

1928.

VICTORIA.

STATE RIVERS AND WATER SUPPLY COMMISSION.

TWENTY-THIRD
ANNUAL REPORT.

1927-28.

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

By Authority:

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WORKS UNDER CONTROL OF COMMISSION.

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

A.—FREE HEADWORKS.

DESCRIPTION OF WORKS.	Capital Debit at 30th June, 1928. Exclusive of cost of Loan Flotation.
1. Broken River Works :—Casey's Weir and offtake, with about 59 chains of channel to the Broken Creek; Gowangardie Weir with offtake sluice	£ 14,853
2. Goulburn River Works :—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)	739,552
3. Kerang North-West Lakes Works :—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	22,139
4. Kow Swamp Works :—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 ..	187,929
5. Lake Lonsdale Reservoir :—Reservoir at Lake Lonsdale, on the Little Wimmera River, near Ledcourt	49,054
6. Loddon River Works :—Laanecoorie Weir, on the Loddon; Bridgewater Weir, on the Loddon; Kinypanial Weir, on the Loddon	167,636
7. Long Lake Pumping Works :—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. Lower Wimmera Compensation Works :—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	1,217,067

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 Debit at 30th June, 1928.	Tentative Debits to Districts, 1927-28.	
	£	£	
Goulburn Main Channels (Free Headworks excluded)—		Rodney 120,000	
1. East Goulburn Main	295,138	Tragowel Plains 100,000	
2. Waranga Reservoir to Campaspe ..	333,191	Rochester 74,000	
3. West of Campaspe	469,368	Tongala 58,000	
4. Goulburn Main Channel Distributaries	323,529	Shepparton 57,000	
	1,421,226	Deakin 24,000	
		Boort 20,000	
		Echuca North 17,000	
		Dingee 15,000	
		Stanhope 15,000	
		South Shepparton 9,000	
		509,000	
		.. ..	1,421,226
Goulburn Storages—			
5. Sugarloaf Reservoir	1,410,903		
6. Waranga Reservoir Enlargement	603,222		
	2,014,125		2,014,125
Bacchus Marsh and Werribee Schemes—			
7. Ballan Tunnel	18,938	Werribee 8,000	
8. Pykes Creek Reservoir	79,274	Bacchus Marsh 77,425	
9. Melton Reservoir	85,333	Werribee 85,333	
	183,545	.. ..	183,545
Maffra-Sale Scheme—			
10. Glenmaggie Reservoir and Channels	1,034,813	Irrigation Districts to be debited later ..	1,034,813
Red Cliffs Scheme—			
11. Main and Distributary Channels	758,143	Irrigation District Progressing Debit 470,000	758,143
Millewa District—			
12. Main and Distributary Channels	453,118	Waterworks Districts to be debited later	453,118
Flood Protection Districts—			
13. Kooweerup and Cardinia	352,192	Lower Kooweerup and Cardinia 145,000	
14. Goulburn Levees	59,814	Echuca, Kanyapella, and Loch Garry 16,826	
	412,006	.. ..	412,006
Carried forward			7,494,043

WORKS UNDER CONTROL OF COMMISSION—*continued.*Capital Debit
at 30th June,
1928,
Exclusive
of Cost of Loan
Flotation.

Brought forward

£
7,494,043

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 1625 and 1651.	Redemption Paid to Treasury.	Capital Debit at 30th June, 1928.
	£	£	£	£
1. Bacchus Marsh	95,961	8,906	493	86,562
2. Boort	90,895	35,259	1,794	53,842
3. Campaspe	64,542	52,685	305	11,552
4. Cohuna and Gannawarra ..	361,080	82,376	1,386	277,318
5. Deakin	91,403	34,748	2,144	54,511
6. Dingee	16,117	..	..	16,117
7. Dry Lake	1,704	686	299	719
8. Echuca North	21,416	..	..	21,416
9. Fish Point	14,690	..	..	14,690
10. Kerang	119,720	35,338	2,334	82,048
11. Koondrook	212,757	30,872	1,562	180,323
12. Leitchville	31,271	..	..	31,271
13. Merbein	212,018	..	133	211,885
14. Mystic Park	13,648	..	..	13,648
15. Nyah	104,776	..	..	104,776
16. Rochester	259,259	..	..	259,259
17. Rodney	632,293	149,949	8,967	473,377
18. Shepparton	139,939	..	510	139,429
19. South Shepparton	31,448	..	..	31,448
20. Stanhope	70,879	..	..	70,879
21. Swan Hill	166,617	19,799	371	146,447
22. Third Lake	24,200	..	..	24,200
23. Tongala	101,514	..	..	101,514
24. Tragowel Plains	341,616	124,534	527	216,555
25. Tresco	90,002	..	..	90,002
26. Werribee	115,310	..	10,242	105,068
	3,425,075	575,152	31,067	2,818,856

2,818,856

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 1625 and 1651.	Redemption Paid to Treasury.	Capital Debit at 30th June, 1928.
	£	£	£	£
1. Birchip	675,228	700	2,473	672,055
2. Sea Lake				
3. Tyrrell				
4. Wycheproof				
5. Carwarp	34,171	..	..	34,171
6. Coliban	1,492,801	..	..	1,492,801
7. Dandenong	35,397	5,128	1,506	28,763
8. Dering	10,431	..	..	10,431
9. Eureka	4,008	..	..	4,008
10. Karkarooc	232,933	..	2,893	230,040
11. Kerang North-West Lakes ..	1,879	..	..	1,879
12. Long Lake	105,115	..	1,020	104,095
13. Mornington Peninsula	628,508	..	..	628,508
14. Ouyen	17,481	..	..	17,481
15. Pyramid Hill	3,834	..	1,300	2,534
16. Tyntynder	216,596	..	60	216,536
17. Upper Western Wimmera	84,030	26,567	3,450	54,013
18. Upper Wimmera United	118,536	10,918	4,499	103,119
19. Walpeup East	4,914	..	..	4,914
20. Walpeup West	28,945	..	..	28,945
21. Werribee	11,593	..	..	11,593
22. Western Wimmera	305,860	106,268	13,198	186,394
23. Wimmera United	247,279	25,474	10,231	211,574
24. Wonthaggi	74,632	..	9,071	65,561
25. Yelta	5,271	..	..	5,271
26. Wimmera Main Channels	117,212	..	..	117,212
27. Wimmera Storages— Fyans Lake Taylors Lake Pine Lake Lake Whitton	Amounts being debited to Districts benefited 43,685 204,225 156,980 10,336	.. .. .. ..	.. .. .. ..	43,685 204,225 156,980 10,336
	4,871,880	175,055	49,701	4,647,124

4,647,124

Carried forward 14,960,023

WORKS UNDER CONTROL OF COMMISSION— <i>continued.</i>				Capital Debit at 30th June, 1928, Exclusive of Cost of Loan Flotation.
Brought forward				£ 14,960,023
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 Debit at 30th June, 1928.
	£	£	£	£
1. Avoca Water Trust—				
Rural District	9,890	2,494	2,276	5,120
Urban District (Quambatook) ..	4,321	..	546	3,775
2. Carrum Waterworks Trust ..	46,800	7,732	3,923	35,145
3. Loddon United Waterworks Trust—				
Rural District	22,876	1,717	5,951	15,208
Urban District (Mitiamo) ..	4,985	..	117	4,868
	88,872	11,943	12,813	64,116
Grand Total				£ 14,960,023

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, 23,523 square miles, equal to about 15,055,000 acres.

The area under irrigated culture for all kinds of crops was 477,500 acres, which constitutes a new record, being an increase of 70,968 acres over the area irrigated in the previous year, and 117,300 acres above the average of the previous five years. The area irrigated last year includes upwards of 17,600 acres watered under yearly permits granting authority to divert water from streams throughout the State.

The number of separate towns supplied, exclusive of the City of Melbourne and its suburbs, is as shown in the following statement :—

Controlling Authorities.	Number of Towns Supplied.	Estimated Population Served.
Commission	85	117,330
Waterworks Trusts	111	185,630
Local Governing Bodies	18	74,700
Totals	214	377,660

LANDS UNDER IRRIGATED CULTURE.

The two Statements hereunder show the extent of Areas Irrigated—(A) during last year in detail, and (B) during the last five years totalled for purposes of comparison.

(A) STATEMENT OF THE EXTENT OF IRRIGATION AND OF AREAS OF DIFFERENT KINDS OF CROPS WATERED—YEAR 1927-28.

Name of District.	Area Irrigated (Acres).						
	Cereals.	Lucerne grown for Pasture and Hay.	Sorghum and other Annual Feeders Crops.	Pastures.	Vineyards, Orchards, and Gardens.	Fallow.	Miscellaneous.
<i>Supplied from Goulburn State Works.</i>							
Katandra	786	1,258	1,260	960	20	200	20
North Shepparton	2,950	1,650	800	200	200	100	50
Shepparton	960	2,750	610	875	9,110	320	80
South Shepparton	940	1,460	885	1,290	20	220	25
Rodney	14,763	30,485	2,463	11,173	8,094	1,218	259
Stanhope	1,270	11,009	839	446	343	241	4
Tongala	3,236	11,664	1,486	2,291	1,773	271	114
Rochester	12,125	23,669	3,067	5,902	2,181	563	159
Echuca North	968	1,882	192	1,565	..	64	100
Dingee	325	1,629	387	760	26	..	..
Calivil	993	348	124	342	3	7	20
Tragowel Plains	14,674	1,385	12,537	22,663	63	295	1,897
Deakin	5,413	1,178	491	577	..	160	2
Boort	3,451	141	2,615	3,321	5	90	12
Totals	62,854	90,508	27,756	52,365	21,838	3,749	2,742
<i>Supplied from River Murray State Works.</i>							
<i>(a) Torrumbarry Weir.</i>							
Leitchville	626	1,187	280	915	..	41	23
Cohuna	1,703	6,955	1,746	4,585	177	181	2,091
Gannawarra	3,016	1,505	4,028	9,188	54	..	969
Koondrook	3,912	1,332	4,646	8,788	745	40	117
Swan Hill	4,336	3,933	4,094	4,388	3,309	73	..
Third Lake	746	83	695	1,749	1	..	..
Mystic Park	733	765	1,656	1,006	10	60	..
Tresco .. .. .	..	20	45	..	1,342	..	..
Fish Point	263	359	182	1,094	19	..	..
Kerang	5,823	844	6,159	19,151	20	28	5
Dry Lake	22	..	50	70	2	..	..
Kerang North-West Lakes	896	160	1,789	3,044	486	..	..
Lands supplied direct (Outside Districts)	1,713	1,754	783	3,319	29	..	..
Totals	23,789	18,897	26,153	57,297	6,194	423	3,205
<i>(b) Direct from River.</i>							
Nyah .. .. .	..	25	..	..	2,611	..	75
Red Cliffs .. .. .	..	126	20	..	10,003	..	..
Merbein .. .. .	..	44	..	..	7,341	..	..
Totals .. .. .	..	194	20	..	19,955	..	75
Totals (River Murray State Works)	23,789	19,091	26,173	57,297	26,149	423	3,280
<i>Supplied from Loddon and Other Northern State Works.</i>							
Boort	1,150	47	872	1,107	1	30	5
Coliban	222	553	377	1,427	5,227	299	331
Campaspe	738	280	35	310	..	..	..
Western Wimmera	3	37	72	15	1,347	..	..
Totals	2,113	917	1,356	2,859	6,575	329	356
<i>Supplied from Southern State Works.</i>							
Bacchus Marsh	84	1,161	27	337	185	28	..
Werribee	150	5,000	100	650	220	50	600
Narre Warren .. .. .	..	..	..	..	600	..	..
Maffra	30	776	644	756	2	514	805
Salé .. .. .	..	426	313	441	2	144	40
Totals	264	7,363	1,084	2,184	1,009	736	1,445
<i>Supplied from other Works.</i>							
First Mildura District .. .. .	..	205	188	..	11,232	..	162
Private Diversions—Kerang (Outside Districts)	178	104	507	708	..	..	..
Other Private Diversions throughout the State	2,340	3,352	3,040	2,740	4,240	1,490	430
Totals	2,518	3,661	3,735	3,448	15,472	1,490	592
Grand Totals, 1927-28	91,538	121,540	60,104	118,153	71,043	6,727	8,395
Grand Totals, 1926-27	40,655	119,721	29,476	131,725	69,042	9,992	5,921

(B) COMPARATIVE STATEMENT OF THE EXTENT OF IRRIGATION, 1923-24 TO 1927-28

	Area under Irrigation (Acres).				
	1923-24.	1924-25.	1925-26.	1926-27.	1927-28.
Goulburn State Works	144,131	179,720	175,313	206,459	261,812
River Murray State Works	112,829	135,470	112,775	140,256	156,202
Loddon and other Northern State Works	31,050	19,258	14,882	12,205	14,485
Southern State Works	8,193	8,560	10,593	16,894	14,085
Mildura and Private Diversions	28,355	32,495	30,122	30,718	30,916
Totals	324,558	375,503	343,685	406,532	477,500

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, flood protection charges, and compulsory irrigation charges made in all districts. An estimate of the number of persons dwelling in such districts is also appended.

During the year rates were, for the first time, made in the new Urban Waterworks Districts of Carwarp, Marong, and Nullawil, and for a half-year in the Urban Districts of North Wonthaggi and Pakenham; rates were also made for the first time in the Sale Irrigation and Water Supply District; while in the Fish Point Irrigation and Water Supply District a compulsory irrigation charge was also, for the first time, levied.

In thirty 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 has 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 annual rate on the basis of £10 13s. 4d. per 640 acres was fixed by the Commission on the first division lands of the Birchip, Carwarp, Karkarooc, Long Lake, Sea Lake, Tyntynder, Tyrrell, Upper Western Wimmera, Upper Wimmera United, Western Wimmera, Wimmera United, Wycheproof, and Yelta Waterworks Districts, while in the Carwarp Central District the minimum was fixed at £16 per 640 acres, in Eureka District at £18 13s. 4d. per 640 acres, in Dering and Lower Millewa Districts at £21 6s. 8d. per 640 acres, and in the Walpeup West Waterworks District at £3 6s. 8d. per 640 acres.

In twenty-two districts the Commission made and levied compulsory irrigation charges, while in five Flood Protection Districts and in five Waterworks Trusts Districts taken over by the Commission a rate or charge was also made. Details of all rates and charges made 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, 1928.	Period of Rate.	Estimated Number of Persons dwelling in District.		
IRRIGATION AND WATER SUPPLY DISTRICTS.						
	Valuation by Commission.	Divisions.				
	£	1st.	2nd.	3rd.		
		s. d.	s. d.	s. d.		
1. BACCHUS MARSH ..	15,006	1 0	..	..	1st July, 1927, to 30th June, 1928	786
2. BOORT ..	18,035	2 0	1 0	..	" " "	1,120
3. CAMPASPE ..	11,190	2 0	1 0	0 6	" " "	576
4. COHUNA ..	20,639	2 0	1 0	..	" " "	1,195
5. DEAKIN ..	52,332	1 8	0 10	0 5	" " "	1,790
6. DINGEE ..	3,543	1 0	..	..	" " "	200
7. DRY LAKE ..	250	(No rate made)			" " "	11
8. ECHUCA NORTH ..	5,655	1 0	0 6	..	1st July, 1927, to 30th June, 1928	556
9. FISH POINT..	1,562	1 0	..	..	" " "	150
10. GANNAWARRA ..	18,156	2 0	1 0	..	" " "	620
11. KERANG ..	22,101	2 4	1 2	0 7	" " "	1,100
12. KOONDROOK ..	20,622	2 0	1 0	..	" " "	1,230
13. LEITCHVILLE ..	6,500	2 0	..	..	" " "	255
14. MAFFRA ..	28,505	1 0	..	..	" " "	1,065
15. MERBEIN ..	26,462	1 0	..	..	" " "	3,500
16. MYSTIC PARK ..	4,622	1 0	..	..	" " "	120
17. NYAH ..	5,842	1 0	..	..	" " "	1,000
18. ROCHESTER ..	64,020	1 0	0 6	0 3	" " "	3,976
19. RODNEY ..	144,809	1 0	0 6	0 3	" " "	5,540
20. SALE ..	15,429	1 0	..	..	" " "	520
21. SHEPPARTON ..	39,309	1 0	..	..	" " "	2,450
22. SOUTH SHEPPARTON ..	8,738	1 0	..	..	" " "	480
23. STANHOPE ..	15,085	1 0	..	..	" " "	770
24. SWAN HILL ..	28,320	1 0	..	..	" " "	1,420
25. THIRD LAKE ..	2,586	2 0	..	..	" " "	160
26. TONGALA ..	29,269	1 0	..	..	" " "	2,240
27. TRAGOWEL PLAINS ..	43,262	1 0	0 6	..	" " "	1,730
28. WERRIBEE ..	17,401	1 0	..	..	" " "	675
WATERWORKS DISTRICTS.						
29. AXE CREEK ..	1,628	2 0	..	..	1st July, 1927, to 30th June, 1928	260
30. BIRCHIP ..	40,519	2 4	1 2	0 7	" " "	2,640
31. CARWARP ..	9,397	3 10	1 11	0 11½	" " "	750
32. CARWARP CENTRAL ..	1,065	5 0	2 6	..	" " "	200
33. DERING ..	2,439	6 0	3 0	1 6	" " "	210
34. EUREKA ..	1,597	4 0	2 0	1 0	" " "	110
35. HARCOURT ..	7,043	1 6	..	..	" " "	600
36. KARKAROOC..	119,475	2 2	1 1	0 6½	" " "	4,000
37. KERANG N.W. LAKES	6,604	0 6	..	..	" " "	570
38. LONG LAKE ..	69,135	2 10	1 5	0 8½	" " "	2,300
39. LOWER MILLEWA ..	22,905	5 0	2 6	1 3	" " "	4,000

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, 1928.	Period of Rate.	Estimated Number of Persons dwelling in District.
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WATERWORKS DISTRICTS—*continued.*

	Valuation by Commission. £	Divisions.			Period of Rate.	
		1st.	2nd.	3rd.		
		s. d.	s. d.	s. d.		
40. NARRE WARREN ..	1,104	1 0	..	..	1st July, 1927, to 30th June, 1928	251
41. SEA LAKE ..	67,539	2 8	1 4	0 8	" " "	2,390
42. TYNTYNDER ..	55,332	3 4	1 8	0 10	" " "	3,000
43. TYRRELL ..	93,758	3 4	1 8	0 10	" " "	5,550
44. UPPER WEST'N WIMMERA	64,970	1 6	0 9	0 4½	" " "	1,660
45. UPPER WIMMERA UNITED	114,261	1 6	0 9	0 4½	" " "	2,750
46. WALPEUP EAST ..	8,441	0 9	0 4½	..	" " "	400
47. WALPEUP WEST ..	76,138	0 7	0 3½	..	" " "	3,200
48. WERRIBEE ..	7,813	2 0	..	..	" " "	140
49. WESTERN WIMMERA ..	305,691	1 2	0 7	0 3½	" " "	8,990
50. WIMMERA UNITED ..	343,844	1 2	0 7	0 3½	" " "	7,800
51. WYCHEPROOF ..	77,518	2 4	1 2	0 7	" " "	2,900
52. YELTA ..	2,771	3 4	..	..	" " "	150

URBAN DIVISIONS AND DISTRICTS.

	Municipal Valuation. £					
		s.	d.	s. d.		
53. BACCHUS MARSH ..	16,341	..	..	1 6	1st July, 1927, to 30th June, 1928	1,846
54. BERRIWILLOCK ..	1,670	..	..	3 6	" " "	160
55. BERWICK ..	3,710	..	..	2 0	" " "	700
56. BEULAH ..	4,223	..	..	2 3	" " "	575
57. BIRCHIP ..	7,556	..	..	1 8	" " "	970
58. BITTERN ..	274	..	..	3 0	" " "	80
59. BRIM ..	1,359	..	..	4 0	" " "	240
60. CARRUM ..	69,440	..	..	1 4	" " "	6,350
61. CARWARP ..	139	..	..	5 0	" " "	30
62. CHILLINGOLLAH ..	571	..	..	5 0	" " "	80
63. COHUNA ..	9,019	..	..	1 9	" " "	1,010
64. COROP ..	290	..	..	2 0	" " "	90
65. CRANBOURNE ..	2,639	..	..	2 0	" " "	250
66. CULGOA ..	1,480	..	..	3 6	" " "	160
67. DANDENONG ..	52,128	..	..	1 3	" " "	4,300
68. DIMBOOLA ..	14,457	..	..	1 6	" " "	1,560
69. DINGEE ..	490	..	..	4 0	" " "	90
70. FRANKSTON ..	41,834	..	..	1 4	" " "	5,150
71. HASTINGS ..	1,768	..	..	3 0	" " "	415
72. HOPETOUN ..	5,944	..	..	2 3	" " "	575
73. JEPARIT ..	7,828	..	..	1 9	" " "	825
74. JUNG JUNG ..	908	..	..	3 0	" " "	155
75. KOONDROOK ..	3,858	..	..	2 6	" " "	475
76. LAKE BOGA ..	2,212	..	..	3 0	" " "	350
77. LALBERT ..	1,028	..	..	5 0	" " "	150
78. LASCELLES ..	930	..	..	3 6	" " "	130
79. LEITCHVILLE ..	1,833	..	..	3 0	" " "	260
80. LOCKINGTON ..	1,261	..	..	3 6	" " "	216
81. MANANGATANG ..	2,240	..	..	3 6	" " "	185
82. MARNOO ..	1,701	..	..	3 6	" " "	300
83. MARONG ..	722	..	..	3 0	" " "	300
84. MERBEIN ..	5,894	..	..	3 6	" " "	700
85. MINYIP ..	6,067	..	..	2 9	" " "	800
86. MORNINGTON ..	31,344	..	..	1 6	" " "	2,155
87. NANDALY ..	382	..	..	6 0	" " "	100
88. NATIMUK ..	3,825	..	..	1 6	" " "	580
89. NORTH WONTHAGGI ..	3,391	..	..	1 0	1st Jan., 1928, to 30th June, 1928	1,000
90. NULLAWIL ..	784	..	..	5 0	1st July, 1927, to 30th June, 1928	100
91. NYAH ..	797	..	..	2 6	" " "	170
92. NYAH WEST ..	5,034	..	..	2 9	" " "	280
93. OUYEN ..	10,597	..	..	2 6	" " "	950
94. PAKENHAM ..	5,636	..	..	1 0	1st Jan., 1928, to 30th June, 1928	600
95. PIANGIL ..	1,874	..	..	3 6	1st July, 1927, to 30th June, 1928	200
96. PYRAMID HILL ..	2,559	..	..	3 0	" " "	600
97. RAINBOW ..	9,453	..	..	1 9	" " "	940
98. RED CLIFFS ..	6,758	..	..	3 9	" " "	730
99. RUPANYUP ..	5,586	..	..	2 9	" " "	700
100. SEA LAKE ..	7,116	..	..	2 0	" " "	600
101. SOMERVILLE ..	1,547	..	..	2 6	" " "	255
102. SOUTH FRANKSTON ..	7,078	..	..	2 9	" " "	515
103. SPRINGVALE ..	21,039	..	..	1 6	" " "	1,700
104. STANHOPE ..	798	..	..	4 0	" " "	300
105. ULTIMA ..	3,194	..	..	3 0	" " "	380
106. WAITCHIE ..	382	..	..	5 0	" " "	80
107. WATCHEM ..	2,200	..	..	3 0	" " "	260
108. WERRIBEE ..	18,120	..	..	1 6	" " "	1,490
109. WONTHAGGI ..	34,601	..	..	1 6	" " "	9,000
110. WOOMELANG ..	2,839	..	..	2 9	" " "	425
111. WOORINEN ..	611	..	..	4 0	" " "	50
112. WYCHEPROOF ..	8,319	..	..	2 0	" " "	800

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, 1928.	Period of Rate.	Estimated Number of Persons dwelling in District.
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COLIBAN SYSTEM.

	Municipal Valuation. £	s. d.		
113 COLIBAN	370,614	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, 1927, to 30th June, 1928	61,000

WATERWORKS TRUSTS.

	Municipal Valuation. £	s. d.		
114. AVOCA	31,080	.. .. 0 4½	1st January, 1928, to 31st December, 1928	990
115. MITIAMO (URBAN) ..	880	.. .. 4 0	" " "	190
116. QUAMBATOOK (URBAN)	3,562	.. .. 2 9	" " "	330
117. CARRUM	28,419	1st Division .. 3 8 2nd Division .. 1 10 3rd Division .. 1 0 4th Division .. 0 10 5th Division .. 0 3	" " "	1,500
118. LODDON UNITED ..	Valuation by Commission. £ 113,378	1st Division .. 0 8 2nd Division .. 0 4 3rd Division .. 0 2	" " "	3,720

FLOOD PROTECTION DISTRICTS.

	Valuation by Commission. £	s. d.		
119. ECHUCA (HIGH-ST.)	1,454	.. .. 2 0	1st July, 1927, to 30th June, 1928	80
120. CARDINIA ..	Acres. 36,131	1st Div. (p.ac.) 3 0 2nd Div. (p.ac.) 1 6 3rd Div. (p.ac.) 0 9	" " "	900
121. LOWER KOOWEERUP }	54,834	1st Div. (p.ac.) 2 0 2nd Div. (p.ac.) 1 0 3rd Div. (p.ac.) 0 6	" " "	2,600
122. KANYAPELLA ..	14,494	1st Div. (p.ac.) 0 7 2nd Div. (p.ac.) 0 3½	" " "	68
123. LOCH GARRY ..	40,886	Per acre .. 0 6	" " "	210

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 ..	6,684	3,360	3,360	22s. 6d.	1st October, 1927, to 30th April, 1928
2. COHUNA ..	34,659	22,258	22,341	6s.	1st September, 1927, to 30th April, 1928
3. DINGEE ..	6,270	4,564	4,564	7s.	" " " "
4. ECHUCA NORTH ..	13,544	5,547	5,600	7s. 6d.	" " " "
5. FISH POINT ..	5,789	3,925	1,962	8s.	" " " "
6. GANNAWARRA ..	52,758	20,150	20,200	6s.	" " " "
7. KOONDROOK ..	61,117	18,750	18,750	6s.	" " " "
8. LEITCHVILLE ..	9,816	8,047	2,689	7s.	" " " "
9. MERBEIN ..	8,440	7,705	19,191	24s.	1st August, 1927, to 30th April, 1928
10. MYSTIC PARK ..	18,182	9,112	3,086	Min. 60s. per acre 6s.	1st September, 1927, to 30th April, 1928
11. NYAH ..	3,676	3,078	7,638	20s. Min. 50s. per acre.	1st August, 1927, to 30th April, 1928
12. ROCHESTER ..	160,738	52,426	53,101	6s.	1st September, 1927, to 30th April, 1928
13. RODNEY ..	267,589	189,478	57,412	6s.	" " " "
14. SHEPPARTON ..	24,683	21,948	21,948	6s.	" " " "
15. SOUTH SHEPPARTON	33,666	20,413	5,120	8s.	" " " "
16. STANHOPE ..	26,011	18,917	18,347	6s.	" " " "
17. SWAN HILL ..	35,384	21,285	21,285	6s.	" " " "
18. THIRD LAKE ..	13,320	4,270	2,864	7s.	" " " "
19. TONGALA ..	45,404	29,741	28,389	6s.	" " " "
20. TRAGOWEL PLAINS	210,784	142,131	29,241	7s.	" " " "
21. TRESCO ..	3,875	2,399	5,999	16s.	1st January, 1927, to 31st Dec., 1927
22. WERRIBEE ..	9,983	7,911	7,933	Min. 40s. per acre. 12s.	1st October, 1927, to 30th April, 1928

CONTRACTS.

STATEMENT OF CONTRACTS ENTERED INTO DURING THE YEAR ENDED 30TH JUNE, 1928.

No.	Name of Contractor.	Work or Supply.	Amount (Loan and Vote).		
			£	s.	d.
2456	Australian Cement Ltd.	4,000 tons cement	18,875	0	0
2457	Butterworth & Stennett	Waranga Western Main Channel Extension ..	411	7	4
2458	G. C. Holm	Sternberg Channel, Rodney	702	17	1
2459	G. C. Holm	Sternberg Channel, Rodney	400	18	8
2460	J. Vearing	Harper-Minter Loop Channel	286	11	10
2461	P. J. McPhee	Firewood, Merbein	1,125	0	0
2462	John Dorman	Firewood, Merbein	1,832	8	0
2463	F. Finteln	Firewood, Merbein	249	11	0
2464	J. C. Pickering	Firewood, Merbein	562	10	0
2465	F. G. McCleary	Firewood, Merbein	230	0	0
2466	F. Geach	Firewood, Merbein	262	10	0
2467	J. Watson & Son	Firewood, Merbein	408	16	6
2468	J. J. O'Halloran	Firewood, Merbein	585	2	1
2469	N. Gillingham	Firewood, Nyah	197	18	4
2470	B. F. Belz	Firewood, Nyah	900	0	0
2471	J. Gower & W. Smith	Firewood, Nyah	400	0	0
2472	A. J. Bell	Firewood, Nyah	910	7	0
2473	T. McCredde	Firewood, Nyah	587	16	9
2474	S. T. Sandwith	Firewood, Tresco	327	10	0
2475	F. Russell	Firewood, Merbein	541	13	4
2476	Wm. Russell	Firewood, Merbein	837	10	0
2477	Alex. Maynard	Firewood, Merbein	234	12	0
2478	Wm. Russell	Firewood, Merbein	1,058	17	1
2479	W. Hill	Firewood, Nyah	202	8	0
2480	J. G. McGurgan	Waranga Western Main Channel Extension ..	615	16	0
2481	W. Marks	Waranga Western Main Channel Extension ..	579	6	9
2482	F. A. Boys	Waranga Western Main Channel Extension ..	561	0	0
2483	F. A. Boys	Waranga Western Main Channel Extension ..	622	16	2
2484	J. Brabender, junr.	Waranga Western Main Channel Extension ..	521	9	2
2485	J. Brabender, junr.	Waranga Western Main Channel Extension ..	532	2	6
2486	J. Brabender, junr.	Waranga Western Main Channel Extension ..	506	14	2
2487	J. Brabender, junr.	Waranga Western Main Channel Extension ..	536	14	2
2488	Hugh Cameron	Supply Timber, Nar-Nar-Goon	109	19	0
2489	H. Huddleston	Avoca Channel	118	3	1
2490	J. P. Fitzpatrick	Avoca Channel	103	18	0
2491	W. Fitzpatrick	Avoca Channel	93	16	0
2492	Australian Cement Ltd.	5,000 tons cement	23,593	15	0
2493	I. T. Storer	Firewood, Merbein	778	6	8
2494	T. Riordan	Firewood, Merbein	402	10	0
2495	J. H. Storer	Firewood, Merbein	588	4	6
2496	Powrie & Fraser	Waranga Western Main Channel Extension ..	638	19	9
2497	R. Phillips	Waranga Western Main Channel Extension ..	624	13	0
2498	Powrie & Fraser	Waranga Western Main Channel Extension ..	641	3	6
2499	M. Keogh	Avoca Channel	225	1	0
2500	R. Angove	Firewood, Tresco	327	10	0
2501	Janetzki Bros.	Rainbow Earthen Storage	1,585	0	6
2502	M. Kelly	Woomelang Earthen Storage	1,018	9	8
2503	C. Tucknott	Waranga Western Main Channel Extension ..	546	5	11
2504	R. Lyndon Smith	Waranga Western Main Channel Extension ..	591	19	3
2505	Johnson & Moloney	Waranga Western Main Channel Extension ..	579	17	2
2506	N. Lyndon Smith	Waranga Western Main Channel Extension ..	621	2	8
2507	F. G. Moss	Waranga Western Main Channel Extension ..	542	4	10
2508	F. A. Boys	Waranga Western Main Channel Extension ..	557	5	4
2509	S. Connor	Berriwillock Earthen Storage	523	13	8
2510	Janetzki Bros.	Jeparit Earthen Storage	934	18	4
Carried forward			72,404	0	9

STATEMENT OF CONTRACTS—*continued.*

No.	Name of Contractor.	Work or Supply.	Amount (Loan and Vote).
			£ s. d.
		Brought forward	72,404 0 9
2511	H. Wharton	Waranga Western Main Channel Extension ..	600 2 2
2512	J. S. Clinton	Waranga Western Main Channel Extension ..	609 3 4
2513	J. S. Clinton	Waranga Western Main Channel Extension ..	411 7 4
2514	F. L. Langlois	Erection Buildings, Murtoa	158 0 0
2515	J. Ketterer	Calivil District Channel	291 12 7
2516	Australian Cement Ltd.	5,000 tons cement	23,593 15 0
2517	C. Burton	Erection Buildings, Kerang	97 0 0
2518	F. E. Baker	Calivil District Channel	109 19 0
2519	J. M. Johnson	Calivil District Channel	263 13 10
2520	A. B. Hartney	Calivil District Channel	143 15 6
2521	G. Baker	Calivil District Channel	172 12 1
2522	H. Rawiller	Calivil District Channel	145 0 5
2523	W. H. Osborn	Waranga Western Main Channel Extension ..	573 11 2
2524	Australian Wood Pipe Co.	Wood Stave Pipes, Bendigo	1,964 10 5
2525	Australian Wood Pipe Co.	Wood Stave Pipes, Bendigo	6,767 10 0
2526	Thompsons Engineering & Pipe Co.	Water Tube Boiler, Coreena	2,778 6 0
2527	Mephan Ferguson Pty. Ltd.	Mild Steel Pipes, Coreena	3,399 4 0
2528	Bethune Bros.	Boring &c., Walpeup West	245 0 0
2529	G. W. Kelly & Lewis Pty. Ltd.	Centrifugal Pump, Coreena	732 18 0
2530	T. H. McGurgan	Waranga Western Main Channel Extension ..	578 8 10
2531	C. Tucknott	Waranga Western Main Channel Extension ..	996 10 6
2532	W. Marks	Waranga Western Main Channel Extension ..	610 7 5
2533	F. G. Moss	Waranga Western Main Channel Extension ..	718 11 0
2534	R. Phillips	Waranga Western Main Channel Extension ..	471 15 0
2535	W. Marks	Waranga Western Main Channel Extension ..	437 12 9
2536	W. E. Fitch	Tongala Main Drainage Channel	302 9 11
2537	J. Beattie	Tongala Main Drainage Channel	233 12 3
2538	J. Beattie	Tongala Main Drainage Channel	241 8 7
2539	S. Fitch	Tongala Main Drainage Channel	637 3 3
2540	S. Fitch	Tongala Main Drainage Channel	778 17 7
2541	P. Walker	Tongala Main Drainage Channel	214 10 0
2542	P. Walker	Tongala Main Drainage Channel	214 16 3
2543	Mephan Ferguson Pty. Ltd.	Mild Steel Pipes, Bellarine Peninsula	12,344 0 0
	Sundry small contracts at piece-work rates —Distributary channels .. ..	.. ..	198,926 0 0
		Total	333,167 4 11

DIRECT LABOUR.

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

Works.	Amount.
Goulburn Main Channels	£125,799
River Murray Storages (Hume Reservoir and Mildura Lock Weir)	114,207
Wimmera Mallee System	107,413
Coliban District	71,719
Maffra District (Glenmaggie Reservoir) and Sale District	62,536
Boort, Tragowel Plains, Nyah, Rodney, and Shepparton Districts	56,296
Merbein, Millewa, Red Cliffs, Coreena, Carwarp, and Walpeup Districts	53,510
Bacchus Marsh and Werribee Districts	31,064
Sugarloaf and Waranga Reservoirs	30,884
Bellarine Peninsula	29,231
Koowereup, Cardinia, and other Flood Protection Districts	29,020
Kerang Lakes, Kerang, Mystic Park, Koondrook, Cohuna, and Swan Hill Districts	28,941
Mornington Peninsula	23,854
Other Districts	18,884
Mallee Tanks, Clearing Roads (Mallee)	8,750
Total	£792,108

WORKS CARRIED ON OR COMPLETED DURING THE YEAR ENDED 30TH JUNE, 1928.

COLIBAN DISTRICT.

Until the occurrence of the unusual rainfall in January the demand for water for irrigation was heavier this season than has ever been experienced before in the district. Owing to the great improvements to the main channel and many of the distributaries that have been effected in the past few years, this heavy demand was satisfied without any difficulty and with much greater efficiency than has been possible in former seasons; the lining of channels with concrete, where the ground is of an open nature, and the replacement of the old timber works by concrete structures having had a most beneficial effect in the reduction of leakage losses, as well as in the increase of channel capacities. This reduction of losses was reflected in the behaviour of the Main Storages, the extraordinary demand of the season having been met without undue depletion. The reduction in loss in the main channels emphasizes the necessity for measures of a similar character in the distributary works, and points most strongly to the advisability of substituting pipes for the existing minor channels, which are very wasteful.

Such a system of delivery through pipes is being introduced in the district of South Lockwood, where water for irrigation, as well as for domestic use, will be supplied through pipes under pressure. The scheme, which involves the construction of a pipe head basin and the laying of about 2 miles of pipes varying from 12 inches down to 3 inches in diameter, will be in operation in the coming season.

The town supply in Bendigo has been improved by the construction of a new Service Reservoir of 63,000,000 gallons at Specimen Hill. A Service Basin of 2,000,000 gallons has also been constructed at Flagstaff Hill, Eaglehawk, for the improvement of the summer conditions in that locality. These works, together with the extensions and enlargements of the reticulation that have been carried out during the year, will very beneficially affect the water supply conditions in both Bendigo and Eaglehawk.

To further develop irrigation in the Bendigo District the capacity of the Spring Gully Reservoir is being increased from about 400 to 2,000 acre feet, by adding 20 feet to the height of the existing embankment. This enlarged reservoir is now practically finished and will be very helpful to the White Hills, Epsom, and Huntly irrigators, and later may become the main feeder for a pipe system of irrigation to these districts as well as considerable areas in the surrounding country.

On the Specimen Hill race, which supplies Raywood and parts of the Myers Creek Valley, the timber flume over the Marong-road has been replaced by a reinforced concrete syphon 36 inches in diameter and 750 feet in length. This will put an end to the heavy loss of water that was unavoidable with the old timber structure and will add greatly to the security of the supply to the districts dependent on this channel.

The replacement of the old timber flumes and bridges by concrete structures on the main Bendigo channel is nearly complete; much of the channel has been regraded, while a good deal of concrete lining has been carried out.

IRRIGATION AND WATER SUPPLY DISTRICTS.

RODNEY DISTRICT.

The total area irrigated in Rodney District during the past year was 68,500 acres, which included 8,000 acres of orchard, and 14,800 acres of cereal crops. Irrigation saved the latter crops, which, owing to the absence of winter and spring rains, would have been almost a total failure had it not been possible to irrigate them. Heavy rains fell in the summer and autumn, and irrigation practically ceased at the end of January.

The new Sternberg Channel, 6 miles in length, was completed during the year, and it will now be possible to send a supplementary supply to Deakin District, besides improving the supply to the Kyabram South portion of the Rodney District.

About 12 miles of old channels were remodelled and enlarged to cope with the ever-increasing demand for water, and further similar works are in hand.

Two main road timber bridges, over the Cussen and Wilson Channels, have been replaced by concrete arch structures, and eight timber culverts were replaced by concrete pipes. Many other old timber structures, such as checks, head sluices, &c., have been replaced by concrete structures.

The heavy rainfalls during the summer and autumn, together with the drainage from the increasing areas being settled under irrigation, rendered necessary the installation of several new drainage subways under channels. This problem is becoming more and more complicated every year, on account of the construction of irrigation channels, road formations and drainage ditches.

About 500 of the old timber submerged orifice measuring outlets have been converted to Dethridge wheel meter outlets, and three depots have been established in different parts of the District to facilitate the carrying out of this work.

DISTRICTS ADMINISTERED FROM SHEPPARTON CENTRE.

In the Shepparton District, the new works carried out during the year consisted principally of the extension of drainage channels, a length of $3\frac{1}{2}$ miles being added, and also the improvement of the existing surface drainage system necessitating the construction of $4\frac{3}{4}$ miles of new drains, as well as the cleaning out and general maintenance of existing drains. The usual repairs and maintenance work of the existing irrigation channel system were also carried out.

In the South Shepparton District, the main works carried out were those of raising the banks of various channels, two miles in length being thus treated; the construction of a small section of concrete core wall to prevent seepage; the provision of extra checks and outlets, and general maintenance and repair work.

The construction of the Kaarimba Loop Channel, 2 miles 36 chains in length, designed to supplement the supply to the North Shepparton area was commenced, and is nearing completion. In addition to the earthworks, five road and occupation bridges and five checks were constructed, and a 4-ft. barrel syphon is being constructed under the Shepparton-Numurkah railway line to enable the channel to be brought into operation this coming irrigation season. This channel will also be used for drainage purposes during the winter months. The Kaarimba Main Channel has been extended for a further 4 miles northwards, making the total length 27 miles. In addition to the earthworks in this 4-mile section, several road and occupation bridges, checks, subways and meter outlets were constructed.

The main drain known as Harper's has been extended for a further length of 1 mile, in order to link up with the northern portion of the Shepparton Drainage System.

Congupna No. 3 Channel was extended for a further $6\frac{1}{2}$ miles, making $14\frac{1}{2}$ miles in all, and is now complete with all structures.

In the northern portion of the Katandra Closer Settlement Area, earthen distributary channels, 16 miles in length, were completed with all structures and brought into operation during the past irrigation season. Two further spur channels, 1 mile 60 chains in length, rendered necessary by the subdivision of additional lands, were also completed.

With the object of efficiently draining the Katandra Estate, several miles of drains were completed during the year. These comprise $6\frac{1}{2}$ miles of the Main Outfall drain, and $5\frac{1}{2}$ miles of subsidiary drains known as the Katandra Nos. 1 and 2, and a commencement has been made with the construction of the Katandra No. 3 Drain, 3 miles 11 chains in length.

Owing to the abnormally dry conditions existing in the early part of the last irrigation season, there was a keen demand for water, particularly in the hitherto unsupplied North Shepparton and Katandra Areas. Steps have been taken to have these areas constituted Irrigation and Water Supply Districts. Although the greater portion of the works in these particular areas was brought into operation for the first time, the demand for water was fully met, and the distributary system proved satisfactory.

About 3,000 acres of cereals, mostly wheat crops, were watered in the North Shepparton District, and the results were such that crops up to 12 bags to the acre were harvested where water was applied, whereas, on similar ground that could not be reached, a number of crops had very low yields, and in some cases were not worth harvesting.

The new brick offices erected in High-street were occupied for the first time in July of last year and have proved of great benefit in carrying out the administrative work of the Commission.

SWAN HILL DISTRICT.

In the Swan Hill District $2\frac{1}{2}$ chains of drainage channel were constructed and 90 chains of channel were re-modelled and lined with cement concrete. One and a half miles of channel were cleaned out with the mud-scoop. Over one hundred Dethridge meter wheels were installed and 74 of the old Grant-Michel meter outlets pulled out. Numerous other structures have been put in, including 34 culverts and syphons, 6 checks, a bridge over the Main Channel in Stradbroke-avenue and a pipe syphon under the railway line at Pental Siding. Sixty chains of levee banking opposite the Jager and McInnes' estates were constructed. The McInnes Estate was subdivided into blocks and made available for selection.

DISTRICTS ADMINISTERED FROM KERANG CENTRE.

The rainfall for the twelve months to December, 1927, was 927 points only, being 477 points below the average, and only on two occasions since 1877 has the annual rainfall been less. On account of the sparse rainfall, irrigation of crops and pastures commenced in August. The aggregate quantity of water supplied to the districts was a record, but the Commission was able to meet all demands, as greatly increased deliveries were possible as a result of the improvements effected to the main and distributary systems during the past few years. The value of the Torrumbarry Weir on the River Murray was amply demonstrated. This structure, which may be described as the key to the North Central Irrigation Districts, enables all these districts to be irrigated by gravitation, the apportioning of supplies being arranged by a joint Committee of Officers representing all Districts concerned.

The work of installing Dethridge meters in the Kerang District, to replace the old timber orifices, has been steadily proceeded with, and many wheels are now in satisfactory operation. In various other parts of the District many old timber structures were replaced with modern reinforced concrete works of larger waterway to provide for increased supplies. This work of replacement is being steadily pursued, together with the re-conditioning and extension of the distributary system.

No. 2 Wandella Main Channel, which was extended to Lake Elizabeth, a distance of two and a half miles, enabled further lands to be brought under irrigation, and, at the same time improved the service to properties south of the Lake. A new spur off the No 2 Wandella Left Branch Channel was constructed through allotments 15A and 15B, parish of Meran, and portions of the No. 10 and No. 11 Macorna North Distributaries were remodelled. Where the latter channel crosses the main Kerang-Bendigo road near Tragowel, a reinforced concrete bridge of the double arch type was built and a portion of the channel was deviated as required. On the No. 2 Main Channel a regulator was constructed to command new areas and to improve the service to district lands south of Dingwall. On the Gunbower West Channel near Milne's Bridge, where this channel is crossed by the Murray Valley Road, a 30-inch diameter pipe culvert combined with escape works and flood regulator was completed.

In the Kerang East section, the water way of the main distributary channel and minor offtakes was enlarged and improved, and, to facilitate the regulation of water, new checks and meter outlets were installed. In various parts of the District, pipe subways were placed at suitable points for drainage.

The question of enlarging the Macorna Main Channel sufficiently to enable the greater portion of the North West Lakes and Swan Hill District water supplies to be conveyed along this channel instead of along the Pyramid Creek as at present is, together with the question of general district drainage, being investigated.

At Kerang, a dwelling was built for the District Secretary, while new quarters were erected for the water bailiff at Macorna.

Throughout the Koondrook Irrigation and Water Supply District, further work was undertaken with a view of improving the channel waterways generally, and in addition to enlarging the upper sections of the Northern Main and the Centre Channels, spurs 1, 2, 14, 14B and 15A were remodelled and embankments were specially treated to prevent leakage. Two minor distributary channels at Murrabit and Myall were extended to serve new areas, and a short section of the principal spur through the Gonn Crossing Citrus Groves was fenced off so that stock could be turned in from time to time to keep down the growth of grass and vegetation, which became troublesome and required frequent cutting. On the main channel at the head of the Myall section where the water is gauged for Myall, Murrabit and Benjeroop, a new regulator, 6 openings of 6 feet each, was constructed in reinforced concrete and the channel in the vicinity was enlarged. Plans were prepared for the proposed new headworks at Koondrook to replace the existing timber Trust structure, which is of limited waterway.

The Murrabit drainage system was extended to serve portions of Bennett's Closer Settlement Estate and lands in the vicinity of the Murrabit township. Additional seepage drains of an aggregate length of four miles were excavated at the Murrabit Settlement.

In the parish of Kerang additional channels were constructed, and an embankment was built across a swampy depression on the left bank of the Pyramid Creek to prevent the backed-up water from the Kerang Weir from spreading over the Timber and Water Reserve in the vicinity of the Kerang cemetery.

The North-West Lakes were maintained at full level during the summer months by water sent into the Pyramid Creek from the Torrumbarry Weir, there being practically no flow in the Loddon River on account of the abnormally dry winter.

The Third Lake channel system was extended to serve additional areas near Benjeroop, and surveys were completed in connexion with the supply to lands at the junction of the Loddon River and Barr Creek.

DISTRICTS ADMINISTERED FROM COHUNA CENTRE.

A continuance of dry conditions was experienced from the commencement of the irrigation season until the middle of January. Demands for irrigation water were exceptionally heavy, but notwithstanding this all requirements were met.

Rains which fell in January provided a good test for the system of surface drainage installed in the Leitchville and Cohuna Districts by the Commission. The majority of storm waters was delivered to the Barr Creek, the main outfall for the Districts, within two days; and, within a week, all surplus water had disappeared. The heavy summer downpours, occasionally experienced in the North of Victoria, are now, by reason of the Commission's drainage system, of distinct benefit to the Cohuna District. An immense amount of alkali is dissolved and washed out of the soil, and, as nearly every low-lying part is tapped by gravitation drains, storm water is not now allowed to lie in stagnant pools. There is much distinct evidence of the beneficial effects of the drainage system in the Cohuna District, while in the Leitchville District the Commission's policy of constructing drains immediately the supply channels were completed cannot fail to prevent, to a very large degree, the evil effects of seepage and the undesirable accumulation of surface waters.

In the Leitchville District the structures incidental to the drainage system have been proceeded with; sixteen channel crossings, two concrete escapes, twenty-three occupation crossings and seven road crossings have been constructed, and the whole drainage system is now practically complete.

In the Cohuna and Gannawarra Districts orifice outlets are being replaced with Dethridge meters, and there are now 294 and 244 of these registering outlets in the respective Districts, as well as 81 in the Leitchville District. The provision of these meters is having good effect, as not only do they give an accurate record of the water used, but they tend to make the irrigators careful with their waterings and reduce waste, a matter of prime importance in the Cohuna District, where the keeping down of the water table is so essential.

Maintenance and repair works have been carried out in all Districts administered from this centre, and in the Cohuna District two stops, 1 new road bridge and 2 occupation crossings have been constructed.

In the Cohuna and Leitchville Urban Divisions all necessary repair and maintenance works have been effected.

DISTRICTS ADMINISTERED FROM LODDON CENTRE.

During the heavy spring irrigation demand, occasioned by a dry winter, the benefit of the works carried out in the last few years for the improvement of the supply, particularly the enlargement of part of the Waranga-Western Channel, the construction of the Tandarra-Calivil Main Channel, and the remodelling of old works in the Tragowel Plains District, was very apparent. The maximum rate of supply in Tragowel reached 2,200 acre-feet per week, as against 1,600 a few years ago, or nearly 40 per cent. increase; and as most of the non-irrigated crops were wholly or partly failures, this extra supply must have meant a saving of thousands of pounds to the district generally. Over 70 per cent. of the water rights were, on account of the dry conditions, delivered in the first three months of the season, or nearly twice as much as for the same period for any previous year.

Boort and Dingee Districts also watered heavily, and several thousands of acres were watered for the first time through the new channels in the Tragowel Plains and Calivil extensions, with great benefit to the landholders concerned, who in many cases would have otherwise practically lost all their crop.

Widespread sowings of summer fodder, such as millet and amercane, were made later in the season, and as a consequence many irrigators were enabled to stock up while the price of sheep was low, and sell later at considerable profit. This season clearly demonstrated the value of the opportunity afforded landholders by irrigation in dry years.

The domestic and stock supply for dam filling was fully availed of by landholders both inside and outside the districts, and proved of great value to the district.

During the year the extension of the Waranga Western Channel west of the Loddon was proceeded with, and arrangements have been made for its continuance until it reaches the Avoca.

The supply to Tragowel Plains District was further improved, both in the saving of water and in regulation, by the completion of the remodelling and deviation of the old 1A of 1 Distributary Channel to connect the No. 2 Main Channel on to the Tandarra-Calivil Main. This also releases more of the capacity of the Waranga-Western Channel for the supply to the Boort and Calivil Districts.

Inside the Tragowel Plains District steady progress was made with the increasingly urgent work of replacing old worn-out timber structures with concrete ones. Thirty pipe culverts, 21 concrete bridges, 50 checks, 6 syphons, and 3 subways were so replaced. The benefit of the work already done is being reflected in the better regulation and saving of water.

The extensions east of the district in the Mologa and Mount Hope areas were pushed on. A further fourteen miles of new channel were completed, with necessary structures, and an area of over 21,000 acres was added to the district. Another six miles of the No. 2 Distributary channel, which acts as the main for the supply of these new areas, were remodelled and numerous old structures replaced; the completion of this work is now well in hand.

Further work was done in remodelling structures at the outfall of the No. 1 Main into the Macorna Main Channel. As a result of this it was found possible to pass practically all the surplus water into the Macorna Main Channel, thus making it available for use in the Kerang District. This resulted in a considerable saving in water, and also assisted in reducing the water in the creeks in the Kerang area.

In Boort District the improvement of the internal distributary system was carried on by the replacement of old structures and the remodelling of channels, so as to take advantage of the greatly improved supply to the district resulting from the extension of the Goulburn System to the Loddon River. A connexion to feed the channels in the southern half of the Boort District from the Waranga-Western Channel Extension instead of diverting from the Loddon at the Kinypanial Weir is nearing completion, and should both save water and facilitate regulation. The installation of concrete meter outlets throughout this district is practically complete, and these should be available for use during the coming season. Various minor repairs to existing channels were carried out throughout the year.

In Dingee District and along the Waranga-Western and Tandarra-Calivil Main Channels repairs and maintenance works were carried out. Further stretches of the Waranga-Western Channel were beached or brushlined where wave action was causing scour. Some minor damage caused by the heavy rains of January was repaired. A new flood inlet was placed in the Waranga-Western Channel near Tandarra, and a four-feet syphon was installed under the Tandarra-Calivil Channel near Dingee.

In the proposed Calivil District, 36 miles of new channels involving some 340,000 cubic yards of earthwork and numerous structures were completed, including 69 bridges, 71 checks, 8 syphons and about 60 meter outlets. Several old wooden structures in existing channels were replaced to supply part of the new district. The total mileage of new channels in this district is now 48, serving some 45,000 acres of new country, much of excellent quality, including several thousand acres purchased for closer settlement purposes. This area will shortly be constituted the Calivil Irrigation District.

Two new gravel pits were opened up in the district, and several thousand yards of excellent gravel were obtained for concrete. A quantity of second grade gravel was used for sanding approaches to bridges.

To facilitate the regulation of water in the main channels, a telephone line was erected to connect the Channel Guard's quarters at about 65 miles on the Waranga-Western Channel with the quarters of the Inspector in Charge of the Dingee District.

In the Pyramid Hill Urban District a new 12 horse-power engine was installed and several small extensions were made. Eighteen new meters were installed. The engine and pump of the Mitiamo town supply were transferred to the new storage dam, and the old windmill was overhauled.

In the Loddon United Trust area 1 mile of channel was cleaned out, and four small concrete pipe syphons were installed at points where the recent floods had damaged channels. Various old structures were repaired or renewed.

Minor repairs were carried out to the works on the Loddon River. In the case of the Kinypanial Weir, an old timber structure which is showing signs of failure, an earth bank was put in to relieve the pressure on the weir and two concrete pipes were put in to pass the flow of water.

DISTRICTS ADMINISTERED FROM ROCHESTER CENTRE.

The early months of the irrigation season were unusually dry, and resulted in an extremely heavy demand for irrigation supplies and for dam filling in the dry areas outside the district. Fifty-four dams were filled through channels constructed by landholders. These channels were over 60 miles in length and the supply of this water did much to relieve the dry conditions in these areas. Large quantities of water were also used outside the district for crop watering, and crops so watered were the only ones that gave a reasonable return.

During 1927-28, 9 miles of new distributary channel in Wharparilla were constructed which will result in some 4,800 acres being added to the district for the coming irrigation season. All new works in connexion with the Restdown-Wharparilla Main Channel were completed. These included 16 chains of concrete lined channel in banks across depressions, a concrete flume across the large Restdown depression, three large drainage subways and the usual checks, drops and road and occupation crossings. The remodelling and enlarging of the old channels which form part of this main channel are progressing steadily.

Other works of supply included the remodelling of the Marshall Channel at Tennyson, the construction of Channel "F" near the Echuca Estate and the duplication of crossings on Spur 10, Nanneella, to cope with the increased demand for irrigation water.

Considerable benefit has resulted from drainage channels constructed during the last few years, and further work is being done in this direction. In Nanneella, 2 miles of drain have been cut through swamps to connect existing drainage channels, and in Bamawm 60 chains of similar work was done. About two miles of the Bamawm Drainage Channel No. 1 has been deepened to permit of subsoil drainage on adjacent blocks, and contracts have been let for the construction of a further $9\frac{1}{2}$ miles of drainage channel in Bamawm and $2\frac{3}{4}$ miles in Nanneella. A concrete outfall for the Ballendella Drainage Channel was constructed, and half a mile of tile pipe was laid to act as an intercepting drain where a supply channel was seeping through a sandy ridge.

Approximately 7,000 square yards of $1\frac{1}{2}$ -in. concrete lining were laid as a prevention against seepage where supply channels pass through citrus groves. Subsoil drainage by means of tile pipes is being undertaken by several landholders for the improvement of lands planted with citrus and vines.

Further work in the way of beaching and timber sheeting was carried out on the Waranga Western Channel to provide for the increased stream which is now carried.

Further repairs were carried out at the Campaspe Weir. Boxes were refilled with stone and covered with concrete. Work done on these lines in previous years is standing well, and is less damaged by floods than the old timber decking.

In Echuca North District work was confined to a new drainage outlet and the provision of several drainage subways. Owing to the increasing demand in this area, enlargement of the Cornelia Creek channel, which serves the district, is necessary. Structures will be duplicated before next irrigation season, and surveys are in hand for the enlarging of the Channel itself.

In the Lockington Urban Division an engine and centrifugal pump have been erected to supplement the windmill-driven pump. The reticulated water supply has been of great benefit, and the township is becoming a prosperous business centre.

DISTRICTS ADMINISTERED FROM TONGALA CENTRE.

The main works carried out in the above districts during the past year have been in connexion with the provision of surface water drainage for the various holdings. This work has been carried out principally in the Stanhope District. In spite of the very dry winter of last year and

the unusually wet autumn of the present year, the progress in all of the Districts is satisfactory. With the adoption of better methods of farming and greater attention to necessary details of working holdings, the Tongala and Stanhope Districts will make more rapid progress from now on. Lessees are now realizing that extra work in the preparation of land for lucerne and pastures is more than repaid in the returns from the crops. The use of artificial manures is becoming more general, but this practice can still be extended with great benefit to all users. Dairying is becoming the main industry in Tongala and Stanhope Districts, and there are now four herd-testing groups operating in these Districts. The value of testing is now well known to all dairymen here. The Districts are also proving very suitable for fruit growing; apricots, pears and peaches do well, and have been supplied in large quantities to the Kyabram Cannery, while the area planted to citrus is increasing each year.

Sheep agistment is also taking its place as one of the industries in the Districts. The accessibility of these areas by rail from Echuca, is encouraging land-owners in the Riverina to look to the irrigated lands of the Goulburn Valley for grazing land for fattening their stock, and there is no doubt that the reputation of these Districts for this purpose will be enhanced as time goes on.

In the Tongala District during the year three miles of irrigation channels were constructed to supply Trevaskis's Estate in the parish of Tongala and lands in the south-east portion of the parish of Kyabram. The total length of channelling in this District is now 84 miles 20 chains of main channels and 75 miles 65 chains of distributary spur channels.

A scheme for providing surface drainage in the Tongala District is now in hand. Work has been commenced on the lower section of the Tongala Main No. 1A drain from 14 miles to 20 miles. It is expected to complete this and also the No. 2 drain, on which surveys are now being carried out, within the coming year.

In the Stanhope District, irrigation channels were extended for an additional 1 mile 6 chains at Girgarre, thus bringing the mileage of irrigation channels in that District to 47 miles 76 chains of main channels, and 45 miles 5 chains of distributary irrigation spur channels. The main works carried out in this District during the year have been in connexion with the reticulation of the District with surface drainage channels. At the time of the last report the Deakin Main Drainage Channel and spurs 1 to 6 had been completed. During the year drainage spurs No. 7 to No. 10, totalling 16 miles, have been completed, and a further 20 miles of earthwork with necessary structures in spurs Nos. 11, 12 and 13, are being carried out; all earthwork and structures on these spurs will be completed during the coming year, and the drainage reticulation of this District will then be complete.

In the Deakin District necessary maintenance works on channels have been carried out, and the amount of water used during last spring for the irrigation of cereal crops and grass lands was a record for the District. Estimates have been prepared for the construction of 25 miles of irrigation channels in the parishes of Kyabram, Carag Carag, Timmering, and Koyuga to give a better supply of water to those areas.

In the Echuca North District, two miles of the Main Supply Channel have been surveyed, and will be cleaned out and re-modelled before the coming irrigation season. This should ensure a plentiful supply of water for this District.

BACCHUS MARSH AND WERRIBEE DISTRICTS.

During last year there was again a marked shortage of rainfall on the catchment of the storages governing both Bacchus Marsh and Werribee Districts with the result that supplies had to be restricted and charges adjusted. To minimise a recurrence of this shortage the Pykes Creek Réservoir is now being enlarged as detailed in another portion of this Report.

In the Bacchus Marsh Irrigation District, the Main Supply Channel has been concrete-lined for a further distance of four chains; and, to prevent any seepage where the channel passes through difficult ground, 40 chains of the existing lining were painted with a protective solution. Three miles of storm water drains along this particular channel between the Werribee River diversion weir and the Bacchus Marsh township were re-modelled, and the old boundary fences have been pulled up and new fencing erected for a distance of two miles.

The Woolpack Inn Distributary Channel, which supplies all lands on the northern side of the Werribee River and west of the Hopetoun district, was also concrete lined for a distance of 10 chains, and 2 Dethridge measuring wheels, 10 concrete outlets and 1 occupation crossing were constructed. To improve the supply of irrigation water to the small allotments north of the Darley Bridge, the channel banks were raised for a distance of 5 chains, and 1 chain of pipe syphon was laid.

The Gorge to Gorge scheme for the supply of an additional area of 1,000 acres not commanded by the existing system, has been further advanced, the total length of earthworks being 11 miles, while the works generally are practically completed to the Lerderderg River pipe crossing. These include 78 chains of 24 inch diameter pipe syphons, 3 miles of concrete lining, 3 timber and galvanized iron flumes, 5 channel measuring wheel boxes, 9 miles of storm water drains, and 50 concrete crossings and storm water shoots.

Owing to the erosion of the Lerderderg River banks it was found necessary to carry out additional works consisting of 50 stone and timber cribs, and the battering down of 8 chains of river banks and the planting of willows. The willows planted at the Commission's protective works are making very strong growth after last year's pruning and layering.

On the western slopes of Pykes Creek Reservoir 2,000 *pinus insignis* seedlings were planted. The trees planted in 1924-26 were cultivated, and are now making excellent growth, many reaching to a height of 8 feet.

At the Commission's workshops at Bacchus Marsh 2,200 large Dethridge meter wheels and 100 small wheels were constructed, tar coated, and despatched to various Irrigation Districts under the control of the Commission.

In the Werribee Irrigation District, the main works carried out during the year have been the lining of channels with concrete. The results obtained are so satisfactory as to justify the continuation of such work.

In the Main Distributary Channel, 5 miles 36 chains were re-modelled and concrete lined in addition to 1 mile 50 chains of spur channels including twelve chains of small supply channel from the Main to supply allotments 37 and 38 of Section E.

Twenty chains of earth channel were constructed to command additional areas in allotments 18 and 21, section G, and twenty chains of drainage channels to effectively drain the flat lands on these allotments.

To meet the additional demands which the continually growing town of Werribee is imposing upon the reticulated works of water supply, a new 5-inch pump was installed to replace the one used for pumping the urban supply to the tower. Three hundred and sixty-eight feet of 2-in. galvanized pipe main was laid in Tarneit Road, and 110 feet of 4-in. wood pipe was put down in Russell-street. This work was put in hand, notwithstanding the probability of this Urban Supply being in future obtained from the Melbourne and Metropolitan Board of Works with whom the local Council is negotiating.

To meet the wishes of small landholders in the Irrigation District, who desire a domestic and stock water supply under pressure, and whose holdings adjoin the Urban District, additional mains were laid down to serve landholders who pay for this service by a special agreement charge. In this way, 34 chains of 2-in. galvanized piping was laid down in Wattle-avenue as well as 40 chains of 3-in. spiral welded piping in Chirnside-avenue.

A domestic and stock supply was given to settlers in the Waterworks District as usual, and the value of an assured supply during such a prolonged dry period was greatly appreciated by those fortunate enough to be within this Waterworks District.

MERBEIN DISTRICT.

Seventy-one chains of channel lining in cement concrete have been completed since the last report, and, to increase the carrying capacities of several minor channels, their banks have been raised and the concrete lining topped up for a length of 46 chains.

The replacement of old timber culverts by reinforced concrete pipes has been continued, and nine structures were dealt with in this manner during the year. All the culverts have been constructed with a road width of 24 feet. One road bridge also, over the Main Channel, has been widened from 16 feet to 24 feet.

Maintenance of concrete channels by treating cracks with bituminous emulsion has been continued. Satisfactory results have been obtained by opening out the cracks and filling with a mixture of bitumen emulsion and sand. This method of channel maintenance is being extended.

Five general waterings and one special watering were given during the year to meet the requirements of the District. Owing to the exceptionally dry winter preceding the watering season the first watering commenced at an early date. All waterings throughout the season were heavy.

In the Merbein Urban District $6\frac{1}{2}$ chains of 9-in. wood pipe rising main were replaced with steel pipe and $100\frac{1}{2}$ chains of 6-in. and 9-in. wood pipe were substituted for concrete mains. These replacements have resulted in an uninterrupted service to the consumers and have greatly reduced the cost of maintenance.

Extensive works for sub-soil drainage have been carried out by settlers during the year. In that portion of the Birdwood Area where, prior to drainage, seepage trouble was experienced, blocks which have been well worked and drained during the year now show a marked improvement.

Dried fruit returns for the 1927-28 season totalled 6,008 tons, compared with 9,850 tons for 1926-27 and 6,400 tons for 1925-26. Considering the severe frost of last spring, this year's returns are very satisfactory, the average return per acre from the areas unaffected by frost being probably equal to the highest yet obtained.

Notwithstanding the adverse season the district generally presents an appearance of progress. During the last two years thirteen new houses have been erected on blocks in the irrigation area. In the Merbein township itself, all business premises are occupied, quite a number of new residences have been built, and new premises for the State Savings Bank are nearing completion.

RED CLIFFS DISTRICT.

The constructional work in connexion with the water supply of the settlement consisted of minor work only. Small sections of unlined channel were lined with 2-in. cement concrete, involving a total superficial area of 12,640 square yards. Other work carried out was the construction of 16 small concrete culverts, 11 outlets, 4 stops and 2 bridges. Practically the whole of the channel system is now concrete lined.

The irrigation of the settlement was carried out satisfactorily, all blocks receiving full supplies.

The area now planted and irrigated totals 10,003 acres, and the yield of dried fruit for the season amounted to 8,500 tons. This yield was considerably less than the estimated crop and the crop for the previous year, which totalled over 11,000 tons. Unseasonable conditions were responsible for this reduction, severe frost in the early part of the season seriously damaging the young shoots on the vines, and later, hail and heavy rains damaged the ripened fruit prior to harvest. The areas of citrus totalling about 600 acres are reaching the stage when profitable crops should be harvested.

During the year, demonstrations of dipping fruit, pruning, etc., were, as in past years, arranged for the guidance of settlers, and the usual personal visits of the Supervisors to individual blocks were made, two officers being constantly employed on this work.

The Commission, as in previous years, arranged for the purchase in bulk of settlers' requirements for chaff and harvesting requisites, and it is undoubted large savings were made on usual retail selling rates.

The collection of revenue for the year ended 30th June, 1928, was satisfactory, the amount collected for water rates being over £50,000, as compared with about £37,000 for the previous year.

The township of Red Cliffs is still growing steadily, the most important development in building being the erection of brick offices and residence for the State Savings Bank.

The town water supply was extended to give a fire service to the Industrial Sites, about 30 chains of 3-in. pipe being laid for this purpose. A supply was also provided for the workmen's home subdivision 235B, ten chains of 2-in. pipe being laid, and a private residential subdivision on allotment 240 was also reticulated by laying 5 chains of 4-in. wood pipe and 22 chains of 2-in. galvanized iron pipe, while in all cases provision was made for fire service.

NYAH DISTRICT.

During the year the length of supply channels lined with concrete was extended by ten chains, bringing the total length so lined to approximately 44 miles.

Irrigation channels were cleaned out and 60 chains of concrete lining were treated with bitumen to minimize seepage. Several old timber outlets and regulators were replaced with new concrete structures. Considerable progress was made with the improvement of the drainage system. The No. 13 drain was remodelled for a distance of about two miles, involving the lowering of several culverts and one syphon to correspond with the new bed level. Other drainage channels were cleaned out and deepened where required. Fifty-seven chains of pipe drain were installed to serve allotments in Tyntynder West and Tyntynder North.

Watering of the settlement was carried out satisfactorily during the season, and all occupied allotments received full supplies.

Considerable damage to vines and trees was caused by severe frosts during the third week in September of last year, and heavy rain in January and February caused further damage to crops. As a consequence, the season's pack was considerably below that of the previous year. A total of 2,400 tons dried fruit was packed by the Nyah Packing Sheds compared with 3,200 for the 1927 harvest. The Doradillo crop was also light, totalling 320 tons, as against 550 tons for the previous year. The total acreage now planted to vines and trees in the Nyah Irrigation Area is 2,711 acres.

Growers were visited on their allotments and regularly instructed in irrigation and cultural practices by officers of the Commission.

Steady progress generally has been made throughout the District, and an optimistic spirit prevails.

MYSTIC PARK DISTRICT.

In this District the Channel system has been extended and improved by the excavation of 130 chains of earthen channels. These extensions involved the construction of three reinforced concrete regulators, 2 bridges with checks, and 1 culvert with check. During the year drift sand was cleaned out from 110 chains of the No. 2 Spur Channel which adjoins sandy country. A survey of the Mystic Park Main Channel has been carried out, and plans have been prepared with a view to remodelling those portions of this channel which were not up to the Commission's standard when taken over by the Commission.

Irrigation supplies were received from Lake Kangaroo by gravitation throughout the year, the Lake being kept at full supply level by carefully regulated supplies from the Torrumbarry System.

TRESCO DISTRICT.

The total length of channels lined with cement concrete in this District has been increased to 11 miles by the completion of a further 33 chains during the year; 20 chains of earthen channel and 9 concrete structures have also been constructed since last Annual Report.

The irrigation of the District was carried out satisfactorily, and all occupied blocks received full supplies during the five waterings provided.

The replacement of citrus and deciduous fruits by vines has been continued, 60 acres being replanted with vines during the year. Fifty acres of new land have been cleared preparatory to planting up during the coming season.

The Doradillo crop for the season 1927-28 yielded 1,239 tons. In addition, 56 tons of Gordos and 115 tons of other varieties of grapes were despatched to the Distillery during the season. Seventy-six tons of sultanias were produced during the year, as compared with 62 tons for 1926-27 and 27 tons for 1925-26, while it is estimated that the total 1928 orange crop should reach 20,000 cases.

FISH POINT DISTRICT.

The installation of meter outlets throughout the district was completed during the year. In addition, 13½ chains of new earthen channel were constructed together with 3 small concrete channel structures. A building for the use of the Water Bailiff was erected at a suitable central site and a telephone was installed. Channel banks have been suitably beached at exposed places where scour was taking place, and couch grass is being planted at danger points in the channel banks. Satisfactory irrigation supplies were received during the year, the whole district being watered by gravitation from Lake Tutchewop which was maintained at full supply level by means of the Torrumbarry System.

MAFFRA-SALE IRRIGATION DISTRICTS.

During the year the areas at present served by channels and brought under irrigation have been divided into two Districts--Maffra and Sale. The Maffra District, which includes Newry and Boisdale, now comprises about 20,000 acres, and to it has been allotted a water right of two acre feet to the acre. The Sale District, with a present area of about 15,000 acres, embraces Sale and Bundalaguah, and the water right allotted to it is one acre foot to the acre.

Requests for extensions of channels, both within the above Districts and in localities outside them, continue to be received. The most important of these requests has come from the northern portion of the Tinamba district, and a channel system for the supply of this area has been completed ready for the coming season. The Glenmaggie Dam on the Macalister

River has now been built up for its entire length to the final level of the concrete crest. This stores some 105,000 acre feet, and all is now in readiness to receive, when required, the final installation of gates. This minor work is all that is now necessary to raise the total stored volume to 150,000 acre feet. By the construction of a reinforced concrete training wall on each side of the river, provision has been made to guide any water flowing over the crest of the dam into the normal river channel below, thus preventing any scouring of the banks and consequent damage to the main supply channels. The reinforced concrete outlet structures for the main supply channel on the south side of the river have been completed. This main southern channel leading from the Glenmaggie storage through "Alec's Downfall" and along the southern bank of the river has been carried as far as the offtake of the Tinamba North Main Channel. The Tinamba North Main Channel has been completed, and will, in addition to supplying a large area of land not at present included in the irrigation districts, enable the whole of the water required for Tinamba, lying south of the Macalister River, to be obtained from it. Road deviations to replace the portions of main roads submerged by the Glenmaggie storage have been provided, and the steel girder and timber truss bridge has been completed across the submerged valley of the Glenmaggie Creek at Glenmaggie. A new road bridge to replace the original bridge at Grogans, so as to provide for the needs of the settlers on the north side of the Macalister River, in the vicinity of the reservoir, is also being erected across this river a short distance below the dam.

In the Maffra District the main reticulation system of the portion of Newry included in the district has been completed, and the excellent results obtained from the irrigation of these valuable flats have led to a demand for the extension of the spur channels so as to command additional lands not at the present time supplied.

The Boisdale system of concrete channels was brought into full use during the year, and proved very effective.

In the Sale District the channel system has been extended some seven miles to meet the requirements of the subdivision of Closer Settlement Estates made available during the year. In addition a number of extra structures have been erected in the main channels to meet the requirements of these subdivisions.

One hundred meter outlets complete with wheels and cyclometers have been installed during the year.

The drainage difficulties of both Maffra and Sale Districts have been investigated, and in order to overcome them and at the same time to provide an efficient outfall for drainage water, two dragline excavators have been put into operation. One is at work on the Main Nuntin Creek outfall, which will meet the requirements of the Boisdale and Nuntin Flats in the Maffra Area, while the second machine is at work at Lake Wellington, and will provide an outfall for the Sale and Bundalaguah areas.

In both districts during the past irrigation season there was a keen demand for water, and the results obtained were highly satisfactory and particularly so on the land that had been properly prepared for irrigation. This was very noticeable on the area under beet and maize. The grading and the preparation of the land for irrigation is now receiving greater attention, and the results will be further improved as the necessity for thorough preparation of the land is more fully realized.

There has been a considerable expansion in the Closer Settlement activities in the Sale District. During the past year, six new estates have been thrown open and the blocks were readily selected; 36 allotments have been taken up, involving the erection of 27 houses. The progress being made by the settlers with the development of their holdings is very satisfactory. The blocks are being well graded and sown with lucerne and mixed pasture. As this is a dairying centre the importance of mixed pasture is being impressed on the settlers by demonstrations and lectures.

Good progress has been made with the works which it is expected will be sufficiently advanced to provide a pipe supply for Stratford by the end of the year. The local Waterworks Trust will carry out all reticulation work within the town boundaries, where the water will be drawn from the Commission's main.

Proposals have been placed before the residents of the town of Heyfield for a full supply from the Glenmaggie Reservoir. The scheme provides for an extension of the main southern irrigation channel which will deliver water into a storage close to the town, from which it is proposed to pump by electrical energy to a service basin on elevated country about three-quarters of a mile from the town boundary. From this basin water would be delivered through reticulation pipes to the residents.

INVESTIGATION OF NEW IRRIGATION AND WATER SUPPLY PROPOSALS.

As stated in the last Annual Report, the question of making adequate provision to meet the requirements of the Loddon Area south of, but not commandable by, the Main Waranga Western Channel is being fully investigated. To assure the future progress of this district, it is imperative that a water supply be made available, which would provide not only for domestic and stock purposes, but also for the irrigation of the specially fertile land in the Loddon valley. The Commission is having surveys and investigations carried out which indicate that a site on the Loddon River above Laanecoorie, near Baringhup, would permit of the storing of a considerable quantity of water.

The possibilities of the proposed site on the Campaspe River at Eppalock have been further investigated by surveys to ascertain the possible storage capacity, and the suitability of the rock for foundations for the construction of a dam is being tested by diamond drilling and exploratory excavation along a line where the surface contours are favorable.

Investigations are being made with respect to proposals for extending the supply of water, now available from the new Sugarloaf Reservoir, for the irrigation of lands at Nathalia and Narioka by a continuation of the Kaarimba Channel, north-west of Shepparton, and to supply lands in the Dunbulbalane and Drumànure districts. While this necessitates an extension of the Eastern Goulburn Main Channel, it is undoubted that the return should prove profitable both to the State and the settler.

The Commission, at the request of a number of landowners, has carried out investigational surveys of lands, along the western side of Bullock Creek, which could be supplied from the Goulburn Irrigation System. The proposal involves the construction of about 20 miles of channels governing some 13,000 acres; but it is not proposed to put any works in hand until a reasonable majority of the landowners agree to the construction of the works and to meeting the annual charges in connexion therewith.

In response to requests from landholders for irrigation supplies to their lands in the parishes of Wanurp and Milloo, adjoining the Rochester District, and in the parishes of Terrick Terrick West and Mitiamo, west of Mount Hope Creek, investigational surveys have been made, and estimates of the cost of works are being prepared for submission to those interested.

Further surveys in connexion with the proposal to construct a storage on Deep Creek at Konagaderrerr and the investigation of suitable storage sites on Jackson's Creek to supply water to lands in the vicinity of Sunbury and Melton, and embracing the Keilor Plains, will be completed at an early date. The investigations will include the possibility of a supply for domestic and stock purposes and for the irrigation of small areas.

In view of the necessity of supplementing the supply to the extensive Wimmera-Mallee Scheme, it is proposed to carry the channel, which is to run from the Loddon to the Avoca Rivers, across the latter river so as to connect up with the East Karkaroc Main Channel in the Wimmera-Mallee System, and thus make possible the use of the winter flows of the Loddon and Goulburn Rivers without impairing irrigation interests. This will provide a most valuable supplementary supply to the northern portions of the Wimmera-Mallee Domestic and Stock Area.

While portions of the country to be served by the proposed railway line to a point 35 miles westwards from Nowingi, on the main Mildura line, can be supplied by short extensions of the Lower Millewa District channels, it is found that, owing to the conformation of the surface and the light sandy nature of the soil in places, supply of water by channel would be difficult and costly. In these parts, and also where a channel supply is completely impossible, it is proposed to make arrangements for the installation of artificial catchment tanks, as described elsewhere in this Report. As the requirements for the first few years of occupation will be confined to domestic purposes and limited stock needs, the first installation will probably be only half of that ultimately required, and will consist of an iron catchment covering about one-quarter of an acre and storing 35,000 gallons. This early storage should meet the requirements of a settler and a team of, say, ten horses.

At the request of the Omeo Shire Council, proposals for filling Lake Omeo and for maintaining the supply in this lake are being investigated.

WATERWORKS DISTRICTS.

CARWARP DISTRICT.

The watering of this district for a domestic and stock supply was satisfactorily completed last year. The period of time taken for the distribution of water was 101 days, being 70 days less time taken than the previous year. This improvement was due to regrading work on the Main Channel System carried out prior to the watering; and to running the water during winter months instead of during the summer as was previously done.

Arrangements have been made to further improve the Main Eastern Channel prior to next watering and this is expected to further reduce the time occupied in distribution, and to also improve the supply. The work proposed consists of the enlargement of all bridges on the channel, the construction of three regulators and drops, and the cleaning out and regrading of the channel throughout.

Owing to the dry season the wheat yield was very poor in this district, and the revenue from water rates was consequently below average.

CARWARP CENTRAL DISTRICT.

The delivery of water for stock and domestic purposes was completed satisfactorily, no difficulties being encountered. Considerable scooping of channels had to be carried out as the sand drift was bad owing to the dry year.

COREENA DISTRICT.

To the north of Annuello, between the Tyntynder Waterworks District and the Murray River, there is an area of about 173 square miles which is above the level of the Wimmera-Mallee Gravitation System. At the request of the land-holders, mostly returned soldiers, a scheme was prepared for the supply of this area by pumping from the Murray River at Coreena Bend which lies some 20 miles below Euston. The works comprise a pumping plant delivering 15 cusecs of water through a 27-in. diameter steel rising main, 60 chains in length, to a high ridge commanding the country, from which approximately 130 miles of main and distributary channels will distribute supplies throughout the area. The maximum lift will be 91 feet.

A Waterworks District has now been constituted and good progress has been made with the construction of the works. The installation of the pumping plant and rising main is nearing completion. One hundred and twenty-seven miles of channel lines have been surveyed and pegged, and good progress is being made with channel construction, 40 miles having been grubbed and 35 miles of channel having been excavated to date.

During the year a petition was received from land-holders in the adjoining parish of Gayfield, asking that the Coreena Waterworks Scheme be extended to serve their lands. Surveys show that the lands in this parish, approximately 34 square miles in area, can be commanded from the Coreena Channel System. It is proposed, therefore, to add these lands to the Coreena District during the coming year, and to construct the necessary channels for their service.

YELTA DISTRICT.

Some 65 chains of the Yelta Main Channel were remodelled during the year, and four road culverts were reconstructed, being widened to 24 feet with reinforced concrete pipes.

The usual watering was commenced early in 1928, and a satisfactory supply was provided throughout the district.

WIMMERA-MALLEE WATER SUPPLY.

The dry seasons of the last three or four years have been unfavorable for the storing of water in the main headwork reservoirs of the system, with the result that the current season's watering had to be commenced with depleted storages. The use of water in all the supplied districts, both rural and urban, is continually increasing. Not only has the average capacity of storages on farms been doubled during the last fifteen years, but likewise in urban districts the consumption has increased to an average of 80 gallons per head per day, compared with Melbourne's average of 56 gallons. While a more general use of water was expected, this tremendous increase that has taken place was not anticipated. The Commission has given serious consideration to these important facts, which make the provision of further storages imperative. Each year a volume equal to half the total capacity of the reservoirs is required for the watering of the whole system. As the reservoirs constructed on the Wimmera Catchment at Lake Lonsdale, Fyans Lake, Wartook, Taylors Lake, and Pine Lake have a capacity more than equal to the aggregate run-off for the three driest consecutive years recorded, it would

appear that the economic limit of storage on this catchment has now been reached. As it is evident that supplies to meet the greatly increased demand are not now available from the gathering grounds of the Wimmera Catchment, the Commission has decided to supplement them from the more permanent streams to the eastward, the ample winter flows from which would be available without affecting the supply for irrigation purposes in other parts.

The construction of an extension of the Loddon-Avoca Channel by means of a channel of 100 cusecs' capacity has, therefore, been arranged and an early commencement will be made with the work. This channel, the first section of which is expected to be ready for next season, will command practically the whole of the Wimmera-Mallee System north of the 36th Parallel, and make available a full supply for this area during the winter months, thus leaving the Wimmera Catchment available for the area south of the line mentioned.

Throughout the past year great care in the use of water in all urban districts was imperative to avoid unnecessary waste, and it is evident that similar precautions must again be taken during the coming summer season.

Maintenance and remodelling of the system channels was necessary to a greater extent than is usually the case on account of the extremely dry spring and summer. These conditions caused an excessive amount of sand drift and rubbish to lodge in the channels, necessitating a considerably greater expenditure on cleaning operations. In spite of the unfavorable conditions, full supplies of water were run through the 5,450 miles of channels for the domestic and stock supply of the 11,000 square miles comprising the area commanded.

Ample supplies of water were also given to a number of towns within the Wimmera-Mallee Districts controlled by local Waterworks Trusts, as well as to the steadily increasing number of towns with full reticulation systems within the areas which are operated and administered directly by the Commission, of which there are 32, namely:—

Berriwillock	Dooen	Marnoo	Ouyen	Ultima
Beulah	Hopetoun	Minyip	Quambatook	Waitchie
Birchip	Jeparit	Nandaly	Rainbow	Watchem
Brim	Jung Jung	Natimuk	Rupanyup	Woomelang
Chillingollah	Lalbert	Nullawil	Sea Lake	Woorinen
Culgoa	Lascelles	Nyah West	Tempy	Wycheproof.
Dimboola	Manangatang			

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

Small additions to the above districts have been made to include areas in which water was supplied by channel for the first time.

In all 65 miles of new channels have been constructed, which will be used during the watering season now in progress. Twenty miles of new main channel were made east of Beulah to provide an adequate supply for the western portion of the Tyrrell District and the northern portion of the Karkarooc District, and to enable watering in these areas to proceed more expeditiously. Other extensions were made in the parishes of Vectis East, Corack East, Teddywaddy, Cope Cope, Donald, and Tarranyurk, to serve areas hitherto unsupplied.

The remodelling of the most urgent portions of the East Laen and East Karkarooc Main Channels was also carried out. This work will be continued as opportunity permits.

Investigations and surveys, covering some 60 miles in length, have been made in response to requests for channel supplies to areas at present uncommanded.

The pipe reticulation systems of the urban districts of Minyip, Hopetoun, Dimboola, Jeparit, and Rainbow have been extended to keep pace with the development in these important towns. The Jeparit and Rainbow supplies have been augmented by the construction of an additional storage with a capacity of 35,000 cubic yards at each place.

A storage of 65,000 cubic yards capacity has also been installed at Natimuk, so as to avoid the continuous running of the Natimuk Channel and the consequent drain on Wartook Reservoir. At Brim, an additional storage to the extent of 20,000 cubic yards has been provided to meet the growth and extension of the town.

In order to improve the water supply to the important town of Dimboola, which is at present pumped from the Wimmera River, the Commission is constructing a storage of 310,000 cubic yards capacity which will be connected with the Wimmera-Mallee System. This storage, which will do away with the expensive pumping necessary at present, will provide a supply of water of better quality by gravitation to the greater part of the town, and will also fit in with a possible scheme now being investigated, whereby water would be brought by pipe from Wartook to Horsham, and to areas near Pimpinio too high to be commanded from the present channel reticulation.

At Watchem an auxiliary engine is being installed to supplement the pumps at present operated by windmills, which are unable to cope with the increasing demand during calm periods.

The residents having requested a pipe reticulation supply to the township of Yaapect, in the Karkaroc District, this work will be undertaken during the coming year.

BIRCHIP, WYCHEPROOF, SEA LAKE, DERING, EUREKA, AND TYRRELL DISTRICTS.

During the year 131 miles of new channels have been constructed, chiefly in areas not previously supplied adjacent to the Tyrrell District. Extensions of the Tyrrell District have been made, and the new districts of Kia and Baring have been constituted to include these newly supplied areas.

In the Wycheproof District the Ninyeunook and Ninyeunook East Channels were constructed. These will supply the Mackie's Estate Soldier Settlers as well as other holdings in the vicinity.

The Tyrrell West Main Channel has been remodelled for 50 miles to provide sufficient supplies to the expanding area between Ouyen and Manangatang and to enable the watering to be carried out more expeditiously.

In the Walpeup Area 100 miles of channels were constructed, chiefly in the parishes of Nyang and Wymlet, and supply will be given to that area for the first time during the present watering.

A channel 22 miles in length has been constructed as far as Fox's Tank in the new Baring District. The tank has been filled with water for the first time. Hitherto this area has depended on natural catchment for its supply, which has proved quite unsatisfactory, and frequently involved long periods of water carting from Patchewollock. About 10 miles of this channel, which traverse desert country, had to be lined with clay before the running of water could be secured.

Surveys for channel extension in the Walpeup Area, and the country south of Wycheproof, have been continued in response to representations made for supply by the land-holders concerned.

In the urban districts of Wycheproof and Nullawil, extensions to water mains have been made to cope with development in these towns.

Additions to storages for the town supplies of Woomelang, 30,000 cubic yards, and Berriwillock, 23,000 cubic yards, have also been made to meet the continually increasing demand for water at these places.

A new urban district has been proclaimed for the town of Tempy, where reticulation works of water supply were constructed and put into operation during the year.

The works for reticulated supplies for the towns of Chinkapook, Speed, and Patchewollock are in progress and will be completed and put into use during the ensuing season.

LONG LAKE AND TYNTYNDER DISTRICTS.

Small additional areas have been included in these districts, chiefly in the Korrak Korrak area, and 14 miles of channels have been constructed.

In the parish of Yungera, a water supply was given for the first time, necessitating in the Yungera Channel, 7 miles of clay lining.

In spite of the extremely dry conditions in the northern areas and the unusual amount of wind drift, which it was necessary to remove from the channels, the whole of these areas was fully watered. Small extensions to the pipe reticulation systems in the urban districts of Quambatook and Ultima were also carried out during the year.

MORNINGTON PENINSULA DISTRICTS.

The new Main Bunyip Supply Race operated very successfully during the year and amply met all the requirements of the Mornington Peninsula Areas.

In order to fully utilize the surplus flow available from this main race during the winter months, and to provide for the constantly increasing demands on the Peninsula Scheme, it is found essential to provide additional local storage. A satisfactory site for a reservoir of ample capacity exists about 3 miles north-east of Dandenong, and final surveys of this are now in progress. This basin can be supplied by the Berwick-Dandenong Pipe Line, which will be reinforced by a new outlet line from the existing Beaconsfield Reservoir by means of a tunnel from the reservoir through the hill on O'Neill's-road, 18 chains long, and breaking into the Cardinia Watershed. From this tunnel a suitable syphon will cross the Cardinia Valley and tap the Berwick-Dandenong Pipe Line north of the Berwick Township.

In addition to relieving the draw on the Cranbourne Pipe Line, these new works will strongly reinforce the existing supplies to the Narre Warren, Hallam, and Dandenong Areas, the township of Dandenong, Noble Park, and Spring Vale, as well as the supply to the whole foreshore from Mordialloc to Frankston.

They will also provide for an extension of the scheme for the service of the closely occupied areas south from Dandenong and Spring Vale whenever such a supply is considered necessary.

The existing reticulation systems of the townships of Dandenong and Spring Vale, and the bayside towns from Aspendale to Frankston and Mornington, were considerably extended. Numerous applications for further extensions are being continually received and investigated. The reticulation works for the supply of the townships of Pakenham and Mount Martha were completed and are operating satisfactorily, and it is now intended to proceed with the supply to the Beaconsfield Township.

Schemes for the supply of Bunyip, Garfield, Longwarry, and the bayside towns of Crib Point, Dromana, Rosebud, Rye, Sorrento, and Portsea are now being investigated.

Considerable progress was made with the settlement of the Commission's Closer Settlement lands in the Hallam Valley. The occupation of the estates known as Wilson's and Sweeney's, some 1,300 acres in area, is now almost completed. The 50 settlers, with families, now occupying these blocks, are supplying vegetables and other produce to the metropolitan markets.

The scheme of water supply and drainage on these blocks proved to be ample and satisfactory in every respect, and the growth obtained during the year gives every indication of the eventual complete success of the settlement. It is intended to push on with the settlement of the balance of the estates, considerable portions of which are now ready for occupation.

Settlers in the Upper Narre Warren Estate are continuing to obtain good crops from their blocks.

At the request of the Government the Commission undertook the clearing of some 1,000 acres of the area known as the Police Paddock, adjoining the township of Dandenong. This work, in addition to a complete clearing of the land in question, included the snagging and cleaning of the Dandenong Creek, which has now been placed in such a condition as to minimize the flooding of the lower portion of Dandenong Township and adjoining areas. The improvements effected will render the Police Paddock a very valuable area, particularly for grazing, and will also, as previously stated, reduce the frequent losses caused by flooding.

BELLARINE PENINSULA WATER SUPPLY SCHEME.

During the year under review, a commencement was made with the works of this important scheme, which will eventually provide an abundant supply of water for the Bellarine Peninsula, and pipe reticulated supplies for the town of Drysdale and the rising seaside towns of Portarlington, Queenscliff, Point Lonsdale, Ocean Grove, Barwon Heads, Torquay, and Anglesea, as well as furnish a supplementary supply for the city of Geelong. The construction of the first stage of the main reservoir at Wurdee Boluc, 10,000 acre feet capacity, has been practically completed and is ready to store water when supply conditions are favorable. The main inlet channel which will fill this reservoir has been completed for a length of 10 miles, and subsidiary channels 8 miles long have been constructed from this to pick up the flows of the Retreat and East Pennyroyal Creeks. Along the main inlet channel to the Wurdee Boluc Reservoir, the construction of a total length of 1 mile 14 chains of 54-in. diameter steel pipe syphons has been completed, together with the necessary concrete and timber structures. The construction of this main inlet channel will be continued upstream so that the larger and more permanent tributaries of the Upper Barwon may be made available for the filling of the main storage reservoir at Wurdee Boluc as the demands on it increase. The construction of the outlet channel from Wurdee Boluc Reservoir is being expedited so that the distribution of supplies to Geelong may be undertaken without undue delay after water has been stored in the reservoir. Outlet works involve the construction of $17\frac{1}{2}$ miles of channel with the necessary syphons and structures, which will deliver the water into a pipe head basin, with a capacity of 250 acre feet at Waurm Ponds. The construction of this basin is now being undertaken, and from it supplies will be given by pipe to Geelong and the main distribution basin on the Bellarine Peninsula near Drysdale. Channels and pipe mains will convey water from this basin to separate local service basins for the Peninsula towns. Anglesea and Torquay will be supplied by separate channels leading from the main outlet channel near Moriac to service basins which will be established in the vicinity of each place. As the construction of the scheme proceeds, water supply will first be made available to those towns which can be most conveniently commanded from the works, and at a later date the provision of a full reticulation supply for the important towns of Winchelsea and Birregurra will receive attention.

WONTHAGGI DISTRICT.

The reticulation works of water supply for the township of North Wonthaggi were completed during the year and a satisfactory supply was provided.

A new electrically driven pump of 35,000 gallons per hour capacity was installed on the main pipe line from the Lance Creek Reservoir. This plant will enable a greatly improved supply to be given to the State Coal Mine and the Wonthaggi Township during the summer months.

The 12-in. main supply pipe, 8 miles in length, was scraped and thoroughly cleaned out.

NORTHERN MALLEE WATER SUPPLY.

In the Northern Mallee Areas, adjoining those supplied by the Wimmera-Mallee Scheme, but above the levels of the channels, a considerable amount of work has been done in opening up new country by cutting tracks, clearing, and grubbing roads, and in providing catchment tanks, bores, and other means of water supply for the use of contractors and new settlers.

BORES.

Two additional bores are being put down in this area. In the parish of Pallarang a depth of 700 feet has been reached, but a usable supply has not yet been obtained and boring is being continued. Boring operations have also been commenced in the parish of Koonda. Successful public bores in the Northern Mallee now number 99.

TANKS.

There are in the Mallee Areas 260 public earthen tanks of total storage capacity 1,209,617 cubic yards, equal to 204,425,000 gallons. Of these tanks, 61 are in the county of Millewa, and have a total storage capacity of 125,268 cubic yards, equal to 21,170,000 gallons.

ARTIFICIAL CATCHMENTS.

In certain parts of the Mallee, outside the "Bore" area, there are tracts suitable for settlement to which the ordinary channel system of water supply cannot be economically extended, and where, owing to the porous nature of the soil, natural catchments and holding ground for storages cannot be obtained. In these tracts, it is proposed to conserve water supplies by means of artificial catchments of sheet iron discharging into watertight covered storages. For the average farm this iron catchment will cover slightly more than half an acre of ground, and the storage tank will be constructed to hold approximately 65,000 gallons. Such a combined catchment and storage will, with even the lowest rainfall, fully meet the requirements of a well equipped farm, both for watering and grazing stock if used properly. Three small experimental catchments of this nature, with storages, have been constructed during the year in the country to be served by the Nowingi Extension Railway Line, and have been found satisfactory.

WINDMILLS.

Continued good service has been given by the windmills and hand pumps erected by the Commission at suitable points along the River Murray for the purpose of supplying soldier settlers on the Murray frontage.

ROADS.

During the year 66 miles of tracks have been made in unsettled areas comprising 62 miles in the new country to be served by the Nowingi Extension Railway and 4 miles in the Pine Plains Area. The total length of tracks cut to date is 284 miles. Road grubbing has been pushed ahead, 142 miles being completed during the year. Of these, 112 miles were in the Millewa Country, and 12 miles in the Nowingi Extension Area. The total lengths of roads grubbed and cleared by the Commission in the Mallee is now 5,704 miles. Two hundred and ten sandhills of a total length of 27 miles have been improved by rubbing with local limestone. At the request of the Government this work is being carried out by the Commission, whose staff is required in the area for other purposes and also have a close knowledge of the requirements of settlers.

LOWER MILLEWA WATERWORKS DISTRICT.

The works of the scheme for the domestic and stock water supply to about 1,000,000 acres adjacent to the Red Cliffs-Meringur Railway, and extending to the South Australian Border, have been so far advanced that the whole area selected to date has been supplied or will be supplied during the watering now nearing completion. Channel extensions into the country still to be settled can be carried out expeditiously as these lands are made available.

During the year the fourth annual watering in the Lower Millewa District was successfully carried out, the running conditions being comparatively favorable. The fifth annual watering is now in progress and is almost completed.

Steps have been taken to have constituted a new district to be known as the Upper Millewa District. The 320 square miles of land in this proposed district are at present temporarily included in the Lower Millewa District, and comprise the high lift system, the channel reticulation of which has now been completed. This system, which was partly watered during the year, will, in the course of the current watering, receive a complete supply.

During the year 101 miles of channels were constructed, making a total channel mileage of 664 in the area to date. Six additional public storages were also constructed, having a total capacity of 75,000 cubic yards. There are now 37 public storages with a total capacity of 361,000 cubic yards located at townships and other convenient centres in the district.

The works required for the pipe reticulation of the township of Werrimull were completed in time for the service to be made available on the 1st January, 1928, and an urban district comprising the township has been proclaimed. It has already been found necessary to further extend mains to cope with the development of the town which is expected to considerably progress in the future. The works of supply have been so arranged that extensions to meet increasing demands can be conveniently made.

A proposal for a pipe reticulated water supply for the township of Meringur, the present terminus of the railway line from Red Cliffs, has been accepted by the residents.

DRAINAGE AND FLOOD PROTECTION SCHEMES.

KOOWEERUP AND CARDINIA.

During the year further progress has been made with the flood protection and drainage works throughout the Kooweerup and Cardinia Districts. In view of the normal to dry periods experienced for the past four years, the Commission recognizes the need for guarding against overdrainage of the swamp lands whilst making provision to cope reasonably with periodical maximum flood discharges.

In the Kooweerup District, the Main Yallock Outlet has been completed for $1\frac{1}{2}$ miles from Bayles Township to the No. 5 Road, and the enlargement of the No. 5 and the No. 6 Yallock Drains, which constitute two of the main feeders within the Yallock System, has been extended 100 chains and 80 chains respectively.

Along the south-east side of the main canal a new catch drain, delivering into the No. 4 Extension, has been constructed for 90 chains from Cora Lynn to the 11-Mile Drain, for the purpose of affording greater protection of adjacent lands by coping with minor overflows and seepage from the Main Canal.

In the Garfield Area the 13-Mile Drain is now in course of enlargement, by piece-work, from its junction with Walker's Drain to the foot of the high ground in close proximity to the Garfield Township.

The enlargement of the upper portion of the Lang Lang River has been completed by the extension of the work for 80 chains to link up with the previously enlarged lower section. The continuous levee bank along the north side of the river, which is now complete, effectively protects a very large area within the Caldermeade and Yannathan districts, against overflows from the river.

During the year in the Kooweerup District approximately 200,000 cubic yards of earthwork have been removed, chiefly by mechanical excavators, which performed 85 per cent. of this work. Timber bridges, mostly on sills, have been constructed or extended for a total length of 600 lineal feet; $4\frac{1}{2}$ miles of fencing have been erected; 600 lineal feet of concrete pipes—15 inch to 24 inch diameter—together with the necessary spillovers have been laid for drainage outlets; and miscellaneous work, including the clearing of approximately 35 acres for works in progress, has been carried out.

Maintenance work carried out embraced repairs to bridge structures and the cleaning out and regrading of some 24 miles of subsidiary drains.

In the Cardinia District the construction of the Tooradin Channel by the No. 1 Bucket Dredger was advanced 80 chains, when the dry conditions and the lack of an adequate supply of water for boiler requirements necessitated the operations being temporarily suspended. The Gum Scrub Drain has been extended 80 chains and levee banks constructed to the high ground bordering the depression in the vicinity of Officer-road, in order to confine and divert the flows to the new drain.

In the Cardinia District, the total quantity of earthwork removed in the past twelve months was 140,000 cubic yards, of which 100,000 cubic yards were excavated by machinery. Timber bridges, mostly on sills, were constructed for a total length of 800 lineal feet; $4\frac{1}{2}$ miles of fencing were erected; 240 lineal feet of concrete pipes—15 inch to 24 inch diameter—were laid for drainage outlets; and miscellaneous work, including the clearing of about 12 acres for works in progress, was carried out.

Maintenance work, including repairs to structures, the cleaning out of drains, and the removal of growth from $8\frac{1}{2}$ miles of the main drainage reserve, was also carried out.

ECHUCA.

During the year the levee works of this district continued to prove effective, and properties within the district have again received complete protection from floods.

LOCH GARRY.

In June of this year, a flood occurred in the Goulburn River, which registered 34 feet on the Shepparton Gauge. This being the first occasion that the river had reached this height since the completion of the Loch Garry Protection Scheme, it was necessary to keep a close watch on the works. This scheme, which is situated 12 miles downstream from Shepparton, comprises a bank $5\frac{1}{2}$ miles long up to 10 feet in height, together with an outlet regulator 400 feet in length, fitted with movable drop bars. It is designed to protect an area of 41,000 acres along the right bank of the Goulburn River from flooding until the Shepparton Gauge shows 34 feet, and is then to be so operated that when the river reaches above this height, the whole of the bars are to be removed. As on this occasion the river just reached 34 feet, the bars were not removed, as it was apparent that within a very short period it would have fallen. A flow, however, was passed through the regulator and down the Bunbartha Creek, this reaching a maximum of 500 c.f.s.

The bank under its first severe test behaved splendidly, only one small leak occurring, which was quickly stopped, and up to the present the scheme has effectively served its purpose.

KANYAPELLA.

During the wet period experienced last autumn the river rose above the sill level of the regulator at Warrigal Creek. The drop bars prevented any flooding of the land protected by the levees. The maintaining of the water level sufficiently high in the Warrigal Creek also ensures an ample supply of water for stock purposes to adjacent land-owners.

CARRUM.

The scheme for the protection of lands in the Carrum Areas, and also in that area adjacent to the Eumemmerring Creek from McDonald's Embankment to the South Gippsland Railway Line, is now well advanced. The bucket dredge has completed the Main Canal up to the railway line, and will complete the cutting of the north side of the canal to McDonald's Embankment early in the new year.

It is intended to then top up McDonald's Embankment and complete the southern embankment along the Eumemmerring Creek Drain from a point known as Elliott's Lookout to Wells-road.

MURRAY LEVEES.

During the year numerous applications for permission to erect levee banks to exclude River Murray floods were received from land-holders in the States of New South Wales and Victoria. These applications were dealt with, after investigation, by the Interstate Committee of Representatives on Murray Levee Proposals, which comprises officers of the New South Wales Water Conservation and Irrigation Commission, and the State Rivers and Water Supply Commission of this State.

RIVER EROSION, DRAINAGE, AND GENERAL.

Many applications for permission to carry out flood protection, drainage, and other works have been received during the year, and, where investigations have indicated that the proposals were reasonable, permission has been given under the provisions of the *Water Act* 1915 for the works to be carried out by the interested parties at their own cost.

At the request of the Closer Settlement Board, surveys have been made of the Latrobe River flats near the Kilmany Park Soldier Settlement Estate, with a view to formulating a scheme for the exclusion of flood waters from the area known as the Island Morass. Plans are now in course of preparation, and it appears probable that a satisfactory scheme can be evolved.

Investigations carried out at McLeod's Morass, Bairnsdale, at the instance of the Lands Department, show that, owing to unfavorable natural conditions, the reclamation of this morass for agricultural purposes is not practicable at any reasonable cost.

Investigations are also being made into rather serious erosions of the banks of the Avon and Macalister Rivers in the Maffra-Sale Districts.

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.

During the year, a new gauging station was established on the Thomson River near Walhalla, and the gauging station on the Genoa River at Wangrabelle, which was temporarily abandoned at the end of 1924, owing to difficulty in securing the services of a gauge reader, was re-established. The number of gauging stations in the State is now 64.

DIVERSION OF WATER.

In the exercises 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.

During the early part of the summer, extending to the middle of January, the weather conditions were very favorable to the application of water for irrigation, and during that period there was a keen demand for water for that purpose.

Owing to the unusually dry weather last spring, and the resultant low flow in many streams, it was found necessary, on the 6th of January, to restrict and regulate the diversion of water from many streams and lakes in the State until they were replenished by heavy rains which fell later. The authorized diversions now in force are:—

Yearly permits	..	..	..	..	1,740
Flood permit ..	..	..	..	..	1
Licences	..	..	..	..	12
					<hr/>
					1,753
					<hr/>

GOULBURN HEADWORKS AND MAIN CHANNELS.

These works comprise the Goulburn Weir; the Goulburn-Waranga Channel, extending from the weir to Waranga Reservoir, a distance of $23\frac{1}{2}$ miles; the Waranga Reservoir; the Waranga-Rodney Channel, a distance of $4\frac{1}{2}$ miles; the Main Channel, extending westerly from the Waranga Reservoir to the Loddon River, a distance of 98 miles; the Tandarra-Calivil Main Channel, extending from 64 miles 69 chains on the Waranga Western Main Channel north-westerly to Tragowel Plains, No. 1 Main Channel, a distance of 26 miles; and the Main Eastern

Channel, which extends from the Goulburn Weir to the Katandra Area, a distance of $49\frac{1}{2}$ miles. The total length of main channels is 202 miles. The irrigation districts supplied are South Shepparton, Shepparton, North Shepparton, Katandra, Rodney, Deakin, Tongala, Stanhope, Rochester, Echuca North, Dingee, Calivil, Tragowel Plains, and Boort.

Surveys and detailed investigations in connexion with a proposal to increase by 600 cubic feet per second the maximum volume that can now be delivered through the Goulburn-Waranga Channel into Waranga Reservoir from the Goulburn Weir are approaching completion. The proposed works comprise an enlargement of the existing main channel for a distance of 2 miles from the Goulburn Weir, and branching from there the construction of a new duplicate channel carrying at least 600 cusecs, for 7 miles in open cut and 1 mile 48 chains by a concrete lined tunnel.

The work of enlarging the Eastern Goulburn Main Channel has proceeded satisfactorily throughout the year, two dragline excavators and one bucket dredge having been employed continuously. The excavation of $12\frac{1}{2}$ miles has been completed for the proposed increase by 66 per cent. of the capacity of this channel as originally designed. Nineteen miles of enlargement of this channel remain to be done, and it is proposed to continue the work with the three machines to completion.

In order to protect the side slopes of the deep sections of the channel as enlarged from the Goulburn Storage to a point 5 miles therefrom, and with a view to obviating the necessity for beaching the whole of the side slopes below full supply level, a reinforced concrete regulator is being constructed to maintain the water level at a somewhat constant height upstream.

A reinforced concrete regulator has also been constructed on the Eastern Goulburn Main Channel Extension at 9 miles to maintain the water level for the supply to the Congupna No. 3 Channel.

Plans have been prepared for the construction of a drain along the west side of the Eastern Goulburn Main Channel Extension near Katandra to carry off seepage, which has developed between 11 miles and 14 miles. Plans have also been prepared for a further extension of the Main Channel from 16 miles 35 chains to 18 miles, which will command for irrigation the balance of the lands purchased by the Commission for Closer Settlement at Katandra.

The Waranga Western Main Channel is being enlarged to meet the requirements of the proposed extensions in Rochester, Calivil, Tragowel Plains and the extension of this channel west of the Loddon River. Two dragline excavators are employed on this work, and it is proposed to employ, at an early date, another machine which will be transferred from the Kooweerup works.

Final surveys for the Waranga Western Main Channel Extension—West of Loddon River—have been completed for a distance of 20 miles. Contracts have been let for earthworks from the offtake at the Loddon River Weir to 8 miles, and 66 per cent. of the excavation has been completed.

Owing to the failure of the old Kinypanial Weir on the Loddon River it has been necessary, in order to ensure the supply to the Boort District during the next irrigation season, to construct a channel 3 miles in length and of 60 cubic feet per second capacity, from a point at 71 chains on the newly-constructed extension of the Waranga Western Channel, to deliver water into the Kinypanial Creek, through which this district draws its supply. The necessary structures have been finished, and the channel will be completed in time to carry full supplies at the commencement of the coming irrigation season.

A reinforced concrete regulator has been constructed on the existing Main Waranga Western Channel at 87 miles 70 chains to maintain the water level for the supply to newly-constructed channels in the proposed Calivil District.

The raising of the full supply level of the Waranga Western Main Channel has necessitated the placing of additional beaching on several sections. This has been carried out from time to time as opportunity permitted.

The seepage drains at Colbinabbin and Corop have been cleaned out throughout their whole length.

PLAN OF GOULBURN IRRIGATION SYSTEM.

A plan of this scheme, which is of vast importance to the State, is inserted in this Report. The plan shows the localities of the great Sugarloaf and Waranga Reservoirs and the Goulburn Weir. In addition, it sets out the main channels and principal distributary channels which deliver the water that has proved so large a factor in the prosperity of the various districts in the Goulburn, Campaspe and Loddon Valleys; and includes, also, proposed extensions of the system.

NEW STORAGES.

SUGARLOAF RESERVOIR.

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 carried out, with the slightly-increased height recently adopted, stores water to a height of 823 feet above the same datum, and has a capacity of 306,000 acre feet. Surveys made show that a storage basin to the elevation of 875 feet above datum, with capacity of 918,000 acre feet, could be constructed, when requirements call for this additional increase; but before such an extension was undertaken it is considered that there are other sources of supply which probably could be more rapidly and cheaply made available.

The dam constructed consists of a diaphragm wall of reinforced concrete, built from bedrock (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, together with the concrete wing and approach walls at the Sugarloaf end, is now completed to the level required (for storage of 306,000 acre feet) having a maximum height of 139.75 feet above the river bed. The clay filling on the upstream side of the concrete diaphragm has been completed. The rock-fill on each side of the diaphragm has been built up to the required height for the entire length of the bank.

The installation of machinery in connexion with the hydraulic lifters at the second (emergency or power) outlet, together with the concrete work incidental thereto, has also been completed.

The State Electricity Commission has arranged to use the outflow for the generation of electricity at times when it will not interfere with its primary use for irrigation.

The concrete work, for the foundations of the necessary turbines and generators to be installed by the State Electricity Commission, was, at the request of that body, carried out by the Water Commission before the winter season to such a height as to render possible the resumption of work by the Electricity Commission itself after the winter without the further necessity for a coffer dam. Similarly, other concrete work in connexion with a 13 ft. 6 in. diameter steel power pipe required by the Electricity Commission has been carried to such a stage as to support and protect the pipe for the winter, and it has also been handed over to the Electricity Commission.

During the year the remaining rock excavation and concrete work was completed, including the rock excavation in the bywash channel and concrete adjoining and along the toe of the dam in the bywash floor. The remainder of the bywash has been left unlined, pending further experience of flood flows, which may indicate the advisability or otherwise of further lining. The reservoir was filled for the first time to its full capacity of 306,000 acre feet on 21st August, 1927.

WARANGA RESERVOIR ENLARGEMENT.

High waves caused by violent wind storms dislodged portions of the stone beaching on the water face. These breaks have been repaired by grouting in beaching with cement concrete. This has materially improved the effective resistance of the bank against future damage. The loose stone wall constructed along the crest of the embankment for protection against high waves and as a reserve for emergency repair work has been of great service. The whole of the embankment has now been fenced off to prevent trespassing of stock.

WIMMERA STORAGES.

The earthwork of the second stage of the Pine Lake embankment, involving 300,000 cubic yards of excavation, has been completed. The beaching of this embankment has now advanced considerably, and the reservoir will be ready to fill to 52,000 acre feet capacity early in the coming year.

PYKES CREEK RESERVOIR ENLARGEMENT.

The Pykes Creek Reservoir, which is situated on the Pykes Creek about 3 miles east of Ballan, was completed in the year 1911 with a capacity of 14,850 acre feet.

Owing to the great progress made in the district served since the Reservoir was finished, and to the consequent large increase in the demands for water for irrigation, it was thought advisable to enlarge the capacity of the reservoir to about 21,000 acre feet. This work was commenced in the present year, and should be finished about the middle of the year 1929.

The work of enlargement comprises the widening of the main bank to the dimensions necessitated by the raising of the crest level of the bank from R.L. 1,306 feet to R.L. 1,316 feet, the beaching of the upstream face as the widening progressed, the construction of the road approach to, and the erection of the concrete piers for the new highway bridge across the storage, and the raising of the trestles for the footbridge to the outlet tower.

TOTAL STORAGES IN STATE.

In 1902 the total capacity of storages in the State was 172,000 acre feet. The present capacity is 1,215,880 acre feet, and when the Wimmera Storages and Glenmaggie and Pykes Creek Reservoirs are complete the total capacity will be about 1,297,530 acre feet. The Hume Reservoir, in course of construction, will also contain 2,000,000 acre feet, half of which can, subject to the provisions of the River Murray Agreement, be credited to the State of Victoria. The following statement sets out the capacities of the various storages in the State :—

EXISTING STORAGES.										Capacities in Acre Feet.
<i>Goulburn System—</i>										
Goulburn Weir	..	..	..	..	..	..	..	..	..	20,700
Waranga	..	..	..	..	..	..	..	..	..	333,400
Sugarloaf	..	..	..	..	..	..	..	..	..	306,000
										660,100
<i>Loddon—Murray System—</i>										
Laanecoorie	..	..	..	..	..	..	..	..	..	14,000
Kerang North-west Lakes	..	..	..	..	..	..	..	..	..	92,000
Kow Swamp	..	..	..	..	..	..	..	..	..	40,860
Lake Boga	..	..	..	..	..	..	..	..	..	28,000
Long Lake	..	..	..	..	..	..	..	..	..	3,820
										178,680
<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)	..	..	..	..	..	..	..	..	..	52,000
Lower Wimmera Weirs	..	..	..	..	..	..	..	..	..	2,870
Batyo Catyo (Avon Regulator)	..	..	..	..	..	..	..	..	..	5,000
Lake Whitton	..	..	..	..	..	..	..	..	..	1,300
Earthen Storages, Township Reservoirs, and Mallee Tanks	..	..	..	..	..	..	..	..	..	5,500
										183,050
<i>Maffra—Sale System—</i>										
Glenmaggie Reservoir (part of 150,000 acre feet)	..	..	..	..	..	..	..	..	..	104,500
<i>Coliban System—</i>										
Upper Coliban	..	..	..	..	..	..	..	..	..	25,700
Malmsbury	..	..	..	..	..	..	..	..	..	12,300
Subsidiary Reservoirs	..	..	..	..	..	..	..	..	..	6,910
										44,910
<i>Werribee System—</i>										
Pykes Creek (part of 21,000 acre feet)	..	..	..	..	..	..	..	..	..	14,850
Melton	..	..	..	..	..	..	..	..	..	17,000
										31,850
<i>Bellarine Peninsula System—</i>										
Wurdee Boluc	..	..	..	..	..	..	..	..	..	9,500
<i>Mornington Peninsula System—</i>										
Beaconsfield, Frankston, and Mornington Reservoirs	..	..	..	..	..	..	..	..	..	1,560
Service Basins	..	..	..	..	..	..	..	..	..	180
										1,740
<i>Miscellaneous—</i>										
Wonthaggi	..	..	..	..	..	..	..	..	..	1,550
Total capacity of existing Storages										1,215,880

ADDITIONAL STORAGE BEING PROVIDED BY WORKS IN COURSE OF CONSTRUCTION.

<i>Wimmera—Mallee System—</i>							
Pine Lake (balance of 62,000 acre feet)	..	..	..	..	..	10,000	
Green Lake	..	..	..	..	..	20,000	
							30,000
<i>Maffra-Sale System—</i>							
Glenmaggie Reservoir (balance of 150,000 acre feet)	..	..	..	..	..	45,500	
<i>Werribee System—</i>							
Pykes Creek (balance of 21,000 acre feet)	..	..	..	..	..	6,150	
<i>Murray System—</i>							
Hume Reservoir, at junction with Mitta River, half share	..	..	..	..	..	1,000,000	
Total capacity of Storages, when works in hand are completed						2,297,530	

RIVER MURRAY. WATERS AGREEMENT WORKS.

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 Murrumbidgee. The Acts also provide that, for purposes of construction, the Minister of Public Works of New South Wales shall be the Constructing Authority for that State; that for 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.

A conference of representatives of the Commonwealth, New South Wales, Victorian, and South Australian Governments was held at Canberra on 27th and 28th February, 1928, when the question of the future development of the Murray Valley and the works of Water Conservation and Distribution necessary therefor was discussed. The Conference decided that the programme of works to be constructed under the River Murray Agreement during the period ending June, 1932, be limited to the following and be carried out by the present Constructing Authorities.

- (1) The completion of the Hume Reservoir to 2,000,000 acre feet capacity.
- (2) The completion of the Lake Victoria Storage.
- (3) The completion of all weirs and locks from the mouth of the River Murray up to No. 11 (Mildura); and
- (4) The construction of weir and lock No. 15 (Euston).

It was also decided that on the completion of this 1932 programme the question of the advisability of carrying out the remaining works provided for in the River Murray Agreement by one Constructing Authority be considered by the Governments of the Commonwealth, New South Wales, Victoria, and South Australia.

At this Conference, sub-committees were also formed to (a) consider the question of the protection of forests on the River Murray Watershed, and (b) to deal with the co-ordination of the development of irrigation and production of the valleys of the River Murray and its tributaries.

During the year, proposals for regulating the output from Hume Reservoir during the sixteen years ending 1943 as set out in a report by the Gauging Officers of this Commission and the Water Conservation and Irrigation Commission, New South Wales, were generally approved, conditionally on the definite understanding that the use of the water for irrigation must always be paramount to the use of the water for the generation of electricity.

During the year, the Constructing Authority for New South Wales has been engaged on the section of the Hume Reservoir within its territory. In this section good progress has been made with the work, which has been mainly the setting of the outlet valves, and the further preparation of the foundations for the spillway and south wing wall within the coffer-dam enclosing the bed of the river channel and to placing concrete therein.

All work on the coffer-dam on the Weir-Lock No. 10 at Wentworth has been completed by the New South Wales Authority.

The site for the Weir and Lock No. 15 at Euston having been decided upon, and the plans prepared by the New South Wales Authority having been approved, the camp was set out and work commenced. The construction of the first coffer-dam is nearing completion.

The Constructing Authority for South Australia has been engaged on works at various sites from Blanchetown to Lake Victoria. Weir-Locks Nos. 1, 2, 3, 4, 5 and 9 have been completed ; work is in progress on No. 6, the location of the line of the weir of which has been moved 25 feet upstream of the original location ; and the storage works at Lake Victoria have been completed, with the exception of a small percentage of the work of enlarging the inlet and outlet channels.

The State Rivers and Water Supply Commission, the Constructing Authority for Victoria, has finished the Weir-Locks at Torrumbarry and Mildura, and is now carrying out the following works under the Agreement :—

HUME RESERVOIR.

During the year, the construction of the main embankment and one of the extension embankments was continued. The gap, about 1,000 feet in length, which had been left on the Victorian bank of the river to allow for the passage of flood waters, was closed, and the height of embankment in this section is now about 20 feet above the flats. The remaining portion of the embankment to the high ground on the Victorian side is approximately 70 feet above the natural surface level. 474,250 cubic yards of earthwork were placed over a length of 2,460 feet ; 2,050 cubic yards of rock were excavated from the core trenches of these embankments ; 9,494 cubic yards of concrete and 157 tons of steel were placed in the core wall ; and 21,400 cubic yards of gravel were transported from Chiltern to the works. Three steam locomotives, two concrete hoist buckets with hopper and elevator, one bucket elevator, one motor car, and a quantity of steel rails were added to the plant. The tender of G. W. Kelly and Lewis Pty. Ltd., Melbourne, at £57,400 was accepted for the metal work for the spillway gates and operating machinery at the Reservoir.

All foundation work for the piers of the bridge over the River Murray, to serve the Bethanga district, was completed, as was also the pile driving for each of the five piers requiring such piles. The concreting of the piers was continued, all being completed except two which are now well in hand. The work carried out included 1,000 cubic yards of foundation excavations, the driving of 246 concrete piles and the placing of 5,350 cubic yards of concrete in the piers. Tenders in connexion with the erection of this Bethanga bridge have been accepted as follow :—(1) C. Ruwolt Pty. Ltd., Richmond, at £71,890 for the manufacture and supply of nine steel truss spans ; and (2) W. H. Thompson, Kew, at £43,473 for the erection of such spans.

Investigation work to determine the best location for a new diverting weir on the Upper Murray, to supply new irrigation areas from and below the Hume Reservoir, is being continued. It is believed that the best means of utilizing the water from Hume Reservoir for the areas adjoining would be by an outlet from the Reservoir itself and by the construction of a diverting weir at Yarrawonga.

NO. 11 WEIR AND LOCK, MILDURA.

All the remaining construction work was completed during the year. In the Navigation Pass the second coffer-dam was dismantled. Beaching was completed, temporary buildings and plant were dismantled, and all water piping and tram lines were pulled up.

The work carried out included the extraction of 38,012 square feet of steel sheet piling and 2,121 lineal feet of round timber piling, in addition to the placing of 3,075 square yards of beaching. A new electric hauling plant was also installed.

The first river steamer passed through the Lock on the 2nd August, 1927.

TORRUMBARRY WEIR AND LOCK.

During the year, the weir and lock have again been in successful operation. The movable weir has remained in position since it was placed on the 19th November, 1926, until the 14th June, 1928, when it was hauled out and made ready for the ensuing watering season.

WORKS CONTROLLED BY OTHER AUTHORITIES.

(Under General Supervision of the Commission.)

SEWERAGE IN COUNTRY DISTRICTS.

The Bendigo Sewerage Authority made good progress with the reticulation of its district. The City, Quarry Hill, and Kennington areas have been completed and plans are being prepared for the sewerage of the Golden Square area. Approximately 3,400 tenements are now connected to the sewers.

The Ballarat Sewerage Authority has practically completed the sewerage of the City area and 2,300 tenements have been connected to the Authority's sewers. The works are being extended as rapidly as possible.

The Colac Sewerage Authority has completed the whole of its works, and over 600 tenements have already been connected to the sewers. The works for the treatment of the sewage are operating satisfactorily.

The Horsham Sewerage Authority is now preparing final plans and specifications, and it is anticipated that the construction of works will be commenced within a few months.

The Swan Hill Sewerage Authority has completed the detail survey of the town, and is now engaged in the design of sewers and treatment works.

The Borough Echuca Waterworks Trust was constituted a Sewerage Authority, and has completed the detail survey of the district preparatory to the final design of works.

The Mildura Town Council was constituted a Sewerage Authority, and is making rapid progress with the detail survey of the town.

Applications for the constitution of Sewerage Authorities at Ararat and Lorne are under consideration.

Among other country centres contemplating the installation of sewerage systems are Bairnsdale, Maryborough, Mornington, Shepparton and Warrnambool.

COUNTRY WATER SUPPLIES.

Many important works were carried out by Waterworks Trusts and local governing bodies, of which there are now 110 and 18 respectively.

The Bairnsdale Waterworks Trust installed a new pumping plant of modern design to provide the town with a more satisfactory water supply.

The Bridgewater Waterworks Trust, constituted during the year, completed the construction of its works, the town being now supplied with water obtained from the Inglewood Borough Council's reservoir.

The Bruthen Waterworks Trust was constituted and is now making preparation for the construction of works to provide a supply which is to be pumped from the Tambo River.

The Kilmore Waterworks Trust completed the enlargement of portion of its main pipe line.

The Kyabram Waterworks Trust is erecting a new elevated tank of reinforced concrete to provide a supply under more adequate pressure.

The Leongatha Waterworks Trust is constructing an additional storage reservoir on Ruby Creek to augment the summer supply.

The Maffra Waterworks Trust is erecting a concrete standpipe and installing a pumping plant and additional pipe mains to ensure a supply to the high levels of the town.

The Maryborough Waterworks Trust has practically completed the work of laying a new and larger pipe main from the Evansford Reservoir.

The Nagambie Waterworks Trust erected a new concrete tank to replace the old tank which was incapable of supplying the requirements of the town.

The Portland Waterworks Trust was constituted and is preparing plans for the reticulation of the town. The supply is to be obtained from bores.

The Stratford Waterworks Trust was constituted and is inviting tenders for the reticulation of the town. The water is to be supplied by the Commission from its Maffra District works.

The St. Arnaud Borough Waterworks Trust is making good progress with the construction of an additional storage reservoir of 180,000,000 gallons capacity and it is anticipated that the work will shortly be completed.

The Warragul Waterworks Trust constructed a new reinforced concrete service basin of 1,000,000 gallons capacity.

The Shire of Korong is making satisfactory progress with the construction of an additional reservoir to augment the town water supply at Wedderburn.

Pipe extensions and minor works were carried out at Colac, Hepburn, Horsham, Kerang, Morwell, Nhill, Riddell's Creek, Romsey, Rushworth, Seymour, Shepparton, Swan Hill, Tongala, Traralgon, and Warrnambool.

Proposed water supply schemes for Foster, Heyfield, Kooweerup, Lake Bolac, Port Fairy, Tallarook, and Woori Yallock were investigated.

GENERAL.

LANDS UNDER CLOSER SETTLEMENT IN IRRIGATION DISTRICTS.

During the year the Commission has continued its policy of making available a sufficient number of holdings to meet the requirements of applicants desiring to obtain irrigable farms under the provisions of the Closer Settlement Acts, and in this respect it is interesting to note that, although the post war demand by discharged soldiers for farm lands was practically satisfied some three or four years ago, a very satisfactory number of applications, from qualified persons, is being maintained. A total of 241 applications were approved by the Commission, for an aggregate area of 4,510 acres, as compared with 239 approved during the preceding year. Of these applications, 55 (most of which were from discharged soldier settlers) were received for additional areas, the settlers having developed their holdings to such an extent that larger areas were required, and to meet this demand a number of allotments, having become vacant through various causes, were subdivided and allotted to adjoining lessees. The demand for larger holdings was particularly noticeable in the dairying districts, and was due to the necessity of growing more fodder crops to provide for the increasing dairying herds.

Thirty-three approved British land-seekers, 15 discharged soldiers, and 138 local applicants were amongst the number granted irrigable holdings during the year.

In the more recently subdivided lands in the Katandra, Hallam Valley, and Maffra-Sale Districts the progress of the works in connexion with water supply and drainage has enabled the Commission to make available further areas, and the rate of settlement in these districts has been particularly gratifying, practically all the allotments made available having been taken up.

With the exception of taking over the Pompapier Forest Reserve in the Calivil District, no further areas have been acquired during the year for subdivision and settlement under Closer Settlement conditions. The Commission, however, still has in reserve for future requirements 4,300 acres at Calivil, 2,040 acres at Katandra, 1,820 acres at Maffra, and 1,440 acres at Hallam Valley. All of these lands are temporarily leased, pending the completion of the necessary irrigation works, prior to their being made available for application. The Commission has received a large number of inquiries from intending applicants for the new irrigable Closer Settlement areas in the Calivil District, and indications are that the first portion of this estate, comprising an area of 1,044 acres, now ready for occupation, will be fully applied for.

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 nearly eighteen times as many families as resided thereon prior to their subdivision for Closer Settlement.

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.	Increase in Number of Families.
					Number of Closer Settlement Blocks.	Average Area in Acres.		
Shepparton	14,170	14,170	33	29	385	34	370	341
East Goulburn	13,400	11,300	21	20	137	75	135	115
Rodney	3,230	3,230	8	5	55	57	48	43
Stanhope	21,500	21,500	7	13	285	64	271	258
Kyabram	4,600	4,420	9	12	69	62	61	49
Tongala	19,090	19,090	41	36	312	59	306	270
Koyuga	4,200	4,200	} Pt. 1	..	54	73	52	52
Cornelia Creek	2,500	2,500			19	161	19	19
Nanneella	9,040	9,040	18	8	125	70	122	114
Echuca	3,600	3,600	8	4	30	105	30	26
Bamawm	13,400	13,400	28	21	192	65	192	171
Dingee	500	500	3	1	20	23	15	14
Calivil	4,300	..	..	..	..	..	..	..
Cohuna	12,000	12,000	29	10	142	80	118	108
Koondrook	9,060	9,060	14	10	130	64	90	80
Swan Hill	12,500	12,500	34	16	329	36	313	297
Nyah	3,800	3,800	8	1	237	15	231	230
Merbein (Crown)	8,300	8,300	..	..	421	20	414	414
Red Cliffs	33,000	18,000	1	3	700	17	700	697
Bacchus Marsh	70	70	1	..	2	36	2	2
Werribee	10,000	10,000	1	11	231	36	225	214
Hallam	3,300	1,860	7	4	96	19	85	81
Maffra-Sale	10,570	8,970	23	22	165	51	160	138
Properties acquired under Sec. 20, <i>Closer Settlement Act</i> 1915, outside above Estates	216,130	191,510	295	226	4,136	42	3,959	3,733
	19,540	..	..	..	..	..	203	..
	235,670							

PROGRESS OF IRRIGATED CLOSER SETTLED DISTRICTS.

It is now nearly sixteen years since, as a result of the passing of the *Closer Settlement Act* 1912, the administration of Closer Settlement in irrigation areas was placed under the direct control of the State Rivers and Water Supply Commission. Closer settlement in the irrigation areas had commenced in 1909 with the purchase and subdivision of the Cohuna Estate, and at the time of taking over of the purchase and subdivision of lands by the Commission some 80,000 acres had been purchased and 70,000 acres subdivided. The area purchased to date, as shown by the preceding table, is some 235,670 acres, an increase of about 200 per cent. In the same way the number of closer settlers (including soldier settlers) has increased from some 1,156 in 1912 to 4,162, practically four times the number.

Irrigated closer settlement, involving as it does more intensive culture, has led to an increased and more uniform demand for water, with the result that there is a greater stability in the area irrigated in successive years than before the establishment of closer settlement, and while there is, over a number of years, a large increase in the area irrigated, the variation in areas watered through dry or wet seasons is not nearly so marked as before the introduction of closer settlement.

This is mainly due to the replacement of the irrigation of native pastures and cereals by lucerne, vineyards, orchards and citrus groves, which require watering to a great extent apart from seasonal changes; for example in 1907-08 lucerne comprised only 14 per cent. of the area irrigated, in 1927-28 it comprised fully 30 per cent., and whilst in 1907-08 vineyards, orchards and citrus groves comprised only $6\frac{1}{2}$ per cent. of the area irrigated, in 1927-28 they represented 17 per cent.

These increases in the area irrigated, especially of lucerne, have enabled the farmers in the irrigation areas to increase their flocks and herds, at a time when in the remainder of the State they have either remained stationary or decreased. Thus in the four irrigating counties of Tatchera, Gunbower, Bendigo and Rodney, which include more than three-quarters of the irrigated lands of the State, the number of dairy cattle has increased from an average of 55,850 in the five years 1906-10 to an average of 76,127 in the period 1923-27, while at the same time the number of dairy cows in the rest of the State showed a decrease. Similarly the average number of pigs increased between the same two periods from 20,601 to 42,400, although there was a marked decrease in the State as a whole. It has to be noted also that notwithstanding the increase in intensive cultivation the area under cereals in the four counties remained about constant, whilst the average number of sheep grazed actually increased.

It is undoubted, therefore, that closer settlement in irrigated areas is achieving its main object "The economic utilization of irrigation water and the development of a real irrigated agriculture" such as was impossible under the conditions prevailing prior to closer settlement, when there were sparse population, crude irrigation methods and the grazing of stock on native pastures and annual crops.

This, however, has not been the only benefit arising from the Commission's closer settlement policy. As was shown in the last Report, there has been a considerable increase in the national and individual wealth, and in addition there have been improvements in social conditions in country life, which have caused an immeasurable increase in wealth as considered in its original meaning of general welfare.

In carrying out its policy of helping the settlers to improve their social conditions, the Commission during the past year made an advance, under the terms of the Closer Settlement Act, for the purpose of erecting a hall at Kyvalley, within Tongala District, and has also made arrangements to erect a similar building at Katandra. This will bring the total number of halls, in the erection of which the Commission has assisted, to eight.

During the year just concluded considerable progress has been shown in the various irrigation districts, in most cases the quantity of produce being far in excess of previous years.

In the fresh fruit areas there were, as was expected following the light crops reported last year, very heavy crops, especially of canning peaches, which were so heavy that the co-operative canneries were unable to take the whole crop as in former years. However, the quantities packed at each cannery enabled the growers to market more than the average yield per acre. These themselves constituted a record, and were so very considerably in excess of the quantities of the previous record production that it was necessary to export a much higher percentage of the pack than in previous years.

The total quantity of fruit processed at the three co-operative canneries amounted to no less than 20,000 tons.

The cool store at the Ardmona cannery mentioned in the last report was completed and has proved entirely successful, enabling that cannery to prolong the season for pears and peaches and reduce costs of production. The crops, however, were so heavy that use had to be made of the Government Cool Store at Melbourne by all three canneries, the fruit being forwarded to Melbourne for cool storage and returned to the canneries for processing.

In the last report the progress made in the Shepparton Settlement was given, and it is interesting to note that there has been a corresponding increase in the development of the Town of Shepparton. Previously this formed part of the Shire of Shepparton, but it has now attained to the dignity of a borough. The erection of fine business places and of substantial residences has continued, and show the confidence felt in the stability of the town and its industries.

Although Shepparton is now famous for its canned fruit, this is not its only line of activity, as was shown at the recent Royal Agricultural Show, where two first prizes for butter were won by the Shepparton Butter Factory, another indication of the standard of the dairying industry in irrigation areas.

As was the case last year, the suitability of the irrigation areas for dairying was shown by the results of the Standard Herd Test, conducted by the Department of Agriculture. In the herd competition there were 42 entries, of which no less than thirteen were from irrigation districts, of these two obtained first and third places respectively, whilst the remaining eleven were well up in the test. Further in the individual cow test the leading places in three out of the seven classes were filled by cows from herds in the irrigation areas. This must be considered most gratifying in view of the fact that at present only about one-tenth of the dairy cows in Victoria are in the irrigation areas.

The above successes were continued at the recent Royal Agricultural Show, where the irrigation areas took a large proportion of the prizes in the dairy and dual purpose breeds; thus in the Milking Shorthorns, out of sixteen classes nine first prizes went to settlers in the irrigation areas, and in the Red Polls six firsts were obtained in twelve classes, in Friesians ten firsts in nineteen classes, and in Jerseys four firsts out of twenty-one classes. In the "Type and Utility" classes for these breeds, ten out of the twelve first prizes given also went to irrigation areas. First prize in the *Weekly Times* butter fat production test was also won by a cow from the irrigation areas, and second and third places in the Payne prize for the most economical production of butter fat also went to cows from the same areas.

The Herd Testing Association movement has continued to expand in the irrigation areas, and during the year additional associations have been formed at North Shepparton, Murrabit, and Murchison North, bringing the total number of units in the irrigation areas to 24, approximately one-third of those in the State. In addition, the Maffra Association, which formerly comprised one unit, has increased its membership with the result that it now comprises four units.

The settlers who were fortunate enough to get the use of the bulls which were so generously presented to the Commission some years ago by a number of leading breeders, are receiving marked benefit in the increased returns now being obtained. In some cases the returns received from the progeny have been fifty per cent. more than was previously received.

The development of the poultry industry has continued, not only in the Rochester District, which now boasts a total of some 50,000 birds, producing eggs worth £40,000 per annum, but also in the Stanhope, Murrabit, Shepparton and Katandra Districts. Notwithstanding that the Katandra district has only been settled less than two years, there are now some 7,000 birds, and the number is being rapidly increased. The establishment of an export market for the surplus eggs during the spring has shown that this is one industry in which, with proper attention to grading and packing, over-production need not be feared.

The pig industry had a severe setback through the outbreak of disease in the State, but which, fortunately, is now under control. While this somewhat reduced the number of pigs, the necessary enforcement of quarantine regulations also interfered with marketing causing considerable loss. During the year the practice of buying pigs by weight has been adopted almost universally, and it is felt that this will lead to a considerable improvement in selling, as it will enable the grower to get a better conception of the class of animal most desired by the trade.

During the dry weather in the months of October, November, and December, 1927, there was a keen demand for lucerne for the agistment of sheep, and a large number were brought in from dry areas to be fattened or carried through the summer on the irrigation blocks. While it is difficult to obtain exact figures regarding the number thus dealt with, it is significant to note that the railway revenue from live stock from irrigation areas has increased at a much greater rate than from other parts of the State.

The development of market gardening at Werribee, Bacchus Marsh, Narre Warren and the Hallam Valley has continued. The glass houses erected by settlers at Werribee amongst other centres are proving a success, and tomatoes were placed on the market in August and September, realizing high prices. The settlers at Narre Warren and Hallam have formed a marketing association, which is obtaining orders from and delivering direct to, leading city hotels, coffee palaces, and hospitals, by which means it is hoped a more regular price will be obtained and the variation of the open market avoided.

Owing to the severe frost throughout the dried fruit areas in September, the quantity of dried fruit produced was somewhat less than in the preceding year, but on the whole the crops in the soldier settlement areas were not below the average of the past few years. The marketing of the large crop produced in 1927 has been proceeding satisfactorily, and there is now very little to be sold. In connexion with dried fruit, it is gratifying to note that during the year the Merbein Doradillo Growers' Association has been formed into a company to take over the processing of the spirit grapes grown in the Merbein and Tresco Districts, with results which should prove satisfactory to growers.

Settlement on the two schemes at Katandra and Maffra-Sale under the Migration Agreement with the British and Commonwealth Governments has continued with satisfactory results. On the Katandra area where, prior to purchase and subdivision, there were only a few families, there is now a population of 406 persons. Two thousand acres of lucerne were planted last spring, and it is considered that at least an equal area will be sown this year. The new settlers are devoting themselves mainly to dairying, there being already some 860 cows on the estate, and this number should be increased throughout the year, as more lucerne and irrigated pastures become available.

The scheme inaugurated by the Department of Agriculture for the supplying of settlers with pure bred bulls with known butterfat pedigrees has been of great assistance in enabling dairy farmers to establish a good foundation for their herds, and it is considered that it will result in a considerable increase in the average butter-fat production of the State.

The experimental work being carried out under the Irrigation Research Committee, which comprises representatives of the Department of Agriculture and the Commission, has been continued, and the publications of the results of such experiments have led, amongst other improvements, to an increased use of manures on lucerne and pastures. The special work at Tresco Irrigation Settlement has been continued and it has been found that in some parts of the orchard treated there has been such an improvement in conditions as to justify replanting on land which was previously classed as unsuitable.

During the year Professor Sir John Russell, Director of the Rothamstead Research Station, England, visited Victoria and made an inspection of the Irrigation Areas, paying special attention to the nature of the soils in the various districts. The result of his investigations are awaited with interest.

In May last, the first Annual Conference of District Advisory Boards, representative of the irrigators in Commission's districts, was held at Rochester, the Chairman of the Commission presiding. The Conference was entirely successful, many matters of interest to both irrigators and Commission being discussed. At the close of the Conference delegates were given an opportunity of inspecting the Rochester Irrigation District, and great satisfaction was expressed at the marked progress made in irrigated agriculture.

With a view of discussing the best means of providing effective assistance for new settlers, as well as securing joint consideration of closer settlement and land problems generally, a Conference of Commission's Supervisors was held recently in Melbourne. The result of the Conference, while being of the greatest value to those taking part, will, on account of the suggestions made and information supplied, help in many ways the new settler in the development and control of his holding.

ADMINISTRATION.

EXTENSIONS AND EXCISIONS.

With the early completion of the Sugarloaf Reservoir on the Goulburn River it is proposed to constitute from time to time new Irrigation Districts to be supplied from that source. A number of these, Calivil, Katandra, and North Shepparton, are referred to in this Report. It is also proposed to extend a number of the existing Irrigation Districts which are supplied from the Goulburn System.

The Rochester Irrigation and Water Supply District was extended by the addition of some 4,500 acres (not previously in any constituted district) supplied by a recently completed extension of the channel system of that district.

Tragowel Plains Irrigation District was extended by adding an area of 1,860 acres—880 acres excised from the Loddon United Waterworks Trust District, and 980 acres not previously in any district.

Boort Irrigation District has been extended by the inclusion of 640 acres formerly within Loddon United Waterworks Trust District, and Dingley Irrigation District by adding 110 acres not heretofore within any district.

Rodney Irrigation District was extended by adding 450 acres excised from Deakin District and a further 40 acres from Murchison Waterworks Trust District, while Tongala Irrigation District was extended by the addition of 82 acres formerly within Rodney District.

Koondrook Irrigation District was extended by the inclusion of 120 acres, and Maffra Irrigation District by the inclusion of 50 acres not previously in any District.

The gradual extension of the Wimmera-Mallee gravitation channel system has led to important developments in the northern portion of the extensive area served by this system. These developments include the extension of the Walpeup East Waterworks District by the addition of 37,200 acres, of which 9,000 acres were excised from Walpeup West Waterworks District, and 28,200 acres had not previously formed part of a constituted district. The Walpeup East District, as so extended, and Tyrrell Waterworks District were then united so as to form one district, to be known as Tyrrell Waterworks District. On the other hand, two portions of this district, containing, together, 227,000 acres, were excised owing to the necessity of constructing special works to provide an effective supply to this area. These portions have now been constituted the Kia Waterworks District, containing 176,000 acres, and the Baring Waterworks District, containing 51,000 acres. The Tyrrell District was further extended by the addition of 500 acres excised from Dering District, while 300 acres were excised from Tyrrell District and added to Eureka District.

Karkaroc Waterworks District was extended by the inclusion of 4,200 acres not heretofore in any constituted district, while 200 acres were excised from Long Lake District and added to the Avoca Water Trust District.

The Tyntynder Waterworks District was extended by the addition of over 15,000 acres of lands in the parishes of Burra, Coonimur, Nenandie and Yungera, not previously within any Waterworks District.

The Lower Millewa Waterworks District was extended by adding thereto an area of 640 acres excised from Carwarp District, and an area of 205,000 acres, now served by the Millewa high-lift channel system, has been excised from Lower Millewa Waterworks District and constituted the Upper Millewa Waterworks District.

NEW AND PROPOSED DISTRICTS.

Distributary channels for the irrigation of lands east of the Goulburn River are now so advanced as to be capable of supplying, during the ensuing year, an area of 39,000 acres, adjoining Shepparton district on the north, and a further area of 9,000 acres at Katandra, purchased for Closer Settlement. These areas will, therefore, be constituted irrigation and water supply districts.

Similarly, the construction of the works for the supply of the Calivil Closer Settlement area and surrounding lands adjacent to Tragowel Plains District having reached a stage which permits of supplies being given to about 45,000 acres, it is proposed to constitute an irrigation and water supply district in respect of this area.

The Kia Waterworks District, comprising an area of 176,000 acres, the Baring District of 51,000 acres, and the Upper Millewa District of 205,000 acres, as previously mentioned, have been constituted.

The works for the supply of about 131,000 acres at Coreena Bend, on the River Murray, having been completed, this area was constituted the Coreena Waterworks District.

Reticulation works having been completed in the Townships of Chinkapook, Patchewollock and Tempy, within the Tyrrell Waterworks District, Werrimull within Lower Millewa District, and Mount Martha and Pakenham within Mornington Peninsula District, such Townships were proclaimed Urban Districts.

STAFF.

Mr. P. J. O'Malley, one of the chief administrative officers of the Commission from its constitution, was appointed, as on and from the 1st April, 1928, to the position of Secretary rendered vacant by the retirement of Mr. M. Nally, who had held the office since the inception of the Commission in the year 1906.

Mr. H. G. Strom, District Engineer, Loddon Centre, was transferred to a similar position in the Rodney District which became vacant by the retirement of Mr. Wm. Hector. Mr. H. C. Valentine, District Engineer, Cohuna, was transferred to fill the Loddon vacancy, and Mr. H. C. Kermode, Assistant Engineer on various construction works, was appointed District Engineer and Secretary at Cohuna in place of Mr. Valentine. Mr. D. Clark, from Head Office, was appointed District Engineer at Horsham, *vice* Mr. P. Learmonth, retired.

Mr. A. R. McConchie, previously at Hume Reservoir Works, was appointed District Engineer and Secretary of the Boort Irrigation and Water Supply District; and Mr. N. H. Boase was appointed District Secretary and Collector for the Maffra and Sale Irrigation and Water Supply Districts.

Mr. C. P. F. Wright, Executive Engineer, Sugarloaf Reservoir, was, on completion of the first stage of this reservoir, transferred to Head Office to act in a similar capacity in the construction of the Glenmaggie Weir and to make investigations of storage sites on the Campaspe and Loddon Rivers.

Mr. G. R. Short was appointed Supervisor and Inspector of Works in the Dingee Irrigation and Water Supply District in succession to Mr. J. A. Crawford, retired.

Other officers who retired during the year were—Messrs. E. Lyndon Smith, J. A. Carey, R. G. Macey, S. Murray, K. A. Turnour, R. Inder, J. C. Kennedy, A. R. McColl, G. Leighton, G. Story, E. E. Quirk, A. McDonald, C. Perry, F. Cooper, E. Turner, J. McCracken, J. McCannon, F. Williamson, and R. McConville.

A branch of the Commission's Head Office has been established at the Western Annexe of the Exhibition Building, Rathdown-street, Carlton, to accommodate several of the engineering branches previously in temporary offices at Jolimont.

FIRE INSURANCE.

The Commission has continued its policy of carrying the fire risk on its own buildings. The premiums thus saved now amount to £6,447.

RECEIPTS, DISBURSEMENTS, AND ESTIMATES.

The receipts for last year amounted to £493,749. This is the highest amount yet received by the Commission and exceeds the total of some three years ago by no less than £126,545. Of these collections the receipts from the Irrigation Districts account for £254,898, those from the Waterworks Districts £205,306, while the balance of £33,545 represents collections from all other sources. The collection of these moneys resulted from the making of 145 different rates and charges over the numerous districts under the control and management of the Commission.

The total disbursements from Annual Vote were £259,302. Notwithstanding the great expansion in the work of the Commission this amount represents an increase of only £10,778 over the expenditure for last year.

The receipts from the Irrigation Districts, which now number 30, amounted to £254,898, an advance of £32,381 over those for last year. While this position is fairly satisfactory, it is undoubted that in a number of Districts the Irrigation Charges must now be adjusted, and in some cases increased, to meet not only the cost of additional water supplies, but also the cost of reinstating old structures and improving existing channels, as well as the increased interest rate that all works have now to carry. Full details of the financial position of each district are set out in another portion of this Report.

In the Coliban Districts the loss for the year was £28,747. It is again pointed out the rating in these districts is specially limited by the Water Acts, and any substantial improvement in the collections can only be achieved by the further development of the district.

The Waterworks Districts under the control of the Commission, apart from the Coliban Districts, now number 86, including no less than 60 township supplies. During the past year there was a complete crop failure in the Northern Mallee Districts, and in very many cases it was necessary, in the interests of the settlers, to defer the collection of the rates. The receipts amounted to £161,023 and, notwithstanding the crop failure referred to, the working expenses and interest debitable exceeded this amount by only £16,926, and this deficiency will also be made good as soon as the seasons permit the collection of the deferred rates.

In the five Flood Protection Districts under the control of the Commission the receipts amounted to £7,236. Although this shows an improvement over the collections of last year, it is undoubted that either the area to be rated in such Districts as Kooweerup and Cardinia should be increased or rates should be raised.

The disbursements for the next financial year are estimated at £265,490, showing only the small advance of some £5,990 over those for last year. The estimated revenue for the ensuing year is £517,000, an increase of £25,000 over that estimated for the previous year.

The Loan Liability of the State for Works for Water Supply at the close of the year was £20,738,023. Of this total £1,252,784 is for Free Head works; £1,263,228 was Written Off; £147,046 was advanced to some early-formed Local Authorities; £340,276 has not been expended; £1,702,750 is represented by River Murray Works; and £5,046,275 by Uncompleted or Unallotted Works which are not revenue producing, details of which are set out separately in the Statement of Loan Liability in this Report. The balance of £10,985,664 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 £905,382. Of this amount £131,119 is not chargeable to any districts, being debitable against Free Headworks, Amounts Written Off, and Unexpended Balances, and £74,339 is debitable against River Murray Works, while £220,309 is not at present debitable, being interest on cost of Uncompleted or Unallotted Works which are not yet revenue producing, leaving £479,615 as chargeable against the Commission and other Authorities. The amount available last year from the Revenue of the Commission and other Authorities to meet such interest (after providing a sum of £30,612 for non-revenue producing works and services not chargeable to any districts) was £304,558, as set out in the statement on page 54.

FINANCIAL POSITION.

The Statement of Loan Liability on page 54 of this Report sets out the present aggregate financial position in connexion with Works both for Irrigation and Domestic and Stock Supply as well as for Flood Protection and Drainage Services.

That Statement shows in detail the extent of the State's liability, although a large portion represents Amounts Written Off and other Amounts not chargeable to water users, such as Free Headworks.

Taking the figures in the Report the position in regard to Non-revenue and Revenue producing works is:—

	£	
Gross deficit including all Written Off and Irrecoverable Amounts ..	600,824	
To which certain Amounts are debited for Pensions by Treasury..	3,024	
Making a total of ..	603,848	
Included in this is Interest on—Capital Written Off some twenty-nine years ago (£1,263,228); Cost of Free Headworks so declared twenty-three years ago (£1,399,830); and Expenditure on River Murray Works to date (£1,702,750), totalling ..	£190,603	
Loss on Coliban District where Rate is limited by Water Acts in lieu of general Writing Off ..	28,747	
Services rendered by Water Commission chargeable to whole State or not at present chargeable to any District. (See page 47 of Report)..	32,417	
Interest on Loan Moneys in hand at Treasury ..	14,855	266,622

Deducting the above there remains to be accounted for a further sum of 337,226

At present there are Works under construction from which it is impracticable to obtain Revenue until completed or until districts connected with them have been settled so that Revenue could be collected. These comprise amongst others—Sugarloaf and Waranga Reservoirs; Maffra and Sale Irrigation Districts; new Goulburn Districts; Kooweerup and Cardinia Flood Protection Districts; and Millewa Domestic and Stock Scheme. The Interest on these would amount to 220,309

Leaving still to be accounted for a sum of ..	116,917
The Interest chargeable to Districts controlled by the Commission is fixed by the Water Acts at 4 per cent., which until recently was sufficient. The percentage now charged by the Treasury is £4 14s. 4d., and this represents approximately a sum of ..	65,175

Leaving after excluding Interest on Free Headworks, Amounts Written Off, River Murray Works, and other Items mentioned ..	51,742
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From the above statement it will be seen, as pointed out in last year's Report, that the excess of expenditure over revenue occurs mainly in connexion with the Works under construction. Prominent amongst these works are the Sugarloaf and Waranga Reservoirs, and although these storages are practically completed, some time must elapse before the new lands to be supplied can be prepared and brought under irrigated culture, but already new districts are being constituted and a much greater use of water will result. At the same time also there is no doubt that the increased water supplies which can now be made available to the older districts should not only ultimately improve the revenue from these sources, but will allow of a number of necessary extensions. Maffra-Sale Irrigation Scheme which has been under construction for some years is now so advanced that with ample water supplies available substantially increased revenue can be expected from these districts. The expenditure on Uncompleted Works also embraces extensive schemes in the Millewa and Northern Mallee Domestic and Stock Supply Areas where a water supply is essential in order to bring these lands under cultivation. These works are also well advanced, but a series of adverse seasons culminating in practically a complete crop failure in this portion of the State must for the present retard improvement in the finances of these districts.

Attention is again drawn to the increased rate of Interest paid by the Treasury and debited against this Commission over that which can be charged to water users in pursuance of the statutory provisions of the Water Acts. The rate payable by the State is now 14s. 4d. per centum higher than the rate which the Commission is empowered to charge to the districts under its control.

The Receipts for last year amounted to £493,749, which is the largest sum yet received, and is £126,545 more than the collections received some three years ago. Each year is showing a marked increase in Revenue, and the Commission is confident that this improvement will continue.

RECEIPTS AND DISBURSEMENTS.

STATEMENT of Moneys received and disbursed during the year ended 30th June, 1928.

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	44,283	15,404	...	15,404	28,879	...
Other State Works—						
Broken River	6	350	...	350	...	344
Goulburn	977	3,792	...	3,792	...	2,815
Kow Swamp	618	1,962	...	1,962	...	1,344
Lake Lonsdale	553	837	...	837	...	284
Loddon River	6	370	...	370	...	364
North-West Lakes	631	607	...	607	74	...
Irrigation Districts	254,898	125,672	1,805	123,867	131,031	...
Waterworks Districts	103,870	49,412	...	49,412	54,458	...
Urban Districts and Divisions	57,153	16,521	...	16,521	40,632	...
Flood Protection Districts... ..	7,236	1,485	...	1,485	5,751	...
Licences, Diversions, Miscellaneous	23,468	17,429	...	17,429	6,039	...
	493,749	233,841	1,805	232,036	266,864	5,151
Not Revenue Producing—						
River Gauging, Surveys and Re- ports, New Projects ... ..	...	5,125	...	5,125	...	5,125
Waterworks Trusts						
Boring for Water, Road	} Cost of Administration	11,666	...	11,666	...	11,666
Clearing, Mallee and Land Settlement		...	...	...	...	...
Loan Works ... ..	...	8,670	...	8,670	...	8,670
Totals	493,749	259,302	1,805	257,497	266,864	30,612
Amount available to meet Depreciation					£500	
Amount available to meet Interest, as per page 54 of Report, after deduct- ing £1,805 not chargeable to Districts					£235,752	

COLIBAN SYSTEM.

STATEMENT of Moneys received and disbursed during the year ended 30th June, 1928 ;
and of Interest charged at the rate of 4 per cent. on Capital Debts.

District.	Capital Debit at 30th June, 1928.	Receipts.	Disbursements and Interest Charged.			Excess.	
			Disbursements.	Interest.	Total.	Receipts over Disbursements and Interest.	Disbursements and Interest over Receipts.
	£	£	£	£	£	£	£
Coliban	1,481,911	42,313	14,151	57,190	71,341	...	29,028
Axe Creek	1,750	371	393	70	463	...	92
Harcourt	7,040	1,458	795	282	1,077	381	...
Marong	2,100	141	65	84	149	...	8
Totals	1,492,801	44,283	15,404	57,626	73,030	381	29,128

FLOOD PROTECTION DISTRICTS.

STATEMENT of Moneys received and disbursed from 1st July, 1920, to 30th June,
1928 ; 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, 1928.

RECEIPTS.

District.	1st July, 1920, to 30th June, 1927.	1927-28.			Grand Total at 30th June, 1928.
		Charge.	Interest and Miscellaneous.	Total.	
	£	£	£	£	£
1. Cardinia	8,933	1,486	15	1,501	10,434
2. Echuca	887	180	3	183	1,070
3. Lower Kooweerup	20,467	3,074	507	3,581	24,048
4. Kanyapella	578	303	..	303	881
5. Loch Garry	1,047	1,621	47	1,668	2,715
Totals	31,912	6,664	572	7,236	39,148

DISBURSEMENTS, AND INTEREST DEPRECIATION AND REDEMPTION CHARGED.

District.	DISBURSEMENTS.					INTEREST CHARGED.			(A) DEPRE- CIATION. (B) RE- DEMP- TION.	Grand Total at 30th June, 1928.
	1st July, 1920, to 30th June, 1927.	1927-28.			Total at 30th June, 1928.	1st July, 1920, to 30th June, 1927.	1st July, 1927, to 30th June, 1928.	Total at 30th June, 1928.		
		Repairs and Mainte- nance.	Manage- ment.	Total.						
	£	£	£	£	£	£	£	£	£	£
1. Cardinia	2,179	300	223	523	2,702	7,528	1,800	9,328	..	12,030
2. Echuca	642	45	50	95	737	291	47	338	..	1,075
3. Lower Kooweerup ..	4,639	378	282	660	5,299	16,968	4,000	20,968	..	26,267
4. Kanyapella	152	35	40	75	227	263	139	402	..	629
5. Loch Garry	176	89	43	132	308	960	480	1,440	(B) 800	2,548
Totals	7,788	847	638	1,485	9,273	26,010	6,466	32,476	(B) 800	42,549

IRRIGATION AND WATER SUPPLY DISTRICTS.

STATEMENT of Moneys received and disbursed from 1st May, 1906, to 30th June, 1928; and of Interest charged at the rate of 4 per cent. on Capital Debits; and also of Depreciation and Redemption charged, as at 30th June, 1928. (Free Headworks excluded.)

RECEIPTS.

District.	1st May, 1906, to 30th June, 1927.	1927-28.					Grand Total at 30th June, 1928.
		Rates.	Compulsory Irrigation Charge.	Water Sales.	Interest and Miscellaneous.	Total.	
	£	£	£	£	£	£	£
1. Bacchus Marsh	75,286	714	1,872	97	10	2,693	77,979
2. Boort	48,748	1,791	..	3,028	10	4,829	53,577
3. Campaspe	15,154	847	..	99	4	950	16,104
4. Cohuna	154,272	2,100	6,384	969	89	9,542	163,814
5. Deakin	88,322	3,464	..	1,534	45	5,043	93,365
6. Dingee	22,026	123	1,295	526	337	2,281	24,307
7. Dry Lake	637	..	..	..	29	29	666
8. Echuca North	7,954	280	2,028	62	145	2,515	10,469
9. Fish Point	375	85	563	273	8	929	1,304
10. Gannawarra	121,794	1,768	6,059	1,445	115	9,387	131,181
11. Kerang	97,668	2,715	..	5,547	40	8,302	105,970
12. Koondrook	101,303	1,618	4,146	701	1,085	7,550	108,853
13. Leitchville	2,576	516	750	575	12	1,853	4,429
14. Merbein	224,685	1,396	24,731	8	3,194	29,329	254,014
15. Mystic Park	5,563	179	600	220	14	1,013	6,576
16. Nyah	68,480	375	6,369	142	2,305	9,191	77,671
17. Red Cliffs	36,990	..	..	49,877	409	50,286	87,276
18. Rochester	175,652	2,851	13,544	3,928	206	20,529	196,181
19. Rodney	415,087	7,075	17,029	3,526	2,682	30,312	445,399
20. Shepparton	89,257	1,719	5,678	1,768	528	9,693	98,950
21. South Shepparton	2,398	677	1,737	..	3	2,417	4,815
22. Stanhope	32,199	733	4,035	524	303	5,595	37,794
23. Swan Hill	99,951	966	5,497	2,377	478	9,318	109,269
24. Third Lake	1,135	270	989	100	11	1,370	2,505
25. Tongala	81,240	1,382	6,118	562	1,210	9,272	90,512
26. Tragowel Plains	183,548	2,055	9,753	2,348	1,333	15,489	199,037
27. Tresco	16,296	..	2,224	3	13	2,240	18,536
28. Werribee	51,270	601	1,654	424	262	2,941	54,211
Totals	2,219,866	36,300	123,055	80,663	14,880	254,898	2,474,764

DISBURSEMENTS, AND INTEREST DEPRECIATION AND REDEMPTION CHARGED.

District.	DISBURSEMENTS.						INTEREST CHARGED.				(A) DEPRECIATION. (B) REDEMPTION.	Grand Total at 30th June, 1928.
	1st May, 1906, to 30th June, 1927.	1927-28.				Total at 30th June, 1928.	1st May, 1906, to 30th June, 1927.	1st July, 1927, to 30th June, 1928.	Total at 30th June, 1928.			
		Repairs and Maintenance.	Distribution of Water.	Manage- ment.	Total.							
	£	£	£	£	£	£	£	£	£	£	£	£
1. Bacchus Marsh	17,717	17	756	207	980	18,697	63,589	2,045	65,634	..	..	84,331
2. Boort ..	27,265	211	1,212	200	1,623	28,888	18,349	2,722	21,071	(B) 1,400	..	51,359
3. Campaspe ..	9,266	165	276	84	525	9,791	8,719	462	9,181	..	..	18,972
4. Cohuna ..	102,291	1,321	1,464	411	3,196	105,687	58,153	5,060	63,213	(A) 9,010	..	177,910
5. Deakin ..	35,686	318	807	435	1,560	37,246	56,250	3,111	59,361	..	..	96,607
6. Dingee ..	11,187	503	632	64	1,199	12,386	14,711	1,183	15,894	..	..	28,280
7. Dry Lake ..	1	..	..	..	..	1	636	29	665	..	..	666
8. Echuca North..	3,519	344	624	95	1,063	4,582	4,659	1,536	6,195	..	..	10,777
9. Fish Point ..	178	105	228	40	373	551	312	556	868	..	..	1,419
10. Gannawarra ..	74,694	1,393	1,521	372	3,286	77,780	48,817	4,999	53,816	(A) 5,694	..	137,290
11. Kerang ..	54,147	1,966	1,981	622	4,569	58,716	39,651	3,061	42,712	(A) 450 (B) 2,700	..	104,578
12. Koondrook ..	64,617	1,727	1,719	291	3,737	68,354	60,570	6,653	67,223	(A) 4,501	..	140,078
13. Leitchville ..	827	171	189	51	411	1,238	1,478	1,054	2,532	..	..	3,770
14. Merbein ..	187,789	2,410	19,529	342	22,281	210,070	74,038	7,659	81,697	(A) 9,928	..	301,695
15. Mystic Park ..	4,799	217	218	83	518	5,317	2,112	536	2,648	..	..	7,965
16. Nyah ..	60,252	882	4,682	611	6,175	66,427	31,718	4,087	35,805	(A) 3,802	..	106,034
17. Red Cliffs ..	24,546	1,497	28,805	978	31,280	55,826	16,000	18,208	34,208	..	..	90,034
18. Rochester ..	82,125	1,964	5,143	688	7,795	89,920	125,441	12,932	138,373	..	..	228,293
19. Rodney ..	171,087	3,527	7,619	1,188	12,334	183,421	258,340	22,609	280,949	..	..	464,370
20. Shepparton ..	37,460	944	824	433	2,201	39,661	73,897	7,564	81,461	..	..	121,122
21. Sth. Shepparton ..	1,126	215	180	223	618	1,744	1,382	1,538	2,920	..	..	4,664
22. Stanhope ..	16,092	650	1,440	233	2,323	18,415	21,664	3,201	24,865	..	..	43,280
23. Swan Hill ..	63,023	1,158	1,784	681	3,623	66,646	40,411	5,663	46,074	(A) 4,768	..	117,488
24. Third Lake ..	269	95	89	38	222	491	1,757	955	2,712	..	..	3,203
25. Tongala ..	37,520	1,387	1,700	379	3,466	40,986	75,903	6,203	82,106	..	..	123,092
26. Tragowel Plains ..	77,689	1,399	3,302	360	5,061	82,750	111,092	11,484	122,576	..	..	205,326
27. Tresco ..	15,939	492	1,882	179	2,553	18,492	12,583	3,558	16,141	..	..	34,633
28. Werribee ..	11,182	83	533	279	895	12,077	41,517	2,333	43,850	..	..	55,927
Totals ..	1,192,293	25,161	89,139	9,567	123,867	1,316,160	1,263,749	141,001	1,404,750	42,253	..	2,763,163

WATERWORKS DISTRICTS.

STATEMENT of Moneys received and disbursed from 1st May, 1906, to 30th June, 1928; 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, 1928. (Free Head-works excluded.)

RECEIPTS.

District.	1st May, 1906, to 30th June, 1927.	1927-28.				Grand Total at 30th June, 1928.
		Rates.	Water Sales.	Interest and Miscellaneous.	Total.	
	£	£	£	£	£	£
1. Birchip	339,543	4,276	115	28	4,419	367,569
2. Sea Lake		7,745	141	27	7,913	
3. Tyrrell		8,054	3	160	8,217	
4. Wycheproof		7,376	94	7	7,477	
5. Carwarp	8,008	443	..	33	476	8,484
6. Carwarp Central	604	60	..	..	60	664
7. Dering	670	383	..	..	383	1,053
8. Eureka	576	80	..	..	80	656
9. Karkaroc	138,611	10,835	..	25	10,860	149,471
10. Kerang North-West Lakes	2,326	148	..	2	150	2,476
11. Long Lake	125,036	7,554	..	53	7,607	132,643
12. Mornington Peninsula	27,723	3,000	..	48	3,048	30,771
13. Narre Warren	314	16	140	..	156	470
14. Tyntynder	71,049	4,282	..	98	4,380	75,429
15. Upper Western Wimmera	51,818	4,670	10	4	4,684	56,502
16. Upper Wimmera United	86,670	7,381	40	28	7,449	94,119
17. Walpeup East	6,486	129	..	2	131	6,617
18. Walpeup West	19,174	1,500	86	79	1,665	20,839
19. Werribee	5,263	750	12	1	763	6,026
20. Western Wimmera	186,879	13,452	1,540	30	15,022	201,901
21. Wimmera United	200,983	17,489	986	161	18,636	219,619
22. Yelta	3,029	281	13	..	294	3,323
Totals	1,274,762	99,904	3,180	786	103,870	1,378,632

DISBURSEMENTS, AND INTEREST DEPRECIATION AND REDEMPTION CHARGED.

District.	DISBURSEMENTS.						INTEREST CHARGED.			(A) DEPRECIATION.	(B) REDEMPTION.	Grand Total at 30th June, 1928.
	1st May, 1906, to 30th June, 1927.	1927-28.				Total at 30th June, 1928.	1st May, 1906, to 30th June, 1927.	1st July, 1927, to 30th June, 1928.	Total at 30th June, 1928.			
		Repairs and Maintenance.	Distribution of Water.	Management.	Total.							
	£	£	£	£	£	£	£	£	£	£	£	£
1. Birchip ..	161,035	7,753	5,679	1,511	14,943	175,978	192,255	19,605	211,860	..	..	387,838
2. Sea Lake ..												
3. Tyrrell ..												
4. Wycheproof ..												
5. Carwarp	12,257	20	249	19	288	12,545	6,008	1,186	7,194	A 586	..	20,325
6. Carwarp Central ..	551	2	35	13	50	601	262	94	356	..	..	957
7. Dering	155	175	231	51	457	612	483	504	987	..	..	1,599
8. Eureka	561	215	227	47	489	1,050	245	160	405	..	..	1,455
9. Karkaroc	51,850	3,254	1,184	616	5,054	56,904	86,857	8,641	95,498	..	..	152,402
10. Kerang N.W. Lakes ..	1,361	7	73	26	106	1,467	1,092	75	1,167	..	..	2,634
11. Long Lake	79,357	1,698	2,266	394	4,358	83,715	46,620	4,984	51,604	A 8,305	..	143,624
12. Mornington Peninsula ..	3,843	223	373	209	805	4,648	23,880	2,808	26,688	..	..	31,336
13. Narre Warren	45	4	6	4	14	59	52	256	308	..	..	367
14. Tyntynder	43,406	1,570	1,335	500	3,405	46,811	43,468	5,398	48,866	..	..	95,677
15. Upper Western Wimmera ..	22,680	397	914	133	1,444	24,124	24,515	2,610	27,125	{ A 606	B 1,500	53,355
16. Upper Wimmera United ..	28,955	305	850	169	1,324	30,279	51,820	5,082	56,902	B 2,390	..	89,571
17. Walpeup East	4,435	104	..	70	174	4,609	2,332	196	2,528	..	..	7,137
18. Walpeup West	13,917	1,262	461	129	1,852	15,769	7,085	1,142	8,227	A 1,200	..	25,196
19. Werribee	1,706	26	69	44	139	1,845	4,781	597	5,378	..	..	7,223
20. Western Wimmera	90,496	2,294	4,213	531	7,038	97,534	84,403	7,723	92,126	{ A 2,422	B 5,400	197,482
21. Wimmera United	68,819	2,914	3,787	393	7,094	75,913	116,895	11,232	128,127	B 5,310	..	209,350
22. Yelta	1,776	131	211	36	378	2,154	1,395	206	1,601	..	..	3,755
Totals	587,205	22,354	22,163	4,895	49,412	636,617	694,448	72,499	766,947	27,719	1,431	1,431,283

DISTRICTS HELD IN TRUST BY THE COMMISSION.

STATEMENT OF RECEIPTS AND DISBURSEMENTS FOR THE YEAR ENDED 31ST DECEMBER, 1927.

RECEIPTS.

Name of Trust.	Bank Balance, at 31st December, 1926.	1927.				Grand Total for Year 1927.
		Rates.	Water Sales.	Interest and Miscellaneous.	Total.	
	£	£	£	£	£	£
Avoca	Cr. 70	664	93	8	765	835
Avoca (Quambatook, Urban)	Cr. 138	552	27	2	581	719
Carrum	Cr. 127	1,918	..	244	2,162	2,289
Loddon United	Dr. 577	2,746	10	47	2,803	2,226
Loddon United (Mitiamo, Urban)	Cr. 12	250	157	13	420	432
Totals	{ Cr. 347 Dr. 577 }	6,130	287	314	6,731	6,501

DISBURSEMENTS.

Name of Trust.	1927.						Grand Total for Year 1927.	Bank Balance carried forward, 1st January, 1928.
	Repairs and Maintenance.	Water Distribution.	Management.	Total.	Interest.	(A) Depreciation. (B) Redemption.		
	£	£	£	£	£	£	£	£
Avoca	365	..	110	475	223	B 95	793	Cr. 42
Avoca (Quambatook, Urban)	100	144	45	289	234	A 60 B 48	631	Cr. 88
Carrum	1,034	..	230	1,264	718	B 228	2,210	Cr. 79
Loddon United	452	994	274	1,720	648	B 287	2,655	Dr. 429
Loddon United (Mitiamo, Urban)	90	..	20	110	150	A 28 B 14	302	Cr. 130
Totals	2,041	1,138	679	3,858	1,973	A 88 B 672	6,591	Cr. 339 Dr. 429

URBAN DISTRICTS

STATEMENT of Moneys received and disbursed from 1st May, 1906, to 30th June, of Depreciation and Redemption charged, as at 30th June, 1928. (Free Headworks)

RECEIPTS.

District or Division.	1st May, 1906, to 30th June, 1927.	1927-28.				Grand Total at 30th June, 1928.
		Rates.	Water Sales.	Interest and Miscel- laneous.	Total.	
	£	£	£	£	£	£
1. Bacchus Marsh	21,788	1,266	457	7	1,730	23,518
2. Berriwillock	2,177	287	9	11	307	2,484
3. Berwick	1,507	365	94	14	473	1,980
4. Beulah	6,904	500	65	31	596	7,500
5. Birchip	15,710	627	405	81	1,113	16,823
6. Bittern	446	72	57	3	132	578
7. Brim	723	268	21	14	303	1,026
8. Carrum	25,221	5,208	907	147	6,262	31,483
9. Chillingollah	105	67	32	1	100	205
10. Cohuna	8,176	829	88	68	985	9,161
11. Corop	520	33	..	..	33	553
12. Cranbourne	2,944	276	456	15	747	3,691
13. Culgoa	2,074	258	122	8	388	2,462
14. Dandenong	23,901	3,478	893	338	4,709	28,610
15. Dimboola	27,997	1,241	600	115	1,956	29,953
16. Dingee	133	96	..	2	98	231
17. Frankston	15,465	3,235	764	106	4,105	19,570
18. Hastings	93	338	10	12	360	453
19. Hopetoun	7,614	682	252	51	985	8,599
20. Jeparit	9,250	761	192	20	973	10,223
21. Jung Jung	1,182	149	20	12	181	1,363
22. Koondrook	5,458	423	34	3	460	5,918
23. Lake Boga	4,594	400	18	30	448	5,042
24. Lalbert	484	279	124	..	403	887
25. Lascelles	1,512	157	15	9	181	1,693
26. Leitchville	818	355	31	27	413	1,231
27. Lockington	514	247	..	13	260	774
28. Manangatang	1,378	519	75	8	602	1,980
29. Marnoo	317	308	68	4	380	697
30. Merbein	6,455	991	122	76	1,189	7,644
31. Minyip	9,970	814	64	47	925	10,895
32. Mornington	11,335	2,372	353	64	2,789	14,124
33. Nandaly	132	144	..	2	146	278
34. Natimuk	8,541	302	270	9	581	9,122
35. North Wonthaggi .. .. .	..	123	..	63	186	186
36. Nullawil .. .. .	..	211	8	10	229	229
37. Nyah	738	106	9	2	117	855
38. Nyah West	2,049	696	67	5	768	2,817
39. Ouyen	10,984	1,283	603	64	1,950	12,934
40. Pakenham .. .. .	..	181	115	52	348	348
41. Piangil	1,457	361	130	3	494	1,951
42. Pyramid Hill	774	399	..	6	405	1,179
43. Rainbow	13,768	866	235	45	1,146	14,914
44. Red Cliffs	2,989	1,163	98	46	1,307	4,296
45. Rupanyup	8,645	723	93	29	845	9,490
46. Sea Lake	10,166	632	321	56	1,009	11,175
47. Somerville	988	220	27	10	257	1,245
48. South Frankston	4,715	981	97	2	1,080	5,795
49. Spring Vale	3,431	1,899	141	22	2,062	5,493
50. Stanhope	290	188	..	3	191	481
51. Ultima	5,026	366	16	21	403	5,429
52. Waitchie	66	99	10	2	111	177
53. Watchem	3,499	409	23	64	496	3,995
54. Werribee	12,774	1,371	225	67	1,663	14,437
55. Wonthaggi	59,112	2,592	2,195	34	4,821	63,933
56. Woomelang	9,697	383	395	25	803	10,500
57. Woorinen	44	165	..	..	165	209
58. Wycheproof	9,937	820	113	51	984	10,921
Totals	386,587	43,584	11,539	2,030	57,153	443,740

AND DIVISIONS.

1928; and of Interest charged, at the rate of 4 per cent. on Capital Debits; and also excluded).

DISBURSEMENTS, AND INTEREST, DEPRECIATION, AND REDEMPTION CHARGED.

District or Division.	DISBURSEMENTS.						INTEREST CHARGED.				(a) DEPRECIATION. (b) REDEMPTION.		Grand Total at 30th June, 1928.
	1st May, 1906, to 30th June, 1927.	1927-28.				Total at 30th June, 1928.	1st May, 1906, to 30th June, 1927.	1st July, 1927, to 30th June, 1928.	Total at 30th June, 1928.				
		Repairs and Maintenance.	Distribution of Water.	Management.	Total.								
	£	£	£	£	£	£	£	£	£	£	£	£	
1. Bacchus Marsh ..	5,728	20	102	108	230	5,958	15,400	1,437	16,837	(a)	686	23,481	
2. Berriwillock ..	1,314	19	24	53	96	1,410	824	184	1,008	(a)	52	2,470	
3. Berwick ..	167	27	47	26	100	267	1,340	399	1,739			2,006	
4. Boulah ..	2,918	112	154	43	309	3,227	3,755	257	4,012	(a)	60	7,299	
5. Birchip ..	7,303	31	395	78	504	7,807	7,216	598	7,814	(a) (b)	880	16,501	
6. Bittern ..	69	5	7	5	17	86	369	110	479			565	
7. Brim ..	213	33	14	35	82	295	409	157	566	(a)	63	924	
8. Carrum ..	4,092	383	646	359	1,388	5,480	21,040	5,000	26,040			31,520	
9. Chillingollah ..	48	32	13	28	73	121	111	143	254	(a)	40	415	
10. Cohuna ..	2,191	24	199	70	293	2,484	5,077	652	5,729	(a) (b)	681	8,894	
11. Corop ..	227	2	10	6	18	245	255	19	274	(a)	39	558	
12. Cranbourne ..	456	19	33	18	70	526	2,344	648	3,192			3,718	
13. Culgoa ..	1,092	70	10	32	112	1,204	1,028	257	1,285	(a)	42	2,531	
14. Dandenong ..	4,548	248	415	233	896	5,444	18,305	3,850	22,155	(a)	500	28,099	
15. Dimboola ..	17,893	411	983	116	1,510	19,403	7,233	388	7,621	(a) 1,620 (b) 1,230		29,874	
16. Dingee ..	60	7	15	15	37	97	102	54	156	(a)	28	281	
17. Frankston ..	2,607	224	376	210	810	3,417	12,553	3,250	15,803			19,220	
18. Hastings ..	16	22	38	21	81	97	77	277	354			451	
19. Hopetoun ..	4,657	113	415	61	589	5,246	3,389	390	3,779	(b)	150	9,175	
20. Jeparit ..	1,884	87	91	66	244	2,128	6,029	705	6,734	(b)	800	9,662	
21. Jung Jung ..	835	19	37	25	81	916	433	71	504	(a)	20	1,440	
22. Koondrook ..	2,787	5	195	34	234	3,021	2,372	203	2,575	(a)	240	5,836	
23. Lake Boga ..	1,989	36	235	27	298	2,287	2,573	164	2,737	(a) (b)	264	5,288	
24. Lalbert ..	74	..	44	38	82	156	325	326	651	(a)	174	981	
25. Lascelles ..	835	16	20	31	67	902	859	75	934	(a)	104	1,940	
26. Leitchville ..	410	58	79	35	172	582	521	178	699	(a)	56	1,337	
27. Lockington ..	127	10	26	25	61	188	329	230	559	(a)	90	837	
28. Manangatang ..	396	87	52	61	200	596	725	332	1,057	(a)	195	1,848	
29. Marnoo ..	72	15	25	34	74	146	157	180	337	(a)	126	609	
30. Merbein ..	3,059	58	466	117	641	3,700	3,162	694	3,856	(a)	300	7,856	
31. Minyip ..	3,144	26	147	70	243	3,387	5,980	619	6,599	(a) 443 (b) 400		10,829	
32. Mornington ..	1,781	173	294	162	629	2,410	9,213	2,200	11,413			13,823	
33. Nandaly ..	60	11	20	26	57	117	37	67	104	(a)	48	269	
34. Natimuk ..	1,962	12	65	86	163	2,125	5,720	368	6,088	(b)	750	8,963	
35. North Wonthaggi ..	..	20	20	15	55	55	..	86	86	(a)	40	181
36. Nullawil ..	..	22	20	26	68	68	..	157	157			225
37. Nyah ..	300	..	18	21	39	339	330	55	385	(a)	56	780	
38. Nyah West ..	503	74	43	53	170	673	1,341	491	1,832	(a)	234	2,739	
39. Ouyen ..	4,645	77	308	122	507	5,152	6,135	1,294	7,429	(a)	300	12,881	
40. Pakenham ..	..	13	22	13	48	48	..	230	230	(a)	68	346
41. Piangil ..	325	66	53	35	154	479	864	272	1,136	(a)	204	1,819	
42. Pyramid Hill ..	408	62	94	26	182	590	300	240	540	..		1,130	
43. Rainbow ..	2,659	56	26	81	163	2,822	8,939	891	9,830	(a) (b) 1,560		14,212	
44. Red Cliffs ..	1,936	11	550	64	625	2,561	985	582	1,567	(a)	160	4,288	
45. Rupanyup ..	2,829	102	178	37	317	3,146	4,637	562	5,199	(a) (b)	799	9,144	
46. Sea Lake ..	5,947	48	216	65	329	6,276	3,309	660	3,969	(a)	624	10,869	
47. Somerville ..	193	14	24	14	52	245	939	240	1,179	..		1,424	
48. South Frankston ..	628	74	125	69	268	896	4,003	920	4,923	..		5,819	
49. Spring Vale ..	327	127	214	119	460	787	2,950	1,540	4,490	..		5,277	
50. Stanhope ..	70	10	17	41	68	138	172	141	313	(a)	64	515	
51. Ultima ..	2,026	54	19	56	129	2,155	2,646	380	3,026	(a)	150	5,331	
52. Waitchie ..	55	43	12	18	73	128	37	98	135	(a)	36	299	
53. Watchem ..	1,147	58	34	34	126	1,273	2,173	299	2,472	(a)	130	3,875	
54. Werribee ..	4,544	41	333	65	439	4,983	7,331	1,051	8,382	(a)	567	13,932	
55. Wonthaggi ..	9,416	270	476	323	1,069	10,485	38,959	2,436	41,395	(b)	9,000	60,880	
56. Woomelang ..	3,279	94	79	71	244	3,523	5,675	622	6,297	(a) (b)	500	10,320	
57. Woorinen ..	35	..	15	28	43	78	33	98	131	(a)	17	226	
58. Wycheproof ..	5,247	23	340	69	432	5,679	4,412	427	4,839	(a)	587	11,105	
Totals ..	121,533	3,774	8,928	3,819	16,521	138,054	235,632	38,254	273,886		25,177	437,117	

LOAN EXPENDITURE.

STATEMENT OF LOAN EXPENDITURE DURING THE YEAR ENDED 30TH JUNE, 1928.

Works.	Loans Application Act No. 3447.	Loans Application Act No. 3506 and other Sources.	Total.
	£ s. d.	£ s. d.	£ s. d.
<i>Free Headworks.</i>			
1. Kerang North-West Lakes .. .. .	.. .. .	482 4 10	482 4 10
2. Kow Swamp Works .. .. .	.. .. .	221 7 2	221 7 2
<i>River Murray Waters Acts—Works.</i>			
3. Storages, Weirs and Locks	48,583 1 5	212,645 14 8	261,228 16 1
<i>Reservoirs and Storages.</i>			
4. Campaspe and Loddon River Storages	4 7 0	27,974 14 0	27,979 1 0
5. Goulburn Storages—			
Sugarloaf Reservoir	2,550 19 5	28,656 4 8	31,207 4 1
Waranga Reservoir Enlargement	68 17 2	7,052 5 0	7,121 2 2
6. Maffra, Glenmaggie Reservoir	Cr. 121 18 0	78,938 13 6	78,816 15 6
7. Melton and Pykes Creek Reservoirs .. .. .	.. .. .	12,947 16 10	12,947 16 10
8. Wimmera-Mallee Storages—Pine Lake	61 19 3	43,103 5 7	43,165 4 10
<i>Waterworks Districts.</i>			
9. Bellarine Peninsula	13 2 4	62,953 17 4	62,966 19 8
10. Birchip, Sea Lake, Tyrrell, and Wycheproof .. .. .	.. .. .	71,692 19 0	71,692 19 0
11. Carwarp and Carwarp Central	230 10 0	2,879 3 2	3,109 13 2
12. Coreena .. .. .	.. .. .	18,976 0 11	18,976 0 11
13. Dering, Eureka, Baring, and Kia .. .. .	.. .. .	10,703 15 9	10,703 15 9
14. Karkaroc .. .. .	.. .. .	25,635 7 1	25,635 7 1
15. Long Lake .. .. .	.. .. .	5,441 14 3	5,441 14 3
16. Millewa	0 3 0	79,108 16 4	79,108 19 4
17. Mornington Peninsula	217 18 7	73,089 19 11	73,307 18 6
18. Tyntynder .. .. .	.. .. .	15,964 19 11	15,964 19 11
19. Walpeup East and West	0 17 3	800 5 4	801 2 7
20. Western Wimmera .. .. .	.. .. .	7,146 19 7	7,146 19 7
21. Wimmera United .. .. .	.. .. .	14,214 13 2	14,214 13 2
22. Wimmera Main Channels	Cr. 3 0 0	10,950 11 0	10,947 11 0
23. Yelta .. .. .	.. .. .	219 18 11	219 18 11
<i>Towns.</i>			
24. Bacchus Marsh and Werribee .. .. .	.. .. .	590 4 0	590 4 0
25. Berriwillock, Beulah, Birchip, and Brim .. .. .	.. .. .	1,823 9 1	1,823 9 1
26. Cohuna, Dingee, Leitchville, and Lockington	2 1 11	408 11 11	410 13 10
27. Coliban	64 12 10	104,279 7 3	104,344 0 1
28. Chillingollah, Culgoa, Dimboola, and Chinkapook .. .. .	.. .. .	839 4 9	839 4 9
29. Hopetoun, Jeparit, Jung Jung, Lake Boga, and Lalbert .. .. .	.. .. .	1,902 15 11	1,902 15 11
30. Lascelles, Manangatang, and Marnoo .. .. .	.. .. .	246 11 5	246 11 5
31. Merbein, Pyramid Hill, and Red Cliffs	18 9 0	3,574 16 2	3,593 5 2
32. Minyip, Nandaly, and Natimuk .. .. .	.. .. .	2,360 17 6	2,360 17 6
33. Nullawill, Nyah West, Ouyen, Patchewollock, and Piangil .. .. .	.. .. .	1,247 13 0	1,247 13 0
34. Rainbow, Rupanyup, and Sea Lake .. .. .	.. .. .	2,255 9 6	2,255 9 6
35. Speed, Tempy, Ultima, and Waitchie .. .. .	.. .. .	2,330 8 9	2,330 8 9
36. Watchem, Werrimull, and Woomelang .. .. .	.. .. .	4,507 15 5	4,507 15 5
37. Woorinen and Wycheproof .. .. .	.. .. .	307 2 0	307 2 0
38. Wonthaggi and North Wonthaggi	185 0 0	4,835 18 10	5,020 18 10
<i>Irrigation and Water Supply Districts.</i>			
39. Bacchus Marsh and Werribee	Cr. 2 0 3	35,724 3 8	35,722 3 5
40. Boort	404 18 6	11,194 19 1	11,599 17 7
41. Calivil	431 16 5	44,524 14 6	44,956 10 11
42. Cohuna and Gannawarra	35 17 4	13,939 19 1	13,975 16 5
43. Deakin .. .. .	.. .. .	473 1 9	473 1 9
44. Dingee	1 10 6	309 9 10	311 0 4
45. Fish Point	6 15 4	1,536 19 8	1,543 15 0
46. Kerang	61 7 1	10,316 8 6	10,377 15 7
47. Koondrook	653 11 8	8,058 2 10	8,711 14 6
48. Leitchville	98 2 11	4,885 16 11	4,983 19 10
49. Maffra, Sale .. .. .	.. .. .	48,586 13 3	48,586 13 3
50. Merbein	995 1 8	2,791 4 1	3,786 5 9
51. Mystic Park	7 7 1	427 9 9	434 16 10
52. Nyah	356 17 10	2,131 0 0	2,487 17 10
53. Red Cliffs	1,050 6 5	18,502 0 8	19,552 7 1
54. Rochester, Campaspe, and Echuca North	573 19 0	16,650 3 9	17,224 2 9
55. Rodney	1,764 2 7	54,530 1 5	56,294 4 0
56. Shepparton	1,928 8 2	17,075 19 7	19,004 7 9
57. South Shepparton	91 0 10	3,421 18 5	3,512 19 3
58. Stanhope	229 17 5	4,445 9 3	4,675 6 8
59. Swan Hill	0 12 6	9,711 19 9	9,712 12 3
60. Third Lake	5 0 0	531 16 4	536 16 4
61. Tongala	54 2 6	8,798 2 10	8,852 5 4
62. Tragowel Plains	1,608 10 1	51,834 3 2	53,442 13 3
63. Tresco	5 0 0	2,087 11 5	2,092 11 5
64. Goulburn Main Channels	3,302 14 10	128,266 6 2	131,569 1 0
<i>Flood Protection and Drainage Districts.</i>			
65. Gippsland Rivers and Other Districts .. .. .	.. .. .	2,058 8 7	2,058 8 7
66. Kanyapella and Loch Garry .. .. .	.. .. .	91 19 9	91 19 9
67. Kooweerup, Cardinia, and Dandenong Creek	8 8 6	53,755 5 9	53,763 14 3
<i>Miscellaneous.</i>			
68. Investigations Storages and Works	11 13 6	640 7 11	652 1 5
69. Torrumbarry Districts—New Districts commanded by Torrumbarry Weir	143 2 6	2,068 2 0	2,211 4 6
Totals	65,705 6 1	1,502,681 13 1	1,568,386 19 2

STATEMENT OF EXPENDITURE DURING THE YEAR ENDED 30TH JUNE, 1928.

CONSTRUCTION OF TANKS AND FORMING ROADS IN THE MALLEE.

(This Expenditure was met by the Public Works Department.)

1. Mallee Tanks (Public Tanks) and Channels	£ s. d.
2. Clearing Roads	14,912 15 6
	11,459 0 10
Total	£26,371 16 4

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, 1929, 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, 1929.

ESTIMATED DISBURSEMENTS.

A.

Revenue Producing Works—

Coliban District	£13,400
Irrigation and Water Supply Districts	131,000
Waterworks Districts	62,000
Drainage and Flood Protection Districts	1,000
Diversions from Streams	500
General Expenditure and Salaries (proportion) over £250 to be apportioned to above Districts	28,000
	<hr/> £235,900

B.

Non-Revenue Producing Works—

General Services—

River Gaugings, Surveys, New Projects, Boring for Water, Land Settlement, General Expenditure and Salaries (proportion) over £250	£13,000
Loan Works, Services on Account defrayed from Votes	9,000
Waterworks Trusts Administration	2,590
	<hr/> £24,590

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
	<hr/> 5,000
	<hr/> £265,490

ESTIMATED RECEIPTS.

Coliban District	£43,000
Irrigation and Water Supply Districts	260,000
Waterworks Districts	186,000
Flood Protection Districts	8,000
Miscellaneous	20,000
	<hr/> £517,000

Estimated amount available from Revenue Producing Works to meet Interest £281,100

Less expenditure as per "B" and "C" above on Non-Revenue Producing Works 29,590

£251,510

To which add Estimated Revenues from other Authorities—

Waterworks Trusts	£58,000
Local Bodies	22,000
	<hr/> £80,000

Total Estimated amount available from Revenues of all Authorities to meet Interest £331,510

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, 1928 :—

Loan Liability of State for Works of Water Supply at 30th June, 1928, exclusive of Melbourne Water Supply.						Interest payable by State on Net Advances.	Total Interest of £905,382 debitable to—				Amount received from Revenues of all Authorities to meet Interest.
Works.	Total Advances, including Cost of Loan Flotation.	Deduct Redemption Paid.	Net Advances.	(A.) Amounts Written Off. (B.) Free Head-works. (C.) Uncompleted or Unallotted Works. (D.) Loans Unexpended.	Balance at Debit of Authorities.		(A.) Written Off. (B.) Free Head-works. (C.) Uncompleted or Unallotted Works. (D.) Loans Unexpended.	Commission and Other Authorities.			
Completed Works— Commission	£ 4,202,482	£ 49,701	£ 4,152,781	£ (A.) 175,055	£ 3,977,726	£ 181,303	£ (A.) 7,643	£ 173,660	£235,752 (after providing £30,812 for non-producing revenue works, including Free Head-works).		
	3,876,986	31,606	3,845,380	(A.) 575,152	3,270,228	167,882	(A.) 25,110	142,772			
	1,096,722	106	1,096,616	(C.) 577,766	518,850	47,876	(C.) 25,224	22,652			
	167,226	..	167,226	(C.) 10,424	156,802	7,301	(C.) 455	6,846			
Uncompleted or Unallotted Works— Commission	638,629	..	638,629	(C.) 114,789	523,840	27,882	(C.) 5,012	22,870			
	367,778	..	367,778	(C.) 202,603	165,175	16,056	(C.) 8,845	7,211			
	2,060,406	1,000	2,059,406	(C.) 2,059,406	..	89,909	(C.) 89,909	..			
	1,030,410	..	1,030,410	(C.) 1,030,410	..	44,985	(C.) 44,985	..			
Uncompleted or Unallotted Works— Other Authorities.	467,254	..	467,254	(C.) 467,254	..	20,399	(C.) 20,399	..			
	766,073	..	766,073	(C.) 284,521	481,552	33,446	(C.) 12,422	21,024			
	64,113	..	64,113	(C.) 64,113	..	2,799	(C.) 2,799	..			
	29,765	..	29,765	(C.) 29,765	..	1,299	(C.) 1,299	..			
Other Authorities.	1,970,886	268,161	1,702,725	(A.) 316,537	1,386,188	74,338	(A.) 13,819	60,519	£68,806		
	796,676	127,613	669,063	(A.) 163,760	505,303	29,210	(A.) 7,149	22,061			
	1,702,750	..	1,702,750	(C.) 1,702,750	..	74,339	(C.) 74,339	..			
	32,754	30	32,724	(A.) 32,724	..	1,428	(A.) 1,428	..			
Other Authorities.	1,253,204	420	1,252,784	(B.) 1,252,784	..	54,695	(B.) 54,695	..			
	147,046	..	147,046	(B.) 147,046	..	6,420	(B.) 6,420	..			
	205,224	..	205,224	(C.) 205,224	..	8,960	(C.) 8,960	..			
	340,276	..	340,276	(D.) 340,276	..	14,855	(D.) 14,855	..			
Totals	21,216,660	478,637	20,738,023	9,752,359	10,985,664	905,382	425,767	479,615	304,558		

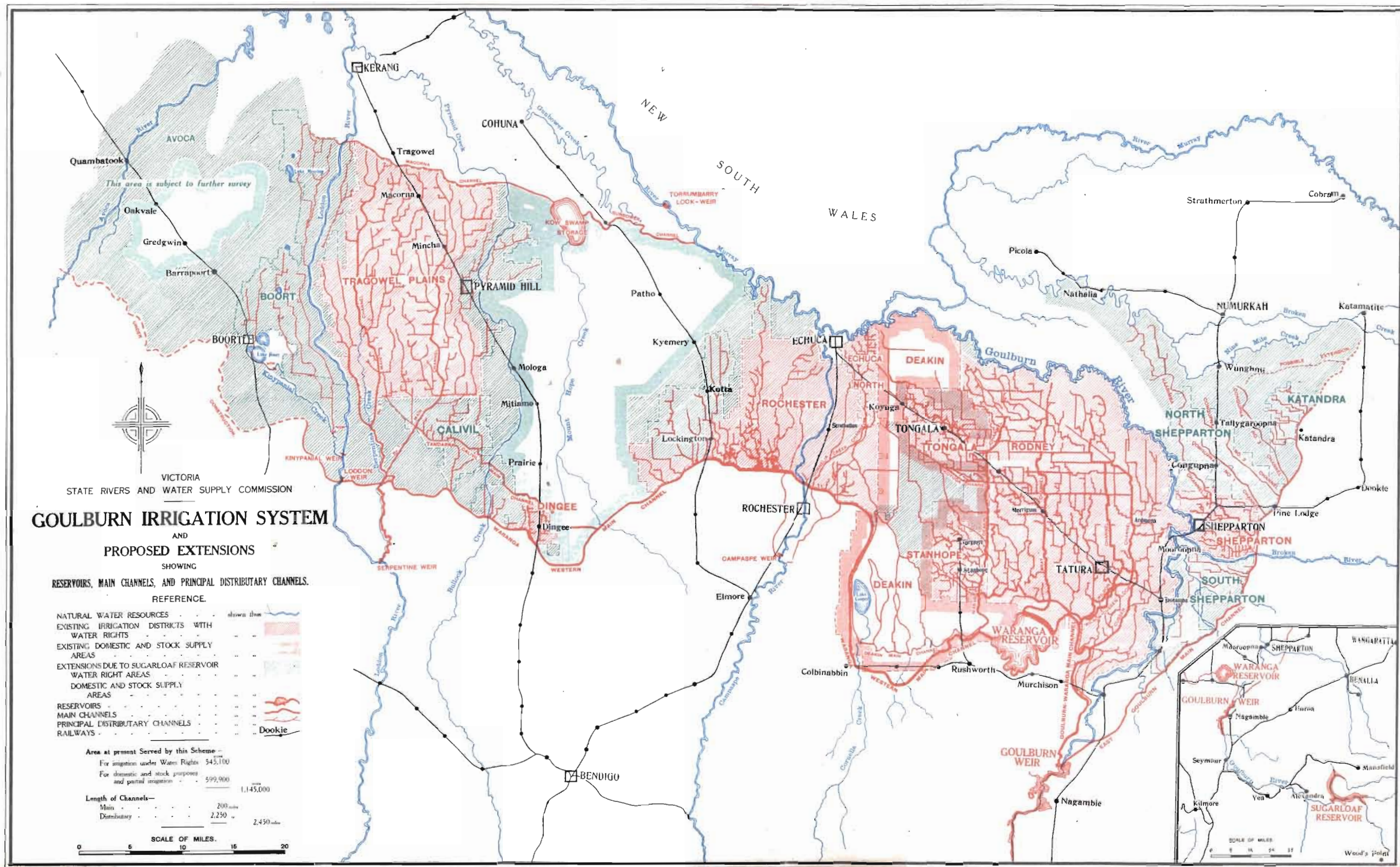
Dated at the Office of the State Rivers and Water Supply Commission, Treasury Gardens,
Melbourne, the 29th day of October, 1928.

WM. CATTANACH, Chairman.

E. SHAW, Commissioner.

RICHD. HORSFIELD, Commissioner.

P. J. O'MALLEY, Secretary.



VICTORIA
STATE RIVERS AND WATER SUPPLY COMMISSION

GOULBURN IRRIGATION SYSTEM

AND
PROPOSED EXTENSIONS
SHOWING

RESERVOIRS, MAIN CHANNELS, AND PRINCIPAL DISTRIBUTARY CHANNELS.

REFERENCE.

NATURAL WATER RESOURCES	shown thus
EXISTING IRRIGATION DISTRICTS WITH WATER RIGHTS	"
EXISTING DOMESTIC AND STOCK SUPPLY AREAS	"
EXTENSIONS DUE TO SUGARLOAF RESERVOIR WATER RIGHT AREAS	"
DOMESTIC AND STOCK SUPPLY AREAS	"
RESERVOIRS	"
MAIN CHANNELS	"
PRINCIPAL DISTRIBUTARY CHANNELS	"
RAILWAYS	"

Area at present Served by this Scheme—

For irrigation under Water Rights 545,100

For domestic and stock purposes and partial irrigation 599,900

1,145,000

Length of Channels—

Main 200 miles

Distributary 2,250 "

2,450 miles

SCALE OF MILES.

0 5 10 15 20