

1918.

---

VICTORIA.

---

STATE RIVERS AND WATER SUPPLY COMMISSION.

---

THIRTEENTH  
ANNUAL REPORT.  
—  
1917-18.

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PRESENTED TO BOTH HOUSES OF PARLIAMENT PURSUANT TO THE PROVISIONS OF  
THE WATER ACTS.

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# THE GREAT WAR.

## ROLL OF HONOUR.

Seventy-one members of the Commission's Staff volunteered and were accepted for Active Service in defence of the Empire. They have been granted leave of absence by the Commission till the end of the war, and meanwhile their interests will be safeguarded in every possible way.

Of these, Captain G. Maxfield, District Secretary, Wonthaggi, and Captain J. G. Burnell, Chief Mechanical Engineer of the Commission, have been awarded the Military Cross, and Lieutenant D. T. Curdie (then Sergeant) the Distinguished Conduct Medal for gallantry in France; R. G. Greig, L. T. Keep, A. F. J. Harrison, A. R. McConchie, and C. Gallop have been awarded the Military Medal, whilst J. Fleming has, in addition to receiving the Military Medal, been awarded the Distinguished Conduct Medal.

As a mark of appreciation, a Roll of Honour has been designed and provided by the Commissioners and the Staff. This was formally established in July, 1915, at the Head Office, Melbourne. The following names now appear on the Roll:—

A. R. McCONCHIE.	B. M. LONG.
D. T. CURDIE.	E. L. G. CRESWELL.
C. D. COWAN.	F. J. COOKE.
C. GALLOP.	K. J. F. COVENTRY.
A. McCOLL.	M. D. GRACE.
C. E. D'ALTON.	J. LYONS.
J. O'BRYAN.	H. C. VALENTINE.
F. ROGERSON.	R. J. LONG.
C. THOMSEN.	E. THOMPSON.
W. LAMBERT.	A. P. FLOCKART.
G. MAXFIELD.	W. G. SIDES.
R. G. GREIG.	S. G. MILLER.
A. CAMERON.	A. WATT.
J. G. BURNELL.	F. H. DAVIS.
R. B. BENNETT.	J. R. MOORE.
A. F. J. HARRISON.	H. HIRD.
V. G. COADY.	A. E. SMITH.
G. E. IREDALE.	E. R. H. WONG.
J. FLEMING.	J. CRAWFORD.
W. F. NEVILL.	R. COUSTLEY.
L. V. BROWN.	C. S. MURRAY.
F. R. LUCAS.	R. A. HUNT.
J. F. McKELLAR.	G. F. PEDLOW.
W. MURCOTT.	J. A. AIRD.
L. G. MERKEL.	V. FOSTER.
C. F. THOMSEN.	H. C. HALFORD.
G. CAMERON.	G. MILLER.
L. J. SCOTT.	S. BRONFIELD.
L. T. KEEP.	E. WILLIAMSON.
G. FOGARTY.	N. F. CODKIN.
W. R. WOODLAND.	R. BROADBENT.
F. SPLATT.	W. CONNORS.
A. G. LAWSON.	W. P. MILNE.
J. T. MACAULAY.	H. E. HARDING.
G. D. MURRAY.	E. S. STEVENS.
R. FARRELL.	

With deep regret it has to be announced that the undermentioned have been killed in action:—

C. E. D'ALTON.	C. D. COWAN.
J. O'BRYAN.	G. MAXFIELD.
A. CAMERON.	R. G. GREIG.
V. G. COADY.	R. COUSTLEY.
A. McCOLL.	V. FOSTER.

STATE RIVERS AND WATER SUPPLY COMMISSION.

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ANNUAL REPORT, 1917-18.

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In compliance with the provisions of the Water Acts, the State Rivers and Water Supply Commission submits the following Report and Statement for the Financial Year 1917-18, and Estimates for the ensuing year.

## WORKS UNDER CONTROL OF COMMISSION.

The following statement gives a brief description, summary of cost, and other particulars relative to the undermentioned works controlled by the Commission.

## A.—FREE HEADWORKS.

DESCRIPTION OF WORKS.	Capital Debit at 30th June, 1918. Exclusive of cost of Loan Flotation.
1. <b>Broken River Works</b> :—Casey's Weir and offtake, with about 59 chains of channel to the Broken Creek; Gowangardie Weir with offtake sluice .. .. .	£ 14,853
2. <b>Goulburn River Works</b> :—Weir on the Goulburn River, about 9 miles above Murchison; channel therefrom, about 23½ miles, to Waranga Reservoir; and that Reservoir (but exclusive of the work of its enlargement) .. .. .	736,904
3. <b>Kerang North-West Lakes Works</b> :—Weir on the Loddon River at its confluence with the Pyramid Creek; regulating weirs at the effluence from the Loddon of the Sheepwash and Washpen Creeks; channel from the Washpen Creek regulator to Reedy Lake, Middle Lake, Third Lake, Lake Charm, Race-course Lake, Cullen's Lake, Kangaroo Lake, and Lake Tutchewop, and to the Little Murray River, with water storage works at these lakes .. .. .	10,865
4. <b>Kow Swamp Works</b> :—Intake from the Murray River with regulator, at the effluence of the Gunbower Creek; channel thence to the Kow Swamp Reservoir, and that Reservoir; channel along the northern side of the reservoir; channel from the outlet of the reservoir, about 23½ miles, to the left bank of the Loddon River .. .. .	187,084
5. <b>Lake Lonsdale Reservoir</b> :—Reservoir at Lake Lonsdale, on the Little Wimmera River, near Ledcourt .. .. .	49,054
6. <b>Loddon River Works</b> :—Laanecoorie Weir, on the Loddon; Bridgewater Weir, on the Loddon; Kinypanial Weir, on the Loddon .. .. .	167,636
7. <b>Long Lake Pumping Works</b> :—Inlet to Lake Baker, from the Little Murray River; water storage works at Lake Baker and Long Lake, with channel connecting these lakes; pumping plant at Long Lake, with rising main thence about 7 miles to allotment 10M, parish of Kooem; system of main distributary channels, about 85 miles in length .. .. .	27,346
8. <b>Lower Wimmera Compensation Works</b> :—Drung Drung Weir, on the Wimmera, near allotment 29, parish of Longerenong; Dimboola Weir, on the Wimmera, near Dimboola township; Antwerp Weir, on the Wimmera, at Antwerp Station home-stead; Jeparit Weir, on the Wimmera, near Jeparit township .. .. .	8,558
Total .. .. .	<b>£1,202,300</b>

## B.—WATERWORKS DISTRICTS.

Distributary Works within Districts under the control of the Commission.

Name of District (Including Urban Districts).	Total Capital Expenditure.	Capital Written Off by Acts 1625 and 1661.	Redemption Paid to Treasury.	Capital Debit at 30th June, 1918.	
	£	£	£	£	
1. Birchip .. .. .	240,107	700	2,203	237,204	}
2. Sea Lake .. .. .					
3. Tyrrell .. .. .					
4. Wycheproof .. .. .					
5. Carwarp .. .. .	7,981			7,981	
6. Coliban .. .. .	1,252,186			1,252,186	
7. Karkaroc .. .. .	94,451		2,493	91,958	
8. Kerang North-west Lakes (Free Headworks excluded)	2,000			2,000	
9. Long Lake (Free Head- works excluded) .. .. .	46,761		571	46,190	
10. Naval Base and Mornington Peninsula .. .. .	62,599			62,599	
11. Ouyen .. .. .	6,161			6,161	
12. Tyntynder .. .. .	52,522			52,522	
13. Walpeup East .. .. .	3,044			3,044	
14. Walpeup West .. .. .	5,012			5,012	
15. Western Wimmera .. .. .	249,878	132,835	13,966	103,077	
16. Wimmera United .. .. .	188,969	36,392	11,064	141,513	
17. Wonthaggi .. .. .	63,021		3,737	59,284	
Wimmera Main Channels	154,084			154,084	
Wimmera Storages—					
Fyans Lake .. .. .	} 38,051	}	}	}	}
Taylors Lake .. .. .					
Whitton Swamp .. .. .					
	37,305			37,305	
	9,282			9,282	
	2,513,414	169,927	34,034	2,309,453	<b>2,309,453</b>
Carried forward .. .. .					<b>3,511,753</b>

WORKS UNDER CONTROL OF COMMISSION—*continued.*Capital Debt  
at 30th June,  
1918,  
Exclusive  
of Cost of Loan  
Flotation.

Brought forward .. .. .

£  
3,511,753

## C.—IRRIGATION AND WATER SUPPLY DISTRICTS.

Distributary Works within Districts under the control of the Commission.

Name of District (Including Urban Divisions).	Total Capital Expenditure.	Capital written off by Acts 1925 and 1951.	Redemption paid to Treasury.	Capital Debit at 30th June, 1918.	
	£	£	£	£	
1. Bacchus Marsh .. .. .	59,975	8,906	493	50,576	
2. Boort .. .. .	55,036	35,259	894	18,883	
3. Campaspe .. .. .	63,361	52,685	305	10,371	
4. Cohuna .. .. .	129,837	49,197	521	80,119	
5. Deakin .. .. .	93,391	34,748	2,144	56,499	
6. Dingee .. .. .	12,844	..	..	12,844	
7. Dry Lake .. .. .	1,704	686	299	719	
8. Gannawarra .. .. .	82,970	33,179	180	49,611	
9. Kerang .. .. .	84,140	35,338	1,760	47,042	
10. Koondrook .. .. .	111,288	30,872	1,475	78,941	
11. Merbein .. .. .	85,923	..	..	85,923	
12. Nyah .. .. .	27,094	..	..	27,094	
13. Rochester .. .. .	118,935	..	..	118,935	
14. Rodney .. .. .	369,600	149,949	8,537	211,114	
15. Shepparton .. .. .	53,921	..	..	53,921	
16. Swan Hill .. .. .	55,050	19,799	342	31,509	
17. Tongala .. .. .	62,193	..	..	62,193	
18. Tragowel Plains .. .. .	187,409	124,534	444	62,431	
19. Werribee .. .. .	39,076	..	..	39,076	
<b>Totals .. .. .</b>	<b>1,693,747</b>	<b>575,152</b>	<b>17,394</b>	<b>1,101,201</b>	<b>1,101,201</b>

D.—IRRIGATION AND WATER SUPPLY DISTRICTS.—  
MAIN SUPPLY WORKS.

Cost to be Apportioned to Districts benefited on the Basis of Water Allotment.

Name of Work.	Capital Debit at 30th June, 1918.	Tentative Debits to Districts, 1917-18.		
	£	£		
<b>Goulburn Main Channels (Free Headworks excluded)—</b>				
1. East Goulburn .. .. .	131,331	Rodney .. .. .	120,000	}
2. Waranga Reservoir to Campaspe ..	247,950	Tragowel Plains .. .. .	100,000	
3. Campaspe to Serpentine .. .. .	194,507	Rochester .. .. .	74,000	
4. Main Distributary Channels .. .. .	32,048	Tongala .. .. .	67,000	
		Shepparton .. .. .	57,000	
		Deakin .. .. .	24,000	
	605,836	Dingee .. .. .	15,000	457,000
				605,836
<b>Goulburn Storages (Free Headworks ex- cluded)—</b>				
5. Sugarloaf Reservoir .. .. .	214,687			}
6. Waranga Reservoir Enlargement	126,041			
	340,728			340,728
<b>Pykes Creek and Werribee Schemes—</b>				
7. Ballan Tunnel .. .. .	14,715	Werribee .. .. .	8,000	}
8. Pykes Creek Reservoir .. .. .	63,497	Bacchus Marsh .. .. .	70,212	
9. Distributary Channels, Werribee ..	10,000			}
10. Melton Reservoir .. .. .	73,686	Werribee .. .. .	30,000	
	161,898			161,898
<b>Carried forward .. .. .</b>				<b>£5,721,416</b>

WORKS UNDER CONTROL OF COMMISSION— <i>continued.</i>				Capital Debt at 30th June, 1918. Exclusive of Cost of Loan Flotation.
Brought forward .. .. .				£ 5,721,416
<b>E.—WATERWORKS TRUSTS DISTRICTS.</b>				
DISTRICTS HELD IN TRUST BY THE COMMISSION.				
Name of Trust.	Total Advances by State.	Capital written off by Acts 1625 and 1651.	Redemption paid to Treasury.	Capital Debt at 30th June, 1918.
	£	£	£	£
1. Avoca Water Trust—				
Rural District .. .. .	8,709	2,494	964	5,251
Urban District (Quambatook) .. .. .	3,786	..	102	3,684
2. Carrum Waterworks Trust .. .. .	25,732	7,732	2,112	15,888
3. Loddon United Waterworks Trust .. .. .	21,234	1,717	2,479	17,038
	59,461	11,943	5,657	41,861
<b>Grand Total .. .. .</b>				<b>£ 5,721,41</b>

#### LANDS SUPPLIED WITH WATER WITHIN THE STATE.

The area of country lands within the State artificially supplied with water for domestic and ordinary use and for watering stock is, approximately, 20,881 square miles, equal to about 13,364,000 acres.

The year 1917-18, like the previous year, was one of abundant rainfall evenly distributed over the northern portion of the State and also throughout the year. The rainfall in the irrigation districts was generally 50 per cent. above the average, the amount recorded in the first three months of the irrigating season (cereal irrigation period) being from 48 per cent. above the average at Kyabram and Boort to 67 per cent. above the average in the Swan Hill District.

Through this cause the area irrigated during the year 1917-18 was only 174,796 acres. Although this is some 82,900 acres less than the area under irrigated culture in the previous year, it is satisfactory to record that there has been a steady increase in the areas of land devoted to the higher price crops grown under regular irrigation, such as fruit and permanent fodder crops, the combined areas of these under irrigation in 1917-18 in the districts subject to the compulsory irrigation charge and directly affected by the Commission's Closer Settlement policy being 8,000 acres in excess of the average for the last nine years. The total area irrigated includes some 17,000 acres watered under yearly permits granting authority to divert water from streams throughout the State. The number of separate towns supplied, exclusive of the city of Melbourne and its suburbs, is 157, as shown in the following statement:—

Controlling Authorities.	Number of Town Supplies.	Estimated Population Served.
Commission ... .. .	40	69,000
Waterworks Trusts ... .. .	99	150,500
Local Governing Bodies .. .. .	18	73,500
Totals ... .. .	157	293,000

## LANDS UNDER IRRIGATED CULTURE.

The two Statements herewith show the extent of Areas Irrigated for last year in detail, and for the last five years totalled for comparative purposes.

## STATEMENT OF THE EXTENT OF IRRIGATION AND OF AREAS OF DIFFERENT KINDS OF CROPS WATERED—YEAR 1917-18.

Name of District.	Area Irrigated (Acres).							Total.
	Cereals.	Lucerne grown for Pasture and Hay.	Sorghum and other Annual Fodder Crops.	Pastures.	Vineyards, Orchards, and Gardens.	Fallow.	Miscellaneous.	
<i>Supplied from Goulburn State Works.</i>								
Shepparton .. .. .	..	5,410	216	..	4,126	..	63	9,815
Rodney .. .. .	30	9,734	334	2,912	5,860	275	95	19,240
Deakin .. .. .	5	875	140	161	160	62	44	1,447
Tongala .. .. .	21	2,930	107	230	656	50	..	3,994
Rochester .. .. .	182	11,226	662	1,434	1,264	217	107	15,092
Dingee .. .. .	4	820	9	226	9	30	..	1,098
Tragowel Plains .. .. .	57	772	3,392	20,491	20	196	..	24,928
Totals .. .. .	299	31,767	4,860	25,454	12,095	830	309	75,614
<i>Supplied from Kow Swamp State Works.</i>								
Kerang .. .. .	403	593	1,183	6,670	4	35	..	8,888
Dry Lake .. .. .	..	..	..	200	6	..	..	206
Lands supplied direct (outside Districts) .. .. .	70	1,474	177	223	25	..	..	1,969
Totals .. .. .	473	2,067	1,360	7,093	35	35	..	11,063
<i>Supplied from Loddon State Works.</i>								
Boort .. .. .	40	221	554	3,039	17	..	..	3,871
Tragowel Plains .. .. .	220	261	947	378	5	..	..	1,811
Totals .. .. .	260	482	1,501	3,417	22	..	..	5,682
<i>Supplied from other State Works.</i>								
Bacchus Marsh .. .. .	9	2,288	9	485	87	38	1	2,917
Campasso .. .. .	..	262	..	16	8	..	..	286
Cohuna .. .. .	441	5,522	932	4,188	120	61	28	11,292
Gannawarra .. .. .	289	1,342	912	5,645	25	..	179	8,392
Koondrook .. .. .	52	920	84	6,102	677	..	..	7,835
Merbein .. .. .	..	98	..	..	5,215	..	307	5,620
Nyah .. .. .	..	85	..	..	1,441	..	..	1,526
Swan Hill .. .. .	780	2,199	399	1,795	461	234	4	5,872
Werribee .. .. .	376	2,690	5	89	74	67	20	3,321
Western Wimmera .. .. .	4	17	21	30	1,026	..	..	1,098
Totals .. .. .	1,951	15,423	2,362	18,350	9,134	400	539	48,159
<i>Supplied from other sources.</i>								
Kerang North-West Lakes .. .. .	65	337	13	297	22	25	..	759
First Mildura .. .. .	..	360	289	..	8,652	893	2,052	12,246
Coliban .. .. .	180	348	184	324	2,819	140	102	4,097
Kerang—Outside Districts (Private Diversions) .. .. .	15	85	20	50	6	..	..	176
Other Private Diversions throughout the State .. .. .	..	..	..	..	..	..	17,000	17,000
<b>Grand Totals, 1917-18 .. .. .</b>	<b>3,243</b>	<b>50,869</b>	<b>10,589</b>	<b>54,985</b>	<b>32,785</b>	<b>2,323</b>	<b>20,002</b>	<b>174,796</b>
Grand Totals, 1916-17 .. .. .	18,790	74,042	14,707	87,458	38,246	3,220	21,242	257,705

## COMPARATIVE STATEMENT OF THE EXTENT OF IRRIGATION, 1913-14 TO 1917-18.

	Area under Irrigation (Acres).				
	1913-14.	1914-15.	1915-16.	1916-17.	1917-18.
Goulburn State Works .. .. .	136,303	185,185	134,011	119,139	75,614
Kow Swamp State Works .. .. .	34,409	11,179	21,857	20,303	11,063
Loddon State Works .. .. .	14,336	4,298	17,051	15,205	5,682
Other State Works .. .. .	80,457	81,632	72,307	65,845	48,159
Kerang North-West Lakes .. .. .	12,020	10,547	5,916	3,269	759
First Mildura Trust Works .. .. .	12,037	12,063	12,064	12,246	12,246
Coliban State Works .. .. .	3,745	2,425	3,676	3,862	4,097
Private Works in Kerang District .. .. .	5,980	2,016	4,125	836	176
Other Private Works throughout the State .. .. .	18,000	15,000	17,000	17,000	17,000
Totals .. .. .	317,287	324,345	288,007	257,705	174,796

The decrease in the areas irrigated during the last two years is entirely due to the wet seasons, the rainfall in irrigation districts being generally at least 50 per cent. over the average.



## VALUATIONS, RATES, AND COMPULSORY IRRIGATION CHARGES.

The statements which follow set forth the whole of the districts supplied by the Commission with water for domestic and ordinary use and for watering cattle or other stock, together with the annual value of the lands and tenements in such districts, and the rates and compulsory irrigation charges made. An estimate of the number of persons dwelling in such districts is also appended.

During the year a rate and compulsory irrigation charge were, for the first time, made in the newly-constituted Irrigation and Water Supply District of Werribee; while in the new Urban District of Jung Jung a rate was also levied.

In twenty-three districts the lands were, for the purpose of making and levying rates, arranged in divisions (not more than three in number), in accordance with the relative benefits derived by such lands from the works.

In fourteen districts the Commission made and levied compulsory irrigation charges, details of which are set out hereunder.

## A.—VALUATIONS AND RATES.

Districts Supplied with Water for Domestic and Ordinary Use and for Watering Cattle or other Stock.	Annual Value of Lands and Tenements.	Rate in the £1 made during year ended 30th June, 1918.	Period of Rate.	Estimated Number of Persons dwelling in District.
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## IRRIGATION AND WATER SUPPLY DISTRICTS.

	Valuation by Commission. £		s. d.		
1. BACCHUS MARSH .. .. .	11,347	.. .. .	1 0	1st July, 1917, to 30th June, 1918	615
2. BOORT .. .. .	15,452	1st Division ..	2 0	" " "	750
		2nd Division ..	1 0	" " "	
3. CAMPASPE .. .. .	9,823	1st Division ..	1 8	" " "	485
		2nd Division ..	0 10	" " "	
		3rd Division ..	0 5	" " "	
4. COHUNA .. .. .	16,734	1st Division ..	2 0	" " "	934
		2nd Division ..	1 0	" " "	
5. DEAKIN .. .. .	71,451	1st Division ..	1 6	" " "	4,100
		2nd Division ..	0 9	" " "	
		3rd Division ..	0 4½	" " "	
6. DINGEE .. .. .	2,696	.. .. .	1 0	" " "	215
7. DRY LAKE .. .. .	250	(No rate made)		" " "	11
8. GANNAWARRA .. .. .	11,224	1st Division ..	2 0	1st July, 1917, to 30th June, 1918	495
		2nd Division ..	1 0	" " "	
9. KERANG .. .. .	17,637	1st Division ..	2 6	" " "	759
		2nd Division ..	1 3	" " "	
		3rd Division ..	0 7½	" " "	
10. KOONDBROOK .. .. .	11,896	1st Division ..	2 0	" " "	534
		2nd Division ..	1 0	" " "	
11. MERBEIN .. .. .	5,521	.. .. .	1 0	" " "	1,216
12. NYAH .. .. .	1,833	.. .. .	1 0	" " "	410
13. ROCHESTER .. .. .	41,218	1st Division ..	1 0	" " "	2,730
		2nd Division ..	0 6	" " "	
		3rd Division ..	0 3	" " "	
14. RODNEY .. .. .	143,229	1st Division ..	1 0	" " "	4,600
		2nd Division ..	0 6	" " "	
		3rd Division ..	0 3	" " "	
15. SHEPPARTON .. .. .	16,673	.. .. .	1 0	" " "	1,305
16. SWAN HILL .. .. .	8,469	.. .. .	2 0	" " "	670
17. TONGALA .. .. .	13,879	.. .. .	1 0	" " "	1,457
18. TRAHOOWEL PLAINS .. .. .	32,780	1st Division ..	1 0	" " "	1,050
		2nd Division ..	0 6	" " "	
19. WERRIBEE .. .. .	6,234	.. .. .	1 0	" " "	397

## A.—VALUATIONS AND RATES—continued.

Districts Supplied with Water for Domestic and Ordinary Use and for Watering Cattle or other Stock.	Annual Value of Lands and Tenements.	Rate in the £1 made during year ended 30th June, 1918.	Period of Rate.	Estimated Number of Persons dwelling in District.
<b>WATERWORKS DISTRICTS.</b>				
	Valuation by Commission. £	s. d.		
20. AXE CREEK .. .. .	1,442	.. 2 0	1st July, 1917, to 30th June, 1918	200
21. BIRCHIP .. .. .	29,978	1st Division .. 2 4 2nd Division .. 1 2 3rd Division .. 0 7	" " "	2,350
22. CARWARP .. .. .	7,569	1st Division .. 3 6 2nd Division .. 1 9 3rd Division .. 0 10½	" " "	500
23. HARCOURT .. .. .	5,530	.. 1 6	" " "	570
24. KARKAROOC.. .. .	86,370	1st Division .. 1 10 2nd Division .. 0 11 3rd Division .. 0 5½	" " "	3,200
25. KERANG NORTH-WEST LAKES	6,558	.. 0 6	" " "	322
26. LONG LAKE .. .. .	48,723	1st Division .. 2 6 2nd Division .. 1 3 3rd Division .. 0 7½	" " "	1,800
27. SEA LAKE .. .. .	47,708	1st Division .. 2 4 2nd Division .. 1 2 3rd Division .. 0 7	" " "	2,050
28. TYNTYNDER .. .. .	30,396	1st Division .. 3 0 2nd Division .. 1 6 3rd Division .. 0 9	" " "	1,500
29. TYRRELL .. .. .	35,263	1st Division .. 3 0 2nd Division .. 1 6 3rd Division .. 0 9	" " "	2,300
30. WALPEUP EAST .. .. .	28,154	1st Division .. 0 5 2nd Division .. 0 2½	" " "	2,000
31. WALPEUP WEST .. .. .	47,852	1st Division .. 0 6 2nd Division .. 0 3	" " "	3,400
32. WESTERN WIMMERA ..	247,477	1st Division .. 1 2 2nd Division .. 0 7 3rd Division .. 0 3½	" " "	10,200
33. WIMMERA UNITED .. .. .	267,816	1st Division .. 1 2 2nd Division .. 0 7 3rd Division .. 0 3½	" " "	8,600
34. WYCHEPROOF .. .. .	48,123	1st Division .. 2 4 2nd Division .. 1 2 3rd Division .. 0 7	" " "	2,100
<b>URBAN DIVISIONS AND DISTRICTS.</b>				
	Municipal Valuation. £	s. d.		
35. BACCHUS MARSH .. .. .	7,610	.. 1 6	1st July, 1917, to 30th June, 1918	1,515
36. BERRIWILLOCK .. .. .	477	.. 4 0	" " "	120
37. BEULAH .. .. .	2,715	.. 2 9	" " "	575
38. BIRCHIP .. .. .	5,269	.. 2 0	" " "	880
39. COHUNA .. .. .	2,730	.. 2 6	" " "	510
40. COROP .. .. .	352	.. 2 0	" " "	90
41. DIMBOOLA .. .. .	6,427	.. 1 9	" " "	1,000
42. HOPETOUN .. .. .	2,533	.. 2 9	" " "	450
43. JEPARIT .. .. .	3,470	.. 2 3	" " "	550
44. JUNG JUNG.. .. .	520	.. 3 0	" " "	130
45. KANEIRA .. .. .	528	.. 4 0	" " "	130
46. KOONDROOK .. .. .	2,430	.. 3 0	" " "	415
47. LAKE BOGA .. .. .	1,510	.. 3 0	" " "	260
48. LASCELLES .. .. .	663	.. 3 6	" " "	120
49. MINYIP .. .. .	3,269	.. 3 0	" " "	600
50. NATIMUK .. .. .	2,474	.. 1 6	" " "	420
51. NYAH .. .. .	252	.. 2 6	" " "	70
52. RAINBOW .. .. .	5,099	.. 2 3	" " "	800
53. RUPANYUP .. .. .	2,128	.. 3 0	" " "	400
54. SEA LAKE .. .. .	2,559	.. 3 0	" " "	525
55. ULTIMA .. .. .	2,010	.. 3 0	" " "	270
56. WATCHEM .. .. .	1,190	.. 3 6	" " "	170
57. WERRIBEE .. .. .	6,717	.. 2 0	" " "	1,705
58. WONTHAGGI .. .. .	19,697	.. 1 9	" " "	5,000
59. WOONELANG .. .. .	1,857	.. 3 0	" " "	410
60. WYCHEPROOF .. .. .	3,403	.. 2 6	" " "	695

A.—VALUATIONS AND RATES—*continued.*

Districts Supplied with Water for Domestic and Ordinary Use and for Watering Cattle or other Stock.	Annual Value of Lands and Tenements.	Rate in the £1 made during year ended 30th June, 1918.	Period of Rate.	Estimated Number of Persons dwelling in District.
<b>COLIBAN SYSTEM.</b>				
61 COLIBAN .. ..	Municipal Valuation. £ 299,753	<i>s. d.</i> On Valuations up to £300 .. 1 6 (Minimum 20s.) From £301 up to £700 .. 1 3 From £701 on 1 0 Vacant lands .. 1 6	1st July, 1917, to 30th June, 1918	61,000
<b>WATERWORKS TRUSTS.</b>				
62. AVOCA .. ..	£ 30,141	<i>s. d.</i> .. .. 0 4½	1st January, 1918, to 31st December, 1918	1,300
63. CARRUM .. ..	23,933	1st Division .. 4 0 2nd Division .. 2 0 3rd Division .. 1 6 4th Division .. 1 0 5th Division .. 0 4	" " "	1,200
64. QUAMBATOOK (URBAN)	2,201 Valuation by Commission. £	.. .. 3 3	" " "	300
65. LODDON UNITED ..	94,253	1st Division .. 0 8 2nd Division .. 0 4 3rd Division .. 0 2	" " "	2,750

## B.—COMPULSORY IRRIGATION CHARGES.

Irrigation and Water Supply District.	Area of District in Acres.	Area at present Irrigable in Acres.	Water Rights apportioned (including extra Rights) in Acre-feet.	Compulsory Charge per Acre-foot of Water Right.	Period of Charge.
1. BACCHUS MARSH ..	6,619	3,287	3,287	20s.	1st October, 1917, to 30th April, 1918
2. COHUNA .. ..	34,878	22,317	22,402	5s.	1st September, 1917, to 30th April, 1918
3. DINGEE .. ..	5,348	4,839	4,839	6s	1st September, 1917, to 30th April, 1918
4. GANNAWARRA ..	43,932	17,113	17,113	5s.	1st September, 1917, to 30th April, 1918
5. KOONDRÖÖK ..	52,780	13,917	13,917	5s.	1st September, 1917, to 30th April, 1918
6. MERBEIN .. ..	6,227	5,668	14,113	15s.	1st August, 1917, to 30th April, 1918
7. NYAH .. ..	2,883	2,300	5,717	14s.	1st August, 1917, to 30th April, 1918
8. ROCHESTER ..	128,821	32,148	32,148	5s.	1st September, 1917, to 30th April, 1918
9. RODNEY .. ..	265,846	183,800	48,340	5s.	1st September, 1917, to 30th April, 1918
10. SHEPPARTON ..	18,766	16,944	16,944	5s.	1st September, 1917, to 30th April, 1918
11. SWAN HILL ..	17,587	12,515	12,515	5s.	1st September, 1917, to 30th April, 1918
12. TONGALA .. ..	25,464	17,867	17,867	5s.	1st September, 1917, to 30th April, 1918
13. TRAGOWEL PLAINS	180,474	123,077	24,609	6s.	1st September, 1917, to 30th April, 1918
14. WERRIBEE ..	8,006	5,317	5,317	10s.	1st October, 1917, to 30th April, 1918

## CONTRACTS.

STATEMENT OF CONTRACTS ENTERED INTO DURING THE YEAR ENDED  
30TH JUNE, 1918.

No.	Name of Contractor.	Work or Supply.	Amount (Loan and Vote).		
			£	s.	d.
1575	Hume Bros. Cement Iron Co. Ltd.	Reinforced Concrete Pipes, Beaconsfield	7,665	18	0
1576	John Mannix	Firewood, Koondrook	315	3	3
1577	A. Fasham	Firewood, Koondrook	118	15	0
1578	P. Mannix, sen.	Firewood, Nyah	551	7	6
1579	W. Nicholas	Firewood, Nyah	212	10	0
1580	W. Masters	Firewood, Cohuna	222	18	4
1581	E. Hipwell	Firewood, Cohuna	256	5	0
1582	Thos. Bubb	Firewood, Cohuna	293	2	1
1583	James L. Monro	Firewood, Cohuna	227	1	8
1584	A. J. Monro	Firewood, Cohuna	350	0	0
1585	D. V. Mannix	Firewood, Cohuna	270	0	0
1586	F. W. Gibbon	Firewood, Cohuna	137	10	0
1587	Hume Bros. Cement Iron Co. Ltd.	Reinforced Concrete Pipes, Ouyen	835	0	6
1588	G. A. Everett	Firewood, Long Lake	195	0	0
1589	Permewan Wright and Co. Ltd.	Sawn Redgum Timber	716	16	1
1590	E. Cockayne	Firewood, Cohuna	129	3	4
1591	W. H. Krake	Firewood, Merbein	225	0	0
1592	G. W. Jones	Firewood, Merbein	443	15	0
1593	C. Andrisk	Firewood, Merbein	328	2	6
1594	H. Walker	Firewood, Merbein	437	10	0
1595	C. J. Petty	Firewood, Merbein	470	19	0
1596	J. C. Hatty and Cox Bros.	Enlargement No. 6 Yallock Drain, Koo-wee-rup	92	1	8
1597	J. C. Hatty and Cox Bros.	Enlargement No. 6 Yallock Drain, Koo-wee-rup	126	8	4
1598	W. Nolan	Excavation Bywash, Beaconsfield Reservoir	430	14	0
1599	H. J. Simmonds	Firewood, Nyah	150	0	0
1600	G. R. Lacey	Firewood, Nyah	150	0	0
1601	Geo. Brassier	Firewood, Long Lake	186	17	6
1602	Barham Sawmill Co.	Sawn Redgum Timber	39	15	3
1603	F. Russell	Firewood, Merbein	442	12	0
1604	Trustees Estate A. Arhuthnot	Sawn Redgum Timber	39	15	3
1605	Commonwealth Portland Cement Co.	10,000 casks Cement	6,250	0	0
1606	Concrete Construction Pty. Ltd.	Cement Concrete Pipes, Langwarrin	640	16	0
1607	G. P. Conlon	Boring for Water, Worroo and Boinka	670	0	0
1608	Australian Portland Cement Co.	10,000 casks Cement	6,208	6	8
1609	Determined.				
1610	E. Gallop	Enlargement No. 4 Drain, Koo-wee-rup	125	5	10
1611	P. H. Pearce	Enlargement No. 4 Drain, Koo-wee-rup	198	17	1
1612	D. A. Telfer	Enlargement No. 4 Drain, Koo-wee-rup	420	17	6
1613	Determined.				
1614	E. Gallop	Enlargement No. 4 Drain, Koo-wee-rup	154	3	9
1615	P. H. Pearce	Enlargement No. 4 Drain, Koo-wee-rup	124	15	10
1616	D. A. Telfer	Enlargement No. 4 Drain, Koo-wee-rup	138	19	2
1617	Determined.				
1618	P. H. Pearce	Enlargement No. 7 Yallock Drain, Koo-wee-rup	148	1	5
1619	E. Gallop	Enlargement No. 7 Yallock Drain, Koo-wee-rup	138	11	10
1620	D. A. Telfer	Enlargement No. 7 Yallock Drain, Koo-wee-rup	233	0	5
1621	Determined.				
1622	P. H. Pearce	Enlargement No. 7 Yallock Drain, Koo-wee-rup	180	15	5
1623	E. Gallop	Enlargement No. 7 Yallock Drain, Koo-wee-rup	151	17	11
1624	D. A. Telfer	Enlargement No. 7 Yallock Drain, Koo-wee-rup	233	5	5
1625	W. Sinclair	Enlargement Murray-road Drain, Koo-wee-rup	217	0	0
1626	P. H. Pearce	Enlargement Murray-road Drain, Koo-wee-rup	92	19	9
1627	E. Gallop	Enlargement Murray-road Drain, Koo-wee-rup	98	4	8
1628	D. A. Telfer	Enlargement Murray-road Drain, Koo-wee-rup	140	13	5
1629	Hume Bros. Cement Iron Co. Ltd.	Pipe Main, Cardinia Pipe Line	13,028	8	0
1630	A. J. Lawson	Firewood, Merbein	443	15	0
1631	Concrete Construction Pty. Ltd.	Pipe Main, Langwarrin-Somerville	3,223	0	0
1632	Australian Wood Pipe Co. Ltd.	Pipe Main, Langwarrin-Somerville	1,218	1	9
1633	Hume Bros. Cement Iron Coy. Ltd.	Pipe Main, Cardinia Pipe Line	6,548	17	0
1634	J. J. McDonald	Enlargement No. 4 Yallock Drain, Koo-wee-rup	300	0	0
1635	J. J. McDonald	Enlargement No. 7 Yallock Drain, Koo-wee-rup	210	0	0
1636	R. T. Plant	Storage Tank, Ouyen	360	1	8
		Total	57,938	16	9

## PIECE-WORK AND DIRECT LABOUR.

The construction of the larger works is still being mainly carried out by "Piece-work" and "Direct Labour." The principal payments were on the following works:—

Works.	Amount.
Sugarloaf Reservoir	£32,998
Waranga Reservoir Enlargement	31,769
Wimmera-Mallee System	27,339
Naval Base and Mornington Peninsula	19,556
Koo-wee-rup and Cardinia	11,978
Goulburn Main and Distributory Channels	5,769
Bacchus Marsh and Werribee	5,365
Merbein, Swan Hill, and Boga	9,240
Other Works	14,933
Total	£158,947

## WORKS CARRIED ON OR COMPLETED DURING THE YEAR ENDED 30TH JUNE, 1918.

### COLIBAN DISTRICT.

With a view to utilization of the increased volume of water made available by the addition to the Upper Coliban Reservoir, a commencement has been made with enlargement of capacity of the main Bendigo branch channel. Arrangements have been made to substitute a contour race and short concrete syphon for the double line of cast-iron pipes at present forming the rather restricted syphon at Sutton Grange. The present high value for other purposes of the cast-iron pipes to be removed will enable this work to be done without increase of the capital cost of the scheme.

During the hottest part of the summer some trouble was experienced through the water in Crusoe Reservoir being affected by algæ. Works for the removal of all vegetation likely to conduce to such growth have been commenced.

Considerable quantities of pipe scraping and other works to maintain the efficiency of pipe reticulations were carried out during the year.

### IRRIGATION AND WATER SUPPLY DISTRICTS.

#### RODNEY DISTRICT.

Several miles of existing channels were remodelled. Additional drainage syphons and flood gates to cope with the surface drainage resulting from the abnormal rainfalls of the last two seasons were provided; and the heavy work of reinstating channels damaged by the flood waters escaping from the Goulburn River received attention. Private subdivision of lands into small holdings has continued, necessitating the provision of new outlets and occupation bridges. Some surveys have been made of the main channels in the district with a view to preparation for the enlargements which may be necessary in the near future.

#### SHEPPARTON DISTRICT.

In this district the season has been one of heavy rainfall. As a result, the provision of a scheme for dealing with local flood waters became a matter of such importance that the efforts of the Commission's officers were directed to this end. A comprehensive drainage scheme has now been adopted and is in course of construction, the cost being borne in the proportion of one-third by the Shire Council and two-thirds by the Commission.

A canning factory was erected and successfully brought into operation in time to deal with the greater portion of the season's fruit crop. Further reference is made to this on page 23 of this Report.

#### SWAN HILL DISTRICT.

The Boga to Swan Hill main channel was practically completed and brought into use in April of this year. This channel will enable much of the supply to the district (which formerly had to be pumped) to be delivered by gravitation. The lower end of the Eastern channel was extended to the river to provide an escape for surplus water, and similar extension is proposed in the case of the Central channel. In the area known as No. 2 Estate, a channel was provided to deal with surface drainage, and twenty chains of tributary channel were lined with cement concrete. In the No. 3 Estate minor structures were provided for the regulation and delivery of supplies for irrigation. Good progress generally has been made by settlers.

#### DISTRICTS ADMINISTERED FROM KERANG CENTRE.

Flood conditions existed throughout the District until November, and were very serious along the River Loddon below Kerang and around the Kerang North-West Lakes.

As a result of their experiences during the floods of 1916 and 1917, land-holders in these localities made requests for a flood protection scheme. Various alternative schemes providing for an increased water-way through the Kerang North-West Lakes to the Little Murray River, which would considerably alleviate flood conditions below Kerang and at the same time secure a more uniform supply for the Kerang North-West Lakes, were prepared and submitted for the consideration of those land-holders who would be responsible for the repayment of the cost.

The year has not been favorable for carrying out works, the ground in many cases being too wet to permit of scoop work, whilst there has also been a scarcity of both teams and labour.

In Kerang District, with the exception of small works of drainage, operations have been confined to ordinary repairs and maintenance.

In Koondrook District, in addition to minor repairs and maintenance, some new measuring outlets and timber structures were installed, mainly in connexion with closer settlement blocks.

#### DISTRICTS ADMINISTERED FROM COHUNA CENTRE.

In Cohuna District a feature of the past season's work was the extension of the drainage system. Particular attention was paid to the provision of means whereby land-holders can connect up the low-lying portion of their blocks with the existing drains. The main drains were extended some 60 chains. Attention is also being given to surface drainage in order to give immediate relief to settlers suffering from the results of abnormal rainfall.

Strong efforts were made to eradicate noxious weeds on the channel reserves and to secure co-operation of all interested land-owners in this work.

In Gannawarra District a 3 ft. 6 in. diameter reinforced concrete syphon was constructed in the left branch channel at Gannawarra to provide a clear water-way for the flood waters from Pyramid Creek.

Channels and bridges were overhauled and several new structures built. These works, combined with the removing of reeds and rushes and the remodelling of channel banks, have greatly improved the means of supply.

The Gunbower Creek weir, some piles of which had partially collapsed as the result of abnormal floods, was repaired without interference with the delivery of water.

#### DISTRICTS ADMINISTERED FROM LODDON CENTRE.

In Tragowel Plains the work of remodelling channels was proceeded with as far as possible, and several sub-ways for drainage of flood waters were constructed.

The Boort District suffered from flooding during the year, and necessary work was delayed in consequence. The Commission, however, was able to remodel one of the old channels that was becoming defective, and in connexion therewith preparations were made for supplying a large sub-way so soon as conditions are favorable.

In Dingee District, which also suffered severely from flooding, the principal works, other than ordinary maintenance, were the provision of sub-ways and drains to deal with flood waters.

#### DISTRICTS ADMINISTERED FROM ROCHESTER CENTRE.

In Rochester District drainage channels were designed and works commenced for the relief of lands in Ballendella and in the North-West part of Cornelia Creek Estate. Arrangements were made for early construction of six new sub-ways for the conveyance of drainage under irrigation channels. Some trouble threatened by seepage in irrigation channels was dealt with, chiefly by trenching and filling with clay pug at the outer toe of embankments, a method that has given good results in this district. The Cornelia Creek channel, which supplies Echuca North, was extended nearly two miles.

In Campaspe District some minor repairs were effected to the Weir in the Campaspe River, and maintenance works on the channels received attention.

#### DISTRICTS ADMINISTERED FROM TONGALA.

In Tongala District the principal work was the replacement with concrete of the old wooden structures on the channels in existence when the district was constituted. Pug trenching has been carried out on sections of the channel showing signs of seepage, so far with good results.

In Stanhope area structures were completed for that portion about to be constituted the Stanhope Irrigation District. New townships have been designed and set out at the Stanhope and Girgarre Railway Stations, and blocks therein will be offered for sale at an early date.

In Deakin District preparation has been made for some minor work to modify the troubles that arise from the spread of flood waters from the Wanalta Creek.

#### BACCHUS MARSH AND WERRIBEE DISTRICTS.

A tunnel six feet in diameter to convey, when necessary, water from the Werribee River to the Pykes Creek Reservoir, a distance of one mile, was completed and brought into operation. This work and the new Melton Reservoir give an assurance of an ample supply to both Bacchus Marsh and Werribee Districts. Considerable work was done to prevent erosions of the banks of the Lerderberg River, which threatened the loss of much valuable land and damage to the Commission's works. Extensions and enlargements were made to cope with the increasing demand for water from both the Bacchus Marsh and Werribee Urban reticulations. Surveys and other works preparatory to extension of irrigation in the Werribee District were proceeded with.

## MERBEIN DISTRICT.

The district is being extended to include 600 acres of Crown lands on its Western boundary. This extension has been subdivided into thirty-eight separate holdings, which have been allotted to discharged soldiers, who are making good progress with planting and other improvements. In the mid-area, where twenty-three discharged soldiers were settled last year, the whole of the irrigable land has been planted with vines and fruit trees, and excellent progress has been made generally.

Channel lining in the original settlement was continued, a further length of three miles being lined with cement concrete. The total length of concrete lining in the district is now twenty-three miles.

## NYAH DISTRICT.

About four miles of channels were remodelled and made ready for concrete lining, a mile of such lining being finished. A large quantity of gravel was also made available for similar work. About thirty-four chains of pipes to supply high lands have been laid. About one and a half miles of the main central drainage channel to convey surplus water from the settlement are being constructed. The minor drainage works carried out comprise a mile of open channel and about a mile of pipe line. Indications of steady advancement are general throughout the district.

## WATERWORKS DISTRICTS.

## CARWARP DISTRICT.

This district, comprising about 200,000 acres south-east of Mildura, is situated on the River Murray, and is supplied therefrom by pumping.

The scheme of distribution comprises 80 miles of main and distributing channels, while eight public storage tanks have been constructed. Experience has shown the channels will require lining at several places. This will be done with limestone concrete, the materials for which are obtainable from natural deposits near the work.

When the Carwarp District was originally projected there was much uncertainty as to the capacity of pumping plant required, because the land served is generally more porous than Mallee lands hitherto supplied by earthen channels. It was therefore deemed justifiable to proceed tentatively, making use of plant that was in stock. Experience has shown such plant to be inadequate, therefore increase of pumping capacity is considered necessary.

## LONG LAKE AND TYNTYNDER DISTRICTS.

Special efforts were made during the year to expedite the construction of the new main channel from Wycheproof to Goschen and to a point near Nyah. This will link with the Long Lake and Tyntynder distributary channel systems and give to these districts the great benefits of a more abundant and cheaper supply by gravitation from the Avoca, Richardson, and Wimmera rivers and the southern storages. The work is now so well advanced that the channel will be able to give supply for the ensuing watering season to the whole of the Long Lake District as well as to the greater portion of the Tyntynder District, thus avoiding the necessity for running the Long Lake and Nyah pumping plants for the purpose. A proposal is now being investigated for otherwise utilizing the Long Lake pumping plant, while that at Nyah will be used entirely for supplying the irrigation area established there.

Through the throwing out of use of the Long Lake pumping plant for district requirements the present rising main from which the Lake Boga town mains are now supplied will be abandoned, and this will necessitate a re-adjustment of the town supply scheme. It is therefore proposed to substitute a direct service from Long Lake by installing a wind-power plant on the lake to lift to a suitable service basin on the high ground on the east margin of the lake. The elevation of this is sufficient to command the town reticulation, which will be connected by about 60 chains of 6 in. diameter main. These additional works will cost about £2,500, but the working charges of the new scheme will be low, so that it is believed no increase in the present town rating will be necessary.

On account of concentration on the construction of the main gravitation channel very little was done towards extending the distributary channel systems, but it is hoped during the coming year to put several necessary extensions in hand. Special attention will be paid to the requirements of the new area in the parishes of Pines, Mirkoo, and Myall, the occupation of which will be made possible by the proposed extension of the Piangil railway line to Pine Plain Tank.

The reticulated supply to Waitchie township has been completed and is now in operation. This is proving of great benefit to local residents and the surrounding district.

## WIMMERA-MALLEE WATER SUPPLY.

During the year the flow in the Wimmera River past Glenorchy Weir was fairly continuous, and the new main supply channel system was so effective that practically all the requirements of the dependent districts were met from the river direct, a very small draw being made on Lake Lonsdale Reservoir, and none at all on Fyans Lake, the new storage.

The East Laen Channel for its length of some 26 miles from the main central channel to the Donald Main Channel was remodelled and enlarged to carry 17 cubic feet per second. This channel now forms a supplementary main supply channel for the Sea Lake and Tyrrell Districts, thus enabling the Donald Main Channel to be concentrated when required on the supply of Wycheproof, Long Lake, and Tyntynder Districts and extensions thereof.

On account of the widely varying conditions as regards land values existing in the different sections of the various districts as at present constituted, it is not possible to fairly apportion the burden of cost by the usual rating methods alone. In order therefore to effect a more even distribution of rating, it is intended to put into operation during the coming financial year the power recently vested in the Commission, to fix a minimum amount of rate in respect to all first division lands. The minimum amount of rate proposed tentatively to be adopted in all Wimmera-Mallee districts is equivalent to £8 per square mile of holding, but this will only be applicable to those lands classified in the first rating division. The adoption of this minimum will also facilitate the projected re-subdivision of the whole group of Wimmera-Mallee Districts into narrower belts or "zones," in which the conditions governing rating will be more nearly equal.

## WESTERN WIMMERA AND WIMMERA UNITED DISTRICTS.

The new reticulated scheme to the town of Warracknabeal was completed during the year, and is in successful operation. The town is consequently now receiving the great benefit of a clean and abundant supply from the new Whitton Swamp storage.

Extensive improvements to the scheme of reticulated supply to the township of Jung Jung are now in hand, and should be completed at an early date.

## BIRCHIP, WYCHEPROOF, SEA LAKE, AND TYRRELL DISTRICTS.

Operations in these districts were chiefly confined to the deepening and enlarging of that portion of the Donald-Morton Plains channel from the vicinity of Nugent's tank northwards so as to carry the increased flow of the new East Laen main channel; and to the completion of the important channel to Ouyen.

The new reticulated supply to Ouyen township from the gravitation channel system is now in full operation. This township is growing so rapidly that it was necessary to provide for its use a large additional earthen storage with a capacity of 19,000,000 gallons. This is now almost completed, and, together with the other local storage tanks, will be filled from the Wimmera-Mallee system during the season's watering now proceeding.

A large earthen storage tank, known as Woornack Tank, with a capacity of 7,000,000 gallons, was also constructed on the Ouyen channel in the parish of Woornack, about 12 miles from Ouyen. This will form a very valuable district reserve, and should prove of great general value besides assisting in the development of the almost virgin Mallee area adjacent.

The storages of the town of Wycheproof, previously dependent for their supply on the somewhat unreliable Avoca River, are now directly connected with the Wimmera-Mallee system through the Corack-Wycheproof channel, now quite completed. The town has now an assured abundant supply of good water.

## KARKAROC DISTRICT.

The principal work carried out in this district was the remodelling of the lower portion of the existing Minapre-Gorya channel, a work that will greatly improve the carrying capacity of this important northern supply channel.



## NAVAL BASE AND MORNINGTON PENINSULA WATER SUPPLY SCHEME.

Notwithstanding the general shortage of suitable labour and the difficulty in securing materials, substantial progress has been made in carrying out this scheme. As far as practicable, operations have been concentrated in carrying out that part of the scheme directly affecting supply to the Naval Base, and it is anticipated that this should be far enough advanced to allow water to be delivered there by the New Year. The Beaconsfield Reservoir, in the Haunted Gully, with a capacity of 200,000,000 gallons, is now sufficiently completed to receive its full store, while its feeder, the cement-lined open race, some 4 miles in length from Toomuc Creek crossing, with syphons and structures attached, is also in working order. The construction of the temporary race joining this main permanent race with the Upper Toomuc Creek catchment is now being expedited, and in the ensuing spring the reservoir should be filled from that source. The compound pressure main, 2 feet and 18 inches in diameter, 10 miles in length, running from the reservoir to Cranbourne Hill, is now being laid, reinforced cement pipes being chiefly used. The 2-foot diameter low head cement main built in place about 7 miles in length from Cranbourne Hill to the "Bifurcation," just east of Langwarrin Military Reserve, is now almost completed, and arrangements are being made to put in hand at once the construction of the compound branch main, 15 inches and 12 inches in diameter, some 12 miles long from the "Bifurcation," southerly towards Bittern. This will supply the service basin for the Naval Base, situated about 1 mile due west of Bittern Railway Station.

While the main efforts of the Commission have been directed towards providing an early supply for the Naval Base, progress has also been made with other parts of the scheme. The construction of the large reservoir, 170,000,000 gallons capacity, near Frankston, has been steadily proceeded with, and the foundation concrete core walling is now sufficiently well advanced to enable the earthworks to be taken in hand.

Supply to the bayside townships north of the Mordialloc Creek was not included in the scheme as originally laid down. Portions of the townships of Mentone, Mordialloc, and Cheltenham at present receive only a limited supply by a local reticulation, carried out by the Moorabbin Shire Council, and which is connected with one of the Melbourne and Metropolitan Board of Works mains near Moorabbin. This supply is not satisfactory, and does not permit of any extension. A careful study of existing conditions makes it clear that the whole of the areas as far north as Mentone at least falls naturally within the scope of the Naval Base and Mornington Peninsula Scheme, while the Melbourne and Metropolitan Board's supply should be continued southwards so as to embrace lands to the north of Mentone. As a result of conferences between the Board and this Commission it has been agreed that the operations of the Naval Base and Mornington Peninsula Scheme should be extended northwards so as to include a supply to the whole of Mordialloc and Mentone.

The question of the future supply to the town of Dandenong and its vicinity will also need early consideration. The existing supply for Dandenong is drawn from a reservoir on the Monbulk Creek, near Belgrave, but the immediate catchment above the reservoir is now so populated as to render this supply very liable to pollution. Any proposal to draw a new supply for Dandenong from the virgin upper catchment of Monbulk Creek cannot be entertained, as such high level supplies are limited, and must be reserved for the future requirements of such high-level areas as Upper Ferntree Gully, Belgrave, and Upwey, which can be served in no other way. On the other hand, Dandenong and its vicinity can readily be supplied at a very reasonable cost from the Naval Base and Mornington Peninsula Scheme. The Dandenong Water Authority has been already informed that the upper catchments of the Monbulk Creek must be reserved for the supply of the high level areas mentioned, but that an abundant supply can be provided for Dandenong from the Naval Base scheme.

### NORTHERN MALLEE WATER SUPPLY.

In the extreme north-west of the State, adjoining the districts supplied by the Wimmera-Mallee system, there is an area of 1,250,000 acres above channel level known as the "Northern Mallee," and embracing portions of the Waterworks Districts of Walpeup East and Walpeup West. This area is supplied principally by tanks depending on local catchment and by bores. During the year over £6,000 has been expended on works of water supply and in making roads, the latter work being carried out for the Lands Department, as it is found the utilization of the Commission's staff, which is necessarily located there, is a most economical arrangement.

The reticulation of the Ouyen township has been completed, and is now being connected with the Wimmera-Mallee gravitation channel system. A scheme for the reticulation, to be supplied from a bore, of the township of Murrayville is under consideration.

## TANKS.

One tank was completed during the year, making the total number 131, with an aggregate storage capacity of fully 726,000 cubic yards. A contract has already been let for another, while offers are being invited for several.

## BORES.

During the year "Hayter's" bore, in the parish of Boinka, was completed. Good stock water was struck at 530 feet from, and rose to within 18 feet of, the surface. The bore was further sunk to 580 feet and equipped with a windmill and a 4,000-gallon tank on stand and trough. Another bore in the same parish was put down by contract, and good stock water obtained at a depth of 516 feet, rising 479 feet, or within 37 feet of the surface.

The total number of successful bores is now 84, all of which are in the Walpeup West District. Continued increase in the number of stock carried in this district is causing a demand for further bores. As in many cases the depth to usable water is well over 300 feet, and therefore difficult for settlers to undertake, the Commission is in such cases sinking the bores as district works. A contract has been let for a bore in the parish of Worooa, and at least three others will be undertaken during the coming year.

## PLAN SHOWING BORES AND TANKS.

A plan of the Northern Mallee, on the same scale as that showing the Wimmera-Mallee channel systems, published in last year's Report, is inserted. It gives the positions of all the bores which have been put down in that area, as well as the tanks, which are dependent upon local catchments. Projects to extend the Wimmera-Mallee channels into portions of the district where the levels permit are also shown. The total area shown on the plan benefited by the various works is over 1,500,000 acres.

## GOULBURN HEAD-WORKS AND MAIN CHANNELS.

These works comprise the Goulburn Weir, the Goulburn-Waranga Channel, extending from the Weir to Waranga Reservoir, a distance of 23½ miles; the Waranga Reservoir; the main channel extending westerly from the Waranga Reservoir to the Serpentine Creek, a distance of 92 miles; and the main eastern channel, which extends from the Goulburn Weir to the Shepparton district, a distance of 31½ miles. The total length of main channels is 147 miles, the total storage provided at present by the reservoirs and the weir is 218,000 acre-feet, but, as explained under the heading "New Storages," this will be largely increased by the Sugarloaf Reservoir and the work for raising Waranga Reservoir, now in course of construction. The irrigation districts supplied are Shepparton, Rodney, Deakin, Tongala, Stanhope, Rochester, Dinglee, and Tragowel Plains.

During the year two new regulators and some movable weirs to pass flood waters across the channel line were constructed in the Main Eastern Channel near the Seven Creeks crossing. Subway repairs and seepage prevention works were carried out on the Main Western Channel.

## DRAINAGE AND FLOOD PROTECTION SCHEMES.

## KOO-WEE-RUP AND CARDINIA.

Works for the complete protection and drainage of these valuable low-lying areas, about 100,000 acres in extent, have been commenced, but on account of the great scarcity of suitable labour and unusually wet weather conditions, progress has been somewhat retarded. Notwithstanding this, a considerable amount of work was carried out, particularly in the Lower Koo-wee-rup area, on the south-eastern side of the main drain. The land dredger previously worked at Lang Lang by the Public Works Department was kept working steadily throughout the year with good results. After enlarging the existing Yallock Cut to the Melbourne-road and connecting it at this point to the Upper Yallock Creek proper, the dredger was transferred to the north-western side of the main drain, near the sea end. It is now cutting new outlets for the new Main Western drain and the Main Northern Catch drain. The results obtained by the operation of this dredger have been so satisfactory that the Commission is now arranging for a similar machine to be built in this State.

Hitherto, all the drainage channels on the western side of the main drain converged into that channel, and thus had only one outlet. This concentration has undoubtedly been the chief cause of the continuous flooding of the western Koo-wee-rup area. The present scheme, however, now provides for several distinct outlets, and these should be in operation next winter, giving immediate and substantial relief. On the eastern, or Yallock, side of the main drain, the new works are already giving effective relief. Besides the completion of the Yallock straight cut, that portion of the Upper Creek north of the junction with the new cut has been

cleared, straightened, and defined up to the junction with what is known as No. 4 drain. The new waterway thus provided is sufficient to meet requirements, and is working satisfactorily. Steady progress has been made with the work of enlarging and deepening No. 4 Drain, No. 6 Drain, No. 7 Drain, and Murray-road Drain, and the continuation of these, as well as the construction of the other lateral drains leading into the Upper Yallock Creek, will be expedited during the coming year.

In the Cardinia area only such works as could be carried out by means of the limited local labour available were constructed. The principal of these has been the enlargement of the lower end of the Cardinia-Toonuc main drain.

As well as arranging for the protection of the low-lying areas from outside waters by the construction of the Main Cardinia Contour Channel, the Commission is laying out its scheme of internal drainage works so as to adhere to the principle of avoiding concentration of local waters. Provision is therefore being made for discharging these as directly as possible to the sea by numerous separate outlets, and for this purpose a main local drain, running southerly and discharging into Tooradin Inlet, is being cut, while a similar drain, connecting with Little Tooradin Inlet, is being provided.

In order to carry out the works of the Koo-wee-rup and Cardinia drainage schemes as expeditiously as possible, the Commission, on account of the almost complete absence of suitable outside labour, is urging local settlers to hasten their own protection by helping in the actual construction of the works. The response to the Commission's appeal is now becoming more satisfactory as the need for such effective co-operation is being more clearly recognised by those interested. The Commission, therefore, anticipates making much more rapid progress in the coming year.

#### RIVER GAUGING.

As provided by section 32 of the *Water Act 1915*, the work of gauging and recording the flows of the principal rivers and streams of the State has been continued. The returns of volumes stored in reservoirs have been made available weekly for publication. The field observations and office work are being kept up to date, and the results of all gaugings since the last publication in 1912 have been compiled.

During the year a flood-warning scheme has been initiated by the Commission, whereby the occurrence of floods in the higher reaches of the River Murray and of its principal Victorian tributaries will be notified to residents in the river valleys affected.

#### DIVERSION OF WATER.

In the exercise of the right of the State to the use and flow and to the control of water in rivers, creeks, streams or water-courses, lakes, lagoons, swamps, or marshes, sanction to divert has been given in a large number of cases: 311 new permits have been issued during the year, in addition to renewals of those granted in former years.

Notwithstanding the copious rainfall, the number of renewals and the number of new permits issued during the year have considerably increased.

The authorized diversions now in force are:—

Yearly permits .. .. .	1,125
Flood permits .. .. .	2
Licences .. .. .	21
Total .. .. .	1,148

#### NEW STORAGES.

##### SUGARLOAF RESERVOIR.

The dam for this reservoir is situated on the Goulburn River, below the junction of the Delatite River, about 18 miles from Alexandra. The bed of the river at the site is at an elevation of about 700 feet, the datum being low water, Hobson's Bay. The design now being carried out will store water to a height of 820 feet above the same datum, and will have a capacity of from 280,000 to 300,000 acre-feet. Surveys made show that a storage basin to the elevation of 875 feet above datum with a capacity of 918,000 acre-feet could be constructed, and, when necessary, such increased capacity could be attained by progressive stages.

The dam being constructed consists of a diaphragm wall of reinforced concrete, built from bed-rock—which in places is 75 feet below ground surface—to crest level, a wall of clayey material on the upstream side of the diaphragm, and supporting masses of rock quarried from the adjacent hills. The concrete diaphragm and the embankment have been completed to a height of about 50 feet above the bed of the river. The outlet tunnel for the temporary diversion of the river, through which subsequently the regulated

flow will be delivered, and part of the valve tower are constructed. The foundations of the wing-wall and the waste-weir were satisfactorily carried out in the river bed in spite of the fact that the season of low river flow was unusually short. The dam is now so far advanced that the lands adjoining the works are liable to submergence, therefore Notices to Treat have been served on the owners of lands affected with a view to acquisition of many of the holdings. The average number of men employed during the year on the works was about 210.

#### WARANGA RESERVOIR ENLARGEMENT.

The adverse weather conditions described in last Annual Report continued with little intermission throughout the year, retarding work in spite of every effort to push on both by contract and day labour. All outlet works are now finished, and surveys have been made and designs prepared in readiness for commencement of the deviation of the portion of the Murchison to Rushworth Railway line on land that will be submerged when the work is completed. As set out in previous Reports, the increase in capacity that will result from this enlargement is 133,000 acre-feet, making the total capacity 330,000 acre-feet.

#### WIMMERA STORAGES.

The new Fyans Lake Reservoir, capacity 17,100 acre-feet, was completely filled during the past year, and has given full proof of the excellent holding qualities of the reservoir basin.

The progress of the work at Taylors Lake during the year has been somewhat delayed owing to scarcity of labour and continued wet weather. The temporary tram line from Mt. Zero to the lake is now in full operation, conveying from the quarry the necessary beaching stone. It is anticipated that the reservoir will be ready to receive a substantial volume of water during the coming winter. The construction of the inlet channel from Burnt Creek was also delayed owing to continued rains, but this work should be completed so as to bring supplies to the storage next winter.

It is proposed early in the coming summer to proceed with the reclamation of the lower portion of Fyans Creek, the main feeder of Lake Lonsdale Reservoir. At present large volumes of water overflow from the creek below the Fyans Lake diversion weir into Back Creek, and are consequently lost to the reservoir. In order to overcome this serious loss, the waters of Fyans Creek will be diverted at the weir by means of an embankment and a new excavated water-course into the Mokepilly Creek, itself a feeder to Lake Lonsdale. This work will also afford protection to the more valuable lands lying along the creek which are at present subject to severe flooding.

#### TOTAL STORAGES IN STATE.

The capacity of storages in the State, which in 1902 was 172,000 acre-feet, has now been increased to 562,000 acre-feet, and will, when the storage works in hand are completed, be further increased to more than 1,000,000 acre-feet. The Upper Murray storage will also, when completed, probably contain some 1,000,000 acre-feet of water, half of which can, subject to the provisions of the River Murray Agreement, be credited to the State of Victoria.

#### RIVER MURRAY WATERS.

As the result of conferences between the Honorable the Minister for Public Works of New South Wales and this Commission, the Governments of New South Wales and Victoria have agreed that the works on the river above its junction with the River Darling set out in clauses 20 and 21 of the River Murray Agreement shall be constructed jointly by them.

The examination of sites for the Upper Murray Storage was continued throughout the year, and the Engineers of New South Wales and Victoria in charge of this work have reported that out of 25 sites examined the site immediately below the junction of the Mitta River is the only suitable one.

Two parties are at work making complete surveys of the lands in New South Wales and Victoria that would be affected in the event of the above-mentioned site being finally adopted. A third survey party is engaged collecting information necessary to enable a site to be fixed for the proposed Torrumbarry Weir, which is likely to be the first work recommended for construction by the Government of Victoria. A fourth survey party, composed of New South Wales and Victorian officers working in conjunction, is making a comprehensive base survey to enable sites for locks and weirs to be located over the whole distance between Echuca and the junction of the River Darling.

### RIVER GOULBURN FLOOD PROTECTION.

In last year's Report a full statement of the position in respect to the Goulburn River Flood Protection works appears. It is only necessary to add that heavy floods continued throughout the whole of the Winter and Spring of 1917 and recurred in the Autumn of 1918. There were movements on the part of some interested land-holders to revive proposals for protective works, but as yet there has not been any representing the whole of the affected districts. In anticipation of such representations, however, it is intended to proceed with investigations so soon as conditions are favorable.

### RIVER EROSION AND FLOOD PROTECTION.

A Committee, consisting of representatives of the Departments of Lands, Mines, Forests, and Public Works, the Country Roads Board, and this Commission has for some time been inquiring into questions relating to erosion by floods and other flowing waters. The problems presented are mainly due to progress of settlement within the catchments of the rivers. They may be regarded as inevitable, though in certain cases special measures may be practicable to control the streams and minimise damage. A large amount of evidence has been accumulated, and its collation and condensation have been undertaken by this Commission.

Meanwhile, as the body intrusted by the Water Acts with the control of streams within the State, many cases of erosion and flooding have been inquired into and advice given. In certain cases permission to carry out protective works has been given public bodies and private persons under the powers of section 12 of the *Water Act* 1915. Schemes for protection of the townships of Euroa, Benalla, Tallangatta, and Mooroopna were thus dealt with, while investigations were made of cases on the King River at Whitfield and Cheshunt; on the Ovens River at Wangaratta, Tarrawingee, Everton, Whorouly, Myrtleford, Harrietville, and Freeburgh; on the Mitta at Tallangatta and Eskdale; on the Upper Murray at Yarrawonga, Hawksview, Corryong, and Nariel; on the Mitchell River at Bairnsdale; and on several minor streams.

At the instance of the Government of New South Wales, and in pursuance of the agreement between the States that no additional levee banks on the River Murray be constructed by one State without reference to the other, a representative of this Commission was appointed to act in conjunction with officers of the Public Works Department of this State and of the Water Conservation and Irrigation Commission of New South Wales on a Conference to report on proposals for new levees and extensions of existing ones and on the question of flood protection along the River Murray generally. Surveys to obtain certain information as to the surface levels and extent of flooding have been made, and their results are being plotted. A report will be presented by this Conference at an early date.

### HYDRO-ELECTRIC POWER.

During the year the question of the utilization of the streams of the State for hydro-electric generation of power has been under consideration. The gaugings of rivers already made by the Commission will be of immense value in dealing with hydro-electric propositions, but it is undoubted that a much more complete examination to ascertain the volume of flow, possibility of storage, and fall available in each stream likely to prove suitable, should be made before any comprehensive policy in regard to such use is framed.

A proposal for the utilization of the Upper Kiewa River for this purpose has been made by a private company, and the Commission has already submitted a general report on the project.

### WORKS CONTROLLED BY OTHER AUTHORITIES.

Under general supervision by the Commission, many works were carried out by Waterworks Trusts and other Authorities during the year.

For improvement of the Ararat Water Supply, the mains from Mount Cole to Langi Ghiran are being so increased that a discharge of 550,000 gallons in a day instead of 220,000 gallons can be obtained.

The reservoir of 20 million gallons at Sunbury was completed, and is being filled.

Works for supplying Warracknabeal from the new Whitton Swamp storage of 1,300 acre-feet have been finished, and the old system of obtaining a supply by pumping from the Yarriambiack Creek has been abolished, with most satisfactory results to the residents.

Considerable advance has been made with the new supply scheme for Orbost.

Pipe extensions or other additions were carried out by the local authorities at Benalla, Colac, Clunes, Donald, Elmore, Hamilton, Healesville, Lawloit, Mildura, Omeo, Shepparton, Stawell, Upper Macedon, and Warburton.

Proposals for the supply of Croydon, Ringwood, and Trafalgar are being reviewed.

## GENERAL.

### PROGRESS OF CLOSER SETTLEMENT IN IRRIGATION DISTRICTS.

The improvement in the demand for closer settlement blocks in the irrigation districts— noted in last year's Report— was maintained during the year 1917-18, 135 blocks having been granted to settlers, of whom 87 were discharged soldiers.

The total area now settled in the irrigable closer settlement districts is about 85,800 acres, of which 4,800 acres, in 130 allotments, are occupied by discharged soldiers, 64 of whom have settled at Merbein, 5 at Nyah, and 61 on other estates.

Of the total area settled, 13,000 acres have been devoted to fruit culture, 27,000 acres are under lucerne, and 14,000 acres under other crops.

The settlers continue to make good progress in the various Districts. At Merbein the returns continue to be exceedingly good, the aggregate value of production from some 6,000 acres being well over £150,000—while at the sister settlement of Nyah, although the aggregate result may not be so high, most gratifying returns have been obtained by many settlers. At Cohuna, notwithstanding early drainage difficulties, the settlers are now making satisfactory returns, while Swan Hill has made marked progress in both the dairying and fruit industries. The half-yearly returns prepared by the Commission show substantial progress in practically every District, and there is no doubt each is showing increased stability.

The following statement shows the lands purchased and subdivided by the State, and the extent of settlement on each estate. From this statement it will be seen that the subdivided portions of these estates are already supporting thirteen times as many families as were living on them prior to subdivision for irrigated closer settlement:—

Closer settlement Estates.	Area of Lands purchased by the State.	Properties Subdivided.							
		Area.	Number.	Number of Families thereon when Purchas'd.	Subdivided into—		Number of Closer Settlement Blocks now occupied.	Present Increase in Number of Families.	
					Number of Closer Settlement Blocks.	Average Area.			
Shepparton .. .. .	9,200	9,200	21	20	268	32	255	235	
Tatura .. .. .	100	100	1	..	21	4	..	..	
Stanhope .. .. .	20,000	8,200	2	9	146	51	63	54	
Kyabram .. .. .	3,000	1,000	1	3	29	32	24	21	
Tongala .. .. .	15,200	15,200	31	30	236	62	195	165	
Cornelia Creek .. .. .	2,500	2,500	} Pt. 1	..	{	14	176	12	12
Koyuga .. .. .	4,200	4,200				56	71	52	52
Nanneella .. .. .	8,600	8,600	16	6	109	76	89	83	
Echuca .. .. .	3,200	3,200	6	4	26	122	25	21	
Bamawm .. .. .	13,400	13,400	28	21	172	74	150	129	
Dingee .. .. .	500	500	3	1	17	26	12	11	
Cohuna .. .. .	11,500	11,500	27	8	134	82	97	89	
Koondrook .. .. .	3,400	3,400	5	4	39	84	30	26	
Swan Hill No. 1 .. .. .	5,400	5,400	18	9	79	67	72	63	
Swan Hill No. 2 (Burton's)	1,500	1,500	1	1	51	26	47	46	
Swan Hill No. 3 (Crown lands)	500	500	1	..	16	30	14	14	
Werribee .. .. .	8,000	6,700	1	6	137	43	103	97	
	111,100	95,100	163	122	1,550	..	1,240	1,118	
<i>Murray Frontage Settlements</i>									
Nyah .. .. .	2,900	2,900	1	..	149	19	139	138	
Merbein .. .. .	7,000	7,000	Crown lands	..	283	25	282	282	
	121,000	105,000	164	122	1,982	..	1,661	1,538	

### LANDS AVAILABLE FOR CLOSER SETTLEMENT IN IRRIGATION DISTRICTS.

The lands made available during the year for applications from intending settlers included some 570 acres of Crown lands at Merbein (known as North-west Merbein), and 50 acres of a hitherto uncommanded portion of the main Merbein settlement. Together, these areas provided 38 holdings, all of which were taken up by discharged soldiers.

The Commission also subdivided and made available for discharged soldiers the remaining portion of the Experimental Farm at Tatura, containing 85 acres.

The total area now subdivided is 105,000 acres, which, after making the necessary deductions for roads, channels, and township reserves, has been made available in 1,982 blocks of a total area of 99,850 acres, an average of 50 acres per block. Of this, as previously stated, 85,800 acres have been settled.

There are now available, in subdivided estates, 321 allotments, of areas varying from 2 to 100 acres, containing in all 14,080 acres. In addition to this area, there are about 12,000 acres at Stanhope, 2,000 acres at Kyalbraam, and 1,000 acres at Werribee, which can be subdivided and made available for settlement as required.

In response to a demand for township blocks on the Stanhope Estate, designs have been prepared for townships at the Stanhope and Girgarre Railway Stations. Surveys have been put in hand with a view to some blocks in each township being offered for sale at an early date.

#### SETTLEMENT OF DISCHARGED SOLDIERS IN IRRIGATION DISTRICTS.

The Commission is reserving as far as practicable all suitable Closer Settlement blocks in Irrigation Districts for discharged soldiers. It is undoubted that a much larger number of blocks would have been taken up if there had not been such a reservation. The result of this is perhaps more noticeable in the Stanhope District, where there is a considerable area yet unoccupied, but which would have been more fully settled if the Commission had granted applications for blocks from others than soldiers. The Commission is satisfied, however, that it is in every way advisable to reserve as many blocks as possible, and, judging from the steady application that is now being made by discharged soldiers, it is confident that all suitable blocks will be absorbed with the long looked for general return of our soldiers. As previously stated, there are now some 130 discharged soldiers settled in the various irrigation districts. Of these 64 have settled at Merbein, where about one thousand acres of new land were subdivided and made available exclusively for soldiers. The remainder are fairly well divided amongst the other irrigation districts, and, generally, all are making very satisfactory progress. In the districts the old settlers are doing all in their power to assist the newcomers, in many cases establishing working bees, and very often transforming the soldier's new block into practically a finished farm or orchard, while in all cases they are assisting the soldiers with advice and companionship. The officers of the Commission have been specially instructed to advise each soldier settler, and they are required to report at least quarterly to Head Office on the progress and requirements of such settlers.

#### DISPOSAL OF PRODUCTS FROM CLOSER SETTLED IRRIGATION DISTRICTS.

One of the difficulties the settlers in Closer Settlement Irrigation Districts, in common with other settlers, are experiencing, and probably will continue to experience, even after the war is finished, is the marketing of their products. While this, as previously stated, applies to both lucerne and pig products, it particularly applies to such perishable products as fruit, which, being produced in great quantities at one short period of each year, must either be at once sold or processed to avoid total loss to the settler. The attempt to sell very frequently leads to "gluts," when the return to the grower is often so low as not to even meet working expenses.

Such a glut was experienced recently at Shepparton, where the settlers are mainly engaged in growing stone fruits. With a view of preventing as far as possible a recurrence, they decided to establish a fruit preserving factory, and this has now been erected. The factory, which cost £17,000 and is capable of treating 50 tons of fresh fruit per day, was built by means of an advance by the Government, under the Fruit Act, to a co-operative company, consisting of settlers and residents of Shepparton, who have the management and control of its operations.

Notwithstanding that the factory only commenced in January last, too late for treating the important apricot crop, the company was able to show a satisfactory result from the canning of the available peach crop, both in regard to the quality of the product, which was very fine, and the financial return to the settler, which was very remunerative. This year the company will be able to deal with a much larger output of all classes of fruit, and it is believed the results will be correspondingly satisfactory, and that the establishment of this factory will tend to secure a much more even market for the fruit products of the important Shepparton area.

The Commission has a special officer to assist the settlers in the various districts in the marketing of their products, with, in many cases, very satisfactory results, particularly in arranging sales of lucerne, either directly or through the pool system. The Commission will continue this arrangement, with a view of assisting the settlers in obtaining as far as practicable reasonable returns for their products.

## ADMINISTRATION.

### EXTENSIONS AND EXCISIONS.

The channels of the Tyrrell Waterworks District having been extended so as to serve about 72 square miles of the Walpeup East Waterworks District, and some 128 square miles of lands not previously within any constituted district, the Tyrrell District has been extended to include these areas. The Waterworks District of the Loddon United Waterworks Trust was also extended to embrace the Mitiamo township area and some 3,900 acres of interjacent rural lands served by the Dingee-Mitiamo channel. A minor extension was also made of the Shepparton Irrigation and Water Supply District

### NEW DISTRICTS CONSTITUTED.

As forecasted last year, the Werribee Irrigation and Water Supply District has been constituted. It contains an area of 8,000 acres, consisting mainly of the irrigable portion of the Werribee Park Closer Settlement Estate.

The flood protection works referred to in last Annual Report having been well advanced, the Lower Koo-wee-rup and Cardinia Flood Protection Districts were constituted during the year. These districts embrace some 87,200 acres of the lands to be benefited by the scheme of flood protection works agreed to by the land-owners concerned.

The reticulation works for the supply of the townships of Mitiamo and Ouyen having been completed, both townships have been proclaimed urban districts.

### PROPOSED DISTRICTS.

The development of the settled portion of the Stanhope Irrigated Closer Settlement Estate, which forms part of the Deakin Irrigation and Water Supply District, having reached a stage which warrants the apportionment of water rights and the consequent levying of an irrigation charge, it is proposed to constitute such Stanhope portion a separate district, to be known as the Stanhope Irrigation and Water Supply District.

The system of channels for providing domestic and stock supply to that portion of the Werribee Park Closer Settlement Estate not included in the irrigation district having been completed, and a considerable portion having been settled, this area will next year be rated as a Waterworks District.

Yelta Waterworks District, adjoining Merbein, which had previously been constituted but not rated, will be rated during the coming year, as settlement in the District is now well advanced.

### NEW APPOINTMENTS.

Through the death of Mr. A. B. Clemes, a valued officer of both the Commission and the old Wimmera United Waterworks Trust, the position of Secretary and Collector of the Wimmera United Waterworks District became vacant. Miss R. E. Bartleman, assistant to Mr. Clemes, was appointed to this position. Mr. D. P. Crosbie, Secretary and Collector of the Walpeup and Carwarp Waterworks Districts having resigned, that position has been filled by the transfer of Mr. F. T. Holt.

A District Office has been established at Nyah, and Mr. R. A. Black has been transferred to the position of District Engineer, Secretary, and Collector for the Nyah and Tyntynder Districts hitherto administered from the Swan Hill Centre.

### DISCHARGED SOLDIERS.

The Commission, as previously stated, is keeping their positions open for its officers who have enlisted, and is conserving their interests in regard to promotions. A number of such officers who were compelled through disability to return have been reinstated in the Service. When filling vacancies preference is being given to discharged soldiers, a number having been appointed, with satisfactory results, as Water Bailiffs.

### NEW LEGISLATION.

A short Bill to amend the Water Acts, so as to empower the Commission to make the charge per acre on lands in Flood Protection Districts either a uniform amount, as at present, or in divisional amounts, according to the benefits received, will be submitted to Parliament during the ensuing year.

It is also proposed to so amend the Closer Settlement and Land Acts as to give the Commission full control and management of all Closer Settlements in Irrigation Districts, including Merbein and Nyah Irrigation Areas.

### FIRE INSURANCE.

The Commission has continued the policy initiated in July, 1909, of carrying the fire risks on its own buildings. No losses have occurred since the date named. The amount now standing to the credit of the Insurance Fund is £2,055.



## RECEIPTS, DISBURSEMENTS, AND ESTIMATES.

The total receipts were £232,257, which is the highest amount yet collected in any year by the Commission. This result was achieved, notwithstanding that owing to an abnormally wet season practically no sales of extra water, usually a source of much revenue in Irrigation Districts, took place. As previously stated, the system of Compulsory Irrigation Charges now in force is tending to secure a regular income for meeting a reasonable proportion of the heavy expenditure of the State for irrigation.

The revenue from the Coliban District is £372 less than for the previous year, while the disbursements are £142 more, making, with a small amount of additional interest, the deficit for the year £24,458 as against £23,916 for 1916-17. As the amount of rating is specially limited by the Water Acts the overtaking of this deficit must, as mentioned in last Report, depend on the general development of the district, which has now an additional supply of water available by the enlargement of the main reservoir.

Notwithstanding the great reduction in sales of water through the abnormally wet season, the receipts in the Irrigation and Water Supply Districts show an increase of £3,397 over those of last year. After debiting the Irrigation and Water Supply Districts with their full proportion of the cost of Supply Works chargeable, the total revenue deficit which, up to last year had accumulated to £133,720, is now £141,592—an increase for the past year of £7,872. This loss is £1,154 less than that of last year, and is, with the exception of one year (1915-16), the smallest loss incurred for over nine years.

The Commission has the direct control of thirty-nine waterworks districts, exclusive of the Coliban District. Last year's operations showed a surplus of £4,611, and the aggregate revenue deficit, which was previously £32,948, has now been reduced to £28,337. The Commission intends next year fixing in most of the larger Waterworks Districts a minimum amount of rate in respect of all lands in the first rating division. The introduction of this system will, while effecting a more even distribution of rating also assist in meeting the old deficit (now as stated reduced to £28,337) which has been carried forward from the drought year.

The net disbursements from annual votes were £111,368. This is, notwithstanding the extension of the Commission's operations and the increase in both wages and cost of materials, an increase of only £3,578 over those of the previous year. The expenditure of loan moneys amounted to £272,280, details of which are set out in this Report.

The Estimate of £113,700 for disbursements during 1918-19 shows an increase of only £200 as compared with the estimate for 1917-18, while the Estimate of receipts—£220,000—is the same as for the year just closed.

The loan liability of the State for Works of Water Supply at the close of the year was £9,238,953. Of this total £1,237,729 is for Free Headworks: £1,263,228 was written off many years ago; £147,046 was advanced to some early-formed local Authorities; £2,997 has not been expended; £277,649 has been paid off by Authorities, and £435,772 is represented by uncompleted works which are not yet revenue producing and are this year set out separately in the Statement of Loan Liability in this Report. The balance, £5,874,532, is the sum in respect of which those benefited by the various works are this year liable for payment of interest.

The present interest charges on loans amount to £324,477. Of this amount £95,978 is not chargeable to any districts being debitable against Free Headworks, Amounts Written Off, and Unexpended Balances, while £15,778 is interest on present cost of Uncompleted Works which are not yet revenue producing, leaving £212,721 as debitable this year against the Commission and other Authorities. The amount available last year from the Revenues of the Commission and other Authorities to meet such interest was, as set out in the statement on page 36 of this Report, £180,846.

## RECEIPTS AND DISBURSEMENTS.

STATEMENT of Moneys received and disbursed during the year ended 30th June, 1918

Works	Receipts.	DISBURSEMENTS, exclusive of Interest, Redemption, and Depreciation Charges.			Excess.	
		From Annual Votes and Special Appropriation.	Deduct Capital and Other Disbursements not Chargeable to Districts.	Net Disbursements on maintenance and Management.	Receipts over Net Disbursements.	Disbursements over Receipts.
	£	£	£	£	£	£
Coliban ... ..	33,419	10,917	128	10,789	25,630	...
Other State Works--						
Broken River ... ..	6	339	...	339	...	333
Goulburn ... ..	205	1,912	...	1,912	...	1,707
Kow Swamp ... ..	187	2,245	...	2,245	...	2,058
Lake Lansdale ... ..	6	312	...	312	...	306
Loddon River ... ..	6	295	...	295	...	289
Lower Wimmera ... ..	..	66	...	66	...	66
North-West Lakes ... ..	86	817	...	817	...	731
Irrigation Districts ... ..	108,468	48,161	...	48,161	60,307	...
Waterworks Districts ... ..	65,537	27,067	347	26,720	38,817	...
Urban Districts and Divisions	14,937	4,387	...	4,387	10,550	...
Licences, Diversions, Miscellaneous	6,400	3,257	...	3,257	3,143	...
	232,257	99,775	475	99,300	138,447	5,490
<i>Not Revenue Producing--</i>						
River Gauging, Surveys and Re- ports, New Projects ... ..	...	3,809	...	3,809	...	3,809
Waterworks Trusts						
Boring for Water, Road	} Cost of Administration					
Clearing, Mallee, and Land Settlement		...	5,031	...	5,031	...
Loan Works ... ..	...	3,228	...	3,228	...	3,228
Totals ... ..	232,257	111,813	475	111,368	138,447	17,558
					2,000	
					118,889	

## COLIBAN SYSTEM.

STATEMENT of Moneys received and disbursed during the year ended 30th June, 1918,  
and of Interest charged at the rate of 4 per cent. on Capital Debts.

Districts.	Capital Debit at 30th June, 1918.	Receipts.	Disbursements and Interest Charged.			Excess.	
			Disbursements.	Interest.	Total.	Receipts over Disbursements and Interest.	Disbursements and Interest over Receipts.
	£	£	£	£	£	£	£
Coliban ... ..	1,235,991	35,163	10,127	40,440	59,567	..	24,404
Axe Creek ... ..	1,750	193	103	70	173	20	...
Harcourt ... ..	14,445	1,063	559	578	1,137	...	74
Totals ... ..	1,252,186	36,419	10,789	50,088	60,877	20	24,478

## IRRIGATION AND WATER SUPPLY DISTRICTS.

STATEMENT of Moneys received and disbursed from 1st May, 1906, to 30th June, 1918; and of Interest, charged at the rate of 4 per cent. on Capital Debts; and also of Depreciation and Redemption charged, as at 30th June, 1918. (Free Head-works excluded.)

## RECEIPTS.

District.	1st May, 1906, to 30th June, 1917.	1917-18.					Grand Total at 30th June, 1918.
		Rates.	Compulsory irrigation Charge.	Water Sales.	Interest and Miscellaneous.	Total.	
1. Bacchus Marsh .. .. .	£ 22,292	£ 588	£ 3,499	£ 293	£ 84	£ 4,464	£ 26,756
2. Boort .. .. .	23,173	1,547	..	381	21	1,949	25,122
3. Campaspe .. .. .	6,827	660	..	42	2	704	7,531
4. Cohuna .. .. .	64,078	1,685	5,246	297	198	7,426	71,504
5. Deakin .. .. .	38,765	4,882	..	524	86	5,492	44,257
6. Dingee .. .. .	3,521	87	1,015	71	43	1,216	4,737
7. Dry Lake .. .. .	317	..	..	..	29	29	376
8. Gannawarra .. .. .	45,548	1,198	4,152	153	114	5,617	51,165
9. Kerang .. .. .	46,203	2,227	..	2,552	16	4,795	50,998
10. Koondrook .. .. .	40,308	1,255	3,463	199	82	4,999	45,307
11. Merbein .. .. .	48,183	282	10,998	174	321	11,775	59,958
12. Nyah .. .. .	13,827	81	2,556	51	68	2,759	16,586
13. Rochester .. .. .	38,535	2,015	7,551	503	342	10,411	48,946
14. Rodney .. .. .	176,623	7,248	12,385	825	358	20,816	197,439
15. Shepparton .. .. .	17,980	729	3,785	64	71	4,649	22,629
16. Swan Hill .. .. .	34,085	872	3,187	344	289	4,692	38,777
17. Tongala .. .. .	16,194	811	3,612	237	111	4,771	20,965
18. Tragowel Plains .. .. .	70,386	1,913	7,817	179	141	10,050	80,436
19. Werribee .. .. .	..	617	902	290	15	1,854	1,854
	706,875	28,727	70,168	7,182	2,391	108,468	815,343

## DISBURSEMENTS, AND INTEREST DEPRECIATION AND REDEMPTION CHARGED.

District.	DISBURSEMENTS.					INTEREST CHARGED.			(A) DEPRECIATION. (B) REDEMPTION.	Grand Total at 30th June, 1918.	
	1st May, 1906, to 30th June, 1917.	1917-18.				Total at 30th June, 1918.	1st May, 1906, to 30th June, 1917.	1st July, 1917, to 30th June, 1918.			Total at 30th June, 1918.
		Repairs and Maintenance.	Distribution of Water.	Management.	Total.						
1. Bacchus Marsh	£ 5,408	£ 114	£ 641	£ 138	£ 893	£ 6,301	£ 18,964	£ 3,902	£ 22,866	..	£ 29,167
2. Boort	13,600	618	598	112	1,328	14,928	8,440	755	9,195	(B) 500	24,623
3. Campaspe	4,005	40	191	103	334	4,339	4,352	415	4,767	..	9,106
4. Cohuna	47,801	914	2,981	311	4,206	52,007	24,974	3,004	27,978	(A) 6,840	86,831
5. Deakin	17,753	1,117	1,108	270	2,495	20,248	26,213	3,211	29,424	..	49,672
6. Dingee	1,760	360	387	83	830	2,590	3,803	1,114	4,917	..	7,507
7. Dry Lake	1	..	..	..	..	1	346	29	375	..	376
8. Gannawarra	29,412	890	1,919	256	3,065	32,477	16,995	1,984	18,979	(A) 3,998	55,454
9. Kerang	24,594	884	813	325	2,022	26,616	19,286	1,882	21,168	(A) 225 (b) 1,500	49,509
10. Koondrook	26,608	695	1,732	330	2,757	29,365	23,003	3,008	26,011	(A) 3,376	58,752
11. Merbein	32,188	3	5,764	642	6,409	38,597	14,707	3,437	18,144	(A) 6,240	62,981
12. Nyah	13,295	487	1,299	234	2,020	15,315	5,822	1,079	6,901	(A) 2,722	24,938
13. Rochester	25,475	1,075	2,465	543	4,083	29,558	40,920	7,717	48,637	..	78,195
14. Rodney	77,380	1,428	5,035	898	7,361	84,741	106,776	13,245	120,021	..	204,762
15. Shepparton	11,620	761	925	267	1,953	13,573	18,242	4,437	22,679	..	36,252
16. Swan Hill	28,197	897	1,064	247	2,208	30,107	10,037	1,396	11,433	(A) 3,568	45,106
17. Tongala	13,472	721	750	221	1,692	15,164	24,074	5,168	29,242	..	44,406
18. Tragowel Plains	34,777	1,742	1,743	254	3,739	38,516	40,692	6,497	47,189	..	85,705
19. Werribee	..	177	424	165	766	766	..	2,527	2,527	..	3,293
	407,346	12,923	29,839	5,399	48,161	455,507	407,646	61,807	472,453	28,975	956,935

## WATERWORKS DISTRICTS.

STATEMENT of Moneys received and disbursed from 1st July, 1906, to 30th June, 1918; and of Interest charged, at the rate of 4 per cent. on Capital Debts; and also of Depreciation and Redemption charged, as at 30th June, 1918. (Free Head-works excluded.)

## RECEIPTS.

District.	1st May, 1900, to 30th June, 1917.	1917-18.				Grand Total at 30th June, 1918.
		Rate.	Water Sales.	Interest and Miscellaneous.	Total.	
	£	£	£	£	£	£
1. Birchip .. .. .	99,572	3,505	35	31	3,571	117,990
2. Sea Lake .. .. .		5,593	88	101	5,782	
3. Tyrrell .. .. .		3,931	..	153	4,084	
4. Wycheproof .. .. .		4,860	53	68	4,981	
5. Carwarp .. .. .	27	323	..	3	326	353
6. Karkaroo .. .. .	37,468	7,748	..	117	7,865	45,333
7. Korang North-west Lakes .. .. .	598	183	30	1	214	812
8. Long Lake .. .. .	47,091	6,635	..	181	6,816	53,817
9. Tyntynder .. .. .	12,247	4,041	44	188	4,273	16,520
10. Walpeup East .. .. .	1,532	337	..	10	347	1,879
11. Walpeup West .. .. .	2,640	972	..	23	995	3,635
12. Western Wimmera .. .. .	86,690	10,635	1,050	68	11,753	98,443
13. Wimmera United .. .. .	106,184	14,314	74	142	14,530	120,714
	393,959	63,077	1,374	1,086	65,537	459,496

## DISBURSEMENTS, AND INTEREST DEPRECIATION AND REDEMPTION CHARGED.

District.	DISBURSEMENTS.					INTEREST CHARGED.				(A) DEPRECIATION. (B) REDEMPTION.	Grand Total at 30th June, 1918.
	1st May, 1906, to 30th June, 1917.	1917-18.			Total at 30th June, 1918.	1st May, 1906, to 30th June, 1917.	1st July, 1917, to 30th June, 1918.	Total at 30th June, 1918.			
		Repairs and Maintenance.	Distribution of Water.	Management.					Total.		
	£	£	£	£	£	£	£	£	£	£	
1. Birchip .. .. .	54,821	2,334	2,697	835	5,866	60,687	61,013	9,923	70,936	..	131,623
2. Sea Lake .. .. .											
3. Tyrrell .. .. .											
4. Wycheproof .. .. .											
5. Carwarp .. .. .	480	37	391	48	476	953	314	319	633	(a) 165	1,754
6. Karkaroo .. .. .	15,866	1,725	734	371	2,830	18,636	24,602	4,679	29,281	..	47,977
7. Korang North-west Lakes .. .. .	372	18	36	20	74	446	311	80	391	..	837
8. Long Lake .. .. .	35,097	1,018	1,820	486	3,324	38,311	10,96	1,875	12,835	(a) 7,377	58,543
9. Tyntynder .. .. .	19,709	821	1,168	212	2,201	12,910	6,388	2,101	8,489	..	21,399
10. Walpeup East .. .. .	1,149	312	..	58	370	1,519	535	122	657	..	2,176
11. Walpeup West .. .. .	2,794	316	543	82	971	3,675	448	200	648	(a) 750	5,073
12. Western Wimmera .. .. .	48,912	2,635	2,716	726	6,047	54,959	31,255	4,375	35,630	(a) 2,000 (b) 5,000	98,394
13. Wimmera United .. .. .	53,286	2,226	1,662	673	4,561	57,847	50,992	8,739	59,731	(b) 5,000	122,578
	223,306	11,442	11,767	3,511	26,720	250,026	186,818	32,413	219,231	21,097	490,354

## URBAN DISTRICTS AND DIVISIONS.

STATEMENT of Moneys received and disbursed from 1st July, 1906, to 30th June, 1918; and of Interest charged, at the rate of 4 per cent. on Capital Debts; and also of Depreciation and Redemption charged, as at 30th June, 1918. (Free Head-works excluded.)

## RECEIPTS.

District or Division.	1st May, 1906, to 30th June, 1917.	1917-18.				Grand Total at 30th June, 1918.
		Rate.	Water Sales.	Interest and Miscellaneous.	Total.	
1. Bacchus Marsh .. .. .	£ 8,509	£ 596	£ 401	£ 4	£ 1,001	£ 9,510
2. Berriwillock .. .. .	341	93	..	1	94	438
3. Beulah .. .. .	2,172	403	13	18	434	2,606
4. Birchip .. .. .	6,660	542	281	26	849	7,509
5. Cohuna .. .. .	1,454	307	66	1	374	1,828
6. Corop .. .. .	166	32	..	..	32	198
7. Dimboola .. .. .	12,217	659	808	37	1,504	13,721
8. Hopetoun .. .. .	2,281	408	15	19	442	2,723
9. Jeparit .. .. .	2,586	452	104	6	562	3,148
10. Jung Jung .. .. .	..	68	4	1	73	73
11. Kancira .. .. .	369	100	23	1	124	493
12. Koondrook .. .. .	1,580	359	..	3	362	1,942
13. Lake Boga .. .. .	1,575	215	27	12	254	1,829
14. Lascelles .. .. .	213	128	..	3	131	344
15. Minyip .. .. .	3,726	508	51	6	565	4,291
16. Natimuk .. .. .	3,817	233	233	8	474	4,291
17. Nyah .. .. .	69	28	5	1	34	103
18. Rainbow .. .. .	5,396	653	152	15	820	6,216
19. Rупanyup .. .. .	3,228	339	58	3	400	3,638
20. Sea Lake .. .. .	3,159	376	31	10	417	3,576
21. Ultima .. .. .	1,038	384	3	16	403	1,441
22. Watchem .. .. .	742	202	12	2	216	958
23. Werribee .. .. .	1,697	748	53	16	817	2,514
24. Wonthaggi .. .. .	21,996	1,769	1,604	87	3,460	25,456
25. Woomelang .. .. .	2,393	275	323	5	603	2,996
26. Wycheproof .. .. .	3,724	445	33	14	492	4,216
	91,121	10,322	4,300	315	11,937	106,058

## DISBURSEMENTS, AND INTEREST DEPRECIATION AND REDEMPTION CHARGED.

District or Division.	DISBURSEMENTS.					INTEREST CHARGED.			(A) DEPRECIATION. (B) REDEMPTION.		Grand Total at 30th June, 1918.
	1st May, 1906, to 30th June, 1917.	1917-18.			Total at 30th June, 1918.	1st May, 1906, to 30th June, 1917.	1st July, 1917, to 30th June, 1918.	Total at 30th June, 1918.			
		Repairs and Maintenance.	Distribution of Water.	Management.					Total.	(A)	
1. Bacchus Marsh .. .. .	£ 2,726	£ 16	£ 97	£ 95	£ 208	£ 2,934	£ 4,779	£ 929	£ 5,708	(a) 252 (b) 250	£ 9,144
2. Berriwillock .. .. .	170	3	47	14	64	234	239	42	281	(a) 12	527
3. Beulah .. .. .	617	26	129	32	187	804	1,380	299	1,679	(a) 20	2,503
4. Birchip .. .. .	2,472	15	198	69	282	2,754	3,187	441	3,628	(a) 260 (b) 300	6,942
5. Cohuna .. .. .	362	8	119	21	148	510	637	201	838	(a) 105 (b) 150	1,603
6. Corop .. .. .	60	..	10	10	20	80	75	9	84	(a) 9	173
7. Dimboola .. .. .	6,883	166	530	121	817	7,700	3,101	472	3,573	(a) 1,200 (b) 850	13,303
8. Hopetoun .. .. .	927	5	156	34	195	1,122	955	200	1,155	(b) 150	2,427
9. Jeparit .. .. .	443	3	83	36	122	565	1,881	432	2,313	(b) 160	2,978
10. Jung Jung .. .. .	..	..	30	28	58	58	..	13	13	..	71
11. Kancira .. .. .	157	6	44	15	65	222	235	70	305	(a) 12	539
12. Koondrook .. .. .	781	..	133	35	168	949	740	149	889	(a) 90	1,928
13. Lake Boga .. .. .	182	2	5	15	22	204	1,105	165	1,270	(a) 54 (b) 150	1,678
14. Lascelles .. .. .	80	5	52	17	74	154	144	72	216	(a) 24	394
15. Minyip .. .. .	1,462	22	76	19	117	1,579	2,376	311	2,687	(a) 254	4,520
16. Natimuk .. .. .	584	6	49	28	83	657	2,400	346	2,746	(b) 750	4,163
17. Nyah .. .. .	30	..	5	5	10	40	15	5	20	(a) 16	76
18. Rainbow .. .. .	1,094	3	114	52	169	1,263	3,400	499	3,899	(a) 360 (b) 400	5,922
19. Rупanyup .. .. .	1,199	21	77	19	117	1,316	1,816	258	2,074	(a) 189	3,579
20. Sea Lake .. .. .	1,971	6	159	45	210	2,181	1,041	199	1,240	(a) 249	3,670
21. Ultima .. .. .	262	13	54	20	87	349	648	207	855	(a) 50	1,254
22. Watchem .. .. .	171	7	45	13	65	236	558	151	709	(a) 30	975
23. Werribee .. .. .	590	21	136	68	225	815	1,108	556	1,664	(a) 147	2,626
24. Wonthaggi .. .. .	2,702	47	213	197	457	3,159	15,569	2,431	18,000	(a) 3,700	24,859
25. Woomelang .. .. .	834	43	120	46	209	1,043	1,624	353	1,977	(a) 100	3,120
26. Wycheproof .. .. .	2,188	22	150	36	208	2,396	1,712	225	1,937	(a) 230	4,563
	28,947	466	2,831	1,090	4,387	33,334	50,725	9,035	59,760	10,443	103,537

## DISTRICTS HELD IN TRUST BY THE COMMISSION.

## AVOCA WATER TRUST.—BALANCE-SHEET.

STATEMENT OF RECEIPTS AND DISBURSEMENTS FOR THE YEAR ENDED 31ST DECEMBER, 1917.

				<i>Revenue Account.</i>							
RECEIPTS.				DISBURSEMENTS.							
				£	s.	d.					
				£	s.	d.	£	s.	d.		
Bank Balance from 1916	..	..	..	604	2	9	Interest on Loan	..	..	..	212 14 5
Arrears of Rates	..	..	..	260	13	2	Redemption of Loan	..	..	..	52 11 1
Current Rate	..	..	..	537	1	6	Maintenance and Repairs	..	..	..	157 15 2
Interest on Rates	..	..	..	15	17	0	Management	..	..	..	31 4 8
Sales of Water	..	..	..	43	19	6	Rate Collector	..	..	..	52 0 0
Rates overpaid	..	..	..	0	10	0	Bank Charges	..	..	..	3 3 0
							Dishonoured cheque	..	..	..	16 16 0
							Bank Balances, 31/12/17	..	..	..	936 4 7
Total	..	..	..	£1,462	8	11	Total	..	..	..	£1,462 8 11

*Statement of Assets and Liabilities.*

LIABILITIES.				ASSETS.									
				£	s.	d.	£	s.	d.	£	s.	d.	
Treasurer of Victoria—Loan	..	..	..	5,278	14	4	Works at Cost	..	..	8,709	5	0	
Rates Overpaid	..	..	..	1	4	4	Less Amount						
Balance—General Account	..	..	..	1,861	6	9	Written Off,						
							Act No.						
							1625	..	2,494	0	0		
							Repayment of						
							Loan	..	124	5	6		
									2,618	5	6		
												6,090 19 6	
							Arrears of Rates	..	..	..	97	5	4
							Dishonoured cheques in hand	..	..	..	16	16	0
							Bank Balances, 31/12/17	..	..	..	936	4	7
Total	..	..	..	£7,141	5	5	Total	..	..	..	£7,141	5	5

*Statement of Rates.*

				£	s.	d.					
				£	s.	d.	£	s.	d.		
Current Rate	..	..	..	559	4	8	Current Rate Collected	..	..	..	537 1 6
Arrears from 1916	..	..	..	349	17	6	Arrears of Rates Collected	..	..	..	260 18 2
							Rates Abandoned	..	..	..	13 17 2
							Arrears carried forward to 1918	..	..	..	97 5 4
Total	..	..	..	£909	2	2	Total	..	..	..	£909 2 2

DISTRICTS HELD IN TRUST BY THE COMMISSION--*continued.*

## QUAMBATOOK URBAN DISTRICT OF AVOCA WATER TRUST.—BALANCE-SHEET.

## STATEMENT OF RECEIPTS AND DISBURSEMENTS FOR THE YEAR ENDED 31ST DECEMBER, 1917.

				<i>Revenue Account.</i>									
RECEIPTS.				DISBURSEMENTS.									
				£	s.	d.	£	s.	d.				
Bank Balance from 1916 .. ..				40	8	5	Interest on Loan .. ..		223	17	9		
Arrears of Rates .. ..				211	14	0	Redemption of Loan .. ..		31	13	3		
Current Rate .. ..				301	16	11	Pumping Expenses .. ..		131	15	10		
Interest on Rates .. ..				9	3	6	Maintenance and Repairs .. ..		3	2	2		
							Rate Collector .. ..		26	0	0		
							Management .. ..		8	14	10		
							Refund Overpaid Rate .. ..		1	0	0		
							Bank Charges .. ..		1	7	6		
							Cash in hand .. ..	£6	6	8			
							Bank Balance, 31/12/17 .. ..	129	4	10			
											135	11	6
Total .. ..				£563	2	10	Total .. ..		£563	2	10		

*Statement of Assets and Liabilities.*

LIABILITIES.				ASSETS.									
				£	s.	d.	£	s.	d.				
Treasurer of Victoria—Loan .. ..				3,694	16	7	Works at Cost .. ..		£3,786	4	9		
Balance—General Account .. ..				358	7	1	Arrears of Rates .. ..		131	7	5		
							Cash in hand .. ..	£6	6	8			
							Bank Balance, 31/12/17 .. ..	129	4	10			
											135	11	6
Total .. ..				£4,053	3	8	Total .. ..		4,053	3	8		

*Statement of Rates.*

				£	s.	d.					£	s.	d.
Current Rate .. ..				358	15	2	Current Rate Collected .. ..				301	16	11
Arrears from 1916 .. ..				291	8	9	Arrears of Rates Collected .. ..				211	14	0
							Rates Abandoned .. ..				5	5	7
							Arrears carried forward to 1918 .. ..				131	7	5
Total .. ..				£650	3	11	Total .. ..				£650	3	11

DISTRICTS HELD IN TRUST BY THE COMMISSION—*continued.*

## CARRUM WATERWORKS TRUST.—BALANCE-SHEET.

STATEMENT OF RECEIPTS AND DISBURSEMENTS FOR THE YEAR ENDED 31ST DECEMBER, 1917.

*Revenue Account.*

RECEIPTS.			DISBURSEMENTS.			
	£	s. d.	£	s. d.	£	s. d.
Bank Balance from 1916	76	10 8			Interest on Loan .. .. .	643 17 3
Cash in hand from 1916	27	16 9			Redemption of Loan .. .. .	163 17 9
			104	7 5	Maintenance and Repairs .. .. .	1,039 8 11
Flood Protection Fund .. .. .			750	0 0	Boggy Creek Channel .. .. .	164 4 1
Arrears of Rates .. .. .			228	11 5	Rate Collector .. .. .	96 0 0
Current Rate .. .. .			1,365	14 1	Management .. .. .	77 16 7
Interest on Rates .. .. .			23	14 8	Bank Charges .. .. .	0 10 6
Interest on Flood Protection Fund ..			23	7 5	Cash in hand .. .. .	0 3 1
Rates Overpaid .. .. .			0	16 1	Bank Balance, 31/12/17	310 17 5
Miscellaneous .. .. .			0	4 6		
						311 0 6
<b>Total .. .. .</b>			<b>£2,496</b>	<b>15 7</b>	<b>Total .. .. .</b>	<b>£2,496 15 7</b>

*Special Works Account.*

RECEIPTS.			DISBURSEMENTS.		
	£	s. d.		£	s. d.
Bank Balance from 1916 .. .. .	139	15 3	Bank Charges .. .. .	0	10 0
			Bank Balance, 31/12/17 .. .. .	139	5 3
<b>Total .. .. .</b>	<b>£139</b>	<b>15 3</b>	<b>Total .. .. .</b>	<b>£139</b>	<b>15 3</b>

*Statement of Assets and Liabilities.*

LIABILITIES.			ASSETS.		
	£	s. d.		£	s. d.
Treasurer of Victoria—Loan ..	15,973	4 7	Works at Cost .. .. .	25,732	9 6
Overpaid Rates .. .. .	5	3 10	Less Amount Written Off	7,732	0 0
Balance—General Account..	2,961	19 4			18,000 9 6
			Arrears of Rates .. .. .		378 17 9
			Flood Protection Fund—		
			Government Stock ..	1,000	0 0
			Less Repayment to		
			Revenue, 1917	750	0 0
					250 0 0
			Cash in hand .. .. .	0	3 1
			Bank Balance, 31/12/17	310	17 5
					311 0 6
<b>Total .. .. .</b>	<b>£18,940</b>	<b>7 9</b>	<b>Total .. .. .</b>	<b>£18,940</b>	<b>7 9</b>
Special Works—	£	s. d.	Special Works—	£	s. d.
Balance of Works to be carried out	848	2 0	Amount of Special Rate	8,144	15 6
			Less Amount Received	8,111	3 3
					33 12 3
			Balance in Trust Fund, Treasury ..	675	4 6
			Bank Balance, 31/12/17 .. .. .	139	5 3
<b>Total .. .. .</b>	<b>£848</b>	<b>2 0</b>	<b>Total .. .. .</b>	<b>£848</b>	<b>2 0</b>

*Statement of Rates.*

	£	s. d.		£	s. d.
Current Rate .. .. .	1,604	19 0	Current Rate Collected .. .. .	1,365	14 1
Arrears of Rates from 1916 ..	368	9 7	Arrears of Rates Collected .. .. .	228	11 5
			Rates abandoned .. .. .	0	5 4
			Arrears carried forward to 1918 ..	378	17 9
<b>Total .. .. .</b>	<b>£1,973</b>	<b>8 7</b>	<b>Total .. .. .</b>	<b>£1,973</b>	<b>8 7</b>

*Special Works Rate.*

	£	s. d.		£	s. d.
Arrears from 1916 .. .. .	33	12 3	Arrears carried forward to 1918 ..	33	12 3



DISTRICTS HELD IN TRUST BY THE COMMISSION—*continued.*

## LODDON UNITED WATERWORKS TRUST.—BALANCE-SHEET.

STATEMENT OF RECEIPTS AND DISBURSEMENTS FOR THE YEAR ENDED 31ST DECEMBER, 1917.

*Revenue Account.*

RECEIPTS.			DISBURSEMENTS.		
	£	s. d.		£	s. d.
Bank Balance from 1916 .. ..	655	9 6	Interest on Loan .. ..	693	6 9
Area Excised—Instalments .. ..	60	13 10	Redemption of Loan .. ..	184	18 7
Arrears of Rates .. ..	196	16 4	Maintenance and Repairs .. ..	252	18 3
Current Rate .. ..	1,710	18 1	Water Distribution .. ..	73	14 2
Interest on Rates .. ..	20	8 2	Management .. ..	133	13 9
Rates Overpaid .. ..	2	9 8	Bank Balance, 31/12/17 .. ..	1,308	4 1
Total .. ..	£2,646	15 7	Total .. ..	£2,646	15 7

*Statement of Assets and Liabilities.*

LIABILITIES.			ASSETS.		
	£	s. d.		£	s. d.
Treasurer of Victoria—Loan .. ..	17,194	10 4	Works at Cost .. ..	19,517	4 9
Overpaid Rates .. ..	25	11 4	Arrears of Rates .. ..	451	1 5
Balance—General Account .. ..	4,087	13 6	Excised Area—Instalments due .. ..	27	17 11
			Sales of Water .. ..	3	7 0
			Bank Balance, 31/12/17 .. ..	1,308	4 1
Total .. ..	£21,307	15 2	Total .. ..	£21,307	15 2

*Statement of Rates.*

	£	s. d.		£	s. d.
Current Rate .. ..	1,962	8 2	Current Rates Collected .. ..	1,710	18 1
Arrears from 1916 .. ..	396	7 8	Arrears of Rate Collected .. ..	196	16 4
			Arrears carried forward to 1918 .. ..	451	1 5
Total .. ..	£2,358	15 10	Total .. ..	£2,358	15 10

## LOAN EXPENDITURE.

STATEMENT OF LOAN EXPENDITURE DURING THE YEAR ENDED 30TH JUNE, 1918.

Work.	Loans Application Act No. 2874.			Loans Application Act No. 2943 and other sources.			Total.		
	£	s.	d.	£	s.	d.	£	s.	d.
<i>Free Headworks.</i>									
1. Kerang North-West Lakes .. .. .	774	12	4	69	6	10	843	19	2
<i>Reservoirs and Storages.</i>									
2. Goulburn Storages—									
Sugarloaf Reservoir .. .. .	31,235	17	6	29,191	8	8	60,427	6	2
Waranga Reservoir Enlargement .. .. .	23,794	10	10	21,884	9	7	45,679	0	5
3. Melton Reservoir .. .. .	401	14	1	116	19	4	548	13	5
4. Upper Coliban Reservoir .. .. .	312	13	5	26	12	7	339	6	0
5. Upper Murray Storage Sites Surveys .. .. .	755	3	2	2,638	9	10	3,363	13	0
6. Wimmera Mallee Storages—									
Fyans Lake .. .. .	1,859	10	10	172	7	0	2,061	17	10
Tavlers Lake .. .. .	4,998	7	8	3,906	17	2	8,905	4	10
Whitton Swamp .. .. .	534	12	9	686	19	7	1,221	12	4
<i>Waterworks Districts.</i>									
7. Birchip, Sea Lake, Tyrroll, and Wycheproof .. .. .	2,474	4	1	2,886	3	4	5,340	7	5
8. Carwarp .. .. .	114	15	4	11	1	5	125	16	9
9. Karkaroo .. .. .	188	9	4	167	0	7	335	9	11
10. Long Lake .. .. .	390	3	5	291	16	6	681	19	11
11. Naval Base and Mornington Peninsula .. .. .	..	..	..	50,251	2	2	50,251	2	2
12. Tyntynder .. .. .	829	1	6	646	7	5	1,475	8	11
13. Walpeup East .. .. .	67	10	8	257	4	3	324	14	11
14. Walpeup West .. .. .	574	1	7	283	11	4	854	12	11
15. Wimmera United .. .. .	575	17	10	1,189	17	0	1,556	14	10
16. Wimmera Main Channels .. .. .	12,759	0	8	10,569	19	0	23,319	19	8
<i>Towns.</i>									
17. Bacchus Marsh .. .. .	2	5	0	192	2	5	194	7	5
18. Coliban .. .. .	42	5	0	128	8	1	171	13	1
19. Dimboola .. .. .	50	0	0	..	..	..	50	0	0
20. Jung Jung .. .. .	33	5	4	307	0	1	340	5	5
21. Ouyen .. .. .	609	1	2	1,922	15	1	2,520	16	3
22. Wonthaggi .. .. .	5	0	8	26	11	1	31	11	9
23. Woomelang .. .. .	34	5	9	..	..	..	34	5	9
<i>Irrigation and Water Supply Districts.</i>									
24. Bacchus Marsh and Werribee .. .. .	3,772	11	7	2,588	13	11	6,361	5	6
25. Boga .. .. .	4,442	3	0	4,084	4	3	8,526	7	3
26. Boort .. .. .	29	3	4	167	10	6	196	13	10
27. Cobuna .. .. .	552	1	9	575	8	1	1,127	9	10
28. Dingee .. .. .	35	10	0	19	6	6	54	15	6
29. Gannawarra .. .. .	400	6	11	103	1	11	503	8	10
30. Kerang .. .. .	..	..	..	63	8	11	63	8	11
31. Koondrook .. .. .	431	11	2	218	4	7	649	15	9
32. Merbein .. .. .	847	18	1	6,428	19	11	7,276	18	0
33. Nyah .. .. .	900	2	10	1,970	5	8	2,870	8	6
34. Rochester .. .. .	950	17	1	255	10	7	1,206	7	8
35. Rodney .. .. .	1,618	10	11	482	11	0	2,101	1	11
36. Shepparton .. .. .	1,722	0	5	1,502	4	10	3,224	5	3
37. Stanhope .. .. .	481	10	7	309	6	6	781	17	1
38. Swan Hill .. .. .	334	5	6	144	4	2	478	9	8
39. Tongala .. .. .	446	3	5	322	19	3	769	2	8
40. Tragowel Plains .. .. .	579	9	10	206	6	3	685	16	1
41. Goulburn Main Channels .. .. .	2,779	18	5	3,475	17	8	6,255	16	1
<i>Miscellaneous.</i>									
42. Avon, Latrobe, and Macallister Rivers .. .. .	16	6	0	..	..	..	16	6	0
43. Goulburn Levees .. .. .	822	7	7	43	19	0	866	6	7
44. Koo-wee-rup and Cardinia Creek .. .. .	5,694	14	2	11,525	11	2	17,220	5	4
45. Murray River—Sarvoys, Narrung .. .. .	35	7	8	6	10	0	41	17	8
<b>Total .. .. .</b>	<b>109,979</b>	<b>10</b>	<b>2</b>	<b>162,300</b>	<b>15</b>	<b>0</b>	<b>272,280</b>	<b>5</b>	<b>2</b>

## STATEMENT OF EXPENDITURE DURING THE YEAR ENDED 30TH JUNE, 1918,

IN CONNEXION WITH

BORING FOR WATER, CONSTRUCTION OF TANKS, AND FORMING ROADS IN THE MALLEE.

This Expenditure was met by the Public Works Department.

	£	s.	d.
1. Boring for Water .. .. .	496	13	10
2. Mallee Tanks (Public Tanks) .. .. .	1,543	5	4
3. Clearing Roads .. .. .	563	3	3
<b>Total .. .. .</b>	<b>£2,603</b>	<b>2</b>	<b>5</b>

## ESTIMATES.

Anticipated requirements to meet Disbursements by the Commission and Estimate of the moneys available from its Revenues to provide the same for the year ending 30th June, 1919, with Estimate of the total amount available from the Revenues of all Authorities to meet interest payable by the State for the year ending 30th June, 1919.

## ESTIMATED DISBURSEMENTS.

## A.

Revenue Producing Works—		
Coliban District .. .. .	£9,900	
Irrigation and Water Supply Districts .. .. .	47,500	
Waterworks Districts .. .. .	23,600	
Drainage and Flood Protection Districts .. .. .	200	
General Expenditure and Salaries (proportion) over £250 to be apportioned to above Districts .. .. .	15,300	
		<b>£96,500</b>

## B.

Non-revenue Producing Works—		
General Services—		
River Gaugings, Diversions from Streams, Surveys, New Projects, Boring for Water, Land Settlement, General Expenditure and Salaries (proportion) over £250 .. .. .	7,200	
Loan Works, Services on Account defrayed from Votes .. .. .	3,550	
Waterworks Trusts Administration .. .. .	1,700	
		<b>£12,450</b>

## C.

Non-revenue Producing Works—		
Free Headworks—		
Broken River .. .. .	£250	
Goulburi-Waranga .. .. .	1,650	
Kow Swamp .. .. .	1,750	
Lake Lonsdale and Lower Wimmera .. .. .	425	
Loddon River .. .. .	200	
North-west Lakes .. .. .	475	
		<b>£4,750</b>
		<b>£113,700</b>

## ESTIMATED RECEIPTS.

Coliban District .. .. .	£36,400	
Irrigation and Water Supply Districts .. .. .	100,000	
Waterworks Districts .. .. .	76,000	
Miscellaneous .. .. .	7,600	
		<b>£220,000</b>
Estimated amount available from Revenue Producing Works to meet interest .. .. .	£123,500	
Less expenditure as per "B" and "C" above on Non-revenue Producing Works .. .. .	17,200	
		<b>£106,300</b>
To which add Estimated Revenues from other Authorities—		
Waterworks Trusts .. .. .	£38,000	
Local Bodies .. .. .	23,000	
		<b>£61,000</b>
Total Estimated amount available from Revenues of all Authorities to meet Interest .. .. .		<b>£167,300</b>

**STATEMENT OF LOAN LIABILITY.**

**STATEMENT of the amount provided by the State to meet Interest on its Loan Expenditure for Works of Water Supply, both State Works of Water Supply and Works vested in Authorities other than the Commission; and of the sums paid from the revenues of the Commission, and from the moneys received from such other Authorities, to provide such Interest for the year ended 30th June, 1918:—**






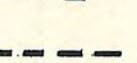


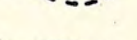
Works.	Loan Liability of State for Works of Water Supply at 30th June, 1918, exclusive of Melbourne Water Supply.					Interest payable by State on Net Advances.	Total Interest of £224,477 debitable to—				Amount received from Revenues of All Authorities to meet interest.
	Total Advances, including Cost of Loan Flotation.	Deduct Redemption Paid.	Net Advances.	(A.) Amounts Written Off. (B.) Free Head-works. (C.) Uncompleted Works. (D.) Loans Unexpended.	Balance at Debit of Authorities.		£	£	£	£	
Waterworks Districts .. .. .	2,472,669	34,034	2,438,635	(A.) 169,927	2,268,708	88,298	(A.) 6,151	82,147	£118,889		
Irrigation and Water Supply Districts .. .. .	1,781,005	17,394	1,763,611	(A.) 575,152	1,188,459	63,858	(A.) 20,821	43,037	(after deducting £17,568 for non-revenue producing works, including other State works).		
Goulburn Channel Works (Free Headworks excluded) Pykes Creek, Melton, and Distributary Works	606,368	65	606,303	..	606,303	21,955	..	21,955			
Sugarloaf Reservoir .. .. .	220,698	..	220,698	(C.) 220,698	..	5,510	..	5,510			
Waranga Reservoir Enlargement .. .. .	129,570	..	129,570	(C.) 129,570	..	7,991	(C.) 7,991	..			
Naval Base and Mornington Peninsula .. .. .	64,351	..	64,351	(C.) 64,351	..	4,691	(C.) 4,691	..			
Koo-wee-rup and Cardinia Flood Protection Schemes	21,153	..	21,153	(C.) 21,153	..	2,330	(C.) 2,330	..			
Waterworks Trusts (including First Mildura) .. .. .	1,494,289	131,176	1,363,113	(A.) 321,665	1,041,448	49,357	(A.) 11,644	37,713	£61,957		
Local Bodies (Municipalities) .. .. .	750,617	94,530	656,087	(A.) 163,760	492,327	23,756	(A.) 5,928	17,828			
Irrigation Trusts Abolished .. .. .	32,754	30	32,724	(A.) 32,724	..	1,185	(A.) 1,185	..			
Free Headworks .. .. .	1,238,149	420	1,237,729	(B.) 1,237,729	..	44,817	(B.) 44,817	..			
Free Grants to Local Authorities .. .. .	147,046	..	147,046	(B.) 147,046	..	5,324	(B.) 5,324	..			
Surveys, Exploratory, and Preliminary Works, including Purchase of Land reserved for Reservoirs .. .. .	125,131	..	125,131	..	125,131	4,531	..	4,531			
Loan Moneys unexpended.. .. .	2,997	..	2,997	(D.) 2,997	..	108	(D.) 108	..			
<b>Totals</b> .. .. .	<b>9,238,953</b>	<b>277,649</b>	<b>8,961,304</b>	<b>3,086,772</b>	<b>5,874,532</b>	<b>324,477</b>	<b>111,756</b>	<b>212,721</b>	<b>180,846</b>		

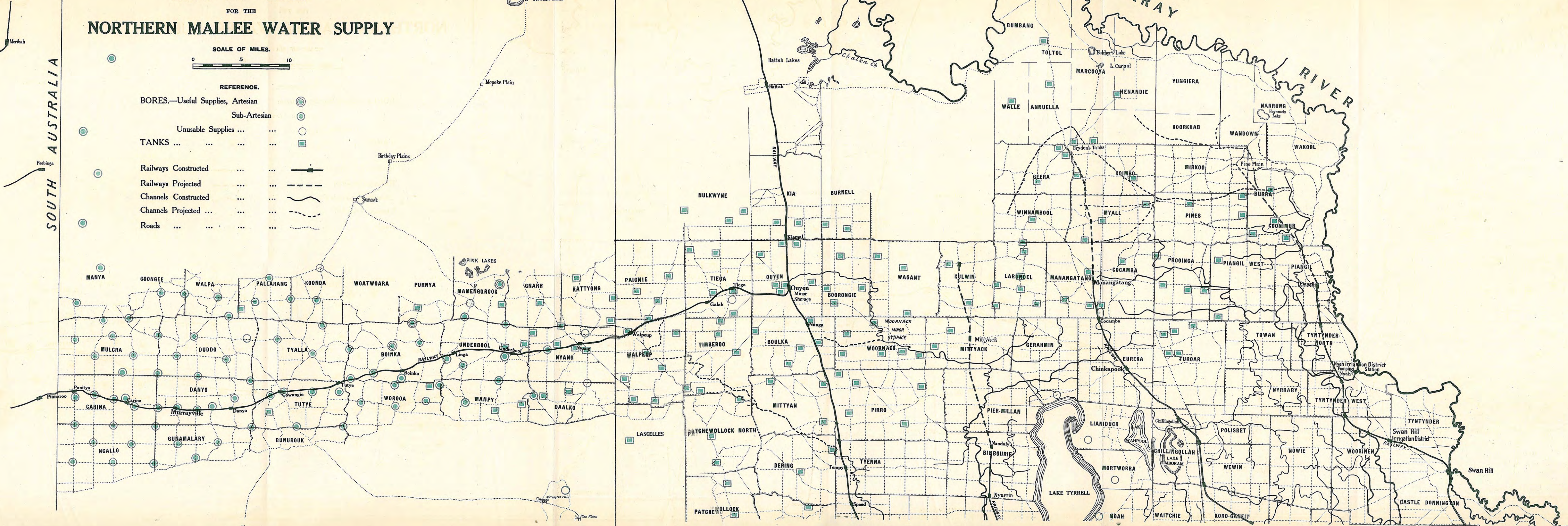
STATE RIVERS AND WATER SUPPLY COMMISSION.

PLAN OF  
BORES AND TANKS  
FOR THE  
NORTHERN MALLEE WATER SUPPLY

SCALE OF MILES.  
0 5 10

REFERENCE.

- BORES.—Useful Supplies, Artesian 
- Sub-Artesian 
- Unusable Supplies ... 
- TANKS ... 
- Railways Constructed ... 
- Railways Projected ... 
- Channels Constructed ... 
- Channels Projected ... 
- Roads ... 



SOUTH AUSTRALIA

Dated at the Office of the State Rivers and Water Supply Commission, Treasury  
Gardens, Melbourne, the 26th day of October, 1918.

WM. CATTANACH, Chairman.

J. S. DETHRIDGE, Commissioner.

E. SHAW, Commissioner.

M. NALLY, Secretary.