

1919.

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VICTORIA.

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STATE RIVERS AND WATER SUPPLY COMMISSION.

---

FOURTEENTH  
ANNUAL REPORT.

---

1918-19.

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

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By Authority:

ALBERT J. MULLETT, GOVERNMENT PRINTER, MELBOURNE.

No. 20.—[Is. 6d.]—15588.



# THE GREAT WAR.

## ROLL OF HONOUR.

The Commission and Staff share in the general feelings of relief and thankfulness on the victorious termination of the Great War, and most cordially welcome home those of the Staff who served in the Australian Imperial Force which in the great crisis rendered such signal service to the Empire.

Seventy-one members of the Commission's Staff volunteered and were accepted for Active Service. They were granted leave of absence by the Commission, and meanwhile their interests were safeguarded in every possible way.

Of these, Lieutenant R. A. Hunt was awarded the Distinguished Service Order; Captain G. Maxfield, District Secretary, Wonthaggi, Captain J. G. Burnell, Chief Mechanical Engineer of the Commission, Captain L. G. Merkel, and Lieutenant F. Rogerson were awarded the Military Cross: and Lieutenant D. T. Curdie and Lieutenant J. Fleming (then Sergeants) the Distinguished Conduct Medal; R. G. Greig, L. T. Keep, A. F. J. Harrison, A. R. McConchie, and C. Gallop the Military Medal: whilst, in addition, Captain Burnell was awarded the Belgium Croix de Guerre, and Lieutenant J. Fleming the Military Medal.

As a mark of appreciation, a Roll of Honour was designed and provided by the Commissioners and the Staff. This was formally established in July, 1915, at the Head Office, Melbourne. The following names 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.	E. F. HALFORD.
G. CAMERON.	G. MILLER.
L. J. SCOTT.	S. BROMFIELD.
L. T. KEEP.	E. WILLIAMSON.
G. FOGARTY.	N. F. GODKIN.
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 deepest regret it has to be recorded that the undermentioned were 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, 1918-19.

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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 1918-19, and Estimates for the ensuing year.

### DEATH OF FIRST CHAIRMAN OF THE COMMISSION.

With regret it has to be recorded that Mr. Stuart Murray, M.Inst. C.E., the first Chairman of the Commission, and previously for many years Chief Engineer of the Victorian Water Supply Department, died on 12th April, 1919. Mr. Murray retired from the service of the State about twelve years ago.

## 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, 1919. 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; Gowangarde 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 Tutchevop, and to the Little Murray River, with water storage works at these lakes .. .. .	11,082
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 .. .. .	187,334
5. <b>Lake Lonsdale Reservoir</b> :—Reservoir at Lake Lonsdale, on the Little Wimmera River, near Ledecourt .. .. .	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 homestead; Jeparit Weir, on the Wimmera, near Jeparit township .. .. .	8,558
Total .. .. .	<b>1,202,767</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 1651.	Redemption Paid to Treasury.	Capital Debit at 30th June, 1919.
	£	£	£	£
1. Birchip .. .. .	245,573	700	2,219	242,654
2. Sea Lake .. .. .				
3. Tyrrell .. .. .				
4. Wycheproof .. .. .				
5. Carwarp .. .. .	10,230	..	..	10,230
6. Coliban .. .. .	1,256,920	..	..	1,256,920
7. Karkaroc .. .. .	95,721	..	2,493	93,228
8. Kerang North-west Lakes (Free Headworks excluded)	2,000	..	..	2,000
9. Long Lake (Free Headworks excluded) .. .. .	52,339	..	571	51,768
10. Naval Base and Mornington Peninsula .. .. .	116,875	..	..	116,875
11. Ouyen .. .. .	7,530	..	..	7,530
12. Tyntynder .. .. .	54,327	..	..	54,327
13. Walpeup East .. .. .	3,480	..	..	3,480
14. Walpeup West .. .. .	7,517	..	..	7,517
15. Werribee .. .. .	10,055	..	..	10,055
16. Western Wimmera .. .. .	250,593	132,835	14,573	103,185
17. Wimmera United .. .. .	192,658	36,392	11,064	145,202
18. Wonthaggi .. .. .	63,042	..	1,244	58,798
19. Yelta .. .. .	3,691	..	..	3,691
Wimmera Main Channels	168,818	..	..	168,818
Wimmera Storages—				
Fyans Lake .. .. .	38,097	..	..	38,097
Taylors Lake .. .. .	52,122	..	..	52,122
Lake Whitton .. .. .	9,443	..	..	9,443
	<b>2,641,031</b>	<b>169,927</b>	<b>35,164</b>	<b>2,435,940</b>
Carried forward .. .. .				<b>3,638,707</b>

WORKS UNDER CONTROL OF COMMISSION—*continued.*Capital Debt  
at 30th June,  
1919.  
Exclusive  
of Cost of Loan  
Flotation.

Brought forward .. .. .

£  
3,638,707

## 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, 1919.
	£	£	£	£
1. Bacchus Marsh .. .. .	61,559	8,906	493	52,160
2. Boort .. .. .	55,249	35,259	1,091	18,896
3. Campaspe .. .. .	63,361	52,685	305	10,371
4. Cohuna .. .. .	132,500	49,197	521	82,782
5. Deakin .. .. .	93,568	31,748	2,141	56,676
6. Dingee .. .. .	12,921	..	..	12,924
7. Dry Lake .. .. .	1,704	686	299	719
8. Gannawarra .. .. .	83,200	33,179	180	49,811
9. Kerang .. .. .	83,384	35,338	2,122	45,924
10. Koondrook .. .. .	112,218	30,872	1,475	79,871
11. Merbein .. .. .	94,745	..	..	94,745
12. Nyah .. .. .	31,717	..	..	31,717
13. Rochester .. .. .	120,168	..	..	120,168
14. Rodney .. .. .	370,751	119,919	8,798	212,004
15. Shepparton .. .. .	61,728	..	62	61,666
16. Stanhope .. .. .	24,661	..	..	24,661
17. Swan Hill .. .. .	56,684	19,799	342	36,543
18. Tongala .. .. .	62,784	..	..	62,784
19. Tragowel Plains .. .. .	188,168	124,534	444	63,190
20. Werribee .. .. .	39,896	..	..	39,896
Totals .. .. .	1,750,969	575,152	18,279	1,157,538

1,157,538

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, 1919.	Tentative Debts to Districts, 1918-19.
	£	£
Goulburn Main Channels (Free Headworks excluded)—		
1. East Goulburn .. .. .	132,751	Rodney .. .. . 120,000
2. Waranga Reservoir to Campaspe ..	250,494	Tragowel Plains .. .. . 100,000
3. Campaspe to Serpentine .. .. .	194,588	Rochester .. .. . 71,000
4. Main Distributary Channels .. .. .	5,389	Tongala .. .. . 58,000
		Shepparton .. .. . 57,000
		Deakin .. .. . 24,000
		Dingee .. .. . 15,000
		Stanhope .. .. . 15,000
	582,825	463,000
Goulburn Storages—		
5. Sugarloaf Reservoir .. .. .	304,342	
6. Waranga Reservoir Enlargement	181,256	
	485,598	
Pykes Creek and Werribee Schemes—		
7. Ballan Tunnel .. .. .	15,818	{ Werribee .. .. . 8,000
8. Pykes Creek Reservoir .. .. .	63,503	{ Bacchus Marsh .. .. . 71,321
9. Melton Reservoir .. .. .	77,209	Werribee .. .. . 36,000
	156,530	

582,825

485,598

156,530

Carried forward .. .. .

6,021,198

WORKS UNDER CONTROL OF COMMISSION— <i>continued.</i>				Capital Debt at 30th June, 1919. Exclusive of Cost of Loan Flotation.
Brought forward .. .. .				£ 6,021,198
<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, 1919.
	£	£	£	£
1. Avoca Water Trust—				
Rural District .. .. .	8,709	2,494	1,529	4,686
Urban District (Quambatook) ..	3,786	..	279	3,507
2. Carrum Waterworks Trust ..	26,463	7,732	2,286	16,445
3. Loddon United Waterworks Trust	25,384	1,717	3,708	19,959
	64,342	11,943	7,802	44,597
<b>Grand Total .. .. .</b>				<b>£ 6,021,198</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, 20,883 square miles, equal to about 13,365,000 acres.

The area under irrigated culture, for all kinds of crop, was 282,159 acres, being an increase of 107,363 acres over the area irrigated in the previous year. The area irrigated last year includes some 17,800 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 as shown in the following statement :—

Controlling Authorities.	Number of Towns Supplied.	Estimated Population Served.
Commission .. .. .	42	72,000
Waterworks Trusts .. .. .	100	151,300
Local Governing Bodies .. .. .	18	73,500
Totals .. .. .	160	296,800

## 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 1918-19.

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 .. .. .	567	5,416	339	718	5,618	98	57	12,813
Rodney .. .. .	3,315	16,593	1,268	12,348	7,664	1,271	302	42,761
Deakin .. .. .	739	842	243	960	40	308	92	3,224
Stanhope .. .. .	124	1,405	94	41	212	15	13	1,904
Tongala .. .. .	774	4,770	303	1,117	1,479	422	61	8,926
Rochester .. .. .	2,086	11,879	1,008	3,534	1,419	940	88	20,954
Dingee .. .. .	36	981	8	437	3	49	..	1,514
Tragowel Plains .. .. .	5,954	559	5,272	19,294	39	28	..	31,146
Totals .. .. .	13,595	42,445	8,535	38,449	16,474	3,131	613	123,242
<i>Supplied from Kow Swamp State Works.</i>								
Kerang .. .. .	6,118	614	2,458	8,998	31	..	11	18,230
Dry Lake .. .. .	30	..	54	300	6	..	..	390
Lands supplied direct (outside Districts) .. .. .	1,607	1,890	465	1,002	7	..	..	4,971
Totals .. .. .	7,755	2,504	2,977	10,300	44	..	11	23,591
<i>Supplied from Loddon State Works.</i>								
Boort .. .. .	2,507	184	1,365	7,839	8	..	..	11,903
Tragowel Plains .. .. .	4,859	218	30	1,963	..	..	..	7,070
Totals .. .. .	7,366	402	1,395	9,802	8	..	..	18,973
<i>Supplied from other State Works.</i>								
Bacchus Marsh .. .. .	..	1,965	95	332	55	51	..	2,498
Campaspo .. .. .	95	234	12	254	11	..	..	606
Cohuna .. .. .	1,930	5,653	1,252	4,551	143	116	92	13,737
Gannawarra .. .. .	3,304	1,396	2,250	10,055	18	121	230	17,374
Koondrook .. .. .	3,499	1,256	876	10,257	728	23	16	16,655
Merbein .. .. .	..	189	..	..	5,592	..	226	6,007
Nyah .. .. .	..	115	..	..	1,525	..	..	1,640
Swan Hill .. .. .	2,719	3,585	660	1,795	465	930	63	10,217
Werribee .. .. .	70	3,015	4	190	99	159	40	3,577
Western Wimmera .. .. .	9	7	18	16	1,111	..	4	1,165
Totals .. .. .	11,626	17,415	5,167	27,450	9,747	1,400	671	73,476
<i>Supplied from other sources.</i>								
Kerang North-West Lakes .. .. .	1,946	636	260	2,144	20	..	63	5,069
First Mildura .. .. .	..	360	289	..	8,652	893	2,052	12,246
Coliban .. .. .	191	313	367	357	3,300	151	149	4,828
Kerang—Outside Districts (Private Diversions) .. .. .	2,286	56	93	484	15	..	..	2,934
Other Private Diversions throughout the State .. .. .	Details not available.						17,800	17,800
<b>Grand Totals, 1918-19 .. .. .</b>	<b>44,765</b>	<b>64,131</b>	<b>19,083</b>	<b>88,986</b>	<b>38,260</b>	<b>5,575</b>	<b>21,359</b>	<b>282,159</b>
Grand Totals, 1917-18 .. .. .	3,243	50,869	10,589	54,985	32,785	2,323	20,002	174,796

## COMPARATIVE STATEMENT OF THE EXTENT OF IRRIGATION, 1914-15 TO 1918-19.

	Area under Irrigation (Acres).				
	1914-15.	1915-16.	1916-17.	1917-18	1918-19.
Goulburn State Works .. .. .	185,185	134,011	119,139	75,614	123,242
Kow Swamp State Works .. .. .	11,179	21,857	20,303	11,063	23,591
Loddon State Works .. .. .	4,298	17,051	15,205	5,682	18,973
Other State Works .. .. .	81,632	72,307	65,845	48,159	73,476
Kerang North-West Lakes .. .. .	10,547	5,916	3,269	759	5,069
First Mildura Trust Works .. .. .	12,063	12,064	12,246	12,246	12,246
Coliban State Works .. .. .	2,425	3,676	3,862	4,097	4,828
Private Works in Kerang District .. .. .	2,016	4,125	836	176	2,934
Other Private Works throughout the State .. .. .	15,000	17,000	17,000	17,000	17,800
Totals .. .. .	324,345	288,007	257,705	174,796	282,159



## 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 rates were, for the first time, made in the newly-constituted Waterworks Districts of Werribee and Yelta, and the Urban Districts of Ouyen and Mitiamo; while in the new Irrigation and Water Supply District of Stanhope a rate and compulsory irrigation charge were also for the first time 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. As heretofore in the Urban portion of the Coliban system, a minimum and a progressive rate have been made, and the Carrum Waterworks Trust District has, as in past years, been arranged in five rating divisions in accordance with the relative benefits derived by such lands from the works.

Under the powers conferred by Section 5 of the *Water Act* 1916, a minimum rate on the basis of £8 per 640 acres was fixed by the Commission on the first division lands of the Birchip, Karkaroc, Long Lake, Sea Lake, Tyntynder, Tyrrell, Western Wimmera, Wimmera United, and Wycheproof Waterworks Districts; while in the Walpeup West Waterworks District the minimum was fixed at £2 per 640 acres.

In fifteen 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, 1919.	Period of Rate.	Estimated Number of Persons dwelling in District.
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## IRRIGATION AND WATER SUPPLY DISTRICTS.

	Valuation by Commission. £	s. d.		Period of Rate.	Estimated Number of Persons dwelling in District.
		s.	d.		
1. BACCHUS MARSH .. .. .	11,347	..	.. 1 0	1st July, 1918, to 30th June, 1919	690
2. BOORT .. .. .	15,483	1st Division ..	2 0	" " "	750
		2nd Division ..	1 0	" " "	
3. CAMPASPE .. .. .	9,921	1st Division ..	1 8	" " "	485
		2nd Division ..	0 10	" " "	
		3rd Division ..	0 5	" " "	
4. COHUNA .. .. .	16,734	1st Division ..	2 0	" " "	979
		2nd Division ..	1 0	" " "	
5. DEAKIN .. .. .	65,070	1st Division ..	1 6	" " "	2,500
		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 .. .. .	11,204	1st Division ..	2 0	1st July, 1918, to 30th June, 1919	502
		2nd Division ..	1 0	" " "	
9. KERANG .. .. .	17,628	1st Division ..	2 6	" " "	753
		2nd Division ..	1 3	" " "	
		3rd Division ..	0 7½	" " "	
10. KOONDROOK .. .. .	11,896	1st Division ..	2 0	" " "	597
		2nd Division ..	1 0	" " "	
11. MERBEIN .. .. .	5,677	..	.. 1 0	" " "	1,550
12. NYAH .. .. .	1,833	..	.. 1 0	" " "	460
13. ROCHESTER .. .. .	13,406	1st Division ..	1 0	" " "	2,780
		2nd Division ..	0 6	" " "	
		3rd Division ..	0 3	" " "	
14. RODNEY .. .. .	146,094	1st Division ..	1 0	" " "	5,500
		2nd Division ..	0 6	" " "	
		3rd Division ..	0 3	" " "	
15. SHEPPARTON .. .. .	16,673	..	.. 1 0	" " "	1,137
16. STANHOPE .. .. .	6,381	..	.. 1 0	" " "	300
17. SWAN HILL .. .. .	8,469	..	.. 2 0	" " "	690
18. TONGALA .. .. .	13,879	..	.. 1 0	" " "	1,450
19. TRAGOWEL PLAINS .. .. .	32,780	1st Division ..	1 0	" " "	1,050
		2nd Division ..	0 6	" " "	
20. WERRIBEE .. .. .	6,234	..	.. 1 0	" " "	427

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, 1919.	Period of Rate.	Estimated Number of Persons dwelling in District.
<b>WATERWORKS DISTRICTS.</b>				
	Valuation by Commission.	<i>s. d.</i>		
21. AXE CREEK .. .. .	1,442	.. 2 0	1st July, 1918, to 30th June, 1919	200
22. BIRCHIP .. .. .	29,978	1st Division .. 2 2 2nd Division .. 1 1 3rd Division .. 0 6½	" " "	2,400
23. CARWARP .. .. .	7,569	1st Division .. 3 6 2nd Division .. 1 9 3rd Division .. 0 10½	" " "	500
24. HARCOURT .. .. .	6,215	.. 1 6	" " "	570
25. KARKAROOC .. .. .	86,370	1st Division .. 1 10 2nd Division .. 0 11 3rd Division .. 0 5½	" " "	3,370
26. KERANG NORTH-WEST LAKES	6,558	.. 0 6	" " "	355
27. LONG LAKE .. .. .	50,223	1st Division .. 2 6 2nd Division .. 1 3 3rd Division .. 0 7½	" " "	1,800
28. SEA LAKE .. .. .	47,708	1st Division .. 2 4 2nd Division .. 1 2 3rd Division .. 0 7	" " "	2,070
29. TYNTYNDER .. .. .	30,396	1st Division .. 3 0 2nd Division .. 1 6 3rd Division .. 0 9	" " "	1,500
30. TYRRELL .. .. .	35,263	1st Division .. 3 0 2nd Division .. 1 6 3rd Division .. 0 9	" " "	2,370
31. WALPEUP EAST .. .. .	29,231	1st Division .. 0 5 2nd Division .. 0 2½	" " "	1,550
32. WALPEUP WEST .. .. .	59,200	1st Division .. 0 6 2nd Division .. 0 3	" " "	3,400
33. WERRIBEE .. .. .	5,721	.. 2 0	" " "	97
34. WESTERN WIMMERA .. .. .	247,477	1st Division .. 1 2 2nd Division .. 0 7 3rd Division .. 0 3½	" " "	10,200
35. WIMMERA UNITED .. .. .	267,816	1st Division .. 1 2 2nd Division .. 0 7 3rd Division .. 0 3½	" " "	8,600
36. WYCHEPROOF .. .. .	48,653	1st Division .. 2 4 2nd Division .. 1 2 3rd Division .. 0 7	" " "	2,120
37. YELTA .. .. .	2,130	.. 3 0	" " "	30
<b>URBAN DIVISIONS AND DISTRICTS</b>				
	Municipal Valuation.	<i>s. d.</i>		
38. BACCHUS MARSH .. .. .	8,014	.. 1 6	1st July, 1918, to 30th June, 1919	1,620
39. BERRIWILLOCK .. .. .	501	.. 4 0	" " "	125
40. BEULAH .. .. .	2,618	.. 2 9	" " "	550
41. BIRCHIP .. .. .	5,210	.. 2 0	" " "	880
42. COHUNA .. .. .	2,795	.. 2 6	" " "	540
43. COROP .. .. .	367	.. 2 0	" " "	90
44. DIMBOOLA .. .. .	6,368	.. 1 9	" " "	1,000
45. HOPETOUN .. .. .	2,367	.. 2 9	" " "	450
46. JEPARIT .. .. .	3,337	.. 2 3	" " "	550
47. JUNG JUNG .. .. .	502	.. 3 0	" " "	130
48. KANEIRA .. .. .	528	.. 4 0	" " "	135
49. KOONDROOK .. .. .	2,330	.. 3 0	" " "	406
50. LAKE BOGA .. .. .	1,502	.. 3 0	" " "	260
51. LASCELLES .. .. .	652	.. 3 6	" " "	120
52. MINYIP .. .. .	3,181	.. 3 0	" " "	600
53. NATIMUK .. .. .	2,488	.. 1 6	" " "	420
54. NYAH .. .. .	252	.. 2 6	" " "	120
55. OUYEN .. .. .	3,831	.. 2 9	" " "	500
56. RAINBOW .. .. .	4,902	.. 2 3	" " "	800
57. RUPANYUP .. .. .	2,128	.. 3 0	" " "	400
58. SEA LAKE .. .. .	2,489	.. 3 0	" " "	530
59. ULTIMA .. .. .	1,923	.. 3 0	" " "	280
60. WATCHEM .. .. .	1,190	.. 3 6	" " "	170
61. WERRIBEE .. .. .	6,566	.. 2 0	" " "	1,732
62. WONTHAGGI .. .. .	19,846	.. 1 9	" " "	7,000
63. WOOMELANG .. .. .	1,730	.. 3 0	" " "	410
64. WYCHEPROOF .. .. .	3,414	.. 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, 1919.	Period of Rate.	Estimated Number of Persons dwelling in District.
<b>COLIBAN SYSTEM.</b>				
65 COLIBAN .. .. .	Municipal Valuation. £ 297,380	<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, 1918, to 30th June, 1919	61,000
<b>WATERWORKS TRUSTS.</b>				
66. AVOCA .. .. .	£ 28,968	<i>s. d.</i> .. .. 0 1½	1st January, 1919, to 31st December, 1919	1,300
67. CARRUM .. .. .	26,568	1st Division .. 4 0 2nd Division .. 2 0 3rd Division .. 1 6 4th Division .. 1 0 5th Division .. 0 4	" " "	1,300
68. MITIAMO (URBAN) ..	658	.. { 2 0 4 0	1st July, 1918, to 31st December, 1918 1st January, 1919, to 31st December, 1919	150
69. QUAMBATOOK (URBAN)	2,206 Valuation by Commission. £	.. .. 3 0	" " "	300
70. 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 ..	6,616	3,284	3,284	20s.	1st October, 1918, to 30th April, 1919
2. COHUNA .. .. .	34,851	22,309	22,393	5s.	1st September, 1918, to 30th April, 1919
3. DINGEE .. .. .	5,318	4,667	2,333	6s.	1st September, 1918, to 30th April, 1919
4. GANNAWARRA ..	43,940	17,023	17,023	5s.	1st September, 1918, to 30th April, 1919
5. KOONDROOK ..	52,777	13,982	13,982	5s.	1st September, 1918, to 30th April, 1919
6. MERBEIN .. .. .	6,227	5,708	14,213	16s. Min. 40s. per acre.	1st August, 1918, to 30th April, 1919
7. NYAH .. .. .	2,867	2,273	5,648	14s. Min. 35s. per acre.	1st August, 1918, to 30th April, 1919
8. ROCHESTER .. ..	128,856	32,088	32,088	5s.	1st September, 1918, to 30th April, 1919
9. RODNEY .. .. .	265,813	182,089	48,353	5s.	1st September, 1918, to 30th April, 1919
10. SHEPPARTON ..	18,856	16,967	16,967	5s.	1st September, 1918, to 30th April, 1919
11. STANHOPE .. ..	10,624	8,726	2,172	5s.	1st September, 1918, to 30th April, 1919
12. SWAN HILL .. ..	17,587	12,724	12,724	5s.	1st September, 1918, to 30th April, 1919
13. TONGALA .. .. .	25,464	17,838	17,838	5s.	1st September, 1918, to 30th April, 1919
14. TRAGOWEL PLAINS	180,597	123,078	24,608	6s.	1st September, 1918, to 30th April, 1919
15. WERRIBEE .. ..	7,951	5,311	5,311	10s.	1st October, 1918, to 30th April, 1919

## CONTRACTS.

STATEMENT OF CONTRACTS ENTERED INTO DURING THE YEAR ENDED  
30TH JUNE, 1919.

No.	Name of Contractor.	Work or Supply.	Amount (Loan and Vote).		
			£	s.	d.
1637	Australian Wood Pipe Co. Ltd.	Pipe Main, Beaconsfield Cranbourne .. ..	850	0	0
1638	Chas. Ruwolt Pty. Ltd.	Steam-driven Land Bucket Dredge, Koo-wee-rup ..	5,400	0	0
1639	A. J. Lawson .. ..	Firewood, Merbein .. ..	428	8	0
1640	C. Andriske .. ..	Firewood, Merbein .. ..	950	0	0
1641	G. R. Lacey .. ..	Firewood, Nyah .. ..	150	0	0
1642	P. Mannix, sen. .. ..	Firewood, Nyah .. ..	302	8	0
1643	E. Hobson .. ..	Firewood, Nyah .. ..	150	18	0
1644	P. Mannix, jun. .. ..	Firewood, Nyah .. ..	302	18	8
1645	A. J. Monro .. ..	Firewood, Coluna .. ..	235	8	4
1646	Wm. Monro .. ..	Firewood, Coluna .. ..	112	10	0
1647	Jas. L. Monro .. ..	Firewood, Coluna .. ..	182	5	10
1648	Thomas Church .. ..	Firewood, Coluna .. ..	118	2	6
1649	Ernest Hipwell .. ..	Firewood, Coluna .. ..	135	8	4
1650	Thos. Bubb .. ..	Firewood, Coluna .. ..	363	19	9
1651	C. C. McInnes .. ..	Firewood, Coluna .. ..	141	13	4
1652	Determined.				
1653	F. Russell .. ..	Firewood, Merbein .. ..	722	16	6
1654	C. J. Petty .. ..	Firewood, Merbein .. ..	277	4	0
1655	H. E. Ward .. ..	Firewood, Merbein .. ..	685	18	6
1656	Australian Portland Cement Co. ..	24,000 casks Cement .. ..	14,550	0	0
1657	Philip H. Starr .. ..	Enlargement Waranga Reservoir Embankment ..	8,172	0	8
1658	Hume Bros. Cement Iron Co. Ltd. ..	Pipe Main, Naval Base Pipe Line .. ..	377	19	9
1659	Hume Bros. Cement Iron Co. Ltd. ..	Pipe Main, Naval Base Pipe Line .. ..	1,470	0	0
1660	Concrete Constructions Pty. Ltd. ..	Pipe Main, Langwarrin-Hastings .. ..	1,736	0	0
1661	John Mannix .. ..	Firewood, Kerang .. ..	401	2	0
1662	Hume Bros. Cement Iron Co. Ltd. ..	Rising Main, Lake Boga Town Supply .. ..	462	19	0
1663	Hume Bros. Cement Iron Co. Ltd. ..	Rising Main, Jung Town Supply .. ..	356	0	0
1664	Commonwealth Portland Cement Co. ..	10,000 casks Cement .. ..	6,300	0	0
1665	G. P. Conlon .. ..	Boring for Water, Goongee, Duddo, and Tutyo ..	967	10	0
1666	S. Crawford .. ..	Mordialloc-Dandenong Channel Improvements..	609	6	0
1667	Concrete Constructions Pty. Ltd. ..	Reinforced Cement Pipes, Naval Base Pipe line ..	2,171	0	9
1668	Australian Portland Cement Co. ..	6,000 casks Cement .. ..	3,637	10	0
1669	Concrete Constructions Pty. Ltd. ..	Cement Pipes, Frankston and Mornington .. ..	2,090	13	0
		Total .. ..	54,812	0	11

## 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 .. ..	£35,238
Waranga Reservoir Enlargement .. ..	36,177
Wimmera-Mallee System .. ..	35,494
Naval Base and Mornington Peninsula .. ..	22,143
Koo-wee-rup and Cardinia .. ..	20,956
Goulburn Main and Distributary Channels .. ..	9,506
Bacchus Marsh and Werribeo .. ..	2,216
Morbein, Nyah, and Swan Hill .. ..	12,658
River Murray Storages .. ..	7,516
Other Works .. ..	13,836
Total .. ..	£195,740

## WORKS CARRIED ON OR COMPLETED DURING THE YEAR ENDED 30TH JUNE, 1919.

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### COLIBAN DISTRICT.

The increasing of the capacity of the main Bendigo branch channel has been proceeded with. The contour channel and short concrete syphon, in substitution for the double line of cast-iron pipes forming the syphon at Sutton Grange, have been completed. Other enlargement work has been carried out and can be utilized when the summer supply begins. In order to facilitate dealing with the larger volumes that will then be available, some of the principal distributary channels in the Bendigo district are being enlarged. On the Fryers race a syphon on a shortened line has been substituted for the timber flume and double line of 18-in. cast-iron pipes at the Railway crossing near the Elphinstone tunnel. The new syphon consists of a single line of 24 in. concrete pipes and the 27 in. cast-iron pipes obtained from the syphon thrown out of use at Sutton Grange.

The work of removing vegetation and silt from the Bendigo reservoirs, with a view of improving the quality of the water, has been completed, and has been attended with very satisfactory results.

### IRRIGATION AND WATER SUPPLY DISTRICTS.

#### RODNEY DISTRICT.

A heavy demand for water was experienced during the season, some 42,000 acres being under irrigated culture. The supply of stored water was sufficient to meet all demands, but at times the distributary channels were severely taxed. With a view to keeping pace with the increasing demand for water definite proposals for enlarging some of the channels from the headworks to central parts of the district have been prepared. These works of improvement will be carried out as conditions permit. Several large holdings have been subdivided and many discharged soldiers have been settled in the district under the Repatriation Scheme.

#### SHEPPARTON DISTRICT.

The drainage scheme to check the flooding experienced during the two preceding seasons of excessive rainfall was pushed on vigorously throughout the year, and is now practically complete. It will be of great benefit in the event of recurrence of such wet seasons. For the irrigation of Estate No. 4, known as "Gaze's," which is being settled by returned soldiers, irrigation channels are in course of construction, and will be completed in time for the 1919-20 season. Cement lining of channels in places where seepage was troublesome and general maintenance works have received attention. The settlers continue to make good progress, their efforts being much aided by the cannery established last year.

#### SWAN HILL DISTRICT.

The Boga to Swan Hill main channel was made full use of, and enabled water to be supplied by gravitation throughout the greater portion of the season, only one short pumping being necessary. Apart from works for completion of this channel two outlets were provided in No. 1 Estate for the discharge of surplus water to the river: 50 chains of concrete lining were done to the channels of No. 2 Estate, and some structures and a drainage channel were formed on No. 3 Estate.

The question of comprehensive drainage which arose during the recent years of abnormal rainfall has received further attention, and a tentative scheme for No. 1 Estate is under consideration.

The progress of the district is satisfactory, all allotments have been either taken up or applied for. It is proposed to make further subdivisional extensions to meet the requirements of soldier applicants.

### DISTRICTS ADMINISTERED FROM KERANG CENTRE.

Flood conditions existed in many parts of the district until September. Whilst not nearly so severe as in 1916 and 1917, they entailed much labour in watching and repairing banks and structures.

The floods of the last three years had caused scours in the Gunbower channel, both at its offtake from the River Murray at Torrumbarry and near Gunbower township. Until the latter part of 1918, water was never low enough to permit of repairs. Since then, however, these have been put in hand, and, where not possible to complete, the scours were protected for the coming season. A 4 ft. diameter barrel culvert of reinforced concrete, with regulating works, was provided under the levee on the south side of the Gunbower channel at about one mile and a quarter from the River Murray. This culvert will take into the channel drainage and flood waters from the old bed of Gunbower Creek, which is blocked by the channel embankment at this point.

Repairs were effected to the flooring of the flume on the Macorna channel over the Nine Mile Creek, which had settled in places owing to the failure of some of the walings.

In Kerang District about three miles of the Kerang East Distributary No. 2A were remodelled, the waterway being considerably enlarged. This will be of great benefit to the area supplied.

In Koondrook District, beyond construction of a few small structures, work has been mainly confined to ordinary maintenance and repairs. Maintenance has been heavy owing largely to the prolific growth of water weeds, rushes, and reeds during the past wet seasons.

In the Kerang North-West Lakes District, repairs were effected to portions of the channel banks and levees damaged by flood waters. The regulator at the outlet from Third Lake, which had been badly damaged during the floods, was rebuilt and much of the timber renewed. Progress was made, in the latter part of the year, with the levees along the west side of Racecourse Lake, and thence to the south end of Kangaroo Lake. The decking of the bridge at the Little Murray frontage over the Tutchewop escape channel was raised to above recent flood levels. Arrangements have been made to build a new stop in the channel between Kangaroo Lake and Lake Tutchewop, at the joint cost of the Commission and those directly benefited.

#### DISTRICTS ADMINISTERED FROM COHUNA CENTRE.

In Cohuna District the activities of the Commission were devoted chiefly to the extension of drainage works. Good progress was made in this direction, some 12 miles of new main drain being opened up, necessitating the construction of twenty-four subways under roads and channels. The results of the drainage works already completed are highly satisfactory, and justify their further extension. A levee 35 chains long was constructed to exclude the flood waters of Gunbower Creek. The marked progress of the district generally is reflected in the advancement of the town itself, where a considerable extension of the town water supply has had to be made.

In Gamawarra District a feature of the year has been the large increase in cultivation and watered crops. The construction of several new structures and the eradication of reeds from the channels have tended to considerably improve the water supply, and further improvements are expected from the remodelling of several channels yet to be taken in hand.

#### DISTRICTS ADMINISTERED FROM LODDON CENTRE.

In Tragowel Plains District the use of water during the year considerably exceeded the quantity allotted as water rights.

The works performed comprised further remodelling of channels, the completion of flood protection works at the No. 2 offtake, and new subway under channels. For the safeguarding of the Macorna township supply at times when wind power fails, an engine and pump were installed.

In Boort District there was some recurrence of the flooding of the previous year. A subway was provided where the western distributary crosses the main flood course to Lake Yando, portions of one of the main channels were remodelled, and a number of structures were renewed.

In Dingee District some minor extensions and two drainage syphons were constructed.

#### DISTRICTS ADMINISTERED FROM ROCHESTER CENTRE.

In Rochester District the quantity of water used was the greatest yet recorded.

The Ballendella drainage channel has been completed for a distance of 3 miles. The extension of Quinn's channel, a drainage work relieving a number of closer settlement blocks in the north-west of the Cornelia Creek Estate, has been carried out. Pug trenching of channels for the prevention of seepage was performed as required.

Repairs to and repainting of four water bailiffs' houses were effected. Levels and designs for grading were supplied to a number of settlers to aid in planting new or regrading old areas.

In Campaspe District work has consisted of general maintenance and reinstatement of some of the old road bridges.

#### DISTRICTS ADMINISTERED FROM TONGALA.

In Tongala District work has been confined to remodelling channels in existence prior to the constitution of the district, and replacing wooden structures with concrete ones. Additional structures have been placed in some channels to facilitate irrigation and regulation of the water.

About 650 acres of adjacent land have been purchased for Closer Settlement; and preparations are being made for its reticulation and inclusion in the district.

A telephone system has been erected to provide communication with the headworks and the adjoining districts, particularly Stanhope, the length of the line being some 40 miles.

In Stanhope District, which was constituted during the year, the distributary channels have been completed. Settlement of the irrigable land is proceeding at a satisfactory rate, and successful sales of township lots at the new towns of Stanhope and Girgarre have been held, every lot offered being sold. Works for reticulation of the balance of the Stanhope Estate, to be shortly included in the irrigation district, are in progress.

In Deakin District no new channels have been constructed, but concrete bridges have been erected to replace some worn out wooden ones. Repairs have been effected to the Warrigal Creek outfall and a drop apron added to the structure.

A measuring weir has been constructed at the head of the Waranga-Wyuna channel to facilitate measurement to the several districts supplied.

#### BACCHUS MARSH AND WERRIBEE DISTRICTS.

At Bacchus Marsh further extensions of distributary channels were made, and the concrete lining of these and the main supply channel are being attended to. Additions were made to the township reticulation service with a view to the improvement of supply.

The heavy rains experienced during the early part of 1919 caused some damage to the outlet at Pykes Creek tunnel and the Bacchus Marsh main supply channel; the necessary repairs in connexion with these are being effected. Full reservoirs at Pykes Creek and Melton give the assurance of an ample supply of water for the coming season.

In Werribee Irrigation District unallotted blocks have been resubdivided, and these, together with about 1,200 acres of land formerly held under lease in the south-west portion of the irrigable area, have been cut up into suitable blocks and set apart for returned soldiers. These blocks are being taken up readily, and the construction of supply channels is in progress. In a few cases throughout the estate subsoil water troubles have appeared, and drainage works are now being carried out to deal with them.

Preparations are being made for subdivision and reticulation for settlement by returned soldiers of the area of 200 acres of specially valuable land, adjoining the north-west boundary of the district, recently donated by Mr. George Chirnside, of Werribee, for that purpose.

In the Werribee Waterworks District channels have been extended and improved so as to give settlers, in addition to a domestic supply, an irrigation supply of from 1 to 3 acres, the concession being included in the general rate now levied on their respective blocks.

#### MERBEIN DISTRICT.

The district has been extended during the year by the addition of 800 acres of Crown lands lying south of Birdwood. The new area has been subdivided into 56 separate holdings and allotted to returned soldiers, who are now in occupation and making great progress. The distributary works are well advanced, and everything should be in readiness to provide for the planting of the new land during the coming season. To provide for the increased water supply requirements, arrangements have been made for the instalment of additional pumping plant, which will increase the present capacity by about 50 per cent.

In the older portions of the settlement steady progress has been made with concrete lining the portions of the channels where there is evidence of excessive seepage ; the length of completed work is now over 30 miles.

A scheme of domestic supply for the township, which is rapidly growing, has been prepared, and commencement is about to be made with the pipe reticulation.

#### NYAH DISTRICT.

Channel lining with cement concrete has been continued throughout the year, an additional 3 miles being carried out, which makes the total length of lined channel  $5\frac{1}{2}$  miles. About 3 miles have also been remodelled ready for lining. Improvements have been effected to the drainage works, and surveys for further drainage works made.

To the south-east of the original settlement extensions of the district are being made which will increase its area by about 500 acres. These new lands will be subdivided into holdings of about 15 acres, and made available for settlement by returned soldiers.

#### MAFFRA DISTRICT IRRIGATION SCHEME.

The low coastal lands of East Gippsland, where the river flats are extensive and of excellent quality, with good natural drainage, and where the rainfall is light, but the adjacent river catchments are large and effective, offer an especially good field for irrigation enterprise. This is particularly so in the case of the flats, many thousands of acres in extent, lying along the lower reaches of the Avon, Macallister, and Thomson Rivers. As these rivers approach the coast, they run closely together, and, consequently, in the vicinity of Maffra, their flats are practically continuous, and naturally lend themselves to combined systematic treatment. The existing conditions in these flat areas are substantially those which prevailed at Bacchus Marsh and Werribee before irrigation. The lands are of about equal quality, and the annual rainfall is very similar. The average rainfall at Maffra in the last twenty-five years has been some 21 inches per annum, while the average rainfall at Bacchus Marsh and Werribee has been about 20 inches per annum. During thirteen out of the last forty years the rainfall at Maffra has been substantially below 20 inches, and in some years has dropped to less than 16 inches.

These facts were made very evident when, in response to strong local requests, the question as to the best means of irrigating the Boisdale Estate and the other rich alluvial flats along the Avon River was thoroughly investigated. It was clearly recognised also that while an irrigation scheme would here under almost any circumstances be successful, undoubtedly the best prospect of securing the large area planted with sugar beet necessary for the successful operation of the factory at Maffra, was by the regular systematic development under irrigation of the whole of the rich alluvial flats along the Avon, Macallister, and Thomson Rivers, which in the vicinity of Maffra, aggregate some 30,000 acres. The whole of this area can be readily irrigated and could be devoted very successfully to the growth of all kinds of irrigated produce, while it is probable that a sufficiently large proportion of the total acreage would be planted with beet in rotation with other crops.

Full investigation also established the fact that the Macallister River would be the best source of supply for the large volume of water required for such purpose. The catchment of the Macallister River is more than double that of the Avon, and the greater portion of it lies within the snow-affected uplands. Moreover, its configuration and inaccessibility produce conditions naturally retarding the run-off from winter and spring rains. Consequently, not only is heavy flooding checked, but the natural flow of the river is well maintained right up till the end of the year. This is evident from the gaugings which have been taken. A regular flow during the early months of an ordinary irrigation period, such as the Macallister provides, lessens materially the storage volumes which would be required for any scheme of moderate size. For instance, out of the 100,000 acre feet which it is estimated would be required to irrigate 30,000 acres of the scheme, the gaugings show that approximately one-half could be drawn directly from the ordinary river flow, so that a storage of only 50,000 acre feet need be provided. This is a point of great importance, and of course materially reduces the cost of supply. A most excellent site for the necessary storage exists just below Bradleys Creek junction with the main river. This site is a few miles below Glenmaggie, and is right at the head of the area to be irrigated, so that transit losses are reduced to a minimum.



A scheme was, therefore, prepared and submitted to the land-holders interested. The advantages offered by it were so manifest that it was immediately approved by the land-holders, who unanimously agreed to bear the usual annual chargings, and asked the Commission to put the work in hand as soon as possible. It was also agreed that the first portion of the whole area to be dealt with be the Avon flats, including Boisdale Estate and the Newry and Maffra flats along the north side of the Macallister River. These total some 22,000 acres.

Briefly, the works will consist of a concrete masonry dam across the Macallister River just below Bradleys Creek junction. This will impound at least 50,000 acre-feet of water. The stored volume will provide supply for the Avon and Newry flats above indicated, as well as later for the greater portion of the flats between the Macallister and Thomson Rivers. From the storage a main supply channel about 12 miles long, skirting along the northern margin of the Newry-Maffra flats, will connect with the channel reticulation of the Avon flats. A minor point, but one of considerable importance, is that as the northern main supply channel will run close to Maffra, and at an elevation of some 80 feet above the main street, the town could be supplied by gravitation with an abundance of water of better quality than at present. Such a supply alone would aid greatly in the advancement of the town and its surroundings.

The cost of the scheme is estimated at £200,000, and as previously stated, the land-owners have agreed to pay all annual charges, including, of course, that for interest and redemption.

#### PLAN OF MAFFRA IRRIGATION SCHEME.

In view of the great importance of the Maffra District Irrigation Scheme, not only to the locality to be directly benefited, but to the whole State, it has been thought advisable to insert in this Report a small plan showing the main outlines of the scheme, together with the areas to be served for irrigation.

### WATERWORKS DISTRICTS.

#### CARWARP DISTRICT.

As previously stated, it was found necessary to supplement the pump power supplying this district, which comprises some 200,000 acres, situate on the River Murray, south-east of Mildura. Pending further subdivision of agricultural lands in the district, and the possible re-arrangement of the boundaries of the district, the additions to the pumps are of a somewhat temporary nature, but they are sufficient to now supply the existing area commanded by channels.

During the year channels have been enlarged, and arrangements made for two further extensions of some 12 miles. The total channel mileage when these are completed will reach 100 miles. Two additional storages are being made, one close to the Carwarp Railway Station and the other some 4 miles east.

#### LONG LAKE AND TYNTYNDER DISTRICTS.

The new main supply channel connecting the distributary channel systems of the Long Lake and Tyntynder Districts with the Wimmera-Lonsdale head-works, *via* Donald, Corack, Wycheproof, Goschen, and Nyah, and supplying these areas gravitationally instead of by pumping from the River Murray, as heretofore, was completed early in the year, and full use was made of it for the watering of both districts. The advantages offered by this new system in giving a more abundant and cheaper supply than was possible by the superseded pumping plants at Long Lake and Nyah are most marked, and will be especially felt in connexion with the supply to those large new areas lying to the north, north-west, and west of the Tyntynder District which are now being settled by discharged soldiers. The work of reticulating these areas will be pushed on as rapidly as the available labour will permit, and special efforts will be made in this direction during the coming year. The Long Lake pumping plant will be in the meanwhile retained in its present position, as it may be possible to make use of it in connexion with another supply.

The very considerable alterations in the scheme of supply to Lake Boga township, which were rendered necessary on account of the abandonment of the Long Lake pumping plant for district requirements, were completed during the year, and the new works are giving full satisfaction.

A new oil engine pumping plant was installed at Ultima to act as auxiliary to the existing wind-power plant. This, together with the substantial enlargement and additions to the town reticulation, also now completed should meet the demands of this steadily-increasing centre for some time.

On account of the somewhat unreliable nature of the Avoca River flow, from which the town of Quambatook receives a supply, its storage has recently been connected with the main Wimmera gravitation channel between Wycheproof and Goschen. This important centre is thus now commanded directly from Wimmera head-works, and is receiving a much better supply.

#### WIMMERA-MALLEE WATER SUPPLY.

Although the whole of the Wimmera-Mallee districts dependent on Wimmera head-works received their regular yearly supply during the winter and spring of 1918, still there was a widespread shortage of water on holdings by midsummer. This was attributed by many farmers to absence of those early summer rains which have favoured these districts during the recent succession of wet years, but it is quite certain that the shortage was really due to the very inadequate provision of suitable tanks upon their blocks by a large proportion of holders. In order to minimize the disastrous effect of this neglect upon the part of so many land-owners, it was decided, notwithstanding the serious loss of water that would result, to start the season's watering in February, some three months earlier than usual. Assistance was thus given to some, although probably on the whole the present season's run will not be completed earlier than usual. In granting this concession the Commission made it clear to land-holders that tanks of suitable capacity and dimensions, to hold a full year's supply, must be provided forthwith upon all holdings. The serious nature of the position created by inadequate provision of storages upon blocks is very evident. There exists no valid reason why tanks sufficiently large to hold at least a year's supply should not be provided by all, and land-holders owe an obvious duty to the State to make ample provision for all water requirements necessary for the full and proper working of their holdings. The Commission has issued warnings that the provisions of the Water Acts, which make compulsory the construction of proper tanks by land-owners, will be put into operation forthwith, and it is now preparing a full list of all land-owners who have not provided suitable tank accommodation, with a view of taking legal action against all in default. As stated in last year's Report, a minimum amount of rate was fixed in connexion with all lands in the first rating divisions. This minimum amount, which is equivalent to £8 per square mile of holding, was made operative in the Birchip, Karkaroc, Long Lake, Sea Lake, Tyntynder, Tyrrell, Western Wimmera, Wimmera United, and Wycheproof Waterworks Districts, and was found to give a much more even distribution of rating.

#### WESTERN WIMMERA AND WIMMERA UNITED DISTRICTS.

Owing to the serious difficulties caused during the last few years by war conditions, many projects for channel extension in both these districts have been unavoidably held in abeyance. These are now being brought forward, and will, if practicable, be carried out during the coming year. They include 50 miles of branch channelling, a considerable portion of which will command country immediately along each side of the Yarriambiack Creek, between Warracknabeal and Beulah, and will allow this portion of the creek to be thrown out of use as a conveyor of regulated flows, thus saving a very heavy waste of water. Another very important proposal to be brought forward is that for the supply of the large area of high country between the southern end of Jung ridge and Dooen, which is at present unsupplied. The existing plant, which supplies the Dooen-Kalkee channel systems by pumping from the Wimmera River near Dooen, is now practically worn out, and it is proposed to instal a new plant, pumping at a much higher elevation from the Western Main Channel near Jung, on to the ridge, which will then be commanded by channels running to the north and west. The latter will connect with the Dooen-Kalkee system near the present service basin, and will serve the same as effectively as before, but with about one-third the present lift, thus reducing materially the present very heavy pumping cost. While this cost will be reduced, it is felt, however, that it will of course still be much higher than the cost of the adjoining gravitational supply, and the Commission is therefore considering the necessity of making some additional charge for the special service.

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

During the year the branch channel running from the Tyrrell West Channel, in the parish of Mittyack, to the town of Ouyen, over 37 miles in length, was completed. Water reaching the enlarged Ouyen storages early in the spring. These are now sure of receiving a good and certain supply regularly from Wimmera head-works for the use of this important and steadily developing centre. Although the wind-power service at Ouyen has been giving most satisfactory results, yet the town is growing so rapidly that it was found advisable to instal an auxiliary oil-engine pumping plant to meet all possible requirements. As the stringency created by war conditions is now passing away, an effort will be made during the coming year to proceed as rapidly as possible with a number of works that were held over, such as the reticulation of the area lying to the west, north-west, and north of Lake Tyrrell, in the parishes of Mittyack, Woorneck, Wagant, Kulwin, Larundel, and Winnambool. The greater part of this area embraces country now being newly settled, chiefly by discharged soldiers. In order to expedite this work as much as possible several survey parties have already been put in the field, and many channel lines will soon be available for construction.

## KARKAROOC DISTRICT.

During the year the work of remodelling the lower portion of the Minapree-Gorya channel was completed, and very much improved results were secured during the recent watering. It is proposed to construct early in the coming year some 25 miles of branch channels previously projected, but temporarily withheld owing to adverse conditions. The greater length of these will serve the area along both sides of the Yarriambiack Creek, between Beulah and Hopetoun, thus enabling this end of the creek, which is a great water waster, to be discarded as a conveyor of regulated flows.

## NAVAL BASE AND MORNINGTON PENINSULA WATER SUPPLY SCHEME.

During the year good progress was made with the works of this scheme. The Beaconsfield Reservoir, capacity 200,000,000 gallons, has been completed and filled by means of the cement-lined race from the upper Toomuc Creek catchment. The service basin near Bittern, 1,000,000 gallons capacity, from which the Naval Base will receive its supply, and the pipe line over 30 miles in length, connecting it with the Beaconsfield Reservoir, are completed, and water is now being supplied to the service basin for Naval Base requirements. Steady progress is also being made with the pipe line to Frankston and Mornington, and it is hoped that the main portions of the reticulations along the foreshore from Frankston to Mordialloc, and also that for a large portion of Mornington, will be available for supply before the close of the ensuing summer. During the year, as the result of various conferences with the local authorities, the advisability of supplying Dandenong and its vicinity from the Peninsula scheme was clearly established, and definite arrangements have now been made with the Dandenong Waterworks Trust for the Commission to take control of its area as from 1st January, 1920, and make the necessary connexions with the scheme as early as possible. In view of the inclusion of Dandenong the Commission now proposes to enlarge the proposed main to Berwick and continue the same on to Dandenong. Thence a somewhat smaller main will be carried to the Cheltenham service basin, serving Noble Park and Spring Vale. This cross connexion, while supplying a large settled population at present without a service, will, by coupling up with the foreshore main from Frankston to Cheltenham, substantially reinforce the through flow and will allow of ample supply being given for the large increase of population in the towns along the foreshore from Carrum to Mentone which must naturally be expected in the near future. The early carrying out of this cross main from Berwick to Cheltenham is all the more necessary on account of the Commonwealth Authorities now proposing that the Quarantine Station and Point Nepean be also added to the system by means of a new extension from Somerville to Point Nepean, supplying by the way the bayside towns of Dromana, Rye, Rosebud, Sorrento, and Portsea. As the additional proposal put forward by the Commonwealth Authorities, which is now being reviewed, will enable supply to be given to the towns stated, on practically the same terms as those of Mornington, there is little doubt this new service will be carried out as soon as the works of the original scheme are sufficiently advanced.

### NORTHERN MALLEE WATER SUPPLY.

In what is known as the Northern Mallee, an area of about 1,250,000 acres adjoining the districts supplied by the Wimmera-Mallee System, but above its channel levels, a general increase in the area under cultivation has to be recorded, and, coincident with this, there is an augmented number of stock in the district necessitating additional works of water supply. This supply is mainly by tanks depending on local catchments and by bores. Work on these has been actively prosecuted. The expenditure, including that in the districts of Walpeup East and Walpeup West, which are part of the area referred to, being for the year £7,632. This Northern Mallee is proving attractive to returned soldiers with farming experience, and a considerable increase in the areas under settlement, with a consequent considerable extension of the water supply systems, may be confidently expected.

It was found practicable to supply the township of Ouyen from the Wimmera-Mallee System, and that centre is now being served from that source.

Plans for the reticulation of Murrayville from a bore to be put down within the township are being prepared. The work will be put in hand as soon as practicable.

#### TANKS.

Eleven additional tanks were completed during the year, involving 40,000 cubic yards of excavation, and providing some 70,000 cubic yards of storage capacity, the aggregate storage for the districts now being nearly 800,000 cubic yards, the total number of tanks being 142.

#### BORES.

During the year the "Boundary Dam" bore in the parish of Wooroa was completed, good stock water being struck at 442 feet from the surface. The bore was equipped with windmill, tank on stand, and trough.

A contract for three further bores in the parishes of Tutye, Duddo, and Goongee, was entered into, that in Tutye being completed at 480 feet, good water being struck which rose to within 70 feet of the surface. The total number of successful bores is now 86, all of which are in the Walpeup West District. It is contemplated that further bores will be put down during the coming year.

#### ROADS.

Road clearing operations in the newer subdivisions have been carried on as vigorously as the somewhat restricted supply of labour has permitted. The scooping of sandhills, and in many cases, "metalling" with the local limestone rubble, are also being done. A notable instance of the value of this work was shown by the construction of a road along the railway line from Ouyen to Tempy affording an exit for the Mittyan and Pirro settlers, and at the same time enabling all classes of traffic to get through that almost impassable area known as the "Desert," which formerly restricted communication between the Ouyen District and the older Mallee. Surveys have been made for an extension of this road northwards through the Hattah sandhills: its completion will give Mildura and the Carwarp settlers a through road to Ouyen and Melbourne as well as to the Wimmera and Western Districts. This important work, as well as the provision of tanks and bores, is being undertaken by the Commission out of funds provided by the Public Works Department.

#### WATER SUPPLY, MALLEE SOLDIER SETTLEMENTS.

Four survey parties have been engaged in locating levels of channel to supply water to the parishes of Pines, Mirkoo, Wando, Myall, Winnambool, Larundel and Kulwin, in which there is considerable Soldier Settlement. Contracts will shortly be let for the construction of channels, which should be ready for use in 1920. Temporary arrangements are, in the meantime, being made for the supply of all soldier settlers in the parishes of Myall and Winnambool.

As the demand by soldiers for Mallee blocks is increasing, an examination of the large area of excellent agricultural land lying west of the Mildura railway line and extending to the South Australian border, is now being made by two survey parties, so as to enable a scheme to be, if at all practicable, prepared for a water supply with a view to settlement by soldiers of the area in question.

## DRAINAGE AND FLOOD PROTECTION SCHEMES.

## KOO-WEE-RUP AND CARDINIA.

Steady progress has been made during the year with these schemes, especially in the Koo-wee-rup area.

The land dredger, previously worked by the Public Works Department at Lang Lang, has been working effectively throughout the year, cutting the Western Boundary and Northern Main Catch drains along the Main drain.

It is expected that by January next, the Northern Main Catch drain will have been cut through to Cora Lynn, to tap the 10-mile (Ararat Creek) drain. This Catch drain will then be in a position to receive and discharge direct to the sea all the waters from the principal minor drains on the north-west side of the old Main drain. These formerly had no outlets at all until the flood waters of the Main drain (or Bunyip River) had subsided, and the new work should, therefore, relieve the situation most effectively. The dredger banks of the Western Boundary drain and the Northern Main Catch drain will also serve the important purpose of effectually preventing the discharge of flood waters from the old Main drain, which hitherto topped its banks periodically. Simultaneously with the raising of the dredger bank on the west side of the Main drain, important works are being carried out on the south-eastern side by means of horse teams, which are excavating a catch drain and raising the first stage of the cut-off bank to confine the whole of the flood waters of the Bunyip River to the Main drain.

Although seriously delayed by industrial troubles, the new dredger, contracted for last year, is now almost completed, and will be very shortly in operation. This plant will take on the work of cutting the continuation of the Western Boundary drain and the Northern Boundary drain, the greater portions of which should be completed during the coming year.

On the eastern or Yallock side of the Koo-wee-rup district, the new works are already giving substantial relief. In addition to the completion of the Yallock Creek straight cut, works for the enlargement of the No. 4 Yallock, No. 6 Yallock, Scanlan's, Little Yannathan, Southern Boundary and the lower end of the No. 7 Yallock drains, have been carried out; and, whilst the shortage of suitable labour, coupled with unusually wet weather conditions, has seriously interfered with the completion of all these works, it is expected that during next year the Commission will be in a position to complete the whole of the proposed protection works in the Yallock area.

In the Cardinia area, extremely wet conditions, together with shortage of suitable labour, have likewise had a marked effect on the progress of the works. In order to make the best use of the labour which has been available, operations during the year have been confined to carrying out the scheme of internal drainage in the Cardinia area. This has now been substantially advanced, and it is hoped that this portion of the scheme will be completed early in the coming year, when the work of constructing the Main Contour drain, which is the chief protective work for the district, will be put in hand as rapidly as possible.

It is estimated that over 100,000 acres will be protected from floods by the schemes in hand, which are being pushed on vigorously.

## GOULBURN LEVEES.

At a conference of the interested landowners with the Honorable the Minister for Water Supply and the Commission, held at Nathalia in April last, a scheme to provide complete protection against floods of moderate volume and partial protection from great floods was discussed, and is still receiving consideration locally. There is every appearance of the present winter passing without any flooding from the Goulburn.

## RIVER EROSION AND GENERAL.

The year having been one of moderate river flows, complaints as to erosion have not been serious. In several cases of minor erosion, permissions in accordance with Section 12 of the *Water Act 1915* have been given to the interested landowners to construct necessary works at their own expense.

The conference of officers representing New South Wales and Victoria on the question of new levees in the Murray Valley, and the extension of existing ones, is still making investigations, further surveys, particularly in the Wakool area, being necessary to determine the extent of lands which may be protected.

At the request of the Lands Department a preliminary examination was made of Ewing's Marsh, South-east Gippsland, with a view of ascertaining if some flood protection scheme was feasible, and as a result it has been arranged to make a complete survey. Reports are also being prepared on proposals to protect from flooding valuable areas on the Snowy River, as well as some smaller areas on the Ovens and other rivers.

#### 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 to the end of 1918 have been printed.

An arrangement has been made with the Electricity Commissioners by which gaugings and surveys on the upper reaches of streams in connexion with hydro-electric investigations will be made by their officers.

To enable the requirements of the River Murray Waters Act to be complied with the principal gauging officers of New South Wales, Victoria and South Australia are preparing a joint report on the measures necessary to ensure uniformity in the methods of all gaugings in connexion with the River Murray.

#### 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; 260 new permits have been issued during the year in addition to renewals of a large number of those granted in former years.

The authorized diversions now in force as compared with last year are:—

			1917-18.		1918-19.
Yearly permits	..	..	1,125	..	1,214
Flood permits	..	..	2	..	2
Licences	..	..	21	..	22
			1,148		1,238
Total	..	..	1,148	..	1,238

#### 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 enlarging Waranga Reservoir, now in course of construction. The irrigation districts supplied are Shepparton, Rodney, Deakin, Tongala, Stanhope, Rochester, Dingee, and Tragowel Plains.

During the year a new 4 feet diameter reinforced concrete subway was constructed under the main eastern channel; and on the main western channel near Rochester a subway of the same material in the form of 6 tubes 8 feet wide and 4 ft. 6 in. high to springing and semi-circular above same, was commenced for the purpose of taking the channel beneath a depression occasionally flooded from the Campaspe River.



## 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. In the wing wall and the spillway wall a total of 24,700 cubic yards of concrete have now been placed. An ample passage for flood waters is being left between the wing-wall and Sugarloaf Hill. Concrete piers for a temporary bridge over the spillway, across which rock for the embankment will be conveyed from Sugarloaf Hill, are ready to carry decking at a height of 60 feet above the bed of river.

Many cases of resumption of land in the submerged area have been settled; and Notices to Treat have been served in respect of all other lands likely to be submerged in the near future. The number of men now employed is over 300.

## WARANGA RESERVOIR ENLARGEMENT.

The year has been a very favourable one for the carrying on of this work, and as a consequence progress has been very satisfactory. The earthwork of the main embankment is sufficiently far advanced to permit of some 50,000 acre-feet of additional water being stored so soon as the deviation of the Murchison to Rushworth railway line, which the Railway Department expects to finish by the end of October, is complete. Computations on the basis of the most recent survey show that the available capacity of the enlarged storage will be 333,400 acre-feet.

## WIMMERA STORAGES.

The work at Taylors Lake storage has progressed steadily during the year. The embankment has now been beached sufficiently high to allow of the storage being filled to a depth of 21 feet. This is equal to about 17,000 acre-feet, or more than one-half its total capacity of 30,000 acre-feet. The inlet channel from Burnt Creek is completed and in readiness to conduct to the storage available flows from the portion of that catchment tapped by it and also the surplus from Wartook storage. It is now intended to carry out surveys to locate the best route for the outlet channel from the lake so that its construction can be put in hand early in the coming year.

Considerable progress was made during the year with the works of the Fyans Creek Reclamation Scheme, referred to in last Report. The main portion of the work, which should be completed in time to afford protection to the more fertile lands along the creek during next winter, will tend to insure the full flow from Fyans Creek being diverted into Lake Lonsdale Storage, instead of being spread and wasted, a matter of great importance especially in dry years, when it is essential to make full use of storages.

With the completion of the Fyans Lake Reservoir, Taylors Lake Storage, and some useful subsidiary storages, the available storage capacity for the great Wimmera-Mallee System will be nearly double the capacity of some six years ago, while the introduction of a better system of connecting channels allows a much fuller use to be made of any available river flows.

## TOTAL STORAGES IN STATE.

In 1902 the total capacity of storages in the State was 172,000 acre-feet. The present capacity is about 570,000 acre-feet, and when the Sugarloaf, Waranga, and Wimmera Storages are complete it will exceed 1,000,000 acre-feet. The Upper Murray Storage, now actually in course of construction, will also contain fully 1,000,000 acre-feet, half of which can, subject to the provisions of the River Murray Agreement, be credited to the State of Victoria. The following statement sets out the capacities of the various storages in the State:—

## NAMES OF STORAGES.

EXISTING WORKS.								Capacities in Acre-feet.
<i>Goulburn System—</i>								
Goulburn Weir	..	..	..	..	..	..	..	20,700
Waranga	..	..	..	..	..	..	..	201,300
								222,000
<i>Loddon-Murray System—</i>								
Laanecoorie	..	..	..	..	..	..	..	14,000
Kerang North-west Lakes	..	..	..	..	..	..	..	88,500
Kow Swamp	..	..	..	..	..	..	..	40,860
Lake Boga	..	..	..	..	..	..	..	28,000
Long Lake	..	..	..	..	..	..	..	3,820
								175,180
<i>Wimmera Mallee System—</i>								
Lake Lonsdale	..	..	..	..	..	..	..	45,480
Wartook	..	..	..	..	..	..	..	23,800
Fyans Lake	..	..	..	..	..	..	..	17,100
Lower Wimmera Weirs	..	..	..	..	..	..	..	2,870
Batyo Catyo (Avon Regulator)	..	..	..	..	..	..	..	5,000
Lake Whitton	..	..	..	..	..	..	..	1,300
Earthen Storages, Township Reservoirs, and Mallee Tanks	..	..	..	..	..	..	..	2,360
								97,910
<i>Coliban System—</i>								
Upper Coliban	..	..	..	..	..	..	..	22,500
Malmsbury	..	..	..	..	..	..	..	12,300
Subsidiary Reservoirs	..	..	..	..	..	..	..	5,070
								39,870
<i>Werribee System—</i>								
Pykes Creek	..	..	..	..	..	..	..	14,850
Melton	..	..	..	..	..	..	..	17,000
								31,850
<i>Miscellaneous—</i>								
Wonthaggi	..	..	..	..	..	..	..	1,550
Sundry Township Reservoirs	..	..	..	..	..	..	..	740
								2,290
<b>Total capacity of existing works</b>								569,100
<b>WORKS IN COURSE OF CONSTRUCTION.</b>								
<i>Goulburn System—</i>								
Waranga Reservoir (Enlargement)	..	..	..	..	..	..	..	132,100
Sugarloaf Reservoir	..	..	..	..	..	..	..	300,000
								432,100
<i>Wimmera-Mallee System—</i>								
Taylor's Lake Reservoir	..	..	..	..	..	..	..	30,000
<i>Murray System—</i>								
Storage Upper Murray, at Junction with Mitta River, half share	..	..	..	..	..	..	..	500,000
<b>Total capacity of storages, when works in hand are completed</b>								1,531,200

## UTILISATION OF NEW STORAGES.

While it is undoubted that existing districts will require a supply of water for irrigation in addition to the water rights at present allotted, it seems most probable that there will be available from the new storages a considerable quantity for other areas. As the Sugarloaf and enlarged Waranga Reservoirs are nearing completion, the Commission proposes making an examination of areas which could be served with advantage from them, with a view of recommending the extension of works of distribution, if such seem warranted. In the same way it is proposed to make an examination of the lands which could eventually be most advantageously served by means of the large Upper Murray Storage.



## RIVER MURRAY WATERS.

## GENERAL OUTLINE.

The scheme of works provided in the River Murray Waters Acts passed by the Governments of the Commonwealth and of the States of New South Wales, Victoria, and South Australia, comprises storages on the Upper River Murray and at Lake Victoria, locks and weirs in the course of the River Murray from its mouth to Echuca, and also locks and weirs on the lower part of the River Darling or the River Murrumbidgee as may be decided by the Government of New South Wales. The Acts also provide that for purposes of construction the Minister for Public Works of New South Wales shall be the Constructing Authority for that State; that for the State of South Australia the Commissioner of Public Works shall be the Constructing Authority; and that the State Rivers and Water Supply Commission shall be the Constructing Authority for Victoria.

It is further provided in the Acts that all works provided for between the mouth of the River Murray and Wentworth shall be constructed by the Government of South Australia, that works on either the Darling or Murrumbidgee shall be constructed by the Government of New South Wales, and that works in the River Murray above the junction with the Darling shall be constructed by the Governments of New South Wales and Victoria severally or jointly, as may be mutually agreed.

With reference to the last provision, the Governments of New South Wales and Victoria have agreed to jointly construct these works, which of course include the Upper Murray Storage at Mitta Junction. As a matter of mutual convenience, however, it has been arranged that operations at Mitta Junction, on account of their great magnitude, shall be carried on in two sections, one of which will comprise practically all the work in New South Wales, and will be controlled from a local administrative centre in that State, the other section will comprise the portion of the work in Victoria and will be controlled from a conveniently situated Victorian centre.

Also, in the case of the Torrumbarry Weir and Lock, consideration of superior accessibility from Victoria has been the reason for an arrangement by which the State Rivers and Water Supply Commission will act for the Government of New South Wales as well as the Government of Victoria in carrying on construction. Expenditure will of course be shared between the Governments of the three States concerned, and the Commonwealth, as provided by the Acts.

## UPPER MURRAY STORAGE.

As a result of the exhaustive examination of the valley of the River Murray above Albury, it was finally agreed by the Authorities of New South Wales and Victoria that the site on the River Murray almost immediately below the junction of the Mitta Mitta River was the only one on which it would be practicable to construct a dam to provide storage of the desired volume of about 1,000,000 acre-feet. This was concurred in by the River Murray Commission, and general designs for the work having received its approval a commencement has been made with the preliminary works of constructing stores for materials, camps for workmen, and ways for communication to existing railroad terminals.

## TORRUMBARRY WEIR AND LOCK.

This structure will be the first downstream from Echuca of the weirs and locks provided in the Acts. Designs and estimates were prepared and submitted to the River Murray Commission. Approval of the proposals having been obtained operations were commenced in February, 1919, and have been vigorously pushed on since. In addition to its use in making the river navigable this work will be of great value in not only improving the supply to all districts in the Kerang area, but also in saving pumping expenses at Cohuna, Koondrook, and Swan Hill.

In other States the works in progress under the River Murray Waters Acts are the Lake Victoria Storage, which is close to the river in the South-West corner of New South Wales, and at Blanchetown, in South Australia, the nearest lock and weir to the mouth of the river, now approaching completion.

## HYDRO-ELECTRIC POWER.

The Commission has conferred and is co-operating with the Commissioners appointed under the *Electricity Commissioners Act 1918* on various matters under this head, and has already arranged that all information as to stream gaugings or other data likely to be of use shall be made available as the Electricity Commissioners may desire. Assistance is also being given in connexion with a proposed diversion of the waters of the Latrobe for use in generating power from the deposits of brown coal, near Morwell.

## SEWERAGE IN COUNTRY DISTRICTS.

The Commission is intrusted with the administration of the *Sewerage Districts Act 1915*, which provides for the constitution of Sewerage Districts throughout the State. The Bendigo City Council applied for the constitution of the greater part of its municipal area as a sewerage district, and this was granted in November, 1916. Progress has been made with the preliminary surveys and the Authority, which is the Council itself, is now seeking the approval of the Commission to proceed with the construction of the first section of the main outfall sewer, estimated to cost some £12,000, and is also asking permission to raise the necessary funds therefor.

An application is also being prepared for the constitution, under the provisions of the Act, of a Sewerage Authority for the sewerage of Ballarat.

## WORKS CONTROLLED BY OTHER AUTHORITIES.

During the year many works were carried out by Waterworks Trusts and other Authorities under the general supervision of the Commission.

A number of necessary replacements of old flumes and pipes were carried out by the First Mildura Irrigation Trust, and tenders for a new pumping unit and boiler at the 90 foot station have been approved.

At Ararat the replacement and duplication of the old 6-in. cast-iron gravitation pipe from Mount Cole to Langi Ghiran was completed by the Council, the delivery of water to the latter reservoir being greatly improved. Works at Olivers Gully and Copes Hill Reservoirs have also been carried out, while a recasting of the whole reticulation of Ararat is now in progress.

The Orbest Waterworks Trust has completed the construction of a concrete arch dam of 50,000,000 gallons storage capacity on Youngs Creek. The leading main, of reinforced concrete pipes, 5½ miles in length, has also been laid and the service basin constructed. The reticulation of the town of Orbest is proceeding.

A new concrete diversion weir has been constructed by the Colac Waterworks Trust on Simmonds Creek, near Barramunga. The Bright Waterworks Trust has completed extensive improvements to mains and reticulation. A bore was sunk and a pumping plant installed by the Lawloit Waterworks Trust at Kaniva. A gravitation supply was given to the Township of Marysville from School Creek. The Warrnambool City Council has installed a new plant at the pumping station on the Merri River.

Pipe extensions and other works were undertaken by the Local Authorities at Alexandra, Bairnsdale, Donald, Hamilton, Healesville, Murtoa, Rochester, Romsey, Stawell, St. Arnaud, Swan Hill, Tatura, and Yarrawonga, while tenders are being called for works at Hepburn and Rosedale.

Proposals were investigated for improving the supplies at Charlton, Healesville, Kilmore, Koroit, Maryborough, Marysville, Murchison, Woodend, Warragul, and Yea.

A Waterworks Trust was constituted during the year to provide a supply to Colbmabb township in Waranga Shire. New Schemes for the supply of Apollo Bay, Bruthen, Casterton, Coleraine, Corryong, Ferntree Gully, Lakes Entrance, and Mystic Park townships are being considered.

# GENERAL.

## LANDS UNDER CLOSER SETTLEMENT IN IRRIGATION DISTRICTS.

The Closer Settlement operations of the Commission during the past year have been confined almost exclusively to the settlement of Discharged Soldiers, 352 of whom were provided with blocks out of a total of 386 applications granted. The remaining 34 holdings, not being deemed quite so suitable for soldier settlement, were allotted in the ordinary way under the Closer Settlement Acts to applicants having previous experience. The total area now settled on the irrigable closer settlement estates subdivided by the Commission is about 97,700 acres.

Of this total area, about 14,400 acres have been devoted to fruit culture, 25,600 acres are under lucerne, and 14,900 acres under other crops.

The Commission has up to the present time placed on irrigable farms 486 discharged soldiers, 166 of whom chose blocks on the Murray frontage Settlements at Merbein and Nyah, 84 on the Stanhope Estate in the Goulburn Valley, 40 at Werribee, 143 on various other subdivided estates, and 53 on separate properties specially purchased. Of the above total, 76 soldiers availed themselves of the provisions of Section 20 of the *Closer Settlement Act 1915*, which enabled them to acquire, by agreement with the owners, irrigable farms selected by themselves, such agreements--after careful inspection and valuation of the properties by competent valuers--being ratified by the Governor in Council on the recommendation of the Commission. The 76 holdings so purchased comprise some 6,300 acres, bringing the total area settled under irrigation Closer Settlement conditions to about 104,000 acres.

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 fourteen times as many families as were living on them prior to their subdivision for closer settlement. The statement shows also particulars of settlement effected under Section 20 of the *Closer Settlement Act 1915* :—

Closer settlement Estates.	Area of Lands purchased by the State in Acres.	Properties Subdivided.						
		Area in Acres.	Number.	Number of Families thereon when Purchased.	Subdivided into—		Number of Closer Settlement Blocks now occupied.	Present Increase in Number of Families.
					Number of Closer Settlement Blocks.	Average Area in Acres.		
Shepparton .. .. .	9,600	9,600	22	21	280	32	269	248
Tatura .. .. .	100	100	1	..	4	24	..	..
Stanhope .. .. .	20,900	15,800	5	10	276	53	132	122
Kyabram .. .. .	3,000	1,000	1	3	28	33	26	23
Tongala .. .. .	15,800	15,800	32	31	247	61	212	181
Cornelia Creek .. .. .	2,500	2,500	Pt. 1	..	13	190	13	13
Koyuga .. .. .	1,200	1,200						
Nannecella .. .. .	8,600	8,600	16	6	109	76	91	85
Echnea .. .. .	3,200	3,200	6	4	26	122	24	20
Bamawm .. .. .	13,400	13,400	28	21	171	73	158	137
Dingee .. .. .	500	500	3	1	16	28	12	11
Cohuna .. .. .	11,500	11,500	27	8	128	86	99	91
Koondrook .. .. .	3,400	3,400	5	4	35	90	30	26
Swan Hill .. .. .	7,400	7,400	20	10	142	126	136	126
Werribee .. .. .	8,000	8,000	1	9	170	43	141	132
	112,100	105,000	168	128	1,704	58	1,393	1,265
<i>Murray Frontage Settlements.</i>								
Nyah .. .. .	3,300	3,300	1	5	188	17	182	177
Merbein .. .. .	7,700	7,700	Crown lands	..	331	23	334	334
	123,100	116,000	169	133	2,226	50	1,909	1,776
Properties acquired under Section 20, <i>Closer Settlement Act 1915</i> .. .. .	6,300	..	..	..	..	..	76	..

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

The lands made available during the year were for Discharged Soldiers only. The area aggregated over 16,500 acres, which provided 332 allotments.

The total area in the subdivided estates is 116,000 acres, which, after making the necessary deductions for roads, channels and township reserves, has been made available in 2,226 blocks, of a total area of 110,500 acres, an average of 50 acres per block. Of this, as previously stated, 97,700 acres have been settled.

The development of the Stanhope Estates having created a demand for township blocks, the Commission had surveys made in accordance with approved designs, for townships at the Stanhope and Girgarre Railway Stations. Forty-six allotments in these townships were submitted at auction, and all were sold at prices varying from £20 to £83.

There are now still available, in these estates, 317 allotments of areas varying from 2 to 145 acres, containing in all 12,800 acres. In addition to this area, the Commission has in reserve some 5,000 acres at Stanhope and 2,100 acres at Kyabram, purchased under the Closer Settlement Acts, and has purchased, specially for repatriation purposes, 1,460 acres at Swan Hill, and 320 acres at Shepparton, and is also making available the generous gift of Mr. George Chirnside of Werribee of about 200 acres of specially valuable land in that district for the same purpose.

These lands are being surveyed and made ready for settlement as required. The Commission is also arranging with the concurrence of the Closer Settlement Board to subdivide into small areas some 700 acres of the Werribee "Dry" Estate, which it is considered can be more successfully worked by existing settlers in conjunction with their irrigable holdings than as dry farms.

#### PROGRESS OF CLOSER SETTLED IRRIGATION DISTRICTS.

Notwithstanding the somewhat restricted supply of labour, and other difficulties arising from the war, there has been in the various irrigated closer settlements a gratifying degree of progress.

At Shepparton, the co-operative cannery has continued to prove a boon to the settlement, and the expectations entertained at the inception of the movement have been fully realized. The quality of its canned fruits has proved the undoubted advantage of locating the processing factory in the vicinity of the orchards, while its great value to the settlers is shown in the fact that last season they were able to have treated in the factory no less than 1,000 tons of fruit. The prosperity of this settlement is further indicated by the additional fact that the settlers were last year enabled to improve their financial position with the State to the extent of fully £13,000.

Another co-operative enterprise which received the assistance of the Commission resulted in the establishment of a Pasteurization plant at Werribee, which has already proved of the greatest value to the irrigation settlers and other milk producers of that district.

Considerable improvement is noticeable in the quality of dairy herds generally, and the returns from these, and from pig raising, continue to be highly satisfactory. Although it is undoubted dairy herds are being improved, it is believed that the time has now arrived when settlers should more thoroughly cull their stock, and it is proposed during the coming year to initiate, if practicable, a herd-testing campaign.

The Murray Frontage Settlements are becoming increasingly attractive to new settlers. Both at Nyah and Merbein the allotments advertised as available for settlement were considerably over applied for by qualified soldiers.

The soldiers settled during the past two years on the mid-area and other extensions of Merbein district have made great progress with the planting of the their lands, but, of course, their orchards will not come into bearing for the next year or two. From the main Merbein settlement, however, containing some 6,000 acres, the total value of the season's production reached the splendid total of £173,000.

The settlers in the districts generally are improving their position. This is perhaps more marked in Merbein, Nyah, Shepparton, Cohuna, and Swan Hill, but it is gratifying to find that in the Rochester Centre embracing Bamawm and Nanneela, there is a decided improvement in the returns, while in almost all the districts there has been substantial progress. The Commission obtains reports every quarter as to the progress of each soldier settler, and half-yearly as to other settlers, and from these it is apparent that the advance being made is in every way satisfactory.

## ADMINISTRATION.

### EXTENSIONS AND EXCISIONS.

During the year the Long Lake and Wycheproof Waterworks Districts were extended by the addition of some 18 square miles and 8 square miles respectively, excised from the Waterworks District of the Kerang Shire Waterworks Trust.

The Merbein Waterworks District was also extended, by the inclusion of 570 acres of Crown lands—recently settled by discharged soldiers—at the north-west of the existing district. A minor extension was also made of the Shepparton Irrigation District.

### NEW DISTRICTS CONSTITUTED.

The Stanhope Irrigated Closer Settlement Estate, which formed 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, has been constituted a separate district to be known as the Stanhope Irrigation and Water Supply District.

A domestic and stock supply having been provided in that portion of the Werribee Park Closer Settlement Estate not included in the irrigation district, the area has been constituted the Werribee Waterworks District.

### PROPOSED DISTRICTS.

Works to provide a reticulated supply to the township of Merbein, which is rapidly becoming a populous centre, will be put in hand immediately, and an Urban District will be duly proclaimed.

At the request of the residents concerned, a scheme of works was prepared to prevent flooding of certain low-lying portions of the town of Echuca, and a Flood Protection District will be constituted at an early date in respect to the area in question.

### STAFF TRANSFERS.

Mr. C. H. Kernot, Executive Engineer in Charge of the Sugarloaf Reservoir, was appointed Executive Engineer in Charge of the construction of the Victorian Section of the Upper Murray Storage; and Mr. E. D. Shaw, of the Commission's Staff, was appointed Executive Engineer for the construction of the Weir and Lock on the River Murray, near Torrumbarry. Mr. H. B. Lincoln, who had been assisting at Merbein Centre, was appointed District Engineer, Secretary and Collector of the Shepparton Irrigation and Water Supply District. Mr. C. Kroon was transferred from Tatura to the position of District Secretary and Collector of Tongala Centre, from which the local administration of Tongala, Deakin and Stanhope Irrigation and Water Supply Districts and Corop Urban Division is now being carried out. Mr. W. J. Kempy, in charge at Merbein, has had added to his duties that of Collector of Carwarp Waterworks District. Mr. H. L. Leppien was transferred from the position of Supervising Officer at Waranga Reservoir Enlargement Works to that of Secretary and Collector at Bacchus Marsh, and Mr. L. N. Welch was transferred from Taylors Lake Reservoir Works to fill Mr. Leppien's former position at Waranga.

The Commission records with regret the death (on 19th July, 1919) of Mr. Thomas Murray (C.E., Melbourne University) one of its principal engineers. Prior to his transfer to the Staff of the Commission he had been for twenty-six years an officer of the Victorian Water Supply Department. He was one of the Commission's most able and valued officers, and his death is deplored alike by the Commission and by the numerous Local Authorities with whom his duties brought him in contact.

The late Mr. Murray's duties are now being carried out by Mr. C. M. B. Neylon, who previously acted as Engineer Assistant to Mr. Murray.

### OFFICERS RETURNED FROM WAR.

Since the victorious ending of the war, a number of the many officers of the Commission who were on Active Service abroad have returned; in all cases their positions were retained for them; and already thirty-one have resumed duty. The Commission welcomes the return of these valuable officers, whose interests were safeguarded in every way during their absence, and who are now recommencing their duties under conditions made as favourable as possible.

### NEW LEGISLATION.

A short Act to amend the Water Acts, giving power to the Commission to make the charge per acre on lands in flood protection districts, either a uniform amount as previously provided or in divisional amounts according to the benefits received, was enacted during the year.

It is proposed at the request of the First Mildura Irrigation Trust to introduce a Bill to adjust the Trust's rating powers and generally to simplify the legislative enactments under which that Authority is working. The measure is now being prepared.

### FIRE INSURANCE.

The policy of carrying the fire risks on its own buildings has been continued by the Commission. The Insurance Fund has now increased to £2,355, no losses having occurred since the policy was initiated ten years ago.

## RECEIPTS, DISBURSEMENTS, AND ESTIMATES.

The receipts last year totalled £234,846, which is the highest amount yet collected in any year by the Commission, being no less than £58,000 over the collections of some six years ago. The revenue is fairly evenly divided between Irrigation Districts and Waterworks Districts. There is no doubt the system of Compulsory Irrigation Charges which was introduced some time back has done much to secure a regular and stable income.

The Coliban District shows for the year a revenue increase of £760, while the disbursements have only increased £304, making with a small amount of additional interest the deficit for the year £24,191, as against £24,458 for 1917-18. Any appreciable reduction in this regular annually recurring deficit can only be brought about by a general development of the district, as the rating is specially limited by the Water Acts. There are, however, signs of considerable improvement in revenue from irrigation, for which there is now available an additional supply through the enlargement of the main reservoir.

The receipts in the Irrigation and Water Supply Districts again show an increase, being £2,915 over the previous year, and are the highest yet received from that source. After debiting the Districts with their full proportion of interest at the rate of 4 per cent. on the cost of supply works chargeable, and including all working expenses, the deficit in last year's operations was only £9,637, and even this recurring annual revenue deficit is now likely to be materially reduced owing to the expansion that is taking place in irrigation.

Excluding the Coliban District, the Commission has now the direct control of forty-two Waterworks Districts. Operations again resulted in a surplus, the gain for the year being £2,969, reducing the aggregate revenue deficit to £25,368 as against the deficit £43,488 of a few years ago. As indicated in the previous Report, the Commission last year fixed in a number of districts a minimum amount of rate to be paid in respect of lands in the first rating division, this while returning additional revenue has also resulted in a more even distribution of rating.

The net disbursements from annual votes were £112,368, which, notwithstanding the marked expansion in the work of the Commission and the increase in both wages and cost of materials, is only £1,000 more than last year, and only some £6,000 over the expenditure of six years ago. The expenditure of loan moneys amounted to £397,551, details of which are set out in this Report.

The Estimate for disbursements during the coming year is £134,300, which though £20,600 larger than the previous year's amount, makes provision for the great expansion in the operations of the Commission coupled with the increase in wages and cost of material referred to above. On the other hand, the Estimate of receipts has been increased to £235,000 for the coming year as against last year's Estimate of £220,000.

The loan liability of the State for Works of Water Supply at the close of the year was £9,674,931. Of this total £1,238,196 is for Free Headworks: £1,263,228 was written off many years ago; £147,046 was advanced to some early formed Local Authorities; £26,583 has not been expended; £293,061 has been paid off by Authorities, and £846,191 is represented by uncompleted works which are not yet revenue producing and are set out separately in the Statement of Loan Liability in this Report. The balance, £5,860,626, 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 £348,946. Of this amount £99,493 is not chargeable to any districts, being debitable against Free Headworks, Amounts Written Off, and Unexpended Balances, while £31,459 is interest on present cost of Uncompleted Works which are not yet revenue producing, leaving £217,994 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 (after providing a sum of £17,003 for non-revenue producing works and services not chargeable to any district) was £181,791, as set out in the statement on page 41.

From the same statement it will be seen that while on the "live" capital debitable to the Commission the State is at present charging 4 per centum per annum, the repayments to the State by the Commission have so improved that they now approximate 3.4 per centum. It is of course probable that as the old loans are converted the State may be compelled to pay a higher rate on the capital referred to, and this may, in turn, necessitate an adjustment of charges for water to meet such increased interest rates.

## RECEIPTS AND DISBURSEMENTS.

STATEMENT of Moneys received and disbursed during the year ended 30th June, 1919.

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 ... ..	37,179	11,208	115	11,093	26,086	...
Other State Works—						
Broken River ... ..	7	251	...	251	...	244
Goulburn ... ..	230	1,750	...	1,750	...	1,520
Kow Swamp ... ..	372	1,730	...	1,730	...	1,358
Lake Lonsdale ... ..	7	403	...	403	...	396
Loddon River ... ..	7	246	...	246	...	239
North-West Lakes ... ..	268	857	...	857	...	589
Irrigation Districts ... ..	111,383	49,721	...	49,721	61,662	...
Waterworks Districts ... ..	65,343	26,261	258	26,003	39,340	...
Urban Districts and Divisions ... ..	14,430	4,230	...	4,230	10,200	...
Licences, Diversions, Miscellaneous ... ..	5,620	3,427	...	3,427	2,193	...
	234,846	100,084	373	99,711	139,481	4,346
<i>Not Revenue Producing—</i>						
River Gauging, Surveys and Re- ports, New Projects ... ..	...	3,605	...	3,605	...	3,605
Waterworks Trusts ... ..	...	...	...	...	...	...
Boring for Water, Road } Clearing, Mollee and } Land Settlement } Loan Works ... ..	...	5,366 3,686	...	5,366 3,686	...	5,366 3,686
Cost of Admin- istration	...	...	...	...	...	...
Totals ... ..	234,846	112,741	373	112,368	139,481	17,003
Amount available to meet Redemption and Depreciation ... ..					£2,000	
Amount available to meet Interest as per page 41 of Report ... ..					120,478	

## COLIBAN SYSTEM.

STATEMENT of Moneys received and disbursed during the year ended 30th June, 1919,  
and of Interest charged at the rate of 4 per cent. on Capital Debts.

Districts.	Capital Debit at 30th June, 1919.	Receipts.	Disbursements and Interest Charged.			Excess.	
			Disbursements.	Interest.	Total.	Receipts over Disbursements and Interest.	Disbursements and Interest over Receipts.
	£	£	£	£	£	£	£
Coliban ... ..	1,240,725	35,802	10,491	49,629	60,120	..	24,318
Axc Creek ... ..	1,750	248	107	70	177	71	...
Harcourt ... ..	14,445	1,129	495	578	1,073	56	...
Totals ... ..	1,256,920	37,179	11,093	50,277	61,370	127	24,318



## IRRIGATION AND WATER SUPPLY DISTRICTS.

STATEMENT of Moneys received and disbursed from 1st May, 1906, to 30th June, 1919; 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, 1919. (Free Head-works excluded.)

## RECEIPTS.

District.	1st May, 1906, to 30th June, 1918.	1918-19.				Total.	Grand Total at 30th June, 1919.
		Rates.	Compulsory Irrigation Charge.	Water Sales.	Interest and Miscellaneous.		
	£	£	£	£	£	£	£
1. Bacchus Marsh .. .. .	26,756	620	3,218	281	83	4,202	30,958
2. Boort .. .. .	25,122	1,527	..	660	24	2,211	27,333
3. Campaspe .. .. .	7,531	662	..	61	6	729	8,260
4. Cohuna .. .. .	71,504	1,661	5,293	373	189	7,516	79,020
5. Deakin .. .. .	44,257	4,432	..	529	104	5,065	49,322
6. Dingee .. .. .	4,737	115	1,014	32	45	1,206	5,943
7. Dry Lake .. .. .	376	..	..	..	29	29	405
8. Gannawarra .. .. .	51,165	1,149	4,291	255	96	5,791	56,956
9. Kerang .. .. .	50,998	2,315	..	1,947	25	4,287	55,285
10. Koondrook .. .. .	45,307	1,104	3,324	157	52	4,637	49,944
11. Merbein .. .. .	59,958	258	10,852	41	245	11,396	71,354
12. Nyah .. .. .	16,586	106	3,168	49	159	3,482	20,068
13. Rochester .. .. .	48,946	1,918	8,333	322	551	11,124	60,070
14. Rodney .. .. .	197,439	7,243	12,314	551	351	20,459	217,898
15. Shepparton .. .. .	22,629	991	5,013	136	201	6,344	28,973
16. Stanhope .. .. .	..	215	251	178	4	648	648
17. Swan Hill .. .. .	38,777	917	3,325	342	154	4,738	43,515
18. Tongala .. .. .	20,965	846	3,718	134	147	4,845	25,810
19. Tragowel Plains .. .. .	80,436	1,652	7,432	229	357	9,670	90,106
20. Werribee .. .. .	1,854	364	2,014	556	70	3,004	4,858
	815,343	28,095	73,560	6,833	2,895	111,383	926,726

## DISBURSEMENTS, AND INTEREST DEPRECIATION AND REDEMPTION CHARGED.

District.	DISBURSEMENTS.					INTEREST CHARGED.			(A) DEPRECIATION. (B) REDEMPTION.	Grand Total at 30th June, 1919.	
	1st May, 1906, to 30th June, 1918.	1918-19.				Total at 30th June, 1919.	1st May, 1906, to 30th June, 1918.	1st July, 1918, to 30th June, 1919.			Total at 30th June, 1919.
	£	£	£	£	£	£	£	£	£	£	
1. Bacchus Marsh	6,301	134	688	124	946	7,247	22,866	3,996	26,862	..	31,109
2. Boort ..	14,928	388	676	82	1,146	16,074	9,195	764	9,959	(B) 700	26,733
3. Campaspe ..	4,339	139	219	105	463	4,802	1,767	415	5,182	..	9,984
4. Cohuna ..	52,007	1,128	2,836	217	4,181	56,188	27,978	3,084	31,062	(A) 7,462	94,712
5. Deakin ..	20,248	675	794	203	1,672	21,920	29,424	3,208	32,632	..	54,552
6. Dingee ..	2,590	251	403	69	723	3,313	4,917	1,117	6,034	..	9,347
7. Dry Lake ..	1	..	..	..	..	1	375	29	404	..	405
8. Gannawarra ..	32,477	853	2,215	203	3,271	35,748	18,979	1,994	20,973	(A) 4,582	61,303
9. Kerang ..	26,616	896	866	209	1,971	28,587	21,168	1,849	23,017	(A) 300 (B) 1,800	53,704
10. Koondrook ..	29,365	663	2,095	209	2,967	32,332	26,011	3,045	29,056	(A) 3,751	65,139
11. Merbein ..	38,597	24	7,222	442	7,688	46,285	18,144	3,790	21,934	(A) 7,202	75,421
12. Nyah ..	15,315	368	1,708	225	2,301	17,616	6,901	1,258	8,159	(A) 3,082	28,857
13. Rochester ..	29,558	1,192	2,427	475	4,094	33,652	48,637	7,767	56,404	..	90,056
14. Rodney ..	84,741	1,040	5,343	751	7,134	91,875	120,021	13,280	133,301	..	225,176
15. Shepparton ..	13,573	1,049	844	264	2,157	15,730	22,679	4,747	27,426	..	13,156
16. Stanhope ..	..	181	420	114	715	715	..	1,586	1,586	..	2,301
17. Swan Hill ..	30,405	802	1,010	204	2,016	32,421	11,433	1,462	12,895	(A) 3,968	49,281
18. Tongala ..	15,164	780	719	217	1,716	16,880	29,242	4,831	34,073	..	50,953
19. Tragowel Plains	38,516	1,901	1,832	191	3,924	42,440	47,189	6,528	53,717	..	96,157
20. Werribee ..	766	193	348	95	636	1,402	2,527	2,677	5,204	..	6,606
Totals ..	455,507	12,657	32,665	4,399	19,721	505,228	472,453	67,427	539,880	32,847	1,077,955



## WATERWORKS DISTRICTS.

STATEMENT of Moneys received and disbursed from 1st May, 1906, to 30th June, 1919; 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, 1919. (Free Head-works excluded.)

## RECEIPTS.

District.	1st May, 1906, to 30th June, 1918.	1918-19.				Grand Total at 30th June, 1919.
		Rate.	Water Sales.	Interest and Miscellaneous.	Total.	
	£	£	£	£	£	£
1. Birchip .. .. .	117,900	3,315	62	24	3,401	135,663
2. Sea Lake .. .. .		5,591	157	77	5,825	
3. Tyrrell .. .. .		3,752	25	59	3,836	
4. Wycheproof .. .. .		4,486	94	31	4,611	
5. Carwarp .. .. .	353	277	..	3	280	633
6. Karkaroo .. .. .	45,333	7,631	..	108	7,739	53,072
7. Kerang North-West Lakes .. .. .	812	149	..	1	150	962
8. Long Lake .. .. .	53,817	6,194	46	77	6,317	60,134
9. Tyntynder .. .. .	16,520	3,967	32	117	4,116	20,636
10. Walpeup East .. .. .	1,879	338	..	7	345	2,224
11. Walpeup West .. .. .	3,635	1,061	2	14	1,077	4,712
12. Werribee .. .. .	..	379	1	1	381	381
13. Western Wimmera .. .. .	98,443	10,791	1,068	37	11,896	110,339
14. Wimmera United .. .. .	120,714	14,630	439	79	15,148	135,862
15. Yelta .. .. .	..	218	..	3	221	221
	459,496	62,779	1,926	638	65,343	524,839

## DISBURSEMENTS, AND INTEREST DEPRECIATION AND REDEMPTION CHARGED.

District.	DISBURSEMENTS.						INTEREST CHARGED.				Grand Total at 30th June, 1919.
	1st May, 1906, to 30th June, 1918.	1918-19.				Total at 30th June, 1919.	1st May, 1906, to 30th June, 1918.	1st July, 1918, to 30th June, 1919.	Total at 30th June, 1919.	(A) DEPRECIATION, (B) REDEMPTION.	
		Repairs and Maintenance.	Distribution of Water.	Management.	Total.						
	£	£	£	£	£	£	£	£	£	£	
1. Birchip .. .. .	60,687	2,080	2,626	1,083	5,789	66,476	70,936	10,185	81,121	..	147,597
2. Sea Lake .. .. .											
3. Tyrrell .. .. .											
4. Wycheproof .. .. .											
5. Carwarp .. .. .	956	98	140	82	620	1,576	633	409	1,042	(a) 230	2,848
6. Karkaroo .. .. .	18,696	1,446	679	426	2,551	21,247	29,281	4,918	34,199	..	55,446
7. Kerang North-west Lakes .. .. .	446	20	36	20	76	522	391	80	471	..	993
8. Long Lake .. .. .	38,331	1,421	1,743	529	3,693	42,024	12,835	2,617	15,452	(a) 7,427	64,903
9. Tyntynder .. .. .	12,910	898	1,480	365	2,743	15,653	8,489	2,505	10,994	..	26,647
10. Walpeup East .. .. .	1,519	274	..	60	334	1,853	657	139	796	..	2,649
11. Walpeup West .. .. .	3,675	201	472	90	763	4,438	648	301	949	(a) 900	6,287
12. Werribee .. .. .	..	10	31	18	59	59	..	509	509	..	568
13. Western Wimmera .. .. .	54,959	1,492	3,055	771	5,318	60,277	35,630	4,480	40,110	(a) 2,566 (b) 6,000	108,953
14. Wimmera United .. .. .	57,847	2,042	1,234	681	3,957	61,804	59,731	9,051	68,782	(b) 5,000	135,586
15. Yelta .. .. .	..	..	80	20	100	100	..	148	148	..	248
Totals .. .. .	250,026	9,982	11,876	4,145	26,003	276,029	219,231	35,342	254,573	22,123	552,725

## URBAN DISTRICTS AND DIVISIONS.

STATEMENT of Moneys received and disbursed from 1st May, 1906, to 30th June, 1919; 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, 1919. (Free Head-works excluded.)

## RECEIPTS.

District or Division.	1st May, 1906, to 30th June, 1918.	1918-19.				Grand Total at 30th June, 1919.
		Rate.	Water Sales.	Interest and Miscellaneous.	Total.	
	£	£	£	£	£	£
1. Bacchus Marsh .. .. .	9,510	584	322	4	910	10,420
2. Berriwillook .. .. .	438	98	7	1	106	544
3. Beulah .. .. .	2,606	334	43	9	386	2,992
4. Birchip .. .. .	7,509	555	225	18	798	8,307
5. Cohuna .. .. .	1,828	293	103	1	397	2,225
6. Corop .. .. .	198	30	..	..	30	228
7. Dimboola .. .. .	13,721	618	627	29	1,274	14,995
8. Hopetonn .. .. .	2,723	329	154	13	496	3,219
9. Jeparit .. .. .	3,148	356	111	1	468	3,616
10. Jung Jung .. .. .	73	88	12	1	101	174
11. Kaneira .. .. .	493	102	4	1	107	600
12. Koondrook .. .. .	1,942	324	..	1	325	2,267
13. Lake Boga .. .. .	1,829	241	19	8	268	2,097
14. Lascelles .. .. .	344	98	8	2	108	452
15. Minyip .. .. .	4,291	466	49	2	517	4,808
16. Natimuk .. .. .	4,291	184	236	1	421	4,712
17. Nyah .. .. .	103	33	..	1	34	137
18. Ouyen .. .. .	..	477	1	3	481	481
19. Rainbow .. .. .	6,216	537	163	5	705	6,921
20. Rupanyup .. .. .	3,638	320	58	1	379	4,017
21. Sea Lake .. .. .	3,576	395	35	12	442	4,018
22. Ultima .. .. .	1,441	275	..	9	284	1,725
23. Watehem .. .. .	958	216	8	3	227	1,185
24. Werribee .. .. .	2,514	638	36	4	678	3,192
25. Wonthaggi .. .. .	25,456	1,712	1,639	66	3,417	28,873
26. Woomelang .. .. .	2,996	259	304	3	566	3,562
27. Wycheproof .. .. .	4,216	432	62	11	505	4,721
	106,058	9,994	4,226	210	14,430	120,488

## DISBURSEMENTS, AND INTEREST DEPRECIATION AND REDEMPTION CHARGED.

District or Division.	DISBURSEMENTS.					INTEREST CHARGED.				(A) DEPRECIATION. (B) REDEMPTION.	Grand Total at 30th June, 1919.
	1st May, 1906, to 30th June, 1918.	1918-19.			Total at 30th June, 1919.	1st May, 1906, to 30th June, 1918.	1st July, 1918, to 30th June, 1919.	Total at 30th June, 1919.	£		
		Repairs and Maintenance.	Distribution of Water.	Management.							
	£	£	£	£	£	£	£	£	£	£	£
1. Bacchus Marsh .. .. .	2,934	31	88	88	207	3,141	5,708	943	6,651	(a) 280 (b) 250	10,322
2. Berriwillook .. .. .	234	4	31	15	50	284	281	37	318	(a) 15	617
3. Beulah .. .. .	804	4	59	37	100	904	1,679	219	1,898	(a) 24	2,826
4. Birchip .. .. .	2,754	32	220	73	325	3,079	3,628	442	4,070	(a) 292 (b) 300	7,741
5. Cohuna .. .. .	510	14	49	14	77	587	838	227	1,065	(a) 126 (b) 150	1,928
6. Corop .. .. .	80	..	10	10	20	100	84	19	103	(a) 12	215
7. Dimboola .. .. .	7,700	168	430	120	718	8,418	3,573	471	4,044	(a) 1,340 (b) 830	14,632
8. Hopetoun .. .. .	1,122	8	60	33	101	1,223	1,155	200	1,355	(b) 150	2,728
9. Jeparit .. .. .	565	8	76	47	131	696	2,313	332	2,645	(b) 100	3,441
10. Jung Jung .. .. .	58	50	30	20	100	158	13	36	49	..	207
11. Kaneira .. .. .	222	21	31	15	67	289	305	70	375	(a) 15	679
12. Koondrook .. .. .	949	13	64	33	110	1,059	889	149	1,038	(a) 105	2,202
13. Lake Boga .. .. .	204	4	6	21	31	235	1,270	177	1,447	(a) 60 (b) 150	1,892
14. Lascelles .. .. .	154	6	45	19	70	224	216	42	258	(a) 32	514
15. Minyip .. .. .	1,579	27	38	32	97	1,676	2,687	313	3,000	(a) 287	4,963
16. Natimuk .. .. .	667	3	45	36	84	751	2,746	346	3,092	(b) 750	4,593
17. Nyah .. .. .	40	..	5	5	10	50	20	10	30	(a) 20	100
18. Ouyen .. .. .	..	26	111	36	173	173	..	451	451	..	624
19. Rainbow .. .. .	1,263	5	99	56	160	1,423	3,899	499	4,398	(a) 400 (b) 400	6,621
20. Rupanyup .. .. .	1,316	79	57	31	167	1,483	2,074	198	2,272	(a) 210	3,965
21. Sea Lake .. .. .	2,181	10	219	49	278	2,459	1,240	129	1,369	(a) 279	4,107
22. Ultima .. .. .	349	7	72	20	99	448	855	176	1,031	(a) 60	1,539
23. Watehem .. .. .	236	7	40	19	66	302	709	151	800	(a) 40	1,202
24. Werribee .. .. .	815	11	135	46	192	1,007	1,664	569	2,233	(a) 189	3,429
25. Wonthaggi .. .. .	3,159	75	223	196	494	3,653	18,000	2,372	20,372	(b) 4,200	28,225
26. Woomelang .. .. .	1,043	11	67	48	126	1,169	1,977	403	2,380	(a) 120	3,669
27. Wycheproof .. .. .	2,396	9	129	39	177	2,573	1,937	225	2,162	(a) 254	4,989
Totals .. .. .	33,334	633	2,439	1,158	4,230	37,564	59,760	9,206	68,966	11,440	117,970



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, 1918.

				<i>Revenue Account.</i>								
RECEIPTS.				DISBURSEMENTS.								
	£	s.	d.	£	s.	d.	£	s.	d.			
Bank Balance from 1917	129	4	10				Interest on Loan	..	..	147	11	7
Cash in hand ..	6	6	8				Redemption of Loan--					
				135	11	6	Ordinary ..	..	22	15	9	
Arrears of Rates ..	..	..	..	69	7	11	Special ..	..	150	0	0	
Current Rate ..	..	..	..	338	17	4				172	15	9
Interest on Rates	..	..	..	1	18	6	Pumping Expenses	..	..	51	15	11
Rates Overpaid ..	..	..	..	4	1	3	Maintenance and Repairs	..	..	2	9	6
							Rate Collector ..	..	..	26	0	0
							Management ..	..	..	18	16	8
							Refund Overpaid Rate	..	..	5	7	3
							Bank Charges ..	..	..	1	5	9
							Cash in hand ..	..	7	7	4	
							Bank Balance, 31/12/18	..	116	6	9	
										123	14	1
Total ..	..	..	..	£549	16	6	Total ..	..	..	£549	16	6

*Statement of Assets and Liabilities.*

LIABILITIES.						ASSETS.							
	£	s.	d.	£	s.	d.		£	s.	d.	£	s.	d.
Treasurer of Victoria—							Works at Cost ..	..	..	..	£3,786	4	9
Loan .. .. .	3,786	4	9				Arrears of Rates	..	..	..	49	12	7
Less Redemption paid—							Cash in hand ..	..	7	7	4		
Ordinary 114	3	11					Bank Balance, 31/12/18	..	116	6	9		
Special 150	0	0									123	14	1
				264	3	11							
						3,522	0	10					
Rates Overpaid ..	..	..	..	4	1	3							
Balance—General Account	..	..	..	433	9	4							
Total ..	..	..	..	£3,959	11	5	Total ..	..	..	..	3,959	11	5

*Statement of Rates.*

	£	s.	d.		£	s.	d.					
Current Rate ..	..	..	..	356	3	0	Current Rate Collected ..	..	..	338	17	4
Arrears from 1917	..	..	..	131	7	5	Arrears of Rates Collected	..	..	69	7	11
							Rates Abandoned ..	..	..	29	12	7
							Arrears carried forward to 1919	..	..	49	12	7
Total ..	..	..	..	£487	10	5	Total ..	..	..	£487	10	5



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, 1918.

<i>Revenue Account.</i>													
RECEIPTS.				DISBURSEMENTS.									
				£	s.	d.							
Bank Balance from 1917 .. ..				1,308	4	1	Interest on Loan .. .. .				684	13	7
Area Excised—Instalments .. ..				116	7	1	Redemption of Loan—						
Arrears of Rates .. .. .				175	12	8	Ordinary .. .. .			193	11	9	
Current Rate .. .. .				1,787	12	2	Special .. .. .			1,060	13	10	
Interest on Rates .. .. .				17	5	4				1,254	5	7	
Overpaid Rates and Instalments .. ..				16	16	8	Maintenance and Repairs .. ..				402	16	5
Miscellaneous .. .. .				0	15	0	Water Distribution .. .. .				251	0	0
							Management .. .. .				74	13	3
							Refund Overpaid Rate .. .. .				1	2	8
							Bank Balance, 31/12/18 .. .. .				754	1	6
Total .. .. .				£3,422	13	0	Total .. .. .				£3,422	13	0

*Statement of Assets and Liabilities.*

LIABILITIES.						ASSETS.							
£		s.		d.		£		s.		d.			
Treasurer of						Works at Cost .. .. .				19,517	4	9	
Victoria—						Arrears of Rates .. .. .				528	3	3	
Loan .. .. .				19,517	4	9	Bank Balance, 31/12/18 .. .. .			754	1	6	
Less Redemption—													
Ordinary .. .. .				2,516	6	2							
Special .. .. .				1,060	13	10							
				3,577	0	0							
Overpaid Rates and Instalments .. ..													
Balance—General Account .. .. .													
Total .. .. .				£20,799	9	6	Total .. .. .				£20,799	9	6

*Statement of Rates.*

£				s.				d.					
Current Rate .. .. .				2,040	6	8	Current Rate Collected .. .. .				1,787	12	2
Arrears from 1917 .. .. .				151	1	5	Arrears of Rates Collected .. .. .				175	12	8
							Arrears carried forward to 1919 .. .. .				528	3	3
Total .. .. .				£2,491	8	1	Total .. .. .				£2,491	8	1

## LOAN EXPENDITURE.

STATEMENT OF LOAN EXPENDITURE DURING THE YEAR ENDED 30TH JUNE, 1919.

Work.	Loans Application Act No. 2936.			Loans Application Act No. 2973 and other Sources.			Total.		
	£	s.	d.	£	s.	d.	£	s.	d.
<i>Free Headworks.</i>									
1. Kerang North-West Lakes .. .. .	10	13	1	206	2	4	216	15	5
2. Kow Swamp .. .. .	..	..	..	250	0	0	250	0	0
<i>River Murray Waters Acts—Works.</i>									
3. Storages, Weirs, and Locks .. .. .	40,754	19	4	21,751	11	1	62,506	10	5
<i>Reservoirs and Storages.</i>									
4. Goulburn Storages—									
Sugarloaf Reservoir .. .. .	19,407	11	1	69,609	16	6	89,017	7	7
Waranga Reservoir Enlargement .. .. .	11,180	10	2	44,034	7	7	55,214	17	9
5. Melton Reservoir .. .. .	963	16	1	2,559	5	2	3,523	1	3
6. Wimmera Mallee Storages—									
Evans Lake .. .. .	13	17	8	32	7	5	46	5	1
Taylors Lake .. .. .	2,197	2	11	12,620	4	10	14,817	7	9
Lake Whitton .. .. .	159	8	3	2	7	3	161	15	6
<i>Waterworks Districts.</i>									
7. Birchip, Sea Lake, Tyrrell and Wycheproof .. .. .	739	6	6	4,688	11	1	5,427	17	7
8. Carwarp .. .. .	..	..	..	1,690	4	5	1,690	4	5
9. Karkaroo .. .. .	15	5	6	1,239	5	4	1,254	10	10
10. Long Lake .. .. .	208	9	1	2,610	7	8	2,818	16	9
11. Naval Base and Mornington Peninsula .. .. .	..	..	..	54,276	4	3	54,276	4	3
12. Tyntynder .. .. .	147	5	2	1,657	19	7	1,805	4	9
13. Walpeup East .. .. .	87	1	4	348	17	7	435	18	11
14. Walpeup West .. .. .	269	4	6	2,236	5	9	2,505	10	3
15. Western Wimmera .. .. .	..	..	..	144	5	4	144	5	4
16. Wimmera United .. .. .	746	12	3	2,884	15	0	3,631	7	3
17. Wimmera Main Channels .. .. .	5,465	14	9	9,267	11	4	14,733	6	1
<i>Towns.</i>									
18. Bacchus Marsh .. .. .	74	19	0	275	17	5	350	16	5
19. Beulah .. .. .	..	..	..	7	10	0	7	10	0
20. Birchip .. .. .	..	..	..	38	13	3	38	13	3
21. Cohuna .. .. .	..	..	..	43	5	7	43	5	7
22. Coliban .. .. .	960	6	10	3,659	3	3	4,619	10	1
23. Hopetoun .. .. .	..	..	..	8	0	0	8	0	0
24. Jung Jung .. .. .	135	16	11	435	3	11	571	0	10
25. Lake Boga .. .. .	44	11	3	2,257	5	6	2,301	16	9
26. Merbein .. .. .	..	..	..	182	11	11	182	11	11
27. Minyip .. .. .	..	..	..	56	0	0	56	0	0
28. Ouyen .. .. .	678	19	6	690	17	0	1,369	16	6
29. Rupanyup .. .. .	..	..	..	2	5	0	2	5	0
30. Ultima .. .. .	140	0	0	317	13	11	457	13	11
31. Werribee .. .. .	0	14	0	7	8	0	8	2	0
32. Wonthaggi .. .. .	18	16	10	1	17	4	20	14	2
<i>Irrigation and Water Supply Districts.</i>									
33. Bacchus Marsh and Werribee .. .. .	1,216	5	1	1,992	12	2	3,208	17	3
34. Boga .. .. .	192	2	8	499	5	1	691	7	9
35. Boort .. .. .	47	3	9	165	9	4	212	13	1
36. Cohuna .. .. .	850	17	8	1,768	13	0	2,619	10	8
37. Deakin .. .. .	..	..	..	177	4	7	177	4	7
38. Dingee .. .. .	..	..	..	80	10	8	80	10	8
39. Gannawarra .. .. .	167	19	2	61	16	3	229	15	5
40. Kerang .. .. .	5	0	11	436	11	7	441	12	6
41. Koondrook .. .. .	397	18	8	532	2	6	930	1	2
42. Merbein .. .. .	2,824	6	3	9,505	5	4	12,329	11	7
43. Nyah .. .. .	1,110	4	9	3,512	14	5	4,622	19	2
44. Rochester .. .. .	376	18	4	855	19	5	1,232	17	9
45. Rodney .. .. .	475	1	0	538	6	0	1,013	7	0
46. Shepparton .. .. .	1,183	6	11	6,588	12	0	7,771	18	11
47. Stanhope .. .. .	211	8	10	362	6	8	603	15	6
48. Swan Hill .. .. .	966	5	9	667	16	5	1,634	2	2
49. Tongala .. .. .	211	14	2	379	3	2	590	17	4
50. Tragowel Plains .. .. .	299	7	3	460	2	11	759	10	2
51. Goulburn Main Channels .. .. .	2,651	16	11	2,677	15	5	5,329	12	1
<i>Miscellaneous.</i>									
52. Avon, Latrobe and Macalister Rivers—Surveys .. .. .	..	..	..	52	9	0	52	9	0
53. Goulburn Levees .. .. .	16	3	5	61	13	0	77	16	5
54. Koo-wee-rup and Cardinia Flood Protection .. .. .	7,320	6	7	21,095	2	8	28,415	9	3
55. Murray River Frontages—Surveys .. .. .	..	..	..	10	0	0	10	0	0
Total .. .. .	104,975	10	1	292,575	13	2	397,551	3	3

## STATEMENT OF EXPENDITURE DURING THE YEAR ENDED 30TH JUNE, 1919,

IN CONNEXION WITH

CONSTRUCTION OF TANKS AND FORMING ROADS IN THE MALLEE.

This Expenditure was met by the Public Works Department.

	£	s.	d.
1. Mallee Tanks (Public Tanks) .. .. .	1,569	6	10
2. Clearing Roads .. .. .	1,430	13	2
Total .. .. .	£3,000	0	0

## 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, 1920, 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, 1920.

## ESTIMATED DISBURSEMENTS.

A.	
Revenue Producing Works—	
Coliban District .. .. .	£10,400
Irrigation and Water Supply Districts .. .. .	56,700
Waterworks Districts .. .. .	26,000
Drainage and Flood Protection Districts .. .. .	500
Diversions from Streams .. .. .	600
General Expenditure and Salaries (proportion) over £250 to be apportioned to above Districts .. .. .	16,800
	£111,000
B.	
Non-Revenue Producing Works—	
General Services—	
River Gaugings, Surveys, New Projects, Boring for Water, Land Settlement, General Expenditure and Salaries (proportion) over £250 .. .. .	£6,150
Loan Works, Services on Account defrayed from Votes .. .. .	3,700
Waterworks Trusts Administration .. .. .	1,800
	£11,650
C.	
Non-Revenue Producing Works—	
Free Headworks—	
Broken River .. .. .	£275
Goulburn-Waranga .. .. .	1,600
Kow Swamp .. .. .	1,600
Lake Lonsdale and Lower Wimmera .. .. .	400
Loddon River .. .. .	225
North-west Lakes .. .. .	550
	£4,650
Bonuses and Special Increases on account of high cost of living (already authorized by Parliament) .. .. .	7,000
	£134,300
ESTIMATED RECEIPTS.	
Coliban District .. .. .	£36,000
Irrigation and Water Supply Districts .. .. .	115,000
Waterworks Districts .. .. .	76,000
Miscellaneous .. .. .	8,000
	£235,000
Estimated amount available from Revenue Producing Works to meet interest .. .. .	£124,000
Less expenditure as per "B" and "C" above on Non-Revenue Producing Works, and on Bonuses and Special Increases on account of high cost of living .. .. .	23,300
	£100,700
To which add Estimated Revenues from other Authorities—	
Waterworks Trusts .. .. .	£37,000
Local Bodies .. .. .	24,000
	£61,000
Total Estimated amount available from Revenues of all Authorities to meet Interest .. .. .	£161,700



STATEMENT OF LOAN LIABILITY.

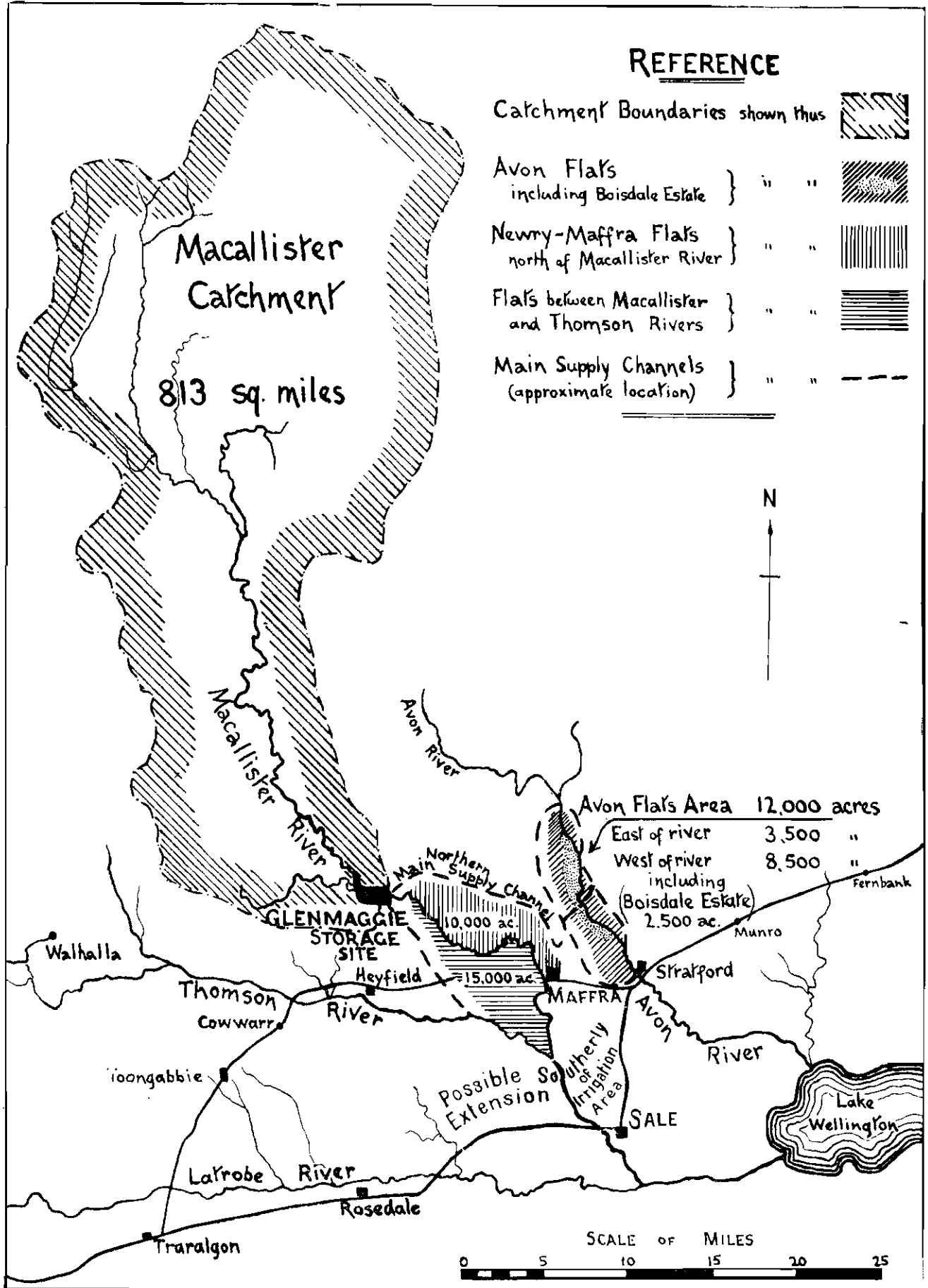
STATEMENT of the amount provided by the State to meet Interest on its Loan Expenditure for Works of Water Supply, both State Works of Water Supply and Works vested in Authorities other than the Commission; and of the sums paid from the revenues of the Commission, and from the moneys received from such other Authorities, to provide such Interest for the year ended 30th June, 1919:—

Works.	Loan Liability of State for Works of Water Supply at 30th June, 1919, exclusive of Melbourne Water Supply.					Total Interest of £344,946 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.	Interest payable by State on Net Advances.	(A.) Written Off. (B.) Free Head-works. (C.) Uncompleted Works. (D.) Loans Unexpended.	Commission and Other Authorities.		
Waterworks Districts .. .. .	£ 2,347,199	£ 35,164	£ 2,512,035	(A.) 169,927 (A.) 169,927	£ 2,342,108	£ 93,445 (A.) 6,321	£ 97,124	£120,478 (after providing £17,003 for non-revenue producing works, including Free Head-works).		
Irrigation and Water Supply Districts .. .. .	1,839,737	18,279	1,821,458	(A.) 575,152	1,246,306	67,754 (A.) 21,395	46,359			
Goulburn Channel Works (Free Head-works excluded) Pykes Creek, Melton, and Distributary Works	386,806	65	386,741	..	386,741	21,819	21,819			
.. .. .	145,396	..	145,396	..	145,396	5,405	5,405			
Sugarloaf Reservoir .. .. .	310,397	..	310,397	(C.) 310,397	..	11,545 (C.) 11,545	..			
Waranga Reservoir Enlargement .. .. .	184,802	..	184,802	(C.) 184,802	..	6,873 (C.) 6,873	..			
Naval Base and Mornington Peninsula .. .. .	118,643	..	118,643	(C.) 118,643	..	4,410 (C.) 4,410	..			
Koo-wee-rup and Cardinia Flood Protection Schemes .. .. .	48,655	..	48,655	(C.) 48,655	..	1,805 (C.) 1,805	..			
Waterworks Trusts (including First Mildura) .. .. .	1,508,148	141,946	1,366,202	(A.) 321,665	1,044,537	50,819 (A.) 11,965	38,854	£61,313		
Local Bodies (Municipalities) .. .. .	756,455	97,157	659,298	(A.) 163,760	495,538	24,524 (A.) 6,091	18,433			
River Murray Agreement Works .. .. .	71,277	..	71,277	(C.) 71,277	..	2,647 (C.) 2,647	..			
Irrigation Trusts Abolished .. .. .	32,754	30	32,724	(A.) 32,724	..	1,216 (A.) 1,216	..			
Free Headworks .. .. .	1,238,616	420	1,238,196	(B.) 1,238,196	..	46,053 (B.) 46,053	..			
Free Grants to Local Authorities .. .. .	147,046	..	147,046	(B.) 147,046	..	5,466 (B.) 5,466	..			
Surveys, Exploratory, and Preliminary Works, including Purchase of Land reserved for Reservoirs .. .. .	112,417	..	112,417	(C.) 112,417	..	4,179 (C.) 4,179	..			
Loan Moneys unexpended .. .. .	26,583	..	26,583	(D.) 26,583	..	986 (D.) 986	..			
<b>Totals</b> .. .. .	9,674,931	293,061	9,381,870	3,521,244	5,860,626	348,946	217,994	£181,791		

# PLAN

OF

## MAFFRA DISTRICT IRRIGATION SCHEME.



Dated at the Office of the State Rivers and Water Supply Commission, Treasury  
Gardens, Melbourne, the 28th day of October, 1919.

WM. CATTANACH, Chairman.

J. S. DETHRIDGE, Commissioner.

E. SHAW, Commissioner.

M. NALLY, Secretary.