

## SECTION XXVI.

## LOCAL GOVERNMENT.

## § 1. Introduction.

1. **Early History of Local Government.**—In the previous issues of this book, a description was given of the systems of Local Government and their development in the several States of the Commonwealth, and at the same time a comparison was made between the Australian and Continental systems. The early history of Local Government in Australia was also dealt with. Owing, however, to considerations of space, these matters have been omitted from the present volume, and the reader is referred to Year Book No. 5, pages 972 to 975.

## § 2. Local Government Systems.

1. **New South Wales.**—(i.) *Development of Local Government.* The history of Local Government in New South Wales has been given in previous issues of this book (see No. 6, page 966). It is not intended to repeat the information in this issue.

(ii.) *Present System of Local Government.* The law relating to local government in New South Wales is now contained in the Acts of 1906, 1907, and 1908. Practically the whole of the State, with the exception of the Western Division, has been brought under the operation of these Acts.

(a) *Areas Incorporated.* Prior to the year 1907 the total area incorporated formed a very small part of the whole area of the State, as may be seen in the following statement:—

**AREAS INCORPORATED IN NEW SOUTH WALES, 1860 to 1906.**

Year	...	...	1860.	1870.	1880.	1890.	1900.	1906.
Area incorporated—sq. miles	...	...	409	649	1,482	2,387	2,763	2,830

*Total area of State (exclusive of Lord Howe Island), 310,367 square miles.*

The areas incorporated in 1906 in each of the three territorial divisions of the State were as follows:—

**DISTRIBUTION OF INCORPORATED AREAS, 1906.**

Division.			Incorporated Area.	Unincorporated Area.	Total Area.
Eastern	...	Sq. miles	1,977	93,742	95,719
Central	...	"	571	88,579	89,150
Western	...	"	282	125,216	125,498
Total	...	"	2,830	307,537	*310,367

\* Total area of State, exclusive of Lord Howe Island, the area of which is 5 square miles.

The total area incorporated under the Local Government Act 1906, to the end of the year 1913, was 183,569 square miles, of which 180,656 square miles were comprised within shires and 2913 within municipalities. The areas incorporated comprise the whole of the eastern and central divisions of the State, with the exception of Lord Howe Island, the islands in Port Jackson, and the quarantine station at Port Jackson.

(b) *General.* The above Act came into operation on the 1st January, 1907; it provided for the continuation of existing shires and municipalities, for the creation of new ones, and for their reconstitution by uniting, dividing, altering, or converting areas. Each shire is divided into three ridings, and each municipality may be divided into wards by petition of the council or a majority of the ratepayers to the Governor. The councils

consist, in the case of shires, of either six or nine councillors, and in the case of municipalities, of from six to twelve aldermen. A summary of the functions of councils, their powers and duties, together with a detailed statement of rates, ratable property, and endowment, will be found in previous issues of the Year Book. (See Year Book No. 5, pages 977 to 979.)

(iii.) *Shires*.—The total area of the 135 shires constituted under the new system is 180,656 square miles, and the population on the 31st December, 1914, was 649,040.

The shires vary in area from 36 square miles in the case of Ku-ring-gai, immediately north of the metropolis, to 5730 square miles in the case of Lachlan in the Condobolin district.

(a) *Valuation and Rates Levied*. The unimproved capital value of the shires in 1914 was £103,451,177, as against £99,452,191 in the preceding year. It is not possible to give the improved capital value or the assessed annual value, as the shires are not compelled to make these valuations, and in many cases do not make them. The total amount of all rates levied was £623,690.

(b) *Revenue*. The principal heads of revenue for the last five years are shewn in the following table:—

#### NEW SOUTH WALES.—INCOME OF SHIRES, 1910 to 1914.

Particulars.*	1910.	1911.	1912.	1913.	1914.
<i>General Fund—</i>	£	£	£	£	£
General rates ...	421,596	463,501	517,025	561,378	608,009
Government endowment...	277,731	319,593	372,952	134,635	146,077
Public works ...	59,527	45,331	45,152	62,453	197,754
Health administration ...	3,746	3,998	4,886	4,864	4,889
Public services ...	7,441	8,769	9,232	10,305	10,069
Shire property ...	4,229	6,731	8,768	10,159	13,738
Miscellaneous ...	5,008	8,594	5,648	6,814	6,742
<i>Special and Local Funds</i> ...	15,095	24,516	35,835	45,903	57,714
 Total revenue...	 794,373	 881,033	 999,498	 836,511	 1,044,992

\* The receipts for Public Works, Health Administration, Public Service, etc., include Government aid grants, total endowments, and special grants during 1914 amounting to £183,867.

(c) *Expenditure*. The following statement shews the expenditure of shires during the years 1910 to 1914 inclusive:—

#### NEW SOUTH WALES.—EXPENDITURE OF SHIRES, 1910 to 1914.

Particulars.	1910.	1911.	1912.	1913.	1914.
<i>General Fund—</i>	£	£	£	£	£
Administrative expenses ...	125,669	128,126	*83,721	*91,450	*95,760
Public works ...	599,945	647,220	773,479	707,923	801,542
Health administration ...	4,840	5,724	7,199	7,699	8,064
Public services ...	13,012	15,410	15,809	14,751	14,757
Shire property ...	4,561	7,657	10,419	11,251	15,277
Miscellaneous ...	5,129	7,120	8,430	9,975	9,275
<i>Special and Local Funds</i> ...	11,976	20,949	34,268	43,041	51,796
 Total expenditure...	 765,132	 832,206	 933,325	 886,090	 996,471

\* Exclusive of proportion of Administrative expenses payable from Special and Local Funds previously included under General Fund.

(d) *Assets and Liabilities.* The financial position of the shires at the end of the year 1914 was strong, as there was an excess of assets of £378,287. The following table gives particulars of assets and liabilities as at the 31st December, 1914 :—

## NEW SOUTH WALES.—ASSETS AND LIABILITIES OF SHIRES, 1914.

Assets.			Liabilities.		
<i>General Fund—</i>			<i>General Fund—</i>		
Outstanding rates	...	£37,199	Temporary loans	...	£45,304
Stores and materials	...	12,377	Sundry creditors	...	38,389
Bank balance	...	104,414	Due on contracts	...	2,063
Sundry debtors	...	9,715	Due to trust fund	...	460
Land	...	15,271	Other	...	28
Buildings	...	72,916	<i>Special and Local Funds</i>	...	23,473
Plant and property*	...	174,021			
Furniture	...	15,513	Total	...	£109,717
Other	...	5,158	Excess of assets	...	378,287
<i>Special and Local Funds</i>	...	41,420			
Total	...	£488,004	Total	...	£488,004

\* Including saleyards, pounds, baths, public watering-places, ferries, wharves, etc.

(iv.) *Municipalities.* Including the City of Sydney there were 186 municipalities in New South Wales at the end of 1914; of these, forty were in the suburbs of Sydney and twelve in the district of Newcastle and suburbs. Since the 1st January, 1908, under the Local Government Act 1906, suburban and country municipalities must levy a general rate on the unimproved capital value of all ratable land, and may levy additional general, special, local, or loan rates on either the unimproved or improved capital value. Municipal rates are therefore no longer charged on the annual value except in the City of Sydney, where an additional rate is also levied on the unimproved capital value, and the only rates based solely on the assessed annual value are those charged by the Metropolitan and Hunter Water Supply and Sewerage Boards.

(a) *Capital Value, Area, Population, and Rates Levied.* The following table shows the improved capital value, the area, population, number of buildings, and amount of rates levied in municipalities for the years 1901 and 1910 to 1914 :—

## NEW SOUTH WALES.—MUNICIPALITIES, IMPROVED CAPITAL VALUE, AREA, POPULATION, NUMBER OF BUILDINGS AND TOTAL RATES LEVIED, 1901 and 1910-14.

Year ended 31st Dec.*	Sydney and Suburbs.					Country.				
	Improved Capital Value.	Area.	Population.	Number of Dwellings.	Total Rates Levied.	Improved Capital Value.	Area.	Population.	Number of Dwellings.	Total Rates Levied.
	£	Acres.	No.	No.	£	£	Acres.	No.	No.	£
1901 ...	88,118,600	91,220	1487,900	94,907	277,457	36,429,600	1,732,302	371,330	73,862	127,564
1910 ...	111,818,074	95,259	1,629,503	126,476	647,762	45,824,999	1,822,821	1,421,714	89,107	310,849
1911 ...	119,375,694	95,259	641,960		726,712	47,484,486	1,822,821	431,600		340,075
1912 ...	124,875,964	95,259	683,780		770,879	48,814,203	1,826,795	444,190		373,765
1913 ...	137,795,263	95,259	713,260		880,906	50,451,471	1,769,155	456,050		401,594
1914 ...	158,764,693	95,259	739,210		1,038,224	55,682,063	1,769,155	457,150		450,140

\* Prior to 1908 the municipal year ended on the first Monday in February, since when the municipal year closes on 31st December. † Census, March, 1901. ‡ Census, April, 1911.  
§ Not available.

The following table gives a comparison of the unimproved and improved values for the years 1910 to 1914 inclusive :—

**NEW SOUTH WALES.—MUNICIPALITIES, UNIMPROVED AND IMPROVED CAPITAL VALUES, 1910 to 1914.**

Year.	Sydney.	Suburbs.	Metropolis.	Country.	Total.
UNIMPROVED VALUE.					
	£	£	£	£	£
1910 ...	19,952,793	23,823,398	43,776,191	19,753,131	63,529,322
1911 ...	23,940,030	25,942,704	49,882,734	19,961,743	69,844,477
1912 ...	23,988,480	27,193,577	51,182,057	20,352,473	71,534,530
1913 ...	23,837,157	28,240,971	52,078,128	20,807,126	72,885,254
1914 ...	27,395,826	31,979,353	59,375,179	22,573,671	81,948,850
IMPROVED VALUE.					
1910 ...	52,142,200	59,175,874	111,318,074	45,824,999	157,143,073
1911 ...	55,520,640	63,855,054	119,375,694	47,484,486	166,860,180
1912 ...	57,395,288	67,480,676	124,875,964	48,814,203	173,690,167
1913 ...	64,080,440	73,714,823	137,795,263	50,451,471	188,246,734
1914 ...	75,786,580	82,978,113	158,764,693	55,682,063	214,446,756

(b) *Revenue.* The Local Government Act 1906 prescribed that there should be a general fund in each local government area (municipality and shire), and also special funds for specified purposes. The regulations under the Act prescribed the system of accounts to be kept. This system differs materially from the old "cash" system of receipts (cash actually received) and disbursements (cash actually expended).

Prior to 1908 the municipal year ended on the first Monday in February; now it ends on the 31st December. In all statements of municipal accounts for the year 1908, therefore, the period referred to is from the 4th February to the 31st December, except in the City of Sydney, which does not come under the provisions of the Act of 1906 and where the accounts are kept for the calendar year. The first complete year for which financial particulars are available for the municipalities is the year 1909. Particulars of revenue for the year 1914 are given in the following table :—

**NEW SOUTH WALES.—MUNICIPALITIES, REVENUE, 1914.**

Particulars.	Sydney.	Suburbs.	Country.	Total.
	£	£	£	£
General fund ...	984,231†	681,911	469,295	1,151,206‡
Trading accounts ...		12	124,369	124,381‡
Special and local funds ...		52,402	269,006	321,408‡
Loan funds ...		58,706	66,853	125,559‡
Reserve and Renewals Account ...		6,101	22,066	28,167‡
Gross revenue ...	984,231†	799,132	951,589	2,734,952
Deduct transfers*	...	35,762	24,830	60,592
Net revenue ...	984,231†	763,370	926,759	2,674,360

\* Transfers from various funds to loan funds for principal, interest, and capital expenditure.

† The city of Sydney accounts were formerly kept on a cash basis, i.e., the actual receipts and disbursements were shewn; but the figures for 1914 shew total revenue and expenditure for the year. Items of revenue and expenditure for the city of Sydney cannot be allocated to the different headings shewn for municipalities. ‡ Exclusive of Sydney.

(c) *Expenditure.* Reference has already been made to the system of accounts prescribed by the Local Government Act 1906 (see paragraph (b) hereof). The following table gives particulars of expenditure of municipalities for the year 1914 :—

**NEW SOUTH WALES.—MUNICIPALITIES, EXPENDITURE, 1914.**

Particulars.	Sydney.	Suburbs.	Country.	Total.
	£	£	£	£
General fund ... ..	893,689†	658,585	436,207	1,094,792†
Trading accounts ... ..		66	91,443	91,509†
Special and local funds ... ..		51,205	248,719	299,924†
Loan funds ... ..		66,100	47,053	113,153†
Reserve and Renewals Account ... ..		1,223	849	2,072†
Gross expenditure ... ..	893,689†	777,179	824,271	2,495,139
Deduct transfers* ... ..	...	35,762	24,830	60,592
Net expenditure ... ..	893,689†	741,417	799,441	2,434,547

\* Transfers from various funds for principal and interest on loans. † See note † to preceding table. ‡ See note ‡ to preceding table.

(d) *Assets and Liabilities.* The financial position of the municipalities as at the 31st December, 1914, is shown by the following statement of assets and liabilities of the various funds :—

**NEW SOUTH WALES.—MUNICIPALITIES, ASSETS AND LIABILITIES, 1914.**

Particulars.	Sydney.	Suburbs.	Country.	Total.
	£	£	£.	£
<b>Assets—</b>				
General fund ... ..	8,397,918†	363,096	487,820	850,916†
Trading accounts ... ..		...	122,656	122,656†
Special and local funds... ..		39,191	1,300,137	1,339,328†
Loan funds ... ..		174,978	568,976	743,954†
Reserves and renewals account ... ..		4,878	21,323	26,201†
Total ... ..	8,397,718†	582,143	2,500,912	11,480,773
<b>Liabilities—</b>				
General fund ... ..	8,142,616†	142,754	82,250	225,004†
Trading accounts ... ..		...	68,365	68,365†
Special and local funds... ..		11,164	1,171,658	1,182,822†
Loan funds ... ..		794,703	641,204	1,435,907†
Reserves and renewals account ... ..		4,878	21,323	26,201†
Total ... ..	8,142,616†	953,499	1,984,800	11,080,895

† See note † to last table on previous page. ‡ See note ‡ to last table on previous page.

2. *Victoria.*—(i.) *Development of Local Government.* In Victoria there are now two types of municipal institutions, (a) boroughs, including cities and towns, and (b) shires, and although they are now dealt with by the same Act, their origin was distinct, and in the early days of their development they were provided for by independent enactments. Melbourne and Geelong, the latter of which was for many years the second largest town in the State, having been incorporated under special statutes prior to the establishment of a general system of local government, are not subject to the provisions of the Local Government Acts except in a few comparatively unimportant details. Melbourne was incorporated as a town in 1842, and as a city in 1847; Geelong was incorporated as a town in 1849, and proclaimed a city on 14th December, 1910.

The earlier history of legislation in Victoria relative to Local Government, more especially with reference to the institution of Road Districts, their displacement by Shires, and the constitution of Urban Municipal Districts and Boroughs, has been fully dealt with in previous issues. (See Year Book No. 5, p. 992.)

(ii.) *Present System of Local Government.* Local government is now administered under the Act of 1903 throughout the whole of the State, with the exception of French Island.

(a) *Constitution of Municipalities.* Provision is made for the continuation of municipalities established under previous Acts and for the constitution of new ones.

Definitions of shires, boroughs, and townships have been given in previous issues of this book (see Year Book No. 6, page 978), together with the conditions necessary for their constitution.

(b) *Municipal Councils, etc.* Considerations of space prevent more than a passing reference to the following subjects, which were dealt with in previous issues of this book:—The constitution of municipal councils, their functions and powers, including the power of raising loans, the qualifications necessary for the exercise of the municipal franchise, and the definition of ratable and unratable property. (See Year Book No. 5, pp. 994 to 996.)

(c) *Endowment.* The legislation dealing with municipal endowment prior to 1907 is referred to in previous issues. (See Year Book No. 5, p. 996.) In 1907, under the Municipal Endowment and Reclassification of Shires Act of that year, a new classification was adopted under which the amount of the endowment is to be allocated. In addition to the endowment of £75,000 (increased to £100,000 from the 1st July, 1907), the municipalities received from the Government during the financial year 1914-15 a sum of £77,170 out of the Licensing Act Fund as the equivalent for (a) fees for licenses, (b) fees for the registration of brewers and spirit merchants, and (c) fines, penalties, and forfeitures incurred under the Licensing Act 1876. Under the Act of 1907 the endowment of £100,000 is payable in equal moieties in March and September of each year. No city or town is entitled to receive any part of the endowment. The distribution amongst the boroughs and shires is based on the amount of general and extra rates received in the twelve months ending on the preceding 30th September according to the following scale:—

#### VICTORIA.—ENDOWMENT OF BOROUGHES AND SHIRES, 1914-15.

To every Borough or 1st Class Shire, 3s. in the £	To every 4th Class Shire, 8s. in the £
„ „ 2nd Class Shire 5s. „ „	„ 5th „ 10s. „ „
„ „ 3rd „ „ 6s. „ „	„ 6th „ 12s. „ „

For the three financial years commencing the 1st July, 1907, however, the amounts were definitely fixed by Act No. 2129, and for the five succeeding financial years by Acts No. 2267, 2334, 2404, 2475 and 2562 respectively.

(iii.) *Boroughs and Shires.—Number, Population, and Value of Ratable Property.*—The following table shews the number of cities, towns, boroughs, and shires, their estimated population, the number of ratepayers and dwellings, and the value of ratable property for the years 1901 and 1911-15 inclusive:—

## VICTORIA.—PARTICULARS OF MUNICIPALITIES, 1901 and 1911-15.

Year ending 30th June.	Number of Municipalities.	Estimated Population.	Number of Ratepayers (both sexes).	Estimated Number of Dwellings.	Estimated Value of Ratable Property.	
					Total.	Annual.
CITIES, TOWNS, AND BOROUGHES.						
1901	58	627,237	158,783	130,358	£ 67,302,423	£ 4,765,632
1911	60	*742,070	187,562	162,489	114,113,507	6,508,544
1912	61	*742,070	194,391	160,246*	119,400,893	6,804,697
1913	61	777,696	200,272	160,246*	127,743,501	7,270,972
1914	61	802,479	203,773	178,195	137,649,219	7,790,654
1915	61	825,078	209,276	185,330	147,205,224	8,218,040
SHIRES.						
1901	150	571,683	159,128	122,645	£ 106,839,331	£ 5,771,865
1911	146	*568,494	163,916	126,951	150,970,220	7,716,815
1912	146	*568,494	168,229	125,879*	155,677,624	7,969,963
1913	147	583,909	173,271	125,879*	160,128,933	8,152,473
1914	147	600,431	175,637	137,187	164,268,467	8,255,505
1915	147	608,828	181,480	138,462	167,405,523	8,517,938

\* Census figures.

(iv.) *Municipal Assets and Liabilities.*—The assets of municipalities may be classified under three heads—(a) the municipal fund, (b) the loan fund, and (c) property; the liabilities under two heads—(a) the municipal fund, and (b) the loan fund. The following table shews the amount of municipal assets and liabilities for the years 1901 and 1910 to 1914:—

## VICTORIA.—MUNICIPAL ASSETS AND LIABILITIES, 1901 and 1910-14.

Items.	1901.	1910.	1911.	1912.	1913.	1914.
ASSETS.						
MUNICIPAL FUND—	£	£	£	£	£	£
Uncollected rates ... ..	187,205	110,676	105,241	111,405	108,686	120,200
Other assets ... ..	122,581	350,092	473,054	522,911	582,451	652,530
LOAN FUND—						
(a) Sinking funds—						
Amount at credit ... ..	675,310	834,295	893,528	896,185	924,952	878,322
Arrears due ... ..	1,391	3,286	1,182	1,759	438	1,327
(b) Unexpended balances ...	394,136	345,287	264,048	237,202	167,952	351,923
PROPERTY—						
Buildings, markets, etc. ...	2,507,441	3,149,476	3,246,854	3,365,638	3,534,691	3,799,038
Waterworks ... ..	197,675	202,210	207,365	182,835	184,842	180,485
Gasworks ... ..	63,732	70,687	72,274	86,872	96,963	103,435
Total ... ..	4,149,471	5,066,009	5,263,546	5,404,807	5,600,975	6,087,260
LIABILITIES.						
MUNICIPAL FUND—	£	£	£	£	£	£
Arrears due sinking funds ...	1,021	3,286	1,182	1,759	438	1,327
Overdue interest ... ..	9,413	15,750	11,997	15,619	18,005	19,771
Bank overdrafts ... ..	157,046	133,237	165,275	234,154	201,142	206,694
Temporary Government advances ...	20,901	...	...	...	...	...
Other liabilities ... ..	91,396	194,902	257,371	288,368	364,287	356,884
LOAN FUNDS—						
Loans outstanding ... ..	4,253,304	4,767,138	4,831,984	5,011,950	5,259,138	5,617,056
Due on loan contracts ... ..	52,826	45,089	92,363	102,135	128,051	69,181
Due on current contracts ... ..	51,134	98,187	100,351	73,768	74,770	74,451
Total ... ..	4,637,041	5,257,589	5,460,523	5,727,753	6,045,331	6,345,364

(v.) *Revenue and Expenditure of Municipalities.* The following table shows the revenue from various sources, and the expenditure under various heads, of municipalities during the years 1901 and 1910 to 1914 :—

**VICTORIA.—REVENUE AND EXPENDITURE OF MUNICIPALITIES,  
1901 and 1910-14.**

Items.	1901.	1910.	1911.	1912.	1913.	1914.
SOURCES OF REVENUE.						
	£	£	£	£	£	£
Taxation ... { Rates ... ..	722,346	999,799	1,046,943	1,103,210	1,199,874	1,251,649
... { Licenses ... ..	104,499	102,066	100,845	102,297	103,528	108,106
... { Dog fees ... ..	14,965	19,296	19,833	20,438	21,483	21,807
... { Market and weighbridge dues ... ..	49,623	65,739	63,071	74,029	71,937	70,620
Government endowments and grants...	175,972	187,323	157,141	161,513	160,949	144,374
Contributions for streets, etc. ....	24,999	47,532	47,342	64,646	59,172	63,260
Sanitary charges ... ..	48,253	62,720	66,389	74,058	80,194	83,982
Rents ... ..	54,117	77,958	79,263	81,725	78,016	76,803
Other sources ... ..	89,210	207,181	237,601	263,600	324,496	354,427
Total ... ..	1,283,984	1,769,614	1,818,428	1,945,516	2,099,649	2,175,028

HEADS OF EXPENDITURE.

	£	£	£	£	£	£
Salaries, etc. ... ..	139,270	163,435	168,303	176,489	187,180	192,066
Sanitary work, street cleaning, etc. ...	132,542	159,571	178,623	198,006	203,757	206,271
Lighting ... ..	86,059	83,972	87,341	84,410	87,395	89,926
Fire brigades' contributions ... ..	16,769	23,223	23,120	25,946	27,101	28,361
Public works { Construction ... ..	244,315	335,446	311,065	335,717	339,158	315,480
... { Maintenance ... ..	345,334	548,583	571,254	736,457	753,083	814,459
Formation of private streets, etc. ...	23,350	32,163	46,849	66,735	56,600	70,465
Redemption of loans ... ..	27,745	46,439	66,860	61,782	70,506	80,576
Interest on loans ... ..	197,810	206,355	213,752	217,933	224,479	239,737
Charities ... ..	13,407	15,589	15,785	18,441	16,429	18,026
Other expenditure ... ..	103,403	170,840	187,514	129,190	126,376	151,613
Total ... ..	1,330,004	1,785,616	1,870,466	2,051,106	2,092,064	2,206,980

3. *Queensland.*—(i.) *Development of Local Government.* The existing scheme of local government in the State of Queensland is regulated by the provisions of the Local Authorities Act 1902, with its amendments in 1903, 1905 and 1910. A summary of these Acts and of the earlier legislation under which the system of local government in Queensland was inaugurated and developed, will be found in previous issues of this book (see Year Book No. 5, p. 1013).

(ii.) *Present System of Local Government.* The principal features of previous enactments as to the division of the State into local areas are retained in the Acts of 1902 and 1910, but such areas are in future to be of two classes—(a) towns and (b) shires. All municipalities formerly constituted as boroughs become towns, except Brisbane, Rockhampton, and Townsville, which are declared to be cities, and all shires and divisions become shires. The Governor-in-Council may, after giving notice in the *Gazette*, constitute, unite, divide, or abolish areas for the purpose of forming new areas, and may by proclamation constitute a town or city.



*The Municipal Councils.* All local areas are governed by councils, the members of which are called aldermen in the case of cities and towns, and councillors in the case of shires. *City and town councils* are composed of either seven, nine, or eleven members, as declared by Order-in-Council, but if the local authority has wards, three members are assigned to each ward. *Shire councils* are composed of five, seven, or nine members, as declared by Order-in-Council, but if the shire is divided the number cannot be more than three for each division, and need not be the same for every division.

In previous Year Books allusion has been made at some length to the powers and duties of municipal councils, as well as to loans, valuation, rates and franchise. It is not proposed to repeat this information in the present issue.

(iii.) *Area, Population, Number of Dwellings, Rates, Assets and Liabilities of Cities, Towns and Shires.* The following table gives particulars of the area, population, number of inhabited tenements, assets and liabilities of cities and towns, and of shires, for each year from 1910 to 1914 :—

**QUEENSLAND.—PARTICULARS OF CITIES AND TOWNS, AND SHIRES,  
1910 to 1914.**

Year.	Municipality.	Area.	Population.	Number of Inhabited Dwellings.	Capital Value.	Assets.	Liabilities.		
							Government Loans.	Other.	Total.
		Square Miles.	No.	No	£	£	£	£	£
1910	(Cities and Towns	364½	247,435	44,804	13,774,440	1,406,521	242,924	767,481	1,010,405
	Shires ...	669,890	358,085	76,803	36,023,390	331,382	116,456	50,882	167,338
	Total ...	670,254½	605,520	121,607	49,797,830	1,737,903	359,380	818,363	1,177,743
1911	(Cities and Towns	364½	232,083	46,310	14,305,268	1,425,403	214,903	794,733	1,009,636
	Shires ...	669,890½	368,292	77,731	38,482,811	367,078	127,079	58,741	185,820
	Total ...	670,255	600,375	124,041	52,788,079	1,792,481	341,982	853,474	1,195,456
1912	(Cities and Towns	366	250,743	48,932	14,626,306	1,439,226	218,948	850,031	1,068,979
	Shires ...	669,528	393,172	83,021	40,365,614	426,694	141,288	84,894	226,182
	Total ...	669,894	643,915	131,953	54,991,920	1,865,920	360,236	934,925	1,295,161
1913	(Cities and Towns	404	273,874	56,632	15,708,680	1,515,104	231,458	919,973	1,151,431
	Shires ...	669,490	399,305	84,805	41,272,641	467,182	203,109	93,410	296,519
	Total ...	669,894	673,179	141,437	56,981,321	1,982,286	434,567	1,013,383	1,447,950
1914	(Cities and Towns	418	279,794	59,398	16,075,729	1,635,685	240,319	1,047,739	1,288,058
	Shires ...	669,476	411,093	87,144	44,596,193	455,476	159,359	97,454	256,813
	Total ...	669,894	690,887	146,542	60,671,922	2,091,161	399,678	1,145,193	1,544,871

(iv.) *Receipts and Expenditure of Cities, Towns, and Shires.* The following table shews the receipts and expenditure (including loan moneys) of cities and towns and of shires, as well as the total receipts and expenditure of all municipalities, for each year from 1910 to 1914 :—

**QUEENSLAND.—REVENUE AND EXPENDITURE OF CITIES AND TOWNS, AND  
SHIRES, 1910 to 1914.**

Year.	Municipality.	Receipts.				Expenditure.						
		From Government.	From Rates.	From other Sources.	Total.	On Public Works.	Loan Redemption.	Office Expenses and Salaries.	Other Expenses.*	Total.		
1910	Cities and Towns	£ 16,775	£ 278,300	£ 68,296	£ 363,371	£ 222,203	£ 18,581	£ 25,891	£ 92,188	£ 358,863		
	Shires ...	23,285	253,398	37,295	313,978	209,466	12,147	39,092	44,405	305,110		
	Total ...	40,060	531,698	105,591	677,349	431,669	30,728	64,983	136,593	663,973		
1911	Cities and Towns	27,051	311,022	91,767	429,840	285,096	20,922	31,824	92,808	420,650		
	Shires ...	31,138	296,222	64,532	391,892	273,472	11,721	42,561	50,195	377,949		
	Total ...	58,189	607,244	156,299	821,732	558,568	32,643	74,385	143,003	808,599		
1912	Cities and Towns	32,891	341,469	83,827	458,187	365,439	22,388	50,542	74,447	492,816		
	Shires ...	30,969	322,049	54,201	407,219	311,580	12,020	51,612	56,771	431,983		
	Total ...	63,860	663,518	138,028	865,406	677,019	34,408	82,154	131,218	924,799		
1913	Cities and Towns	20,274	379,865	83,211	483,350	381,100	24,599	36,916	66,377	508,992		
	Shires ...	29,717	362,108	66,170	457,995	338,178	14,457	62,676	56,185	471,496		
	Total ...	49,991	741,973	149,381	941,345	719,278	39,056	99,592	122,562	980,488		
1914	Cities and Towns	31,725	421,329	92,203	545,257	495,067	21,210	38,766	89,707	644,750		
	Shires ...	41,413	394,373	64,760	500,546	387,021	16,496	64,789	48,876	512,183		
	Total ...	73,138	815,702	156,963	1,045,803	882,088	37,706	103,555	138,583	1,162,933		

\* Including interest on loans.

4. *South Australia.*—(i.) *Development of Local Government.* In the latter part of 1839 the first municipal law was passed in South Australia, which was thus the birthplace of municipal government in the Commonwealth. On the 31st October, 1840, the principles of self-government were practically adopted in Adelaide by the election of a mayor and council consisting of nineteen members, and the system has since been extended throughout the settled parts of the State by the formation of district councils and municipal corporations, which are the two types of local authorities now in existence.

(ii.) *District Councils.* The first District Councils Act was passed in 1858, was amended in 1862, and was further amended and consolidated by the District Councils Act of 1876, which provided for the continuation of existing districts and for the establishment of new ones by proclamation on the petition of the ratepayers. The revenue of the councils consisted of rents, profits, and income from lands vested in the councils or over which the councils had the control and management; fines and penalties enforced under the Act; fees for licenses; and general and special rates and loans. Provision was made for the election of councillors, their number, qualification, and retirement; for the election of auditors; the meetings, powers and functions of councils; the appointment of constables; revenue and expenditure; assessment of rates; and for making by-laws for various purposes. The Act of 1876 was amended from time to time, and was finally amended and consolidated by the Act which is now in force, namely, the District Councils Act 1887, which has in turn been amended in the years 1889, 1890, 1897, 1904, and 1905. These Acts were again amended by the Local Government Act 1910.

The powers and duties of district councils, together with the qualification necessary for councillors and electors, have been given *in extenso* in previous issues.

(iii.) *Municipalities.* Municipalities were first established under the Municipal Corporations Act of 1861, which, after providing for the extension of the powers and duties of the Corporation of the City of Adelaide, authorised the Governor, on petition of a majority of not less than two-thirds of the property-owners, to constitute any town, district, or place within the province, as a municipality. This Act and its amendments were consolidated in the Municipal Corporations Act 1880, which was amended from time to time until the year 1890, when it was repealed and its provisions consolidated by the existing Act, the Municipal Corporations Acts of 1890, which was in turn amended in 1893, 1896, and 1903. These Acts were again amended by the Local Government Act 1910.

A brief description of the Municipal Corporations Act of 1890, as well as the functions of municipal councils, will be found in previous issues of this book.

(iv.) *Finances of District Councils and Corporations.* The subjoined tables shew the amounts of assessments and the revenue and expenditure of district councils and of corporations for the financial years 1901 and 1910 to 1914; the figures given are exclusive of the Main Roads Funds, particulars as to which may be found in the section of this book on "Roads and Bridges."

**SOUTH AUSTRALIA.—ASSESSMENT, REVENUE, AND EXPENDITURE OF LOCAL AUTHORITIES, 1901 and 1910-14 (EXCLUSIVE OF MAIN ROADS FUNDS).**

Year. *	Amount of Assessment (Annual Value).	Revenue.				Expenditure.	
		From Rates.	From Subsidies.	Other Sources.	Total.	On Public Works.	Total.
DISTRICT COUNCILS.							
	£	£	£	£	£	£	£
1901	1,412,507	63,321	15,225	51,919	130,465	65,406	128,499
1910	2,098,282	96,550	25,483	30,058	152,091	101,979	146,593
1911	2,146,530	106,963	28,017	29,195	164,175	120,369	161,125
1912	2 145,091	115,427	28,848	34,974	179,249	140,225	182,610
1913	2,295,546	123,317	29,539	36,000	188,906	150,997	196,190
1914	2,435,655	132,277	38,397	32,878	203,552	145,282	196,408
CORPORATIONS.							
	£	£	£	£	£	£	£
1901	1,177,850	87,289	9,733	49,342	146,364	55,533	146,091
1910	1,385,752	112,896	16,589	57,494	186,979	104,586	198,875
1911	1,499,012	133,550	16,420	62,536	212,506	105,738	217,313
1912	1,605,095	142,032	18,544	73,604	234,180	140,059	233,720
1913	1,777,623	157,014	19,948	64,701	241,663	186,246	264,528
1914	1,896,273	168,041	23,821	63,026	254,888	219,390	266,202

\* Up to and including the year 1903, the financial year for Corporations ended on the 31st December, but after that date ends on the 30th November. The financial year for district councils ends on the 30th June.

5. *Western Australia.*—(i.) *Types of Local Authorities.* In this State there are three forms of local authorities, namely :—(i.) Municipalities, (ii.) Road Districts, and (iii.) Local Boards of Health. The first Municipalities Act was passed in 1871, but only a few districts were incorporated under it. In 1895 a more comprehensive measure, the Municipal Institutions Act, was passed, and after being amended from time to time was consolidated by the Municipal Institutions Acts 1902 and 1904. In 1906 the most recent enactment, the Municipal Corporations Act, was passed, repealing and consolidating previous enactments. The whole area of the State outside incorporated municipalities is divided into road districts, which are administered under the Roads Act 1911. In municipalities the councils act as Health Boards for the purpose of administering the Public Health Act, while outside municipalities local Boards of Health may

be formed. In 1904, another local government measure, the Water Boards Act, was passed, under which Boards may be appointed for the control of waterworks, and rates may be levied for the purpose, the maximum being fixed at two shillings in the pound of ratable value.

(ii.) *Municipalities.* These are now regulated by the Municipal Corporations Act, which came into force on the 1st January, 1907. Provision is made for the continuation of existing municipalities, and the Governor is authorised to constitute new municipalities on petition signed by at least fifty property-holders of the district proposed to be incorporated; to unite adjoining municipalities on petition under their common seals; to sever any portion from a municipality on petition signed by a majority of the ratepayers, and to annex such portion to a contiguous municipality or road district.

(a) *Municipal Councils* consist of a mayor and councillors, the number of which depends upon the population of the municipality; if the population is less than 1000 there are six councillors, if from 1000 to 5000 there are nine councillors, and if the population is over 5000 there are twelve councillors, or three for each ward. Any male ratepayer of the age of twenty-one years, if a natural born or naturalised subject, is eligible for election as mayor or councillor, except ministers of religion, uncertificated bankrupts, prisoners, and certain other persons who may be disqualified on the ground of interest.

The duties and powers of municipal councils, the levying of rates, the qualification of voters and the classification of municipalities in Western Australia are fully referred to in previous issues. (Year Book No. 5, p. 1025.) Consideration of space prevents their inclusion in this edition.

(b) *Government Subsidies.* Amounts are granted annually to municipalities by way of subsidies on the amounts of rates collected. To entitle any council to participate in the allocation of the annual Parliamentary vote the council must have levied a minimum general rate of one shilling in the pound. The maximum subsidy payable to any one municipality is £3000, and the minimum is £75. Apart from the above, amounts voted by Parliament for special works in municipal districts are often entrusted to the councils for expenditure under approved conditions.

(iii.) *Area, Population, etc. of Municipalities.* Returns regarding the area, population, and valuation of municipalities are defective. They are shown in the table hereunder:—

**WESTERN AUSTRALIA.—NUMBER, AREA, POPULATION, NUMBER OF DWELLINGS,  
AND VALUATION OF MUNICIPALITIES, 1901 and 1910-14.**

Year ended the 31st October.	Number of Muni- cipalities.	Area.	Population.	Dwellings.			Amount Payable in respect of Rates.
				Occupied	Unoc- cupied	Total.	
	No.	Acres.	No.	No.	No.	No.	£
1901 ... ..	42	71,721	*96,807†	†20,989	†967	†21,956	†
1910 ... ..	42	75,716	\$143,808	\$31,064	\$1,652	\$32,716	139,835
1911 ... ..	42	75,430	\$143,808	\$31,064	\$1,652	\$32,716	144,745
1912 ... ..	38	71,203	154,005	32,727	1,613	34,340	152,143
1913 ... ..	33	76,290	153,673	32,082	1,609	33,691	156,537
1914 ... ..	33	67,290	158,664	32,864	1,033	33,897	163,597

\* Census figures, 1901. † Returns for thirty-nine municipalities only. ‡ Not available.  
‡ Census figures, 1911.

Complete particulars of improved or unimproved capital values are not available. In the year 1914 the capital value of ratable property in municipalities was £24,382,980.

(iv.) *Revenue and Expenditure of Municipalities.* The following table gives particulars as to the revenue and expenditure of municipalities during the years 1901 and 1910 to 1914 :—

**WESTERN AUSTRALIA.—REVENUE AND EXPENDITURE OF MUNICIPALITIES,  
1901 and 1910-14.**

Year ended the 31st October	Revenue.				Expenditure.			
	From Rates.	From Govt. Grants.	From other Sources.	Total.	Works and Improvements.	Disbursements in respect of Loans.	Other Expenses.	Total.
	£	£	£	£	£	£	£	£
1901*	78,021	66,860	82,228	227,109	111,241	23,809	79,365	214,415
1910 ...	138,719	13,337	230,407	382,463	87,998	67,168	244,650	399,816
1911 ...	144,993	27,944	252,743	425,680	75,697	69,896	283,402	428,995
1912 ...	148,538	25,902	†834,991	1,009,431	78,576	104,475	735,907	918,958
1913 ...	153,966	19,382	347,323	520,671	159,445	104,091	286,619	550,155
1914 ...	153,686	13,142	479,797	646,625	223,099	115,922	304,824	643,845

\* Incomplete. † Including £525,000 loan, raised for purchase of electric light and gasworks.

(v.) *Assets and Liabilities of Municipalities.* The following table gives particulars respecting the assets and liabilities of municipalities at the end of each financial year 1901 and 1910 to 1914 :—

**WESTERN AUSTRALIA.—ASSETS AND LIABILITIES OF MUNICIPALITIES, 1901  
and 1910-14.**

Year ended the 31st October	Assets.					Liabilities.		
	Balance in Hand.*	Value of Property owned by Municipalities.	Accrued Sinking Funds for Redemption of Loans.	Other Assets.	Total.	Outstanding Debts and Bonds.	Other Liabilities.	Total.
	£	£	£	£	£	£	£	£
1901† ...	37,259	214,984	42,311	13,432	307,986	321,000	19,762	340,762
1910 ...	24,603	669,499	174,119	58,548	926,769	844,844	53,304	898,148
1911 ...	19,570	708,044	195,892	48,884	967,390	893,064	55,615	948,679
1912 ...	108,162	1,154,568	221,477	53,032	1,537,239	1,459,282	50,814	1,510,096
1913 ...	78,066	1,188,068	249,376	66,271	1,581,781	1,468,780	55,887	1,524,667
1914 ...	78,792	1,221,892	283,857	90,763	1,675,304	1,606,966	76,647	1,683,613

\* Including bank balance, cash in hand, and fixed deposit. † Incomplete.

(vi.) *Road Districts.* The whole area of the State, outside incorporated municipalities, is divided into districts, the executive powers being vested in elective boards. These districts were originally formed solely for the purpose of controlling roads and bridges, but their powers and duties have been extended, so that at the present time they correspond closely to the shires of the other States of the Commonwealth. The enactments at present governing the administration of the Road Boards are the Roads Act 1911, the Parks and Reserves Act, the Cattle Trespassing Act, the Width of Tyres Act, the Cart and Carriage Licenses Act, and the Dog Act. The general powers and duties of the Boards are described in previous issues of this book.

(vii.) *Boards of Health.* These may be established under the Public Health Act 1911, which came into force on the 1st June, 1911, either within or outside of municipal boundaries. In the former case the Act is administered by the municipal councils, while in the latter case districts whose borders are conterminous with road districts are administered by the local authorities. Those not conterminous with road districts are administered by special Boards. The revenue of these Boards consists chiefly of moneys received

from health rates and sanitary fees, and the largest item of expenditure is directly connected with the sanitary service. The following table shews particulars of the receipts and expenditure of the various Boards—both municipal and extra-municipal—during the years 1901 and 1910 to 1914 :—

**WESTERN AUSTRALIA.—RECEIPTS AND EXPENDITURE OF LOCAL HEALTH  
BOARDS, 1901 and 1910-14.**

Year ended the 31st October.	Revenue.			Expenditure.		
	From Public Health Rate.	From other Sources.	Total.	On Sanitary Services.	Other Expenses.	Total.
	£	£	£	£	£	£
1901 ... ..	15,230	17,477	32,707	18,787	12,992	31,779
1910 <sup>1</sup> ... ..	<sup>5</sup> 38,741	<sup>6</sup> 52,095	90,836	56,278	34,144	90,442
1911 <sup>2</sup> ... ..	<sup>5</sup> 38,398	<sup>6</sup> 56,807	95,205	59,639	32,919	92,558
1912 <sup>3</sup> ... ..	<sup>5</sup> 47,354	<sup>6</sup> 60,525	107,879	69,703	40,552	110,255
1913 <sup>4</sup> ... ..	<sup>5</sup> 55,637	<sup>6</sup> 62,931	118,568	72,286	41,874	114,160
1914 <sup>7</sup> ... ..	<sup>5</sup> 53,472	<sup>6</sup> 61,799	115,271	62,828	47,486	110,314

1. Exclusive of 10 boards which did not furnish returns, and 14 boards which were inactive.  
2. Exclusive of 1 board which furnished no returns and 23 boards which were inactive. 3. Exclusive of 15 inactive boards and 1 that sent in no return. 4. Exclusive of 2 boards which did not furnish returns and 14 boards which were inactive. 5. Including sanitary rates. 6. Including sanitary fees and charges. 7. Exclusive of 12 inactive boards.

On the 31st October, 1914, there were thirty-three Local Boards of Health within municipalities, and on the 30th June, 1914, ninety extra-municipal Boards. In and after 1911, the financial year of Municipal Local Health Boards ended 31st October, and that of extra-municipal Boards, 30th June.

6. *Tasmania.*—(i.) *Development of Local Areas.* In this State the city of Hobart was incorporated by special Act in the year 1852, but it was not until 1858, when the Rural Municipalities Act was passed, that a general scheme for the establishment of municipalities was extended throughout the State. This Act was amended from time to time without, however, altering its chief characteristics. In 1869 a Roads Act was passed, and after being amended at various times was consolidated in 1884. Under the provisions of these Acts parts of the State were placed under the control of Town Boards and Road Trusts. The general rate under the Municipalities Act was limited to one shilling and sixpence in the pound of annual value, while special rates could be levied in rural districts, provided that the general and special rates together did not exceed one shilling and sixpence in the pound.

(ii.) *Acts now in Force.* In 1906 the whole of the Acts dealing with local authorities were amended and consolidated by the Local Government Act of that year. The whole State, with the exception of the urban municipalities of Hobart and Launceston, is divided into municipal districts, and every Rural Municipality, Town Board, Main Road District, Road District, Local Health District, Fruit District, Rabbit District, School District, and Public Recreation Ground District included in any municipality established by the Act is abolished. Each district is incorporated and is under the control of a warden and councillors, who, in addition to the specific duties and powers imposed and conferred by the Act of 1906, are vested with powers and authorities under the following Acts :—The Codlin Moth Act 1888, the Rabbits Destruction Act 1889, the Public Health Act 1903, the Education Act 1885, the Roads Act 1884, the Rural Municipalities Act 1865, the Police Act 1905, the Town Boards Act 1896, the Public Recreation Grounds Act 1888, the Cemeteries Act 1865, and the Californian Thistle Act 1883. The Governor is authorised to unite, subdivide, or abolish municipalities or wards on petition, and may

do so without petition if in any municipality there is at any time no council or an insufficient number of councillors to form a quorum. The Act of 1906 was amended in 1908, and again in 1911.

(a) *Formation of Councils.* In the case of municipalities not divided into wards the council is to consist of the number of members, being a multiple of three, assigned to it by the Governor, while the councils of municipalities which are subdivided consist of three councillors for each ward. Any resident elector is eligible to act as a councillor unless he is disqualified as being an interested person, a bankrupt or convict, or as undergoing a sentence of imprisonment, or as insane. The warden is elected by the councillors from their own body.

The functions of councils, their borrowing powers, the levying of rates, and the constitution of local and water districts have been referred to in detail in previous issues.

(b) *Qualification of Electors.* Both owners and occupiers of property within a municipality are allowed plurality of votes according to the following scale:—

Annual Value of Property	Under £30.	£30 to £80.	£80 to £160.	£160 to £240.	£240 to £360.	£360 and upwards.
Number of Votes	1	2	3	4	5	6

In the case of joint owners or occupiers the number of votes according to the above scale is equally divided as far as possible, and the vote or votes which cannot be so divided may be given by such one of the joint owners or occupiers as may be appointed by the others. The provisions of the Acts relating to voting by post at parliamentary elections may be made applicable to any municipal election on the petition of the council to the Governor.

(iii.) *Annual Value, Revenue, and Expenditure of Municipalities.* The following table shews the annual value, total receipts, and expenditure of municipalities for the years 1909 to 1914 inclusive:—

**TASMANIA.—ANNUAL VALUE, REVENUE, AND EXPENDITURE OF MUNICIPALITIES,  
1909 to 1914.**

Year.	Number of Muni- cipalities.	Annual Value of Ratable Property.	Revenue.				Expen- diture.†	
			From Rates.	From Govt.	From other Sources.*	Total.		
		£	£	£	£	£	£	
1909	...	51	1,404,328	173,453	44,293	92,244	309,990	318,501
1910	...	51	1,459,917	147,750	35,616	87,994	271,360	266,108
1911	...	51	1,492,533	150,233	35,215	88,365	273,813	307,334
1912	...	51	1,524,789	159,290	26,051	107,935	293,276	276,794
1913	...	51	1,583,739	178,749	17,510	114,046	310,305	336,509
1914	...	51	1,766,099	185,954	14,416	169,825	370,195	349,186

\* Including sums derived from loans.

† Including repayments of loans.

According to the latest estimate made by the Commissioner of Taxes the capital value of ratable property in 1911 was £30,924,993.

(iv.) *Total Revenue and Expenditure of Local Bodies.* Particulars as to Road Boards and Road Trusts are given in the chapter of this book on "Roads and Bridges." In addition to the local authorities already mentioned, Marine Boards have been established at seven ports in Tasmania for the purposes of constructing and maintaining wharves and jetties and of controlling all matters relating to the shipping in the respective ports. Twenty water trusts and forty cemetery trusts have also been established in connection with municipal bodies. The subjoined statement shews the total revenue and expenditure for all local bodies, exclusive of all amounts contributed by the General Government, during each financial year from 1911 to 1915 inclusive:—

**TASMANIA.—REVENUE AND EXPENDITURE OF ALL LOCAL BODIES, EXCLUSIVE OF AMOUNTS CONTRIBUTED BY THE GENERAL GOVERNMENT, 1911 to 1915.**

Particulars	1910-11.	1911-12.	1912-13.	1913-14.	1914-15.
<b>*REVENUE.</b>					
	£	£	£		£
Marine Boards and Lighthouses ...	72,507	72,676	72,671	73,805	77,732
Municipalities† ...	271,360	280,165	267,225	292,795	355,779
Cemetery Trusts ...	§894	918	1,147	1,149	1,391
Water Trusts ...	2,267	2,272	2,805	2,934	2,508
Total ...	347,028	356,031	343,848	370,683	437,410
<b>†EXPENDITURE.</b>					
	£	£	£		£
Marine Boards and Lighthouses ...	68,894	68,529	78,322	63,304	103,202
Municipalities‡ ...	266,108	307,334	270,743	318,999	334,770
Cemetery Trusts ...	§769	902	856	963	1,032
Water Trusts ...	4,138	1,834	2,065	2,228	2,228
Total ...	339,909	378,599	351,986	385,494	441,232

\* Exclusive of amounts contributed by the general Government. † Exclusive of expenditure from Government contributions. ‡ Including Road and Bridge Trusts, and Town Boards. § Exclusive of a number of cemetery trusts incorporated in the newly organised municipalities.

### § 3. Water Supply, Sewerage and Drainage.

1. **New South Wales.**—(i.) *Sydney Metropolitan Board of Water Supply and Sewerage.* Prior to the year 1888 the main water supply and sewerage systems of Sydney and suburbs were under the control of the City Corporation, while several of the suburban councils had constructed local systems, but in that year the Government, with the object of placing the administration of both water supply and sewerage systems throughout the County of Cumberland under the control of an independent body, passed an Act authorising the establishment of the Metropolitan Board of Water Supply and Sewerage. This Board consists of seven members, three of whom are appointed by the Government, two by the City Council, and two by the suburban and country municipalities in the County of Cumberland. The Board is under the general supervision of the Minister for Works—a provision considered necessary since the loan expenditure of the Board forms part of the public debt of the State.

(a) *Present System.* In the year 1850 authority was given by the Legislative Council to the City Corporation to construct water and sewerage works. Under this authority a water supply scheme was adopted and carried out, at a cost of nearly £1,750,000, by which the waters of the streams draining into Botany Bay were intercepted and pumped into three reservoirs. This system has now been superseded, the metropolitan water supply being at present obtained from the watersheds of the Nepean, Cataract, and Cordeaux Rivers. The principal reservoirs in connection with the scheme are the "Cataract" and "Prospect" dams. A fuller description of these dams will be found in previous issues of this book (see Year Book No. 5, p. 984), but their dimensions are here given :—



## SYDNEY WATER SUPPLY.—CATARACT AND PROSPECT DAMS.

Dam.	Height above Foundation.	Width at Top.	Thickness at Bottom.	Length.	Area of Reservoir	Capacity of Reservoir.
	Feet.	Feet.	Feet.	Feet.	Acres.	Gallons.
Cataract ...	192	16½	150	811	2,104	20,743,200,000
Prospect ...	85½	30	523	7,300	1,266½	11,029,200,000*

\* Of which 5,527,000,000 gallons are available by gravitation.

(b) *Aqueducts and Mains.* The water is drawn off from the Prospect reservoir by a canal, five miles in length, to the Pipe Head Basin, situated 16½ miles from Sydney. It is then conveyed for a further distance of five miles to Potts' Hill reservoir, which has a capacity of 100,000,000 gallons, covers twenty-four and a half acres, and is designed to tide the city over any interruption of supply from Prospect, and to prevent fluctuation of pressure. Thence the water passes through a screening tank, and proceeds towards the city in two 48-inch cast-iron mains. A fuller description of the system of reticulation adopted will be found in previous issues.

(c) *Storage Reservoirs.* In connection with the water supply there are in all thirty-five service reservoirs, with a total maximum capacity of 55,693,000 gallons.

(d) *Revenue, Expenditure, and Capital Cost of Sydney Waterworks.* The following table gives particulars as to the revenue, expenditure, and capital cost of the metropolitan waterworks for 1901 and 1911-15.

SYDNEY WATERWORKS.—REVENUE, EXPENDITURE, AND CAPITAL COST,  
1901 and 1911-15.

Year Ended 30th June.	Revenue.	Working Expenses.	Capital Cost exclusive of Items on which Interest is not charged.	Percentage of Working Expenses to Revenue.	Percentage of Revenue to Capital Cost.	Interest Payable on Capital Cost.	Net Profit after paying Working Expenses and Interest.
	£	£	£	%	%	£	£
1901 ...	203,348	49,270	4,300,552	24.22	4.72	152,333	1,745
1911 ...	299,442	99,355	5,420,813	33.18	5.52	192,486	7,601
1912 ...	329,605	112,958	5,606,268	34.27	5.87	198,443	18,204
1913 ...	361,187	126,795	5,907,125	35.11	6.11	200,918	33,474
1914 ...	410,823	145,948	6,257,976	35.52	6.56	223,144	41,730
1915 ...	441,966	159,687	6,644,289	36.13	6.65	235,949	46,329

\* Rate reduced from 7d. to 6d. from 1/7/08, and meter rents abolished.

(e) *Quantity of Water, Number of Houses, and Population Supplied.* The following table gives various particulars for the years 1901 and 1911-15, shewing the increase in the supply of water in Sydney and suburbs:—

SYDNEY WATERWORKS.—NUMBER OF GALLONS, HOUSES, AND POPULATION  
SUPPLIED, 1901 and 1911-15.

Year Ended 30th June.	Number of Houses Supplied.	Estimated Population Supplied.	Average Daily Supply.	Total Supply for the Year.	Aver. Daily Supply.		Mains Laid.
					Per House.	Per Head of Estimated Population	
	No.	No.	1000 Gallons.	1000 Gallons.	Gallons.	Gallons.	Miles.
1901	98,298	491,000	21,583	7,877,677	219	43.95	40
1911	139,237	696,185	29,006	10,587,433	208	41.55	102
1912	146,236	731,180	30,522	11,141,700	208	41.74	74
1913	155,213	776,065	32,594	11,896,810	210	41.99	100
1914	166,112	830,560	36,540	13,337,000	220	44.00	102
1915	175,758	878,790	37,548	13,705,061	210	42.72	183

(f) *Other Water Supply Systems under the Metropolitan Board.* In addition to the main metropolitan water supply system there are certain other systems within the County of Cumberland managed by the Metropolitan Board. (a) The Richmond waterworks are entirely unconnected with the Sydney supply. Water is supplied to the town by a small pumping station on the left bank of the Hawkesbury River, just below the confluence of the Grose and Nepean. (b) The Wollongong waterworks are also unconnected with the Sydney supply. The source of supply is the Cordeaux River and the catchment area is 2400 acres in extent. The total capacity of the reservoir is 173,000,000 gallons and the total length of the main about nineteen miles, exclusive of the extension to Port Kembla and Unanderra. (c) The Manly waterworks are supplied by a special catchment area of about 1300 acres, and are also connected with the metropolitan system by a 10-inch main from Mosman. (d) The water-supply for the districts of Campbelltown, Camden and Narellan, and Liverpool is not drawn from the main Sydney supply through Potts' Hill, but is received by gravitation from the upper canal at Prospect. For further details of these water-supply systems see previous issues.

(ii.) *Metropolitan Sewerage System.* The system which is now under the control of the Metropolitan Board of Water Supply and Sewerage will be found fully described in previous issues. (See Year Book No. 5, p. 986.)

(a) *Revenue, Expenditure, and Capital Cost of Sydney Sewerage Systems.* The following table gives particulars as to the revenue, expenditure, and capital cost of the metropolitan sewerage systems for 1901 and 1911-15:—

**SYDNEY SEWERAGE SYSTEMS.—REVENUE, EXPENDITURE, AND CAPITAL COST,  
1901 and 1911-15.**

Year ended the 30th June.	Revenue.	Working Expenses.	Capital Cost, exclusive of Items on which Interest is not Charged.	Percentage of Expenditure to Revenue.	Percentage of Revenue on Capital Cost.	Interest Payable on Capital Cost.	Profit or Loss after Payment of Working Expenses and Interest.
	£	£	£	%	%	£	£
1901 ...	125,290	45,395	3,066,147	36.23	4.05	106,475	—26,580
1911 ...	234,208	79,636	4,496,290	34.00	5.20	159,070	—4,498
1912 ...	250,826	82,246	4,769,449	32.78	5.25	166,771	1,809
1913 ...	266,292	91,094	5,083,263	33.95	5.27	171,957	3,241
1914 ...	297,840	104,543	5,448,968	35.10	5.46	193,389	—92
1915 ...	344,489	111,809	5,775,094	32.45	5.96	205,928	26,752

NOTE.—The minus sign represents a loss.

(b) *Number of Houses Drained, Population, and Length of Sewers in Sydney Metropolitan Sewerage Systems.* The following table gives particulars as to the number of houses drained, the population, and the length of sewers within the Sydney metropolitan area for 1901 and 1911 to 1915:—

**SYDNEY SEWERAGE SYSTEMS.—NUMBER OF HOUSES DRAINED, POPULATION,  
AND LENGTH OF SEWERS, 1901 and 1911-15.**

Year ended the 30th June.	Number of Houses Drained.	Estimated Population Served.	Total Length of Sewers.	Total Length of Storm-water Drains.	Ventilating Shafts Erected.	Sewers Ventilated.
	No.	No.	Miles.	Miles.	Feet.	Miles.
1901 ...	75,416	370,000	515.62	25.91	194,667	450
1911 ...	108,012	540,060	825.20	48.85	376,900	795
1912 ...	110,737	553,685	863.29	49.63	382,654	809
1913 ...	114,690	573,450	890.53	52.24	401,344	853
1914 ...	119,550	597,750	930.06	53.15	408,778	871
1915 ...	125,566	627,780	972.14	53.65	427,552	915

(iii.) *The Hunter District Water Supply and Sewerage Board.* The waterworks of the Lower Hunter were constructed by the Government under the provisions of the Country Towns Water Supply and Sewerage Act of 1880. In 1892 a special Act was passed establishing an independent Board to control the water-supply works. Fuller reference is made to the constitution of this Board and to the municipalities and incorporated areas under its jurisdiction in previous issues of the Year Book. (See Year Book No. 5, p. 988.)

(a) *Description of Waterworks.* The water supply is pumped from the Hunter River about a mile and a half up stream from West Maitland into a settling-tank of 1,390,500 gallons capacity, and thence flows through filter beds into a clear water tank holding 589,500 gallons. It is then pumped from the clear water tank into two summit reservoirs, one of which supplies East and West Maitland, and Morpeth, while the other supplies Newcastle and suburbs, and the townships of South Maitland and Cessnock. There is also a storage reservoir of 172,408,100 gallons capacity, which is resorted to when the river water is too turbid. In these districts there are eleven service reservoirs, having a total capacity of nearly 4,852,000 gallons supplied by gravitation. On the hill at Newcastle there is also a high-level iron tank with a capacity of 20,000 gallons, which is supplied by a small pumping engine at Newcastle reservoir. The total length of water mains is 389 miles.

(b) *Water Supply, Capital Cost, Revenue, and Expenditure.* By the Act of 1892 referred to above and an Amending Act of 1894 the capital debt of the Board was to be liquidated by annual instalments distributed over 100 years with interest at 3½ per cent. By a further amending Act of 1897 the repayment of expenditure on permanent works was abrogated, and the annual instalments were to be paid in liquidation of the cost of renewable works to be fixed by the Government from year to year. The capital debt of the Board to the Government at 30th June, 1915, was in respect of water supply £561,447, and £347,100 in respect of sewerage. In the subjoined table particulars are given as to the revenue and expenditure, and also as to the number of houses and population supplied in 1901 and 1911 to 1915:—

**PARTICULARS OF THE HUNTER DISTRICT WATER SUPPLY, 1901 and 1911 to 1915.**

Year ended 30th June.	Revenue.	Working Expenses (including Interest).	Houses Supplied.	Estimated Population Served.	Supply.	
					Daily Average.	Total.
	£	£	No.	No.	1000 Gallons.	1000 Gallons.
1901 ... ..	27,405	30,948	9,086	45,400	1,005	366,889
1911 ... ..	45,711	45,420	17,164	85,820	1,850	675,214
1912 ... ..	47,788	47,920	17,796	88,980	2,026	739,539
1913 ... ..	53,673	49,043	18,405	92,025	2,366	863,692
1914 ... ..	66,323	52,994	19,575	97,875	2,791	1,018,810
1915 ... ..	68,611	55,382	20,709	103,545	2,859	1,043,546

The average daily consumption of water for all purposes per inhabitant was 27.61 gallons during the year 1915, as against 28.52 gallons during the previous year.

(c) *Sewerage Works.* Considerable progress has been made by the Department of Public Works with the construction of the sewerage works for Newcastle and suburbs. The scheme is designed on the separate system, and will deal with the sewage partly by gravitation and partly by pumping. Up to the 30th June, 1915, about 63 miles of sewers,

connecting with 6151 separate properties, were under the control of the Board. For the financial year 1914-15 the revenue was £17,211 and the expenditure £21,326, the latter amount including a £2212 instalment to the sinking fund for the reconstruction of renewable works, and £3572 interest on works not transferred to the Board at 30th June, 1915, and therefore not revenue producing at that date.

(iv.) *Water Supply and Sewerage in Country Towns.* With the object of assisting municipalities to construct systems of water supply and sewerage, the Country Towns Water Supply and Sewerage Act of 1880 was passed, but has since been amended by the Acts of 1887, 1894 and 1905. The principal provisions of these Acts are more fully dealt with in previous issues of this book. (See Year Book No. 5, p. 989.)

(a) *Waterworks.* Up to the 30th June, 1915, fifty-one country municipalities had availed themselves of the privileges of the Acts as regards waterworks, all of which at that date had been completed and handed over by the Government. The capital debt of these works was £939,762, and the total of the sums payable annually for a period of 100 years was £35,382, including interest ranging from  $3\frac{1}{2}$  per cent. to 4 per cent., the first repayments having become due at various dates, starting from the end of the year 1893. In the calculation of these repayments the interest on the sums actually expended has been added, and any payments by the councils, as well as sums remitted under the authority of the Act, have been deducted. Other schemes of water supply and extensions of existing works are in course of construction. A number of other municipalities have constructed works out of their own resources.

(b) *Sewerage Works.* Only fourteen municipal councils have taken advantage of the Act providing for the construction of sewerage and storm water drainage works in country towns. On the 30th June, 1915, the capital debt of these systems was £240,298, the amount payable annually to the Government being £6665. Other sewerage systems, as well as extensions to existing systems, are in course of construction.

2. *Victoria.*—(i) *The Melbourne and Metropolitan Board of Works.* This Board was established by an Act of 1890, and entered upon its duties in March, 1891. The Board consists of forty members, one of whom is chairman elected every four years by the other members. Nine members are elected by the Melbourne City Council, four by the South Melbourne Council, three by the Prahran, two each by the Fitzroy, Richmond, St. Kilda, and Collingwood, and one each by the other fifteen suburban municipal councils returning a representative. The sewerage area over which the Board exercises control consists of fifteen cities, five towns, two shires, and parts of three others, or twenty-five municipalities in all, comprising a total area of 109,009 acres. Control for water supply purposes is also exercised over 2949 acres in four municipalities. The Board further supplies water to the metropolitan farm at Werribee, and the outfall sewer area. Various other shires arrange for bulk supplies of water. The total estimated population on the 31st December, 1915, was 679,000. The waterworks for the supply of Melbourne and suburbs were originally carried out by the Government, which had for that purpose contracted loans amounting to £2,389,934; these works were vested in the Board in 1891. The primary object of the creation of the Board was not, however, to take over these works, but was to supply the long called for and pressing want of a sewerage system for the metropolis. To carry out its work the board is authorised to borrow £9,750,000, exclusive of the loans contracted by the Government for the purpose of waterworks and taken over by the Board. The liability on Government loans on the 30th June, 1915, was £1,559,786, and for loans raised by the Board was £10,425,160. The Board is still empowered to borrow £154,988 before reaching the limit of its borrowing powers.

(a) *Total Cost of Water Supply and Sewerage.* The subjoined table shews the total cost of construction and maintenance of water supply and sewerage from 1853 to 1915:—

**MELBOURNE AND METROPOLITAN BOARD OF WORKS.—TOTAL COST OF CONSTRUCTION AND MAINTENANCE OF WATER SUPPLY AND SEWERAGE, 1853 to 1915.**

Period ending 30th June.	Water Supply.			Sewerage.			Grand Total.
	Capital Cost.	Working Expenses.	Interest.	Capital Cost.	Working Expenses.	Interest.	
	£	£	£	£	£	£	£
1853 to 1891	3,378,246	420,833	1,021,676	...	...	...	4,820,755
1891 to 1901	336,957	367,506	1,021,181	3,307,764	114,268	919,017	6,066,693
1901 to 1911	299,303	384,871	1,026,362	2,981,666	461,706	2,333,348	7,487,256
1911 to 1914	600,222	159,903	354,665	614,401	199,214	902,310	2,830,715
1914 to 1915	129,007	60,547	130,268	245,548	72,030	316,788	954,188
Total ...	4,743,735	1,393,660	3,554,152	7,149,379	847,218	4,471,463	22,159,607

(b) *Revenue and Expenditure of Melbourne and Metropolitan Board of Works.* The following table shews the actual receipts and expenditure, and also the loan receipts and expenditure of the Board during 1901-2 and 1910 to 1915 :—

**MELBOURNE AND METROPOLITAN BOARD OF WORKS.—REVENUE AND EXPENDITURE DURING EACH YEAR, 1901-2 and 1910 to 1915.**

Particulars.	1901-2.	1910-11.	1911-12.	1912-13.	1913-14.	1914-15.
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**ORDINARY RECEIPTS.**

	£	£	£	£	£	£
Water supply ... ..	171,956	253,002	267,917	295,963	323,762	356,155
Sewerage, etc. ... ..	134,696	267,444	273,365	287,507	320,931	344,768
Live stock—Metropolitan farm ... ..	19,929	35,016	63,225	57,787	62,064	87,135
Interest { Water supply ... ..	...	630	953	2,277	1,890	1,576
{ Sewerage ... ..	17,448	8,995	8,885	8,695	9,125	8,296
Total ... ..	334,029	565,287	613,345	652,229	716,772	797,930

**ORDINARY EXPENDITURE.**

	£	£	£	£	£	£
General management ... ..	33,621	35,779	40,104	41,007	44,668	45,032
Live stock, etc.—Metropolitan farm ... ..	16,702	19,336	46,283	44,130	55,570	49,704
Maintenance { Water supply ... ..	22,205	25,016	30,234	34,508	34,125	41,521
{ Sewerage ... ..	24,396	45,665	47,797	50,438	49,198	53,465
Interest { Water supply ... ..	102,670	105,760	112,886	116,716	130,182	131,845
{ Sewerage ... ..	192,952	293,608	297,962	307,630	323,149	325,167
Patriotic and Belgian Relief Funds ... ..	...	...	...	...	...	2,000
Total ... ..	392,546	525,164	575,266	594,424	636,892	648,734

**LOAN RECEIPTS.**

	£	£	£	£	£	£
Water supply ... ..	1,636	4,788	5,982	12,315	10,803	10,138
Sewerage ... ..	88,425	56,313	59,907	61,315	46,620	42,950
Proceeds of loans ... ..	396,238	291,310	322,223	307,952	796,841	223,500
Miscellaneous ... ..	...	9,238	12,399	28,355	17,375	10,735
Total ... ..	486,299	361,649	400,511	409,937	871,639	287,323

**LOAN EXPENDITURE.**

	£	£	£	£	£	£
Water supply construction ... ..	17,058	98,145	133,149	339,753	160,107	140,102
Sewerage construction ... ..	410,760	286,035	245,911	259,461	242,849	288,582
Expenses in floating and redemption of loans ... ..	5,200	2,936	5,393	180,159	253,426	114
Miscellaneous ... ..	*4,293	26,288	35,638	47,474	30,004	25,882
Total ... ..	428,725	413,404	420,091	776,847	686,386	454,680

\* Excess of stock distribution (£7020) over purchases (£2727).

(ii.) *Melbourne Metropolitan Water Supply.* In December, 1857, the construction of the Yan Yean Reservoir system was completed. A description of the conditions that prevailed in Melbourne prior to that date is given in previous issues of the Year Book.

(a) *Development of System.* The following statement shews the development which has taken place in the water supply system of Melbourne during the fifty-eight years since its inception :—

**MELBOURNE WATER SUPPLY SYSTEM.—1857 to 1915.**

Year.	Population* Served.	Capital Cost. £	Charge per 1000 Gallons.	Rate in £	Reticulation, Mains, &c., Mileage.	Supply in Gallons, Average daily.
1857 ...	95,442	748,974	10/- and 6/-	1/-	104	2,250,000
1915 ...	679,000	4,743,735	1/1	7d.	1,606½	36,989,181

\* On the 31st December.

(b) *Description of Water Supply Systems.* The water supply of Melbourne consists of three main systems—the Yan Yean (including the high level main), the Maroondah, and the O'Shanassy systems.

A full description of the two former systems has been given in previous issues of this book (see No. 6, p. 983).

The three reservoirs at Preston, which are the main distributors of the central city supply, contain 13,500,000, 24,500,000, and 26,300,000 gallons respectively.

The work has been completed of diverting the waters of the O'Shanassy River, a tributary of the Yarra, by an open aqueduct and pipe line of an aggregate length of 48½ miles, delivering water to the eastern portion of the metropolis by way of Mitcham and Surrey Hills. The total capacity of the scheme is 20,000,000 gallons per day, but capable of enlargement to 60,000,000 gallons. The scheme was estimated to cost £450,000, and up to 30th June, 1915, the date of the practical completion of the scheme, £429,277 had been expended, including the cost of an additional service reservoir not allowed for in the original scheme, and other incidental works. The watershed of the O'Shanassy River, containing 33,000 acres, has been excised from the permanent forests area, and a Crown grant was issued to the Board on the 28th January, 1910.

(c) *Catchment Areas, Reservoirs, and Aqueducts.* (i.) *Drainage Areas.* The whole of the catchment areas are absolutely free from population, cultivation, or stock grazing, and are under the complete control of the Metropolitan Board of Works. The present drainage areas from which the water is delivered are as follows :—

**MELBOURNE WATER SUPPLY.—CATCHMENT AREA IN ACRES, 1915.**

Silver and Wallaby Creeks.	Plenty River and Jack's Ck.	Yan Yean Reservoir Catchment.	Maroondah Catchment.	O'Shanassy Catchment.	Total.
12,000	12,000	5,000	40,000	33,000	102,000

All the water is delivered by gravitation, no pumping being required in any portion of the area supplied.

(d) *Storage Reservoirs.* In connection with distribution there are thirteen service reservoirs having a total capacity of 131,300,000 gallons. The total daily quantity of water which can be sent into Melbourne is as follows :—

System ...	Yan Yean.	High Level Main.	Maroondah.	O'Shanassy.	Total Supply.
Gallons per day ...	33,000,000	9,000,000	28,000,000	20,000,000	90,000,000

(e) *Quantity of Water, Number of Houses, and Population Supplied.* The following table gives various particulars for the years 1901 and 1911-15, shewing the increase in the supply of water in Melbourne and suburbs :—

**MELBOURNE WATERWORKS.—NUMBER OF HOUSES, POPULATION, AND WATER SUPPLIED, 1901 and 1911-15.**

Year Ended 30th June.	Number of Houses Supplied.	Estimated Population Supplied.	Average Daily Supply.	Total Supply for the Year ended 30th June.	Average Daily Supply.		Rate Levied.	Assessments of Tenements Served by Metropolitan Water Supply.
					Per House.	Per Head of Estimated Population.		
	No.	No.	,000 Gallons.	,000 Gallons.	Gallons.	Gallons.		£
1901 ...	104,548	491,780	28,732	10,487,007	274.8	58.4	6d. in the £ 7d. in the £	3,479,721
1911 ...	128,036	581,500	32,840	11,986,503	256.5	56.5		5,045,848
1912 ...	133,122	594,250	36,507	14,093,509	289.3	64.8		5,382,101
1913 ...	140,351	614,300	39,380	14,373,761	280.6	64.1		5,670,801
1914 ...	147,442	639,700	43,644	15,930,104	296.0	68.2		6,217,841
1915 ...	150,825	662,500	36,989	13,501,051	245.2	55.8		6,577,338

(f) *Total Cost of Construction, Revenue, Expenditure and Net Profits, 1853 to 1915.* The following table shows the total cost of construction, the revenue, expenditure, and net profits for various periods up to 30th June, 1915 :—

**MELBOURNE WATERWORKS.—CONSTRUCTION, COST, REVENUE, EXPENDITURE, AND NET PROFITS, 1853 to 1915.**

Period.	Capital Cost.*	Revenue.†	Working Expenses.‡	Percentage of Working Expenses to Revenue.	Interest.§	Surplus.
	£	£	£	%	£	£
Total to 1890-1	3,378,246	3,150,055	420,833	...	1,021,676	1,707,546
1891-2 to 1900-1	336,957	1,686,025	367,506	21.80	1,021,181	297,338
1901-2 to 1910-11	299,303	2,054,355	384,871	18.73	1,026,362	643,122
1911-12 to 1913-14	600,222	897,577	159,903	17.81	354,665	383,009
1914-15	129,007	850,549	60,547	17.27	130,268	159,734
Total ...	4,743,735	8,138,561	1,393,660	...	3,554,152	3,190,749

\* Works commenced in 1853. † Revenue commenced in 1854. ‡ Returns for expenditure commenced in 1859. § First interest paid in 1856.

(iii.) *Melbourne Sewerage.* As stated above, the chief object of the creation of the Melbourne and Metropolitan Board was to carry out an efficient system of sewerage. The cost of removal of the sewage in 1894 was about £90,000, equal to a capital expenditure of £1,750,000. This movable pan system has been displaced by the water carriage system throughout the greater portion of the metropolis, and in other parts the work of reticulation is now proceeding.

(a) *Description of Sewerage Systems.* The whole of the sewage of the metropolis is being gradually collected by means of two principal main sewers and a subsidiary main leading to the pumping station at Spotswood. A description of the scheme may be found in previous issues. (See Year Book No. 5, p. 1007.)

(b) *Metropolitan Sewage Farm.* The farm originally contained 8847 acres, situated on the western side of the Werribee River. The price paid for the land was £17 10s. per acre (including compensation for severance), which in its virgin unimproved state cost the Board in 1892, £159,873. This sum included the purchase of a strip of land 11½ miles long (168½ acres) on which the greater portion of the outfall sewer is constructed. Since 1911, 2306 acres have been purchased, making the total area of the farm 11,153 acres at 30th June, 1915, its total cost to that date being £542,659. About 29,521,144 gallons of sewage had to be disposed of every twenty-four hours during the year in irrigating the fields. It is spread over properly prepared and sown blocks of land by a series of

mains and lateral carriers. The blocks are laid down with grass and lucerne, on which sheep and cattle are depastured. During the financial year 1914-15, 26,322 sheep were bought, the profit from that source being £5954. Cattle to the number of 3553 were purchased, the profit for the year on cattle being £16,099.

(c) *Number of Houses Connected, Capital Cost, Revenue and Expenditure.* The following table gives particulars as to the number of houses connected to the sewerage system, the total capital cost, and the receipts and disbursements during 1901 and 1910-15 :—

**MELBOURNE SEWERAGE WORKS.—TENEMENTS CONNECTED, CAPITAL COST, REVENUE, MAINTENANCE AND WORKING EXPENSES, 1901-2 and 1910-15.**

Year.	Number of Houses Connected.	Capital Cost.	Revenue.			Maintenance, Repairs and Renewals.
			From Rates.	From other Sources.	Total.	
	No.	£	£	£	£	£
1901-2 ...	47,172	3,610,225	126,725	10,968	137,693	24,336
1910-11 ...	112,293	6,289,430	260,528	15,200	275,728	46,904
1911-12 ...	118,350	6,487,517	271,682	18,042	289,724	47,381
1912-13 ...	125,103	6,695,534	285,721	17,655	303,376	51,804
1913-14 ...	131,168	6,903,831	319,817	18,642	338,459	49,615
1914-15 ...	138,108	7,149,379	342,312	40,146	382,458	54,558

(iv.) *Water Supply in Country Towns and Districts.* By the Water Act 1905 (now the Water Act 1915), which came into operation on the 1st May, 1906, the control and management of all Irrigation Trusts, with one exception, and of a number of waterworks and water supply districts were centralised, and their works and property vested in the State Rivers and Water Supply Commission. The powers and duties of this Commission were extended by the Water Act 1909 (now embodied in the Water Act 1915), the whole of the Water Supply Department being now merged in the Commission. Further information with regard to this Commission and to the works and districts under its control are given in the section in this book dealing with Water Conservation and Irrigation. There are, however, in different parts of Victoria a number of other waterworks which are concerned chiefly with domestic supply, and which are controlled by local authorities, *i.e.*, by Waterworks Trusts or by municipal corporations. These works are constructed out of moneys either granted or lent by the State Government. The following table gives particulars as to the waterworks under the control of Trusts and municipal corporations for the years 1901 and 1911-15 :—

**VICTORIA.—COUNTRY WATERWORKS UNDER TRUSTS AND MUNICIPAL CORPORATIONS, 1901 and 1911-15.**

Year.	Waterworks Trusts.				Municipal Corporations.			
	Number of Trusts.	Capital Cost.	Capital Indebtedness.	Interest Outstanding.	Number of Corporations.	Capital Cost.	Capital Indebtedness.	Interest Outstanding.
	No.	£	£	£	No.	£	£	£
1901 ...	76	823,418	748,089	*	24	*	470,041	*
1911 ...	87	1,017,396	819,698	15,047	21	651,489	421,273	2,662
1912 ...	88	1,046,394	843,506	15,970	22	653,510	418,673	9,349
1913 ...	89	1,083,390	866,594	12,461	22	655,702	415,678	6,635
1914 ...	90	1,114,727	889,905	10,858	22	656,200	417,937	1,213
1915 ...	94	1,144,095	911,786	14,071	22	689,925	447,347	2,005

\* Returns not available.



Under the provisions of the Local Government Act 1903 (now embodied in the Local Government Act 1915), municipal councils are authorised to construct and maintain tanks, dams, and reservoirs, and must maintain existing works for the gratuitous supply of water. They are also empowered to accept the management and control of new waterworks within their respective localities, and may, with the consent of the Governor, construct or purchase new works within or without their locality. Councils are also authorised to enter into contracts for the supply of water for any period not exceeding ten years with the owner of any waterworks. Every municipality may levy a special water rate for water supplied, or for the purpose of constructing waterworks or paying the interest on any loan contracted by the council for such purpose, but the amount of the rate must not exceed in any year the sum of two shillings in the pound, provided that a minimum sum of ten shillings may be fixed by the council to be paid in respect of any property to which water is supplied.

(v.) *Geelong Waterworks Trust.* This Trust was constituted under the Geelong Municipal Waterworks Act 1907, with borrowing power up to £300,000, afterwards increased by Act No. 2322, 1911, to £350,000, and by Act No. 2486 to £425,000. It was reconstituted under the Geelong Waterworks and Sewerage Act 1910, with power to borrow an additional £250,000 for the purpose of installing a sewerage system for Geelong and suburbs. These Acts have since been consolidated under the Geelong Waterworks and Sewerage Act No. 2661. The borrowing power for sewerage purposes has since been increased by Act No. 2766 to £325,000. The available storage capacity of the reservoirs is 1655 million gallons, and the Trust is authorised to supply water to (a) City of Geelong; (b) the suburbs thereof, and all places within a radius of five miles of the Geelong post office; and (c) any place within ten miles on either side of the main pipe from Stoney Creek to Geelong. The cost of the works (water and sewerage) to 30th June, 1915, was £620,000, the estimated population served is 33,500, and the number of assessments 11,117. The receipts for the year amounted to £34,397. The sewerage scheme provides for a main outfall sewer 4 ft. 3 in. x 3 ft. 3 in. to the ocean at Black Rock—a distance of about nine miles. The drainage area embraces an area of 8081 acres, including the city of Geelong, boroughs of Geelong West, Newton, and Chilwell, and the suburban areas in the shires of Corio, South Barwon, and Bellarine.

**3. Queensland.**—(i.) *The Metropolitan Water and Sewerage Board.* This Board was constituted by the Metropolitan Water and Sewerage Act 1909, which divested the then existing Water Board of its powers and duties and vested them in an extended form in the new Board. The Act further empowers the Board to carry out a sewerage and drainage system, and relieves the local authorities of their responsibilities in that matter. The district of the new Board comprises the cities of Brisbane and South Brisbane, the towns of Hamilton, Ithaca, Toowong, and Windsor, and the shires of Balmoral (except division 3), Cocoparoo, Enoggera (except division 3), Sherwood (except division 1), Stephens, Taringa, Toombul, and a portion of Kedron.

The Board consists of nine members, viz., the president and eight elected colleagues.

(a) *Brisbane Water Supply.* The supply is derived from the upper reaches of the Brisbane River, and from two storage reservoirs, known respectively as the Enoggera and the Gold Creek reservoirs.

- (1) *The Brisbane River Supply.* The principal source of water supply is the Brisbane River, about 75 per cent. of the water used being taken from it. The catchment area above the pumping station is about 4000 square miles. The Mount Crosby service reservoir, into which the water is pumped from the river, is built in cement concrete, and is 267 feet long, 100 feet wide, and 15 feet deep from high-water line, which is 455 feet above high-water mark at Brisbane. The capacity is about 2,500,000 gallons. New reservoirs and sedimentation basins and purification works are now in course of construction.

- (2) *The Enoggera Reservoir.* The Enoggera works are distant from Brisbane about eight miles by road. The catchment area is nearly thirteen square miles in extent, and the reservoir, which is formed by an earthen dam, holds 1,000,000,000 gallons, of which 600,000,000 are available by gravitation. The greatest length of the reservoir is 2600 yards, and its greatest breadth 700 yards. The supply from Enoggera is filtered through an intermittent sand filtration plant, comprising half an acre of sand beds, and a pure water reservoir with a capacity of 750,000 gallons.
- (3) *The Gold Creek Reservoir.* This reservoir is situated in the upper waters of Gold Creek, a branch of Moggil Creek, distant from Brisbane by road about thirteen miles. The supply is drawn from a catchment area adjoining that of Enoggera, and comprising an area of nearly four square miles. The total capacity is about 406,000,000 gallons, of which 400,000,000 gallons are available.
- (4) *Service Reservoirs.* Certain portions of the metropolitan area are supplied with water from service reservoirs, which are connected with one or other of the main reservoirs alluded to above. These service reservoirs are constructed at Highgate Hill, Wickham Terrace, and Bartley's Hill, and have a total capacity of over 4,000,000 gallons. A fuller description of the Brisbane water supply scheme may be found in previous issues.

(b) *Brisbane Waterworks: Cost, Revenue, Expenditure, and Interest.* The sub-joined table gives particulars as to the cost, the revenue and expenditure, and the amount of interest and loan redemption during 1901 and each of the years 1911 to 1915:—

**BRISBANE WATERWORKS.—COST, REVENUE, EXPENDITURE, INTEREST, AND REDEMPTION OF LOANS, 1901 and 1911-15.**

Year.	Capital Cost.	Revenue from Rates and Sales of Water.	Working Expenses.	New Work Construction.	Interest and Redemption of Loans.
	£	£	£	£	£
1901 ...	694,973	60,120	17,462	7,535	42,426
1911 ...	1,015,276	67,730	30,105	147,438	20,670
1912 ...	1,134,815	64,367	39,124	119,539	26,780
1913 ...	1,255,898	76,922	43,135	121,083	31,498
1914 ...	1,489,720	97,366	44,549	233,822	39,194
1915 ...	1,852,622	103,530	50,078	361,765	52,704

(c) *Brisbane Waterworks: Length of Mains, Tenements and Population Served, and Water Consumption.* The following table shews the length of mains, the number of tenements connected, the population supplied, the total quantity of water supplied, the average daily supply, and the average daily supply per head of population supplied during 1901 and each year from 1911 to 1915:—

**BRISBANE WATERWORKS.—PARTICULARS, 1901 and 1911-15.**

Year.	Length of Reticulation Mains.	Number of Tenements Connected.	Estimated Population Supplied.	Quantity Supplied.	Average Daily Supply.	Average Daily Supply per Head of Estimated Population.
	Miles.	No.	No.	,000 Gallons.	Gallons.	Gallons.
1901 ...	198	15,652	78,260	1,536,260	4,208,931	55
1911 ...	333½	24,153	120,765	1,870,767	5,125,390	42.44
1912 ...	347	27,678	129,575	2,020,404	5,520,231	42.60
1913 ...	370½	28,301	139,925	2,099,590	7,752,302	41.05
1914 ...	389	29,612	148,060	2,293,920	6,284,712	42.44
1915 ...	405	31,442	157,210	2,655,440	6,541,430	41.60

The total length of the trunk mains is 97 miles.

A scheme of sewerage has been devised for Brisbane and its suburbs. It is intended to construct works for the provision of a population of 275,000, and work is now being carried on in connection with the main sewers, six contracts, comprising 77,000 feet of sewer, being in progress. The survey of 16,239 houses has been completed.

(ii.) *Country Towns Water Supply.* In addition to the city of Brisbane there were at the end of the year 1914 twenty-eight towns in Queensland provided with water supply systems, constructed by municipalities chiefly from Government loans. The sub-joined statement gives particulars of all the water supply systems—exclusive of Brisbane—for the year 1914 :—

**QUEENSLAND.—PARTICULARS OF COUNTRY WATER SUPPLY SYSTEMS, 1914.**

£				£			
Cost of construction to 31/12/14 ... 809,532				Expenditure	Office and salaries ... 11,672		
Receipts	{	Rates and sales of water 85,480			Construction ... 39,528		
		Other ... 37,772*			Maintenance ... 28,042		
					Interest & redemption 26,489		
					Other expenses ... 10,408		
		Total Receipts ... 123,252				Total ... 116,139	
Assets ... .. 647,120				Liabilities ... .. 447,219			

\* Including £25,798 from Government loans and £10,000 from municipal debentures.

4. *South Australia.*—(i.) *Adelaide Water Supply System.* The water supply system of Adelaide is under the control of the Public Works Department. The supply is obtained partly from the catchment areas of the rivers Onkaparinga, Torrens, and Sixth Creek, and partly from springs and pumping stations. There are three storage reservoirs, situated at Happy Valley, Hope Valley, and Thorndon Park, having an aggregate capacity of 3,895,000,000 gallons, while the tanks used in connection with the springs and pumping stations have a further capacity of 4,824,000 gallons. A new reservoir is under course of construction at Millbrook, to be supplied from the River Torrens. The total capital cost up to the 30th June, 1915, was £1,973,226, the total revenue being £2,937,989 and the area served approximately 106,000 acres.

The following table gives various particulars relating to the water supply of Adelaide for the years 1910 to 1915 inclusive:—

**ADELAIDE WATER SUPPLY.—LENGTH OF MAINS, REVENUE, EXPENDITURE, AND CONSUMPTION OF WATER, 1910 to 1915.**

Year Ended 30th June.	Length of Mains.	Gross Revenue.	Working Expenses.	Net Revenue.	Percentage of Net Revenue on Capital Cost.	Total Consumption of Water.*
	Miles.	£	£	£	%	Million of Gals.
1910 ...	704	82,290	22,709	59,581	3.31	4,000
1911 ...	732	89,902	28,032	61,870	3.40	4,000
1912 ...	763½	94,280	26,384	67,896	3.68	4,600
1913 ...	802½	105,590	27,982	77,608	4.12	4,700
1914 ...	836	113,156	30,106	83,050	4.32	5,150
1915 ...	859	112,082	36,029	76,053	3.85	3,467

\* In the Adelaide Water District there are no governing meters. The quantities shewn above are as recorded by gaugings taken at the reservoirs, and include evaporation and absorption.

(ii.) *Adelaide Sewerage System.* In connection with the sewerage system of Adelaide, which is also under the control of the Public Works Department, about 341 miles of sewers had been laid in the city and suburbs up to the 30th June, 1915. The sewage is

disposed of on a farm and filter-beds, the latter being used only during the winter months. A scheme of sewerage extension which includes a pumping station to deliver the sewage to the existing sewage farm is now nearing completion.

The following table gives particulars relating to the Adelaide sewerage system for the years 1910 to 1915 inclusive:—

#### ADELAIDE SEWERAGE SYSTEM.—REVENUE AND EXPENDITURE, 1910 to 1915.

Year Ended the 30th June.	Revenue.			Expenditure.			Net Revenue	
	Rates and Interest.	Sewage Farm. Sales of Produce, etc.	Total.	Maintenance.	Sewage Farm. Working Expenses.	Total.	Total.	Percentage on Capital Cost.
	£	£	£	£	£	£	£	%
1910 ...	36,322	7,213	43,535	7,184	6,088	13,272	30,263	4.41
1911 ...	37,938	7,189	45,127	8,462	7,681	16,143	28,984	4.26
1912 ...	41,449	6,984	48,383	9,376	5,039	14,415	33,968	4.88
1913 ...	45,373	8,392	53,765	9,803	6,392	16,195	37,570	5.01
1914 ...	49,507	9,588	59,095	10,242	5,629	15,871	43,224	5.55
1915 ...	52,348	10,040	62,388	9,688	6,948	16,636	45,752	5.74

The seaside town of Glenelg is served by a separate sewage disposal works, including a pumping station, septic tank, lucerne plots, and filter beds. The net revenue for the year ended 30th June, 1915, was £1864, being 4.12 per cent. on the capital cost. Up to the same date 15 miles of sewers had been laid.

(iii.) *Water Supply in Country Towns.* In South Australia there is a number of country waterworks under the control of the Public Works Department. There are three large reservoirs at Barossa, Beetaloo, and Bundaleer, which supply fifty-four townships with water for domestic and stock purposes. The Warren Reservoir, situated on the South Para River, is in course of construction. The principal towns thus supplied are Gawler, Wallaroo, Moonta, Kadina, Port Pirie, Port Wakefield, and Balaklava. The following table shews the capacity of these reservoirs, together with particulars as to the townships supplied and the country lands reticulated:—

#### PRINCIPAL COUNTRY WATERWORKS, SOUTH AUSTRALIA, 1915.

Reservoirs.	Townships Supplied.			Country Lands Reticulated.		Capacity in Million Gallons.	
	Number.	Square Miles.	Miles of Main.	Square Miles.	Miles of Main.	Head-works.	Service Reserv'rs.
Barossa ...	23	40	69	1,006	543	993	10
Beetaloo ...	19	44	148	1,775	877	800	100
Bundaleer ...	13	8	31	1,087	477	1,319	16

Fifteen township districts are supplied from smaller local reservoirs, the most important town served being Port Augusta. New water supply schemes are in course of construction for the supply of townships and farming lands on Eyre Peninsula (near Cowell, Arno Bay, and Cleve), and for the new agricultural area east of the River Murray.

5. *Western Australia.*—(i.) *Water Supply, Sewerage and Drainage Department.* Prior to 1912, water supply, sewerage and drainage, in Western Australia, although under Governmental control, were nevertheless under the management of several distinct departments. In that year, however, the Government decided that these functions should

be concentrated in one department with the Minister of Works as administrator, and on the 1st August, 1912, a new department with the above title assumed the management of the undermentioned water supplies:—(a) The Metropolitan Water Supply, Sewerage and Drainage Undertaking. (b) The Goldfields Water Supply Undertaking. (c) The Mines Water Supplies, boring and well-sinking in mining districts, formerly a branch of the Mines Department. (d) Water supply, sewerage, drainage, well-sinking, boring, etc., in agricultural districts, etc., formerly a branch of the Public Works Department. The total capital expenditure on works controlled by the Department was, at 30th June, 1915, £7,109,050.

The Acts of Parliament administered by the new department are:—“The Metropolitan Water Supply, Sewerage and Drainage Act 1909”; “The Goldfields Water Supply Act 1902” and amendment; “The Water Boards Act 1904”; “The Lands Drainage Act 1900” and amendment; “The Water Supply Act 1893”; and “The Rights in Water and Irrigation Act 1914.”

(ii.) *The Perth Metropolitan Water Supply, Sewerage, and Drainage.* The Perth Metropolitan Water Supply Works were first opened by a private company in October, 1890. Under the provisions of the Metropolitan Waterworks Act 1896, however, the works were purchased by the Government at a cost of £220,000, and were placed under the control of a Board, the functions of which have been exercised from 1904 to 1909 by the Minister for Works. By the Metropolitan Water Supply, Sewerage, and Drainage Act 1909, all water and sewerage works formerly vested in the Metropolitan Board were transferred to a Minister of Water Supply, Sewerage, and Drainage. In August, 1912, the administration was transferred to the new Water Supply Department.

(a) *Water Supply.* The supply of water is derived from four sources—(i.) the Victoria reservoir, (ii.) Bickley Brook reservoir, (iii.) the Mundaring reservoir, (iv.) Narrogin Brook, and (v.) artesian bores. A description of the principal schemes is given in previous year books (see Year Book No. 7, page 887). For the year ending 30th June, 1915, the total consumption of water was 1786 million gallons, an increase of 156 millions over the previous year. The number of services at that date was 29,803, and the length of mains was 571 miles.

(b) *Financial Operations of Water Supply Department.* The following table gives particulars of the financial operations of the Metropolitan Water Supply Branch for each year ending the 30th June from 1910 to 1915 inclusive:—

**PERTH METROPOLITAN WATER SUPPLY BRANCH.\*—PARTICULARS OF FINANCIAL OPERATIONS, 1910 to 1915.**

Year ended the 30th June.	Capital Cost of Works.	Depre- ciation.	Net Capital Cost.	Gross Revenue.	Cost of Main- tenance and Manage- ment.	Ratio of Working Expenses to Revenue.
	£	£	£	£	£	Per cent.
1910 ... ..	628,757	44,415	584,342	60,249	20,862	34.62
1911 ... ..	645,023	92,351†	552,672	61,723	22,081	35.77
1912 ... ..	701,852	107,388	594,464	66,892	25,082	37.49
1913 ... ..	768,068	135,912	632,156	74,600	25,479	34.14
1914 ... ..	892,434	167,326	725,108	89,115	31,483	35.33
1915 ... ..	964,670	183,910	780,760	100,158	33,581	33.53

\* Perth, Fremantle, and Claremont combined. † £39,724 transferred from reserve account to depreciation.

(c) *Consumption of Water.* The following table shews the total annual supply, the average daily supply, and the average daily supply per house and per head of population during each financial year from 1911 to 1915 inclusive:—

## METROPOLITAN WATER SUPPLY BRANCH.—CONSUMPTION OF WATER, 1911 to 1915.

Year.	Average Daily Supply in ,000 Gallons.			Water Supply for Years in ,000 Gallons.			Number of Houses Supplied.	Esti- mated Popu- lation sup- plied.	Average Daily Supply during Years.	
	From Reser- voirs.	From Bores.	Total.	From Reser- voirs.	From Bores, etc.	Total.			Per House.	Per Head of Popu- lation.
	Gals.	Gals.	Gals.	Gals.	Gals.	Gals.			Gals.	Gals.
CENTRAL DISTRICT (INCLUDES PERTH, FREMANTLE AND CLAREMONT).										
1911	1,136	2,058	3,194	414,512	752,546	1,167,058	21,267	87,000	150	37.8
1912	1,066	2,561	3,627	364,428	852,719	1,217,147	22,655	91,500	160	39.6
1913	1,285	2,482	3,767	469,211	905,960	1,375,171	24,150	100,000	156	39.7
1914	1,390	2,805	4,195	507,369	1,023,726	1,531,095	26,008	110,000	161	38.1
1915	575	3,721	4,296	209,693	1,358,199	1,567,892	27,232	115,500	158	37.2
GUILDFORD DISTRICT.										
1914	564	...	564	206,000	...	206,000	2,383	10,000	237	56.4
1915	597	...	597	217,905	...	217,905	2,499	11,500	240	51.9
ARMADALE DISTRICT.										
1915	28	...	28	10,220	...	10,220	82	300	340	93

(d) *Sewerage and Drainage in Perth and Fremantle.* The work of providing a sewerage system for Perth and Fremantle was commenced in 1906, and has proceeded without interruption up to the present time. Up to 30th June, 1915, 10,347 houses had been connected to the sewers. The revenue of the Sewerage and Drainage undertaking for 1914-15 was £41,487, as against £29,512 for the preceding year. The maintenance expenditure amounted to £9191, and interest and sinking fund charges to £39,911. A description of the method of sewage disposal adopted may be found in previous issues. (See Year Book No. 5, p. 1031.)

(iii.) *Goldfields Water Supply Undertaking.* The Act under which the works were constructed was introduced in Parliament by Sir John Forrest, G.C.M.G., then Premier of Western Australia, in September, 1896, and provided for an expenditure of £2,500,000, and a daily supply of 5,000,000 gallons. The works designed by the late Mr. C. Y. O'Connor, Engineer-in-Chief of the State, were originally known as the "Coolgardie Water Scheme," but are now officially called the "Goldfields Water Supply." Construction work in connection with the scheme was commenced early in 1898, and the water was delivered in Kalgoorlie in January, 1903. The source of supply is the Helena River, in the Darling ranges, where, at about 18 miles from Perth, an impounding reservoir, 760 acres in extent, with a catchment area of 569 square miles, has been constructed. From the impounding reservoir the water is pumped through a steel main of the locking-bar type, 30 inches in internal diameter, by a series of eight pumping stations located at intervals along the main. Each pumping station, except No. 1, which draws direct from the reservoir, is provided with a suction tank which receives the water pumped by the preceding station. The last pumping station delivers the water into a main service reservoir of 12,000,000 gallons capacity, situated at Bulla Bulling at a height of 1290 feet above the lowest offtake from the Helena Reservoir, and distant 307½ miles therefrom. From the main service reservoir the water flows by gravity to Kalgoorlie, a further distance of 44 miles; the total length of the 30 inch main being 351½ miles. The water is distributed to the various townships and to the mining centres from service reservoirs, and a considerable area of agricultural country is also supplied by branch pipe lines from the main conduit. The area of operations embraces 16,000 square miles, the total length of the water area being approximately 380 miles. The cost of the original works, including expenses of raising loans, was £2,866,454, and of supplementary works £512,787, making a total of £3,379,241. The Mundaring Reservoir cost £249,000. Its

capacity is 4,650,000,000 gallons, and its surface area at full supply level 672 acres. The height of the wall above the river bed is 100 feet; length of wall, 755 feet; width of wall at bottom, 85 feet; at top, 11 feet; and when reservoir is full, the water extends back for the distance of 7 miles.

During the financial year 1914-15 the total consumption amounted to 1,226,000,000 gallons, an increase on the previous year of 32,000,000 gallons. The gross revenue was £242,984, and the working expenses £84,358, leaving a surplus available towards interest and sinking fund of £158,626. The outlay for interest and sinking fund charges in respect of supplementary capital absorbed £32,094, leaving £126,531 payable to the State Treasury. During the financial year the State Treasury paid £168,813 interest and sinking fund on State loans in respect to these works, and the operations of the undertaking shewed a net deficiency of £42,281. Other figures are interesting:—Towns reticulation, 238 miles; supply mains to towns, 80 miles; supply mains to mining centres, 72 miles; agricultural extensions, 474 miles; total mains, including main conduit, 1215 miles.

(iv.) *Water Supplies for Towns.* Under the Water Boards Act 1904, the following water undertakings are administered by the Department:—Albany, Cue-Day Dawn, Derby, Geraldton, Leonora, Meekatharra, Menzies, Ora Banda, and Pingelly. Water supplies for Broome, Bunbury, Busselton, Carnarvon, Port Hedland, Roeburne, Sandstone, and Wagin are administered by local boards under the supervision of the Department.

(v.) *Mines Water Supplies.* At the present time the water stations under the control of the Engineer for Goldfields Areas number about 1400, and are spread over an area of nearly 500,000 square miles. The principal works carried out by the branch are as follows:—(a) Domestic supplies for mining towns and the supply of water for battery and general mining purposes. (b) Opening up the very remote portions of the State by means of tracks, of which there are about 4000 miles. (c) The sinking of wells and borewells, also testing the country by means of boring to locate water, and thus enabling the mineral resources of the State to be systematically prospected. (d) Diamond drilling has also been carried out for the purpose of testing the country for minerals at depths unattainable with the ordinary boring plants. (e) Nearly 3000 miles of stock routes have been opened up, and wells have been sunk at easy stages, capable of watering mobs of 400 head of cattle. Tanks, dams, and reservoirs have been made on the goldfields for the conservation of surface water, their total storage capacity being over 200,000,000 gallons, and their cost over £400,000.

A very important adjunct of the branch is the camel farm established at Coolgardie, where the breeding of camels is undertaken, the number at present being about 240. These camels are used by parties from the Water Supply Branch in the arid regions of the interior, where water is scarce and the stages are long.

(vi.) *Water Supplies in Agricultural Areas.* Owing to the rapid development in agricultural districts in what a few years ago was practically unexplored country, and the consequent necessity for providing water for settlers, a large number of tanks were excavated, and wells sunk where suitable water had been proved by boring. Of 2308 shallow bores put down, fresh water was obtained in 399, stock water in 206, the others being salt or dry. The number of tanks excavated to 30th June, 1915, was 294, with an approximate capacity of 100,800,000 gallons, and the number of wells 263, the estimated capacity of which is 49,000,000 gallons. The capital expenditure for the financial year ending June, 1915, was £18,060.

(vii.) *Land Drainage.* Under the Land Drainage Act 1900 the drainage undertakings administered by the department are those for the districts of East Jandakot and Torbay-Grassmere. Undertakings controlled by Boards under the same Act are Lennox, Korijekup, Njookenbooroo, and Sterling.

6. *Tasmania.*—(i.) *Hobart Water Supply.* The original water supply of Hobart was obtained from a stream known as the Hobart Rivulet, flowing from Mount Wellington, the works being carried out in 1831 by the Imperial Government. These works consisted

of an aqueduct and a line of cast-iron pipes, the water being distributed to several points known as "wells." By an Act of the State Parliament passed in 1860 the works were transferred to the municipality. Under this Act certain additional streams flowing from Mount Wellington were acquired as sources of supply, and a storage reservoir containing 45,000,000 gallons was constructed. The catchment area on Mount Wellington at present comprises an area of 4200 acres, the sources of supply having been extended at various times as far as the North West Bay River, fifteen miles from Hobart.

(a) *Storage Reservoirs.* There are two storage reservoirs about  $2\frac{1}{2}$  miles from the city. One contains 68,000,000 gallons and is 502 feet above sea-level, while the other contains 45,000,000 gallons and is 447 feet above sea-level. The whole of the supply is by gravitation. The water is brought from the various streams by means of stone aqueducts and cast-iron pipes to the reservoirs, and thence by four 10-inch cast-iron mains, of which three lead to the distributing reservoirs and one direct to the shipping and southern portion of the city.

(b) *Capital Cost, Tenements Connected, Length of Mains, Revenue and Expenditure.* The total capital cost to the end of 1915 was £288,000, but a considerable amount of reticulation work has been done out of revenue and not charged to capital account. The outstanding loans at the end of 1915 amounted to £257,445. At the same date the number of tenements supplied in the city and suburbs was 8585, the population 39,948, and the length of reticulation mains  $92\frac{1}{2}$  miles. The revenue and expenditure for the last six years were as follows:—

#### HOBART WATERWORKS.—REVENUE AND EXPENDITURE, 1910 to 1915.

Particulars.	1910.	1911.	1912.	1913.	1914.	1915.
	£	£	£	£	£	£
Revenue ... ..	20,643	31,207	23,858	21,982	22,191	23,382
Expenditure ... ..	22,238	20,381	20,584	21,336	24,550	26,471

(c) *Proposed Extensions.* Parliamentary sanction to borrow £189,000 has been obtained for the purpose of improving the water supply of the city and suburbs of Hobart; £100,000 of this amount is to be spent on a new storage reservoir, and the construction of the dam is in hand.

(ii.) *Hobart Sewerage System.* A scheme for the construction of a sewerage system in Hobart was adopted in 1903. The sewage is discharged into the estuary of the River Derwent. Up to the end of the year 1915 about 72 miles of sewers had been laid at a cost of about £191,000, and 6926 tenements (out of a total of 7100) had been connected. The revenue for the year was £11,614. The scheme, which is intended to sewer over 2000 acres so as to serve an estimated population of about 80,000 people, is almost completed. The suburb of Queenborough has recently become incorporated with the city, and arrangements are now being made to extend the system to this district, the survey having just been completed.

### § 4. Harbour Trusts.

1. *Introduction.*—In the chief ports and harbours of the Commonwealth, administrative bodies have been created, in whom is vested the control and management of the port with respect to dredging, wharf and harbour accommodation, pilotage, harbour dues, etc.

Of these Trusts or Boards some are purely departmental, some are nominated by Government, while others are comprised of members appointed by the municipal and other associations connected with the port. In the latter case, the Government is usually represented on the Board by one or more nominated members. The Boards and Trusts mentioned hereunder are the only ones for which information is at present available.



2. **Sydney Harbour Trust.**—The Trust was established by an Act which came into force on the 11th February, 1901. Its powers and duties have been dealt with in previous issues of this book, together with some of the more important improvements carried out by the Commissioners. (See Year Book No. 5, p. 990.)

(i.) *Revenue, Expenditure, and Capital Cost.* The subjoined table gives particulars of the revenue and expenditure of the Trust, and also shews the total capital debt for properties, etc., vested in the Commissioners, the amount of interest payable on the debt, and the balance of revenue after deducting expenditure, interest, and the amount of the Commissioners' salaries :—

**SYDNEY HARBOUR TRUST.—REVENUE, EXPENDITURE, CAPITAL DEBT, INTEREST AND BALANCE, 1901 and 1911-15.**

Year ended the 30th June—	Revenue.				Expenditure.	Total Capital Debt.	Interest.†	Balance.
	Wharfrage & Harbour Rates.	Tonnage Rates & Berthg. Charges	From Other Sources.	Total.				
	£	£	£	£	£	£	£	£
1901* ...	42,784	3,208	12,324	58,316	11,275	4,692,782	55,554	— 8,513
1911 ...	212,061	15,536	146,158	373,755	143,181†	5,697,756	200,845	29,729
1912 ...	234,731	18,163	158,755	411,649	143,170†	6,136,671	212,842	\$56,398
1913 ...	258,703	18,417	173,162	450,282	154,540†	6,535,853	221,049	74,692
1914 ...	260,761	19,867	188,901	469,529	161,479	6,992,932	248,088	59,962
1915 ...	255,217	15,046	194,418	464,681	161,358	7,367,922	263,478	39,845

\* For the period from 11th February to the 30th June, 1901. † The rate of interest charged each year is the average rate on the total capital debt of the State, which varies. ‡ Including expenditure for the renewal, replacement or reconstruction of wharves or buildings. § Including £761 repaid to previous revenue votes. — Represents a loss.

(ii.) *Dredging and Towing.* The subjoined statement gives particulars of the dredging and towing done by the dredges and tug-boats owned by the Trust :—

**SYDNEY HARBOUR TRUST.—PARTICULARS OF DREDGING AND TOWING, 1901 and 1911-15.**

Year.	Dredging.			Towing Dredged Material.		
	Tons Dredged.	Total Expenditure.	Expenditure per Ton.	Miles run Towing.	Total Expenditure in Towing.	Expenditure per Mile Towing.
	Tons.	£	Pence.	Miles.	£	Pence.
1901 ...	317,500	3,696	2.79	29,277	2,849	23.35
1911 ...	1,675,945	19,058	2.72	38,372	5,442	34.04
1912 ...	1,671,540	24,036	3.45	30,163	6,636	52.80
1913 ...	1,875,925	28,104	3.59	28,317	5,976	48.22
1914 ...	1,852,500	29,079	3.77	45,724	8,271	43.41
1915 ...	1,561,500	27,937	4.29	48,982	9,949	48.06

3. **The Melbourne Harbour Trust.**—This Trust was constituted under an Act passed in 1876, as a result of public agitation and demands extending over a period of thirty-four years, to the effect that the cost of landing goods should be reduced, and the delays in receiving goods should be abolished. Both demands arose from the fact that vessels of a draught greater than twelve feet had to discharge in the bay into lighters.

(i.) *Constitution of the Trust.* The Harbour Trust Act was originally drafted on the lines of similar institutions in Great Britain, such as the Thames Conservancy, the Mersey Harbour Board, and the Clyde Trust. Under the Act of 1876, as amended in 1883, the number of Commissioners was fixed at seventeen. By an Act No. 2449 (1912), the constitution of the Trust was altered to a Commission of five members elected by the

Governor-in-Council, consisting of a chairman, who devotes his whole attention to the business of the Trust, and four others representing the interests of shipowners, exporters, importers, and primary producers.

(ii.) *Works Undertaken by Trust in the River and in the Port.* In 1890 a Consolidating Act was passed, and the borrowing powers of the Trust were increased to £2,000,000, and subsequently by the Act of 1913 to £3,000,000. The river was widened from Queen's Bridge to the bay to about 300 feet, while the depth has been gradually increased until at the present time it is twenty-six feet at low water. Five and three-quarter miles of wharves carrying sheds which measure a total length of 14,515 feet, and cover an area of 705,780 square feet, have been constructed along the river and at the Victoria Dock, Melbourne.

(a) *The Coode Canal.* In 1886 the canal across the flats below Fishermen's Bend was completed at a cost of £96,000. The length of the canal is 2002 yards, the distance from Queen's Bridge to the river entrance being thereby reduced from seven miles to five and three-quarter miles, and the navigation being greatly facilitated. This channel, which is called the Coode Canal, has been widened 164 feet, thus making its total width 487 feet, and its width at low water 430 feet. At the present time there is a depth of 26 feet at low water for a width of 250 feet.

(b) *The Victoria Dock.* This dock, four miles up the river, and opened in 1892, has an area of ninety-one acres and a depth of twenty-six feet at low water. The entrance to the dock is 160 feet wide. There are 8750 feet of wharfage, and the total cost, including wharves, sheds, and approaches thereto, was, to 31st December, 1915, £523,336. The sheds have a total length of 4868 feet, and cover an area of 265,600 square feet. A new central pier, 1631 feet long and 250 feet wide, with a 57 feet roadway in the centre, is under construction. It is proposed to erect on this pier six cargo sheds, each 486 feet by 60 feet. The expenditure on this work to 31st December, 1915, amounted to £59,567.

(iii.) *Works in the Bay.* Prior to 1889 all the mail steamers and vessels of heavy draught had to lie at anchor in the bay, and there discharge into lighters. One of the first works undertaken by the Commissioners was to make the railway piers at Williamstown available to these vessels. This work was completed at a cost of £256,160. In 1893 a channel over 8000 feet long and 600 feet wide was constructed, running in a southerly direction from Port Melbourne Railway Pier and having a navigable depth of thirty feet o.l.w. The cost of this work was £218,379. A new railway pier has just been completed at Port Melbourne. Its length is 1902 feet, with a width of 186 feet, and the average depth of water is 35 feet. Two shelter sheds provide accommodation, and there are five travelling gangways to facilitate the landing of passengers so as to avoid crossing the railway lines on the pier level.

(iv.) *Dredging.* The total quantity of material raised by the dredging and excavation done in the improvement of the river and bay amounts to nearly 54 million cubic yards.

During the ten years ending 31st December, 1915, the average cost of dredging per cubic yard was 2.87 pence and the cost of towing and depositing 6.72 pence, not allowing for depreciation of plant. The Trust has expended £334,774 in reclaiming land within its jurisdiction. The amount of material raised annually is now about 4,235,000 cubic yards.

(v.) *Financial Operations.* The revenue of the Trust is obtained from wharfages, and quayage rates, rents and license fees from lands and ferries, and other license fees. One-fifth\* of the revenue of the Trust is paid to the consolidated revenue of Victoria. The following table gives particulars of the revenue and expenditure of the Trust from 1911 to 1915 inclusive:—

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\* Limited by Act 2449 to £60,000 per annum for five years from 1st January, 1913.

## MELBOURNE HARBOUR TRUST.—REVENUE AND EXPENDITURE, 1911 to 1915.

Particulars.	1911.	1912.	1913.	1914.	1915.
REVENUE.					
Rates, rents, etc. ... ..	£ 332,732	£ 337,626	£ 336,037	£ 349,461	£ 306,034
Interest ... ..	2,039	2,375	665	2,284	1,293
Other receipts ... ..	527	1,071	1,949	8,172	7,957
Total ... ..	335,298	341,072	338,651	359,917	315,284
EXPENDITURE.					
Management and general expenses ...	£ 20,841	£ 27,453	£ 35,753	£ 42,460	£ 46,257
Interest ... ..	69,366	69,264	71,081	83,620	86,491
Total ... ..	90,207	96,717	106,834	126,080	132,748
Less standing charges added to works ...	...	...	18,718	21,936	23,823
Total ... ..	90,207	96,717	88,116	104,144	108,925
Wharfage and other refunds ... ..	1,097	1,457	1,112	1,531	1,620
Charges remitted on troopships ... ..	...	...	...	4,532	3,166
Consolidated revenue of Victoria ... ..	65,413	68,344	60,960	60,000	60,000
Flotation of loan expenses ... ..	...	...	...	5,289	5,011
Redemption of loans expenses ... ..	...	...	...	...	925
Maintenance... ..	37,452	62,734	63,911	50,661	55,520
Total expenditure ... ..	194,169	229,252	214,099	226,157	235,167
Surplus on revenue account ... ..	141,129	111,820	124,552	133,760	80,117
Less depreciation and renewals account and sinking fund ... ..	35,000	17,500	29,188	30,058	30,415
Net surplus on revenue account ... ..	106,129	94,320	95,364	103,702	49,702
CAPITAL EXPENDITURE.					
Land and property ... ..	£ ...	£ 1,119	£ 46,007	£ 5,534	£ 2,060
Deepening waterways ... ..	31,531	21,845	49,620	96,198	93,615
Wharves construction... ..	14,202	85,227	115,244	87,885	120,627
Approaches construction ... ..	454	9,854	16,354	7,029	10,921
Other harbour improvements ... ..	787	2,735	2,713	1,376	4,275
Floating plant ... ..	16,721	72,078	9,744	33,452	3,112
General plant ... ..	5,214	102	2,910	3,364	4,107
Stock account ... ..	9,096	14,543	44,572	32,070	25,451
Total ... ..	78,005	207,503	287,164	266,908	264,168

4. **Fremantle Harbour Trust.**—Under the provisions of an Act passed in 1902, a Harbour Trust was constituted for the general administration of Fremantle harbour, and since January, 1903, the Trust has had full control of all the affairs of the harbour, and undertakes the duties of wharfingers, and the receiving, sorting, storing, delivering, and handling of all cargo between vessels and the owners of the goods. The works, which were commenced in 1892, were designed with the object of forming a safe and commodious harbour within the mouth of the Swan River, so as to admit vessels at all states of the tide, and thus enable cargo to be loaded and discharged at the quays and goods-sheds on the river banks. Two ocean moles have been thrown out from the north and south heads, the former being 3450 feet and the latter 2040 feet long. A channel, 450 feet wide and 30 feet deep at low water, has been blasted and dredged through the rock which formerly crossed the estuary to the river to give access to the harbour basin, which has a width of 1400 feet and a depth of 30 feet at low water, and wharves and goods-sheds have been constructed along the reclaimed foreshore on both sides of the harbour. At the present time all the European mail boats and equally large vessels which make Fremantle the first and last port of call in Australia, are able to enter and leave the harbour in all weather and at all tides. For the year ended 30th June, 1914, the total revenue of the Trust was £203,767, and the expenditure £82,895. The gross amount paid to the Treasury for the year was £120,872, being interest £54,844, sinking fund £15,669, and surplus revenue account £50,395.

5. **Hobart Marine Board.**—The Hobart Marine Board was established in 1858, and consists of nine wardens, elected by the shipowners, importers and exporters of the port. To meet the requirements of the large steamers visiting the Commonwealth, extensive harbour improvements have been completed. The Ocean wharf and pier has a length of 1150 feet, with a depth of water from 36 feet at the inner to 60 feet at the outer end, while other piers afford accommodation for the largest vessels visiting Australia.

The total capital debt on properties in connection with the Harbour Trust vested in the Board is £94,000. The interest paid in 1915 amounted to £4867, and the contributions to Sinking fund, £1160. The receipts and expenditure of the Board for the last four years were as follows :—

#### HOBART MARINE BOARD.—RECEIPTS AND EXPENDITURE, 1912-15.

Year.	RECEIPTS.				EXPENDITURE.			
	General.	Harbour Improvements, Dedications, etc.	Lighthouse Fund.	Total.	General.	Harbour Improvements.	Lighthouse Fund.	Total.
	£	£	£	£	£	£	£	£
1912 ...	19,281	35,000	10,804	65,085	20,293	32,490	11,590	64,373
1913 ...	21,343	*38,000	10,634	69,977	†20,453	35,917	11,948	68,318
1914 ...	24,772	26,000	11,481	62,253	‡24,956	29,241	13,047	67,244
1915 ...	23,448	5,264	¶...	28,712	§23,096	6,983	¶...	30,079

\* Including £8000 from General Account. † Including £4000 voluntary contribution to Sinking Fund. ‡ Including £8000 transferred from the General Account to the Harbour Improvements Account. § Including £1500 transferred from General Account to Harbour Improvements. ¶ The Commonwealth Government took over control of Ocean lights from 1st July, 1915.

6. **Launceston Marine Board.**—The Board was formed in 1858 and consists of thirteen members, elected on the Municipal franchise, with special residential conditions. The principal work of the Board is in connection with the straightening, deepening, and widening of the River Tamar, the distance from the wharves to the open sea being 40 miles.

Wharves to the length of 6702 feet have been constructed, the depth at some of them being 40 feet S.L.W. The total capital debt on 31st December, 1915, was £188,660, of which £91,421 was incurred on the Tamar Improvements Scheme. The revenue for 1915 was £17,753 and the expenditure £20,798.

**7. Geelong Harbour Trust.**—This Trust was appointed in 1905, and consists of three Commissioners appointed by the Government of Victoria. To the 31st December, 1915, the Trust had borrowed £500,000. The sinking fund at the same date stood at £11,678. The revenue for the year 1915 was £30,835 and the expenditure £39,055.

**8. Rockhampton Harbour Board.**—Under an Amending Act of Parliament, which came into force in 1915, the Board now consists of eleven members elected by the municipalities and shires of the Central Division of Queensland. The principal items of export in 1915 were—wool, 111,422 bales; preserved and frozen meats, 9851 tons; blister copper, 9146 tons; and gold, £525,361 in value. For the year 1915, the receipts were £50,899, of which £18,603 represented Government loans. The expenditure was £50,468, including £19,881 for redemption and interest. The total of the net registered tonnage entering the port in 1915 was 837, 943.

**9. Bundaberg Harbour Board.**—The principal port in Queensland for the shipment of sugar is Bundaberg. The Harbour Board consists of nine members, representing the district shire councils and the shipowners and exporters, with one Government nominee.

The total exports for the year ending 31st December, 1915, amounted to 31,560 tons, as against 45,223 tons for the previous year, showing the heavy decrease of 13,663 tons, mainly caused by the unfavourable sugar season. The principal items of export were:—Refined sugars, 19,785 tons; raw sugars, 510 tons; syrups and molasses, 3998 tons; rum and spirit, 3679 tons; copper ores, 1615 tons. The revenue for 1915 amounted to £6699, as against £8145 for 1914; the expenditure for 1915 was £7266, as compared with £7578 for 1914. Dredging resulted in 152,700 tons being lifted at a cost of £1836, but only about five months of the year were fully occupied in this work.

**10. Cairns Harbour Board.**—The Cairns Harbour Board consists of thirteen members, three representing the town of Cairns and the other ten the surrounding shire councils. For the year ended 31st December, 1915, the gross revenue of the Board, exclusive of loan of £5000 from Insurance Fund Account, amounted to £26,334. Revenue expenditure and loan expenditure for the year 1915 amounted to £35,246 and £13,743 respectively. The principal items of export were:—Timber, 27,267 tons; raw sugar, 17,507 tons; maize, 7706 tons; and bananas, 4788 tons.

**11. Bunbury (Western Australia) Harbour Board.**—The Bunbury Harbour Board was constituted in 1909, and consists of five members appointed by the Government.

The capital expenditure for the year ending 30th June, 1915, was £10,658, making the total capital expenditure to that date £240,121. The revenue for the year was £21,600 and the expenditure £7705, the balance being paid into Consolidated Revenue. The timber trade is the principal industry of the port, the shipments of timber for the year ending 30th June, 1915, amounting to 162,444 loads. Other chief exports comprised coal, 7639 tons; and wool, 3502 bales. The total import tonnage was 12,826 tons, the total cargo tonnage dealt with during the year ended 30th June, 1915, amounting to 292,814 tons.

**12. Burnie and Table Cape (Tasmania) Marine Board.**—While the existing works accommodate steamers of 4000 to 5000 tons, which visit the port regularly, they are insufficient for the rapidly increasing traffic in produce and ores from the north-west and west coast districts of Tasmania. A scheme is, therefore, being carried out by which the port will eventually be capable of taking any shipping trade in the Commonwealth. A breakwater is being constructed 1200 feet in length and with a depth of 40 feet at low water. On 31st December, 1915, 650 feet of this breakwater had been constructed. It is intended later on to increase the length to 4000 feet and to enclose 300 acres of deep

water space, of which 100 acres will have a depth of nearly 45 feet. The expenditure on that portion of the scheme at present under construction will be £150,000. The revenue for the year 1915 was £8781, and the expenditure £8780.

### § 5. Fire Brigades.\*

1. **New South Wales.**—Reference has been made in the section of this book dealing with the subject of *Private Finance* (see page 792) to the constitution of the Board of Fire Commissioners of New South Wales, which has now superseded the Metropolitan and all other Fire Brigade Boards in that State.

(i.) *Receipts and Disbursements of Board of Fire Commissioners of New South Wales.* The subjoined table shews the actual receipts and disbursements of the Board for the past five years :—

#### NEW SOUTH WALES BOARD OF FIRE COMMISSIONERS.—RECEIPTS AND DISBURSEMENTS FOR SYDNEY FIRE DISTRICT, 1911-15.

Year.	Receipts.						Disbursements.
	From Government.	From Municipalities.	From Fire Insurance Companies.	From Firms.	From other Sources.	Total.	
	£	£	£	£	£	£	£
1911 ...	21,643	21,643	21,198	444	1,145	66,073	60,667
1912 ...	20,100	20,100	19,896	204	1,874	62,174	65,713
1913 ...	25,586	25,586	25,404	182	2,270	79,028	76,853
1914 ...	29,200	29,200	28,966	234	1,773	89,373	88,208
1915 ...	29,071	29,071	28,161	410	1,749	88,462	96,146

With reference to the preceding table, under the "Fire Brigades Act 1909," by which the New South Wales Board of Fire Commissioners was constituted and which came into operation on 1st January, 1910, insurance companies do not now, as formerly, return the amount of their risks, but give in lieu thereof the amount of premiums received, which forms the basis of their contribution towards the revenue of the Board. By this Act also, firms which effect insurances with companies not registered in New South Wales are likewise required to make contributions on account of the premiums paid to such companies, which is the first instance of this class of insurer being compelled to share the expense of local advantages, which had hitherto been available free of cost. A fuller description of the principal provisions of this Act will be found in previous issues of this book (see Year Book No. 5, page 990). The Sydney fire district includes the City of Sydney and suburbs, comprising a total area of 220 square miles. On the 31st December, 1915, the Board had under its control 59 stations, 317 permanent men, 168 auxiliary firemen, 15 steam and 18 motor fire engines, 88 horses, 125,763 feet of hose, and 439 telephone fire-alarms. The length of wire used for telephones and fire alarms was 1471 miles.

2. **Victoria.**—Under the Fire Brigades Act of 1890 a metropolitan fire district and nine country fire districts were established, the former being placed under the control of a Metropolitan Fire Brigades Board, and the latter under the control of a Country Fire Brigades Board.

(i.) *Metropolitan Fire Brigades Board.* The metropolitan fire district originally comprised the area included in the several municipalities within a radius of ten miles from the Melbourne General Post Office, but this area has since being extended in certain directions so as to include the greater part of the Shire of Moorabbin and also the township of Mordialloc. The Board is composed of nine members, of whom three are appointed by the Governor-in-Council, three by the municipal councils, and three by the insurance companies. On the 31st December, 1915, the Board had under its control 45 stations, 241 permanent men, 130 auxiliary firemen, 35 special service firemen, 10

\* See § 6, Fire Insurance, p 792.

steam fire engines, 4 gasolene engines, 3 petrol motor fire engines, 25 other petrol motor appliances, 46 horses, 105,700 feet of hose, and 278 fire-alarm circuits having 862 street fire alarms, of which 840 contained telephones. The total length of wire in use outside stations for fire alarms and telephones is about 689 miles. The Government, the insurance companies and the municipalities in which the Board operates contribute equally to the cost and maintenance of the brigade. The following table gives particulars as to the financial operations of the Board during each year from 1911 to 1915 inclusive:—

**VICTORIA.—REVENUE AND EXPENDITURE OF METROPOLITAN FIRE BRIGADES BOARD, 1911 to 1915.**

Particulars.	1911.	1912.	1913.	1914.	1915.
<b>ORDINARY RECEIPTS.</b>					
	£	£	£	£	£
Contributions ...	56,993	63,775	66,238	66,954	77,794
Receipts for services ...	3,719	6,011	5,941	8,241	6,634
Interest and sundries ...	3,420	6,965	3,669	3,234	9,957
<b>Total ...</b>	<b>64,132</b>	<b>76,751</b>	<b>75,848</b>	<b>78,429</b>	<b>94,385</b>
<b>ORDINARY EXPENDITURE.</b>					
Salaries ...	37,913	45,613	47,210	50,966	51,304
Interest and sinking fund ...	9,588	9,681	8,357	9,432	11,442
Other expenditure ...	16,631	21,457	20,281	18,031	31,639
<b>Total ...</b>	<b>64,132</b>	<b>76,751</b>	<b>75,848</b>	<b>78,429</b>	<b>94,385</b>

(ii.) *The Country Fire Brigades Board.* This Board consists of nine members, of whom three are appointed by the Governor-in-Council, two are elected by the municipal councils of the districts where there are brigades registered under the Board, two by the fire insurance companies, and two by the registered fire brigades. At the end of the year 1915 there were 108 municipal councils, and sixty-four insurance companies included in the operations of the Act. All the brigades are volunteer brigades, but in the large towns permanent station-keepers and watchmen are employed. There were 128 registered brigades and 2708 registered firemen at the end of the year 1915.

For the year 1915 the receipts of the Country Fire Brigades Board amounted to £16,073, and the expenditure to £16,639.

3. *Queensland.*—In the year 1914 there were twenty-seven fire brigades organised in various towns in Queensland. The revenue of these brigades is derived chiefly from grants from the Government, from municipalities, and from the insurance companies, generally in equal proportions, and the following table gives these particulars for the year 1914:—

**QUEENSLAND.—FIRE BRIGADES, 1914.**

Receipts.	Amount.	Expenditure.	Amount.
	£		£
From Government ...	7,279	Salaries and wages ...	11,678
„ Local authorities ...	7,368	Building, repairs, etc....	754
„ Insurance companies ...	7,205	Plant, stores, clothing, etc.	2,760
„ Other sources ...	917	Other ...	4,779
<b>Total ...</b>	<b>22,769</b>	<b>Total ...</b>	<b>19,971</b>

At the end of the year 1914 the fire brigades staffs comprised 88 permanent men, 270 partly paid, and 59 volunteers. The Metropolitan brigade at Brisbane and the South Brisbane brigade protect an area of  $9\frac{1}{2}$  square miles; their joint staffs comprise 68 men. They have three steam engines, three motor turbines, one chemical motor, ten hose reels, and 18,849 feet of hose. There are 52 telephone fire alarms and 119 call points.

4. **South Australia.**—The fire brigades of South Australia are managed by a Board consisting of five members, one being nominated by the Government, one by the Adelaide city council, one by the other metropolitan and country municipalities, and the other two by the contributing insurance companies. The Board is incorporated under the Fire Brigades Act 1913. The revenue of the Board is derived by contributions of three-ninths by the Government, four-ninths by the insurance companies, and two-ninths by the city of Adelaide and the other municipalities subject to the Act, the contribution for 1915 amounting to £21,973. Brigades are established in the following municipalities, viz., Adelaide, Kensington and Norwood, including St. Peter's, Unley, Port Adelaide, Glenelg, Gawler, Kapunda, Moonta, Kadina, Port Pirie and Port Augusta. The strength of the brigades consists of 87 permanent firemen and 24 auxiliary firemen. The plant consists of five steam fire engines, one motor engine, three motor hose carriages, one floating fire engine, 13 hose reels, and 22 horses. The number of calls received during the year 1915 was 253, of which 11 were to fires of a serious nature. Of the total calls, 138 were in the metropolitan district.

5. **Western Australia.**—Under the Fire Brigades Act 1898, fire brigades were established in a number of the more important centres of population in the State. These brigades were under the control of local boards, and were in some cases municipal and in others volunteer.

An Act to make further provision for the protection of life and property from fire was passed in 1909 and came into operation on the 1st January, 1910. It is called the District Fire Brigades Act, and divides Western Australia into two fire districts under the control of the Western Australian Fire Brigades Board. The Board is constituted as follows:—Two members nominated by the Government; one member nominated by the Perth City Council; one member elected by the Municipalities of Kalgoorlie, Boulder, Coolgardie, and the Kalgoorlie Road Board; one member elected by the Municipalities and Road Boards other than those above-mentioned; three members elected by the Insurance Companies; and one member elected by the Volunteer Fire Brigades. The election of the Board takes place bi-annually, and its income is provided as follows:—Two-eighths by the Government, three-eighths by the Municipalities and Road Boards, and three-eighths by the Insurance Companies. The receipts for the year 1915 amounted to £31,522, and the expenditure to £30,691. The value of buildings and plant belonging to the Board is £72,742.

The whole of the Brigades throughout the State are now controlled by this Board, and number two purely permanent, fourteen permanent and partially paid, three partly permanent and partly volunteer, two purely partially paid, and twenty-one purely volunteer brigades; making a total of forty-two. The staff includes a chief officer, deputy-chief officer, third officer, 18 other officers, 87 permanent firemen, 65 partially-paid firemen, and 403 volunteer firemen.

6. **Tasmania.**—Under the present system, the Government, the City Council, and the Fire Insurance Companies contribute equally to the annual expenditure of the Hobart Fire Brigade. It is intended to increase the scope of operations so as to include in the metropolitan district the suburbs of Queenborough, New Town and Glenorchy. Under the new scheme, the estimated annual cost is £2700. There are volunteer brigades under the control of local boards in most of the larger centres of population.



## § 6. Local Government Finance.

1. **Introduction.**—In the preceding parts of this section certain particulars have been given regarding local authorities in each individual State. It is proposed to give here in a comparable form for each State particulars regarding the financial operations of local governing bodies. The areas controlled by these bodies are variously known in the several States as cities, towns, boroughs, shires, municipalities, municipal districts, and road districts. The particulars given in the tables in the two next paragraphs relate to financial years ending as follow:—New South Wales: for the calendar year 1914. Victoria: 30th September, 1914, except Melbourne, 31st December, and Geelong, 31st August, 1914. Queensland: Calendar year 1914. South Australia: Corporations, 30th November, and district councils, 30th June, 1914. Western Australia: 31st October, 1914, except road districts, 30th June, 1914. Tasmania: Calendar year 1914.

2. **Number, Revenue, Expenditure, and Valuation of Local Authorities.**—The following table gives particulars of the number, revenue, expenditure, and valuation of local authorities in each State and in the Commonwealth during the year 1914. It may be noted that, excepting in Tasmania, the metropolitan water supply systems are not under municipal control; the particulars given of revenue and expenditure for the five States other than Tasmania do not, therefore, include revenue and expenditure on account of these systems.

### NUMBER, REVENUE, EXPENDITURE, AND VALUATION OF LOCAL AUTHORITIES (a) IN EACH STATE, 1914.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wlth.
No. of local authorities (a)	321	208	182	180	145	51	1,087
RECEIPTS.							
Rates—	£	£	£	£	£	£	£
General ...	1,785,344	1,251,649	594,067	214,456	192,327	42,254	4,080,097
Other (b) ...	322,371	278,176	221,635	85,862	63,605	143,700	1,115,349
Government grants ...	385,660	144,374	73,138	62,218	76,813	14,416	756,619
Loans (c) & other sources	875,531	500,829	156,963	95,904	517,279	169,825	2,316,631
Total ...	3,369,206	2,175,028	1,045,803	458,440	850,024	370,195	8,268,696
EXPENDITURE.							
Works, services, etc. ...	2,294,406	1,496,601	882,088	322,234	523,614	202,602	5,721,545
Interest on loans and over-	314,216	239,737	15,690	13,295	69,263	55,150	885,154
drafts ...							
Redemptions, sinking							
funds, etc. ...	80,576	37,706	12,108	39,520	7,892		
Administration ...	254,717	192,066	103,555	46,927	50,562	39,321	687,148
Other ...	280,383	198,000	123,894	68,045	148,686	44,221	863,229
Total ...	3,143,722	2,206,980	1,162,933	462,610	831,645	349,186	8,157,076
VALUATIONS.							
Capital value of property	£185,400,027	(f)	60,671,922	88,394,081	24,382,980	32,508,360	(f)
Annual value of property	(d) 3,271,102	(f)	(f)	4,331,928	1,505,426	1,776,099	(f)

(a) Including particulars for all areas controlled by local governing bodies responsible for the construction and maintenance of roads and streets, such areas being variously known in the several States as cities, towns, boroughs, shires, municipalities, road districts, etc. (b) Exclusive of rates for water supply and sewerage in metropolitan and most other principal towns, such rates being collected by special boards or general Government. (c) Exclusive of loans in connection with extraordinary works of construction. (d) City of Sydney only. (e) Unimproved capital value. (f) Not available.

3. **Local Government Loans, 1914.**—The following table gives particulars for each State of loans raised by local authorities during the year 1914, of loans current at the end of that year, of liability on account of interest and sinking fund, and of loans maturing during 1914 :—

**PARTICULARS OF LOANS RAISED BY LOCAL AUTHORITIES, 1914.**

Particulars.	N.S.W.	Victoria.	Q'land.	S.A.	W.A.	Tas.	C'wealth.
	£	£	£	£	£	£	£
Loans from general Government—							
Raised during year ...	...	1,000	63,079	...	2,500	26,057	92,636
Current at end of year ...	...	174,288	399,678	...	91,803	565,051	1,230,820
Loans from other sources—							
Raised during year ...	790,964	573,291	8,990	70,175	167,637	97,372	1,707,429
Current at end of year ...	7,750,552	5,442,768	864,604	302,346	1,559,518	710,023	16,629,811
Total—							
Raised during year ...	790,964	573,291	72,069	70,175	170,137	123,429	1,800,065
Current at end of year ...	7,750,552	5,617,056	1,264,282	302,346	1,651,321	1,275,074	17,860,631
Current loans, exclusive of those obtained from general Government, raised within the C'wealth	6,924,073	5,442,768	(a)	302,346	1,034,518	300,757	(a)
Annual liability on account interest	308,979	240,225	16,814	11,619	73,543	54,154	705,334
Total sinking fund at end of year	506,175	879,649	70,063	22,197	253,388	149,486	1,880,978
Amount loans maturing during year							
Redeemed ...	...	(a)	(b)	11,311	17,829	58,031	(a)
Renewed ...	173,236	(a)	(a)	1,400	...	550	(a)

(a) Not available. (b) In the early Government loans, the periodical payments include interest and sinking fund.