen rabbits and hares, together with that of rabbit and hare skins, from New South Wales to countries outside Australia during the last ten and a half years.

Year.	Value of Exports.		
	Frozen Rabbits and Hares.	Rabbit and Hare Skins.	Total.
	£	£	£
1907	301,115	209,754	510,869
1908	247,525	138,403	385,928
1909	329,020	159,904	488,924
1910	406,762	327,874	734,636
1911	330,741	295,476	626,217
1912	252,053	318,930	570,983
1913	373,633	310,501	684,134
1914*	124,932	70,657	195,589
1915†	393,179	155,411	548,590
1916†	607,711	210,935	818,646
1917†	760,331	392,453	1,152,784

\* Six months—January to June. † Year ended 30th June.

Within the State also these animals now form a common article of diet, both in the metropolis and the country, especially during the winter months, when large numbers of men are engaged in their capture and treatment. The fur of rabbits and hares is used largely in the manufacture of hats.

#### CATTLE-TICK.

The regulations prohibiting and controlling the admission of stock entering this State from Queensland have been strictly enforced, the border being divided into four sections governed under different conditions. The fences are patrolled continuously and kept in good order, and the care of departmental dips and yards is efficiently maintained.

In order to obtain comprehensive information as to the methods of dealing with cattle-tick in the United States of America a Royal Commission was appointed in June, 1912, to visit that country, and its recommendations have since been adopted in New South Wales.

## DAIRYING INDUSTRY.

### DAIRY FARMING.

THE dairying industry is a very important factor in the wealth and prosperity of New South Wales. Although the first dairy farm for the manufacture of butter was established on the Nepean River, dairying as a profitable pursuit was in later years conducted mainly on the South Coast, in the Shoalhaven and Illawarra Districts, but at present the North Coast is the main source of supply. It was not until the introduction of the creamery and factory system that any great development occurred, and with the manufacture of butter by machinery, and the perfection of the cold-storage system, the business of dairying was established on a firm basis.

The following figures show the dairy production in each Division of the State during the season ended the 30th June, 1917:—

Division.	Average No. of Dairy Cows in Milk during year.	Total yield of Milk.	Butter made.	Cheese made.
<b>Coastal—</b>				
North Coast ... ..	277,316	110,742,860	46,152,969	1,745,220
Hunter and Manning ... ..	99,231	43,153,137	15,073,343	384,778
County of Cumberland ... ..	17,956	9,390,899	748,570	5,047
South Coast ... ..	72,420	33,545,208	9,118,085	4,837,550
Total ... ..	466,923	196,832,104	71,092,967	6,972,595
<b>Tableland—</b>				
Northern ... ..	13,686	4,381,823	1,706,782	144,768
Central ... ..	11,221	3,961,460	1,119,132	119,513
Southern ... ..	8,964	3,257,690	1,020,458	18,320
Total ... ..	33,871	11,600,973	3,846,372	282,601
<b>Western Slopes—</b>				
North ... ..	11,893	4,338,623	1,142,523	189,066
Central ... ..	5,360	1,879,062	463,891	1,500
South ... ..	12,388	4,547,667	1,600,383	85,378
Total ... ..	29,641	10,765,352	3,206,797	275,944
<b>Central Plains—</b>				
North ... ..	1,611	617,460	51,349	.....
Central ... ..	7,020	1,450,984	186,766	80
Total ... ..	8,631	2,068,444	238,115	80
Riverina ... ..	11,142	4,291,662	950,300	299,019
Western Plains ... ..	1,415	445,465	29,920	.....
Total, New South Wales..	551,623	226,004,000	79,364,471	7,830,239

Although dairying is confined mainly to the coastal regions, where grass is available throughout the year, it is also actively pursued in the more favoured parts of the hinterland to supply local wants, and in places remote from the metropolis well-equipped factories have been already established. In these localities the industry is conducted in conjunction with wheat-farming and sheep-breeding, and sufficient fodder to carry the cattle through the winter months is a prime requirement upon tillage.

The system of share-farming has been applied to dairying chiefly in the northern coastal districts. As a general rule, one party to the arrangement supplies the land and the stock, and the other conducts the farm-work. During the 1916-17 season the area of dairy farms under this system was 97,463 acres, of which 6,132 acres were devoted mainly to the production of fodder crops, the balance of the area—91,331 acres—being used for grazing purposes. Of the total area, 18,271 acres were in the Division of the North Coast, and 57,258 acres in the Hunter and Manning Division, the balance being distributed as follows:—The Division of the Western Slopes, 7,268 acres; the South Coast Division, 9,359 acres; the Tableland Division, 2,750 acres; and the Division of the Riverina, 2,557 acres.

Dairy share-farming was engaged in on 169 holdings on which 312 share-farmers and their families were employed.

Most of the native grasses of the State are particularly suitable for dairy cattle, as they possess milk-producing as well as fattening qualities. In the winter the natural herbage is supplemented by fodder, such as maize, barley, oats, rye, lucerne, and the brown variety of sorghum, or the planter's friend. Ensilage is also made for food, but not so generally as it should be, and the quantity made varies considerably in each year. The area of land devoted to sown grasses has been extended largely during recent years, and in June, 1917, it amounted to 1,357,157 acres. The produce of this land is used mainly as food for dairy cattle, and as the area is still below the present requirements, an extension of this form of cultivation may be anticipated.

The number of dairy cows in milk, and the area under sown grasses at the end of the year, together with the quantity of ensilage made in each district of the State during the season ended the 30th June, 1917, were as follow:—

Division.	Dairy Cows in Milk at 30th June, 1917.	Area of Land under Sown Grasses.	Ensilage made.
Coastal—	No.	acres.	tons.
North Coast ... ..	174,613	931,878	163
Hunter and Manning ... ..	81,684	185,945	210
County of Cumberland ... ..	18,834	4,167	1,260
South Coast ... ..	58,723	178,144	6,023
Total ... ..	333,854	1,300,134	7,656
Tableland—			
Northern ... ..	12,950	14,304	77
Central ... ..	12,649	5,590	481
Southern ... ..	8,999	2,059	130
Total ... ..	34,598	21,953	688
Western Slopes—			
North ... ..	12,975	4,026	1,143
Central ... ..	6,547	1,229	620
South ... ..	12,745	4,167	3,301
Total ... ..	32,267	9,422	5,064
Central Plains—			
North ... ..	2,364	758	.....
Central ... ..	5,776	16,364	1,150
Total ... ..	8,140	17,122	1,150
Riverina ... ..	13,178	8,361	1,778
Western Plains... ..	1,996	165	.....
Total, New South Wales ... ..	424,033	1,357,157	16,336

## YIELD OF MILK.

The number of dairy cows shows a considerable increase since 1907, and there has been a corresponding expansion in the milk supply, as shown in the following table :—

Year.	Dairy Cows in Milk at end of year.	Total Yield of Milk.	Average Yield of Milk per Cow.
	No.	gallons.	gallons.
1907	506,395	183,303,000	362
1908	527,843	188,519,000	357
1909	566,378	201,183,000	355
1910	632,786	235,578,000	372
1911	638,525	237,623,000	372
1912	620,730	225,446,000	363
1913	600,420	231,592,000	386
1915†	513,420*	237,930,000	442
1916†	465,044*	184,014,000	396
1917†	551,623*	226,004,000	410

\* Estimated average number in milk during season.

† Year ended 30th June.

It is more accurate to base the average yield on the mean number of cows in milk during the year, and for the last three seasons attempts were made to obtain this information. The efforts were not entirely successful, and even under normal conditions much difficulty would be experienced, as the number depends not only on the actual cows milked, but also on the length of time during which they are in milk.

The dry dairy cows on the 30th June, 1917, numbered 319,230, as compared with 317,368 twelve months earlier, and 189,769 at the end of 1913. During the past three seasons dairying operations have been restricted considerably owing to the dryness of the seasons, especially during the first half of 1916; and large numbers of dry dairy cattle have been fattened and sold for beef. Under normal conditions an average yield of about 450 gallons is probably a fairly accurate estimate of the milking capabilities of local dairy cattle. The average yield during the season 1914-15 very nearly reached this figure, but as the seasonal conditions during 1915-16 and 1916-17 were less favourable, the average yields of milk per cow were 396 gallons and 410 gallons respectively, but even then, they compare favourably with the results obtained in all other years prior to 1914-15.

Almost as important as the average yield of milk is the percentage of butter-fat, and it is satisfactory to note that this has been well maintained throughout the period reviewed in the following table, which shows the quantity of butter made per 100 gallons of milk treated on farms and in factories.

Year.	Quantity of Butter per 100 gallons of Milk treated.		
	On Farms.	In Factories.	On Farms and in Factories.
	lb.	lb.	lb.
1907	32.4	39.8	39.2
1908	33.6	40.2	39.6
1909	33.2	38.7	38.2
1910	32.5	39.8	39.2
1911	33.0	42.9	42.2
1912	33.1	42.4	41.8
1913	33.6	42.5	41.9
1915*	33.8	44.3	43.7
1916*	33.9	43.5	42.6
1917*	34.0	45.2	44.1

\* Year ended 30th June.

The following statement shows the purposes for which the milk produced in 1913 and during the year ended 30th June, 1917, was treated.

Purpose for which treated.	1913.	1916-17.
	gallons.	gallons.
Used on farms for making butter ... ..	13,484,060	12,639,786
"    "    "    cheese ... ..	3,244,531	2,185,835
Separated on farms, cream being sent to factories ... ..	171,136,221	165,675,577
Sent to butter factories or separating stations for butter ...	1,109,094	419,537
Sent to butter factories or separating stations for sweet cream	298,532	404,679
Sent to cheese factories ... ..	3,657,979	5,848,065
"    condensers ... ..	1,062,270	1,693,340
Pasteurised at factories for metropolitan market ... ..	10,694,468	11,368,295
Balance sold or otherwise used ... ..	26,904,845	25,768,886
Total ... ..	231,592,000	226,004,000

As already stated, it was the manufacture of butter by machinery which made the dairying industry more than locally important, and it is to the introduction of the factory system in convenient centres that it owes its present development. When the factory system was introduced, the processes of cream separation and butter-making were carried on together. This arrangement was improved by the establishment of public "creameries" or separating stations, where the cream was separated and then sent to the factories. In recent years there has been another great change, and most of the farmers now treat the milk in their own dairies by means of hand separators.

The subjoined table shows the extent to which this system has obtained since 1907.

Year.	Milk Separated for making Butter.			
	On Farms.		In Public Separating Stations.	Total.
	By hand.	By steam, etc.		
	gallons.	gallons.	gallons.	gallons.
1907	142,843,911	3,775,899	6,488,604	153,108,414
1908	145,623,868	5,352,269	3,896,794	154,872,931
1909	156,189,009	5,962,492	2,302,239	164,453,740
1910	181,281,265	11,589,744	2,715,550	195,586,559
1911	176,983,192	17,835,035	2,162,984	196,981,211
1912	165,341,882	16,811,648	1,175,404	183,328,934
1913	165,898,111	18,722,170	1,109,094	185,729,375
1915*	176,716,152	14,957,126	792,603	192,465,881
1916*	125,759,248	13,651,598	505,406	139,916,252
1917*	161,300,970	17,014,393	419,537	178,734,900

\* Year ended 30th June.

#### PRODUCTION OF BUTTER.

The following statement shows the quantity of butter made, and the milk used for that purpose, during each of the last ten years. In distinguishing between the milk treated on farms and in factories, the quantity used in farm-factories, whether worked by a separate staff or by farm employees, has been included in the statistics relating to factories.

Year.	On Farms.		In Factories.		Total.	
	Milk used.	Butter made.	Milk used.	Butter made.	Milk used.	Butter made.
	gallons.	lb.	gallons.	lb.	gallons.	lb.
1907	12,750,602	4,128,256	140,357,812	55,913,193	153,108,414	60,041,449
1908	12,876,805	4,329,241	141,996,126	57,051,635	154,872,931	61,380,876
1909	14,562,520	4,840,049	149,891,220	58,025,559	164,453,740	62,865,608
1910	15,751,415	5,126,790	179,835,144	71,498,040	195,586,559	76,624,830
1911	14,034,132	4,631,585	182,947,079	78,572,983	196,981,211	83,204,568
1912	12,424,315	4,116,762	170,904,619	72,492,766	183,328,934	76,609,528
1913	13,341,711	4,473,859	172,387,664	73,305,338	185,729,375	77,779,197
1915*	11,272,165	3,805,378	181,193,716	80,328,902	192,465,881	84,134,280
1916*	12,593,281	4,258,064	127,322,971	55,373,479	139,916,252	59,631,543
1917*	12,626,440	4,294,253	166,108,460	75,070,218	178,734,900	79,364,471

\* Year ended 30th June.

The proportion of factory-made butter in the total production has increased from 72 per cent. in 1895 to over 94½ per cent. during 1916-17—a result of the decrease in the cost of production in factories as compared with farms.

The combined effects of drought conditions and scarcity of shipping-space for export trade caused a marked decrease in the butter produced in 1916. In the following year a most successful season was experienced, and the output rose to 79,364,471 lb., being 33 per cent. higher than in 1916, and less than 6 per cent. below the production in 1915, which was the highest on record.

Further particulars regarding dairy factories are given in the chapter on Manufacturing Industry.

#### CHEESE-MAKING.

The advance in cheese-making has been by no means commensurate with the expansion of the butter trade, but during the year ended the 30th June, 1917, the quantity made was 1,209,591 lb. (or 18½ per cent.) more than in any previous year, due to large purchases by the Imperial Government for the use of troops, particulars of which are shown in the chapter relating to Food and Prices. Under normal conditions the demand for cheese is limited, and the local production has invariably failed to supply the requirements of the State, hence it is evident that the manufacture of butter has been found more profitable. Moreover, the manufacture of cheese will never command the same attention as butter, owing to its great disadvantages as an article of export, under ordinary conditions. Cheese matures quickly, and unlike butter cannot be frozen, and after a certain period it decreases in value. It represents, in addition, only half the money value of butter, while the cost of freight is practically the same; hence it is not surprising that even where cheese can be produced in New South Wales under excellent conditions, its manufacture prior to 1916-17 had not been greatly extended.

From a previous table showing the cheese industry according to Divisions of the State, it will be seen that it is practically confined to the South Coast, where the production during the 1916-17 season exceeded 62 per cent. of the total.

The following table shows, for each year since 1907, the production of cheese in factories and on farms:—

Year.	Production of Cheese.		
	In Factories.	On Farms.	Total.
	lb.	lb.	lb.
1907	3,261,894	1,324,963	4,586,857
1908	3,260,389	1,502,971	4,763,360
1909	3,248,515	1,526,753	4,775,268
1910	3,892,506	1,298,583	5,191,089
1911	4,617,387	843,265	5,460,652
1912	4,428,304	1,026,381	5,454,685
1913	4,872,165	1,748,483	6,620,648
*1915	5,314,494	1,042,133	6,356,627
*1916	4,969,374	1,010,262	5,979,636
*1917	6,946,956	883,283	7,830,239

\* Year ended 30th June.

#### CO-OPERATIVE AND PROPRIETARY FACTORIES.

Most of the factories dealing with dairy produce are established on the co-operative principle, and during the season ended the 30th June, 1917,

90 per cent. of the factory butter was made in these establishments. The following figures, comparing the co-operative and proprietary factories, are exclusive of butter and cheese made in factories worked in conjunction with farms.

Year.	Butter.		Cheese.	
	Factories.	Output.	Factories.	Output.
	No.	lb.	No.	lb.
<b>Co-operative Factories.</b>				
1908	81	41,178,645	9	812,889
1909	90	44,632,044	10	1,002,361
1910	103	59,050,647	10	1,009,834
1911	105	66,194,003	10	1,140,731
1912	103	62,701,971	11	1,616,910
1913	102	64,376,531	11	1,393,196
*1914	103	36,725,400	9	769,883
†1915	102	72,364,931	9	1,822,696
†1916	99	50,220,294	10	1,857,774
†1917	98	67,593,631	9	2,456,285
<b>Proprietary Factories.</b>				
1908	69	15,777,276	23	1,958,258
1909	60	13,213,979	20	1,746,745
1910	46	12,339,452	21	2,071,051
1911	46	12,227,509	18	2,345,188
1912	43	9,719,799	18	1,846,126
1913	39	8,868,852	18	2,058,514
*1914	30	3,490,423	16	833,897
†1915	34	7,937,230	18	1,947,735
†1916	29	5,131,697	23	2,093,117
†1917	27	7,468,753	22	3,216,143

\* Six months—January to June. † Year ended 30th June.

#### OTHER MILK PRODUCTS.

There are other milk products besides butter and cheese which should receive more attention than is at present given to them. The manufacture of condensed milk is insufficient for the requirements of the local market, and large importations are necessary to meet demands. There are at present four factories in New South Wales, situated at Bomaderry, Singleton Smithtown, and Windsor. A somewhat similar product, known as concentrated milk, is made also at three of the factories, and it is used principally on ocean-going steamers. The total quantity of milk treated by the condensers during 1916-17 was 1,693,340 gallons, and the output totalled 5,829,990 lb., valued at about £125,000.

## SWINE.

The breeding of swine, which is usually carried on in conjunction with dairy-farming, has been much neglected in New South Wales, as the fluctuations in the following table show.

At 31st December.	Swine.	At 31st December.	Swine.	At 31st December.	Swine.
	No.		No.		No.
1860	180,662	1901	265,730	1910	321,632
1865	146,901	1902	193,097	1911	371,093
1870	243,066	1903	221,592	1912	293,653
1875	199,950	1904	330,666	1913	288,090
1880	308,205	1905	310,702	1915*	286,701
1885	208,697	1906	243,370	1916*	281,158
1890	283,061	1907	216,145	1917*	359,763
1895	223,597	1908	215,822		
1900	256,577	1909	237,849		

\* At 30th June.

The breeding of swine is an important factor in successful dairy-farming. Until recent years there was some difficulty in obtaining suitable pigs for breeding purposes, but as stock from the best imported strains can now be purchased at the Government experiment farms and other institutions, this obstacle is no longer operative. The breeds available for stock in New South Wales are the improved Berkshire, Poland China, and Yorkshire strains.

The following statement shows the number of pigs in each division of the State at the end of June, 1917, and the production of bacon and ham during the previous twelve months.

Division.	Swine.	Bacon and Ham curd.
	No.	lb.
Coastal		
North Coast ... ..	108,986	7,437,673
Hunter and Manning ... ..	66,044	367,540
County of Cumberland ... ..	20,124	5,298,233
South Coast ... ..	30,171	531,105
Total ... ..	225,325	13,634,551
Tableland—		
Northern ... ..	12,404	346,100
Central ... ..	18,408	326,138
Southern ... ..	7,366	171,656
Total ... ..	38,178	843,894
Western Slopes—		
North ... ..	15,115	144,315
Central ... ..	13,833	159,124
South ... ..	27,639	367,450
Total ... ..	56,587	670,889
Central Plains—		
North ... ..	2,528	7,865
Central ... ..	8,462	91,670
Total ... ..	10,990	99,535
Riverina ... ..	24,950	523,397
Western Plains ... ..	3,733	15,890
Total, New South Wales ... ..	359,763	15,788,156

As with other items of dairy produce, the output of bacon and hams during 1916-17 showed an increase on that of 1915-16, amounting to 2,211,515 lb., or 16·3 per cent. The production, like that of butter and cheese, is confined chiefly to the coastal districts of the State, but the breeding of pigs is distributed throughout New South Wales.

#### INSPECTION OF MARKETS AND PIGGERIES.

The work of the Veterinary Staff of the Department of Agriculture during the year ended the 30th June, 1918, included the inspection of markets and piggeries within the metropolitan area, and 129 premises and 17,893 pigs were inspected, as compared with 68 premises and 12,629 pigs during the previous twelve months. In consequence several outbreaks of swine-fever, the county of Cumberland was gazetted a Quarantine Area, so that the movements of pigs within the Metropolitan Area are subject to quarantine restrictions.

#### BACON AND HAMS.

The production of bacon and hams should be largely increased, as very rarely has it been sufficient to meet local requirements, and the production varies with the seasons.

The following table exhibits the output of bacon and ham from factories and farms since 1907.

Year.	Production of Bacon and Ham.		
	Factory.	Farm.	Total Production.
	lb.	lb.	lb.
1907	7,240,685	3,117,841	10,358,526
1908	7,296,532	2,191,767	9,488,299
1909	7,856,466	2,074,911	9,931,377
1910	10,183,441	2,436,626	12,620,067
1911	13,393,536	2,709,291	16,102,827
1912	13,766,482	2,759,894	16,526,376
1913	12,874,666	2,317,597	15,192,263
1914*	.....	.....	6,587,000†
1915†	13,564,630	1,762,418	15,327,048
1916†	11,937,895	1,938,746	13,876,641
1917†	13,560,366	2,227,790	15,788,156

\* January to June. † Year ended 30th June. ‡ Partly estimated.

#### LARD.

Statistics showing the total production of lard are not available. During the year ended the 30th June, 1917, the quantity extracted in bacon factories amounted to 655,511 lb., valued at £27,678; but as the manufacture of this product is conducted in many other establishments as well as on farms, this quantity represents only a portion of the total output. As a general rule the production is not sufficient for local requirements, which are supplied by importation.

During the twelve months ended 30th June, 1917, however, the oversea exports of lard and refined animal fats amounted to 475,262 lb., valued at £15,661, as compared with the direct imports from oversea countries to 325,604 lb., valued at £9,447.

## DAIRY INSTRUCTION.

Educational and experimental work relating to dairying is conducted by the Department of Agriculture at several of the State institutions, including the Hawkesbury Agricultural College, the experiment farms at Wagga, Bathurst, and Grafton, the dairy farm at Wollongbar, on the North Coast, and the stud farm at Berry, on the South Coast.

The Berry farm is devoted to the breeding and raising of pure milking Shorthorn and Holstein stock; Wollongbar and Grafton to Guernsey and Ayrshire stock, and Wagga to Jersey cattle. At each of these institutions and at the Hawkesbury College provision is made for students, and it is intended also to establish a dairy school in connection with the Berry farm, where special courses of veterinary instruction will be given.

In order to enable factory managers and butter-makers to improve their scientific knowledge, dairy-science schools are held for short terms at different dairying centres, and certificates are given to those who pass successfully examinations in the grading of cream, and in the testing of milk and cream.

It is intended to give a regular course of scientific instruction, commencing at the factory and to be continued by means of bursaries at the Hawkesbury College; for those showing especial fitness an advanced course in dairy chemistry and bacteriology may be provided. During the year 1916-17 eight dairy science schools were held and 139 students attended.

Instructors travel throughout the principal dairying districts during each year in order to give instruction and advice in cream-grading, butter and cheese making, and in all other matters connected with the industry.

## THE DAIRY INDUSTRY ACT.

The Dairy Industry Act, which was passed in December, 1915, provides for a complete inspection by officers of the Dairy Branch of the Department of Agriculture, of factories devoted to the making of butter and cheese. The Act provides also for the compulsory uniform grading of butter, both for exportation and for local consumption. The grading of cream at butter factories is likewise compulsory, and those desirous of qualifying for this class of work must fulfil the conditions of a test examination before being permitted to grade cream under the provisions of the Act. It is required, moreover, that all butter be packed into boxes bearing registered brands, indicative of the quality of the product contained therein, the responsibility of truth to description resting in the first instance on the manager of any specified factory. The supervision of the details involved in this work is vested in an experienced dairy instructor, who is appointed to each of the dairying districts of the State. This officer acts also as an inspector, and he is constantly in communication with the factory managers and cream graders of his administrative area, and is consequently engaged in continual instruction in matters connected with the industry. The teaching of the dairy instructor is necessarily co-ordinated with the grading conducted in Sydney, where all butter intended for exportation oversea is examined by Commonwealth graders, and for interstate trade by State officials. Grade certificates recording the quality of the article are forwarded to the manufacturer, and copies are given also to the dairy instructor for the district, who is thereby informed of the Sydney grade-standard of the butter made under his supervision.

Although the Dairy Industry Act has been force for less than three years, the quality of factory butter has markedly improved. In the best year prior to the passing of the Act the proportion of first-quality butter passed

for importation amounted to 50 per cent., whereas in the year 1917-18, 73,000,000 lb. or 95 per cent. of the butter made in factories were classed as of choicest or first grade quality.

In addition to their other duties, the district dairy instructors impart instruction by the medium of lectures on the different processes of dairying.

#### HERD-TESTING.

In the different districts in which the experiment farms are situated the Department of Agriculture has established and maintained imported high-class herds of pure-bred dairy cattle. The farm at Berry is devoted to the breeding and raising of Shorthorn and Holstein milking stock; at Wollongbar are reared stud Guernseys; at Grafton, stud Ayrshires; at Wagga Wagga, Jerseys; at Bathurst, Kerries; at Glen Innes and Yanco, Ayrshires; at Cowra, Jerseys; and at the demonstration farm at Nyngan, Red-polls. Among other pure-bred stock raised at the Hawkesbury Agricultural College, Jerseys hold a prominent place.

Apart, however, from the stimulus thus given to the industry, and for the purpose of assisting dairy-farmers to improve their herds by the introduction of pure-bred cattle from high-class stock, a valuable educational process is conducted in the form of herd-testing. This section consists of two branches, namely, the testing of pure-bred dairy cattle by the officers of the Department of Agriculture, and the testing of a large number of dairy cattle through local associations organised by the Department. Over 1,600 pure-bred stud stock had been tested to March, 1918, and a greatly increased number is now being recorded. In the Herd-Testing Associations conducted by the farmers, some 50,000 cows have been tested. On account of the war this section of testing has been restricted, and the milk and butter yields of only 1,500 cows per annum are being recorded. When conditions become normal it is expected that testing units will be established in nearly all dairying centres.

#### EXPORTS OF DAIRY PRODUCTS.

The following table shows the oversea exports of butter, cheese, and bacon, exclusive of ships' stores, since 1907.

Year.	Oversea Exports.					
	Butter.		Cheese.		Bacon and Ham.	
	lb.	£	lb.	£	lb.	£
1907	17,832,354	769,463	134,468	3,813	80,346	3,368
1908	17,261,331	813,490	53,554	1,921	82,899	3,742
1909	17,381,117	752,487	53,117	1,732	62,380	2,670
1910	27,047,481	1,223,518	82,294	2,413	500,296	14,551
1911	32,629,324	1,500,709	85,395	2,508	487,845	12,836
1912	20,456,300	1,076,851	84,866	3,219	377,352	11,498
1913	21,950,967	987,793	85,760	2,721	336,560	12,626
1914*	6,495,303	294,774	46,881	1,448	68,035	3,255
1915†	23,281,233	1,162,790	342,138	9,865	177,549	8,487
1916†	3,741,841	226,444	52,963	3,663	51,239	2,985
1917†	24,465,249	1,705,308	1,830,090	71,511	232,816	9,898

\* Six months—January to June.

† Year ended 30th June.

The decline in exports of dairy products in 1915-16 must be attributed to the incidence of the War, and the consequent great shortage of freight-space, but in 1916-17 large quantities were exported to the United Kingdom for war purposes, and the following increases above the figures for 1914-15

were recorded :—Butter, 1,184,016 lb., or 5 per cent.; cheese, 1,487,952 lb., or 435 per cent.; and bacon and ham, 55,267 lb., or 31 per cent. The value of the exports amounted to £1,786,717, being 51 per cent. higher than in 1914-15.

Under the Customs Regulations dairy produce for export must be submitted to inspection and must be graded prior to acceptance for shipment, the exportation of inferior products being prohibited unless the goods are labelled as below standard.

Before the outbreak of War, the export trade in butter was almost entirely with the United Kingdom, where an immense population constituted a ready market for all the products of the dairying industry.

The imports of butter, the production of New South Wales, into the United Kingdom during the last ten years are shown hereunder.

Year.	Imports of Butter from New South Wales.	Proportion of Total Butter imported into United Kingdom.
	cwt.	per cent.
1907	195,289	4.64
1908	138,953	3.30
1909	132,708	3.27
1910	217,780	5.03
1911	281,588	6.54
1912	186,695	4.61
1913	155,936	3.77
1914	122,528	3.03
1915	158,222	4.16
1916	32,575	1.50

#### PRICES OF BUTTER IN LONDON.

The average top prices per cwt. for Australian butter in London during the last five seasons were as shown below.

Month during which Sales were effected in London.	1913-1914.	1914-1915.	1915-1916.	1916-1917.	1917-1918.
	1913. s.	1914. s.	1915. s.	1916. s.	1917. s.
August ... ..	106½	*	*	168	204½
September ... ..	109½	*	*	187	206†
October ... ..	119	*	*	197	206†
November ... ..	121	129½	*	203	220†
December ... ..	120½	135½	*	208	252†
	1914. s.	1915. s.	1916. s.	1917. s.	1918. s.
January ... ..	113½	139½	143½	203	252†
February ... ..	112½	132	149	205	252†
March ... ..	110½	136	158	209½	252†
April ... ..	104½	132	158	191	252†
May ... ..	104	137	160	192	252†
June ... ..	104	140	160	185	252†
July ... ..	109½	140½	160	191½	252†

\* No quotations.

† Proclaimed price—Government flat rate.

In earlier years there was difficulty in securing ocean freights during the export season, but the trade ultimately assumed such important dimensions that, prior to the beginning of hostilities in Europe in 1914, it became the subject of keen competition among shipping companies.

The freight on butter forwarded by mail steamers from Sydney to London during the seasons 1900-1 to 1904-5, was 3s. 6d. per box of 56 lb., while for other steamers the rates varied from 10d. to 1s. 9d. For the 1905-6 season contract rates were 1s. 10d. for mail steamers and 1s. 9d. for cargo boats. On 1st October, 1907, the rates were increased to 2s. 6d. per box by mail steamers, but from the date of the mail contract with the Federal Government—1st February, 1910—the charge for butter carried by the Orient line of mail steamers was reduced to 2s. 4d. per box, the rate for the P. & O. mail steamers remaining unchanged. The charge for other steamers was fixed at 2s. per box.

These charges were not altered until the outbreak of the War, when a 20 per cent. surtax was imposed in addition to the 5 per cent. primage. The rates were advanced twice during 1915, and again on 28th February, 1916, when the charges were raised for mail steamers and cargo boats to 4s. and 3s. 9d. respectively, with primage added.

#### DAIRYING INDUSTRY.—VALUE OF PRODUCTION.

The value of the production from the dairying industry during 1916-17 was £6,683,000, to which may be added £795,000 obtained from the sale of swine, making a total of £7,478,000, as under :—

	£
Butter ... ..	4,740,000
Cheese ... ..	227,000
Milk (not used for butter or cheese) ... ..	1,059,000
Milch cows ... ..	657,000
Swine ... ..	795,000
Total ... ..	7,478,000

#### MACHINERY.

A list of dairying implements and machinery in use was given in the Official Year Book of 1912. The value of farm implements and machinery used in the dairying industry during 1916-17 was £595,838.

A comparison of machinery used in the rural industries is shown in the chapter on Agriculture.

#### POULTRY-FARMING.

Poultry-farming was conducted formerly in conjunction with dairying; but the interests involved became so important commercially that a distinct industry dealing with poultry alone has been developed. Every effort is made to obtain the benefits of modern methods of poultry-farm management, and to secure the best egg-laying and table breeds. Statistics of production are not available, but a general estimate based on accessible returns shows the value during 1916-17 to be approximately £1,908,000.

The following statement contains particulars for a series of years regarding poultry of all descriptions on farms or holdings of 1 acre and upwards. The absence of information as to the poultry kept on areas of less than 1 acre detracts, however, considerably from the value of the statement.

Year.	Poultry of all Descriptions on Farms or Holdings of 1 acre and upwards at end of year.					Eggs obtained during year. All kinds.
	Fowls, Chickens, &c.	Ducks, &c.	Geese, &c.	Turkeys, &c.	Guinea Fowls.	
	No.	No.	No.	No.	No.	dozen.
1908	2,736,986	234,870	25,631	193,613	4,514	11,305,299
1909	2,692,385	268,741	25,878	224,187	5,000	12,096,859
1910	3,092,375	325,550	28,980	244,456	5,015	13,204,904
1911	3,199,163	321,596	26,127	232,529	4,663	13,637,129
1912	3,351,639	261,075	23,948	216,274	5,988	13,768,865
1913	3,878,234	273,919	24,545	245,693	5,920	15,136,938
1915*	3,140,635	182,141	17,996	152,181	5,924	12,437,993
1916*	3,208,474	159,516	17,191	146,732	5,415	13,628,385
1917*	3,729,201	197,757	19,543	182,825	6,181	14,313,825

\* Year ended 30th June.

Since 1901, egg-laying competitions organised by private subscription have been conducted at the Hawkesbury Agricultural College, with the object of stimulating the poultry industry. These competitions have attracted widespread interest, and birds for competition are sent from all parts of New South Wales, from the other Australian States, from New Zealand, and some from America.

By this means much valuable information has been gained from practical experiment and research; tests are arranged and records are kept of the cost of feeding, and of the results obtained from the various breeds of poultry, and by different methods of treatment. An annual report in bulletin form, giving particulars and tabulated results, is issued by the Department of Agriculture.

BEE-KEEPING.

The bee-keeping industry is at present time of small importance, though there is ample inducement for further expansion.

The production of honey and of beeswax varies considerably from year to year, as shown in the following table, which relates to the last ten years.

Season.	Bee Hives.			Honey.	Average Yield of Honey per productive Hive.	Beeswax.
	Productive.	Un-productive.	Total.			
	No.	No.	No.	lb.	lb.	lb.
1907-08	53,240	15,148	68,388	2,660,363	50.0	48,427
1908-09	53,612	16,347	69,959	3,064,526	57.2	58,697
1909-10	47,807	17,992	65,799	2,066,330	43.2	53,006
1910-11	55,958	14,308	70,266	2,765,618	49.4	72,617
1911-12	62,254	11,801	74,055	3,433,253	55.1	67,358
1912-13	50,285	13,023	63,308	2,410,000	47.9	49,734
1913-14	43,990	11,029	55,019	1,866,835	42.4	39,244
1914-15	29,857	9,691	39,548	1,143,605	38.4	26,676
1915-16	31,974	5,803	37,777	1,590,384	49.7	29,919
1916-17	33,317	7,454	40,771	1,665,298	50.0	29,434

Owing to the unfavourable season, a low yield resulted during 1909; and although the average per productive hive showed a decided improvement during the following two years, the dry conditions which prevailed in some

divisions during 1912 caused a diminished production, the yield per hive; 47·9 lb., being below the decennial average. In 1914-15, owing to a continuation of the dry conditions, the yield fell to 38·4 lb., the lowest figures in the decennium. In 1915-16 there was a marked increase in the average yield of honey per productive hive, 49·7 lb., and this average was more than maintained in 1916-17, when 33,317 hives yielded 1,665,298 lb. of honey, or 50 lb. per hive. Frame-hives are now in general use, as the box-hive has been condemned. Special legislation has been passed with reference to apiculture, and is more fully detailed in the chapter on Agriculture.

The estimated value of the production in 1916-17 of honey was £31,100 and of beeswax £1,900, the production for each division being as follows :—

Division.	Honey.	Beeswax.
	lb.	lb.
Coastal ... ..	370,459	8,064
Tableland ... ..	922,073	12,856
Western Slopes... ..	334,663	7,750
Central Plains and Riverina ... ..	34,553	744
Western Plains ... ..	3,550	40
<b>Total</b> ... ..	<b>1,665,298</b>	<b>29,434</b>

## FORESTRY.

THE forest lands of the State containing timber of commercial value consist of about 15 million acres, of which three-fifths are Crown lands, and two-fifths are alienated; about 7 million acres of State lands have been either dedicated or reserved for the preservation and growth of timber.

The total forest area, although not large, contains a great variety of useful timbers, which in hardwoods number about twenty different kinds of good commercial value, including such renowned constructional woods as iron-bark, tallow-wood, and turpentine, whilst in other timbers there are about twenty-five varieties, including such valuable timbers as cedar, beech, pine, and teak. It is estimated that, approximately, five-sixths of the timber supply consists of mixed hardwoods and one-sixth of soft and brush woods.

The earliest evidence of attention to State forestry is found in the publication of Timber License Rules in the year 1839. In 1871 the first timber reserves were notified, and in 1877 regulations were made as to the cutting and use of timber.

During subsequent years little was done to protect the forest resources; timber was cut as requirements prompted, no heed was given to the necessity for systematic replacement to meet the wants of the future; and, as there was no specially constituted body with powers of supervision or conservation, large tracts of country were denuded and much valuable timber was destroyed.

Realising the necessity for remedial measures, the Government in 1907 appointed a Royal Commission to report upon the effectiveness of the forest laws, and to indicate what steps should be taken in the direction of afforestation and reforestation.

The Royal Commission estimated that at the current rate of consumption local supplies of hard and soft wood timbers would last about forty-seven and twenty-eight years respectively, and recommended the passing of forestry legislation, the strengthening of supervisory machinery, and the permanent dedication of all lands reserved for forestry purposes, for the preservation, growth, and re-growth of timber. Among other recommendations were the prohibition of export of certain timbers which are of special value locally for constructive purposes, the establishment of a Department of Forestry, the appointment of a Director of Forests, and the initiation of a vigorous policy of afforestation and reforestation.

Following this report, a Forestry Department was established, and a Director of Forestry and other officers were appointed under the Forestry Act, 1909. This Act was repealed by the Forestry Act, 1916, which became law on the 1st November, 1916. The new Act provides for the constitution of a Forestry Commission, consisting of three members, one of whom is to be Chief Commissioner, each Commissioner being appointed for a term of seven years. Only the Chief and one other Commissioner have been appointed, but for the time being a Minister of the Crown is acting as Assistant Commissioner (without remuneration), in terms of the Forestry (Temporary Commissioners) Act passed in 1916.

The Commission is charged with the administration of the Forestry Act, 1916, which provides for the control and management of the State forests and timber reserves, for the training of forest officers, for the conduct of research work, and for the collection of statistics in connection with forestry.

The Commission may dispose of timber and products of any State forest or timber reserve, and—

- (a) take and sell such timber and products;
- (b) convert any such timber into logs, sawn timber, or any other merchantable article, and sell the same;

- (c) convert any such products into merchantable articles, and sell the same;
- (d) construct roads, railways, and tram-lines and other works for the transport of timber; and purchase, rent, or charter and use vehicles and vessels, with the necessary motive power;
- (e) construct, purchase, or rent sawmills and other mills, with all the necessary machinery and plant for converting timber, and manufacturing articles from timber, and use such mills for those purposes.

The Commission may purchase horses, cattle, and sheep, and depasture them on State forests, and may sell such horses, cattle, and sheep.

One-half of the gross amount received from royalties, licenses, and permits, and from the sale of timber, other than the output of the mills as indicated in (e) above, is to be set apart for afforestation, reforestation, survey and improvement of State forests and timber reserves, and for purposes incidental thereto, provided that the expenditure of an amount exceeding £5,000 on any particular work shall be subject to the approval of the Minister.

The Government may purchase, resume, or appropriate land for the purpose of a State forest, and may dedicate Crown lands as State forests or timber reserves. After the expiration of three years from the commencement of the Act there must be not less than 5,000,000 acres of land in New South Wales dedicated as State forests.

All areas occupied or leased for mining or for other purposes within a State forest are subject to the provisions of the Forestry Act, and the Commission, with the approval of the Minister, may issue, on such conditions as it thinks fit, and for any term not exceeding twenty years, leases of land within State forests for grazing or for any purpose approved by the Commission and not opposed to the interests of forestry; such leases will be termed "Forest leases."

Timber-getters' and other licenses may be issued by the Commission, and exclusive rights to take timber products from specified areas of State forest or timber reserves may also be granted.

Every person conducting a sawmill for the treatment of timber must obtain a license, keep books and records, and make prescribed returns. Royalty must be paid on all timber felled and on all products taken from any State forest, timber reserve, Crown lands, or lands held under any tenure from the Crown which require the payment of royalty; but such royalty is not payable on timber exempted by terms of the license or by the regulations, or on timber required for use on any holding not comprised within a timber or forest reserve; allowance may be made also for any timber which is not marketable. Trees on any State forest, timber reserve, or Crown lands, with the exception of lands held under conditional lease granted before the passing of the Act, must not be ringbarked except under permit.

The Minister may impose conditions for afforestation and reforestation in all exclusive rights or licenses.

The Act makes provision for regulations on the following matters:— Licenses, &c., and the fees and royalties payable; the periods and the conditions under which licenses, &c., may be granted; the protection and preservation of timber; the inspection, cutting, marking, and removal of timber; the kinds, sizes, and quantities which may be cut or removed; the conditions under which fires may be lighted in State forests; and the organisation of a system of education in scientific forestry.

The Act provides also for the classification of forest lands and for proclamation of State forests; and survey work is in progress for this purpose.

As an aid to forest management, arrangements are being made for the enrolment of forest cadets, and for the establishment of a training school with a curriculum of educational and scientific subjects.

A large amount of regenerative work has been done already in connection with the Murray River and the inland forests. Experimental works have been started in various parts of the coast and highlands to test the capacity of different classes of hardwood forest for reforestation, and to ascertain the best methods of treatment; and stations have been selected for the promotion of afforestation by the establishment of State nurseries, with the object of utilising some of the waste lands of the State, of which about 300,000 acres are suitable for the purpose.

On 30th June, 1917, the total area of Crown lands approved as State Forests was 5,063,688 acres, of which 3,484,378 acres had been proclaimed. In addition, 829 timber reserves have been notified, the area involved being 3,117,579 acres. During the year ended 30th June, four areas, aggregating 12,865 acres were resumed for State forest purposes, the total expenditure amounting to £5,757.

On the 30th June, 1918, the total area recommended for State Forests was 5,500,000 acres, of which 4,822,627 acres had been proclaimed in 660 areas; whilst the number of Forest Reserves was 670, involving 2,216,447 acres.

RATE OF GROWTH OF INDIGENOUS COMMERCIAL TREES.

An investigation is being conducted in the Department of Forestry regarding the rate of growth of the indigenous commercial timbers in New South Wales; of the hardwoods, the flooded gum, blue gum, spotted gum, and blackbutt are the fastest growers, and the red ironbark and the grey gum are the slowest. The evidence to date indicates the approximate rate of growth to be as under :—

Species of Tree.	Mean average annual diameter growth.	Pre-scribed diameter growth at maturity.	Approximate age when matured.	Species of Tree.	Mean average annual diameter growth.	Pre-scribed diameter growth at maturity.	Approximate age when matured.
<b>COASTAL HARDWOODS.</b>				<b>INLAND HARDWOODS.</b>			
	Inches.	Inches.	Years.		Inches.	Inches.	Years.
Grey ironbark ...	0·50	30	60	Ironbark ...	0·44	24	54
Red „ ...	0·35	24	68	Red stringybark ...	0·61	16	26
Tallow-wood ...	0·58	30	52	White „ ...	0·44	16	36
Blackbutt ...	0·68	30	44	Blackbutt, N.E. ...	0·35	18	51
Spotted gum ...	0·77	21	27	Murray red gum ...	0·52	34	65
Grey box ...	0·52	24	46	Cypress pine ...	0·43	12	28
Blue gum ...	0·87	28	32				
Grey „ ...	0·35	24	68	Average, inland hardwoods.	0·47	...	46
Red mahogany ...	0·44	24	54				
Woollybutt ...	0·65	28	43	<b>BRUSH AND SOFTWOODS.</b>			
Flooded gum ...	0·87	28	32	<b>(Coastal and highlands.)</b>			
Turpentine ...	0·44	30	68	Silky oak ...	0·65	24	37
Bloodwood ...	0·57	18	31	Red cedar ...	0·50	32	64
				Hoop pine ...	0·48	30	62
				Colonial teak ...	0·61	28	46
				Rosewood ...	0·61	28	46
				Coachwood ...	0·87	12	14
				Sassafras ...	0·44	20	45
Average, coastal hardwoods.	0·58	...	48	Average, brush and softwoods.	0·59	...	45

## STATE FOREST NURSERIES AND PLANTATIONS.

A State Forest Nursery is maintained at Gosford for the propagation of economic plants. The planted area is about 60 acres, and arrangements are being made for its extension; exchanges of seeds and plants are made with similar institutions in various parts of the world. At Hogan's Brush, an adjunct to the State Nursery, there is a planted area of 20 acres, which will be extended by the resumption for forestry and agricultural purposes of an adjoining area of 100 acres.

The distribution of plants from Gosford during the year ended 30th June, 1917, was as follows:—

Forest Plantations	...	...	...	...	...	...	27,730	
Departmental Grants, Exchanges, &c.	...	...	...	...	...	...	25,040	
Agricultural Farms and Public Institutions	...	...	...	...	...	...	21,105	
Total							...	73,875

Branch nurseries have been established at Tuncurry, in the North Coast district, and at Armidale, on the Northern Tableland. In addition, a camp for good-conduct prisoners has been erected near Tuncurry, where an area of 700 acres is planted; at 30th June, 1917, 500,000 trees had been planted out. Preliminary arrangements have been made to establish a wattle plantation for convalescent consumptives at Boonoo Boonoo, near Tenterfield. Experimental areas for reforestation treatment have been selected near Grafton, Bellingen, and Coopernook; and reforestation work has been done on reserves in the Armidale, Manning, Kempsey, Ourimbah, and Cessnock districts.

## TIMBER FOR PUBLIC WORKS.

Arrangements are being made for the establishment of State saw-mills, and for the business of direct supply of sawn, round, and hewn timbers for Government purposes, as an industrial undertaking.

A Committee on Timber Supply, comprising representatives of various Government Departments, was appointed during the year 1914. The Committee estimated that the State's annual consumption of timber is 500 millions superficial feet; the average supply, calculated on the production of existing forest reserves, is 5,000 superficial feet to the acre.

## FOREST INDUSTRIES.

During the year ended 30th June, 1917, there were 513 saw-mills licensed. The employees numbered 4,163, and the value of plant and machinery was estimated at £578,776. The output of native timber amounted to 125,243,000 superficial feet, valued at the mills at £949,306.

## IMPORTS AND EXPORTS OF TIMBER.

In the following table is shown the import and export values of timber to and from New South Wales for the last six years:—

Year ended 30th June—	Imports.	Exports.	Year ended 30th June—	Imports.	Exports.
	£	£		£	£
1912	1,147,414	279,900	1915	1,145,649	198,238
1913	1,436,922	248,020	1916	888,507	44,486
1914	1,405,779	261,607	1917	949,505	135,531

## FORESTRY LICENSES AND PERMITS.

The following return shows the licenses and permits current during each of the years ended 30th June, 1917 and 1918 :—

Description.	Amount of Fee.			Total Fees Collected year ended 30th June	
	Per Month.	Per Quarter.	Per Year.	1917.	1918.
	s. d.	s. d.	s. d.	£	£
Timber License (subject to Royalty).	2 6	7 6	.....	5,271	5,777
Fuel License ...	5 0	15 0	.....		
Products License ...	2 6	7 6	.....		
Grazing Permit ...	1 0	.....	.....		
	(Subject to payment of agistment fees, as assessed by Forestry Officers.)				
Special License ...	.....	7 6	30 0	504	603
Game Permit ...	1 0	.....	.....		
Saw-mill License ...	.....	.....	20 0		
	(When issued after 30th June in any year, 10s. for unexpired portion of the year).				
Occupation Permit ...	20 0	.....	.....	233	1,399
	(Subject to payment of rent to the Crown and compensation to the lessee or licensee, if any, assessed by the Minister.)				
Ringbarking Permit ...	(No prescribed fee). Net amount received ...			643	477
	Total ... ..			£ 6,651	8,256

## TIMBER LICENSES.

The revenue collected by the State from Timber Licenses and from Royalty on timber during each year since 1909 is given in the subjoined table :—

Year.	Timber Licenses, &c.	Royalty on Timber.	Total.	Year.	Timber Licenses, &c.	Royalty on Timber.	Total.
	£	£	£		£	£	£
1909	10,486	46,755	57,241	1914*	6,593	39,531	46,124
1910	10,877	70,960	81,837	1915†	11,365	76,021	87,386
1911	11,153	79,165	90,318	1916†	8,701	59,406	68,107
1912	10,998	85,967	96,965	1917†	9,136	58,137	67,273
1913	12,251	85,362	97,613	1918†	12,938	58,031	70,969

\* Six months ended 30th June.

† Year ended 30th June.

The practice of forestry in Europe and America has shown that greater expenditure by the Government means vastly increased profits, and there is reason for expecting increased revenue as the result of forest improvement in New South Wales, where timber grows more rapidly and to larger size.

## TIMBER PHYSICS.

A series of timber tests has been undertaken at the University of Sydney. The tests were carried out in accordance with the latest methods, and are of scientific and practical value. They proved the correctness of the favourable opinion held by users of the timbers of New South Wales as to strength and durability.

## INTERSTATE FORESTRY CONFERENCES.

Interstate Conferences of Forest Officers of Australia were held in 1911, 1912, and 1916, to secure uniformity in procedure and administration. The subjects discussed include the following :—

Forest policy and legislation, training of Forest Officers, afforestation of waste lands, establishment of an Australian Forestry League, maintenance and extension of coniferous forests, fire protection, preservation of forest vegetation on mountain water-sheds, identification and uniform nomenclature of indigenous timbers, economisation of waste material, mixed planting of eucalypts, and the establishment of an Australian Journal of Forestry, &c.

## TREE-PLANTING BY LOCAL AUTHORITIES.

Under the Local Government Act, 1906, the functions of a Shire Council include the making of provision—

For the prevention or mitigation of bush-fires, including the organisation of bush-fire brigades.

For the construction and maintenance of streets, including tree-planting.

The primary functions of municipalities include the care and management of parks and recreation grounds, public reserves and commons, the care of which is not under any statute vested in other bodies or persons. A Council of a municipality or shire may plant trees in any public road or street, and may set apart and fence portions of public roads or streets as tree reserves.

## FISHERIES.

THE waters along the coast of New South Wales contain numerous varieties of fish, but the fishing industry has not been developed commercially to anything like the extent of its capabilities. The vast mineral, pastoral, and agricultural resources of the State have presented more profitable avenues for the investment of capital, so that the development of fisheries has been left mainly to a few individuals with limited capital and primitive appliances.

### CONTROL OF THE FISHERIES.

Under the Fisheries Act, 1902, control of the fisheries of the State, previously administered by a Commission, was placed in the hands of a Board to supervise the industry, to carry out investigations likely to be of service, and to ensure observance of the regulations in regard to the dimensions of nets, closure of inland and tidal waters, net-fishing, and other such matters. Under an amending Act, in 1910, the Fisheries Board was dissolved, and its powers vested in a Minister of the Crown, the Chief Secretary being charged with the administration of the Act.

The State trawling scheme was initiated in June, 1915, but as the industry is essentially a commercial project it was declared to be an industrial undertaking, and is therefore carried on independently of the other fisheries of the State. Particulars of this scheme are stated in another part of this volume.

### FISHING LICENSES.

A license must be obtained for his fishing boats, by every fisherman in tidal waters, the annual fee being 5s., which is reduced to half that amount if the license is issued after 30th June and before 1st December.

The number of licenses granted to fishermen during the year 1917 was 3,126, and of fishing-boat licenses 1,658; the fees received from these 4,784 licenses amounted to £1,092.

The subjoined table shows the number and value of the boats used during 1917:—

Description.	Number.	Value
Boats not more than 24 feet over-all—		£
With motor ... ..	203	18,340
Without motor ... ..	600	13,236
Boats more than 24 feet over-all—		
With motor* ... ..	77	19,911
Without motor ... ..	18	791
Total ... ..	898	52,278

\* Includes five steamers, valued at £2,750.

### OYSTER LEASES.

For the purposes of oyster-culture, tidal Crown lands below an approximate high-water mark may be leased at yearly rentals, determined by the Minister, for every hundred yards of frontage; the areas are classified as average, special, or inferior lands.

The leases of average lands are for fifteen years, but may be renewed for a like period; no area upon which an aggregate rental of less than £5 per annum is payable, may be leased to any person not already an oyster lessee.

Leases of special lands are granted for areas of special value after the land has been offered by auction or tender, and are subject to the same conditions as leases of average lands, but need not be confined to areas along the approximate high-water mark.

Leases of inferior lands are granted for a term not exceeding ten years, with the right of renewal for a further term of five years.

During the year 1917 applications for leases numbered 294, representing 96,007 yards of foreshore and 85 acres of off-shore leases; while at the end of the year the existing leases numbered 3,181; the length of foreshores held was 969,833 yards, and there were deep-water leases to the extent of 378 acres. The deposits paid with the applications for leased areas were £577, while the rentals received during the year for leased areas were £7,260. Licenses issued to oyster vendors numbered 314, the fees received being £293.

#### PRODUCTION.

The most important kinds of fish marketed are snapper, bream, black-fish, whiting, mullet, jewfish, flathead, garfish, and Murray cod—a fresh-water fish; salmon, tailer, trevally, leather-jacket, and others are gradually gaining favour in the local markets.

Details of the Government trawling scheme and particulars regarding the marketing of fish and oysters are given in the chapter of this Year Book relating to Food and Prices.

*Fish.*—Exclusive of trawled fish, the quantity consigned to Sydney and Newcastle markets during 1917 totalled 187,125 baskets, of which 4,585 baskets were condemned. In addition, 5,269 baskets of fish were consigned from the Tweed River to Brisbane, 481 from Eden and Pambula to Melbourne, and 12,000 baskets are recorded as having been sold in various fishing centres in coastal areas, but these figures are incomplete. A basket of fish is calculated at 84 lb. weight.

As usual the bulk of the supplies came from the estuaries and lakes on the northern part of the coast-line. A small proportion, chiefly snapper, came from the ocean, this being principally the produce of the long-line ("Jacob") fishing. The main sources of the fresh fish supply are indicated below, the weights being inclusive of the quantities condemned —

Clarence River ...	3,882,000 lb.	Lake Macquarie ...	755,000 lb.
Tuggerah Lakes ...	1,523,000 „	Camden Haven ...	710,000 „
Port Stephens ...	1,375,000 „	Lake Illawarra ...	686,000 „
Wallis Lake ...	1,249,000 „	Hawkesbury River ...	598,000 „
Botany Bay and George's River ...	796,000 „	Richmond River ...	521,000 „

Notwithstanding the immense shipping development and consequent increase of traffic, and the large reclamation of foreshores of recent years, it is of special interest to note that the marketed production from Port Jackson was as much as 270,000 lb. The actual production was very much greater, because a considerable quantity was sold in the suburbs of Sydney without passing through the markets.

*Crayfish.*—The number of marine crayfishes (*Palinurus*) marketed during 1917 was 97,752; the number captured was very much greater, but many were lost by death before marketing, and 2,142 were condemned. The principal source of supply was the northern crayfish grounds, from Newcastle to Port Macquarie. In addition, the record of local sales show that 4,800 were disposed of; these figures, however, are incomplete, as they do not cover the whole coast.

*Prawns.*—A quantity of 3,542 baskets, or, approximately, 141,680 quarts, of marine prawns (*Penæus*) was marketed during 1917. Local returns (incomplete, as before mentioned) show an additional production of 30,000 quarts; about 117 baskets were condemned, and, approximately, 4,000 baskets not included in the quantity marketed were sold for bait.

*Crabs.*—A large number of edible crabs was marketed. These comprised several species of swimming-crabs, notably the Blue (*Lupea*) and the Mangrove (*Scylla*). About 763 baskets of crabs were marketed, in addition to 42 baskets disposed of locally at the various fishing centres.

*Oysters.*—For the year 1917 the oyster production of the State amounted to 21,171 sacks of the Rock Oyster (*Ostrea cucullata*). This output was principally the result of artificial cultivation.

*Whaling.*—The operations of the modern Norwegian Whaling Company have been suspended for several years, and probably they will not be resumed until the close of the war. In 1912 work began about half-way through the season, and was conducted for about two and a half months, during which time no less than 158 whales were captured. From these approximately 3,500 barrels (583½ tons) of oil, valued at £12,000, were taken. During 1913 operations were begun in May, and, notwithstanding nearly two months of very bad weather, the season closed in mid-November with 329 whales, yielding 16,000 casks of oil; and making a total of 487 whales during two seasons. The following species of whale were taken:—Blue or sulphur-bottom, finback or finner, pollock or fish, humpback, and sperm. The most numerous, and at the same time the most valuable as oil-producers, were the humpbacks. The whales measured from 35 feet to 85 feet in length, and yielded quantities ranging from five casks to 150 casks, or 25 tons. Although several whales passed along the coast during 1915, no attempt was made to capture them. During 1916 two whales were secured in the vicinity of Twofold Bay, a humpback in July, and, in September, a large Right whale, which yielded, in addition to the whalebone, about 6 tons of oil, valued in all at about £400. There were no operations during 1917.

There is ample scope on the coast of the State for two shore stations, working under modern conditions, with two steam whaling gunboats each. The season begins in June and ends in November—though whales may be taken before and after that period.

*General.*—There is a small consumption of marine mussels, cockles, and whelks, various squids and octopi, and the "Mutton Fish" or "Ear-shell" (*Haliotis*), but they are not of great importance in the food supply. In the western areas of the State there is a fair consumption of the Freshwater Crayfish (*Astacopsis*), which attain a large size. A few are sent to Sydney markets.

#### VALUE OF PRODUCTION.

Excluding crayfishes and prawns sold locally in coastal districts, and not recorded, the product of the whale and dolphin fisheries, freshwater crayfishes ("Lobsters") and shrimps sold in country districts, molluscs other than

oysters, and a small amount of fish used for fertiliser and oil, the value of the production from fisheries of New South Wales for the year 1917 was approximately £267,403, made up as follows:—

Fresh Fish...200,290 baskets	...	...	...	...	...	£	200,290	
Crayfish ... 8,367 dozen	...	...	...	...	...		6,276	
Prawns ... 4,175 baskets	...	...	...	...	...		7,307	
Crabs ... 802 baskets	...	...	...	...	...		602	
Oysters ... 21,171 sacks	...	...	...	...	...		52,928	
Total Value							...	£267,403

During the same period the weight of fish secured by the State trawlers was approximately 1,656,390 lb.—equal to 27,606 baskets—valued on the wharves at £27,606. In addition, 202,252 lb. of fish, valued at £3,370, were received by direct consignment from coastal fishermen. The fish were retailed in the State fish-shops at prices ranging from 3d. to 11d. per lb. The total value of the production resulting from the ordinary fisheries and from trawling during 1917 was £298,379.

The value of fish, fresh and preserved, imported into the State of New South Wales during 1917 was £334,278.

#### FISH PRESERVING.

The fishes especially suitable for treatment, by canning, smoking, or salting, include pilchard, sandy sprat, anchovy, tailer, samson fish, cow-anjung, kingfish, trevally, mackerel, bonito, little tunny, southern tunny, and Spanish mackerel. Canneries have been established at various times in New South Wales, but the irregularity of supplies under present conditions has militated against their success.

#### FISHERIES INVESTIGATION.

In 1898 the s.s. "Thetis" was equipped by the Government to conduct an extensive investigation of the waters along the coast of New South Wales. The outcome of the expedition was a considerable addition to the knowledge of Australian deep-sea fauna, but from a commercial point of view no practical results were obtained.

Subsequent to the appointment of the Fisheries Board, comprehensive investigations were undertaken regarding rates of growth, life conditions, and habits of various fishes, prevailing currents, and their correlation to spawning migration, location of spawning grounds, &c., and acclimatisation of species not indigenous to Australian waters.

In 1907 the Commonwealth Government decided to conduct investigations regarding Australian deep-sea fisheries, and the Federal ship "Endeavour" was built for the purpose. Operations were commenced in March, 1909, trawling being the principal method used. The "Endeavour" was lost with all on board in the year 1914, but as the result of cruises along the New South Wales coast it was fully demonstrated that trawling is commercially possible over large areas of the sea bottom, particularly to the south of Sydney. Since the initiation of the Government trawling scheme, further extensive fishing grounds have been discovered.

## FISH CULTURE AND ACCLIMATISATION.

Experiments in the acclimatisation of non-indigenous fishes, such as carp and trout, have met with success in New South Wales, particularly in regard to Californian rainbow trout, which has been introduced in many mountain streams. Trout fishing now constitutes an important attraction for tourists and sportsmen in the districts watered by the Murrumbidgee and Snowy Rivers and their tributaries. A trout hatchery is maintained at Prospect, and considerable numbers of young fry are distributed annually.

## POTENTIALITIES OF NEW SOUTH WALES FISHERIES.

It is easily possible, without exhausting the grounds, to obtain a greatly increased output of fresh fish from the coastal lakes and estuaries, which now constitute the principal sources of supply, as well as from the ocean waters. Greater facilities for transport, and improved methods of handling the fish on arrival at the markets, to avoid loss of time in reaching the consumer, would provide regular daily employment for many fishermen, who, under present conditions, work intermittently. The output of Murray cod from the waters of the Murray River system would greatly increase, if more convenient transport arrangements were made. It is not in these places, however, that the most extensive development may be expected, but in the ocean waters, and chiefly among the immense shoals of deep-sea fish such as great Tunnies, Spanish Mackerel, Ponito, Mackerel, Kingfish, Tailer, Salmon, and many other truly pelagic fishes, which travel in large shoals. There are also immense quantities of Pilchards, Sprats, and other "Herring-kind," as well as Sea Garfish and others.

For the capture of these fishes special surface-nets, like the American purse-seine, the drift-net, surface trawls, &c., are most suitable.

In addition to the surface fisheries, bottom fishing, by means of the long-line ("Jacob" or Bultow) the trammel-net and the trawl-net, is capable of large development. A very considerable section of the 8,960,000 acres of bottom lying within the 100-fathom line is known to be suited to the operation of the trawl-net.

Crayfishing also is capable of great development, but better means of handling during transport must be introduced to prevent the present waste.

The development of the oyster industry depends simply on a diffusion of the knowledge of successful oyster culture among oyster growers. With intense cultivation, one locality—Port Stephens—could produce in one year the whole of the present output of New South Wales.

There is opportunity for the development of a large Mussel fishery as this mollusc may be successfully farmed in a somewhat similar way to oysters, and, in many cases, in waters or in zones of the littoral in which the oyster will not flourish.

The Eden Whaling Industry has been a practical failure since 1913. One whale was killed at Twofold Bay in 1914, but although several were seen during 1915 no captures were effected; two were secured in 1916. The absence of whales during the last three seasons is unaccountable, but the industry may be expected to improve as a result of the work already conducted at the latter end of 1912 and 1913. To ensure success the work should be done with shore stations and with steam gunboat whalers, using the most modern equipment.

*Seaweed Industry.*—There is considerable scope for the development of seaweed industries along the coast, since varied marine flora occur in abundance. Seaweeds are used in the manufacture of certain food products, vegetable isinglass, jellies, condiments, and for decorative purposes; also as fertilisers for the soil, and in the manufacture of iodine; secondary products are common salt, sodium sulphate, potassium chloride, and sulphur.

*Sponges.*—Many kinds of sponges occur on the coastline. A number of species would be valuable for domestic purposes, and many others would be suitable in various trades. The most valuable from a domestic standpoint, belong to the genera *Hippospongia* and *Euspongia*. The number of sponges to be found on coastal beaches after storms is evidence of the existence of large natural supplies.

#### OYSTERS AND THEIR CULTIVATION IN NEW SOUTH WALES.

Oyster cultivation is carried out by laying down in suitable places one or other of the following:—Stones, sawn-timber, branches of black or white mangrove, stakes cut from mangrove, oak (*Casuarina*), &c., shingles (made from various timbers), tiles and slates composed of compressed asbestos and cement, as well as empty oyster and other shells.

The available zone of oyster growth is governed largely by the density of the water and varies in the different waters, and in various sections of the same water. Oysters cannot live permanently in water that is either very fresh or very salt, but must have a certain admixture of both. In localities in which the entire body of water is suitable for oyster growth, there is no limit nor zone in the oyster beds; and they may commence near the limits of high-tide, and extend continuously across the bottom of the bed of the estuary to the opposite shore. In the lower, and saltier, parts of estuaries and other coastal inlets, the oysters occur in a very narrow and limited zone—usually between tide-marks only. Instances of this may be seen in the Lower Hawkesbury (Broken Bay), Middle Harbour (Port Jackson), Port Hacking, and on the training-walls at the entrances of some of the rivers.

The food of the oyster consists principally of the microscopic plants known as *Diatoms*, which occur in profusion in estuarine waters and wherever there is a soakage from the shore.

The local distribution of growing oysters, in a natural state, depends primarily on two conditions—density of the water, and suitability of the bottom; but their local distribution under proper systems of cultivation depends principally on the former only, as it is often possible by artificial means to render the bottom suitable, and oysters may be made to grow profusely in many localities in which they would not grow naturally. For instance—and this is only one of many varied cases that might arise—a bottom may consist of soft squalid mud in which the oyster, if placed there, would gradually sink out of sight. In such a case it may be necessary only to spread a good layer of old oyster or other molluscan shells over the mud bottom. Many intending lessees are misled by first appearances, and are inclined only to take up areas which already show a good deposit of oysters, whereas there may be abundant signs of the suitability of other areas which have few or no oysters upon them.

There are many oyster areas which show great natural recuperative powers even after serious depletion, but usually of artificial cultivation is necessary to obtain the new stock in a reasonable time after the first natural stock has been depleted.

Oysters attain their greatest perfection and size in the vicinity of muddy bottoms or bottoms of mud and sand, but not on pure sand, their food supply being most abundant in the vicinity of the mud. They show an enormous fecundity; each one of 2 inches or more in length produces many millions of ova each year, the power of production increasing with size. Moreover, they become sexually mature at a very early age, and have been found containing ripe eggs when only three months old. The wonderful fecundity often leads to the belief that a rapid recuperation should always naturally follow the thinning out of oyster beds, and that a few mature oysters should be able to do the work. But, on the contrary, enormous fecundity is an unfailing sign of correspondingly enormous destruction. Millions of oyster spat are deposited, which last only a few days, and multitudes are destroyed at once. At the outset, and when spawning actually takes place, the destructive influences are infertile eggs, unsuitable water, unsuitable catchment, and microscopic enemies; while a large number of the eggs and motile embryos are consumed by the oysters themselves. The common oyster is dioecious, or bi-sexual.

Even after the spat has passed its short free swimming stage and has settled down, it is surrounded by enemies. Among the numerous active enemies are various fishes, boring molluscs, worms, starfishes, and a boring sponge, and among the passive forms are included vegetable and animal growths in the shape of seaweed, barnacles, mussels, &c., which grow round and gradually envelope the oyster. Other detrimental conditions are the times of unsuitable water, when there are either prolonged freshets or periods of drought, in which the water becomes too salt.

There is no fixed period for the growth of the oysters. Some attain a marketable size in fifteen months, while others might take three, four, or five years to attain the same size; or, indeed, might be so dwarfed as never to attain the size, as oysters that are submitted to a prolonged existence in water of too strong a density always become stunted. The average time taken to produce a marketable oyster ranges from two to three years.

#### *Persons and Boats employed in Oyster Culture.*

During 1917 there were 400 men and youths employed in connection with the actual business of oyster cultivation, on the leases, and the number of boats employed in oyster work was 408. In the general term "boats" are included punts of various shapes and sizes, ordinary pulling or sailing boats, and motor launches.

The subjoined table shows the number and value of the boats used during 1917 :—

Description.	Number.	Value.
Boats not more than 24 feet over-all—		£
With motor ... ..	76	7,371
Without motor ... ..	307	3,179
Boats more than 24 feet over-all—		
With motor ... ..	14	2,535
Without motor ... ..	11	402
Total ... ..	408	13,487

The number of boats varies at different periods of the year, so that the information relating to number and value is approximate only.

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