

1924.

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VICTORIA

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STATE RIVERS AND WATER SUPPLY COMMISSION.

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NINETEENTH  
ANNUAL REPORT.

---

1923-24.

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

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By Authority

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# STATE RIVERS AND WATER SUPPLY COMMISSION.

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WM. CATTANACH, CHAIRMAN,

J. S. DETHRIDGE, COMMISSIONER,

E. SHAW, COMMISSIONER.

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## ANNUAL REPORT, 1923-24.

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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 1923-24, and Estimates for the ensuing year.

## WORKS UNDER CONTROL OF COMMISSION.

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

## A.—FREE HEADWORKS.

DESCRIPTION OF WORKS.	Capital Debt at 30th June, 1924. Exclusive of cost of Loan Flotation.
1. <b>Broken River Works</b> :—Casey's Weir and offtake, with about 59 chains of channel to the Broken Creek; Gowangardie Weir with offtake sluice .. .. .	£ 14,853
2. <b>Goulburn River Works</b> :—Weir on the Goulburn River, about 9 miles above Murchison; channel therefrom, about 23½ miles, to Waranga Reservoir; and that Reservoir (but exclusive of the work of its enlargement) .. .. .	738,244
3. <b>Kerang North-West Lakes Works</b> :—Weir on the Loddon River at its confluence with the Pyramid Creek; regulating weirs at the effluence from the Loddon of the Sheepwash and Washpen Creeks; channel from the Washpen Creek regulator to Reedy Lake, Middle Lake, Third Lake, Lake Charm, Race-course Lake, Cullen's Lake, Kangaroo Lake, and Lake Tutchewop, and to the Little Murray River, with water storage works at these lakes .. .. .	19,738
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 .. .. .	187,566
5. <b>Lake Lonsdale Reservoir</b> :—Reservoir at Lake Lonsdale, on the Little Wimmera River, near Ledcourt .. .. .	49,054
6. <b>Loddon River Works</b> :—Laanecoorie Weir, on the Loddon; Bridgewater Weir, on the Loddon; Kinypanial Weir, on the Loddon .. .. .	167,636
7. <b>Long Lake Pumping Works</b> :—Inlet to Lake Baker, from the Little Murray River; water storage works at Lake Baker and Long Lake, with channel connecting these lakes; pumping plant at Long Lake, with rising main thence about 7 miles to allotment 10M, parish of Kooem; system of main distributary channels, about 85 miles in length .. .. .	27,346
8. <b>Lower Wimmera Compensation Works</b> :—Drung Drung Weir, on the Wimmera, near allotment 29, parish of Longerenong; Dimboola Weir, on the Wimmera, near Dimboola township; Antwerp Weir, on the Wimmera, at Antwerp Station homestead; Jeparit Weir, on the Wimmera, near Jeparit township .. .. .	8,558
Total .. .. .	<b>1,212,995</b>

## B.—MAIN SUPPLY WORKS.

IRRIGATION AND WATER SUPPLY DISTRICTS, WATERWORKS DISTRICTS,  
AND FLOOD PROTECTION DISTRICTS.

Cost Apportioned and to be Apportioned to Districts benefited.

Name of Work.	Capital Debt at 30th June, 1924.	Tentative Debits to Districts, 1923-24.	
	£		£
<b>Goulburn Main Channels (Free Headworks excluded)—</b>			
1. East Goulburn .. .. .	144,313	Rodney .. .. .	120,000
2. Waranga Reservoir to Campaspe .. .. .	260,746	Tragowel Plains .. .. .	100,000
3. West of Campaspe .. .. .	266,825	Rochester .. .. .	74,000
4. Goulburn Main Channel Distributaries .. .. .	29,492	Tongala .. .. .	58,000
		Shepparton .. .. .	57,000
		Deakin .. .. .	24,000
		Echuca North .. .. .	17,000
		Dingee .. .. .	15,000
		Stanhope .. .. .	15,000
	701,376		480,000
<b>Goulburn Storages—</b>			
5. Sugarloaf Reservoir .. .. .	1,017,192		
6. Waranga Reservoir Enlargement .. .. .	444,476		
	1,461,668		
<b>Bacchus Marsh and Werribee Schemes—</b>			
7. Ballan Tunnel .. .. .	18,904	Werribee .. .. .	8,000
8. Pykes Creek Reservoir .. .. .	64,165	Bacchus Marsh .. .. .	75,069
9. Melton Reservoir .. .. .	84,294	Werribee .. .. .	46,000
	167,363		
<b>Maffra Scheme—</b>			
10. Glenmaggie Reservoir .. .. .	368,674	Irrigation District to be debited later .. .. .	368,674
<b>Red Cliffs Scheme—</b>			
1. Main and Distributary Channels .. .. .	540,217	Irrigation District to be debited later .. .. .	540,217
<b>Millewa District—</b>			
12. Main and Distributary Channels .. .. .	141,260	Waterworks District to be debited later .. .. .	141,260
<b>Flood Protection Districts—</b>			
13. Koowceerup and Cardinia .. .. .	207,437	Lower Koowceerup and Cardinia .. .. .	93,000
14. Goulburn Levees .. .. .	33,712		
	241,149		
Carried forward .. .. .			<b>4,834,702</b>

WORKS UNDER CONTROL OF COMMISSION—*continued.*Capital Debit  
at 30th June,  
1924,  
Exclusive  
of Cost of Loan  
Flotation.

Brought forward .. .. .

£  
4,834,702

## 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 1825 and 1851.	Redemption Paid to Treasury.	Capital Debit at 30th June, 1924.
	£	£	£	£
1. Bacchus Marsh .. .. .	80,489	8,906	493	71,090
2. Boort .. .. .	62,017	35,259	1,494	25,264
3. Campaspe .. .. .	64,174	52,685	305	11,184
4. Cohuna and Gannawarra .. .. .	275,080	82,376	838	191,866
5. Deakin .. .. .	82,921	34,748	2,144	46,029
6. Dingee .. .. .	13,802	..	..	13,802
7. Dry Lake .. .. .	1,704	686	299	719
8. Echuca North .. .. .	19,496	..	..	19,496
9. Kerang .. .. .	86,389	35,338	2,334	48,717
10. Koondrook .. .. .	137,309	30,872	1,562	104,875
11. Merbein .. .. .	188,206	..	133	188,073
12. Mystie Park .. .. .	10,916	..	..	10,916
13. Nyah .. .. .	85,125	..	..	85,125
14. Rochester .. .. .	153,751	..	..	153,751
15. Rodney .. .. .	456,163	149,949	8,967	297,247
16. Shepparton .. .. .	91,930	..	359	91,571
17. Stanhope .. .. .	56,782	..	..	56,782
18. Swan Hill .. .. .	116,312	19,799	371	96,142
19. Tongala .. .. .	79,698	..	..	79,698
20. Tragowel Plains .. .. .	210,156	124,534	527	85,095
21. Tresco .. .. .	66,639	..	..	66,639
22. Werribee .. .. .	78,973	..	..	78,973
	2,418,032	575,152	19,826	1,823,054

1,823,054

## D.—WATERWORKS AND FLOOD PROTECTION 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 1825 and 1851.	Redemption Paid to Treasury.	Capital Debit at 30th June, 1924.
	£	£	£	£
1. Birchip .. .. .	..	..	..	..
2. Sea Lake .. .. .	..	..	..	..
3. Tyrrell .. .. .	..	..	..	..
4. Wycheproof .. .. .	..	..	..	..
5. Carwarp .. .. .	14,387	..	..	14,387
6. Coliban .. .. .	1,307,645	..	..	1,307,645
7. Dandenong .. .. .	29,751	5,128	1,506	23,117
8. Karkaroc .. .. .	145,938	..	2,493	143,445
9. Kerang North-west Lakes .. .. .	1,879	..	..	1,879
10. Long Lake .. .. .	64,482	..	571	63,911
11. Mornington Peninsula .. .. .	363,696	..	..	363,696
12. Ouyen .. .. .	15,680	..	..	15,680
13. Tyntynder .. .. .	158,016	..	..	158,016
14. Upper Western Wimmera .. .. .	56,524	26,567	3,230	26,727
15. Upper Wimmera United .. .. .	68,482	10,918	4,220	53,344
16. Walpeup East .. .. .	5,444	..	..	5,444
17. Walpeup West .. .. .	22,398	..	..	22,398
18. Werribee .. .. .	10,921	..	..	10,921
19. Western Wimmera .. .. .	225,494	106,268	12,318	106,908
20. Wimmera United .. .. .	159,525	25,474	9,581	124,470
21. Wonthaggi .. .. .	64,774	..	7,544	57,230
22. Yelta .. .. .	3,703	..	..	3,703
23. Wimmera Main Channels .. .. .	230,458	..	..	230,458
24. Wimmera Storages—				
Fyans Lake .. .. .	42,308	..	..	42,308
Taylors Lake .. .. .	186,892	..	..	186,892
Pine Lake .. .. .	33,605	..	..	33,605
Lake Whitton .. .. .	10,334	..	..	10,334
25. Echuca Flood Protection .. .. .	1,159	..	..	1,159
	3,634,407	175,055	43,736	3,415,616

3,415,616

Carried forward .. .. . 10,073,372

WORKS UNDER CONTROL OF COMMISSION—*continued.*Capital Debt  
at 30th June,  
1924.  
Exclusive  
of Cost of Loan  
Flotation.

Brought forward .. .. . £ 10,073,372

## E.—WATERWORKS TRUSTS DISTRICTS.

## 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, 1924.
	£	£	£	£
1. Avoca Water Trust—				
Rural District .. .. .	9,890	2,494	1,952	5,444
Urban District (Quambatook)	3,842	..	412	3,430
2. Carrum Waterworks Trust ..	27,112	7,732	3,105	16,275
3. Loddon United Waterworks Trust—				
Rural District .. .. .	22,171	1,717	4,859	15,595
Urban District (Mitiamo) ..	3,213	..	64	3,149
	66,228	11,943	10,392	43,893
<b>Grand Total .. .. .</b>				<b>£ 10,073,372</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, 21,804 square miles, equal to about 13,955,000 acres.

The area under irrigated culture, for all kinds of crop, was 324,558 acres. Although, owing to unusually heavy falls of rain during the irrigation season, the area irrigated was 26,169 acres less than in the previous year, which was exceptionally dry, the average of the last four years was exceeded by 13,127 acres. The area irrigated last year includes over 13,000 acres watered under yearly permits authorizing the diversion of 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 ... .. .	62	103,230
Waterworks Trusts ... .. .	105	169,630
Local Governing Bodies ... .. .	18	74,720
Totals ... .. .	185	347,580

## LANDS UNDER IRRIGATED CULTURE.

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

## STATEMENT OF THE EXTENT OF IRRIGATION AND OF AREAS OF DIFFERENT KINDS OF CROPS WATERED—YEAR 1923-24.

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>								
Shopparton .. .. .	520	2,989	202	..	8,471	..	98	12,280
Rodney .. .. .	722	24,360	558	6,120	8,275	590	343	40,968
Deakin .. .. .	38	1,110	97	786	17	45	1	2,094
Stanhope .. .. .	206	7,759	403	112	299	248	1	9,028
Tongala .. .. .	653	8,251	423	734	2,154	739	29	12,983
Rochester .. .. .	464	18,537	745	2,963	2,172	698	104	25,683
Echuca North .. .. .	77	313	8	1,032	..	28	244	1,702
Dingee .. .. .	40	2,390	320	850	25	..	..	3,625
Tragowel Plains .. .. .	7,510	717	7,230	19,940	23	88	10	35,518
Boort .. .. .	..	50	200	..	..	..	..	250
Totals .. .. .	10,230	66,476	10,186	32,537	21,436	2,436	830	144,131
<i>Supplied from Murray State Works.</i>								
<i>(a) Kow Swamp Works.</i>								
Kerang .. .. .	5,840	639	6,310	15,969	16	23	26	28,823
Dry Lako .. .. .	..	..	40	200	2	..	..	242
Lands supplied direct (outside Districts) .. .. .	776	1,756	521	1,588	32	..	..	4,673
Totals .. .. .	6,616	2,395	6,871	17,757	50	23	26	33,738
<i>(b) Other Works.</i>								
Cohuna .. .. .	1,112	8,818	2,771	4,836	202	180	230	18,149
Ganawarra .. .. .	2,677	1,174	4,887	8,967	4	..	227	17,936
Koondrook .. .. .	2,108	819	1,160	6,087	435	..	10	10,619
Treseo .. .. .	..	..	..	..	1,374	..	..	1,374
Swan Hill .. .. .	2,140	3,202	1,268	3,240	2,859	345	57	13,111
Nyah .. .. .	..	10	40	..	2,600	..	20	2,670
Red Cliffs .. .. .	..	..	..	..	7,500	..	100	7,600
Merbein .. .. .	..	180	..	..	7,060	..	392	7,632
Totals .. .. .	8,037	14,203	10,126	23,130	22,034	525	1,036	79,091
Totals (Murray State Works) .. .. .	14,653	16,598	16,997	40,887	22,084	548	1,062	112,829
<i>Supplied from Loddon State Works.</i>								
Boort .. .. .	2,155	206	1,760	9,953	17	192	187	14,470
<i>Supplied from other State Works.</i>								
Coliban .. .. .	241	497	389	871	4,272	245	192	6,707
Campaspe .. .. .	171	326	5	67	6	21	..	596
Kerang North-West Lakes .. .. .	1,407	218	611	2,818	364	..	30	5,448
Mystic Park .. .. .	305	670	460	911	..	..	..	2,346
Western Wimmera .. .. .	35	41	31	23	1,353	..	..	1,483
Bacchus Marsh .. .. .	16	1,537	154	458	111	127	5	2,408
Werribee .. .. .	380	4,789	178	145	140	13	140	5,785
Totals .. .. .	2,555	8,078	1,828	5,293	6,246	406	367	24,773
<i>Supplied from other Works.</i>								
First Mildura District .. .. .	..	156	159	..	11,848	..	320	12,483
Private Diversions—Kerang (Outside Districts) .. .. .	617	124	440	1,092	..	..	191	2,464
Other Private Diversions throughout the State .. .. .	2,030	2,841	1,986	2,150	3,016	941	444	13,408
Totals .. .. .	2,647	3,121	2,585	3,242	14,864	941	955	28,355
<b>Grand Totals, 1923-24 .. .. .</b>	<b>32,240</b>	<b>94,479</b>	<b>33,356</b>	<b>91,912</b>	<b>64,647</b>	<b>4,523</b>	<b>3,401</b>	<b>324,558</b>
Grand Totals, 1922-23 .. .. .	60,304	92,679	35,591	88,787	61,061	8,850	3,455	350,727

## COMPARATIVE STATEMENT OF THE EXTENT OF IRRIGATION, 1919-20 TO 1923-24.

	Area under Irrigation (Acres).				
	1919-20.	1920-21.	1921-22.	1922-23.	1923-24.
Goulburn State Works .. .. .	180,279	129,017	141,562	166,022	144,131
Murray State Works .. .. .	118,759	93,286	90,668	112,656	112,829
Loddon State Works .. .. .	11,272	13,388	8,380	9,663	14,470
Other State Works .. .. .	24,598	18,282	17,564	29,380	24,773
Mildura and Private Diversions .. .. .	36,340	28,561	29,733	33,006	28,355
Totals .. .. .	371,248	282,534	287,907	350,727	324,558

**VALUATIONS, RATES, FLOOD PROTECTION CHARGES 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.

In twenty-six 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. The Lower Kooweerup and Cardinia Flood Protection Districts, where the charging is on an acreage basis, were similarly divided into three divisions. As heretofore in the urban portion of the Coliban System, a minimum and tapering rate have been made, while 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 Western Wimmera and Wimmera United Waterworks Districts, while in the Birchip, Carwarp, Karkaroc, Long Lake, Sea Lake, Tyntynder, Tyrrell, Upper Western Wimmera, Upper Wimmera United, and Wycheproof Waterworks Districts the minimum was fixed at £10 13s. 4d. per 640 acres; in the Walpeup West Waterworks District the minimum was fixed at £3 6s. 8d. per 640 acres.

In seventeen districts the Commission made and levied compulsory irrigation charges, details of which are set out hereunder:—

**A.—VALUATIONS, RATES, AND FLOOD PROTECTION CHARGES.**

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, 1924.	Period of Rate.	Estimated Number of Persons dwelling in District.
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**IRRIGATION AND WATER SUPPLY DISTRICTS.**

	Valuation by Commission.	Divisions.				
		1st.	2nd.	3rd.		
		s. d.	s. d.	s. d.		
1. BACCHUS MARSH ..	£ 1,486	1 0	..	..	1st July, 1923, to 30th June, 1924	768
2. BOORT ..	15,514	2 0	1 0	..	" " "	950
3. CAMPASPE ..	11,190	2 0	1 0	0 6	" " "	560
4. COHUNA ..	20,639	2 0	1 0	..	" " "	1,175
5. DEAKIN ..	53,116	1 8	0 10	0 5	" " "	1,900
6. DINGEE ..	2,959	1 0	..	..	" " "	260
7. DRY LAKE ..	250	(No rate made)			" " "	11
8. ECHUCA NORTH ..	5,655	1 0	0 6	..	1st July, 1923, to 30th June, 1924	550
9. GANNAWARRA ..	15,094	2 0	1 0	..	" " "	575
10. KERANG ..	17,743	2 6	1 3	0 7½	" " "	1,011
11. KOONDRICK ..	16,148	2 0	1 0	..	" " "	926
12. MERBEIN ..	25,807	1 0	..	..	" " "	3,200
13. MYSTIC PARK ..	4,607	6 0	..	..	" " "	117
14. NYAH ..	5,842	1 0	..	..	" " "	1,159
15. ROCHESTER ..	50,480	1 0	0 6	0 3	" " "	2,950
16. RODNEY ..	144,901	1 0	0 6	0 3	" " "	5,660
17. SHEPPARTON ..	32,026	1 0	..	..	" " "	2,015
18. STANHOPE ..	15,085	1 0	..	..	" " "	1,050
19. SWAN HILL ..	16,091	1 0	..	..	" " "	1,010
20. TONGALA ..	24,755	1 0	..	..	" " "	2,000
21. TRAGOWEL PLAINS ..	37,892	1 0	0 6	..	" " "	1,400
22. WERRIBEE ..	17,401	1 0	..	..	" " "	625



A.—VALUATIONS, RATES, AND FLOOD PROTECTION CHARGES—*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, 1924.	Period of Rate.	Estimated Number of Persons dwelling in District.
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## WATERWORKS DISTRICTS.

	Valuation by Commission.	Divisions.			Period of Rate.	Estimated Number of Persons dwelling in District.
		1st.	2nd.	3rd.		
		s. d.	s. d.	s. d.		
23. AXE CREEK .. ..	£ 1,628	2 0	..	..	1st July, 1923, to 30th June, 1924	240
24. BIRCHIP .. ..	31,593	2 4	1 2	0 7	" " "	2,510
25. CARWAP .. ..	7,847	3 10	1 11	0 11½	" " "	657
26. HARCOURT .. ..	6,220	1 6	..	..	" " "	595
27. KARKAROOC .. ..	115,265	2 2	1 1	0 6½	" " "	3,760
28. KERANG N.W. LAKES	6,003	0 6	..	..	" " "	550
29. LONG LAKE .. ..	67,067	2 10	1 5	0 8½	" " "	1,890
30. SEA LAKE .. ..	54,439	2 8	1 4	0 8	" " "	2,215
31. TYNTYNDER .. ..	50,232	3 4	1 8	0 10	" " "	2,980
32. TYRELL .. ..	64,767	3 4	1 8	0 10	" " "	4,040
33. UPPER WEST'N WIMMERA	53,808	1 6	0 9	0 4½	" " "	1,600
34. UPPER WIMMERA UNITED	81,965	1 6	0 9	0 4½	" " "	2,200
35. WALPEUP EAST .. ..	19,726	0 9	0 4½	..	" " "	1,850
36. WALPEUP WEST .. ..	59,853	0 7	0 3½	..	" " "	3,700
37. WERRIBEE .. ..	6,747	2 0	..	..	" " "	120
38. WESTERN WIMMERA .. ..	268,434	1 2	0 7	0 3½	" " "	8,900
39. WIMMERA UNITED .. ..	245,382	1 2	0 7	0 3½	" " "	6,600
40. WYCHEPROOF .. ..	52,768	2 4	1 2	0 7	" " "	2,380
41. YELTA .. ..	2,130	3 4	..	..	" " "	80

## URBAN DIVISIONS AND DISTRICTS.

	Municipal Valuation.	s. d.		Period of Rate.	Estimated Number of Persons dwelling in District.	
		£	s. d.			
42. BACCHUS MARSH .. ..	10,413	..	..	1 6	1st July, 1923, to 30th June, 1924	1,740
43. BERRIWILLOCK .. ..	1,217	..	..	3 6	" " "	145
44. BERWICK .. ..	2,191	..	..	2 0	" " "	500
45. BEULAH .. ..	2,573	..	..	2 9	" " "	550
46. BIRCHIP .. ..	5,147	..	..	2 0	" " "	930
47. BITTERN .. ..	256	..	..	3 0	" " "	60
48. CARRUM .. ..	37,000	..	..	1 6	" " "	2,200
49. CARRUM NO. 2 .. ..	12,000	..	..	1 6	" " "	4,100
50. COHUNA .. ..	8,988	..	..	1 9	" " "	760
51. COROP .. ..	357	..	..	2 0	" " "	90
52. CRANBOURNE .. ..	1,860	..	..	2 0	" " "	210
53. CULGOA .. ..	752	..	..	4 0	" " "	150
54. DANDENONG .. ..	30,045	..	..	1 6	" " "	4,000
55. DIMBOOLA .. ..	8,798	..	..	1 9	" " "	1,350
56. FRANKSION .. ..	20,741	..	..	1 6	" " "	3,340
57. HOPETOUN .. ..	2,447	..	..	2 9	" " "	500
58. JEPARU .. ..	4,495	..	..	2 3	" " "	675
59. JUNG JUNG .. ..	572	..	..	3 0	" " "	130
60. KOONDROOK .. ..	3,256	..	..	2 6	" " "	460
61. LAKE BOGA .. ..	1,944	..	..	3 0	" " "	330
62. LASCELLES .. ..	614	..	..	3 6	" " "	120
63. MERBEIN .. ..	4,860	..	..	4 0	" " "	680
64. MINYIP .. ..	3,600	..	..	3 0	" " "	600
65. MORNINGTON .. ..	14,382	..	..	2 0	" " "	1,600
66. NATIMUK .. ..	3,117	..	..	1 6	" " "	420
67. NYAH .. ..	701	..	..	2 6	" " "	170
68. OUYEN .. ..	6,105	..	..	2 9	" " "	700
69. RAINBOW .. ..	5,542	..	..	2 3	" " "	900
70. RUPANYUP .. ..	2,685	..	..	3 0	" " "	400
71. SEA LAKE .. ..	4,882	..	..	2 6	" " "	570
72. SOMERVILLE .. ..	1,513	..	..	2 6	" " "	240
73. SOUTH FRANKSTON .. ..	2,857	..	..	5 0	" " "	250
74. ULTIMA .. ..	2,506	..	..	3 0	" " "	340
75. WATCHEM .. ..	1,513	..	..	3 6	" " "	170
76. WERRIBEE .. ..	9,233	..	..	2 0	" " "	1,250
77. WONTHAGGI .. ..	27,500	..	..	1 6	" " "	7,000
78. WOOMELANG .. ..	1,793	..	..	3 0	" " "	415
79. WYCHEPROOF .. ..	3,791	..	..	2 6	" " "	760

A.—VALUATIONS, RATES, AND FLOOD PROTECTION CHARGES—*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, 1924.	Period of Rate.	Estimated Number of Persons dwelling in District.
<b>COLIBAN SYSTEM.</b>				
80 COLIBAN .. .. .	Municipal Valuation. £ 328,343	<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, 1923, to 30th June, 1924	61,000
<b>WATERWORKS TRUSTS.</b>				
81. AVOCA .. .. .	Municipal Valuation. £ 38,945	<i>s. d.</i> .. .. 0 4½	1st January, 1924, to 31st December, 1924	1,340
82. MITIAMO (URBAN) ..	720	.. .. 4 0	.. .. ..	170
83. QUAMBATOOK (URBAN)	3,071	.. .. 2 9	.. .. ..	310
84. CARRUM .. .. .	38,368	1st Division .. 3 8 2nd Division .. 1 10 3rd Division .. 1 0 4th Division .. 0 10 5th Division .. 0 3	.. .. ..	1,500
85. LODDON UNITED ..	Valuation by Commission. £ 105,835	1st Division .. 0 8 2nd Division .. 0 4 3rd Division .. 0 2	.. .. ..	3,200
<b>FLOOD PROTECTION DISTRICTS.</b>				
86. ECHUCA (HIGH-ST.) ..	Valuation by Commission. £ 845	<i>s. d.</i> .. .. 3 0	1st July, 1923, to 30th June, 1924	73
87. CARDINIA .. .. .	Acres. 35,299	1st Div. (p.ac.) 3 0 2nd Div. (p.ac.) 1 6 3rd Div. (p.ac.) 0 9	.. .. ..	870
88. LOWER KOOWEERUP	51,954	1st Div. (p.ac.) 2 0 2nd Div. (p.ac.) 1 0 3rd Div. (p.ac.) 0 6	.. .. ..	2,300

## 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 ..	6,659	3,318	3,318	22s. 6d.	1st October, 1923, to 30th April, 1924
2. COHUNA .. .. .	34,674	22,430	22,514	7s.	1st September, 1923, to 30th April, 1924
3. DINGEE .. .. .	5,449	4,498	4,498	7s.	.. .. ..
4. ECHUCA NORTH ..	13,091	5,601	5,601	7s. 6d.	.. .. ..
5. GANNAWARRA ..	44,190	17,102	17,102	7s.	.. .. ..
6. KOONDROOK .. ..	52,686	14,030	14,030	7s.	.. .. ..
7. MERBEIN .. .. .	8,215	7,666	19,200	24s. Min. 60s. per acre	1st August, 1923, to 30th April, 1924
8. NYAH .. .. .	3,605	3,085	7,651	20s. Min. 50s. per acre	.. .. ..
9. ROCHESTER .. ..	122,882	36,220	36,320	6s.	1st September, 1923, to 30th April, 1924
10. RODNEY .. .. .	267,432	188,318	51,016	6s.	.. .. ..
11. SHEPPARTON .. ..	21,478	19,381	19,381	6s.	.. .. ..
12. STANHOPE .. ..	26,032	19,011	16,240	6s.	.. .. ..
13. SWAN HILL .. ..	21,919	14,663	14,663	6s.	.. .. ..
14. TONGALA .. .. .	36,233	26,622	21,448	6s.	.. .. ..
15. TRAGOWEL PLAINS	181,304	128,799	25,778	7s.	.. .. ..
16. TRESCO .. .. .	3,870	2,671	6,677	16s. Min. 40s. per acre.	1st January, 1923, to 31st Dec., 1923
17. WERRIBEE .. ..	9,996	7,916	7,916	12s.	1st October, 1923, to 30th April, 1924

## CONTRACTS.

## STATEMENT OF CONTRACTS ENTERED INTO DURING THE YEAR ENDED 30TH JUNE, 1924.

No.	Name of Contractor.	Work or Supply.	Amount. (Loan and Vote.)		
			£	s.	d.
2019	Colin Cameron .. .. .	Waranga-Kyabram Channel .. .. .	1,080	17	2
2020	Joseph Kett .. .. .	Tandarra-Calivil Channel .. .. .	769	10	10
2021	E. Studman .. .. .	Tandarra-Calivil Channel .. .. .	809	4	9
2022	Thos. Perkins .. .. .	Tandarra-Calivil Channel .. .. .	807	12	6
2023	Morgan Hartney .. .. .	Tandarra-Calivil Channel .. .. .	782	2	9
2024	J. G. Scott .. .. .	Firewood, Hume Reservoir .. .. .	192	15	5
2025	A. McInnes .. .. .	Tandarra-Calivil Channel .. .. .	1,582	11	6
2026	J. P. Murray .. .. .	Waranga-Kyabram Channel .. .. .	603	7	3
2027	Siemens Bros. & Co. Ltd. .. .. .	Electric Generator, Hume Reservoir .. .. .	898	0	0
2028	P. Mannix, Jr. .. .. .	Firewood, Tresco .. .. .	550	0	0
2029	John Mannix .. .. .	Firewood, Nyah .. .. .	903	3	0
2030	P. O'Halloran .. .. .	Firewood, Nyah .. .. .	392	10	9
2031	James Story .. .. .	Firewood, Nyah .. .. .	300	0	0
2032	W. H. Duffy .. .. .	Firewood, Nyah .. .. .	904	10	0
2033	P. Mannix, sen. .. .. .	Firewood, Nyah .. .. .	474	15	0
2034	A. J. Bell .. .. .	Firewood, Nyah .. .. .	450	0	0
2035	R. B. Nicholas .. .. .	Firewood, Nyah .. .. .	223	7	3
2036	T. W. Church .. .. .	Firewood, Mystic Park .. .. .	766	13	4
2037	A. Robinson .. .. .	Firewood, Merbein .. .. .	349	13	0
2038	George Webb .. .. .	Firewood, Merbein .. .. .	1,437	10	0
2039	R. E. Nichols .. .. .	Firewood, Merbein .. .. .	313	16	0
2040	George Halls .. .. .	Firewood, Merbein .. .. .	677	14	0
2041	James Billing .. .. .	Firewood, Merbein .. .. .	688	10	0
2042	John Fowler .. .. .	Firewood, Merbein .. .. .	969	0	0
2043	Weymouth's Ltd. .. .. .	Rotors for Pump, Red Cliffs .. .. .	809	0	0
2044	J. F. Considine .. .. .	Tandarra-Calivil Channel .. .. .	969	10	10
2045	Herbert Crowther .. .. .	Contour Survey, Kerang N. W. Lakes .. .. .	750	0	0
2046	R. Halls .. .. .	Firewood, Merbein .. .. .	688	10	0
2047	W. E. Smythe .. .. .	Firewood, Merbein .. .. .	951	16	0
2048	H. F. Michell .. .. .	Firewood, Tresco .. .. .	575	0	0
2049	Perkins and McInnes .. .. .	Tandarra-Calivil Channel .. .. .	1,167	3	5
2050	S. P. Wilson .. .. .	200 Channel Meter Wheels .. .. .	841	16	1
2051	G. F. Sewell .. .. .	50 Channel Meter Wheels .. .. .	237	10	0
2052	John Pollock .. .. .	Boring for Water, Walpeup West .. .. .	533	5	0
2053	G. P. Conlon .. .. .	Boring for Water, Walpeup West .. .. .	556	5	0
2054	Hill Bros. .. .. .	Office and Store, Tresco .. .. .	508	10	0
2055	H. Swinerton .. .. .	Firewood, Nyah .. .. .	281	5	0
2056	Ketterer & O'Halloran .. .. .	Tandarra-Calivil Channel .. .. .	944	3	10
2057	Ketterer & O'Halloran .. .. .	Tandarra-Calivil Channel .. .. .	552	17	1
2058	Ketterer & O'Halloran .. .. .	Tandarra-Calivil Channel .. .. .	885	12	2
2059	Henry Rawiller .. .. .	Tandarra-Calivil Channel .. .. .	946	7	7
2060	Henry Kendell .. .. .	Firewood, Hume Reservoir .. .. .	437	10	0
2061	Wm. Mawson .. .. .	Firewood, Hume Reservoir .. .. .	150	0	0
2062	Martin Siegel .. .. .	Firewood, Hume Reservoir .. .. .	325	0	0
2063	Jas. Normoyle .. .. .	Tandarra-Calivil Channel .. .. .	50	14	4
2064	Angove & Connelly .. .. .	Firewood, Nyah .. .. .	400	0	0
2065	Searles & Sons .. .. .	Firewood, Red Cliffs .. .. .	2,000	0	0
2066	C. Hopkins .. .. .	Tandarra-Calivil Channel .. .. .	520	6	2
2067	Ketterer & O'Halloran .. .. .	Tandarra-Calivil Channel .. .. .	647	0	6
2068	Government Dockyards, N.S.W. .. .. .	Mild Steel Pipes, Mornington Peninsula .. .. .	3,412	16	0
2069	M. O'Halloran .. .. .	Firewood, Merbein .. .. .	1,020	6	9
2070	Frank Osman .. .. .	Firewood, Hume Reservoir .. .. .	222	6	9
2071	A. J. Kendell .. .. .	Firewood, Hume Reservoir .. .. .	437	10	0
2072	S. A. Stevens .. .. .	Tandarra-Calivil Channel .. .. .	507	17	4
2073	W. Southgate .. .. .	Erection Buildings, Ouyen .. .. .	951	0	0
2074	Alfred T. Harman .. .. .	Steam Locomotive, Hume Reservoir .. .. .	1,825	0	0
2075	J. Kavanagh .. .. .	Earthen Storage, Walpeup .. .. .	340	0	0
2076	G. Parkinson .. .. .	Earthen Storage, Birthday Plains .. .. .	816	8	4
2077	G. Parkinson .. .. .	Earthen Storage, Sunset .. .. .	1,639	13	10
2078	A. Heyward .. .. .	Tandarra-Calivil Channel .. .. .	1,077	17	1
2079	Australian Portland Cement Co. .. .. .	90,000 bags Cement .. .. .	24,750	0	0
2080	H. Crowther .. .. .	Contour Survey, Parishes Milloo and Wanurp .. .. .	1,245	0	0
2081	W. S. Robins .. .. .	Firewood, Red Cliffs .. .. .	356	6	0
2082	J. J. O'Halloran .. .. .	Tandarra-Calivil Channel .. .. .	520	6	2
2083	J. A. Smith .. .. .	Drainage Channel, Tresco .. .. .	778	15	0
2084	J. R. Chanter .. .. .	Earthen Storage, Annuello .. .. .	371	13	4
2085	Alfred T. Harman .. .. .	Steam Excavator, Maffra .. .. .	3,550	0	0
2086	Australian Explosives & Chemical Co. .. .. .	Explosives .. .. .	2,121	11	10
2087	Frank Osman .. .. .	Firewood, Hume Reservoir .. .. .	123	15	0
2088	E. H. Hempenstall .. .. .	Firewood, Hume Reservoir .. .. .	176	1	0
2089	H. Kendell .. .. .	Firewood, Hume Reservoir .. .. .	218	15	0
2090	Winder & Harrison .. .. .	Wooden Framed Houses, Red Cliffs .. .. .	4,043	16	6
2091	G. Wills & Co. Ltd. .. .. .	Sheet Piling, Mildura Weir and Lock .. .. .	8,150	0	0
2092	Elder, Smith & Co. Ltd. .. .. .	Sheet Piling, Mildura Weir and Lock .. .. .	7,945	12	2
2093	L. M. Nicholson .. .. .	Firewood, Hume Reservoir .. .. .	280	0	0
2094	H. Crowther .. .. .	Contour Survey, Dingee .. .. .	1,901	0	0
2095	F. Osman .. .. .	Firewood, Hume Reservoir .. .. .	123	15	0
2096	A. Stubbs .. .. .	Earthen Storage, Rocket Lake .. .. .	458	15	0
2097	A. J. Kendell .. .. .	Firewood, Hume Reservoir .. .. .	175	0	0
		Carried forward .. .. .	103,287	5	7

## CONTRACTS—continued.

STATEMENT OF CONTRACTS ENTERED INTO DURING THE YEAR ENDED 30TH JUNE, 1924—continued.

No.	Name of Contractor.	Work or Supply.	Amount (Loan and Vote).	
			£	s. d.
		Brought forward .. .. .	103,287	5 7
2098	G. Burgess .. .. .	Goulburn Main Channel Extension .. .. .	985	12 10
2099	W. Ewart .. .. .	Drainage Channel, Tresco .. .. .	603	15 0
2100	W. Ewart .. .. .	Drainage Channel, Tresco .. .. .	438	16 5
2101	G. Billingham .. .. .	Levee Bank, Loch Garry .. .. .	944	3 4
2102	J. F. Considine .. .. .	Tandarra-Calivil Channel .. .. .	927	16 3
2103	Mooney & Abrahams .. .. .	Tandarra-Calivil Channel .. .. .	814	14 3
2104	G. F. Sewell .. .. .	Side Tipping Trucks, Red Cliffs .. .. .	911	5 0
2105	H. Perks .. .. .	Mechanical Stokers, Red Cliffs .. .. .	5,859	14 0
2106	Broken Hill Pty. Co. Ltd. .. .. .	Steel Rails, Red Cliffs .. .. .	1,781	5 0
2107	M. Chapman .. .. .	Briek Offices, Tongala .. .. .	1,677	17 0
2108	Albert Coe .. .. .	Earthen Storage, Tiega .. .. .	439	0 0
2109	W. & G. Doherty .. .. .	Levee Bank, Loch Garry .. .. .	700	10 0
2110	J. F. Considine .. .. .	Tandarra-Calivil Channel .. .. .	518	6 1
2111	A. N. Ackland .. .. .	Tandarra-Calivil Channel .. .. .	652	9 11
2112	S. A. Stevens .. .. .	Tandarra-Calivil Channel .. .. .	779	4 9
2113	T. Perkins .. .. .	Tandarra-Calivil Channel .. .. .	453	6 0
2114	Humble & Sons Pty. Ltd. .. .. .	Steel Coal Bins, Red Cliffs .. .. .	764	16 10
2115	H. Kendell .. .. .	Firewood, Hume Reservoir .. .. .	350	0 0
2116	A. J. Kendell .. .. .	Firewood, Hume Reservoir .. .. .	175	0 0
2117	Toohey & Heisel .. .. .	Waranga-Kyabram Channel .. .. .	603	7 3
2118	Dorman Long & Co. Ltd. .. .. .	Steel Boiler House Structures, Red Cliffs .. .. .	749	3 0
2119	H. Crowther .. .. .	Contour Survey, Jarklan .. .. .	800	0 0
2120	Mooney & Abrahams .. .. .	Tandarra-Calivil Channel .. .. .	1,066	3 5
2121	J. Kett .. .. .	Tandarra-Calivil Channel .. .. .	1,052	15 4
2122	Australian Portland Cement Co. .. .. .	60,000 bags Cement .. .. .	16,500	0 0
2123	G. F. Sewell Pty. Ltd. .. .. .	Side Tipping Trucks, Hume Reservoir .. .. .	1,596	0 0
2124	F. Osman .. .. .	Firewood, Hume Reservoir .. .. .	85	16 0
2125	W. Oldham .. .. .	Deakin Main Drainage Channel .. .. .	675	17 0
2126	W. Partis .. .. .	East Goulburn Main Channel Extension .. .. .	526	19 4
2127	W. Partis .. .. .	East Goulburn Main Channel Extension .. .. .	582	12 6
2128	J. T. Gawne .. .. .	East Goulburn Main Channel Extension .. .. .	1,077	13 1
2129	P. R. Brooke .. .. .	East Goulburn Main Channel Extension .. .. .	896	5 9
2130	Branson and Thorn .. .. .	East Goulburn Main Channel Extension .. .. .	745	10 6
2131	J. A. Rippen .. .. .	East Goulburn Main Channel Extension .. .. .	744	0 2
2132	Darlow & Jansen .. .. .	East Goulburn Main Channel Extension .. .. .	1,457	9 7
2133	H. Thomas .. .. .	East Goulburn Main Channel Extension .. .. .	1,460	16 2
2134	Shears & Jones .. .. .	East Goulburn Main Channel Extension .. .. .	852	0 0
2135	A. Gibbons .. .. .	Erection Buildings, Werribee .. .. .	817	0 0
2136	T. Perkins .. .. .	Deakin Main Drainage Channel .. .. .	584	2 11
2137	J. Ketterer .. .. .	Deakin Main Drainage Channel .. .. .	2,961	8 3
2138	Thompson & Co. (Castlemaine) .. .. .	C.I. Gates and Pipes, Sugarloaf Reservoir .. .. .	5,335	3 5
2139	Crossle & Scott Pty. Ltd. .. .. .	Compression Testing Machine .. .. .	377	0 0
2140	Perry Engineering Co. .. .. .	Metal Work, Mildura Weir and Loek .. .. .	3,123	10 3
		Total .. .. .	£167,735	12 2

## 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 during the year were on the following works:—

Works.	Amount.
Wimmera Mallee System .. .. .	£114,695
River Murray Storages (Hume Reservoir, Torrumbarry and Mildura Locks) .. .. .	102,022
Maffra District (Glenmaggie Reservoir) .. .. .	100,362
Red Cliffs District .. .. .	91,912
Goulburn Main and Distributary Channels .. .. .	72,146
Millewa Waterworks District .. .. .	71,270
Sugarloaf Reservoir .. .. .	70,652
Waranga Reservoir .. .. .	45,326
Kerang, Kerang Lakes, Koondrook, Boort, and Tragowel Plains Districts .. .. .	31,614
Nyah, Rodney, Shepparton, Merbein, and Cohuna Districts .. .. .	29,931
Mornington Peninsula Waterworks District .. .. .	25,462
Mallee Tanks, Clearing Roads (Mallee) .. .. .	22,967
Torrumbarry Districts and Swan Hill District .. .. .	21,612
Coliban and Other Districts .. .. .	20,850
Kooweerup and Cardinia Flood Protection Districts .. .. .	19,210
Bacchus Marsh and Werribee Districts .. .. .	8,395
Total .. .. .	£848,426

## WORKS CARRIED ON OR COMPLETED DURING THE YEAR ENDED 30TH JUNE, 1924.

### COLIBAN DISTRICT.

The policy of increasing the capacity of the Main Channel from Malmsbury to meet the growing demand for water has been steadily pursued. Amongst other works carried out, two brick-lined tunnels, aggregating over a quarter of a mile in length, have been converted into open cuttings. All the worst constrictions have been dealt with; and the channel will now carry twice as much water as it did before these improvements were made. Work to still further increase the capacity of the main channel is now in hand.

A scheme has been entered upon, and in part carried out, for improving the conditions of supply to Castlemaine. The new works include a Service Basin of 750,000 gallons capacity, situated about a mile and a half from the town, and connected to the reticulation by a 12 inch main. The elevation of the basin is such as to ensure a very beneficial effect in maintaining the town pressures under all conditions. Already important improvements to the reticulation have been effected, and others are in hand.

A commencement has been made with work on the bywash at the Upper Coliban Reservoir. This work, which will consist of groups of Grigotti syphons and a system of drop bars, will, when completed, raise the permanent full supply level of the reservoir 4 feet, and will add about 3,000 acre-feet to the storage.

An important improvement has been made in connexion with the supply to the Township of Raywood. Formerly the local reservoir, from which the town supplies are drawn, was filled through a 6 inch cast-iron pipe; this has been replaced by a 9 inch concrete pipe.

The screening device at the end of the Main Channel at No. 7 Reservoir, through which the water is delivered to the Bendigo Reservoirs, has been brought into operation, and is working satisfactorily.

### IRRIGATION AND WATER SUPPLY DISTRICTS.

#### RODNEY DISTRICT.

During the last irrigation season, owing to the cool and unusually wet weather conditions, especially during the latter part of the summer, irrigation was not practised as freely as in the previous season; nevertheless, 41,000 acres, including over 24,000 acres of lucerne, were irrigated.

Several large holdings have been subdivided for Closer Settlement, necessitating the construction of many new works such as outlets, culverts, checks, syphons, and measuring boxes. About 2 miles of new distributary channels have been constructed, and several miles of existing channels have been remodelled.

The enlargement of the Wilson Channel has now been completed as far as its junction with the old Wilson Channel, and the extension of this work to the McKenzie Channel is now in hand. The work of enlarging the McKenzie Channel is now practically completed. The new Waranga-Kyabram Channel has been completed for several miles, and this portion will be ready for use during the irrigation season 1924-25. The construction of the drainage channel, which was undertaken by the Wyuna settlers in co-operation with the Commission, is now practically complete. Several old timber bridges have been replaced by concrete structures, and other timber bridges will be so replaced as the need arises.

#### SHEPPARTON DISTRICT.

In order to supply lands totalling 3,000 acres north of, and adjoining, the existing district, a total length of 16 miles of channels, together with the necessary structures, has been completed. This area known as Thomas's and Dennis's, is being settled under Closer Settlement conditions, many of the settlers being approved settlers from overseas. On this estate a comprehensive scheme of house building is being undertaken, and up to the present fifteen houses have been erected and six more are in course of construction. The estate is being added to the Shepparton Irrigation District.

In furtherance of the Commission's policy of extending the irrigation facilities on the east side of the Goulburn, distributary channels of a total length of 26 miles have been constructed in the parish of Kialla; and this area, comprising 15,000 acres, and which will be known as South Shepparton Irrigation District, will be supplied with water this coming irrigation season.

In the parish of Arcadia, adjoining Kialla, earthworks have been completed for 18 miles of channel, and the necessary structures thereon are being built.

The Main Eastern Channel from the Goulburn Weir is being extended in a northerly direction. Four miles of the earthworks are already completed, and a further length of 8 miles is in course of construction from its existing termination near Pine Lodge. This brings the channel within 2 miles of Katandra, where some 9,000 acres have been purchased by the Commission for Closer Settlement.

In the existing Shepparton Irrigation District the principal works have been those of repairs and maintenance, and further provision for drainage and replacement of drop bars and outlets where necessary.

#### SWAN HILL DISTRICT.

This district was, during the year, extended to include Mathieson's, Holloway's (two), Berry's, Rangott's, and Sunda Singh's Estates, comprising in all 1,878 acres. It is now proposed to further extend the district to include an area of 14,657 acres west of the Little Murray River which is now governed by the main Swan Hill Supply Channel from that river. Three miles of channel were lined with concrete. Five miles of supply channels were constructed, and necessary structures put in; also numerous structures, including bridges, outlets, and minor works, were built in other parts of the district. Five and a half miles of drainage channels were excavated in Woorinen and Woorinen North. Portion of this work necessitated very heavy cutting. Forty-eight chains of pipes were laid for drainage purposes.

#### DISTRICTS ADMINISTERED FROM KERANG CENTRE.

In the Kerang District, although there were unusually heavy rainfalls during the latter half of the irrigation season, there was a good demand for water. A considerably increased supply as a result of the coming into operation of the Torrumbarry Weir on the Murray River was made available. In Wandella section, a stream of 40 to 45 cusecs was being delivered as compared with 20 to 25 cusecs drawn from Kow Swamp during the previous season. It is the Commission's intention to considerably improve the channel system throughout this district, and to tap new areas now that the water supply is assured. In addition to the carrying out of ordinary maintenance work, a 24 inch reinforced concrete subway to replace the old 18 inch subway was constructed on Wandella spur channel No. 3A, at Wandella Creek, and several main-road bridges were redecked. Numbers of leaky timber head checks on small spurs were replaced by concrete pipe checks.

The Main Channel from No. 1 gravitation inlet on Gunbower Creek, at Koondrook, was deepened and enlarged in order to carry the augmented supply to the Koondrook Irrigation District from Torrumbarry Weir via Gunbower Creek. That district, which hitherto depended mainly on the Koondrook pumping plant for its irrigation supply, was fed by gravitation throughout the season with most satisfactory results. In order to control and regulate the water in Gunbower Creek at Koondrook, a reinforced concrete spillway, having a sill of 90 feet in length combined with a ford for road traffic, was constructed on Gunbower Creek downstream from No. 1 gravitation inlet. A new spur channel, together with pipe culverts and outlets, was constructed from the Northern Spur channel No. 1, and several meter outlets were installed in various parts of the district. Several leaky channel banks in the Murrabit section were cored with 2 inch concrete, and other banks were strengthened where necessary.

At Tye's Closer Settlement Estate, at Gonn Crossing, Murrabit, a complete drainage system has been constructed to deal with stormwater. The main and subsidiary drains have been constructed through the groves to the Murray frontage where the drainage concentrates, and is discharged through a 42 inch diameter reinforced concrete conduit to the Murray. The drainage will discharge by gravity until the river rises to R.L. 233.50 (6 feet below maximum flood level), after which it will be lifted by means of a stationary pumping plant, which is now being installed. A regulating tower, combined with which is the suction well and pump chamber, is fitted with the necessary baulks to prevent back flow into the drains during high river. The aggregate length of the main and subsidiary drains is 5½ miles.

The estate known as Ross and Anderson's, at Murrabit, mentioned in last year's Report as having been acquired for Closer Settlement, was (excluding an area of some 300 acres reserved for the new Murrabit Township at the terminus of the now nearly completed Kerang-Gonn Railway) subdivided into 52 allotments suitable for dairying and citriculture. Upwards of 30 blocks have already been allotted to oversea settlers, the majority of whom have had houses built for them by the Commission.

The extensive irrigation works to serve this estate and another estate, known as O'Donnell's, comprising an area of 620 acres of first-class land fronting the River Murray recently acquired for Closer Settlement, together with private properties in the vicinity and at Myall, which were commenced in October, 1923, are now nearing completion, and will be in full operation during

the coming season. The total length of channels involved is 16 miles, and the supply works include road and occupation bridges, syphons, and regulating structures.

The area reserved for the new Murrabit Township, referred to above, which is situated at the terminus of the Kerang-Gonn Railway near the River Murray, was subdivided. The first sale of township blocks, which took place at Kerang on the 9th May, 1924, was very satisfactory, prices for business sites ranging from £65 to £150, and for residential blocks, £55 to £165.

The Kerang North-West Lakes were maintained at full supply level during the irrigation season as a result of the coming into operation of the Torrumbarry Weir, and large areas previously irrigated by pumping were brought under the influence of gravitation. At Kangaroo Lake Levee a windmill plant, comprising a 10 inch pump with 6 inch suction and delivery, was installed to deal with the seepage water collecting in the side drains. The levees between Middle Lake and Lake Charm were strengthened, and the waterway improved generally. The country between Third Lake and Benjeroop, some 10,000 acres in extent, the greater portion of which will be commanded by gravitation from the Third Lake storage, is being reticulated by a channel system taking off from Third Lake. Work is proceeding on the first 8 miles of main channel, several sections of which have been completed.

#### DISTRICTS ADMINISTERED FROM COHUNA CENTRE.

The completion of Torrumbarry Lock-Weir and incidental structures, levee banks, and channels enabled the Cohuna and Gannawarra Districts to be watered by gravitation throughout the entire irrigation season, marking an epoch in the history of these districts by the change from the combined gravitation and pumping system hitherto used.

The abnormally wet winter stressed the importance of the Commission's drainage works in the Cohuna District, and considerable attention has been given during the year to their improvement. The main Wee Wee Rup drain has been cleaned and regraded for a length of 15 miles up from its outfall into Barr Creek, and 4 miles of the main Leitchs Creek drain have been similarly dealt with. The extra outfall for this drain, designed to relieve its lower reaches of overload, has been constructed to 4 miles south from the Barr Creek towards its projected junction with the original Leitchs Creek drain. In addition, 8 miles of subsidiary drains have been constructed. In both districts works of maintenance of channels have been carried out, and a large number of crossings and culverts constructed.

In Cohuna Urban District 8 chains of pipes were laid, and twelve additional tenements connected with the Commission's reticulation system.

Works are now in progress for the irrigation, from the Torrumbarry-Cohuna System, of some 10,000 acres south of the boundary of the present Cohuna District and between it and Kow Swamp and Box Creek. This is known as Leitchville Irrigation Area.

Works for the supply to Leitchville Township, hitherto privately administered, have been taken over by the Commission.

#### DISTRICTS ADMINISTERED FROM LODDON CENTRE.

Throughout the watering season the requirements of irrigators on Tragowel Plains, Boort, and Dingee Districts were met. The extension of the Waranga Main Channel to the Loddon made it possible to supply Goulburn water to Boort district for a portion of March, until a good flow in the Loddon rendered this unnecessary.

In Tragowel Plains about 2 miles of new channel and the necessary structures, including a 24 inch pipe syphon 160 feet long, were constructed to supply portion of Canary Island Estate, which has been subdivided for soldier settlement, and is being included in the district. Several silt and combungie beds have been cleared out of the main channels; 40 chains of branch channel have been constructed; about 2 miles of distributary channels have been remodelled; twelve new checks and twelve new meter outlets installed; about twenty wheels replaced, and a large number repaired. The weirs on the Serpentine Creek have been repaired.

In both Tragowel Plains and Boort Districts the old wooden structures have necessitated considerable maintenance, many being repaired and some replaced altogether. Continual attention has had to be given to the old wooden bridges, many of which have been renewed with shorter spans or replaced with pipe culverts. This work of replacement will have to be continued next year.

To improve the Macorna Township reticulation, about 15 chains of wood pipe and 20 chains of iron pipe have been laid.

In Dingee District general maintenance of the works has been carried out.

On the Waranga Main Channel the subway at Thunder Swamp, at 70 miles 23 chains, has been remodelled. The banks have been beached in places and generally maintained.

Necessary repairs have been carried out to the Serpentine and Kinypanial Weirs on the Loddon.

## DISTRICTS ADMINISTERED FROM ROCHESTER CENTRE.

New supply channels of a total length of 7 miles 30 chains were constructed, 20 chains of which were concrete lined. The construction of these involved the excavation of some 34,000 cubic yards of earthworks and the erection of the usual concrete structures. The largest of these channels—to supply portion of Timmering—is  $4\frac{1}{2}$  miles in length, and will bring some first-class land under irrigation during the season 1924-25.

Greys Channel ( $1\frac{1}{2}$  miles) and the remaining portion of the Cornelia Creek No. 2 Channel (1 mile 20 chains) were reconstructed, thus ensuring full supplies to the lands commanded.

In the Bamawm area contracts have been let for 7 miles of drainage channel, of which a length of 4 miles 20 chains has been completed. In Nanneella, the drainage channel forms part of the main Deakin Drainage Scheme. Of the 4 miles 20 chains let in Nanneella, 3 miles 20 chains have been completed. This drain will deal principally with flood waters, but in Bamawm the drain will also provide an outfall for subsurface drainage on many holdings. A survey has also been made for a drainage channel about  $14\frac{1}{2}$  miles in length to relieve the eastern portion of Bamawm.

Surveys of proposed channel extensions, totalling approximately 100 miles, have been carried out to the north and west of the Rochester District. The first of these channels, the extension of the Bamawm Western No. 2, is now in hand, the old channel (3 miles) is being enlarged, and 6 miles of the new channel is now in the hands of the contractors.

A regulator is being constructed in the Waranga Western Channel at 40 miles 20 chains to minimize the flooding in Nanneella occasionally caused by backing up of Campaspe water in the channel.

In the Campaspe District fairly extensive repairs were again necessary at the Campaspe Weir and also on the buttress wall of the outlet gate of the eastern channel. Owing to the difficulty of securing decking to the boxes at the Weir, concrete reinforced with heavy pig netting has been employed. Other maintenance work in this district was confined to repairs to timber structures and some channel bank topping.

In that portion of Echuca North District administered from Rochester Centre one small spur channel, 13 chains in length, with a 2-chain syphon, was constructed, and a spillway and delver drain provided as a safety outlet for the Echuca North channel system. Necessary works of maintenance were also carried out.

## DISTRICTS ADMINISTERED FROM TONGALA CENTRE.

In Tongala District approximately 21 miles of new channels have been constructed to supply an area of 5,850 acres recently added to the district, and to which water rights have now been allotted, and also to supply an area of 2,000 acres purchased for subdivision for Closer Settlement purposes. The Koyuga Main Channel has also been extended 95 chains to connect up with the system of supply to the Echuca North District, and at the same time provide an outfall for this system into the main drainage works now in course of construction. General repair and maintenance work has been carried out, and, in addition, 60 chains on the main channel have been pug trenched for the prevention of seepage.

During the year 32 new holdings were made available for Closer Settlement, and have been taken up. On these holdings 17 new houses have been erected by the Commission and 6 privately, while the lessees have effected a very large amount of permanent improvements.

In Stanhope District approximately 7 miles of new channels have been constructed to command Closer Settlement land and privately-owned land added to the district. Surveys have been completed for the general extension of the channel system of this district to the west. Six holdings were made available, and all have been taken up and are being effectively improved.

Over 3 miles of banks through sandy land have been topped up with clay, while 60 chains have been pug trenched to prevent seepage.

In the portion of Echuca North District administered from Tongala remodelling work of the main supply has been carried out, and this work, together with the connexion channel from Tongala, will provide an efficient supply to the district.

In Deakin District general repair and maintenance work has been carried out, and 7 miles of channel have been cleared of silt. During the year five wooden bridges on roads have been replaced with concrete structures owing to the wooden structures being beyond repair. This district is gradually being absorbed by the adjoining districts, and the whole of the Deakin area between Stanhope and Tongala has been surveyed for channels, and the main lines pegged out.

The main drainage channel to serve the Stanhope, Tongala, Deakin, and portion of the Rochester Districts, is now being constructed; contracts have been let for 3 miles; while teams are working on the Stanhope end at piece-work rates.



## BACCHUS MARSH AND WERRIBEE DISTRICTS.

In Bacchus Marsh District extensive works were carried out for the repair and reinstatement of the Main Supply Channel at Mortons Bend, Vallence's, and Pigotts Bank. These works, which were necessitated by damages caused by a severe storm, involved the reconstruction of portion of the concrete lining and the repair and reinstatement of several storm drains, syphons, and storm shoots. Silt and water weeds have been scooped out of the bed of the Darley Main Channel for a length of 70 chains to an average depth of 15 inches. The work of lining supply channels with concrete was continued throughout the year. The total length of channel lining completed in the District is now 27 miles. The sides of the Wills concrete box channel were raised 8 inches for a distance of 24 chains, thus increasing the carrying capacity of that channel which supplies Broadlands Estate. A new 24 inch diameter pipe syphon on the Lerderderg East concrete channel was constructed. Sixteen chains of pipe main were laid along Lerderderg-street for domestic and stock supply to portion of the rural area.

The Pykes Creek Reservoir embankment road was completed early in the year. On the western side of the main embankment 30 acres of the Commission's Reserve have been fenced with netting, and all rabbits exterminated in preparation for extensive tree planting.

The protective work on the Lerderderg River, near Wills's property, is now completed. This includes 60 timber and stone cribs backed up with an earthen embankment, and protected on the upstream side with articulated concrete work. Additional works have also been carried out at Andersons Cut.

A trial survey has been made for a proposed channel line from the Werribee Gorge to the Lerderderg Gorge in connexion with a scheme proposed for the supply of an additional area of 1,000 acres not commanded by the existing works.

On the Main Supply Channel 2 miles 60 chains of storm drains were cleaned out, and 68 chains of concrete lining repaired. To make provision for extra supplies to the district, the gauging weir on the main channel was enlarged from 6 feet to 8 feet wide.

An occupation crossing over the Darley Channel and about 20 concrete outlets in the Werribee North Channel were constructed, and three measuring wheels have been installed in the Hopetoun Channels. A 24 inch diameter pipe syphon was constructed under the main Ballarat-road near the Lerderderg River concrete bridge. Ten chains of channel to Miller's were lined with concrete.

In the Bacchus Marsh Urban Division the pipe main in Cook street was lowered 2 feet for a length of 740 feet to enable the Bacchus Marsh Shire Council to reconstruct that street. Six chains of 2 inch main were laid in Graham-street to connect the reticulation between Sydney and Pilmer streets, and 10 chains of 2 inch main were also laid along the Gisborne-road connecting Dicksonia Estate with the Lerderderg street main.

In the Werribee Irrigation District the principal works carried out during the year have been in connexion with the completion of structures and channels on the Soldier Settlement. All checks and outlets are now installed, and sections of channels on grades over 8 feet to the mile have been lined with concrete 2 inches thick with expansion joints every 12 feet.

The deep drainage works projected last year have been completed, and an additional drain in the south-east section of the district is now in hand.

In the Werribee Urban District building operations have been brisk, and it has been found necessary to extend the reticulation mains to several new streets. Water purification tests were carried out during the year with good results.

In the Werribee Waterworks District the proposed remodelling of channels has been commenced, 2½ miles of channels having been enlarged. Further remodelling will be carried out during this year.

## MERBEIN DISTRICT.

This District has well maintained its leading position in fruit production. Yields from currant, sultana, and other raisin vines, this year, surpass any previous crop; and the citrus yield is equally satisfactory.

The lining of channels with cement concrete, which has been carried on for several years, is now practically completed. During the year a total length of 140 chains of channel has been remodelled and lined, and 40 chains of new lining has been done. A number of reinforced concrete bridges has been constructed throughout the district.

In the Birdwood Soldier Settlement the question of subsoil drainage has been receiving very close attention, and outfall channels are now in course of construction. The scheme consists of two sections comprising 86 chains of pipe line and 74 chains of open channel discharging into a porous drift 12 feet below the surface. The work is now well advanced, and a large area is thus fully protected from a recurrence of seepage troubles.

## RED CLIFFS DISTRICT.

In Red Cliffs District clearing operations have been continued, 1,000 acres having been cleared during the year. The total area cleared is now 15,400 acres.

Planting has taken place on all five allocations, and water was supplied to the whole of the allotted area during the year.

The total length of channels constructed on the Settlement is now 121 miles, involving 661,000 cubic yards of earthwork. Of a total length of 59 miles of main channels, 22 miles have been lined with 2 inch cement concrete; and of a total length of 62 miles of branch channels, 36 miles have been so lined, making a total of 58 miles of channels lined to date, of which 52 miles were done during the year.

Seven hundred blocks have now been allotted and occupied, and the total planted area consists of 7,000 acres of vines and 500 acres of citrus trees. The 1924 harvest, the first for the Settlement, returned 570 tons of dried fruit, besides which a considerable quantity of grapes was marketed fresh. Quite a number of settlers did well with side lines, the principal crop of this nature being green peas.

Very good progress is being made by the settlers, and a high percentage of successes is assured. The majority of blocks on first and second allocations and a number of the third allocation will be in bearing next harvest, making a total of about 400 blocks that will be bearing fruit, with a total tonnage of probably 4,000 tons of dried fruit for the season 1925.

A Co-operative Packing Shed, established since last Report, has handled the bulk of the 1924 crop. Considerable extensions to the shed are being made in order to cope with next season's harvest.

A stand-by generating unit for the electrically-driven re-lift system was installed at the Main Pumping Station, and all the First-Lift Pumping Units were completed, giving the Station a first-lift capacity of 250 cusecs provided by two 100 cusec turbine-driven units and a 50 cusec reciprocating engine-driven unit.

Owing to the yearly increasing scarcity and cost of firewood, the Commission, after full investigation, found that coal would be much more economical than wood fuel, and it was determined to make provision for such a change.

A coal-burning scheme has now been installed at the Main Pumping Station, the wood-burning boilers having been converted to coal-burning, to be fed by mechanically-operated chain grates. A siding and  $3\frac{1}{2}$  miles of 2 foot gauge railway have been laid to convey coal from the main railway line to the Pumping Station. Coal will be burned in place of wood during the next watering season; but should it be found necessary, in case of emergency, the boilers can be reconverted to wood-burning at short notice. A number of cottages have been erected to house the employees at the Pumping Station.

Considerable progress has been made in the township, a number of new buildings having been erected. Improvements to the town water supply have been undertaken, the construction of a reinforced concrete stand pipe, 70 feet high and 26 feet in diameter, is being pushed on to be in readiness for the increasing demand for water during the ensuing summer. It has also been decided to extend the reticulation system to four of the principal streets, and the completion of this work will synchronize with completion of the standpipe; so that for the coming hot season an assured and ample water supply for the township will be available.

A considerable amount of road improvement work has been carried out in the District, funds having been provided for this work in equal proportions by the Public Works Department, Mildura Shire Council, and Commission.

## NYAH DISTRICT.

In Nyah Irrigation District  $5\frac{1}{2}$  miles of channels were concrete-lined, making a total of 28 miles of lined channels in the District. Fifty-five chains of drain were excavated to provide for the effective drainage of the south-western portion of the Settlement. The work of deepening the main outlet drain is now in hand. Surveys have been made for the extension of the outlet drain serving the Soldier Settlement in the south east portion of the District known as Vinifera, and tenders are now being invited for this work.

Settlers in this District are showing marked improvements in methods of watering and cultivation, and the development of the settlement continues to proceed on sound lines. Soldier Settlers on Nyah North Extension harvested their first crops, and very good yields were obtained.

The township of Nyah West has developed considerably, a number of residences, business premises, and a hotel having been erected during the year. A reinforced concrete standpipe has been constructed, and the pipe reticulation of the township mentioned in the Eighteenth Annual Report has been completed.

#### MYSTIC PARK DISTRICT.

The Torrumbarry Weir Works have enabled supplies to be delivered to this district by gravitation for the greater part of the year; and it is expected that henceforth a gravitation supply will be available throughout all but exceptionally dry years.

Arrangements are being made to introduce a compulsory irrigation charge in this District during the ensuing year, for which purpose a register of lands has been prepared and water rights have been allotted.

In the District one and a half miles of new channels with the necessary structures have been carried out during the year to provide water for irrigation to portions not previously supplied.

#### TRESCO DISTRICT.

Considerable progress has been made in the work of remodelling the drainage and channel systems in this District. During the year 5 miles of drains have been regraded and enlarged Pipe culverts on the main drain carrying drainage water to the Dry Lake have been replaced by occupation bridges. Ten miles of channels have been remodelled, and 130 chains lined with cement concrete. Two small pipe syphons have been replaced by fillbanks and concrete-lined channels, and a 15 chain syphon on the high level channel has been replaced by a larger syphon. These alterations have greatly reduced the time taken for watering and effected a considerable reduction in the cost of pumping and distribution. During the year an office and storeroom for the Commission have been erected in the Tresco township.

At the relief pumping station, the new plant mentioned in the last Annual Report has been completed.

The settlers at Tresco West, a small irrigation settlement founded by the Australian Farms Coy. Ltd., have asked the Commission to take over control, and negotiations, which are very complicated, are still in progress.

#### MAFFRA DISTRICT IRRIGATION SCHEME.

Throughout the year steady satisfactory progress was made with the construction of the cyclopean dam on the Macallister River, which, when completed, will impound 150,000 acre feet of water for the irrigation of 80,000 acres of adjacent rich land. Up to date over 40,000 cubic yards of concrete have been poured into position or considerably more than one half the total volume required. All outlet pipes and controlling valves on the north side are now built in place and those on the south side are being installed. Both flanks of the structure are well up, and arrangements are being made to close the centre gap immediately the winter flows are over. It is anticipated, therefore, that early in the ensuing summer the dam will be sufficiently high throughout its full length to allow of the diversion of river flows for irrigation.

Special attention has been given to the construction of the Northern Main Channel which will supply the Boisdale and Newry flats. Notwithstanding the great difficulties caused by the almost entire absence of suitable contractors, sufficient progress was made, by means of the Commission's special excavating plants and its own horse teams, with the Northern Main Channel to ensure water being available at the Boisdale ridge early in the coming summer. The construction of the cement-lined main distributary channels, reticulating the Boisdale flats, is being simultaneously expedited so as to make a supply available there as early as possible to meet summer requirements.

A channel line, to serve the various properties recently purchased by the Commission for Closer Settlement purposes in the vicinity of Sale, has been surveyed and preliminary works started with a view to early completion. All the internal distributary channels required for Mewburn Park Settlement have been constructed, together with portion of the Main Channel; so that a full supply can be given as required next irrigation season, temporarily, by pumping from the river pending the completion of the Southern Main Channel which will be the permanent supply source.

#### INVESTIGATIONS OF NEW IRRIGATION AND WATER SUPPLY PROPOSALS.

At the request of the owners of lands too high to be commanded from existing channels between the Werribee and Lerderderg Rivers, a scheme for the supply of these lands, by a high level channel taking off from the former river in Werribee Gorge has been investigated and submitted for consideration by those interested.

Investigations as to areas that can be commanded by gravitation from Torrumbarry Weir have been completed; and as a result reticulation works for new districts are in course of construction at Leitchville, and the portions of the parishes of Dartagook and Benjeroop north of Third Lake. As a result of the investigations, arrangements are also being made for a regular supply, under a compulsory charge, to the area south of the Swan Hill District, commanded by the Boga to Swan Hill Main Channel.

On the Gonburn system the works of a new district to be known as South Shepparton are approaching completion and those for extension of the Tongala, Rochester and Tragowel Plains districts are in progress.

The results of more complete investigation than has hitherto been made into the cost of a pumping scheme for Rutherglen show the cost to be so high as to require further consideration before any recommendation can be made.

In the valley of the Campaspe, division of local opinion exists as to whether charges could be met by the present landholders for so costly a scheme as that which would have Eppalock Storage as head works, and the question of its construction is being deferred for further consideration.

## WATERWORKS DISTRICTS.

### CARWARP DISTRICT.

A number of old road culverts have been replaced by reinforced concrete pipes, provision being made for increased widths of roadway at these new structures to give ample clearance for large agricultural machinery. The complete watering of the district was satisfactorily carried out, the water being supplied from the Red Cliffs District pumps. The usual maintenance and repair work has been carried out. Surveys are being carried out to determine the line of a main channel to supply about 50 square miles of new country in the parishes of Carwarp and Colignan. This area will be added to the Carwarp Waterworks District. To enable the proposed new channel to be supplied with water, arrangements are also being made for the enlargement of the Carwarp East Branch channel for a length of 28 miles from its commencement.

### CARWARP CENTRAL DISTRICT.

At the request of land-owners whose allotments were in the Carwarp District, but not commanded by gravitation from its channels, a new district, known as the Carwarp Central District, has been constituted, and the construction of the scheme of water supply for this District described in last Annual Report has been pushed ahead. Twelve miles of channel have been excavated, and a pump and rising main are now being installed.

### WIMMERA-MALLEE WATER SUPPLY.

The whole of the districts comprising the Wimmera-Mallee Domestic and Stock Water Supply System, embracing over 11,000 square miles, received full supplies of water in rotation during the year, 4,800 miles of the Commission's main and branch channels being run. The conditions during the season were generally favorable for the running of water. Besides furnishing full supplies to the local Waterworks Trusts within the Wimmera-Mallee areas, reticulated systems of the following townships in this area were supplied directly by the Commission, viz:—

Berriwillock	Dimboola	Lascelles	Piangil	Ultima
Beulah	Dooen	Minyip	Quambatook	Waitehie
Birchip	Hopetoun	Natimuk	Rainbow	Watchen
Brim	Jeparit	Nyah West	Rupanyup	Woomelang
Culgoa	Jung Jung	Ouyen	Sea Lake	Wycheproof

### WESTERN WIMMERA, UPPER WESTERN WIMMERA, WIMMERA UNITED, UPPER WIMMERA UNITED, AND KARKAROOC DISTRICTS.

The Kellalac Main Channel, a new channel of 18 miles in length, has been completed to provide a supplementary supply for the northern portion of the Western Wimmera District, the eastern portion of the Upper Western Wimmera District, and the western portion of Karkaroc District. The provision of this channel became necessary in order to provide the increased supplies required on account of extensions and improvement of the system on the west side of Yarriambiack Creek. This channel obviates the costly duplication of the existing Jung flumes and the enlargement of the Main Western Channel, which would otherwise be inevitable.

The pumping plant serving the Jung High-level Channel has been removed from the vicinity of Murtoa, in the Wimmera United District, to a more suitable site on the Main Central Channel, and is now so situated that whilst giving an improved supply in the existing channel, it will also command a considerable area of high country east of Kewell hitherto unsupplied, the distributary system of which area is now being constructed.

In the Western Wimmera District it is proposed to extend the Wabner Channel some 8 miles to supply lands having no channel supply at present. A storage of 6,000 cubic yards capacity has been constructed and filled with water close to Tarranyurk Railway Station. Many short channel extensions, 44 miles in all, have been constructed to enable supplies to be given to isolated areas not previously supplied.

A reticulated supply for the township of Brim was put into operation during the year with very satisfactory results, and a number of minor extensions to various urban reticulations throughout the above-mentioned districts have been made to cope with development in the urban centres.

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

Large extensions of the Tyrrell District have been made to include considerable portions of the extensive Mallee Soldier Settlements indicated in the last Annual Report, as well as other newly-settled areas receiving supplies for the first time. Every effort has been made to supply these areas, and as much as 103 miles of new channels have been constructed during the year. An important scheme has been prepared for giving channel supply, both by gravitation and pumping, to the area in the vicinity of Walpeup, which lies outside the limits of bore water, and which at present depends on a meagre supply from local surface catchments. The scheme provides for an extension of the Tyrrell District to embrace that portion which can be commanded by gravitation from extensions of the main channel system, and for the constitution of a new district to embrace those further areas which are so high as to necessitate supplies by pumping. This scheme is now being submitted to the landholders concerned for their concurrence prior to commencement of operations.

A commencement has been made with the construction of a channel which will supply portions of the parishes of Dennyng and Dering, east of Patchewollock. As this channel will traverse about 12 miles of sandy country, its construction will be difficult, and will require the special treatment of clay lining, which by experience in other localities the Commission has found to be effective.

A new storage of 10,000 cubic yards capacity, known as the Wagant Tank, has been constructed and filled, and the important tanks known as Burnell and Latimers have been connected to the channel system. These storages will provide a supply for the adjacent high country in the parishes of Burnell and Wagant not commandable by gravitation.

Various extensions to mains in urban districts throughout the above-named Waterworks Districts have been made, and additional windmills are being provided at Watchem and Berriwillock to cope with the demand due to the increasing development of these townships.

#### SUPPLY TO MARNOO AND CHARLTON DISTRICTS.

Good progress has been made with the construction of the Main Channel, which will give supply to these districts. Of the 105 miles of channel necessary to reach Charlton, 55 miles have been excavated, and the construction of the necessary concrete structures is well in hand.

Surveys are being expedited for the continuation of the channel northwards to the main Corack-Wycheproof Channel as well as the branch to Charlton. This latter channel will, of course, receive precedence in construction, and final proposals for an improved supply for the town of Charlton are now being formulated.

Details of a proposed reticulation scheme for the supply of the township of Marnoo are also being prepared.

#### LONG LAKE AND TYNTYNDER DISTRICTS.

A considerable extent of newly-settled country, chiefly Soldier Settlement, has been added to the northern portion of Tyntynder District. Fifty-eight miles of channel have been constructed, which practically complete the works required for the supply to that area which can be commanded by gravitation from the Wimmera-Mallee System, with the exception of portions of the parish of Yungera, for which surveys for the necessary channels have now been made.

A large area of the northern portion of Tyntynder District received a supply during the year for the first time.

The new reticulation schemes for Nyah West and Piangil townships have been completed, and are now in successful operation, and the construction of one for the township of Manangatang is in progress and nearly completed.

At Wandown a new storage of 14,000 cubic yards capacity has been constructed, and filled by channel. This storage is adjacent to the country about to be thrown open in the parishes of Wandown and Nenandic. A useful storage of 4,000 cubic yards capacity has also been built on the Pines Central Channel.

#### MORNINGTON PENINSULA DISTRICT.

Notwithstanding the greatly increased draw upon the headworks of the Mornington Peninsula Scheme due to very considerable extensions of reticulation in all the towns served, the reservoirs at Beaconsfield, Frankston, South Frankston, Mornington, and Bittern were kept fully supplied during the year, and full pressures were maintained at the Naval Base and in all the mains in Mornington, Frankston, South Frankston, Carrum, Chelsea, Edithvale, Aspendale, Cranbourne, Somerville, Bittern, and Berwick. The scheme for giving reticulated supply to the highest levels

of Berwick town was completed, a reinforced concrete standpipe, capacity 100,000 gallons, 50 feet high, being built on the top of the hill; this is kept filled from the town service basin by a 20-ft. diameter windmill. A similar scheme for giving reticulated supply to the highest levels at South Frankston has been put in hand. A reinforced concrete standpipe, 30 feet high, 60,000 gallons capacity, is being constructed on the highest level, and this will be replenished by a 20 foot diameter windmill lifting from a suitable earthen tank fed from the gravitation mains of the district.

Although unprecedented wet conditions experienced right throughout the year seriously delayed the completion of the main supply line from Berwick to Dandenong, the new storage on Heywoods Hill, some 2 miles north of Dandenong, proved so very satisfactory, and such a full supply was maintained therein, that, in addition to considerable extensions to Dandenong reticulation, the main pipe line to Noble Park and Spring Vale was laid, and a great part of the reticulation of these rapidly developing centres was completed during the year. The new main supply line from Berwick to Heywoods Hill reservoir should be available for the coming summer, ensuring a full supply for all the growing requirements of the Dandenong District.

The completion of this main line will also enable a start to be made early in the coming year with the extensions of the Main Race, from its present temporary terminus at Toomuc Creek to tap the Cannibal Creek and the other principal feeders of the Bunyip River as provided in the full scheme. This will meet the steadily increasing demands which continue to be made for participation in the undoubted benefits conferred by the scheme. It is expected that substantial progress will be made during the coming year with the reticulation of Hastings and Pakenham townships, while full investigation will be made into proposals to supply the bayside towns of Dromana, Rosebud, Rye, Sorrento, and the Quarantine Station at Portsea, which were not originally included in the scheme.

One of the principal aims of this important scheme is the gradual supply to small blocks of suitable quality and situation in semi-rural areas for the purpose of fostering the development, on the best lines, of market gardening of various kinds and other forms of intensive culture. It is believed that if pressure pipe supplies of adequate volumes were given under suitable terms very material encouragement would be given to many gardening industries by enabling holders to work their small blocks under the most advantageous conditions.

The rapid extension of the suburbs of Melbourne in recent years has resulted in considerable areas of land formerly used for market garden purposes being withdrawn and subdivided into building allotments. In view of this development, the Commission has purchased 3,200 acres of land in the Hallam Valley in close proximity to the Dandenong, Hallam, Narre Warren, and Berwick Railway Stations. This it is proposed to cut up into blocks of 10 to 15 acres for market gardens and other intense culture, thus providing a splendid extension of Closer Settlement, while at the same time assisting the market garden industry. A portion of the area is at present subjected to flooding by the tributaries of the Eumemmerring Creek, and arrangements are being made to reclaim this portion by means of a suitable drainage scheme. The whole area is comprised of first-class land highly suitable for intense culture. The blocks will all be efficiently drained, cleared, and fenced, and will all be supplied with water under pressure by means of a pipe system from the Berwick-Dandenong main race. Electricity for all purposes will also be available from the Electricity Commission's Scheme of Supply to that locality.

#### WONTHAGGI DISTRICT.

The supply of water to this district was satisfactorily maintained throughout the year, notwithstanding an increased demand by the State Coal Mine owing to the installation of additional plant. The 12 inch main pipe line from the Lance Creek Reservoir was cleaned during the year, as a result of which its discharge was materially increased. Several important extensions to the reticulation to supply new subdivisions were carried out, and the service basin in the town was emptied and cleaned. To prevent the pollution of the Lance Creek Reservoir, the fence around the reserve was renewed and netted.

In connexion with the water supply to North Wonthaggi steps are being taken to have an urban waterworks district proclaimed; it is anticipated that an early start will be made with the construction of works, plans for which are already in course of preparation.

#### NORTHERN MALLEE WATER SUPPLY.

In that portion of the Northern Mallee, embracing about 1,250,000 acres adjoining the Wimmera-Mallee Districts, but above their channel levels, a large amount of work has been done during the year. Roads have been cleared and grubbed, and sandhills rubble with limestone, while additional bores and tanks have been provided.

## BORES.

Three bores in the parishes of Danyo, Duddo and Nyang were completed during the year. The Danyo bore, near the township of Murrayville, was sunk to a depth of 450 feet, fresh water being struck at a depth of 320 feet: but boring was continued successfully to the greater depth in order to obtain a larger volume of water. At the Duddo bore, inferior water was obtained at a depth of 501 feet, and as no better supply was struck, boring was discontinued at 795 feet. At Nyang, after several flows of inferior water had been passed through, boring was discontinued at 838 feet. Three new bores are being put down in the parishes of Tyalla, Purnya and Koonda. The total number of successful public bores in the Northern Mallee Area is now 95.

## TANKS.

Eleven catchment tanks, having a total capacity of 50,950 cubic yards, were completed. There are now 187 tanks in this area having a total storage capacity of 1,001,750 cubic yards, equal to 169,045,300 gallons.

## WINDMILLS.

The system of direct supply to the Murray Frontage Soldier Settlers by windmills and hand pumps is working satisfactorily. An additional storage tank has been constructed at Wemen, while additional hand pumps have been placed at suitable points along the river. The existing hand pump at Snaggy Point is being replaced by a windmill and storage tank.

## ROADS.

During the year 258 miles of roads have been grubbed—bringing the total length of roads grubbed and cleared throughout the District to 4,098 miles. About 400 sandhills, of a total length of 40 miles, were improved by rubbling with local limestone.

## WATER SUPPLY, MILLEWA.

Special efforts have been made during the year to expedite the construction of the works of this most important scheme. Progress has been so satisfactory that direct channel supply was able to be made available for the whole of the area at present subdivided and settled.

The scheme of supply comprises one main lift of approximately 125 feet from Lake Cullulleraine, a depression on the edge of the river flats about 5 miles from the River Murray. The supply to this storage is drawn temporarily by a low lift pump from the river near No. 9 Lock, pending the completion of the lock and deepening of the inlet channel sufficiently to give a gravitation supply to the lake.

An additional pumping plant, involving a further lift of 150 feet through 2 miles of rising main, will be necessary to supply a second lift area of about 360 square miles, too high to be commandable from first lift system. This will be undertaken during the coming year so as to provide supply within a reasonable time of the settlement of this area.

Those portions of the scheme already constructed are so designed as to provide for the ultimate supply of the whole area served by the Red Cliffs to Werrimull railway line and its extension to "The Hut" (51 miles). Provision has been made for enlargement, so as to supply when necessary the country further westward towards the South Australian border, and also, if found desirable and economical, an additional area of some 500,000 acres southwards, in what is known as the Rocket Lake and Sunset country.

During the year no less than 212 miles of channels, including 50 miles of main channels, have been constructed, and the first unit of the main pumping plant with rising main was erected in complete working order.

In May and June of this year the whole of the area then selected and a considerable portion not yet subdivided received a supply of water by channel. A number of new settlers who had tanks ready received supplies, and fourteen large storages and several original station tanks, in all 250,000 cubic yards capacity, were filled, thus providing within a few miles of their allotments water for new settlers until they are able to make their own storages.

Channel surveys are also being expedited in the country still to be subdivided into allotments, and the construction of main and distributary channels is proceeding steadily in advance of settlement.

Portion of the area will be constituted as a Waterworks District early in the coming year, and will include all the agricultural allotments which have already been selected, and those in the parishes of Yaramba and Willah, which are about to be allotted, 270 in all, comprising 233,000 acres, or 380 square miles. This district will be extended from time to time as settlement progresses.

Surveys in what is known as the Rocket Lake and Sunset area, previously referred to in which no settlement has yet taken place, are in progress in order to determine the best method of

supply. The possibilities being investigated are its supply from the Millewa Second Lift System or by gravitation from the proposed new Walpeup extension of the Wimmera-Mallee system. It may prove necessary to supply some portions of this area from each source. Investigation so far shows that the nature of the country will make any channel scheme somewhat difficult and costly both to construct and maintain, and this fact will probably necessitate special treatment if the interests of the State demand the settlement of this area.

#### PLAN OF MILLEWA WATER SUPPLY SYSTEM.

As considerable advancement has been made with the construction of works for the domestic and stock supply of the Millewa Area, embracing about 1,000,000 acres, a plan has been inserted in this Report showing the area, the method of supply and its situation relatively to the existing Irrigation and Water Supply Districts in the vicinity.

#### CATCHMENT TANKS AND ROADS IN THE MILLEWA AND SUNSET AREAS.

In the Millewa area, which is served by the recently constructed Red Cliffs to Werrinull railway, and for which permanent water supply works as previously described are being carried out, a considerable amount of work has been done in the clearing of roads and the construction of catchment tanks for preliminary water supply. In this area and in the adjoining Sunset country, nine large catchment tanks of a total capacity of 51,830 cubic yards have been completed during the year. There are now thirteen large tanks and over 50 small tanks in this area. Their total storage capacity is 75,000 cubic yards. Although these tank supplies will be eventually superseded by the channel system their construction has done much to open up the country and they will always be of great use as public supplies. In the Millewa country, 100 miles of roads have been grubbed, bringing the total length to 190 miles. More than 150 miles of tracks have been also cut: and direct communication is now possible between Ouyen, Sunset and Merrinee.

#### DRAINAGE AND FLOOD PROTECTION SCHEMES.

##### KOOWEERUP AND CARDINIA.

Anticipated progress towards the completion of the works of this important flood protection and drainage scheme was retarded on account of the abnormally wet conditions which prevailed throughout the greater part of the year, particularly during the summer and autumn months when, in normal years, conditions are best for carrying out works in such areas. Horse team work upon the minor drains was so seriously checked that comparatively little construction was carried out. The only substantial progress made was where excavating machines were in use. The Dragline Excavator working on the enlargement of the main carrier, known as the No. 7 Yallock Drain, advanced steadily nearly 4 miles, and is now close to the eastern boundary of the District as at present constituted. Great relief is now being experienced in the locality as the result of this work. This machine will very shortly be employed to cut a new channel across to tap a large depression at the head of the No. 6 Drain in the vicinity of Modella and divert a portion of the No. 6 flow into the enlarged No. 7 Drain. This should provide a means of dealing with minor floods until such time as the No. 6 Drain can itself be enlarged so as to better cope with floods.

To provide increased capacity in the Drain known as McDonalds, which receives the whole flows of the Deep Creek and Northern Boundary Drains, it was found advisable to arrange, as opportunity offered, for raising and strengthening the banks in order to permit of greater discharge above natural surface level. Much of this work was done during the year, and it should be completed during the coming year.

To save the eastern side of the Kooweerup Area from the continual overflow of the Lang Lang River a dredger extended the new cut for the river with its protective embankment on the swamp side to a point some  $4\frac{1}{2}$  miles north of the South Gippsland railway line, where the existing river section is already sufficiently large to deal with ordinary floods. The clearing and snagging of the river has also been completed for an additional 4 miles to link up with the work previously done at Heath Hill. The old river section in the vicinity of Heath Hill is now unable to cope with the continually increasing run-off from its catchment area, and to effect further improvement at this point it has been arranged to divert portion of the discharge through a direct cut to be machine excavated across the bend near Heath Hill railway station, approximately 90 chains in length, so as to join the existing wide section below the railway line.



In the Garfield Area a bucket dredger completed the excavation of Walker's Main Drain for a distance of  $2\frac{1}{2}$  miles. The eastern extension of this Drain, some 2 miles in length towards Bunyip, which is necessarily of a smaller section, is now in course of construction by horse teams.

During the year in the Kooweerup Area approximately 300,000 cubic yards of earthwork were removed mostly by mechanical means; 8 miles of fencing were erected; bridges totalling 440 feet in length were constructed; 1,000 feet of concrete pipe 15 inches to 24 inches diameter were laid for drainage outlets; while miscellaneous work, including clearing and the construction of concrete drops, was carried out.

In the Cardinia District the Toomuc Main Channel was completed under contract to  $3\frac{1}{4}$  miles above its junction with the Cardinia Channel by Dragline Excavator. The machine employed has since been purchased by the Commission, and is being used for enlarging the Cardinia and Toomuc Outlets below the South Gippsland Railway Line. The Toomuc Catch Drain was extended 80 chains to the proposed termination, making a total length of 4 miles completed. On the McGregor's and Hagelthorn's Estates horse teams have roughly completed, under most adverse conditions,  $2\frac{3}{4}$  miles of drains which will form the main artery for the minor lateral feeders. In what is known as Tooradin Area approximately  $1\frac{1}{2}$  miles of minor drains have been constructed by shovel work, conditions being too unfavorable for horsework. In the Cardinia District as a whole approximately 60,000 cubic yards of earthwork were excavated by dredger and horsework; about 25 acres of scrub were cleared; one pile driven bridge 60 feet long was constructed; and 4 miles of drains were cleaned out.

During the year, in common with all West Gippsland areas, Kooweerup and Cardinia districts experienced a continuous rainfall of a most phenomenal character, causing excessive flows in all water courses. The abnormality of these floodings is clearly set out in the graph on the page following of this Report, which shows the maximum discharge in each year of the Bunyip River below the junction of the Tarago River. From this it will be seen that up to the present year the average maximum flow has been only some 2,000 cubic feet per second, while the maximum flow ever recorded was 4,000 cubic feet per second in June, 1911. It was upon this maximum the Flood Protection Schemes were based. Early in October, 1923, however, very heavy rainfall, combined with most unusual conditions, resulted in the greatest discharge of waters into the swamp area recorded for at least the past twenty years. This was exemplified in the Bunyip River, which is really the main canal, where the flow attained the maximum of over 7,000 cubic feet per second, or nearly double the previous maximum discharge of 4,000 cubic feet per second in June, 1911. For some 2 miles above Cora Lynn the waters overflowed the canal banks, although without making any breaches, and under such conditions the flooding of a comparatively large area of country in the vicinity was inevitable. Whilst the drains were unable to cope with such an abnormal flow, the effectiveness of the new works in minimizing the duration of the flooding was very apparent, and the areas flooded were drained off so quickly that damage was very materially reduced. While the flooding flow in October, 1923, practically doubled the highest flow previously recorded and really quadrupled the ascertained average, this in turn was far exceeded in August of this year, when the gauged flow of the Bunyip River showed no less than 8,600 cubic feet per second. This, of course, led to great and unavoidable flooding, but the new works again demonstrated their utility in affording quick relief in draining off.

To completely cope with such discharges as occurred in October and August last would entail works of very much greater magnitude than those contemplated. Moreover, as the conditions during the last twelve months have been undoubtedly very abnormal, it is considered advisable at this juncture to obtain further experience before contemplating such large works as would be necessary to obtain full protection against all conditions. To effect, however, a greater measure of protection and relief, it is proposed to carry out certain additional works in the Kooweerup area. These would comprise the extension of the No. 4 Yallock Drain for the purpose of intercepting the overflow from the Main Canal and thus provide greater protection to the area lying to the east; the extension of the Main Catch Drain along the north-west side of the canal for a distance of approximately 3 miles above Cora Lynn to carry waters from the subsidiary drains now discharging directly into the canal; the enlargement of the No. 6 Yallock Drain into a main carrier; the extension of the works along the Lang Lang River, together with a number of minor works.

In the Cardinia District it is proposed to commence, early in the coming year, the construction of the Main Western Contour Drain, which was one of the chief projected works of the original scheme. As a result of the relief obtained from existing works during recent years of low discharge, much opposition had been shown locally to the carrying out of this work, on account of the cost involved. It is, however, now recognized that protection from excessive flooding such as has recently occurred can only be obtained by means of this Contour Drain, and the work will be put in hand at once.

## ECHUCA.

The Echuca (High-street) Flood Protection Works continue to prove successful for the purpose for which they were designed and constructed.

## GOULBURN LEVEES.

The construction of the Loch Garry Flood Protection Works referred to in last Report are being pushed ahead, and 2½ miles of levees have already been completed. Arrangements have been made for the constitution of a Flood Protection District, which will embrace some 40,000 acres.

At the request of the land-owners in the vicinity of Warrigal Creek, a scheme has been prepared for the conservation of a domestic and stock supply in Warrigal Creek and the exclusion to a certain degree of flood waters from that creek by means of an earthen bank with a concrete regulator near its junction with the Goulburn River. Steps will be taken for the constitution of a Flood Protection District and the construction of the works.

## MURRAY LEVEES.

The members of the Interstate Committee of Representatives on Murray Levee Proposals, comprising officers of the New South Wales Water Conservation and Irrigation Commission and the State Rivers and Water Supply Commission of Victoria, met during the year at various places along the River Murray where levee banks were proposed, and at Melbourne. A number of applications for permission to erect levee banks were received from both States, and were dealt with by the Committee.

## RIVER EROSION, DRAINAGE, AND GENERAL.

A number of applications were received during the year from various parts of the State for permission to carry out flood protection, drainage, and other works. These proposals have been investigated, and in many cases permission has been given under the provisions of the *Water Act 1915* to the parties concerned to construct approved works for the protection of their lands.

Surveys in connexion with the proposed Latrobe and Tarwin River Flood Protection Schemes were carried out during the year for the obtaining of data to serve as groundwork for the schemes.

The Commission has still under review a scheme for protection from floods of the Orbost Flats on the Snowy River. The scheme appears, however, to be so extensive that it will probably be necessary to defer it for further investigation.

Investigations are being made with regard to a proposed drainage scheme in portions of the Shires of Lowan and Dimboola in the vicinity of Kiata and Lorquon. In years when rainfall is above normal considerable areas of rich wheat land become submerged temporarily and waterlogged, thus resulting in the destruction of a large amount of growing crop. At the request of the landholders concerned, action is being taken to ascertain whether a workable scheme of drainage at a reasonable cost could be proposed for this area.

## 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 1918 have been tabulated and are available to the end of 1923.

During the year a new gauging station has been established on the Tambo River at Ensay South, this being a more suitable site than the existing station at Bruthen. Gaugings at the latter station will be discontinued at the end of 1924.

Gauging stations on the Latrobe River at the Brown Coal Mine and Macallister River at Grogans-bridge were abandoned in favour of stations on those rivers at Yallourn Weir and Glennaggie Weir respectively. The number of gauging stations in the State is now 51.

## 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 and watercourses, lakes, lagoons, swamps and marshes, supervision has been maintained over all such waters.

Under the provisions of the *Metropolitan Drainage and Rivers Act 1923*, the control hitherto exercised by the Commission in respect to diversions of water from streams within the Metropolis (13 miles radius from General Post Office) was vested in the Melbourne and Metropolitan Board of Works and the Melbourne Harbour Trust Commissioners as from the 1st January, 1924.

KOO-WEE-RUP FLOOD PROTECTION DISTRICT.

# BUNYIP RIVER

## DIAGRAM OF MAXIMUM DISCHARGES

Recorded at Bunyip below junction with Tarago River

For each year from

1907 to 1924

Note: Gaugings commenced June, 1907.

Cubic feet  
per second

9.000

8.000

7.000

6.000

5.000

4.000

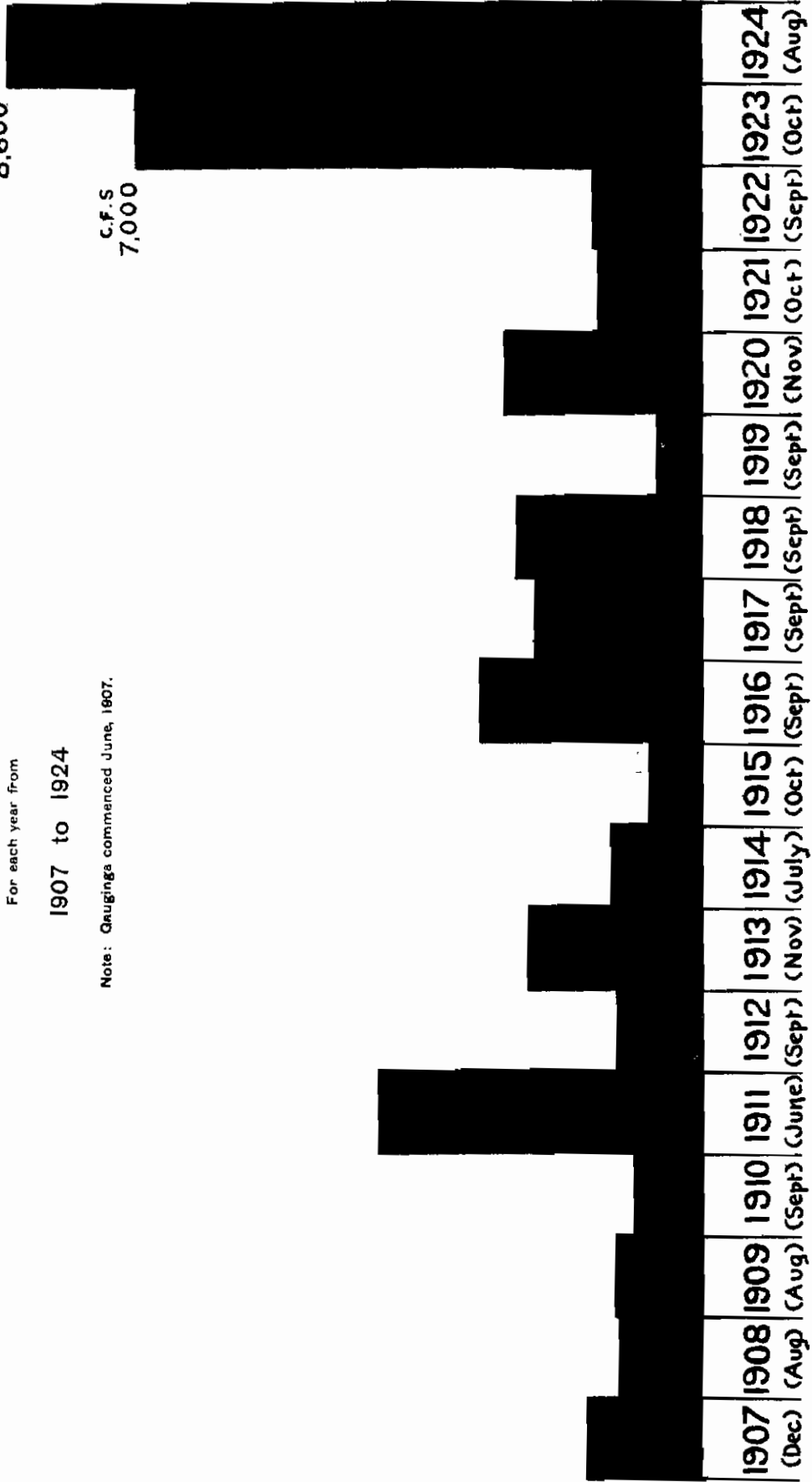
3.000

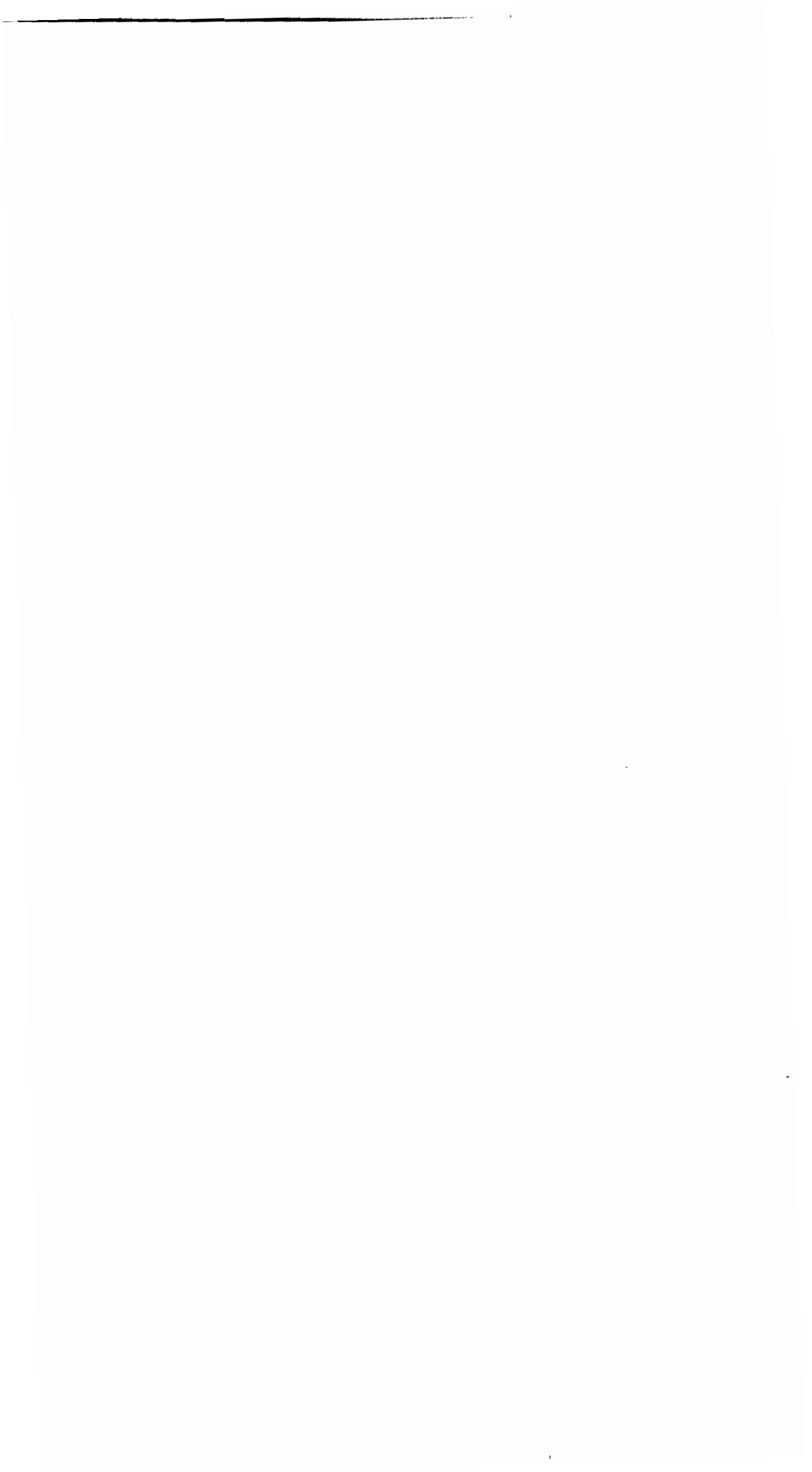
2.000

1.000

C.F.S.  
8,600

C.F.S.  
7,000





In addition to renewals of 1,182 permits previously granted 347 new permits were issued during the year.

The authorized diversions now in force are :-

Yearly permits	..	..	..	..	..	..	1,529
Flood permit	..	..	..	..	..	..	1
Licences	..	..	..	..	..	..	22
							1,552

#### 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 Loddon River, a distance of 98 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 153 miles. The irrigation districts supplied are Shepparton, Rodney, Deakin, Tongala, Stanhope, Rochester, Echuca North, Dingee, and Tragowel Plains.

The extension of the Waranga Western Main Channel from Bears Lagoon to the Loddon River was completed early in the present year; and for the first time water from Waranga Reservoir was delivered directly from the Main Channel into that river for the supply of the Boort Irrigation District.

Where the Main Channel joins the Loddon an embankment is being formed and a concrete weir provided, so that eventually it will be practicable to divert either the flow of the Loddon or water from Waranga for the supply of the country to the west of the river.

Construction of the new main channel which takes off from the existing main at Tandarra and connects up with the existing system of the Tragowel Plains District near Calivil has proceeded steadily throughout the year, the earthwork of some 15 miles being practically completed, while that of a further 8 miles is in hand. The necessary bridges, stops, and other structures are also receiving attention.

The capacities of this channel will be 300 cubic feet per second from its offtake to the 21 mile 30 chain point, and 240 cubic feet per second thence to its junction with the existing No. 1 Channel of the Tragowel Plains System.

On the eastern side of the Goulburn Weir the enlargement of the existing Main Channel from the Goulburn Weir to the north side of the Broken River from its original capacity of 333 cubic feet per second to 550 cubic feet per second is necessary to enable it to supply the great increase of area proposed for irrigation. As tenders received for the enlargement of the first 7 miles of this work were considered excessive, arrangements are being made to have it performed by one of the large excavating machines hitherto employed on drainage works. One advantage expected through the use of a machine is that work will be enabled to proceed continuously even when the channel is in use for the delivery of irrigation supplies.

From the present termination of this Main Channel near Pine Lodge the earthwork of extensions towards Katandra, where the Commission has purchased an area for Closer Settlement, is now approaching completion; this covers a length of about 12 miles and the necessary structures therein are about to be commenced.

#### 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 about 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 diaphragm at the extreme eastern or Mount Pinniger end of the dam has been completed for a length of 170 feet to a height of 135 feet above the river bed, i.e., to the full height required for the first stage. The remaining portion of the diaphragm has been completed to a height of 121 feet, and the work of raising it to the full height of 135 feet is now in hand. The rock embankment has been built up to a height of 121 feet on the downstream side of the concrete diaphragm, whilst the clay filling and the rock on the upstream side are but a few feet lower, and are being raised to the same height.

In the valve tower the hydraulic lifters for operating the valves have been placed in position; and the oil engine and pump, by means of which the requisite hydraulic pressure will be obtained, are ready for installation.

During the year 15,000 cubic yards of concrete were placed in the diaphragm or core wall and in the river section of the spillway. The crest of the portion of the spillway closing the gap between the wing wall at the western end of the rock fill embankment and the slope of Mount Sugarloaf immediately opposite, and over which the flood waters pass, has now been built up to a height of 70 feet, and will be raised 6 feet more in the near future, i.e., to within 44 feet of its ultimate height for the first stage.

During the year detail plans were prepared for a second (emergency or power) outlet, passing through the concrete of the river section of the spillway. The plans provide for three gates or valves, operated by hydraulic lifters, each, when opened, affording a clear waterway of 10 feet by 4 feet. The three openings are joined by means of suitable cast-iron transition pieces to a single line of cast-iron pipes 12 feet in diameter. In view of the possibility of this outlet being utilized by the State Electricity Commission in connexion with the Sugarloaf Hydro-electric Scheme, that Commission was consulted as to its possible requirements before the final adoption of the plans. A contract has been let for the gates or valves, the transition pieces, and portion of the 12 feet diameter pipes. Owing to the various portions of the work drawing towards completion, the number of men employed was less than formerly. The average number of men employed during the year was 300, and the maximum 350.

#### WARANGA RESERVOIR ENLARGEMENT.

The reinforced concrete core wall described in last annual report has been proceeded with throughout the year. By the end of June, 1924, a length of about  $1\frac{1}{2}$  miles had been done; and, before next high water season, it is hoped to increase this length to nearly  $2\frac{1}{4}$  miles. The plant now employed, which comprises a stone crusher and three concrete-mixing machines, is complete, so that even better progress is expected during the coming year.

As the season was one of ample river flow it was not necessary to raise the water level higher than 26 feet on the gauge, the full supply height being 31 feet.

In addition to the work on the embankment, the force employed at Waranga carried out a considerable quantity of work on the channel which brings the supply to the reservoir from the Goulburn Weir, and also on the two outlet channels.

The average number of men employed during the year was 187.

#### WIMMERA STORAGES.

During the year the embankment at Taylors Lake was finally completed and the storage filled to its full capacity, 30,000 acre-feet.

A start was made with the construction of the Pine Lake Storage. It is proposed to construct the embankment in two stages. The first stage will impound 34,000 acre-feet of water; and will require 102,000 cubic yards of earthwork. Tenders were called for the carrying out of this work but without satisfactory response. The embankment is, therefore, being constructed by day labour. The Lake is now filled to a depth of 37 feet, the volume stored at this level being 21,000 acre-feet, the whole of which is held within the natural banks of the lake.

The storage capacity for the Winunera-Mallee Scheme is now 149,250 acre-feet as against 69,000 acre-feet of a few years ago. Works now in course of construction will carry the storage provision to no less than 210,250 acre-feet.

## TOTAL STORAGES IN STATE.

In 1902 the total capacity of storages in the State was 172,000 acre-feet. The present capacity is about 813,500 acre-feet, and when the Sugarloaf, Wimmera, and Maffra Storages are complete the total capacity will exceed 1,264,000 acre-feet. The Hume Reservoir, in course of construction, will also contain at least 1,100,000 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:

EXISTING STORAGES.							Capacities in Acre-feet.
<i>Goulburn System—</i>							
Goulburn Weir	..	..	..	..	..	..	20,700
Waranga	..	..	..	..	..	..	333,400
Sugarloaf (part of 300,000 acre-feet)	..	..	..	..	..	..	60,000
							414,100
<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
Taylor's Lake	..	..	..	..	..	..	30,000
Pine Lake (part of 62,000 acre-feet)	..	..	..	..	..	..	21,000
Lower Wimmera Weirs	..	..	..	..	..	..	2,870
Batyo Catyo (Avon Regulator)	..	..	..	..	..	..	5,000
Lake Whitton	..	..	..	..	..	..	1,300
Earthen Storages, Township Reservoirs, and Mallee Tanks	..	..	..	..	..	..	2,700
							149,250
<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>Mornington Peninsula System—</i>							
Beaconsfield, Frankston, and Mornington Reservoirs	..	..	..	..	..	..	1,560
Service Basins	..	..	..	..	..	..	150
							1,710
<i>Miscellaneous—</i>							
Wonthaggi	..	..	..	..	..	..	1,550
							1,550
<b>Total capacity of existing Storages</b>							<b>813,510</b>
<b>ADDITIONAL STORAGE BEING PROVIDED BY WORKS IN COURSE OF CONSTRUCTION.</b>							
<i>Goulburn System</i>							
Sugarloaf Reservoir (balance of 300,000 acre-feet)	..	..	..	..	..	..	240,000
<i>Wimmera-Mallee System—</i>							
Pine Lake (balance of 62,000 acre-feet)	..	..	..	..	..	..	41,000
Green Lake	..	..	..	..	..	..	20,000
							61,000
<i>Maffra System—</i>							
Glenmaggie Reservoir	..	..	..	..	..	..	150,000
<i>Murray System—</i>							
Hume Reservoir, at junction with Mitta River, half share	..	..	..	..	..	..	550,000
<b>Total capacity of Storages, when works in hand are completed</b>							<b>1,814,510</b>

## 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.

In last year's report it was explained that a conference was held between representatives of the Governments of the Commonwealth and the States of New South Wales, Victoria, and South Australia, when it was agreed, *inter alia*, that the proposal arising out of the Premiers' Conference in 1920 that the River Murray Waters Acts be amended to extend the powers of construction by the River Murray Commission be not proceeded with. It was agreed in its place to submit to each Parliament a measure enacting among other things that the construction of works provided for in the River Murray Agreement which will provide for the needs of irrigation shall have precedence over the construction of any such works which will be primarily for the requirements of navigation; and also that the contribution of the Commonwealth Government to the cost of the scheme, which in the original Agreement is limited to £1,000,000, shall be made one-fourth of the actual cost, which is now estimated at fully double the amount first estimated many years ago.

The agreements arrived at by this conference were ratified by Acts of the several Parliaments concerned, which came into force on 16th November, 1923.

Following the report of date 31st January, 1924, by the conference referred to in last Annual Report which investigated the questions of "use of the Hume Reservoir for the generation of electricity," and "whether it would be advantageous to increase its capacity above the 1,100,000 acre-feet proposed," Ministers of the interested Governments conferred on the 8th and 9th of August, 1924, when it was recommended:

1. That provision should be made for outlet works at the Hume Reservoir suitable for the purpose of hydro-electric generation in addition to the purposes set out in the River Murray Agreement, provided that the use of the reservoir for such generation of power will not in any way interfere with the output therefrom of the volumes of water required for the purposes set out in the River Murray Agreement.
2. That the cost of such additional works, estimated at £40,000, shall be borne in equal shares by the Governments of New South Wales and Victoria, which Governments should have the sole use of any power generated at the reservoir.
3. That the Commonwealth Government be requested to give a formal assurance that no claim will be made under clause 10 of the First Schedule of the Seat of Government Surrender Act of 1909 to any electricity that may be developed at the Hume Reservoir in connexion with the proposed works or any other works which may be established there.
4. That the work of construction of the Hume dam, of sufficient dimensions to provide for a reservoir of 2,000,000 acre-feet, proceed for a period not exceeding three years, and that the question of the ultimate capacity and completion of the reservoir be then the subject of a further conference of Ministers representing the four Contracting Governments; provided that if the reservoir be increased above the capacity of 1,100,000 acre-feet, it be understood that the additional water shall be used for meeting the present allocation obligations under the River Murray Agreement and as a reserve for dry years, such reserve to be used at the discretion of the River Murray Commission.

These recommendations have been practically adopted by the respective Governments, the only alterations suggested being by South Australia that all the Governments should share equally in the cost and revenue arising from Clause 2.



The Constructing Authority for New South Wales is actively engaged placing concrete in the section of Hume Reservoir within its territory, and is also preparing the extensive plant required for the construction of No. 10 Weir and Lock at Wentworth.

The Constructing Authority for South Australia has quite completed Weir and Lock No. 1 at Blanchetown, nearly completed No. 3 near Lake Bonney, and made substantial progress with No. 5 near Renmark, and No. 9 near the offtake to Lake Victoria. It has also brought the Lake Victoria Storage Works nearly to completion.

The State Rivers and Water Supply Commission, the Constructing Authority for Victoria, is making good progress with the Victorian Section of the Hume Reservoir, has finished the Torrumbarry Weir and Lock, and is commencing No. 11 Weir and Lock at Mildura.

#### HUME RESERVOIR.

The construction of the main embankment is in progress over a distance of 2,100 feet on the Victorian side.

During the year, progress was made as follows:—Earthwork formed into embankment, 160,000 cubic yards; excavation for core trench, 21,300 cubic yards from a length of 620 feet; concrete placed, 10,000 cubic yards; steel used as reinforcement, 125 tons; gravel transported to works from Chiltern for use in concrete, 12,200 cubic yards.

The plant was improved by the addition of electric generators, electric motors, air compressors, workshop machinery, boilers, and concrete mixers. In the workers' camp six dwellings for married workers, one fire station, and one oil store were erected, and various additions to existing buildings carried out. Improvements were also effected to the water supply, drainage, and sanitary systems.

The general health of the community, which is under the supervision of a medical officer resident in the camp on the New South Wales side of the river, has been excellent.

The average number of men employed was 347.

#### TORRUMBARRY WEIR AND LOCK.

This work was substantially completed and brought into operation in December, 1923. For the remainder of the irrigation season water in the upper pool was maintained at a height about 17 feet above lock sill, and the lock has been used by passing vessels about twelve times.

Experience proved the operation of the trestles and stop bars of the movable weir to be in every way as easy as was anticipated when the design was adopted.

#### NO. 11 WEIR AND LOCK, MILDURA.

This work was commenced in August, 1923, at a site approximately half a mile below Mildura Wharf.

Besides surveys and setting out, the work done includes erection of administrative offices, engineer's residence, dwellings for staff, barracks for other workers, workshops for carpenters and mechanics, cement and chaff sheds, and other necessary buildings.

The principal item of plant is a 60 foot radius 2 cubic yard drag line excavator made by Harman and Co., of Port Melbourne. With this machine and the aid of horses, wagons, and scoops, some 48,000 cubic yards of material have already been excavated from the future navigation cut and placed, for the most part, in embankments for the protection of the works when the river is at high stages.

Electric power is being obtained for general power purposes on the works from the Mildura Town Council's electric supply station.

Two thousand one hundred and sixty tons of material, including 650 tons of sheet piling, have been brought to the works by rail, and about 1,000 tons of plant and other material by boat from Torrumbarry, while some 6,000 cubic yards of sand have been excavated from the river for future use in concrete.

The average number of men employed was 73.

## WORKS CONTROLLED BY OTHER AUTHORITIES.

(Under general supervision of the Commission.)

## SEWERAGE IN COUNTRY DISTRICTS.

The Bendigo Sewerage Authority has completed the major portion of the reticulation of the city, and several hundred tenements are now connected to the sewers.

The construction by the Ballarat Sewerage Authority of the main outfall sewer and the reticulating sewers is progressing satisfactorily; plans are in course of preparation for the treatment plant.

A scheme for sewerage Colac has been approved and a sewerage district proclaimed. The Authority is proceeding with surveys of the district preparatory to drawing up detailed plans.

Plans and estimates for sewerage schemes for the towns of Mildura and Swan Hill have been submitted.

Other country centres contemplating the installation of sewerage systems are Kyneton and Horsham, schemes for which are in course of preparation.

## COUNTRY WATER SUPPLIES.

Under the general supervision of the Commission many important works were carried out during the year by Waterworks Trusts and Local Governing Bodies, of which there are now 103 and 18 respectively.

The newly constituted Apollo Bay Waterworks Trust is carrying out a scheme for the supply of the township. The supply will be from Andersons Creek.

The Coleraine and Casterton Waterworks Trust was constituted to carry out works for the supply of water to these townships, and the works will shortly be put in hand. The supply will be by gravitation from a large storage to be constructed about 17 miles from Casterton.

The Corryong Trust is making satisfactory progress with the new works to supply the township by gravitation from Nariel Creek.

The Devenish Waterworks Trust was constituted to construct waterworks for the supply of the township. The water is to be pumped from Boosey Creek to a concrete tank in the township.

At Hamilton extensive and much-needed improvements were made to the reticulation.

The Kowree Waterworks Trust was, at its own request, abolished, its indebtedness to the Government having first been paid.

At Kyabram considerable improvements were made to the reticulation. These included the laying of larger pipes and further extending existing mains.

At Maryborough a new low-level service was installed, permitting an improved supply being given from existing works to the higher portions of the town. An independent supply for the Railways from the service basin is also in course of construction.

The Mildura Urban Trust has accepted tenders for the supply of a crude oil pumping unit to supersede the old steam plant.

At Swan Hill extensive improvements to the reticulation and pumping plant were carried out.

The Toora Waterworks Trust was constituted and plans are being prepared with a view to early construction of works. The supply of water will be obtained from the Agnes River.

The Wangaratta Trust is proceeding with important improvements to the reticulation, which, with a new concrete standpipe now being erected, will give a vastly improved service.

The Warragul Trust installed a new and larger electric pumping plant to cope with the increased demand for water; while the Yea Waterworks Trust replaced its obsolete steam plant with a new oil unit.

The Wodonga Waterworks Trust practically completed its new pumping scheme from the River Murray, and the town is now being supplied from that source.

Pipe extensions and other works were carried out at Bairnsdale, Beechworth, Kerang, Lorne, Marysville, Merrigum, Nhill, Portland, Port Fairy, Rochester, Tatura, Tongala, Trafalgar, Wahgunyah, Warracknabeal, Woodend, Yackandandah, Yarra Junction, and Yarrawonga.

## GENERAL.

### LANDS UNDER CLOSER SETTLEMENT IN IRRIGATION DISTRICTS.

In its administration, during the past year, of the Closer Settlement Acts in regard to irrigable areas, the Commission, which has sole control of settling and administering such areas, provided holdings under ordinary closer settlement conditions for both local—including a few discharged soldiers—and oversea land-seekers.

The number of applications granted for irrigation blocks was 310; of the applicants 237 were local (29 discharged soldiers and 208 civilians), and the remaining 73 approved oversea settlers. Provision was made by utilizing allotments on hand and also subdividing new estates. The area of the new estates subdivided and made available was about 8,300 acres, of which 1,400 acres were purchased during the year.

Concurrently with the making available of additional supplies of water from the new Sugarloaf Reservoir, which is approaching completion, the irrigation channels of the Shepparton District were extended to serve the estates known as Dennis's, Metcalf's, and others referred to in last year's Report, and these properties, containing in all 3,000 acres, were subdivided into 43 allotments, 30 of which have already been settled. Two estates in the Rodney Irrigation District, containing about 550 acres, provided nine more allotments.

In the Murray Irrigation Districts the most important subdivision was that of the area of 4,500 acres on the Murray frontage at Murrabit, including the estates known as Tye's, Ross's, Anderson's, and O'Donnell's. After the necessary excisions had been made for roads, channels, township, and the new Kerang to Gonn Crossing railway which is now practically completed, 69 allotments were provided, some for citrus culture and others for dairying and mixed farming, and fully half of these new allotments are already settled. A further small portion of Red Cliffs Estate was subdivided to provide blocks for seven oversea settlers. The subdivided portion of this large estate now comprises 706 holdings (practically all occupied by discharged soldiers), 3,200 acres—not suited for irrigation—disposed of in large areas, and the fast rising township of Red Cliffs, embracing in all over 18,000 acres.

The Commission, in its work of repatriation of discharged soldiers, has, altogether, placed 2,168 qualified soldier settlers on irrigable holdings and, in addition, has assisted by means of advances some 60 others who had purchased their farms without State aid. Some 339 of the soldiers obtained farms, selected by themselves, under section 20 of the *Closer Settlement Act* 1915. The soldiers generally give every promise of becoming successful settlers, and while for various reasons such as ill-health and, in some cases, inadaptability, some have transferred their blocks, and others (having held for the period of three years provided by the Act) have embraced opportunities to advantageously dispose of their interests, there are still nearly 600 settlers in Goulburn Irrigation Districts, 1,070 in the Murray Districts (including 623 at Red Cliffs) and 143 in the Maffra and Werribee Districts.

The demand by soldiers for blocks having been met, the Commission made irrigation lands available under ordinary closer settlement conditions, thus giving an opportunity to many to obtain irrigable blocks under the advantageous terms of the Closer Settlement Acts. As previously indicated, these local settlers have been supplemented by applicants from overseas, but ample provision has been made to meet all demands from both sources.

In view of the enhancement in land values that takes place through the construction of irrigation channels, the Commission purchased in advance of works some 43,000 acres of land, and of that area still has in hand 35,000 acres, temporarily leased while being surveyed and prepared for settlement and while the works of supply are under construction. This total of 35,000 acres includes about 3,200 acres in districts already supplied from the Goulburn Irrigation System, 10,300 acres commandable by the extension of the East Goulburn Main Channel now being carried out, and 3,300 acres in the parishes of Calivil and Pompapier (near the River Loddon) which will be supplied by the new Tandarra-Calivil Main Channel, now being constructed from the Waranga Western Main Channel to the Tragowel Plains Irrigation Channel System.

In the Murray Irrigation Areas there is the balance of the irrigable portion of the Red Cliffs Estate comprising about 10,000 acres, which will be reticulated and made available as required. At the new irrigation centre being established at Maffra, in Gippsland, the Commission has in reserve about 5,000 acres already partly subdivided which will be commanded by the channel system now in course of construction.

An important purchase during the year was that of thirteen properties at Hallam, near Dandenong, comprising in all 3,200 acres. It is intended to fully drain these lands and to provide them with water for both irrigation and domestic and stock purposes, the supply being drawn from the main pipe supply of the Mornington Peninsula System. These lands will be subdivided into small holdings suitable for market gardens, and it is believed that this provision of irrigation facilities, combined with the fast electric train service between Dandenong and Melbourne, the latter only 19 miles distant, will tend to important developments in the market gardening industry, as the areas hitherto used for this purpose are being gradually absorbed by extensions of suburban residential areas.

The following statement shows the lands purchased and subdivided by the State, and the extent of settlement on each estate. The subdivided portions of these estates are already supporting twenty 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, outside the large estates subdivided by the Commission :—

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 .. .. .	14,100	14,100	33	29	388	34	365	336
East Goulburn .. .. .	10,300	..	..	..	..	..	..	..
Rodney .. .. .	2,800	1,400	5	3	19	73	12	9
Stanhope .. .. .	21,500	21,500	7	13	330	55	296	283
Kyabram .. .. .	4,400	3,000	7	10	57	52	54	44
Tongala .. .. .	18,600	18,200	37	34	305	57	293	259
Koyuga .. .. .	4,200	4,200	} Pt. 1	..	{ 50	79	48	48
Cornelia Creek .. .. .	2,500	2,500						
Nanneella .. .. .	9,000	9,000	17	7	119	73	116	109
Echuca .. .. .	3,600	3,600	8	4	31	101	30	26
Bamawm .. .. .	13,400	13,400	28	21	180	70	177	156
Dingee .. .. .	500	500	3	1	17	27	15	14
Calivil .. .. .	3,300	..	..	..	..	..	..	..
Cohuna .. .. .	12,000	12,000	29	10	137	83	122	112
Koondrook .. .. .	8,400	8,400	13	9	123	62	80	71
Swan Hill .. .. .	12,500	12,500	34	16	303	39	288	272
Nyah .. .. .	3,800	3,800	8	1	237	15	232	231
Merbein .. .. .	8,300	8,300	..	..	410	20	410	410
Red Cliffs .. .. .	33,000	18,000	1	3	706	17	682	679
Bacchus Marsh .. .. .	70	70	1	..	2	36	2	2
Werribee .. .. .	10,000	10,000	Pt. 1	11	233	36	229	218
Hallam .. .. .	3,200	..	..	..	..	..	..	..
Maffra .. .. .	7,700	4,900	7	4	107	43	41	37
Properties purchased under Sec. 20, C.S. Act 1915, outside above Estates ..	207,170 } 19,544	169,370 ..	240 ..	176 ..	3,773 ..	41 ..	3,511 211	3,335 ..
	226,714							

#### PROGRESS OF IRRIGATED CLOSER SETTLED DISTRICTS.

The good progress in Closer Settlement mentioned in last year's Report has been continued this year, and the values of improvements on practically all holdings are showing splendid increases. Settlers are steadily consolidating their positions by additional improvements, bringing new areas under lucerne and other crops, and increasing the number and improving the quality of their herds.

A striking example of the rate of development of an irrigation district is shown in the progress of the Stanhope Irrigation District, which, prior to subdivision, carried about one sheep to the acre or one cow to 10 acres and supported a population of about sixty persons. At the present time, only four years after the greater part of the area has been settled, this district supports over 300 families, comprising a population of approximately 1,200. The area under lucerne is 6,134 acres, the area under cereal and other crops 3,400 acres, and that under orchards 670 acres. Live stock includes 2,243 cows, 220 calves, 761 horses, 2,800 sheep, 262 brood sows, 1,040 other pigs, and over 3,000 poultry. In addition, the settlers are equipped with implements to the value of £28,000, the total value of permanent improvements being £130,000.

In the dried fruit irrigation areas the most interesting feature, during the past year, has been the high average yield of currants and raisins. In the Merbein and Nyah Districts the yield per acre was over 2 tons, individual blocks giving as much as 4 tons of sultanas per acre, whilst the pre-war average was only 1 ton. Unfortunately, however, owing to the wet autumn the growers experienced great difficulty in harvesting and drying their fruit, with the result that a considerable percentage had to be treated by artificial heat in dehydrators, and a certain quantity, chiefly of the later maturing varieties, had to be sent to the distillery. Notwithstanding this, however, the total yield for Victoria far exceeded previous records. At Red Cliffs, where there are now about 700 blocks occupied, the harvest returned 570 tons of dried fruit as the result of less than four years' settlement, and it is estimated that the production next season will be fully 4,000 tons.

At Swan Hill, Kerang, Murrabit, Shepparton, Merbein, Nyah, and other irrigation centres, citrus culture is making great advances, and although the year just closed was not good climatically, growers generally are obtaining good financial returns. One of the Commission's districts has already obtained fame in the citrus world through one of its soldier settlers at Gonn Crossing winning for two years in succession the citrus championship in London.

Pig and poultry raising are fast becoming leading factors in the development of Rochester, Tongala and Cohuna Districts; where, in addition to dairying and sheep raising, these industries are now flourishing. At Bacchus Marsh and Werribee lucerne production has been good, although, unfortunately, weather conditions militated against successful drying. At Werribee, and to some extent at Bacchus Marsh, fruit and vegetable growing are being introduced with satisfactory results.

The Railway from Kerang to Gonn Crossing (Murrabit), which is being constructed under the provisions of the Border Railways Act, is now open for goods traffic to Gonn Crossing. This has been a great boon to all growers in that district, as it has obviated an 18-mile haul over roads. Adjacent to the site of the new railway station at Gonn Crossing, the Commission has made provision for a township, and has also made available for closer settlement the Tye and Ross Estate. A number of the blocks on this estate have been taken up by settlers from Great Britain with a view to dairying, mixed farming, and citrus growing. The first sale of township lots was also most successful, every lot offered being sold.

As predicted in the last Annual Report of the Commission, water will be available for portion of the new Maffra District during the coming season, and should be of great benefit to sugar beet growers. This is shown by crops obtained last season, when the rainfall was 8 inches above normal, being  $5\frac{1}{2}$  tons per acre (more than 50 per cent.) higher than the average of the past 15 years. Under irrigation this increase in yield should be permanent.

It is satisfactory to note that the canned fruit industry, concerning which some anxiety was felt last year, has shown a marked improvement, and now appears to have entered on an era of prosperity. The two co-operative canneries, Shepparton and Kyabram, had a most successful season—over 6,000,000 tins of fruit having been processed, an increase of 25 per cent. over last year's production, and a similar increase is anticipated in the coming year. The most gratifying feature is that, while previously 50 per cent. of the fruit remained unsold at this time of the year, the whole of the last season's production has already been sold.

While the position of the whole canned fruit industry, which at one time appeared hopeless, has made such marked improvement, considerable difficulty is at present being experienced in disposing of dried fruit owing to the unsettled conditions in Europe. Both Commonwealth and State Governments are, however, concentrating on securing markets, and there is every reason to believe that the success obtained in disposing of the canned fruit products will also crown the efforts now being made on behalf of the important dried fruit industry.

An advance in the direction of more improved methods and higher yields in Irrigation Districts should be secured by the formation of an Irrigation Research Committee, comprising representatives of the Department of Agriculture and the State Rivers and Water Supply Commission. The function of this Committee is to assist settlers by investigation of various problems of irrigated agriculture and to demonstrate results obtained at several research stations, where attention will be specially devoted to irrigation. During the past year, experimental plots dealing with the manuring of lucerne have been established at Swan Hill and Rochester; and it is proposed to further extend this work so as to deal with other problems.

## ADMINISTRATION.

### EXTENSIONS AND EXCISIONS.

During the year, the Swan Hill Irrigation and Water Supply District was extended by the addition thereto of 2,170 acres, including several estates of some 1,200 acres purchased for closer settlement. Stanhope Irrigation District was extended to embrace an additional area of 2,200 acres formerly part of Deakin District. Tongala Irrigation District was extended by adding 9,000 acres previously in Deakin District, including 1,860 acres subdivided for closer settlement. Necessary extensions were also effected in respect to Boort, Dungee, Echuca North, Kerang, Red Cliffs, Rodney, and Rochester Irrigation and Water Supply Districts and Nyah Irrigation Area; whilst some small areas were excised from Boort, Deakin, Red Cliffs, Rochester, and Rodney Irrigation Districts.

Karkaroc Waterworks District was extended by the addition thereto of 22 square miles of lands newly supplied; Long Lake Waterworks District was extended to include 7 square miles of lands not heretofore in any waterworks district; 92 square miles of newly supplied lands were added to Tyntynder Waterworks District; whilst for the same reason 165 square miles were added to Tyrrell Waterworks District, as well as 59 square miles which hitherto formed part of Walpeup East Waterworks District. Necessary minor additions were made to the Birchip and Tyntynder Waterworks Districts and to Dandenong Urban District.

From Walpeup East District 59 square miles were excised and, as stated above, added to Tyrrell Waterworks District. Minor adjusting excisions where needed were also made from Karkaroc, Tyntynder, and Upper Wimmera United Waterworks Districts.

### NEW AND PROPOSED DISTRICTS.

The extension of the irrigation channel system east of the Goulburn River, drawing its supply from the new Sugarloaf Reservoir having been sufficiently advanced, a new irrigation district is about to be constituted in respect to an area of about 6,800 acres immediately south of the Broken River, to be known as South Shepparton Irrigation and Water Supply District.

The progress made with the Millewa Domestic and Stock Supply scheme will enable the Commission to supply an area of some 380 square miles; and it is proposed to constitute a new waterworks district in respect of this area, to be known as Lower Millewa Waterworks District.

Works are being carried out at the request of land-holders in the Goulburn Valley between Echuca and Shepparton for the protection of their lands from flooding. It is intended to constitute a flood protection district, to be known as Loch Garry Flood Protection District, comprising 40,000 acres north of the Goulburn, which will be greatly protected by works at Loch Garry; and another, the Kanyapella Flood Protection District, to include about 15,000 acres south of that river, which are being protected by works on Warrigal Creek.

A separate scheme of works having been carried out for the supply by pumping to the portion of Carwarp Waterworks District above the level of the present channel system, the Carwarp Waterworks District has been subdivided and two districts constituted thereout, with the names Carwarp Waterworks District and Carwarp Central Waterworks District.

New urban districts have been proclaimed in respect of the townships of Brim, Nyah West, and Red Cliffs.

Similar action is contemplated in regard to the reticulated supply to the township of Leitchville, which will be added to the Cohuna Irrigation and Water Supply District, and for the like supplies to Piangil and Manangatang townships, which will be included in Tyntynder Waterworks District.

### STAFF.

Mr. H. M. Sherrard, Engineer, Waranga Reservoir Works, accepted an important position with the Irrigation Commission of Queensland, and was succeeded by Mr. H. C. Kermode, transferred from Torrumbarry Weir Works, now completed. Mr. E. Lyndon Smith, who was District Engineer for the Loddon Centre, was transferred to the Head Office, Mr. H. G. Strom being appointed to fill the position. Mr. W. Stone was transferred from Engineer in Charge at Cohuna Pumping Station, now practically out of use, to take control of the pumping plant at Millewa, and Mr. W. J. Jacobs, Engineer in Charge of the Swan Hill Pumping Station, was transferred to the pumping plants at Tresco and Mystic Park. Mr. J. W. Griffiths was appointed Collector at Castlemaine, in succession to Mr. C. H. Tilley, who resigned. Mr. J. R. Moore was appointed District Secretary and Collector at Kerang to fill the vacancy caused by the regrettable death of Mr. D. G. Ratray. Mr. W. J. Stirling was transferred from the position of Closer Settlement Supervisor at Stanhope to a like duty at Maffra, and Mr. Supervisor J. Lalor was transferred from Cohuna to Stanhope. Mr. C. E. Chancellor was transferred from Stanhope to the position of Supervisor at Murrabit, and Mr. J. Ray was appointed in his place. Mr. G. Maughan was appointed District Secretary and Collector at Mornington in place of Mr. J. T. Nihill, resigned, while Mr. L. T. McLaren was appointed District Secretary and Collector at Cranbourne. Mr. A. K. Titcher was transferred from Head Office to the position of District Secretary and Collector at Carrum, in place of Mr. W. B. Thomas, resigned.

### FIRE INSURANCE.

The Commission has continued its policy of carrying the fire risk on its own buildings. The premiums thus saved now amount to £3,970.

## RECEIPTS, DISBURSEMENTS, AND ESTIMATES.

The receipts last year totalled £358,637, which is the highest amount yet collected in any year by the Commission, being no less than £124,000 over the collections of some five years ago. The revenue is fairly evenly divided between Irrigation Districts and Waterworks Districts.

The total disbursements from Annual Votes amounted to £218,459, being, notwithstanding the great expansion of the Commission's operations, only £7,390 more than for the previous twelve months. The expenditure of loan moneys amounted to £1,387,841. Details of this expenditure are given in another portion of the Report; they show that nearly half was expended in the provision of storages.

Notwithstanding that the collection of rates and charges was, owing to the crisis in the Dried Fruits industry, deferred in such districts as Merbein and Nyah, the collections in the twenty-three Irrigation and Water Supply Districts amounted during the year to £163,344. After debiting all the districts with working expenses and all interest chargeable the deficit for the year was only £14,198, and this in turn would have been converted into a substantial credit balance if the ordinary collections which have been temporarily held over in the Dried Fruit districts had been made for the year.

In the Coliban Districts the loss for the year was £27,562. As pointed out in previous Reports, the rating in these districts is specially limited by the Water Acts, and any appreciable reduction in this annual loss can only be achieved by a substantial advance in the progress of the whole area.

Excluding the Coliban Districts, the Commission has now the direct control of fifty-six Waterworks Districts, including thirty-eight town supplies. The receipts from these districts were £133,665, an increase of no less than £12,340 over the preceding year. This revenue made it possible to defray all working expenses and interest chargeable and yet show a profit of approximately £1,000, reducing the old outstanding aggregate deficit to £26,326.

The Commission has also the control of several Flood Protection Districts, and, although works are still in an uncompleted state, partial charges were levied and a revenue of £5,079 was obtained, being an increase of £827 over the amount collected in the previous year. The revenue from this source will be materially increased when further protective works are constructed.

The Estimate of disbursements during the ensuing year is £232,500, being only an advance of £11,000 over the previous year, notwithstanding the establishment of a number of new districts, which in turn will later give a good revenue return. The estimate of receipts has been set down as £365,000.

The Loan Liability of the State for Works of Water Supply at the close of the year was £14,348,284. Of this total £1,248,546 is for Free Headworks; £1,263,228 was written off; £147,046 was advanced to some early formed Local Authorities; £164,714 has not been expended; and £3,925,090 is represented by Uncompleted Works, including River Murray Works which are not yet revenue producing, and are set out separately in the Statement of Loan Liability in this Report. The balance of £7,599,660 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 £608,829. Of this amount £119,810 is not chargeable to any districts, being debitable against Free Headworks, Amounts Written Off, and Unexpended Balances, while £166,550, although recorded for future charging, is not at present debitable, being interest on cost of Uncompleted Works, which are not yet revenue producing, leaving £322,469 as chargeable against the Commission and other Authorities. This chargeable amount is £34,632 greater than the amount debitable against the Commission and other Authorities in the previous year; and of this amount again no less than £13,000 is solely accounted for by the higher rate of interest that is now payable on recently converted and new loans. The amount available last year from the Revenue of the Commission and other Authorities to meet such interest (after providing a sum of £29,717½ for non-revenue producing works and services not chargeable to any district) was £228,069, as set out in the statement on page 44.

## RECEIPTS AND DISBURSEMENTS.

STATEMENT of Moneys received and disbursed during the year ended 30th June, 1924.

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 ... ..	39,793	15,389	...	15,389	24,404	...	
Other State Works—							
Broken River ... ..	7	345	...	345	...	338	
Goulburn ... ..	1,051	2,757	...	2,757	...	1,706	
Kow Swamp ... ..	382	1,878	...	1,878	...	1,496	
Lake Lonsdale ... ..	60	612	...	612	...	552	
Loddon River ... ..	6	367	...	367	...	361	
North-West Lakes ... ..	253	540	...	540	...	287	
Irrigation Districts ... ..	163,344	110,967	24,565	86,402	76,942	...	
Waterworks Districts ... ..	101,031	42,460	3,000	39,460	61,571	...	
Urban Districts and Divisions ... ..	32,634	11,394	...	11,394	21,240	...	
Flood Protection Districts ... ..	5,079	1,275	...	1,275	3,804	...	
Licences, Diversions, Miscellaneous ... ..	14,997	5,498	...	5,498	9,499	...	
	358,637	193,482	27,565	165,917	197,460	4,740	
<i>Not Revenue Producing—</i>							
River Ganging, Surveys and Re- ports, New Projects ... ..	..	6,452	...	6,452	...	6,452	
Waterworks Trusts							
Boring for Water, Road	} Cost of Administration						
Clearing, Mallee and			10,214	...	10,214	...	10,214
Land Settlement							
Loan Works ... ..	..	8,311	...	8,311	...	8,311	
Totals ... ..	358,637	218,459	27,565	190,894	197,460	29,717	
					£2,000		
					£165,743		

## COLIBAN SYSTEM.

STATEMENT of Moneys received and disbursed during the year ended 30th June, 1924 ;  
and of Interest charged at the rate of 4 per cent. on Capital Debts.

District.	Capital Debit at 30th June, 1924.	Receipts.	Disbursements and Interest Charged.			Excess.	
			Disbursements.	Interest.	Total.	Receipts over Disbursements and Interest.	Disbursements and Interest over Receipts.
	£	£	£	£	£	£	£
Coliban ... ..	1,298,855	38,488	14,082	51,615	65,697	...	27,209
Axe Creek ... ..	1,750	298	253	70	323	...	25
Harcourt ... ..	7,040	1,007	1,054	281	1,335	...	328
Totals ... ..	1,307,645	39,793	15,389	52,966	67,355	...	27,562

## FLOOD PROTECTION DISTRICTS.

STATEMENT of Moneys received and disbursed from 1st July, 1920, to 30th June,  
1924 ; 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, 1924.

## RECEIPTS.

District.	1st July, 1920, to 30th June, 1923.	1923-24.			Grand Total at 30th June, 1924.
		Charge.	Interest and Miscellaneous.	Total.	
	£	£	£	£	£
1. Cardinia .. ..	2,263	1,609	8	1,617	3,880
2. Echuca .. ..	381	127	..	127	508
3. Lower Kooweerup .. ..	5,972	3,245	90	3,335	9,307
Totals .. ..	8,616	4,981	98	5,079	13,695

## DISBURSEMENTS, AND INTEREST DEPRECIATION AND REDEMPTION CHARGED.

District.	1st July, 1920, to 30th June, 1923.	DISBURSEMENTS.				INTEREST CHARGED.			(A) DEPRE- CIATION, (B) RE- DEMPTION.	Grand Total at 30th June, 1924.
		Repairs and Mainte- nance.	Manage- ment.	Total.	Total at 30th June, 1924.	1st July, 1920, to 30th June, 1923.	1st July, 1923, to 30th June, 1924.	Total at 30th June, 1924.		
	£	£	£	£	£	£	£	£	£	
1. Cardinia .. ..	709	275	102	377	1,086	1,549	1,200	2,749	..	3,835
2. Echuca .. ..	216	72	50	122	338	109	42	151	..	489
3. Lower Kooweerup .. ..	1,705	562	214	776	2,481	4,331	2,520	6,851	..	9,332
Totals .. ..	2,630	909	366	1,275	3,905	5,989	3,762	9,751	..	13,656



## IRRIGATION AND WATER SUPPLY DISTRICTS.

STATEMENT of Moneys received and disbursed from 1st May, 1906, to 30th June, 1924; 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, 1924. (Free Head-works excluded.)

## RECEIPTS.

District.	1st May, 1906, to 30th June, 1923.	1923-24.					Grand Total at 30th June, 1924.
		Rates.	Compulsory Irrigation Charge.	Water Sales.	Interest and Miscellaneous.	Total.	
1. Bacchus Marsh .. .. .	£ 52,113	£ 775	£ 3,917	£ 300	£ 805	£ 5,797	£ 57,910
2. Boort .. .. .	37,730	1,441	..	981	13	2,435	40,165
3. Campaspe .. .. .	11,376	883	..	52	6	941	12,317
4. Cohuna .. .. .	117,794	2,091	7,562	555	245	10,453	128,247
5. Deakin .. .. .	70,759	3,555	..	603	472	4,630	75,389
6. Dingee .. .. .	13,553	131	1,504	223	429	2,287	15,840
7. Dry Lake .. .. .	521	..	..	..	29	29	550
8. Echuca North .. .. .	..	275	1,741	328	37	2,381	2,381
9. Gannawarra .. .. .	88,921	1,534	6,354	1,685	116	9,689	98,610
10. Kerang .. .. .	74,189	2,092	..	2,959	45	5,096	79,285
11. Koondrook .. .. .	74,577	1,368	4,348	570	590	6,876	81,453
12. Merbein .. .. .	145,165	722	11,581	33	1,194	13,530	158,695
13. Mystic Park .. .. .	1,648	1,323	..	124	5	1,452	3,100
14. Nyah .. .. .	41,777	225	4,221	13	713	5,172	46,949
15. Rochester .. .. .	113,007	2,240	10,002	1,892	1,524	15,658	128,665
16. Rodney .. .. .	313,476	7,014	15,155	2,754	1,344	26,267	339,743
17. Shepparton .. .. .	56,733	1,464	5,376	317	1,132	8,289	65,022
18. Stanhope .. .. .	12,418	598	3,323	482	840	5,243	17,661
19. Swan Hill .. .. .	68,264	764	4,004	1,678	933	7,379	75,643
20. Tongala .. .. .	50,072	1,031	5,505	446	1,195	8,177	58,249
21. Tragowel Plains .. .. .	135,837	1,828	8,405	1,302	670	12,205	148,042
22. Tresco .. .. .	3,949	..	3,348	..	109	3,457	7,406
23. Werribee .. .. .	23,499	800	3,868	431	802	5,901	29,400
Totals .. .. .	1,507,378	32,154	100,214	17,728	13,248	163,344	1,670,722

## DISBURSEMENTS, AND INTEREST DEPRECIATION AND REDEMPTION CHARGED.

District.	DISBURSEMENTS.					INTEREST CHARGED.				(A) DEPRECIATION. (B) REDEMPTION.	Grand Total 30th June, 1924.
	1st May, 1906, to 30th June, 1923.	Repairs and Maintenance.	1923-24.		Total 30th June, 1924.	1st May, 1906, to 30th June, 1923.	1st July, 1923, to 30th June, 1924.	Total 30th June, 1924.			
1. Bacchus Marsh	£ 12,658	£ 327	£ 1,034	£ 207	£ 1,568	£ 14,226	£ 44,128	£ 4,679	£ 48,807	..	£ 63,033
2. Boort .. .. .	20,933	277	847	177	1,301	22,234	13,539	1,002	14,541	(B) 1,100	37,875
3. Campaspe .. .. .	7,391	141	285	74	500	7,891	6,922	447	7,369	..	15,260
4. Cohuna .. .. .	88,409	1,573	1,834	247	3,654	92,063	45,033	3,603	48,636	(A) 9,010	149,709
5. Deakin .. .. .	29,882	520	985	214	1,719	31,601	44,724	2,772	47,496	..	79,097
6. Dingee .. .. .	6,807	460	502	63	1,025	7,832	10,555	1,146	11,701	..	19,533
7. Dry Lake .. .. .	1	..	..	..	..	1	520	29	549	..	550
8. Echuca North .. .. .	..	247	560	138	945	945	..	1,419	1,419	..	2,364
9. Gannawarra .. .. .	62,238	1,455	1,693	228	3,376	65,614	29,370	3,328	32,698	(A) 5,694	104,006
10. Kerang .. .. .	38,242	1,564	1,215	325	3,104	41,346	30,496	1,926	32,422	(A) 450 (B) 2,000	76,218
11. Koondrook .. .. .	52,803	1,394	1,656	201	3,251	56,054	41,644	3,667	45,311	(A) 4,501	105,866
12. Merbein .. .. .	105,106	745	18,468	499	19,712	124,818	45,496	6,768	52,264	(A) 9,928	187,010
13. Mystic Park .. .. .	2,396	79	357	70	506	2,902	206	424	630	..	3,532
14. Nyah .. .. .	34,963	618	5,979	404	7,001	41,964	17,350	3,173	20,523	(A) 3,802	66,289
15. Rochester .. .. .	56,685	1,888	3,985	709	6,582	63,267	89,230	8,891	98,121	..	161,388
16. Rodney .. .. .	131,350	1,655	7,819	1,030	10,504	141,854	190,770	16,121	206,891	..	348,745
17. Shepparton .. .. .	27,578	1,700	1,082	389	3,171	30,749	48,989	5,860	54,849	..	85,598
18. Stanhope .. .. .	7,247	968	1,139	194	2,301	9,548	10,720	2,799	13,519	..	23,067
19. Swan Hill .. .. .	48,327	1,712	1,279	385	3,376	51,703	22,651	3,574	26,225	(A) 4,768	82,696
20. Tongala .. .. .	26,047	1,223	1,270	231	2,727	28,774	54,199	5,344	59,543	..	88,317
21. Tragowel Plains .. .. .	38,718	1,974	2,960	246	5,180	63,898	80,947	7,258	88,205	..	152,103
22. Tresco .. .. .	4,829	577	2,821	195	3,593	8,422	911	2,235	3,146	..	11,568
23. Werribee .. .. .	5,604	378	676	252	1,306	6,910	20,384	4,475	24,859	..	31,769
Totals .. .. .	828,214	21,475	58,446	6,481	86,402	914,616	848,784	90,940	939,724	41,253	1,895,593

## WATERWORKS DISTRICTS.

STATEMENT of Moneys received and disbursed from 1st May, 1906, to 30th June, 1924; 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, 1924. (Free Head-works excludnd.)

## RECEIPTS.

District.	1st May, 1906, to 30th June, 1923.	1923-24.				Grand Total at 30th June, 1924.
		Rates.	Water Sales.	Interest and Miscellaneous.	Total.	
	£	£	£	£	£	£
1. Birchip .. .. .	220,680	4,186	50	28	4,264	247,423
2. Sea Lake .. .. .		7,267	126	53	7,446	
3. Tyrrell .. .. .		8,585	5	171	8,761	
4. Wycheproof .. .. .		6,154	88	30	6,272	
5. Carwarp .. .. .	3,638	1,309	..	1,424	5,062	
6. Karkaroc .. .. .	89,640	11,840	..	117	11,957	101,597
7. Kerang North-West Lakes .. .. .	1,702	159	14	1	174	1,876
8. Long Lake .. .. .	88,551	9,110	52	57	9,219	97,770
9. Mornington Peninsula .. .. .	14,371	3,502	..	44	3,546	17,917
10. Tyntynder .. .. .	41,324	7,718	131	224	8,073	49,397
11. Upper Western Wimmera .. .. .	34,984	4,033	..	8	4,041	39,025
12. Upper Wimmera United .. .. .	61,412	6,116	..	24	6,140	67,552
13. Walpeup East .. .. .	4,441	442	1	10	453	4,894
14. Walpeup West .. .. .	11,482	1,896	9	62	1,967	13,449
15. Werribee .. .. .	2,529	629	1	6	636	3,165
16. Western Wimmera .. .. .	133,802	11,289	1,340	61	12,690	146,492
17. Wimmera United .. .. .	143,492	12,854	609	95	13,558	157,050
18. Yelta .. .. .	1,317	393	..	17	410	1,727
Totals .. .. .	853,365	97,482	2,426	1,123	101,031	954,386

## DISBURSEMENTS, AND INTEREST DEPRECIATION AND REDEMPTION CHARGED.

District.	DISBURSEMENTS.					INTEREST CHARGED.			(A) DEPRECIATION. (B) REDEMPTION.		Grand Total at 30th June, 1924.
	1st May, 1906, to 30th June, 1923.	1923-24.				1st July, 1906, to 30th June, 1923.	1923-24.		(A) DEPRECIATION. (B) REDEMPTION.		
		Repairs and Maintenance.	Distribution of Water.	Management.	Total.		1st July, 1923, to 30th June, 1924.	Total at 30th June, 1924.			
£	£	£	£	£	£	£	£	£	£		
1. Birchip .. .. .	99,407	7,090	3,595	1,401	12,086	111,493	131,670	15,510	147,180	..	258,673
2. Sea Lake .. .. .											
3. Tyrrell .. .. .											
4. Wycheproof .. .. .											
5. Carwarp .. .. .	7,101	410	607	101	1,118	8,219	2,955	521	3,476	A 586	12,281
6. Karkaroc .. .. .	34,424	2,352	949	374	3,675	38,099	56,029	7,170	63,199	..	101,298
7. Kerang N.W. Lakes .. .. .	928	1	79	23	103	1,031	792	75	867	..	1,898
8. Long Lake .. .. .	60,760	1,575	2,260	377	4,212	64,972	28,689	3,672	32,361	A 8,305	105,638
9. Mornington Peninsula .. .. .	2,411	445	32	51	528	2,939	11,960	3,018	14,978	..	17,917
10. Tyntynder .. .. .	26,662	1,585	1,456	329	3,370	30,032	26,116	5,279	31,395	..	61,427
11. Upper Western Wimmera .. .. .	17,008	621	798	128	1,547	18,555	14,544	2,419	16,963	{ A 606 B 1,500 }	37,024
12. Upper Wimmera Untd. .. .. .	24,046	555	241	156	952	24,998	33,236	4,541	37,777	B 2,290	65,165
13. Walpeup East .. .. .	3,311	205	..	130	335	3,646	1,524	198	1,722	..	5,368
14. Walpeup West .. .. .	8,667	525	557	200	1,282	9,949	3,181	811	3,992	A 1,200	15,141
15. Werribee .. .. .	826	60	168	43	271	1,097	2,607	563	3,170	..	4,267
16. Western Wimmera .. .. .	68,033	2,478	3,193	512	6,183	74,216	55,262	7,904	62,266	{ A 2,422 B 5,400 }	144,304
17. Wimmera United .. .. .	56,133	1,295	1,899	364	3,558	59,691	75,723	8,804	84,527	B 5,310	149,528
18. Yelta .. .. .	584	25	190	25	240	824	740	148	888	..	1,712
Totals .. .. .	410,301	19,222	16,024	4,214	39,160	449,761	445,028	59,733	504,761	27,719	982,241

## DISTRICTS HELD IN TRUST BY THE COMMISSION.

STATEMENT OF RECEIPTS AND DISBURSEMENTS FOR THE YEAR ENDED 31ST DECEMBER, 1923.

## RECEIPTS.

Name of Trust.	Bank Balance, at 31st December, 1922.	1923.				Grand Total 31st December, 1923.
		Rates.	Water Sales.	Interest and Miscellaneous.	Total.	
	£	£	£	£	£	£
Avoca .. .. .	Cr. 38	717	43	13	773	811
Avoca (Quambatook, Urban) .. .. .	Cr. 30	428	163	15	606	636
Carrum .. .. .	Cr. 200	2,028	..	20	2,048	2,248
Loddon United .. .. .	Cr. 678	2,252	10	16	2,278	2,956
Loddon United (Mitiamo, Urban) .. .. .	Cr. 32	130	109	7	237	269
Totals .. .. .	Cr. 978	5,555	316	71	5,942	6,920

## DISBURSEMENTS.

Name of Trust.	1923.				Interest.	(A) Depreciation. (B) Redemption.	Grand Total, 31st December, 1923.	Bank Balance carried forward, 1st January, 1924.
	Repairs and Maintenance.	Water Distribution.	Management.	Total.				
	£	£	£	£	£	£	£	
Avoca .. .. .	331	..	79	410	236	B 83	Cr. 82	
Avoca (Quambatook, Urban) .. .. .	150	140	30	320	147	A 60 B 26	Cr. 83	
Carrum .. .. .	835	..	211	1,046	705	B 168	Cr. 329	
Loddon United .. .. .	2,242	482	115	2,839	344	B 124	Dr. 351	
Loddon United (Mitiamo, Urban) .. .. .	78	..	20	98	59	A 28 B 5	Cr. 79	
Totals .. .. .	3,636	622	455	4,713	1,491	A 88 B 406	Cr. 573 Dr. 351	

## URBAN DISTRICTS AND DIVISIONS.

STATEMENT of Moneys received and disbursed from 1st May, 1906, to 30th June, 1924; 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, 1924. (Free Head-works excluded.)

## RECEIPTS.

District or Division.	1st May, 1906, to 30th June, 1923.	1923-24.				Grand Total at 30th June, 1924.
		Rates.	Water Sales.	Interest and Miscellaneous.	Total.	
1. Bacchus Marsh .. .. .	£ 15,583	£ 835	£ 583	£ 7	£ 1,425	£ 17,008
2. Berriwillock .. .. .	1,169	213	23	5	241	1,410
3. Berwick .. .. .	114	192	..	11	203	317
4. Beulah .. .. .	4,669	372	79	32	483	5,152
5. Birchip .. .. .	11,759	534	352	66	952	12,711
6. Bittern .. .. .	50	63	18	4	85	135
7. Carrum .. .. .	4,002	2,221	..	78	2,299	6,901
8. Carrum No. 2 .. .. .	664	686	..	144	830	1,494
9. Cobuna .. .. .	4,504	751	48	19	818	5,322
10. Corop .. .. .	387	28	..	1	29	416
11. Cranbourne .. .. .	53	347	..	12	359	412
12. Culgoa .. .. .	1,172	162	23	1	180	1,358
13. Dandenong .. .. .	8,100	2,567	365	175	3,107	11,207
14. Dimboola .. .. .	21,199	830	670	109	1,609	22,808
15. Frankston .. .. .	4,070	1,882	160	128	2,170	6,240
16. Hopetoun .. .. .	4,939	326	98	25	449	5,388
17. Jeparit .. .. .	6,105	533	167	7	707	6,812
18. Jung Jung .. .. .	653	96	36	1	133	786
19. Koondrook .. .. .	3,704	423	20	9	452	4,156
20. Lake Boga .. .. .	3,196	292	22	17	331	3,527
21. Lascelles .. .. .	892	104	16	5	125	1,017
22. Merbein .. .. .	1,365	1,106	137	80	1,329	2,694
23. Minyip .. .. .	6,980	600	66	2	668	7,648
24. Mornington .. .. .	2,808	1,418	95	27	1,540	4,348
25. Natimuk .. .. .	6,540	256	239	1	496	7,036
26. Nyah .. .. .	372	82	1	..	83	455
27. Ouyen .. .. .	4,363	828	538	19	1,385	5,748
28. Rainbow .. .. .	9,978	618	131	28	777	10,755
29. Rupanyup .. .. .	5,718	493	118	3	614	6,332
30. Sea Lake .. .. .	6,558	642	137	48	827	7,385
31. Somerville .. .. .	47	250	11	4	265	312
32. South Frankston .. .. .	973	750	29	3	782	1,755
33. Ultima .. .. .	3,137	347	9	16	372	3,509
34. Watchem .. .. .	2,120	295	37	6	338	2,458
35. Werribee .. .. .	6,988	1,062	149	20	1,231	8,219
36. Wonthaggi .. .. .	43,426	2,055	1,276	58	3,389	46,815
37. Woomelang .. .. .	6,179	279	575	21	875	7,054
38. Wycheproof .. .. .	7,019	500	134	36	670	7,689
Totals .. .. .	212,155	25,038	6,362	1,234	32,634	244,789

## DISBURSEMENTS, AND INTEREST DEPRECIATION AND REDEMPTION CHARGED.

District or Division.	DISBURSEMENTS.					INTEREST CHARGED.				(A) DEPRECIATION. (B) REDEMPTION.		Grand Total at 30th June, 1924.
	1st May, 1906, to 30th June, 1923.	1923-24.			Total at 30th June, 1924.	1st May, 1906, to 30th June, 1923.	1st July, 1923, to 30th June, 1924.	Total at 30th June, 1924.	(A) DEPRECIATION.	(B) REDEMPTION.		
		Repairs and Maintenance.	Distribution of Water.	Management.							Total.	
1. Bacchus Marsh .. .. .	£ 4,290	£ 38	£ 197	£ 113	£ 348	£ 4,638	£ 10,690	£ 1,072	£ 11,762	(a)(b) 638	£ 17,038	
2. Berriwillock .. .. .	678	56	15	51	122	800	480	46	526	(a) 40	1,366	
3. Berwick .. .. .	13	25	2	11	38	51	101	165	266	..	317	
4. Beulah .. .. .	1,867	53	133	43	229	2,096	2,798	230	3,028	(a) 44	5,168	
5. Birchip .. .. .	5,354	189	287	105	581	5,935	5,633	349	5,982	(a)(b) 752	12,669	
6. Bittern .. .. .	8	10	1	12	23	31	42	62	104	..	135	
7. Carrum .. .. .	950	288	20	159	467	1,417	3,662	2,182	5,844	..	7,261	
8. Carrum, No. 2 .. .. .	94	105	7	61	173	267	585	642	1,227	..	1,494	
9. Cobuna .. .. .	1,225	49	93	82	224	1,449	2,768	550	3,327	(a)(b) 389	5,165	
10. Corop .. .. .	165	..	10	8	18	183	179	19	198	(a) 27	408	
11. Cranbourne .. .. .	8	45	3	46	94	102	45	255	300	..	402	
12. Culgoa .. .. .	640	35	12	52	99	739	650	82	732	(a) 30	1,501	
13. Dandenong .. .. .	1,973	391	34	188	613	2,586	5,642	2,494	8,136	(a) 500	11,222	
14. Dimboola .. .. .	13,004	383	716	119	1,218	14,222	5,709	359	8,068	(a) 1,620 (b) 830	22,740	
15. Frankston .. .. .	886	275	20	106	401	1,287	3,193	1,760	4,958	..	6,240	
16. Hopetoun .. .. .	2,833	40	492	49	587	3,420	2,194	264	2,458	(b) 150	6,028	
17. Jeparit .. .. .	1,303	64	40	54	158	1,461	3,982	440	4,422	(b) 100	5,983	
18. Jung Jung .. .. .	682	7	24	26	57	639	218	45	263	..	902	
19. Koondrook .. .. .	1,785	92	137	41	270	2,055	1,634	154	1,788	(a) 180	4,023	
20. Lake Boga .. .. .	1,058	58	105	34	197	1,255	1,935	157	2,092	(a)(b) 240	3,587	
21. Lascelles .. .. .	534	19	15	32	66	600	577	68	645	(a) 72	1,317	
22. Merbein .. .. .	671	125	371	90	586	1,257	650	613	1,263	(a) 100	2,620	
23. Minyip .. .. .	1,971	39	33	39	111	2,082	4,038	409	4,507	(a) 347	6,936	
24. Mornington .. .. .	558	195	14	83	292	850	2,257	1,304	3,561	..	4,411	
25. Natimuk .. .. .	1,214	28	65	86	179	1,393	4,476	296	4,772	(b) 750	6,915	
26. Nyah .. .. .	146	..	6	18	23	169	110	55	165	(a) 40	374	
27. Ouyen .. .. .	2,344	243	350	110	703	3,047	2,828	659	3,187	(a) 100	6,334	
28. Rainbow .. .. .	2,078	37	25	67	129	2,207	6,421	515	6,936	a, b 1,000	10,143	
29. Rupanyup .. .. .	2,211	96	134	36	266	2,477	3,086	220	3,306	(a) 315	6,098	
30. Sea Lake .. .. .	4,198	92	268	67	427	4,626	1,998	183	2,181	(a) 424	7,230	
31. Somerville .. .. .	8	33	2	20	55	63	39	210	249	..	312	
32. South Frankston .. .. .	175	95	7	45	147	322	798	635	1,433	..	1,755	
33. Ultima .. .. .	1,248	143	91	29	263	1,511	1,807	124	1,931	(a) 110	3,552	
34. Watchem .. .. .	650	58	16	33	107	757	1,460	102	1,622	(a) 90	2,469	
35. Werribee .. .. .	2,181	66	474	76	616	2,797	4,520	566	5,086	(a) 399	8,282	
36. Wonthaggi .. .. .	5,900	188	303	260	751	6,651	29,725	2,268	31,993	(b) 7,500	46,144	
37. Woomelang .. .. .	2,083	101	141	68	310	2,393	3,820	367	4,187	(a) 220	6,800	
38. Wycheproof .. .. .	3,659	110	269	67	446	4,105	3,104	281	3,385	(a) 439	7,929	
Totals .. .. .	70,545	3,877	4,931	2,586	11,394	81,939	123,654	20,331	143,885	17,446	243,270	

## LOAN EXPENDITURE

STATEMENT OF LOAN EXPENDITURE DURING THE YEAR ENDED 30TH JUNE, 1924.

Works.	Loans Application Act No. 3190.		Loans Application Act No. 3300 and other Sources.		Total.	
	£	s. d.	£	s. d.	£	s. d.
<i>Free Headworks.</i>						
1. Kerang North-West Lakes .. .. .	365	17 5	593	16 11	959	14 4
<i>River Murray Waters Acts—Works.</i>						
2. Storages, Weirs and Locks .. .. .	62,123	10 0	103,817	11 9	165,941	1 9
<i>Reservoirs and Storages.</i>						
3. Goulburn Storages—						
Sugarloaf Reservoir .. .. .	40,215	3 1	109,464	10 1	149,679	13 2
Waranga Reservoir Enlargement .. .. .	9,632	19 4	66,191	14 7	75,824	13 11
4. Maffra, Glenmaggie Dam .. .. .	31,917	0 8	129,596	12 2	161,513	12 10
5. Melton Reservoir .. .. .	..	..	67	19 9	67	19 9
6. Pykes Creek Reservoir .. .. .	..	..	381	11 11	381	11 11
7. Wimmera-Mallee Storages—						
Pine Lake .. .. .	..	..	15,289	5 5	15,289	5 5
Taylors Lake .. .. .	213	2 6	6,723	14 7	6,936	17 1
Fyans Lake .. .. .	..	..	257	18 10	257	18 10
<i>Waterworks Districts.</i>						
8. Birchip, Sea Lake, Tyrrell, and Wycheproof .. .. .	..	..	42,821	13 8	42,821	13 8
9. Carwarp .. .. .	236	0 10	3,899	0 11	4,135	1 9
10. Karkaroc .. .. .	69	11 2	7,204	0 4	7,273	11 6
11. Long Lake .. .. .	..	..	3,305	7 7	3,305	7 7
12. Milleva .. .. .	15,449	19 1	97,221	19 5	112,671	18 6
13. Mornington Peninsula .. .. .	1,298	13 9	50,479	19 4	51,778	13 1
14. Tyntynder .. .. .	7	5 0	21,840	3 2	21,847	8 2
15. Walpeup East and Walpeup West .. .. .	1,089	9 9	4,168	18 0	5,258	7 9
16. Werribee .. .. .	111	10 11	207	17 8	319	8 7
17. Western Wimmera .. .. .	..	..	5,567	17 7	5,567	17 7
18. Wimmera United .. .. .	89	6 7	7,943	15 10	8,033	2 5
19. Wimmera Main Channels .. .. .	23	0 8	39,504	5 10	39,527	6 6
<i>Towns.</i>						
20. Bacchus Marsh and Werribee .. .. .	..	..	1,134	16 7	1,134	16 7
21. Berrillock, Beulah, Birchip, and Brim .. .. .	..	..	3,026	10 4	3,026	10 4
22. Cohuna .. .. .	11	17 0	77	19 10	89	16 10
23. Coliban .. .. .	3,130	10 2	13,851	16 9	16,982	6 11
24. Culgoa, Dimboola, Hopetoun, and Jeparit .. .. .	3	0 0	1,756	5 1	1,759	5 1
25. Jung Jung, Koondrook, Lake Boga, and Lascelles .. .. .	84	0 4	219	3 10	303	4 2
26. Manangatang, Merbein, and Minyip .. .. .	4	4 10	2,353	3 4	2,357	8 2
27. Nyah West, Piangil, and Ouyen .. .. .	..	..	7,684	19 11	7,684	19 11
28. Rainbow, Rupanyup, and Sea Lake .. .. .	..	..	1,122	3 9	1,122	3 9
29. Ultima, Waitchie, and Watchem .. .. .	..	..	391	2 0	391	2 0
30. Woomelang and Wyeheproof .. .. .	..	..	1,065	18 2	1,065	18 2
31. Wonthaggi .. .. .	19	4 0	1,073	1 10	1,092	5 10
<i>Irrigation and Water Supply Districts.</i>						
32. Bacchus Marsh and Werribee .. .. .	20	16 3	10,510	15 0	10,531	11 3
33. Boga .. .. .	..	..	159	1 9	159	1 9
34. Boort .. .. .	87	9 6	724	3 8	811	13 2
35. Campaspe .. .. .	..	..	8	12 9	8	12 9
36. Cohuna .. .. .	847	9 9	7,334	14 3	8,182	4 0
37. Deakin .. .. .	12	4 10	308	15 11	321	0 9
38. Dingee .. .. .	..	..	301	0 11	301	0 11
39. Echuca North .. .. .	416	3 2	1,603	12 4	2,019	15 6
40. Gannawarra .. .. .	167	14 2	1,877	15 5	2,044	9 7
41. Kerang .. .. .	89	17 2	1,019	13 11	1,109	11 1
42. Koondrook .. .. .	368	16 9	18,208	1 3	18,576	18 0
43. Merbein .. .. .	188	14 11	6,577	3 10	6,765	18 9
44. Mystic Park .. .. .	183	1 7	430	13 11	613	15 6
45. Nyah .. .. .	1,854	7 2	6,971	0 4	8,825	7 6
46. Red Cliffs .. .. .	236	3 1	156,519	2 8	156,755	5 9
47. Red Cliffs—Clearing land charged to Discharged Soldiers' Settlement Fund .. .. .	..	..	16,844	4 4	16,844	4 4
48. Rochester .. .. .	896	19 5	10,701	6 6	11,598	5 11
49. Rodney .. .. .	83	16 11	28,368	2 0	28,451	18 11
50. Shepparton .. .. .	539	10 11	3,742	14 6	4,282	5 5
51. Stanhope .. .. .	270	6 10	3,212	2 9	3,482	9 7
52. Swan Hill .. .. .	416	4 0	13,605	3 11	14,021	7 11
53. Tongala .. .. .	201	17 1	8,293	18 2	8,495	15 3
54. Tragowel Plains .. .. .	865	19 2	6,462	4 11	7,328	4 1
55. Tresco .. .. .	4,244	8 6	17,265	19 0	21,510	7 6
56. Goulburn Main Channels .. .. .	6,021	1 5	75,990	2 1	82,011	3 6
<i>Flood Protection and Drainage Districts.</i>						
57. Echuca .. .. .	178	10 0	63	12 0	242	2 0
58. Gippsland Rivers and Other Districts .. .. .	806	0 0	4,952	18 1	5,758	18 1
59. Goulburn Levees .. .. .	5	7 2	3,010	4 7	3,015	11 9
60. Hallam .. .. .	..	..	372	6 0	372	6 0
61. Kooweerup and Cardinia .. .. .	4,242	2 0	26,211	5 8	30,453	7 8
<i>Miscellaneous.</i>						
62. Investigations Storages .. .. .	..	..	219	13 4	219	13 4
63. Torrumbarry Districts—New Districts commanded by Torrumbarry Weir .. .. .	3,357	4 5	13,967	2 6	17,324	6 11
Totals .. .. .	192,697	13 3	1,195,144	5 0	1,387,841	18 3

STATEMENT OF EXPENDITURE DURING THE YEAR ENDED 30TH JUNE, 1924.

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) .. .. .	14,215	2 10
2. Clearing Roads .. .. .	17,784	17 2
Total .. .. .	£32,000	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, 1925, 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, 1925.

## ESTIMATED DISBURSEMENTS.

A.	
Revenue Producing Works—	
Coliban District .. .. .	£14,000
Irrigation and Water Supply Districts .. .. .	120,000
Waterworks Districts .. .. .	48,000
Drainage and Flood Protection Districts .. .. .	2,000
Diversions from Streams .. .. .	500
General Expenditure and Salaries (proportion) over £250 to be apportioned to above Districts .. .. .	21,500
	£206,000
B.	
Non-Revenue Producing Works—	
General Services—	
River Gaugings, Surveys, New Projects, Boring for Water, Land Settlement, General Expenditure and Salaries (proportion) over £250 .. .. .	£11,500
Loan Works, Services on Account defrayed from Votes .. .. .	7,500
Waterworks Trusts Administration .. .. .	2,500
	£21,500
C.	
Non-Revenue Producing Works—	
Free Headworks—	
Broken River .. .. .	£275
Goulburn-Waranga .. .. .	1,750
Kow Swamp .. .. .	1,750
Lake Lonsdale and Lower Wimmera .. .. .	500
Loddon River .. .. .	325
North-West Lakes .. .. .	400
	5,000
	£232,500

## ESTIMATED RECEIPTS.

Coliban District .. .. .	£40,000
Irrigation and Water Supply Districts .. .. .	171,000
Waterworks Districts .. .. .	131,000
Food Protection Districts .. .. .	5,000
Miscellaneous .. .. .	18,000
	£365,000
Estimated amount available from Revenue Producing Works to meet Interest .. .. .	£159,000
Less expenditure as per "B" and "C" above on Non-Revenue Producing Works .. .. .	26,500
	£132,500
To which add Estimated Revenues from other Authorities—	
Waterworks Trusts .. .. .	£39,500
Local Bodies .. .. .	27,500
	£67,000
Total Estimated amount available from Revenues of all Authorities to meet Interest .. .. .	£199,500

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, 1924:—

Works.	Loan Liability of State for Works of Water Supply at 30th June, 1924, exclusive of Melbourne Water Supply.					Interest payable by State on Not Advances.	Total Interest of £608,829 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.		(A.) Written Off. (B.) Free Head-works. (C.) Uncompleted Works. (D.) Loans Unexpended.	Commission and Other Authorities.			
Waterworks Districts	£ 3,300,416	£ 43,736	£ 3,256,680	£ 175,055	£ 3,081,625	£ 138,189	£ 7,430	£ 130,759			
Irrigation and Water Supply Districts	2,528,840	19,826	2,509,014	576,152	1,933,862	109,464	24,405	82,059			
Goulburn Channel Works (Free Headworks excluded)	684,593	90	684,503	195,789	488,714	29,045	8,309	20,736			
Pykes Creek, Melton, and Distributary Works	153,283	..	153,283	39,311	113,972	6,504	1,668	4,836			
Mornington Peninsula	376,689	..	376,689	69,737	306,952	15,983	2,959	13,024			
Kooweerup and Cardinia Flood Protection Schemes	210,656	..	210,656	116,156	94,500	8,938	4,928	4,010			
Sugarloaf Reservoir and Waranga Reservoir Enlargement	1,486,460	..	1,486,460	498,460	..	63,075	63,075	..			
Maflra Irrigation and Water Supply District	372,628	..	372,628	372,628	..	15,811	15,811	..			
Millewa Waterworks District	144,982	..	144,982	144,982	..	6,151	6,151	..			
Red Cliffs Irrigation and Water Supply District	526,862	..	526,862	526,862	..	22,356	22,356	..			
Waterworks Trusts (including First Mildura)	1,643,135	229,289	1,413,846	316,537	1,097,309	59,993	13,431	46,562			
Local Bodies (Municipalities)	761,761	115,275	646,486	163,700	482,726	27,432	6,949	20,483			
River Murray Agreement Works	815,704	..	815,704	815,704	..	24,612	34,612	..			
Irrigation and Waterworks Trusts Abolished	32,754	30	32,724	32,724	..	1,368	1,368	..			
Free Headworks	1,248,966	420	1,248,546	248,546	..	52,979	52,979	..			
Free Grants to Local Authorities	147,046	..	147,046	147,046	..	6,239	6,239	..			
Surveys, Exploratory, and Preliminary Works, including Purchase of Land reserved for Reservoirs	157,461	..	157,461	157,461	..	6,681	6,681	..			
Loan Moneys unexpended	164,714	..	164,714	164,714	..	6,989	6,989	..			
Totals	14,756,950	408,666	14,348,284	6,748,624	7,598,660	608,829	286,360	322,469		228,069	

(Commission Authorities.)

(Commission Authorities.)

(Other Authorities.)

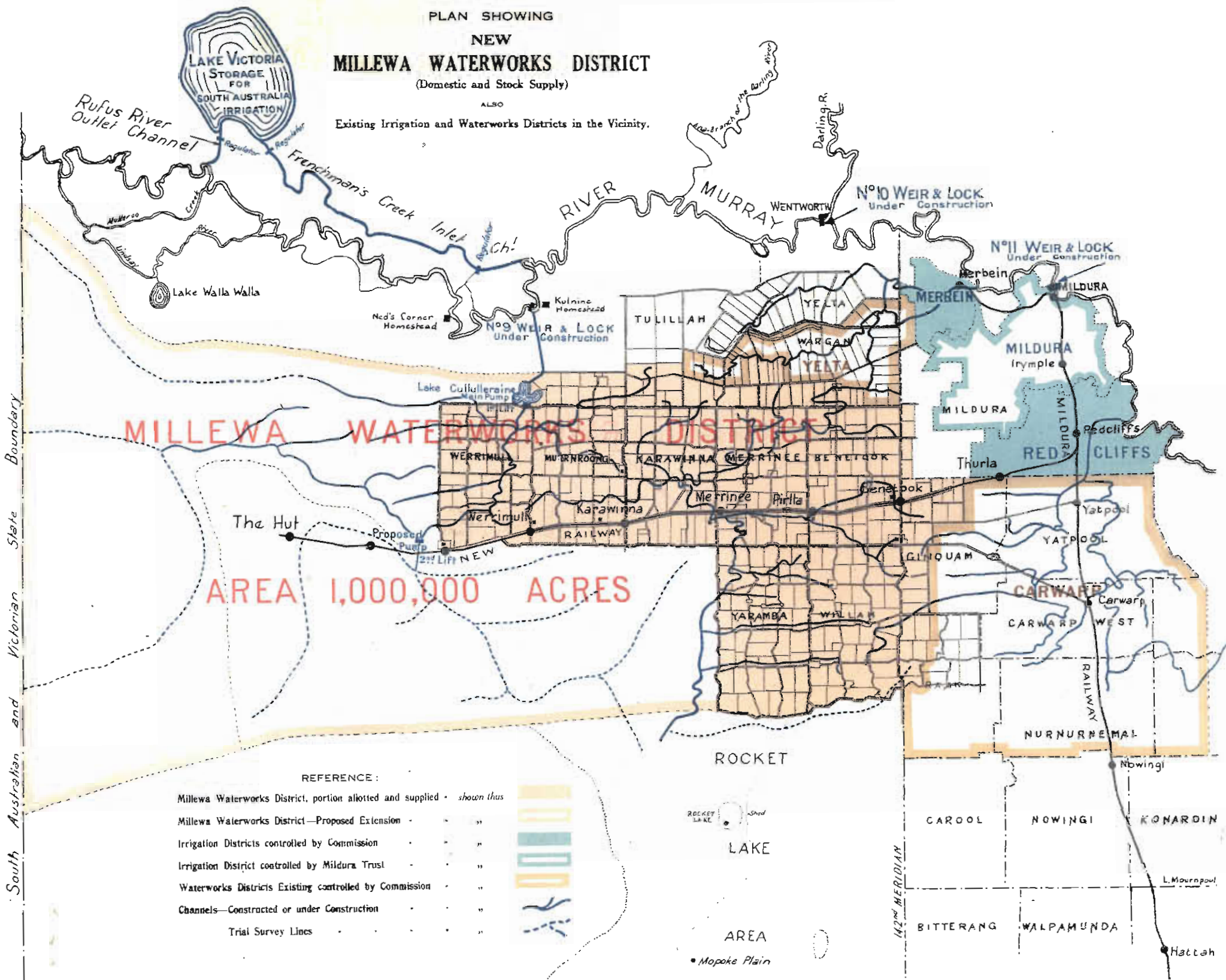
£165,743 (after providing £59,717 for non-revenue producing works including Free Head-works).

£62,326

STATE RIVERS AND WATER SUPPLY COMMISSION.

PLAN SHOWING  
NEW  
**MILLEWA WATERWORKS DISTRICT**  
(Domestic and Stock Supply)

ALSO  
Existing Irrigation and Waterworks Districts in the Vicinity.



AREA 1,000,000 ACRES

REFERENCE:

- Millewa Waterworks District, portion allotted and supplied - shown thus
- Millewa Waterworks District—Proposed Extension - " "
- Irrigation Districts controlled by Commission - " "
- Irrigation District controlled by Mildura Trust - " "
- Waterworks Districts Existing controlled by Commission - " "
- Channels—Constructed or under Construction - " "
- Trial Survey Lines - " "



• Mopoke Plain

Dated at the Office of the State Rivers and Water Supply Commission, Treasury  
Gardens, Melbourne, the 28th day of October, 1924.

•  
WM. CATTANACH, Chairman.

J. S. DETHRIDGE, Commissioner.

E. SHAW, Commissioner.

M. NALLY, Secretary.