

TASMANIA

REPORT

OF THE

DIRECTOR OF MINES

FOR

YEAR ENDED 31ST DECEMBER

1954

Presented to both Houses of Parliament by His Excellency's Command.



TASMANIA:
L. G. SHEA, GOVERNMENT PRINTER, HOBART.

1955

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TASMANIA



REPORT OF THE DIRECTOR OF MINES

Department of Mines,
Hobart, 2nd May, 1955.

SIR,

I HAVE the honour to present my report on the mining and allied industries for the year ended on the 31st December, 1954.

The total value based on Australian prices of the output of metallic and non-metallic minerals was £13,232,644, as compared with £11,069,667 representing the value of minerals and mineral products, for the previous year. The increase in value was the result of increased productions in mineral and manufactured products and a slight rising trend in prices. There was a rising in the production of zinc, wolfram, tin, silver, scheelite, lead, limestone, copper, gold, silica, dolomite, cadmium and coal, but there was a lowering in the output of kaolin. Production was continued of small quantities of hematite, ochre, red granite and osmiridium. There was an easing in the export of iron-pyrites for the manufacture of sulphuric acid.

The average annual sterling price for wolfram, copper and silver for the 12 months ending 31st December, 1954, was less than the average annual sterling price for the corresponding period in 1953.

The average sterling price of minerals showed a slight rise in all cases when comparison was made with the quarterly average prices for the 12 months under review.

The number of men employed in mining, metallurgical and quarrying operation was 7,289 as compared with 7,370 for the previous year.

Rising in the output of metallic and non-metallic minerals and a sustained high value of products, further emphasised the importance of the mineral industry to the economy and prosperity of Tasmania, but in appreciating the factual significance of the industry, consideration must be constantly related to potential resources to compensate depletions and to provide for new developments. Departmental activities and movements by private enterprise were not only related to maintaining and extending production in developed regions but were concerned with the investigation and exploration of potential mineral regions in order to provide for production projects in future years.

A further regional establishment was commenced in the South-West of Tasmania and was located in the Port Davey area. This now raises the number of such establishments to three. The other two are located one at Lorinna and one at Zeehan.

Many parts of the State were visited and numerous samples of mineral and rock types were tested in the search for uranium. Arrangements were made with the Atomic Energy Commission and the Bureau of Mineral Resources for an aerial survey of the State to facilitate the search for uranium deposits.

There were two mines which commenced production during the year, Zeehan Mines Pty. Ltd., and the Tasmanian Coal Co.

The Zeehan Mines Pty. Ltd. commenced the production of silver-lead ores in the latter part of the year and treated 7,977 tons of ore resulting in the recovery of 1,221 tons of concentrates which yielded 893 tons of lead and 41,247 oz. of silver.

The Tasmanian Coal Co. commenced operations at Fingal in the latter half of the year and produced 1,516 tons of coal.

There was a decline in the number and area of leases applied for, but as a result of more surveys of leases having been carried out during the year by the Department concerned the number and area of leases issued showed an increase from the previous year. This enabled the effect of the surrender of a large lease to be partially offset and at the end of the year the acreage of land held as mining leases had not declined materially from last year.

There were no amendments to the Mining Act 1929 for the year under review.

The output of 9,455.94 tons of copper was 319.44 tons in excess of that for the previous year.

The Mount Lyell Mining and Railway Company Limited continued as the major producer of copper. Operations continued to be characterised by progressive approaches to the mining and processing of large volumes of low grade ore. The output of crude ore from surface and underground mining was 1,596,184 tons and 77 tons of

copper precipitate was recovered from mine waters, 1,324,929 tons of waste material was dumped.

38,380 tons of copper pyrite concentrate and 57,549 tons of iron pyrite concentrate was recovered from the selective milling of 1,596,216 tons of crude ore. From the production and stockpiling of copper-pyrite concentrate, 38,380 tons together with 77 tons of copper precipitate were smelted for a recovery of 8,991 tons of blister copper containing 8,920 tons of copper, 32,301 oz. of silver and 4,887 oz. of gold.

A quantity of 51,162 tons of iron-pyrite concentrate was exported to the Mainland for acid manufacture.

Dividends paid by the Mt. Lyell Mining and Railway Company Limited for the year under review was £203,438, making the total dividends paid since the inception of the Company £7,650,841.

The Sterling value of copper has shown an increase during the year.

There was a rising in the production of zinc, the recoverable quantity of milled ores being 26,079,384 tons, an increase of 2,998,248 tons over the quantity produced in the previous year.

The Electrolytic Zinc Company of Australasia Limited was in continuous operation at Risdon, in the processing of zinc calcines imported from the Mainland and in treatment of zinc concentrates arising from the selective milling of Tasmanian ores.

Production from imported calcines was 78,613 tons of zinc valued at £A7,075,170; 180,8643 tons of cadmium valued at £A305,964; and 17,7213 tons of cobalt oxide valued at £19,848.

Zinc concentrates, from the milling of Tasmanian ores, actually calcined and processed returned 25,910 tons of zinc, 49 tons of cadmium, 1,298 tons of lead and 143,365 oz. of silver.

The manufacture of sulphuric acid and superphosphate fertilizers was continued. Good progress was made with the construction of a plant for the production of sulphate of ammonia.

The Tasmanian ores resulted from the mining of zinc-lead ore bodies at the Rosebery and Hercules Mines on the West Coast, where 627 men were employed in mining and milling operations. The quantity of ore mined and milled was 190,982 tons. Selective milling resulted in the recovery of 54,664 tons of zinc concentrates; 8,529 tons of lead concentrates and 6,833 tons of copper concentrates. The recoverable quantity of metallics was fixed at 26,078.64 tons of zinc; 8,686.58 tons of lead; 535.94 tons of copper; 49.20 tons of cadmium; 1,067,786.57 oz. of silver and 12,562.02 oz of gold. The zinc concentrates were railed to Risdon for processing. The copper and lead concentrates were exported.

Mill extensions and mine preparations were progressed in the policy of planning for increased production. Regional activities, in the form of track cutting, geological surveys and diamond drilling, continued to characterise the interest of the Company in mineral exploration.

There was a rising of 1,426,459 tons in the output of lead, due mainly to production by the Zeehan Mines Pty. Ltd. at the Oceana Mine.

Operations by the Electrolytic Zinc Company of Australasia Limited, at the Hercules and Rosebery Mines, accounted for 8,688.58 tons of the recorded output of lead.

At the Montana Silver-Lead Mine, Zeehan, ore production declined. Ore mined and milled was 7,923 tons and 586.679 tons of silver-lead concentrate was recovered. The quantity of concentrates marketed 586.679 tons containing 356.399 tons of lead and 37,925.068 oz. of silver.

The Farrell Mining Company, Tullah, mined and milled 5,778 tons of ore, for a recovery of 1,270 tons of concentrate containing 837 tons of lead and 98,483 oz. of silver.

Miscellaneous parties continued to be engaged in the small-scale mining of silver lead in the Zeehan and Dundas districts but there were no major developments in connection with these operations.

Metallic tin, the product from lode and alluvial mining was 946,7509 tons, as compared with an output of 788,243 tons for the previous year.

The average Australian price for tin for the year ending 31st December, 1954, was £909.841.

The tin price for the quarter ended 31st March, 1954, was £A827.60 as compared with £A914.166 for the quarter ending 31st December, 1954.

The average Sterling price of £720 7s. 2d. for tin for 1954 was still lower than the 1951 average sterling price of £1,065 8s. 11d.

Aberfoyle Tin No Liability, operating on a multiple lode series; Renison Associated Tin Mines, mining and milling tin-pyrite ores; Briseis Tin No Liability, sluicing relatively shallow ground; Endurance Tin Mining Company, sluicing relatively deep ground; and Dorset Tin Dredge, dredging river flats, were the principal producers and accounted for an output of 780,248 tons of metallic tin.

Miscellaneous parties, tributing under the provisions of the Aid to Mining Act, again held the Mount Bischoff Tin Mine as an important unit in the production of tin. Activities were related to mining tin-pyrite ores and weathered lode remnants and to the treatment of mill tailings. These operations resulted in the recovery of 58,159 tons of concentrate, containing 39,820 tons of metallic tin.

The Storeys Creek Mine, operating on a Wolfram-tin lode series; and the Star Hill Syndicate, Goshen Tin Mines and Ormuz Tin Mine, each sluicing alluvial ground, produced 65,650 tons of concentrate, containing 44,701 tons of metallic tin.

Small mines and miscellaneous parties were mainly engaged in the sluicing of tin-alluvials. These operations usefully contributed 81,9819 tons to the total output of metallic tin.

Aberfoyle Tin No Liability continued its forward policy in the development and mining of the tin-wolfram lode series at Rossarden. Production was mainly from lower ore horizons and a new high level was reached in the output of tin concentrates. The output of finished products from the mining and milling of 57,841 tons of ore, was 792,234 tons of tin concentrates containing 540,670 tons of metallic tin and 365,205 tons of wolfram concentrates.

The Dorset Tin Dredge was in constant operation on the alluvial flats flanking the Ringarooma River at South Mount Cameron. The throughput

of alluvial ground was increased to 1,725,000 cubic yards and as a result, the output of products inclined to 139,750 tons of concentrate containing 103,269 tons of tin and 481,784 oz. of gold.

The Endurance Tin Mining Company sluiced 365,500 cubic yards of ground and recovered 81,769 tons of tin-oxide, containing 60,806 tons of metallic tin. Hydraulic mining continued to follow the course of an ancient deep lead flanking Mount Cameron.

Briseis Tin No Liability, Derby, progressively sluiced remnant ground flanking the diverted course of the Cascade River and, from a throughput of 577,200 cubic yards of alluvials, recovered 56,286 tons of concentrate containing 39,849 tons of metallic tin.

Renison Associated Tin Mine was more actively engaged in the testing and mining of tin-pyrite ores at Renison Bell. From the mining and milling of 9,790 tons of pyritic ore there was a recovery of 99,702 tons of concentrates, containing 63,654 tons of metallic tin.

The Mount Cameron Water Race Board continued to function as the major authority in supplying water to parties engaged in the sluicing of tin-alluvials in the Gladstone district. Maintenance of the race System resulted in a useful production of tin, which contributed to the stability of the Gladstone township.

The Ringarooma and Cascade Water Board functioned to an extent necessary to control the water system of the Ringarooma Race, the Cascade Section remaining under a condition of rental to Briseis Tin No Liability at Derby. Limitations in revenue from the sale of water and high costs of maintenance of the Ringarooma Race again made it necessary for the Government to provide finance to meet a heavy deficit in the working of the system. A progressive improvement in the condition of the race is trending to better services in supplying water for mining, township and agricultural purposes.

Development of the tungsten mineral resources continued to be a significant feature of mining activities. The output of scheelite and wolfram reached new high levels of 1,317.42 and 581,228 tons respectively.

King Island Scheelite (1947) Limited continued its forward policy of quarrying and milling scheelite ore on King Island. The throughput of ore was 219,265 tons for a recovery of 1,317.32 tons of scheelite concentrate and constituted a new high level in production activities.

In addition to 792,234 tons of tin concentrate Aberfoyle Tin No Liability recovered 365,205 tons of wolfram from mining and milling of 57,841 tons of ore from the multiple tin-wolfram lode series at Rossarden.

There was a rising to 12,551 tons in the quantity of ore mined and milled at the Storey's Creek Mine, Storey's Creek. Recoveries inclined to 215,450 tons of wolfram concentrate and 24,077 tons of tin concentrate, the latter containing 14,989 tons of metallic tin. Lode developments maintained their productive potentials and the new vertical shaft was connected between the surface and No. 6 level.

Interest was maintained in scheelite occurrences exterior to producing areas on King Island.

Miscellaneous parties were engaged in small scale operations on wolfram occurrences at Gipp's Creek, Scamander, Mount Horror and Moina, but there was no major development.

Production of gold inclined to 18,730,745 oz. mainly as the result of a rising in the mining of zinc-lead ores containing gold. The output regioned in the order of 5,680 oz. from the processing of copper ores, 12,562,020 oz. from the mining and selective milling of zinc-lead ores, and 488,725 oz. from the dredging of auriferous-tin alluvials, the balance resulting from small-scale operations on auriferous alluvials.

There was no new developments in the mining of osmiridium and, despite a high Australian price, production fell to 15,896 oz., the result of sporadic operations on shallow alluvials at Adamsfield.

The recorded production of limestone was 196,485 tons, of which 171,768 tons was used in the manufacture of calcium carbide and cement.

Metallurgical, agricultural and building industries absorbed 24,717 tons in crushed, pulverised and lime forms. There was a more significant trend in the use of pulverised limestone for the conditioning of agricultural lands and this movement, together with the appearance of other consumers, portends increased development in the future production, of which there are widely spread resources within the State.

Iron ore to an amount of 5,167 tons was quarried and used in the manufacture of cement.

Limonite was used in gas purification but the quantity quarried and market declined to 86 tons.

There was an increase in the output of red ochre and the quantity produced amounted to 47 tons.

A quantity of 7,948 tons of kaolins and clays was produced for industrial uses, including the manufacture of paper but excluding the making of bricks, tiles, pipes and other earthen wares.

The production of silica for metallurgical and other purposes was 6,556.5 tons.

The output of coal was 264,202 compared with 233,629 tons for the previous year.

The Cornwall Coal Company functioned as the major producer. Operations at three collieries provided an output of 169,086 tons as compared with 149,479 tons for the previous year. Bord and pillar mining, pillar extraction and development work resulted in the production of 94,745 tons of coal at the Cornwall Colliery. Mechanised and other practices resulted in an output of 40,351 tons at the Mount Nicholas Coal Mine. Increased coal mining at the Duncan Colliery, provided an output of 33,990 tons.

There were no new developments at the Jubilee Coal Mine where the output fell to 23,767 tons from a normal advancement of bord and pillar places.

At the Fingal Colliery production inclined to 21,979 tons of coal.

At the Merrywood Colliery, production was mainly related to underground coal mining. The recorded output was 29,520 tons resulting from an output of 10,080 tons from open cut operations and 19,440 tons from underground bord and pillar practices.

Production was more active at the Langloh Coal Mine, the output rising to 8,658 tons.

Sub-anthracite coal continued to be mined at the Sandfly Colliery for fuel requirements in hop-kiln practices. An output of 1,521 tons resulted from small-scale operations.

Faulting continued to hamper a development of the thin seam of coal at the Illamatha Coal Mine and the production resulted in an output of 917 tons.

The Stanhope Coal Mine at Avoca contributed 7,238 tons of coal to the total output.

Tasmanian Coal Company commenced production at Fingal in the latter part of the year with a production of 1,516 tons.

Statistics of production and related matters for the year and for previous years are submitted in tabulated form.

ASBESTOS.

RETURN showing the Quantity and Value of Asbestos produced from 1899 to 1954 inclusive.

Year	Quantity Tons	Value £
1899-1949	3979.85	17,142
1950-1954	.....	.....
Total	3979.85	£17,142

BISMUTH.

RETURN showing the Quantity and Value of Bismuth produced from 1904 to 1954 inclusive.

Year	Quantity Tons	Value £
1904-1949	83.6320	28,426
1950	0.039	6
1951-1954	.....	.....
Total	83.6359	£28,432

CADMIUM.

The quantity recovered was 49.20 tons valued at £68,639 compared with 44.51 tons valued at £70,712 for 1953.

RETURN showing the Quantity and Value of Cadmium recovered for the years 1924 to 1954.

RETURN showing the Quantity and Value of Barytes produced from 1899 to 1954 inclusive.

Year	Quantity Tons	Value £
1899-1949	2196.2	8,138
1950-1954	.....	.....
Total	2196.2	£8,138

Year	Quantity Tons	Value £
1924-1950	688.3157	£356,717
1951	37.80	77,236
1952	42.83	78,129
1953	44.51	70,712
1954	49.20	68,639
Total	862.6657	£651,433

COPPER.

The production for the year was 9455.94 tons, valued at £2,351,857.

RETURN showing the Quantity and Value of Copper in Blister Copper, Copper Ores and Zinc Lead Ores during the years 1919 to 1954 inclusive.

Year	In Zinc-Lead Ores		In Blister Copper		In Copper Ores		Total	
	Quantity	Value	Quantity	Value	Q'ty.	Value	Quantity	Value
1919 to 1950 (inclusive) ..	Tons 3,080.66	£ 294,496	Tons 280,172.475	£ 18,705,862	Tons 404.094	£ 9,491	Tons 283,657.229	£ 19,009,849
1951	288.59	62,548	7,371	1,601,875	.....	.....	7,659.59	1,664,423
1952	319.49	83,398	9,554	2,530,400	.....	.....	9,873.49	2,613,798
1953	395.50	98,759	8,741	2,207,029	.....	.....	9,136.50	2,305,788
1954	535.94	133,185	8,920	2,218,672	.....	.....	9,455.94	2,351,857
TOTAL	4,620.18	672,386	314,758.475	27,263,838	404.094	9,491	319,782.749	27,945,715

The Mount Lyell Mining and Railway Company Limited.
Return for the Calendar Year 1954.

Ore and metal-bearing material smelted:—		Tons (Dry).
Source of Material.		
Concentrates:—From the Company's Royal Tharsis Mine, and West Lyell Mines		
Crown Lyell ore	1,596,184	
Precipitate	77	
Total	1,596,261	
Source of Material.		
Limestone delivered at works (tons)	4,731	
Silica delivered at works	6,118	
Pyrite concentrate shipped from Regatta Point (tons), approx. value £153,486	51,162	
Blister copper produced, 8,991 tons, containing:		
Copper (tons)	8,920	Approximate value
Silver (oz.)	32,301	£A3,023,442
Gold (oz.)	4,887	
Average number of men employed—		
Mining Department—At the Company's Royal Tharsis Mine		
Ditto, West Lyell Mine	545	
Miscellaneous	138	
	717	
Reduction Works (including Lake Margaret)		
	708	
Railway Department—Mount Lyell Railway		
	106	
Total	1,531	

Copper produced from the inception of the Company to the 31st December, 1954, 473,353 tons.

Silver produced from the inception of the Company to the 31st December, 1954, 15,631,609 oz. (fine).

Gold produced from the inception of the Company to the 31st December, 1954, 536,620 oz. (fine).

Dividends paid during the year, £203,438.

Dividends paid from the inception of the Company to the 31st December, 1954, £7,650,841.

COAL.

RETURN showing the Quantity and Value of Coal raised to 31st December, 1954.

Year	Quantity Tons	Value £
Previous to 1951	5,616,086	4,556,747
1951	236,888	305,548
1952	247,899	341,561
1953	233,629	445,316
1954	264,202	511,040
Total	6,598,704	6,160,212

DOLOMITE.

RETURN showing the Quantity and Value of Dolomite produced from 1899 to 1954 inclusive.

Year	Quantity Tons	Value £
Prior to 1951	10	25
1952	1,002.76	3,247
1953	2,565	7,695
1954	2,846.5	8,599
Total	6,424.26	19,566

GOLD.

The quantity won was 18,730.745 fine oz. valued at £233,516 as compared with 16,181.920 fine oz. valued at £200,556 for 1953.

RETURN showing the Quantity and Value of Gold won to 31st December, 1954.

Year	Quantity Oz.	Value £
Previous to 1951	2,333,362.258	10,532,242
1951	14,445.676	179,126
1952	16,245.649	201,446
1953	16,181.920	200,556
1954	18,730.945	233,516
Total	2,398,966.248	£11,346,886

GRANITE (RED).

RETURN showing the Quantity and Value of Red Granite produced during the years 1935 to 1954.

Year	Quantity Tons	Value £
1935 to 1950 inclusive	3,383.5	24,617
1951	60	834
1952	93	1,387
1953	39	654
1954	55	575
Total	3,630.5	28,067

IRON PYRITES.

RETURN showing the Quantity and Value of Iron Pyrites produced during the years 1915 to 1954 inclusive.

Year	Quantity Tons	Value £
1915 to 1950 (inclusive)	725,127.973	973,701
1951	49,925	107,339
1952	54,421	143,710
1953	51,559	154,677
1954	51,162	153,486
Total	932,194.973	1,532,913

KAOLIN.

RETURN showing the Quantity and Value of Kaolin produced during the years 1940-1954 inclusive.

Year	Quantity Tons	Value £
1940 to 1950 (inclusive)	48,292.25	123,786
1951	8,075	29,991
1952	8,366	39,182
1953	9,061	41,424
1954	7,948	36,139
Total	81,742.25	£270,522

LEAD.

The output was 10,779.504 tons, valued at £1,032,914, compared with 9353.045 tons valued at £852,591 for 1953.

RETURN shows the Quantity and Value of Lead included in Silver Lead during the years 1919 to 1954 inclusive.

Year	Quantity Tons	Value £
1919 to 1950 inclusive	199,163.340	7,180,446
1951	7,850.970	1,278,907
1952	8,575.566	1,168,758
1953	9,353.045	852,591
1954	10,779.504	1,032,914
Total	235,722.425	£11,513,616

LIMESTONE.

RETURN showing the Quantity of Limestone produced during the years 1919 to 1954 inclusive, 1919 to 1936 inclusive, 2,108,943 tons, £1,430,674.

Year	Limestone used in Limestone used the Manufacture of Carbide and Cement.		Limestone used for Metallurgical, Building and other Purposes.	
	Tons		Tons	
1937-1950 inclusive	1,629,695		2,013,863	
1951	128,437		25,573	
1952	147,212		23,811	
1953	161,472		20,830	
1954	171,768		24,717	
Total	2,238,584		2,108,794	

LIMONITE.

RETURN showing Quantity and Value of Limonite produced during the years 1950 to 1954 inclusive.

Year	Quantity Tons	Value £
1950	366.5	715
1951	377.5	1,914
1952	519.75	2,807
1953	299.5	899
1954	.....	.....
Total	1,563.25	£6,335

NICKEL.

RETURN showing the Quantity and Value of Nickel produced from 1927 to 1954 inclusive.

Year	Quantity Tons	Value £
1927-1938	222.55	38,850
1939-1954	.....	.....
Total	222.55	£38,850

OCHRE.

RETURN showing the Quantity and Value of Ochre produced during the years 1918 to 1954 inclusive.

Year	Quantity Tons	Value £
1918 to 1950 inclusive	1,776.25	3,886
1951	28	80
1952	23.5	132
1953	19.5	59
1954	47.	141
Total	1,894.25	£4,298

OSMIRIDIUM.

The quantity of metal won during the year was 15.896 oz., valued at £636 as compared with 58.831 oz., valued at £2354 for 1953.

RETURN showing the Quantity and Value of Osmiridium produced during the years 1910 to 1954 inclusive.

Year	Quantity Oz.	Value £
1910 to 1950 inclusive	30,770.538	666,483
1951	33.378	1,216
1952	50.962	2,038
1953	58.831	2,854
1954	15.896	636
Total	30,929.605	672,727

SILVER.

The output was 1,278,168.659 oz. (fine), valued at £390,126, as compared with 1,203,256.167 oz. valued at £370,603 for 1953. RETURN showing the Quantity and Value of Silver contained in Silver-Lead, Blister Copper, Copper Ore, Zinc-Lead Ore and Gold Ore during the years 1919 to 1954 inclusive.

Year	In Silver Lead		In Blister Copper		In Copper Ore		In Gold Ore		In Zinc Lead Ore		Total	
	Quantity Oz.	Value £	Quantity Oz.	Value £	Quantity Oz.	Value £	Quantity Oz.	Value £	Quantity Oz.	Value £	Quantity Oz.	Value £
1919-1950	15,820,279.322	1,875,672	3,134,213.9	423,167	232	25	44	4	7,459,480.74	1,246,189	26,414,249.962	3,544,957
1951	124,799.113	40,618	22,749	9,423	.....	.....	.....	.....	836,677.96	272,915	984,228.073	321,956
1952	165,510.118	51,318	30,188	9,353	.....	.....	.....	.....	918,531.77	284,555	1,114,229.888	345,226
1953	202,746.057	49,437	28,701	9,213	.....	.....	.....	.....	971,815.11	311,953	1,203,256.167	370,603
1954	178,081.089	54,309	32,301	9,871	.....	.....	.....	.....	1,067,786.57	325,946	1,278,168.659	390,126
Total	16,491,409.699	£2,071,354	3,248,152.9	£459,027	232	£25	44	£4	11,254,292.15	£2,441,558	30,994,130.749	£4,971,968

SHALE.

RETURN showing the Quantity and Value of Shale produced during the years 1910-1954 inclusive.

Year	Quantity Tons	Value £
1910-1935	41,572	31,231
1936-1954 .....	.....	.....
Total	41,572	£31,231

SCHEELITE.

RETURN showing the Quantity and Value of Scheelite produced during the years 1917 to 1954 inclusive.

Year	Quantity Tons	Value £
1917 to 1950 inclusive	5,777.241	1,950,729
1951	1,020.09	1,692,631
1952	969.59	1,321,664
1953	1,130.139	1,163,585
1954	1,317.420	755,864
Total	10,214.480	£6,884,473

SILICA.

RETURN showing Quantity and Value of Silica produced during the years 1936 to 1954 inclusive.

Year	Quantity Tons	Value £
1936 to 1950 inclusive	95,273.75	44,413
1951	7,062	4,726
1952	9,607.5	7,685
1953	6,189.75	5,430
1954	6,556.5	5,220
Total	124,689.5	£67,474

TALC.

RETURN showing the Quantity and Value of Talc produced during the years 1928 to 1954 inclusive.

Year	Quantity Tons	Value £
1928-1948	333.35	1,077
1949-1954 .....	.....	.....
Total	333.35	£1,077

TIN.

The output was 946.7509 tons valued at £683,628 as compared with 778.248 tons valued at £552,452 for 1953.

RETURN showing the Quantity and Value of Metallic Tin exported from Tasmania from 1873 to 1904 (Compiled from Customs Returns) and Metallic Tin produced during the years 1905 to 1954 inclusive.

Year	Quantity Tons	Value £
1873 to 1879 inclusive	16.429	1,054,923
1879 to 1905 inclusive	56,419.93	7,530,234
1906 to 1950 inclusive	63,619.126	14,089,681
1951	705.834	742,683
1952	771.186	744,618
1953	788.248	552,452
1954	946.7509	683,628
Total	139,680.0749	£25,398,219

WOLFRAM.

RETURN showing the Quantity and Value of Wolfram produced during the years 1899 to 1954 inclusive.

Year	Quantity Tons	Value £
1899 to 1950 inclusive	6,212.982	1,354,793
1951	378.834	715,295
1952	481.476	719,370
1953	521.853	596,897
1954	581.228	371,281
Total	8,176.373	£3,757,636

ZINC.

RETURN showing the Quantity and Value of Zinc produced during the years 1919-1954 inclusive.

Year	Quantity Tons	Value £
1919 to 1950	353,775.287	14,107,071
1951	20,463.609	3,485,654
1952	22,396.254	3,292,441
1953	23,680.10	1,763,608
1954	26,079.384	2,032,209
Total	446,394.634	£24,680,983

ELECTROLYTIC ZINC COMPANY OF AUSTRALASIA LIMITED.

RETURN FOR THE YEAR 1954.

EXTRACTION FROM ORES AND CONCENTRATES: RISDON.

From other than Tasmanian Ores—

Zinc	78,613	tons
Cadmium	180.8643	tons
Cobalt oxide	17.7213	tons

From Tasmanian Ores—

Zinc	25,910	tons
Cadmium	49	tons
Cobalt oxide	0.3465	tons
Lead	1,298	tons
Silver	143,365	oz.

Men Employed—

The average number of men employed was 2,508.

WEST COAST DIVISION.

Ore Mined—

	Tons
From Hercules Mine	22,098
From Rosebery Mine	168,884

Total

190,982

Concentrates Produced—

	Tons
Zinc Concentrates	54,664
Lead Concentrates	8,529
Copper Concentrates	6,833

Total

70,026

Recoverable Quantity in Ores Mined—

Zinc	26,078.64	tons
Lead	8,686.58	tons
Copper	535.94	tons
Cadmium	49.20	tons
Silver	1,067,786.57	oz.
Gold	12,562.02	oz. (fine)

Average Number of Men Employed—

Hercules Mine	58
Rosebery Mine	569

Total

627

STATISTICS OF PRODUCTION.

RETURN showing the Annual Published Value of Mineral Products for the State of Tasmania from 1880 to 1954 inclusive.

Year	Value £
1880-1950 inclusive	118,885,027
1951	11,222,287
1952	11,746,606
1953	9,494,075
1954	9,769,278
Total	£161,117,273

QUANTITY AND VALUE OF METALS AND MINERALS PRODUCED.

RETURN showing Quantity and Value of Metals and Minerals Produced in Tasmania as at 31st December, 1954.

Mineral or Metal.	Quantity.	Value with	Value with
		Sterling Metal Prices.	Aust. Metal Prices.
		£	£
Antimony (tons)	2-6640	815	1,017
Asbestos (tons)	3,979-8500	17,142	17,142
Barytes (tons)	2,196-2000	8,138	8,138
Bismuth (tons)	83-6359	28,432	29,644
Cadmium (tons)	862-6557	651,433	737,685
Carbide, Cement and Limestone to 1953 Carbide to 1936 (now under Carbide, Cement and Limestone) (tons)	3,940,246-6000 62,090	8,314,475 1,212,207	8,314,475 1,212,207
Cement to 1936 (now under Carbide, Cement and Limestone) (tons)	525,391	2,004,014	2,004,014
Carbide and Cement from 1954 (tons)	136,952	980,557	980,557
Coal (tons)	6,598,704	6,160,212	6,160,212
Cobalt Oxide (tons)	6-6064	3,421	4,033
Copper (Blister) to 1918 (now shown under Silver and Copper) (tons)	166,600	13,788,527	13,788,527
Copper Matte (tons)	6,277	133,736	133,736
Copper Ore to 1918 (now shown under Copper) (tons)	41,768-6300	577,873	577,873
Copper (from 1919) (tons)	319,782-7490	27,945,715	32,524,958
Dolomite (tons)	6,424-2600	19,566	19,566
Gold (fine oz.)	2,398,966-2480	11,346,886	12,137,898
Granite (Red) (tons)	3,630-5000	28,067	28,067
Graphite (tons)	39-7500	107	107
Hematite (tons)	12-5000	53	53
Ilmenite (tons)	550	1,256	1,256
Iron Ore (tons)	57,085-5000	41,501	41,501
Iron Pyrites (tons)	932,194-9730	1,532,913	1,532,913
Kaolin (tons)	81,742-2500	270,522	270,522
Lead (from 1919) (tons)	235,722-4250	11,513,616	9,090,718
Limestone to 1936 (now under Carbide, Cement and Limestone) (tons)	2,108,943	1,439,674	1,439,674
Limestone from 1954 (tons)	196,485	146,690	146,690
Limonite (tons)	1,563-2500	6,335	6,335
Magnetite (tons)	1,018-9250	4,654	4,654
Manganese (tons)	0-6000	3	3
Monazite (tons)	32-6000	488	607
Nickel (tons)	222-5500	38,850	40,518
Ochre (tons)	1,894-2500	4,298	4,298
Osmiridium (fine oz.)	30,929-6050	672,727	695,513
Rutile (tons)	0-5000	18	18
Scheelite (tons)	10,214-480	6,884,473	9,567,009
Silica (tons)	124,689-5000	67,474	67,474
Shale (tons)	41,572	31,231	31,231
Silver-Lead Ore to 1918 (now under Silver and Lead) (tons)	1,083,897-8210	6,429,291	6,429,291
Silver from 1919 (fine oz.)	30,994,130-7490	4,971,968	5,834,762
Talc (tons)	333-3500	1,077	1,077
Tin (tons)	139,680-0749	25,398,219	26,999,521
Wolfram (tons)	8,176-373	3,757,636	4,658,881
Zinc (tons)	446,394-6340	24,680,983	17,299,526
Total .....	.....	£161,117,273	£162,843,901

QUANTITY AND VALUE OF MINERALS.

STATISTICS RELATING TO THE MINERAL INDUSTRY FOR THE YEAR ENDED 31ST DECEMBER, 1954.

Mineral	MINING DIVISIONS.					Total Quality.	VALUE.	
	Northern and Southern.	Eastern.	North-Eastern.	North-Western.	Western.		Sterling.	Australian
							£S.	£A.
Aluminium (tons)	.....	.....	.....	.....	49·2000	49·2000	68,639	84,473
Cadmium (tons)	.....	.....	.....	.....	.....	264,202	.....	511,040
Coal (tons)	10,179	253,106	.....	917	.....	0·3465	.....	388
Cobalt Oxide (tons)	.....	.....	.....	.....	9,455·9400	9,455·9400	2,351,857	2,985,301
Copper (tons)	.....	.....	.....	2,846·5	.....	2,846·5000	.....	8,599
Dolomite (tons)	.....	.....	.....	.....	18,242·020	18,730·7450	233,516	291,891
Gold (fine oz.)	6·4640	.....	482·261	.....	.....	55	.....	575
Granite (Red) (tons)	.....	55	.....	.....	.....	3	.....	9
Hematite (tons)	.....	.....	.....	3	.....	.....	.....	.....
Iron Ore (tons)	.....	.....	.....	6,377	.....	6,377	.....	5,764
Kaolin (tons)	2,245	3,174	2,529	.....	.....	7,948	.....	36,139
Lead (tons)	.....	.....	.....	.....	10,779·5040	10,779·5040	1,032,914	1,225,156
Limestone (tons)	29,990	.....	.....	161,764	4,731	196,485	.....	146,690
Ochre-Red (tons)	.....	.....	.....	47	.....	47	.....	141
Osmiridium (fine oz.)	15·8960	.....	.....	.....	.....	15·8960	636	1,166
Pyrites (tons)	.....	.....	.....	.....	51,162	51,162	.....	153,486
Scheelite (tons)	.....	.....	.....	1,317·42	.....	1,317·42	755,864	2,127,682
Silica (tons)	.....	.....	.....	438·5	6,118·000	6,556·5000	.....	5,220
Silver (fine oz.)	.....	.....	.....	.....	1278168·6590	1278168·6590	390,126	474,960
Tin (tons)	3·5189	574·509	264·057	39·861	64·805	946·7509	683,628	863,708
Wolfram (tons)	.....	581·183	0·045	.....	.....	581·228	371,281	816,181
Zinc (tons)	.....	.....	.....	.....	26,079·384	26,079·3840	2,032,209	2,513,706
Total Value with Sterling Metal Prices	.....	.....	.....	.....	.....	.....	8,788,721	.....
Total Value with Australian Metal Prices	.....	.....	.....	.....	.....	.....	12,252,275	.....
Average Number of Men Employed	3,430	690	209	652	2,308	7,289	.....	.....
Manufactured Products: Carbide and Cement (tons)	8,866	.....	.....	128,086	.....	136,952	.....	£980,557

The Electrolytic Zinc Company of Australasia Limited recovered 78,613 tons of Zinc, valued at £7,075,170; 180·8643 tons of Cadmium valued at £305,964; and 17·7213 tons of Cobalt Oxide valued at £19,848 from other than Tasmanian ores and employed an average number of 2508 men at Risdon.

STATISTICS OF MINING COMPANIES.

RETURN showing the Amounts Paid in Dividends by Mining Companies during the Year ending 31st December, 1954.

Mines	Dividends
Coal	7,050
Copper	203,438
Scheelite	450,000
Wolfram-Tin	358,750
Zinc	1,425,000*
Total	£2,444,238

* This amount represents total dividends out of Tasmanian and ex-Tasmanian profits.

RETURN showing the Mining Companies Registered during the Year ended 31st December, 1954.

Number of Companies	Capital
Nil	Nil

One agent for foreign companies under the Mining Companies (Foreign) Act, 1884, was registered. No syndicates under Part V of the Mining Companies Act, 1884, were registered.

RETURN showing the Total Amount of Rents, Fees, &c., received by the Mines Department during the Year ending 31st December, 1954.

Head of Revenue	Amount
	£ s. d.
Rent of Auriferous and Mineral Lands	6,147 15 8
Fees, Auriferous and Mineral Lands	414 14 9
Survey Fees	669 1 0
Fees under the Explosives and Inflammable Liquids Act	4,527 7 0
Total	£11,758 18 5

Comparative Statement of Revenue from Mines, being Rents, Fees, Storage of Explosives, &c., (exclusive of Survey Fees), Paid to the Treasury during the Years 1950 to 1954.

Year	Amount
	£ s. d.
1950	11,027 3 9
1951	11,979 10 1
1952	11,539 17 2
1953	12,272 14 1
1954	11,089 17 5

The above Statement does not include Stamp Duties upon Transfer of Leases and Tax payable upon Dividends, from which sources large sums are derived.

RETURN showing the Total Number of Leases and Licences in Force on 31st December, 1954.

Mineral	Number	Number of Sluiceways	Area Acres.
Bauxite	1		129½
Barytes	1		10
Coal	34		6,514
Clay	9		251
Copper	1		33
Dolomite	2		237
Granite	4		30
Gold	24		654½
Iron	1		50
Limestone	12		807
Minerals	35		9,592
Nickel	5		249
Osmiridium	1		10
Ochre	2		24
Scheelite	3		281
Silica	3		35
Silver Lead	18		660
Stone	18		1,348
Sand	3		39
Tin	184		6,740
Tin-Wolfram	6		407
Wolfram	2		86
Wolfram-Gold	3		120
Easement Licences	58		664
Water Licences	174	860	1,087½
Total	604	860	30,058½

RETURN showing Total Number and Area of Leases and Licences Issued during the Year ended 31st December, 1954.

Mineral	Leases	Area Acres	Sluiceways
Dolomite	2	237	
Gold	3	65	
Coal	4	255	
Stone	7	250	
Tin	24	486	
Minerals	3	1,357	
Sand	1	26	
Wolfram-Gold	3	120	
Wolfram-Tin	2	57	
Water and Easement Licences	25	67	112
Total	74	2,920	112

RETURN showing Total Number and Area of Leases and Licences Applied for during the Year ended 31st December, 1954.

Mineral	Number	Area Acres.	Sluiceways
Coal	1	230	
Gravel	1	50	
Gold	4	95	
Minerals	14	955	
Silver-Lead	4	20	
Tin	7	165	
Water Licences	5	2	31
Total	36	1,517	31

TABLE showing the Average Annual Sterling Prices for Minerals During Recent Years.

	Average for 1951	Average for 1952	Average for 1953	Average for 1954
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Copper—Standard, spot: per ton	216 13 0	264 14 5	252 7 4	246 17 10
Lead—Soft Foreign: per ton	162 18 3	136 7 8	91 3 1	95 7 11
Spelter: per ton	170 6 8	147 10 3	74 9 6	77 14 4
Tin—Standard, spot per ton	1,065 8 11	965 11 0	700 16 2	720 7 2
	s. d.	s. d.	s. d.	s. d.
Silver—Standard, spot: per oz.	6 6·3	6 2·4	6 2·4	6 1
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Osmiridium, per oz.	36 4 0	39 19 10	40 0 0	40 0 0
Wolfram, per ton	2,726 0 0	2,244 13 0	1,656 17 6	841 0 0
	W.O.s	W.O.s	W.O.s	
Gold, per fine oz.	12 8 0	12 8 0	12 8 0	12 9 3

AID TO MINING.

The policy of assistance to mining was maintained under the provisions of the Aid to Mining Act. An amount of £722 16s. 10d. was expended in assistance, drilling operations and insurance. Repayments, covering loans, tribute royalties interest and drilling amounted to £958 9s. 3d. The amount standing to the credit of the Mining Trust Fund was £11,245 10s. 9d.

An amendment was made to the Aid to Mining Act 1927, whereby the maximum amount of financial assistance was extended from £300 to £1000. Under this provision the Department will be in a position to more usefully contribute towards the

purchase of plant and in work necessary in the establishment of productive mining operations. Applications for financial assistance are investigated and where the project merits assistance an advance is arranged.

Miscellaneous parties, tributing under the provisions of the Aid to Mining Act, continued to hold the Mount Bischoff Tin Mine as an important producer of tin. Operations resulted in a recovery of 58·159 tons of concentrates, containing 39·820 tons of metallic tin, afforded employment to 23 men and contributed materially to the stability of Waratah. Royalty payments amounted to £685 11s. 3d.

THE AID TO MINING ACT, 1927.

STATEMENT OF RECEIPTS AND PAYMENTS OF THE MINING TRUST FUND FOR THE YEAR ENDED 31st DECEMBER, 1954.

RECEIPTS.			PAYMENTS.		
	£	s. d.		£	s. d.
Balance 31st December, 1953	11,009	18 4	Assistance	443	15 6
Repayment of loans	167	4 0	Drilling	278	12 5
Interest	5	9 6	Insurance	0	8 11
Tribute royalty	685	11 3			
Drilling	100	4 6	Total Payments	722	16 10
			Balance (excess receipts over payments)	11,245	10 9
	£11,968	7 7		£11,968	7 7

DRILLING.

Four Departmental drilling plants were in operation on hire to holders of mining tenements, in boring for underground water on pastoral lands, and in testing foundation conditions for building structures. Bores aggregating 3801 feet were drilled. Expenditure in all fields of boring was £8,081 16s. 11d. and £2,160 12s. 4d. was repaid under drilling agreements.

The testing of tin veins in Storey's Creek-Rossarden district by diamond drilling was completed prior to moving the plant to an area east

of Port Sorell, with the object of proving a deposit of iron pyrites.

Another diamond drilling unit was employed in locating a gold bearing ore shoot near Mathinna and in testing Public Building foundations at Launceston.

Two percussion boring plants were in operation in boring for supplies of underground water on pastoral lands in Kempton, Melton Mowbray, Mangalore and Smithton districts. Twenty-eight holes, aggregating 2212 feet, were completed and of these, twenty-one bores located usable supplies of water.

DETAILS OF EXPENDITURE ON DRILLING DURING THE YEAR ENDED 31st DECEMBER, 1954.

Plant	Location	Amount Expended.	
		£	s. d.
Junior Straitline Diamond Drill	Launceston	307	0 6
Junior Straitline Diamond Drill	Mathinna	1,178	11 1
Goldfields No. 10 Diamond Drill	Rossarden	1,106	14 11
Goldfields No. 10 Diamond Drill	Port Sorell	47	5 7
G33 Percussion Drill No. 1 Unit	Kempton District	1,272	15 10
G33 Percussion Drill No. 2 Unit	Kempton District	1,220	19 5
G33 Percussion Drill No. 1 Unit	Smithton District	1,074	4 6
Miscellaneous (including training of percussion drill crews)		1,874	5 1
Total		£8,081	16 11

DEPARTMENTAL ACTIVITIES.

Technical services were usefully related to the economics and geology of mineral deposits, metallurgical research, assaying and general analytical work, boring of mineral deposits, investigation of rock structures, location of underground water, and to the general development of mining.

The mineral industry has continued as a significant factor in the economy and prosperity of the State. Production and utilization trends have been constantly traced and have substantiated the implementation of a forward policy in financing Departmental instrumentalities. Services rendered and results attained have merited the progressive development of metallurgical research and the programme of investigation and exploration of the mineral resources.

Regional establishments at Zeehan and Lorinna were actively engaged in geological appreciations and in localised mineral investigations.

A Regional Geological Establishment was set up at Port Davey to enable a detailed investigation and exploration of the mineral resources of the South-Western region of the State.

STAFF.

Mr. R. M. Bagley was appointed as a Field Assistant but resigned later in the year.

Miss H. M. Cripps was appointed Junior Typist but later was transferred to another Department.

Mr. J. C. Goodrick was appointed Caretaker Magazine and Inspector of Explosives at Hobart.

Miss S. M. Cripps resigned as a Junior Typist.

Mr. J. N. W. Elliston resigned as Regional Geologist.

Mr. L. G. B. Nixon resigned as Geologist.

Mr. K. A. Beatson resigned as Technical Assistant.

Mr. B. L. Taylor resigned as Regional Geologist.

Mr. I. B. Jennings was appointed as a Regional Geologist.

Mr. J. G. Symons was appointed as Director of Mines.

RETIREMENT OF THE DIRECTOR OF MINES.

Mr. W. H. Williams who has been Director of Mines since 1940, reached the age for retirement and commenced a period of long-service leave during the year.

MINES DRAFTING BRANCH.

Tracings, &c.	44
Number of working plans in use and kept up to date	238
Mineral Leases applied for	39
Instructions issued to Surveyor	78
Diagrams received from Contract Surveyors	—
Diagrams received from Staff Surveyors	11
Diagrams and Consolidated Diagrams compiled and drawn	4
Manuscripts traced for reproduction	—
Manuscripts brought up to date	12
Manuscripts forwarded to Printer	7
Leases drawn	134
Leases transferred	11
Special Prospector's Licences—Areas described and charted	14
Permits to Enter charted	29
Photostats forwarded to Northern Office ..	15
Lithographs entered up to date	118
Underground mining plans examined and checked	6

Mapping and Engineering Draftsmen of the Department were constantly engaged in the preparation of geological maps related to normal field services, regional maps featuring geological boundaries and mineral occurrences, engineering plans, and in the tracing of plans relating to the design of premises for the storage of dangerous commodities.

APPRECIATION OF SERVICES.

Appreciation is recorded of the services rendered by Officers of the Department, including officers of the Mining Drafting Branch, Warden of Mines and Registrars of Mines in the several mining districts.

I have the honour to be,
Sir,
Your obedient servant,

J. G. SYMONS, Director of Mines.

APPENDIX I.

REPORTS OF GEOLOGISTS.

The Chief Geologist, Mr. H. G. W. Keid, M.Sc. M. (Aust.) I.M.M., reports:—

During the year 1954 the duties of the Geological Survey were carried out by officers based at the regional stations at Lorinna, Zeehan, and Port Davey, as well as by the officers based at headquarters in Hobart. Each of the regional establishments acted as an independent unit.

During the year there were several resignations from the regional staff, and at the end of the year only the Port Davey and Lorinna establishments were operating. Mr. I. B. Jennings having been appointed as Regional Geologist at Lorinna, commencing duty on 11th November, 1954.

Detailed reports from the members of the present staff are submitted herewith. For the former Regional Geologist at Lorinna, Mr. Jennings has given outline of work done. In the absence of a report from the Regional Geologist at Zeehan, it may be stated that, apart from general geological investigations in the area, the staff had occasion to examine the working mines and give assistance to prospectors by the identification of specimens submitted to them.

HOBART CENTRE.

During the early part of the year the Chief Geologist, Mr. H. G. W. Keid, was occupied in the preparation of a plan and report of a boring campaign carried out in the Gladstone district, and later examined the area between Coles Bay and Bicheno to determine its possibilities as a tin-bearing area. A plan and report was submitted.

Several visits were made to the Avoca area to inspect tin-bearing areas near Rossarden and radio-active deposits near Avoca and in Storey's Creek.

Many visits were made to advise farmers relative to boring for water. The drilling plants, both percussion and diamond drills, were visited to advise on bore sites and to assist where difficulties were met.

Railway cuttings near Colebrook and the Arcadian Siding were examined to determine the cause of landslides and advice was given.

Geologist T. D. Hughes, B.Sc., reports:—

Several investigations and inspections carried out during 1954 were continuations and extensions of those performed during the previous year. At Mt. Cleveland, near Waratah, it was decided to extend the area that had been examined both geologically and geophysically in 1953, in an endeavour to locate further tin-bearing sulphide bodies. The geological report concluded "nothing likely to be of economic interest has been seen in the two extensions of the Mt. Cleveland Area, nor are there any promising structural features that suggest that there might be ore-bodies resembling those in the old workings." The geophysical report, compiled by the Bureau of Mineral Resources, later confirmed this.

At Branch Creek Pyrite Prospect, near Port Sorell, a certain amount of trenching had been performed and advice was given to the Company and a boring campaign planned. Boring has since commenced here.

The proposed Don River Dam Site was again visited and shafts that had been put down were examined and further recommendations made. A proposed water storage site near Devonport was examined and found unsuitable for the purpose.

At Stoodley, near Railton, a limonite deposit was examined for the Goliath Portland Cement Company. The origins and extent of the iron oxide were discussed and a boring campaign outlined. Also, near Railton, limestone deposits were investigated for Mr. A. R. Blenkhorn, and opportunity was taken to map geologically, portion of the surrounding country.

Geological mapping was also done round the lower reaches of the Black River during an investigation of foundations for the proposed railway bridge.

A grid was laid out for a preliminary Geophysical Survey by the Bureau of Mineral Resources of portion of the magnetite deposits at Hampshire. This survey was completed later in the year and good results obtained.

The Underground Water Resources of the Hamilton-Ouse District were assessed, and many landholders were interviewed and bore sites selected in this Municipality. A geological map and report was prepared. Other places visited and advice given on underground water supplies included Melton Mowbray, Kempton, Mangalore, Deviot, Rosevears, Sheffield, Premaydena, Carlton.

At the Stanhope Colliery, near Avoca, where reserves in the present workings are low, areas for future development were mapped and recommendations made.

Several visits were made to the Old O'Brien Mine, north of Mathinna. Bore sites were selected and three diamond drill bore holes were completed. The last hole showed very promising results.

The whole tribute position at the Mt. Bishoff Mine at Waratah was investigated and the tribute areas were re-allotted and extra ground made available for some of the tributors.

Towards the end of the year, interest had been stimulated in the search for Uranium in this State, and the Department had obtained several Geiger Counters, some of which were hired to prospectors. Considerable time was devoted to instructing prospectors in their use and advising them generally on uranium prospecting. Where high counts had been reported, several examinations were made, but up till the end of the year, no uranium mineral had been found in this State.

Geologist G. Everard, B.A., A. (Aust.), I.M.M., reports:—

During the year, both field and laboratory investigations were made.

In January, an examination was made of the newly-opened quarry for limestone for agricultural purposes on Maria Island. Samples were taken at the quarry face for chemical analysis and a traverse was run to fix the position of the workings.

In May, following a request by the Director for Public Works, the area between Sorell and Dunalley was examined in detail for sources of readily obtainable road metal, required for the Arthur Highway.

Towards the end of the year, a visit was made to Ida Bay to select bore sites to locate extensions of the coal seam exposed in the adit of the old Ida Bay Coal Mine.

Due to increased prospecting activity, many rock and mineral specimens, to the number of well over one hundred individual specimens, were received from the general public for identification. In connection with ore dressing investigations of Branch Creek pyritic shale, mineralogical and petrographic work was carried out. Several suites of rocks collected by field geologists were examined in thin section and reported on, and rock and detrital specimens from King Island were investigated in connection with industrial developments on the Island.

Attention was given to many inquiries on technological, and collections of rock and mineral specimens were prepared for scientific and education purposes.

Regional Geologist I. B. Jennings, B.Sc. (Hons.), reports:—

Duties were commenced on 8.11.54, the personnel at this establishment for the remainder of the year being—

Regional Geologist	I. B. Jennings
Field Assistant	N. G. Haig

Some time was spent in examining areas already mapped by the previous geologists so as to become familiar with the various rock units used in mapping the area to date.

A reconnaissance of the entire area was made and the jeep tracks cleared where necessary. Areas of the Cambrian rocks along the Upper Forth and Misery Valleys were examined, together with granite contacts along the Mersev and Dove Rivers.

Most of the old mine workings in the area were examined, particular attention being given to the Round Hill area preparatory to commencing a detailed survey of that area.

Local prospectors have been assisted by making mineral determinations by examination of various prospects.

WORK CARRIED OUT FROM 1ST JANUARY, 1954, TO OCTOBER, AT THE LORINNA ESTABLISHMENT.

Staff—

Regional Geologist	J. Elliston
Geologist	L. G. Nixon
Field Assistant	N. G. Haig
Field Assistant	R. M. Bagley

(January to May).

During the summer the field work was pushed forward in the Lorinna, Moina and Liena areas, the data being plotted onto air-photos. The field work consisted of careful traverses of all roads, tracks, rivers and creeks in the above areas. Sufficient geological surveying was

completed to enable a compilation of almost all of the four northern sheets, an area of some 180 square miles.

At the close of the field season the base maps for the eastern section of the area were compiled (450 square miles). The triangulation computations were completed and base maps prepared by means of a slotted template lay-down from the air-photos. The topography and geology were then transferred from the photos onto the base plans, thus completing four sheets.

Mr. Elliston spent on month assisting the establishment of the South-West unit and Mr. Haig spent four months in that area also.

In the meantime, Mr. Nixon transferred topographic features from the air-photos onto the remaining six sheets, completing the preparation of the base maps for the eastern half of the area. He also prepared a tenta-

tive photo-geological interpretation of this area as a guide to the geological mapping of the area.

Regional Geologist, M. Z. Stefanski, M.Sc., Bathurst Harbour, reports:—

During the first five (5) months (from April, 1954, until October, 1954), a new geological base at Bathurst Harbour has been erected and completed, comprising the main living quarters, store, house and jetty.

Reconnaissance of regional geology from South-West Cape to Louisa Creek has been done during October, November, and December, and also some detailed geological mapping south of Bathurst Harbour and along the Melaleuca Inlet. A preliminary assessment of mineral potentialities, including alluvial and primary tin deposits, Molybdenum, Uranium, Copper and Antimony in the South-West and Bathurst areas was commenced.

APPENDIX II.

REPORT OF THE CHIEF CHEMIST AND METALLURGIST.

The Chief Chemist and Metallurgist (Mr. W. St. C. Manson, M.(Aust.), I.M.M., reports:—

Analyses were made of ores, minerals, rocks, ferrous and non-ferrous alloys, clays, coal, water, mill and research products associated with ore dressing investigations. Ore dressing research and associated mill operations and advice thereon continued to be a major activity.

Determinations were made for:—

Aluminium	74
Antimony	50
Arsenic	72
Bismuth	171
Calcium	90
Copper	97
Cobalt	48
Chromium	6
Coal Analyses	40
Gold	122
Insoluble	24
Iron	106
Ignition loss	76
Lead	217
Manganese	31
Molybdenum	77
Moisture	10
Monazite	30
Magnesia	76
Nickel	53
Potassium	18
Phosphorus	22
Qualitative tests	630
Radio-activity tests	46
Sodium	18
Silicon	95
Sulphur	404
Silver	216
Tin	617
Titanium	28
Tungsten	314
Water	11
Zinc	125
Miscellaneous Analysis	40
	4,050

Research investigations were initiated in 1936, and, to the end of 1954, 279 had been completed. Investigations completed in 1954 were as follows:—

Ore Types.	Number of Dressing Investigation.
Bismuth-Molybdenum	1
Pyrite	2
Tin	3
Tungsten-Tin	1
Wolfram-Tin	2
Sulphur	1
	10

ORE DRESSING INVESTIGATIONS.

During the year, ten investigations were completed. *Moina Tungsten-Tin Mining Co.*

R 270.

Ore supplied by the Moina Tungsten-Tin Mining Co. from their mine at Moina (previously Shepherd &

Murphy Mine), and stated to be "run of mine" material contained wolfram, cassiterite and scheelite as the main economic minerals with sphalerite, pyrite, magnetite and chalcopyrite and minor quantities of bismuthinite and molybdenite. The ore contained one per cent tungstic oxide, 0.5 per cent tin, 0.03 per cent bismuth, 0.13 per cent molybdenite, 0.47 per cent copper and 0.8 per cent lead. The majority of the valuable minerals are coarse-grained, and high recoveries were obtained by crushing to minus three-eighths inch size, or better still, to minus seven mesh British Standard screen. Jig and table concentration of minus seven mesh ore resulted in recoveries of 90 per cent of the tungstic oxide and 81 per cent of the tin in a mixed concentrate assaying 20 per cent WO₃ and 9.9 per cent of tin.

Electro-magnetic separation produced a wolfram concentrate containing 53 per cent tungstic oxide, 1.5 per cent tin, 0.24 per cent bismuth, 2 per cent copper and 6.7 per cent zinc. The non-magnetic product was ground and sulphides separated from the cassiterite by flotation. The tin concentrate contained 46.6 per cent of tin and 10.1 per cent of tungstic oxide present as scheelite. Composite grains of wolfram, scheelite and sulphides were noted in concentrates, and showed the necessity for finer crushing for liberation.

Test concentrates were treated in a commercial "Rapid" separator at the mill of the Aberfoyle Tin Mining Co. with slightly improved results.

R 271.

A high-grade sample of ore from the Moina Co. containing 10.5 per cent tungstic oxide, 1.5 per cent tin, 0.02 per cent bismuth and 0.1 per cent of molybdenite was submitted for research into methods of production of separate bismuth and molybdenum concentrates, but the quantities of bismuthinite and molybdenite were too small to undertake an investigation. Jig and table concentration at similar sizings to those shown in R 270 resulted in recoveries of over 90 per cent of the tungsten and tin contents.

Aberfoyle Tin Mining Co.

R 272.

As an extension of previous investigations, a sample of two inch ore, containing 1.1 per cent of tin and 0.8 per cent of tungstic oxide, was submitted to concentration by heavy media separation in a 20 inch test cone. Density of media was fixed from previous experience at 2.8. Separation of minus 2 inch plus 14 mesh ore produced a discard product amounting to 77.5 per cent by weight and containing 0.18 per cent of tin and 0.04 per cent of tungstic oxide. Ninety-six per cent of the wolfram and 88 per cent of the tin was recovered in the combined sink product and minus 14 mesh untreated ore. The minus 14 mesh untreated fraction amounted to 10.8 per cent and contained 2.9 per cent tin and 1.2 per cent tungstic oxide. The sink product and minus 14 mesh untreated fraction combined amounted to 22.5 per cent and contained 4.4 per cent of tin and 3.2 per cent of tungstic oxide. Similar treatment after crushing to minus 3/4 inch size showed similar results. *Ben Lomond Mining Co.*

R 273.

Pyrite deposits at Branch Creek near its entrance to Port Sorell have been prospected by the Company and have been the subject of Departmental reports. Two geological reports by Mr. T. D. Hughes have been made on the prospect and "show that the pyrite occurs in slates and allied rocks which outcrop over a width of 1,600 feet across the strike, mainly in the creek bed. The rocks belong to the carbine group, occupying a position somewhere between the top of the Pre-Cambrian and the base of the Cambrian. The pyrite content is not the result of mineralization, but is an original constituent of the rock. Because of the original nature of the pyrite in the deposit, the percentage of pyrite will vary from place to place."

The pyrite appears to exist in two forms, one being the normal crystalline yellow-coloured pyrite and the other extremely small grains, which are black in appearance and difficult of observation as individual grains. Size range of the black material is generally from two to ten microns and the yellow variety substantially larger. Concentration tests were conducted on a sample obtained by Mr. T. D. Hughes and containing 23.2 per cent of sulphur.

The extremely small grain size of the majority of the pyrite results in low recoveries by gravity concentration and also causes low recoveries by flotation to a high-grade concentrate. Reduction of grade of flotation concentrate allows of material increase in recovery. Reagents used in flotation were copper sulphate, amyl xanthate, eucalyptus oil with a silicone gangue depressant.

The following tabulation shows typical results obtained:—

Table Concentration—	CONCENTRATE.	
	% S.	% Recovery.
	41.7	31.6
	48.0	20.3
Concentration by Flotation—		
	31.6	79.4
	37.0	74.0
	42.5	57.5
	47.6	41.8

Elements which are detrimental to the manufacture of sulphuric acid are notably absent. Arsenic content of the ore was 0.001 per cent. Gangue minerals are mostly quartz and sericite.

R 275.

A sample of grey slate containing 3.4 per cent of sulphur was ground to minus 36 mesh size and submitted to table concentration. The concentrate contained 46 per cent of sulphur and represented a recovery of 38 per cent.

R 276.

Investigations into concentration methods with R 273 occupied a period of two months and another sample was obtained to check on possible changes in the behaviour of the sample during storage. No sensible difference was observed in the results obtained with the two samples.

Storey's Creek Mining Co.

R 274.

A sample of table concentrates was submitted for flotation tests to remove sulphides prior to electro-magnetic separation of wolfram and cassiterite. Analysis showed 35.5 per cent of tungstic oxide, 2.1 per cent of tin and 17.4 per cent of sulphur.

Sizing analysis showed 14 per cent plus 60 mesh British Screen, and only 7 per cent minus 200 mesh size.

Preliminary flotation tests showed that the sulphides could be effectively floated without any further grinding.

Ninety-nine point four per cent of the sulphur was removed by rougher flotation, using copper sulphate, ethyl and amyl xanthates and cresylic acid. The floated sulphides contained 1.5 per cent and 0.4 per cent tungstic oxide and tin respectively. These losses can be reduced by cleaner flotation. The flotation sink product contained 64.7 per cent WO_3 , 3.5 per cent tin and 0.2 per cent sulphur. This product was subjected to electro-magnetic separation and the wolfram product amounting to 90.2 per cent contained 68 per cent WO_3 and 0.4 per cent of tin. The non-magnetic tin product contained 54.5 per cent of tin and 3.6 per cent of WO_3 . Scheelite was identified in this product.

Razor Back Tin Mine, Dundas.

R 277.

A bulk sample was submitted by the Director of Mines for research into methods of gravity concentration. The sample, after drying, was crushed and a sample obtained which assayed 0.4 per cent of tin. A vaning assay showed only 0.15 per cent of tin. This grade of material is too low to respond to profitable treatment, and the investigation was not proceeded with.

Queen Tin Syndicate, Zeehan.

R 278 and 279.

Samples obtained by the Chief Chemist and Metallurgist were submitted to concentration tests for recovery of the cassiterite. Previous research was undertaken during 1937 for Zeehan Tin Co., when the prospect was known as Tomkins Tin.

R 278 is surface ore containing 0.1 per cent of sulphur and R 279 is highly pyritic ore containing 25.6 per cent of sulphur. The gangue in R 278 is substantially quartz and in R 279 the gangue minerals are pyrite and quartz. The most interesting feature of this ore is the extremely fine grain sizes of the cassiterite, which precludes high recovery by gravity concentration. The relationship between recovery and grade of concentrate in gravity concentration is very marked with ores containing a high proportion of fine difficultly recoverable cassiterite and is demonstrated in the following results:—

	Per cent. Total	TIN.		Per cent. Recovery.
		Vanning.	In Concs.	
R 278	2.96—	1.82	48.3	61.5
		1.35	61.5	45.6
R 279	2.20—	1.37	49.9	62.3
		1.12	63.5	50.9
		1.02	71.0	46.4

Test recoveries with R 278 ranged from 15 to 60 per cent and the best conditions were found to be minus 60 mesh by ball mill grinding, classification and concentration followed by secondary concentration after grinding middlings and coarse tailings to minus 150 mesh size. The majority of the cassiterite lost in tailings was found to be, in grain sizes, smaller than 10 microns.

The selected treatment for R 279 was closed circuit ball mill grinding to minus 60 mesh (B.S.), cleaner flotation rejection of sulphides and concentration of the cassiterite in the flotation sink product was similar to the selected treatment for R 278. Optimum results were 50.4 per cent recovery in a concentrate containing 45.5 per cent of tin. The floated sulphides amounted to 52.3 per cent by weight. Details of economics for various grades of concentrate and recoveries obtained are reported.

Based on the results of research investigations, details of treatment units were prepared for a 5 ton per hour mill for the Moina Tungsten-Tin Mining Co., and this flowsheet was used in the design of the Company's mill.

APPENDIX III.

REPORT OF THE CHIEF INSPECTOR OF MINES.

The Chief Inspector of Mines (Mr. J. G. Symons, B.E., M.(Aust), I.M.M.), reports:—

MINES AND WORKS REGULATION ACT.

Employment.

The number of men employed in mining, metallurgical and quarrying operations was 7,289 as compared with 7,370 for the previous year.

Accidents.

The number of accidents registered under Section 23 of the Act was 75, as compared with 73 last year. Tabulations are appended.

Twenty-seven accidents occurred in underground workings and forty-eight were associated with surface operations. Of this total of 75, three were fatal, one surface and two underground. Two of these have been dealt with as explosive accidents, the third was due to a fall of rock in the back of a cross-cut drive.

Health and Sanitation.

As disclosed in the separate reports of the Inspectors of Mines, improvements were effected where necessary and a generally satisfactory standard was maintained.

Inspectorial.

The staff was maintained at normal levels and functioned in matters of health and safety as revealed in summarised reports.

Section A—Metalliferous Mines—

Place and Cause of Accident.	Number of Persons Killed.	Number of Persons Injured (incapacitated for over 14 days).
1. Below Ground: :		
(a) Explosions	1	...
(b) Falls of Ground	1	1
(c) Falling down Shafts, &c. ....	...	2
(d) Other Causes .....	...	13
2. Above Ground:		
(a) Machinery in Motion .....	...	5
(b) Other Causes	1	41
3. Accidents in Batteries, Ore-dressing, Smelting and other Metallurgical works, &c. ....	...	...
Total Metalliferous Mines (A)	3	62

Section B—Coal Mines—

4. Below Ground:		
(a) Mine Explosions (fire, damp, &c. ....	...	...
(b) Explosives (dynamite, &c.) .....	...	4
(c) Falls of Earth .....	...	5
(d) Other Causes .....	...	...
5. Above Ground:		
(a) Machinery in Motion .....	...	1
(b) Other Causes .....	...	...
Total Coal Mines (B)	...	10
Total All Mines (A and B)	3	72

TABLE SHOWING RATE PER THOUSAND KILLED AND INJURED IN DIFFERENT MINERAL DIVISIONS FOR THE YEAR 1954.

Mineral Division	Average Number of Men Employed	Number of Accidents	Number of Persons Killed	Number of Persons Injured	Total Number Killed and Injured	Average per 1,000 Killed and Injured	Average per 1,000 Killed	Average per 1,000 Injured
Northern and Southern	3,430	26	1	25	26	7.580	0.291	7.288
North-Eastern	209	2	—	2	2	9.569	—	9.569
Eastern	690	17	2	15	17	24.630	2.898	21.739
North-Western	652	4	—	4	4	6.134	—	6.134
Western	2,308	26	—	26	26	11.265	—	11.265
TOTAL	7,289	75	3	72	75	10.289	0.411	9.877

COMPARATIVE TABLE OF STATISTICS OF ACCIDENTS IN AND ABOUT THE MINES OF TASMANIA FROM 1st JULY, 1892, TO 31st DECEMBER, 1954.

Period	Number of Miners Employed	Number of Accidents	Number of Persons Killed	Number of Persons Injured	Total Killed and Injured	Average per 1,000 Killed and Injured	Average per 1,000 Killed	Average per 1,000 Injured
1 July, 1892, to 31 Dec., 1929 *								
1 Jan., 1930, to 31 "	4606	55	4	52	56	12.158	0.868	11.289
" 1931	4391	38	8	35	43	9.792	1.821	7.970
" 1932	4605	71	4	67	71	15.418	0.868	14.549
" 1933	4510	77	7	71	78	17.295	1.552	15.742
" 1934	4843	108	4	105	109	22.506	0.826	21.680
" 1935	5409	142	1	141	142	26.252	0.184	26.067
" 1936	5432	97	4	96	100	18.409	0.736	17.673
" 1937	5876	107	5	103	108	18.379	0.850	17.529
" 1938	5891	103	2	102	104	17.654	0.339	17.315
" 1939	5928	87	2	87	89	15.013	0.337	14.676
" 1940	6000	103	2	102	104	17.333	0.333	17.000
" 1941	5856	85	5	85	90	15.368	0.853	14.515
" 1942	5572	89	4	86	90	16.152	0.718	15.434
" 1943	5535	73	6	67	73	13.188	1.084	12.104
" 1944	5439	73	4	71	75	13.789	0.735	13.054
" 1945	5178	46	2	44	46	8.883	0.386	8.497
" 1946	5255	63	1	62	63	11.989	0.19	11.798
" 1947	5316	74	...	74	74	13.920	...	13.920
" 1948	5399	67	3	64	67	12.409	0.555	11.854
" 1949	5659	65	1	64	65	11.484	0.176	11.308
" 1950	5892	62	2	62	64	10.862	0.339	10.524
" 1951	5928	49	2	50	52	8.772	0.337	8.335
" 1952	6820	62	1	61	62	9.091	0.147	8.944
" 1953	7370	73	6	67	73	9.892	0.801	9.091
" 1954	7289	75	3	72	75	10.289	0.411	9.877

* See Report of Director of Mines—1953.

APPENDIX IV.

REPORT OF THE CHIEF INSPECTOR OF EXPLOSIVES.

The Chief Inspector of Explosives (Mr. J. G. Symons, B.E., M.(Aust.), I.M.M.), reports:—

The following quantities of explosives were imported during the year through the ports of Hobart, Launceston, Devonport, Burnie, Regatta Point, and Currie.

Monobel	103,900 lbs.
Gelignite	2,274,150 lbs.
Quarigel	1,026,400 lbs.
Semigel	10,050 lbs.
Plastergel	18,050 lbs.
Gelatine Dynamite	12,250 lbs.
Blasting Powder	16,500 lbs.
Ligdyn	9,900 lbs.
Ajax	112,800 lbs.
Detonating fuses, Cordtex, 564,000 ft.	
Fuse igniters, 40,000.	
Detonators, ordinary, 580,000.	
Detonators, electric, 333,094.	

All nitro-compounds were of "Polar" manufacture. The landing, transportation and storage of explosives was supervised, and precautions were taken to ensure that all nitro-compounds were in good physical and chemical condition at the date of importation.

There were two recorded explosive accidents, both fatal. In one case the coroner stated the cause of death of a mine employee to have been inhalation of blasting fumes, while in the other case a man engaged in bulling a hole was killed when the bulling charge exploded prematurely while he was leaning over the hole.

APPENDIX V.

REPORTS OF THE INSPECTORS OF MINES AND EXPLOSIVES.

Inspector K. A. Rae, Queenstown, reports:—

Employment.

The average number of persons employed in mining and metallurgical operations was 1,588, a reduction on the peak figure of 1,726 for the previous year, but comparable with employment figures for the previous three years. Cessation of underground operations at Mt. Lyell during the year contributed to this decline.

Accidents.

Eleven accidents were recorded under the provisions of the Mines and Works Regulations Act. Of these, ten involved injuries to limbs (mostly fingers), and one general body. One only occurred underground—necessitating a finger amputation. None was of a serious nature in cause or result.

Safety.

Inspectors disclosed reasonable conditions of operations in regard to safety and health of men employed.

Ventilation.

No serious trouble was experienced during the year and generally satisfactory conditions were maintained.

Health and Sanitation.

Sanitary conditions affecting health and comfort of employees was satisfactory.

Inflammable Liquids Act.

Routine inspections were made of storage premises and installations.

Explosives Act.

Eight shipments of explosives were supervised in movement through Regatta Point to Queenstown. They comprised: gelignite, 132,250 lb.; Quarigel, 923,900 lb.; Semi-gel, 9,159 lb.; Plastigel, 5,000 lb.; and 324,000 feet of Plastic Cordtex.

Machinery.

In co-operation with the Inspector of Machinery, regular inspections of plants where motors or other machines operated were made. Conditions generally were satisfactory.

INFLAMMABLE LIQUIDS ACT, 1929.

There was continued activity in the installation of petrol pumps and in the provision of facilities for landing and distributing petrol and other petroleum products. The continued trend towards one-brand service stations caused considerable new building and rebuilding activities in this field. A coin operated Self-Service petrol pump was introduced into the State, and was granted a three-months' trial period, during which the trial pump was kept under close observation by the Department. A decision on whether the pump could be approved for continued use in Tasmania was pending at the end of the year.

The unloading of tank vessels at Hobart, Bell Bay, and Devonport was kept under surveillance, as was also the general handling and storage of inflammable liquids in depots and compounds. Storage facilities at several depots were increased, and a number of new compounds were constructed in accordance with Departmental requirements. Further progress was made with the construction of extensions to the wharf in Devonport, which, when finished, will provide for safer and speedier handling of inflammable liquid at that port.

There was one accident connected with the storage of inflammable liquids. This accident was apparently caused by petrol fumes seeping into the cellar of a house from some abandoned underground petrol tanks nearby. A man attempted to light his pipe in the cellar, and, as a result an explosion occurred. The man suffered a fractured wrist and the wooden building above the cellar was completely destroyed by fire following the explosion.

PRODUCTION AND DEVELOPMENT.

Copper.

The Mt. Lyell Mining and Railway Company Limited mined 1,596,184 tons of ore from all sources and 77 tons of copper precipitates were recovered from mine waters. This shows an increase of nearly 126,000 tons on the previous year's tonnage mined, but a decrease of 18 tons of recovered precipitates. Only 8,609 tons of the total came from underground operations.

Development of West Lyell Open-cut involved the mining and removal of 1,324,929 tons of waste or near-marginal ore, bringing the total Open-cut tonnage handled to 2,912,504.

At the Reduction works the mill operated for 351 days, treating 1,596,216 tons of ore for 38,380 tons of copper concentrates and 57,549 tons of pyritic concentrates.

The Smelters operated 252 1-3 days, treating 38,192 tons of concentrates of which 77 tons were precipitates. The resultant 8,991 tons of blister copper contained 8,920 tons of electrolytic copper plus 32,301 ozs. of silver and 5,680 ozs. of gold.

Pyrite concentrates shipped from accumulated reserves through Regatta Point was 6,387 tons less than the year's output.

Sources of ore are tabulated as under:—	Tons.
North Lyell Mine Precipitate	61
Lyell Comstock Mine Precipitate	14
Royal Tharsis Mine Ore	7,303
West Lyell Mine Ore	1,587,575
West Lyell Mine Precipitate	2
Crown Lyell Mine Ore	1,306
TOTAL	1,596,261

In addition to the foregoing mining operations the Company mined 4,731 tons of limestone and 6,118 tons of silica as fluxes in smelting operations.

Average employment figures were 1,467 surface and 63 underground.

Silver-Lead (Zeehan District).

Zeehan Mines Pty. Ltd.—An average of 39 persons were employed at the Oceana Mine, where production from the concentrating plant completed in the mid-year resulted in the treatment of 7,977 tons of ore for 893 tons of lead and 41,247 ozs. of silver.

Montana Silver-Lead.—This Company treated 7,923 tons of ore of which 1,864 tons came from "Nike" mine dumps.

ore reserves are almost exhausted, but a vigorous prospecting campaign is following a geophysical survey in adjacent areas. An average of 10 men were employed, half underground. 356,399 tons of lead, carrying 37,925,068 ozs. of silver were produced during the year.

R. Hill, T.L.E. Leases, West Zeehan.—Operations resulted in the recovery of 5.43 tons of hand-picked ore containing 2,835 tons of lead and 30.95 ozs. of silver.

W. Higgins, North Dundas.—This party obtained 1.95 tons of lead and 175.2 ozs. of silver from a 2.7 tons parcel of hand-picked ore.

H. Maine, Argent, Zeehan.—This operator selected 2.86 tons of ore, giving 1.74 tons of lead and 219.8 ozs. of silver.

Zinc.

R. Hill.—Reference to this producer is made under "Silver Lead," included in the 5.43 tons parcel of ore from the T.L.E. Leases was 0.74 tons of zinc.

Tin.

Total tin production for the District amounted to only 1,1396 tons (metallic).

W. J. Hodge, "Grand Prize," North Dundas.—Originally developed as a silver-lead prospect, this mine yielded 0.9242 tons of tin to two men.

E. Coleman, South Heemskirk.—Part-time operations by this person resulted in the production of 0.1108 tons.

C. Reid, South Heemskirk.—Production of 0.0658 tons resulted from part-time work, by this person.

H. J. Jones, South Heemskirk.—Part-time work resulted in the production of 0.0161 tons by this party.

C. Cook, North Heemskirk.—This operator was engaged in part-time work and produced 0.0227 tons.

Inspector L. F. Egan, A.M.(Aust.), I.M.M., Upper Burnie, reports:—

Employment.

The average number of men employed in the industry increased from 1,062 to 1,075. Of this total, surface work absorbed 775 workers while an average of 300 were engaged in underground operations.

MINES AND WORKS REGULATION ACT.

Accidents.

There were no fatal accidents during the year but 15 accidents, causing injury to 15 men and necessitating absence from work on each occasion for at least 14 clear working days were reported under the provisions of the Mines and Works Regulation Act.

This represents an increase of six accidents over the total of nine registered in 1953. Of these accidents, four occurred on the surface and 11 occurred underground, and of the underground accidents, five of the victims were New Australians with comparatively limited experience of underground mining.

The accidents may be classified as follows:—Lifting Accidents 4; Slipping Accidents 6; Crush Accidents 4; Falling Body 1. Of them, by far the most serious, was a crushing accident in which a surface worker was squeezed between the buffers of a rail truck and the diesel shunter. He suffered a broken pelvis.

An underground workman suffered a fractured spine when working in an incline shaft. A surface boiler attendant suffered a hernia when he fell on the top of the coal bunkers.

Two crushing accidents while transporting scrapers through manways caused broken ribs in one case and torn ligament in the right knee in another.

Slipping accidents caused hernia, before mentioned, torn knee ligaments, bruised knees, injured wrist, injured hand and displaced intravertebral disc.

Lifting accidents caused a strained back, lacerated foot, injured groin, injured shin.

Safety.

As in other years, inspections have been made with a view to reducing accidents and maintaining safe working conditions in all phases of mining and metallurgical operations.

Ventilation.

An overhaul of the existing ventilation system on one major West Coast mine and the commencement of work on the installation of an auxiliary system was an important development during the year.

On the same mine a proposal to increase mill throughout has necessitated the installation of increased crushing facilities and coincidentally, an improved ventilating system for the crusher building.

On another mine in the inspectorate, conditions in the Medium Crushing Section were not satisfactory at the end of the year, and efforts were still being directed to an improvement of conditions.

Special attention has been devoted throughout the year to sources of atmospheric pollution by dust, and inadequate ventilation of working places.

Health and Sanitation.

The maintenance of clean and healthy working conditions has been an important phase of inspection work during the year. Work to this end has fallen into two different categories:—

In underground work, ventilation, control of atmospheric dust, prevention of wet and muddy conditions underfoot of levels, provision of warm, clean and comfortable crib places, equipped with hand basins and soft hessian towels, have mitigated against the contraction of chills and germs.

In addition, control of firing times and the introduction of special ventilating appliances have been big factors in ensuring that miners knocking off shift were not exposed to fume or blasting fumes before leaving the mines.

Change houses on two mines have been improved throughout the year, special improved clothes-drying arrangements being a feature of each.

Both underground and on the surface a satisfactory level of latrine accommodation has been maintained.

First Aid equipment has been closely watched, and, on the bigger mines, special First Aid boxes as well as blankets and rescue gear have been maintained in crib places on all levels.

Workers' (Occupational Diseases) Relief Fund Act, 1928.

The administration of this Act has been continued throughout the year. Two applications for compensation under the provisions of the Act were received and dealt with.

In addition, new employee registers were kept of all mines in the territory and initial and biennial medical examinations arranged.

Explosives Act, 1916.

Effective control was exercised over the importation, landing, transport and storage of explosives. In all, eight shipments were landed at Burnie during the year, making an aggregate total of nitro-compounds of 385,850 lb. In addition, blasting powder imports totalled 1,000 lb.

Nearly all of the detonators were brought down from Launceston per rail.

Importations to King Island were again controlled by the Marine Authority at Currie, and appreciation is expressed at the work carried out by the Harbourmaster.

One explosive accident was reported and investigated during the year, and caused chest injuries to one man.

The accident occurred when the victim, using pneumatic pick, struck an unexploded portion of a charge of gelignite during concrete demolition on a large industrial plant. Heavily reinforced plinths were being demolished and holes were bored with a rock drill, and the drill was deflected, when it encountered sections of the steel reinforcing. It is conjectured that this deflection left a small ledge in the hole, and in loading the hole with gelignite, a small portion of gelignite may have been left on the ledge which, failed to explode, when the main charge was detonated.

Inflammable Liquids Act, 1929.

Pump installations and storage compounds were inspected where satisfactory. One new 44-gallon drum compound was established in Wynyard and one in Ulverstone. Supervision of the discharge of oil tankers at Devonport was performed up till the middle of the year, when the work was taken over by Inspector Thoren. No spillages or untoward incident occurred during the year. Importation of inflammable liquids at Devonport has now reached major proportions.

Aid to Mining and Mineral Resources.

No applications for assistance under the provisions of the Aid to Mining Act, 1927, were received, but new prospects were examined and advice was given to opera-

tors as occasion warranted. One prospect was referred to the Geological Survey Section of the Department, for further investigation.

A great number of enquiries were received from seekers after uranium deposits, and assistance in the form of information, advice, testing of specimens, &c., was given.

MINING OPERATIONS AND PRODUCTION.

Cadmium.

The Electrolytic Zinc Company of Australasia Limited, at Rosebery, produced a total of 49.2 tons of cadmium, valued at £(S) 68,639 as a by product in the refining of the Zinc concentrates from the selective flotation of the complex zinc-lead ores.

Copper.

A rising copper market throughout the year directed closer attention to the production of copper. The Electrolytic Zinc Company of Australasia Limited produced 6,833 tons of concentrates, yielding 535.94 tons of copper, valued at £(S) 133,185.09 compared with 5,160 tons of concentrates, containing 395.5 tons of copper in the previous year. Average prices ranged from £(S) 229.1 in the first quarter to £(S) 278.5 in the final quarter of the year.

Gold.

The total of 12,562 fine oz. of gold resulted from the operations of the Electrolytic Zinc Company of Australasia Limited, at Rosebery and Williamsford. Of this total, 1,675.2 fine ounces were derived from the smelting of sludge obtained in the electrolysis of zinc at the Company's plant at Risdon. Smelting of this sludge was carried out at Port Kembla and Port Pirie. The remaining 10,886.82 fine ounces were combined in lead and copper concentrates and resulted from the refining of these concentrates in smelters in the U.S.A.

Limonite and Haematite.

These ores occur in association at the Iron Cliffs deposits, Penguin. Production was restricted by market demand and totalled 86 tons of Limonite, valued at £(A) 258 and three tons of Haematite, valued at £(A) 9. The material was used in town gas production. The only other limonite deposit of economic interest in this territory occurs as a precipitation product from mineral springs at Deep Creek, Smithton. No production was recorded from this lease.

Red Ochre.

Spalford continued as the only source of supply, with a total production of 47 tons, valued at £(A) 141.

Quartz.

Maubanna quartz, totalling 50.5 tons and valued at £(A) 151.5 was shipped to the Mainland for use as a smelting flux.

Beach Pebbles.

Collected around the beaches near Ulverstone. These pebbles are used as a grinding media for softer products by Mainland industrial and metallurgical firms. Production totalled 387.5 tons, valued at £(A) 1163.

Lime Sands.

These deposits situated at Scotchtown, near Smithtown, were worked, formerly by the A.P. & P.M. of South Burnie, for use in the manufacture of paper. Production is now used for agricultural purposes, top-dressing, &c. Demand was steady throughout the nine months of operation, 489 tons being produced and spread, the value being assessed at £(A) 795.

Dolomite.

The Duck River Dolomite Co. Ltd., of Smithton, continued as the only producers of milled dolomite, in the territory, their production totalling 2,846 tons, valued at £(A) 8,599. The ground dolomite is used in agriculture for top-dressing of pastures, &c.

Jasper and Flint.

Samples of each, weighing .25 of a ton were obtained from beach outcrops in the vicinity of the Abbatous, Penguin, and were forwarded to Mainland metallurgical firms for experimental purposes.

Brickworks.

Production of red bricks in the territory provided continuous employment for an average of 14 men.

Scheelite.

Virtually, King Island Scheelite (1947) Ltd., was the sole producer of scheelite for the division, although .10 tons of scheelite, containing .046 tons of WO_3 , valued at £(A) 45.31 was produced by a single operator on the East Coast of King Island.

King Island Scheelite (1947) Ltd.—King Island Scheelite (1947) Ltd., despite an industrial strike of the employees, which held up production until late in the 1st quarter of the year, mined and milled a total of 219,265 tons of crude ore for a recovery of 1317.32 tons of Scheelite concentrate, representing an increase of 187 tons over the previous year. The tungsten trioxide content totalled 851.068 tons, valued at £(S) 755,818.628. The average employment at the mine increased from 290 to 303 men.

1,112,232 tons of overburden were removed from the open-cut.

Mining was commenced on a new bench, 10 feet above sea-level.

The Company completed 8,622.5 feet of diamond drilling.

The ore reserves at 31st October, 1954, were estimated as 3,164,000 long tons of an average content of 0.48 per cent WO_3 to an horizon 110 feet below sea-level.

A self-contained blast-hole drilling rig was put into operation during the year. This machine is capable of drilling six-inch blast holes in hard rock to a depth of 80 feet.

Miscellaneous—King Island.—Prospecting operations by a small prospecting party embraced an area in the vicinity of Wickham in the North and Grassy in the South of the Island, and afforded employment to an average of eight men.

Miscellaneous—Interview River.—Operations in this area were carried out by the Interview River Wolfram Syndicate and were aimed at defining lode limits, values, &c. An average of three men were employed during the year.

Silver Lead.

Mt. Farrell Mining Company Ltd.—The Farrell Mining Company Limited, Tullah, continued as a producer of lead-silver ore. 5,778 tons of crude ore were mined and milled, and 1,270 tons of marketable lead concentrates, containing 837 tons of lead, valued at £(S) 79,049.51 and 98,483 ounces of fine silver, valued at £(S) 30,059.940 were produced. The average number of men employed was 57.

Driving and cross-cutting over a length of 410 feet opened up payable ore at No. 7 level South and at No. 6 level South, in the footwall. At No. 7 level South the main lode and the quartz lode (footwall lode), came together on the underlay and this resulted in a wider ore-body with a shorter length than at No. 6 level. Silver values in the junctioned lode are considerably less than in the main lode and this is common to all footwall lodes worked in the mine. As the stope rises towards No. 6 level the lodes will split to the footwall and hanging wall channels and silver values should then improve in the latter.

Rises were connected between levels for ventilation and mullocking purposes, as required, and generally, ventilation is good throughout the mine. The Auxiliary Shaft was sunk to a point 69 feet below No. 8 plat, and when this is completed, No. 9 level will be opened out North and South at 102 feet below No. 8 plat. Three ore-bodies will be opened up from the new sink.

The far South ore-body now being worked at No. 7 Level has not yet been opened up at No. 8 Level as a long and uneconomical drive will be necessary to reach the values. Consideration is being given to the possibility of working this make of ore from a winze at No. 7 Level South to avoid the long drive at No. 8 Level.

Diamond drilling was carried out in the Southern workings of No. 5 Level without payable values being located.

Tin.

The principal sources of tin production were Renison Associated Tin N.L. and Waratah tribute parties. A total of 157,874 tons of concentrates, derived from all sources, yielded 103,485 tons of metallic tin, valued at £(S) 74,764.038. The average number of men employed was 52.

Renison Associated Tin N.L.—With an average of 30 men on the employment register, this Company mined 15,384 tons of ore and waste rock, and of this total milled, 9,790 tons of crude ore and recovered 99,702 tons of tin concentrates, containing 63,654 tons of metallic tin, valued at £(S) 45,844.34. Over-burden removal total-

led 2,141 tons. Development during the year totalled 450½ feet, consisting of 387½ feet of driving and 68 feet of rising. In addition, diamond drilling footages totalled 520 feet. Drilling has revealed that 13,000 tons of sulphide ore is available in the area known as "Dunn's Workings," and a further 40,000 tons of prospective ore were located by diamond drilling.

During December, 1954, developmental work to connect up "Montana Workings" was commenced. It is necessary to extend the main tram 300 feet, construct two new ore bins and a flying fox before operations can be started in this section.

A 15 horse-power electric scraper-hauler was installed for use in underground workings, an electric fan for mine ventilation, and an electric-driven piston water pump for mine water supply.

A new Grinding Section was installed in the Concentrating Mill to step up the tonnage of ore treated. Delay in securing some materials retarded progress on this job considerably, but, apart from a trommel screen still outstanding, the plant is mechanically ready to run. One additional house was purchased in Zeehan during the year.

Mt. Bischoff Tin Mine.—The Harrington Kenworthy and party tribute mined and milled 7,870 tons of sulphide ore, mainly from the greisen ore-body, for a recovery of 50·164 tons of concentrates, containing 34·453 tons of metallic tin, valued at £(S)25,057·068. The average employment for the year was 14 men.

H. T. Brooke, West Bischoff, treated an estimated quantity of 400 tons of detrital matter and tailings from the old West Bischoff mine for a recovery of 1·220 tons of tin concentrate, containing ·861 tons of metallic tin, valued at £(S)610·926. Treatment consisted of battery crushing, screeny tabling, roasting and finally tabling on his own locally constructed plant. Motive power for same is supplied by a waterwheel.

North Valley—Waratah.—Approximately 925 tons of tailings from the old Mt. Bischoff Mill were recovered and treated by V. Campton on the North Valley claim. Treatment consisted of gravity concentration, and subsequent roasting power being supplied by a hand-made overshot breast wheel, water being flumed from higher up the Waratah Creek. A total of 3·736 tons of concentrates recovered contained 2·564 tons of metallic tin, valued at £(S)1845·462. Values of materials treated averaged 6·2 lbs. metallic tin per ton.

Waratah Creek.—Operating just below the power station in Waratah Creek, J. Housego collected and treated an estimated quantity of 680 tons of tailings for the recovery of 1·993 tons of tin concentrates, containing 1·239 tons of metallic tin, valued at £(S)888·472.

Miscellaneous—Waratah.—No production was recorded under this heading during the first half of the year, but in the second half of the year 1·046 tons of concentrates, containing ·703 tons of metallic tin and valued at £(S) 510·369 were recovered by a small number of independent tributors on and around Mt. Bischoff. The average number of these operators was three.

Miscellaneous—Renison Bell.—In the Renison Bell area a week-end operator produced ·013 tons of concentrates containing ·011 tons of metallic tin, valued at £(S)7·401.

Lead—Zinc—Copper.

Electrolytic Zinc Company of Australasia Ltd.—Output from this Company's operations was 190,982 tons of crude ore from the Rosebery and Hercules Mines, with a total gross value of £(S)3,547,545·732. From this ore 54,664 tons of zinc concentrate, 8,529 tons of lead concentrate, and 6,833 tons of copper concentrates were recovered.

The concentrate contained:—

8,686·58 tons of lead, valued at £(S)831,022·447.
26,078·64 tons of zinc, valued at £(S)2,032,156·536.
1,067,786·57 ounces of silver, valued at £(S)325,946·293.
49·2 tons of cadmium, valued at £(S)68,638·56.
535·94 tons of copper, valued at £(S)133,185·082.
12,562·02 fine ounces of gold, valued at £(S)156,596·814.

At Rosebery, the main shaft was sunk to below No. 13 Level and exploration work was continued, chiefly in the vicinity of the operating mines. The installation of additional equipment in the concentrating mill to enable the milling rate to be increased to 30 tons per hour was completed. Further installations of rod milling and other equipment and enlargement of the crusher station was in progress at the end of the year.

Additional ventilating fans were installed underground.

Inspector R. J. Muir, A.S.T.C., A.M. (Aust.), I.M.M., Launceston, reports:—

Employment.

The average number of men employed in mining and allied industries, other than coal mining, was 1,471, compared with 1,563 for the previous year. This slight decrease is due, largely, to the fluctuation in the metal market, and a high demand for labour in other industries.

Accidents.

Sixteen accidents, involving loss of more than fourteen days' employment, were registered. Three of the accidents had fatal results. In one case, a fall of rock occurred from the back of a crosscut to cause fatal injuries to a man underneath. In the second underground case the man became ill at home, after work, and died three days later, the finding at the Inquest was that death was due to the inhalation of blasting fumes. The third fatal accident occurred on the surface in a quarry, where a hole was being "bulled" and the explosive charge is believed to have gone off prematurely. Of the thirteen non-fatal accidents, four happened underground and were of a miscellaneous nature, the most serious injury being a fractured wrist. The surface accidents occurred, each in a different manner. In the most serious, a severely fractured upper arm was the result of a pipe slipping.

Safety.

Regular inspection work was carried out, particularly at the larger mines and works, with the view of maintaining safe and satisfactory working conditions.

In collaboration with Mr. K. A. Rae, a slight ground movement at one of the larger mines was investigated, but, as movement was particularly slow, recommendations were made to control this and keep it within safe limits. In the surface alluvial mines, the maintenance of the working faces at a reasonable angle of repose was ensured.

Shaft equipment, ladderways, surface equipment, &c., was regularly inspected, together with the supervision of the handling of explosives, and all the other numerous details of mining practice were regularly checked with a view to maintaining a high standard of safety in all operations.

Health and Sanitation.

Attention was given regularly to the satisfactory maintenance of a standard of cleanliness in the Change Houses, Crib Houses and Latrines at the mines, particularly those employing men underground. At one of the larger mines, the underground latrine was not good and it was necessary to have a new one constructed.

Ventilation was reasonably good at the underground mines using natural means, with the exception of one where, owing to its depth, electrically driven fans are in operation on the main exhaust section of the system, with satisfactory results. Small auxiliary fans were used where required in dead-ends, &c.

The Workers' (Occupational Diseases) Relief Fund Board was assisted in their activities and this occupied some time as with the bi-annual examinations now in operation, considerably more examinations are carried out than previously, but it is considered a more satisfactory check on the health of the mining employees is the result of this additional activity.

Explosives.

Personal supervision of the importation of explosives at Launceston was carried out, and all explosives were found to be in good order and condition on arrival, although some of the outer cases were slightly damaged. No reports of faulty explosives were received, but one accident concerning the use of explosives was investigated. A man was fatally injured in a quarry whilst placing a bulling charge in a hole where it suddenly exploded. The hole had been previously bulled and not accurately tested for temperature prior to placing in the second bulling charge, and this may have been the cause of the explosion. No evidence was obtainable that the explosives were faulty.

Machinery.

The maintenance and protection of machinery was kept under surveillance during the year, and the full co-operation of the Inspectors of Machinery was obtained in any matter relating to machinery at mines or works. At the existing mines, no great amount of new machinery was installed, but one old underground mine is being reopened, and this necessitated the installation of all the machinery necessary for mining and milling of the ore obtained. The installation of this is proceeding in a satisfactory manner.

Inflammable Liquids.

Personal supervision was carried out of the unloading of tanker ships at Bell Bay, and generally, compliance with the Inflammable Liquids Act, 1929, was reasonable. The main defaulters being farmers, &c., storing 44-gallon drums of petrol and kerosene, but it was found they were anxious to rectify matters after the requirements had been explained to them. One fire of a tractor was investigated, which was due to the over-filling of the supply tank, but as it did not occur on licenced premises, it was outside the scope of the Inflammable Liquids Act.

Aid to Mining.

Together with the ordinary duties of inspection, suggestions and advice were given, particularly at the smaller mines, to promote more efficient and safer working. Samples were obtained and tested by the Mines Department, Laboratory, to assist prospectors in their activities.

Reports were also compiled as required in connection with applications for assistance under the Aid to Mining Act, also the collection of various data and miscellaneous matters were attended to in connection with mining activities of the Inspection Division.

MINING OPERATIONS AND PRODUCTION.

Tin.

The market price of tin did not vary greatly during the year, and, in the case of practically all the producers, a steady production was maintained. The notable exception being the Aberfoyle Mine, who had an increase in tin production of approximately twenty per cent. The combined production of 838,607 tons of metallic tin was a gain of 169,161 tons on the previous year's figures.

Miscellaneous, Moorina.—An average of four men operated in this area, and the bulk of the tin produced was sluiced from near the junction of the Weld and Frome Rivers, and amounted to 7,083 tons of tin concentrates, containing 4,883 tons of metallic tin.

Weldborough Tin Mines, Weldborough.—Sluicing operations were conducted along the banks of Main Creek and also at the old Waverley Face, which was reopened, but in both cases, it was considered that the ground values were uneconomic. Negotiations were entered into and arrangements made to take over the W.X.X. Mine at Moorina. Plant was being shifted there and reconditioning of the Echo race was in progress in the latter months. In all, 35,100 cubic yards of material were sluiced for a production of 6,318 tons of tin concentrates, containing 4,455 tons of metallic tin. The average number of men employed was five.

Miscellaneous, Weldborough.—The smaller mines afforded employment for an average of six men, and from their combined efforts, they produced 2,023 tons of tin concentrates, containing 1,339 tons of metallic tin.

Miscellaneous, Goshen and Gould's Country.—The party using diesel-driven pumping equipment, operating in the bed of the Groome River, early in the year ceased operations and removed their plant. The production from this area, amounting to 185 tons of tin concentrates, containing 130 tons of metallic tin, was due to three prospectors working part-time in river and creek beds.

Goshen Tin Mines, St. Helens.—Operating two faces, this mine sluiced low-grade ground during the year. The Argonaut Face being practically in the bed of the Golden Fleece Rivulet and the Georges Bay Face plant was shifted up near the old Rosebud Mine and carried out ground sluicing without the necessity of elevating the sluiced material. Shortage of labour hindered operations somewhat, there being only an average of seven men employed, but they treated 52,000 cubic yards of material for a recovery of 6,811 tons of tin concentrates, containing 4,796 tons of metallic tin.

Bell Creek Mine, St. Helens.—This mine did not operate continuously owing to the shortage of water, illness, and other troubles, but 1,000 cubic yards were sluiced for a recovery of 0.61 tons of tin concentrates, containing 0.45 tons of metallic tin.

Miscellaneous, St. Helens and Scamander.—An average of five men carried out intermittent work on alluvial sluicing claims to produce 2,490 tons of tin concentrates, containing 1,801 tons of metallic tin.

Aberfoyle Mine, Rossarden.—Production of this mine was again increased, and 57,841 tons of ore were mined and treated. The main shaft was sunk to the No. 13 Level and a cross-cut driven to the lode series. Values encountered were not up to expectations, but prospecting on this level is still in progress. An additional new magnetic separator was installed in the concentrating plant to cope with the increased throughput and to im-

prove recoveries. The tin portion of the concentrates produced amounted to 794,234 tons, containing 540,670 tons of metallic tin, and 233 men were employed in the surface and underground sections of the mine. Wolfram production is shown under the respective heading.

Storey's Creek Mine, Storey's Creek.—Operation of this mine is reviewed under "Wolfram", but the tin concentrates production was 24,077 tons, containing 14,989 tons of metallic tin.

Miscellaneous, Gipps Creek and Avoca.—The small alluvial and lode mines of this area produced 2,024 tons of tin concentrates, containing 1,401 tons of metallic tin together with Wolfram concentrates shown separately, and five men were employed on these activities.

Miscellaneous, Scottsdale.—Operating in the vicinity of Mount Stronach, three men engaged in mining operations intermittently and produced 166 tons of tin concentrates, containing 0.93 tons of metallic tin.

Miscellaneous, Ringarooma and Alberton.—An average of three men were employed in mining and prospecting, and the following production resulted from their labours, 370 tons of tin concentrates, containing 248 tons of metallic tin.

Walsh & Co., Branchholm.—A further 10,000 cubic yards was sluiced from the Gordon workings at Ruby Flat for a recovery of 2,334 tons of tin concentrates, containing 1,719 tons of metallic tin. As this recovery was not considered economic by this syndicate, they ceased operations at Ruby Flat and also at the Grouper Face of the Arba Mining Co., due to depletion of the payable ground there and concentrated all their activities on a new site near Black Creek, just below the junction of this Creek and the main Derby-Branchholm Road. For these operations at Black Creek water is being obtained from the Ringarooma Race of the Ringarooma Cascade Water Board, and after the laying of columns, &c., were completed, 9,000 cubic yards of alluvial material were sluiced and treated for a recovery of 5,558 tons of tin concentrates, containing 4,107 tons of metallic tin. An average of four men were employed.

Ormuz Mine, Branchholm.—Endeavours were made by the Edwards Bros. to uncover the granite bottom beneath the alluvial material at the old Main Face of the Arba Tin Mining Co. to check on reported good tin values there, but at the close of the year, a small portion of the bottom had been uncovered and the values obtained to that date were not equivalent to those reported. An average of five men were employed to sluice 38,792 cubic yards of material for a recovery of 4,769 tons of tin concentrates, containing 3,131 tons of metallic tin.

Miscellaneous, Branchholm.—Small alluvial mining parties containing five men in all, operated at Black Creek and Ruby Flat, and their efforts resulted in 4,821 tons of tin concentrates, containing 3,518 tons of metallic tin being produced.

Brisis Mine, Derby.—An average of 39 men were employed. At the Cascade Workings, in the bed of the Cascade River, which has been diverted, a considerable number of old stone heaps were encountered and necessitated the construction of a Flying Fox to handle these. In all, 578,080 cubic yards were mined by sluicing methods for a recovery of 56,287 tons of tin concentrates, containing 39,849 tons of metallic tin. This mine also continued to carry out the repair and maintenance of the Races of the Ringarooma Cascade Water Scheme by arrangement with the Board.

Miscellaneous, Derby.—With very little plant and equipment, eight men recovered alluvial tin from the bed of the Ringarooma River below Derby township. Their production amounting to 4,254 tons of concentrates, containing 2,749 tons of metallic tin.

Miscellaneous, Herrick and Winnaleah.—An average of three men worked the smaller mines in this district during the latter half of the year, and produced 1,451 tons of concentrates, containing 1,036 tons of metallic tin.

Banca Mine, Winnaleah.—R. L. Rainbow, owner, assisted by one man, conducted sluicing operations throughout the year at this mine and treated 8,600 cubic yards for a recovery of 3,537 tons of tin concentrates, containing 2,453 tons of metallic tin.

Walsh & Hookway, Bradshaw's Creek.—Operating in very stony wash in the bed of the Wyniford River, these men handled 5,500 cubic yards of material for a recovery of 1,509 tons of tin concentrates, containing 1,106 tons of metallic tin.

Miscellaneous, Bradshaw's Creek & South Mount Cameron.—The alluvial mines in this area, other than those mentioned separately, produced 4,998 tons of tin concentrates, containing 3,562 tons of metallic tin and gave employment to seven men.

Dorset Dredge, South Mount Cameron.—Working on the Dorset Flats, this bucket dredge operated continuously throughout the year, and 1,725,000 cubic yards were mined by the dredge and treated for a recovery of 139,750 tons of tin concentrates, containing 103,269 tons of metallic tin, together with some alluvial gold, the quantity of which is shown separately. Prospecting was carried out, using the Conrad Drill, boring 16-inch diameter holes, and an area down-stream from the dredge in the vicinity of the Endurance Mine Pumping Station was found which it is considered would be economic to dredge. At the close of the year prospecting and drilling was commenced on the Ringarooma Marshes, near the old Port of Boobyalla.

Endurance Mine, South Mount Cameron.—Sluicing was maintained at the Clifton Workings, but owing to the low values being mined, and the market price of tin, it was necessary to carry out preparations to shift the plant and barge to the Northern End of the workings, where the ore reserves show higher-grade ground. This work was practically complete at the close of the year, and it was intended to shift the barge shortly after the Christmas shut-down period. The accrued production from the treatment of 365,500 cubic yards of alluvial material was 81,769 tons of tin concentrates, containing 60,806 tons of metallic tin. The mines power station at Moorina operated throughout the year and, in addition to supplying the mine with its needs of electric power, supplied power to the Hydro-Electric Commission's grid system when ample water was available for generation purposes.

Mount Cameron Water Race, Gladstone.—This Race, controlled by a Government-sponsored Board continued to function during the year, and although there was an operating loss, its indirect value to tin mining and in maintaining the Town of Gladstone is considerable.

Star Hill Syndicate, Gladstone.—Purchasing water from the Mount Cameron Water Race and then pumping it twice with electrically driven pumps to obtain the water at the necessary pressure at their working faces, this syndicate operated two faces for the greater part of the year, and employed an average of five men. In all, 130,000 cubic yards were treated for a recovery of 29,993 tons of tin concentrates, containing 21,785 tons of metallic tin.

Miscellaneous, Gladstone.—An average of ten men were employed in the smaller mines and miscellaneous mining activities of this district and their combined production amounted to 20,095 tons of tin concentrates, containing 13,656 tons of metallic tin.

Strait Islands.—Intermittent small-scale operations were carried out on Flinders and Cape Barren Islands by four men who produced 1,430 tons of tin concentrates, containing 891 tons of metallic tin.

Wolfram.

At Storey's Creek Mine, Wolfram production was greater by approximately 65 tons than the previous year, the remainder of the producers remained static. This increase caused the total production to be increased by a similar amount. The Division production being 581,228 tons of wolfram concentrates with a Tungstic Trioxide content of 419,940 tons.

Aberfoyle Mine, Rossarden.—This mine was reviewed under "Tin". Wolfram production amounted to 365,205 tons of concentrates with a Tungstic Trioxide content of 264,552 tons.

Storey's Creek Mine, Storey's Creek.—The developmental programme in the mine was continued and No. 7 Level was opened up. Additional work was carried out on the new vertical service shaft, but it was not in operation at the end of the year. Some alterations were in progress at the concentrating plant to improve recoveries, particularly in their lower-grade products. Tin production is shown elsewhere and the Wolfram production was 215,450 tons of concentrates with a Tungstic Trioxide content of 155,030 tons. The total production being produced by 75 men from the mining and treatment of 12,551 tons of quartz ore.

Miscellaneous, Gipps Creek and Avoca.—The wolfram production from the small mines of this area was 530 tons of concentrates with a tungstic trioxide content of 328 tons.

Miscellaneous, Gladstone.—During the year, one parcel of 0.45 tons of wolfram concentrates was produced from this area with a tungstic trioxide content of 0.30 tons.

Moina Tungsten-Tin Mine, Moina.—The Moina Tungsten-Tin Mining Co. have reopened the old Shepherd & Murphy Mine, and a considerable amount of plant was installed. The mine was in production at the close of the year, and had produced 2,600 tons of ore, which was

stacked at grass pending completion of the concentrating plant, which was well advanced and almost ready for preliminary testing. There were a total of 43 men employed at the mine in the latter stages of the year.

Gold.

Production for the year was 488,725 fine ozs., a slight increase, but again, practically all the production was obtained in conjunction with alluvial tin mining.

Dorset Dredge, South Mount Cameron.—Reviewed under "Tin." The tin concentrate produced is allowed to flow over amalgamation plates and the alluvial gold is extracted and sold as a separate product. This amounted to 481,784 fine ozs.

Miscellaneous.—Alluvial workings at the Lisle Gold Field produced 6,464 fine ozs. and 477 fine ozs. was produced at South Mount Cameron.

Limestone.

Limestone production for agricultural and for lime-burning (to produce quick lime for building purposes) amounted to 12,594 tons. In addition, limestone was quarried for use in the production of cement.

Melrose Agricultural Lime Quarries, Eugena.—Quarrying and pulverising of limestone is carried out at these works to produce a suitable product for agricultural purposes. The 20 men employed quarried and crushed 7,139 tons of limestone.

Railton Lime Works, Railton.—Two lime-burning kilns are operated, and limestone is also pulverised for agricultural use. At the works, three men were employed in the quarrying of 2,252 tons of limestone.

Beaconsfield Lime Products, Flowery Gully.—An average of five men were employed in the production of ground agricultural limestone and burnt lime for building and other purposes. Production for the year was 2,314 tons.

Beams Bros., Flowery Gully.—Three men were employed in quarrying and burning lime for building purposes, and 889 tons of limestone was prepared for sale.

Cement.

Goliath Portland Cement Co., Railton.—Operating continuously throughout the year on the production of cement and asbestos cement sheets, this Company required large quantities of raw material. They quarried 151,884 tons of limestone and 6,291 tons of iron ore for their use. In all operations, an average of 227 men were employed.

Clay.

At the Endurance Mine, South Mount Cameron, 2,529 tons of high-grade kaolinised white clay was mined and forwarded to Burnie, together with 3,174 tons of similar clay from the vicinity of St. Helens, and was used by the Australian Pulp and Paper Mills in the manufacture of paper.

Inspector D. Besford, M. (Aust.) I.M.M., reports:—

Employment.

The average number of persons employed in Mines, Works, and Quarries operating under the Mines and Works Regulations Act was 3,154, an increase of 135 over the previous year.

Accidents.

No fatal accidents occurred during the year, and of the thirty-three (33) accidents causing incapacitation for at least fourteen (14) working days, twenty-four (24) were associated with surface operations, and nine (9) occurred underground. This represents an increase of four (4) surface accidents and three (3) underground accidents compared with the previous year.

One (1) coal miner received severe injuries when a fall of roof occurred while he was engaged in a Pillar-extraction place. The place was well-timbered, but a break occurred in the "Goaf" near the edge of the "Lift" in which he was working, and the fall extended into his working place, some of the roof stone falling on the workman, inflicting fractures to both his ankles and also caused lesser injuries to his arm and head.

Three (3) other underground accidents were caused by falls at the face, but the injuries were of a lesser degree. These latter accidents could have been prevented with ordinary care on the part of the workman.

Four (4) workmen were involved in an incident which occurred at a metallurgical works, when an explosion occurred in the section where they were engaged.

The crusher had just been repaired after a breakdown involving a stoppage of the machine for approximately two and a half hours. Shortly after the machine re-started an explosion occurred, which caused extensive damage to the bucket elevator and also to that section of the building in the vicinity. Two (2) of the workmen received only slight injuries, although one (1) was thrown down on to the floor below, a distance of about twelve (12) feet. The other two (2) workmen received injuries which caused incapacitation for at least fourteen (14) working days, and they had to be treated in the Hobart Hospital.

When the crusher was operating, the bearings were lubricated and kept cool by a system of drip feed of an emulsion consisting of oil and water. This emulsion was delivered from the supply tank above the crusher, on to the top of the bearings through hand-regulated stop-cocks. After passing over the bearings the used liquid passed on to a steel tray below the crusher and was conducted to the outside of the building through guttering. This system had been in use for several years and, apparently, operated without mishap. After the incident, it was decided to instal a new crusher with a different method of lubrication, as it was felt that the cooling water had come into contact with the fresh carbide at the bottom of the bucket elevator, and the acetylene gas which was generated became ignited and exploded inside the steel enclosure surrounding the bucket elevator. It is not now necessary to use water in the vicinity of the crusher, which was apparently the primary cause of the incident.

All the workmen involved in accidents have since returned to work suffering no permanent disability.

Safety.

Attention has again been directed to the maintenance of safe working conditions in mines, works, and quarries. Places have been regularly inspected, and underground working places have been regularly tested for inflammable and noxious gases. Underground roads used for traveling were regularly examined, and where any danger or weakness was detected, necessary precautions were taken for safety.

Quarry faces were regularly inspected and when any danger was detected instructions were issued for suitable remedial measures to be adopted to remove the danger. In some cases it was necessary to withdraw some workmen until the face above was made safe.

Inspections were regularly carried out in connection with metallurgical works, especial attention being directed to the nuisance created by the emission of dust and fumes. When conditions were considered unsatisfactory, instructions were issued for remedial measures so that workmen were not exposed to any danger.

Underground electrical equipment was regularly inspected and some tests were carried out on parts of the equipment to ensure the maintenance of safe operation.

Ventilation.

Underground air currents were regularly measured by means of the anaemometer to determine whether an adequate amount of air was available for distribution to the working places, in order to maintain good working conditions at the face.

Wet and Dry Bulb temperatures were regularly recorded in the underground working places and these were generally well below the prescribed maximum. The highest recorded temperature was 70 degrees Fahrenheit on the Dry Bulb, and 69 degrees Fahrenheit on the Wet Bulb. The majority of readings were well below 66 degrees on the dry bulb with a corresponding lower reading on the wet bulb.

In some cases the ventilation of the working places was below the desired standard, and it was necessary to order the cessation of work until a better flow of air could be produced. The ventilation of the working places in one colliery caused a great deal of concern, as it has become necessary to provide a greater quantity of air to adequately ventilate the working places, which have advanced beyond the capacity of the existing fan.

No inflammable gas was detected but some black-damp was present in some roads in one colliery where the ventilation was not up to the required standard.

Some places in connection with metallurgical works required additional ventilation in order to remove dust and fumes. The remedial measures were adopted when any weakness was found.

Health and Sanitation.

Matters affecting health and sanitation have been given due attention and any observed deficiencies have been quickly remedied.

Explosives.

Attention has been given to the storage and handling of explosives. Additional storage accommodation had to be provided at some collieries, and it was necessary to insist on the removal of one magazine to a safe distance from protected works.

There were no reported accidents due to explosives and the number of reported mis-fired shots were few. These mis-fired shots were handled with safety, and it was not possible to determine the causes.

Magazines were generally found to be in satisfactory condition, but some uncleanness was discovered, and instructions were issued for better cleaning and more methodical storage.

Inflammable Liquids.

Installations have been inspected and were generally found to comply with the provisions of the Inflammable Liquids Act. Many applications were received for permission to store; these applications were duly investigated, and when found satisfactory, were approved; but in some cases it was necessary to withhold approval, as they did not comply with the necessary safety conditions.

Machinery.

Underground machinery was regularly examined and was generally found to be in safe condition, when found faulty the necessary adjustments were carried out in order to remove the defect. Faulty electrical equipment was speedily repaired and there were no accidents of a dangerous character.

One (1) man received an electric shock when he put in the switch to operate the haulage engine motor at the surface of the mine. It is assumed that the driver put in the reversing switch when the forward switch was in the "On" position. The switchgear was immediately burnt out, and it was not possible to find any evidence which would be conclusive. A new switchgear which cannot be operated without proper sequence has been installed and the incident is unlikely to recur.

Another workman received an electric shock at the screens at one (1) colliery. The fault was traced to a faulty cable inside the steel pipes enclosing the cables. The cables had been in use for many years and the insulation apparently became faulty, due to constant vibration and the conductors came into contact with the metal surface inside the pipe.

OPERATIONS AND PRODUCTION.

Increased activities, due to the easing of power restrictions resulted in 16 per cent increase in zinc production at the Risdon Works. There was also a large increase in the production of Calcium Carbide at Electrona with a corresponding increase in Limestone from the Ida Bay Limestone Quarries. The output of coal increased by 30,573 tons over the previous year's production as a result of increased demand, and in addition, most of the coal which was stockpiled during the previous year, was forwarded to consumers.

The total production of coal was 264,202 tons, valued at £511,040 at the mine bins. The average number of persons directly employed at the mines was 359.

The output was a record and was 16,303 tons greater than the record produced in 1952. The largest increase was obtained from the Merrywood Coal Mine, where the production increased by 84.5 per cent. Open-cut operations at this mine accounted for 10,080 tons, which was the highest yearly production from these operations.

The Cornwall Colliery showed an increase of about 8,000 tons or 9.32 per cent more than the previous year, but the production was approximately 11,000 tons less than the record production from this Colliery in 1952.

Reduced production was recorded from the Jubilee Colliery, where 3,000 tons less coal was recorded, but the number of employees was also reduced so that the production per man employed was slightly higher.

Based on quarterly averages, the production from underground activities per person employed was 716 tons, compared with 680 tons for the previous year. The production per person employed underground was 968, compared with 934 tons for the previous year.

FINGAL-MOUNT NICHOLAS-DALMAYNE COALFIELD.

The total production from this coalfield was 216,348 tons, which was nearly 15,000 tons greater than that produced from the field during the previous year. Increased production was recorded from the Cornwall, Mount Nicholas, and Duncan Coal Mines, and 1,500 tons was produced from the Tasmanian coal mine at Fingal which commenced operations during the third quarter

of the year. Reduced output was recorded from the Jubilee coal mine, and the Fingal coal mine also showed a slight reduction.

Cornwall Colliery.

This Colliery produced 94,745 tons, valued at £168,172 at the mine bins. An average of 133 persons were employed, which was two higher than last year.

Pillar extraction continued in the No. 2 Tunnel, where workings approached the old workings in the No. 1 Tunnel. Heaving floor conditions made conditions very difficult and the section had to be abandoned at the end of the year.

The Continuous Miner continued to operate on a restricted scale, but with fairly good results. The operation of this machine tends to maintain fairly good roof conditions, as no blasting is carried out, which causes shattering of the roof and sides.

Difficult conditions developed in the Machine Section, due to faulting and low roof conditions. An effort is being made to drive through the largest fault in order to develop an area which could contain an appreciable quantity of coal, but the difficult conditions may prevent exploitation of the area.

Production from the Blue Seam was obtained from a small section where only two (2) parties of miners are engaged.

Mount Nicholas Colliery.

This Colliery produced 40,351 tons, valued at £71,634, compared with 35,739 tons, valued at £57,833 for the previous year. The average number of employees increased to 60.

Operations continued on the same pattern as previously, all coal being produced by machines from the 4 ft. 9 ins. seam, and by grunching and hand-filling methods from the 6 ft. seam.

An 80 or 90 ft. downthrow fault was encountered in the 4 ft. 9 ins. seam, which caused the 6 ft. seam to be thrown down to the exact level of the drive in which the fault was tested, and it might be possible to develop the 6 ft. seam from this level.

Jubilee Colliery.

Production from this colliery was 23,767 tons, valued at £53,476 at the mine bins, and the average number of persons employed was 42. The production per person employed at the mine showed a slight yearly increase of 19 tons, based on quarterly averages.

Conditions inside the mine are becoming more difficult due to the advance of the mine workings. The efficient ventilation of the faces is not possible with the existing fan, and the existing airways. Roof conditions also deteriorated along some of the main roads and the section in the Main Heading and on the East side of the Main Heading had to be abandoned. Large falls have since occurred, and it will be very difficult to resume working the section. Large falls of roof have restricted the area in the Main Air Return, and it will require a lot of reconditioning to restore the Airway to satisfactory condition. Efforts are being made to find other more favourable seams of coal in the area and if a suitable site can be found the present workings will, possibly, be abandoned.

Duncan Colliery.

The production from this Colliery increased to 33,990 tons, valued at £60,332, and employed an average of 39 persons.

Work continued on the same lines as the previous year, but preparations are being made to fully mechanize the mine in order to increase production.

Fingal Colliery.

Production from this coal mine fell slightly to 21,979 tons, valued at £42,648 at the mine bins, and an average of 16 persons was employed. The production per man employed, based on quarterly averages, was 1,354 tons, which was the highest production per man in the State, and the yearly production of 1,798 tons per underground employee was also the highest.

Operations continued on the same lines as previously and no new developments occurred.

Tasmanian Coal Mine.

This coal mine, opened up a few yards to the West of the Fingal Coal Mine and in the same seam, commenced production during the third quarter. Difficult conditions were encountered, due to a steep dip and bad roof

conditions in some of the main places. The production was only 1,516 tons, valued at £3,032 at the mine bins, and an average of nine persons was employed in the production. A connection was made to provide a return airway, but a lot of clearing is required at the outlet in order to provide an opening which will afford a permanent means of egress and air return.

AVOCA COALFIELD.

Stanhope Colliery.

This Colliery produced 7,238 tons, valued at £18,999 at the mine bins, and employed an average of 16 men. The production was greater than the previous year, due to improved conditions inside the mine. The workings are now very close to the tunnel entrance and the coal is more settled. No new developments have been carried out and the mine continues to operate on a small area of pillars, which was left in the previous operations. Boring continued during the year, but did not prove any workable area for future exploitation, and it is possible that the area to the left of the mine does not contain an area of coal which could be economically developed.

Merrywood Colliery.

Production from this Colliery increased to 29,520 tons, valued at £51,638 at the mine bins. Open-cut operations accounted for 10,080 tons and the production from underground operations was 19,440, both figures represent record yearly production.

Underground operations continued on the same lines as previous, and no new developments occurred. Faulting was not serious, although some small-scale faulting caused roof difficulties in some places.

Overburden removal continued by means of a single "Tournadozer," but a new machine is to be procured which will better handle the material which has to be pushed a long distance to the disposal area.

UPPER DERWENT COALFIELD.

Langlosh Colliery.

The production from this Colliery increased slightly to 8,658 tons, valued at £33,865 at the mine bins, and employed an average of 21 persons.

There were no new developments at the mine, operations being confined to the same section as the previous year. Roof conditions became somewhat troublesome and caused collapse of some places, but it is likely that most of the workings will advance through this bad ground to a more settled condition. A new road will have to be put through in order to by-pass the main return, which has become impassable, due to falls. This new road will also provide better ventilation facilities.

SANDFLY COALFIELD.

Sandfly Colliery.

Production from this colliery dropped to 1,521 tons, valued at £3,373 and four men were employed.

Water again caused some difficulties but production was enough to supply the demands. The demand for this subanthracite coal is not great and the installation of oil-burning units in the Hobart Brewery further reduced the demand.

MERSEY COALFIELD.

Illamatha Colliery.

This small coal mine is the only one operating in the field and produced 917 tons, valued at £3,870, and employed an average of four persons.

Operations are confined to the East side of the shaft and a lot of faulting caused very difficult conditions where the thickness of the seam was below two (2) feet. The coal has a higher calorific value than other coals in the State and is used by the Ovaltine Factory at Quoiba, where it is mixed with the coal from the East Coast area.

Ore Treatment.

The Electrolytic Zinc Company processed 213,028 tons of calcines at the Risdon Works and produced 104,523 tons of zinc, valued at £9,407,070. 229,886 tons of Cadmium, valued at £389,292 and 18,07 tons of Cobalt Oxide, valued at £20,236.

The throughput of calcines increased by 21 per cent, due chiefly to the easing of power restrictions, an increase of about 16.3 per cent of zinc was produced and an increase of nine tons in Cadmium was recorded.

Superphosphate production also increased to slightly more than 75,000 tons, which was 10,000 tons higher than the previous production.

The new No. 3 Flash Roaster was completed and came into service towards the end of the year, three (3) Flash Roasters and two (2) Skinner furnaces are now operating at the works.

The operation of the Residue Treatment plant did not prove satisfactory, and this unit had to be shut down for further adjustments.

Work on the new Fertilizer Plant continued during the year, and it is possible that the plant will be ready to function before the necessary power supply will be available, so that the commencement of operation will depend upon the availability of electric power, and it is not possible to forecast when the new plant will commence operations.

Carbide and Limestone.

The Australian Commonwealth Carbide Company increased production to 8,866 tons, valued at £468,213, and employed an average of 144 persons at the works. The corresponding figures for the previous year were 8,568 tons, valued at £451,955, and 159 persons.

The necessary power was not made available so that the new electric furnace was not brought into production. This furnace will not be able to operate until additional power is available.

The production of Carbon Black continued as usual during the year.

The production of limestone from the quarry at Ida Bay increased to 19,884 tons and an average of 28 persons was employed at the quarry, the corresponding figures for the previous year were 17,297 tons and 27 persons. The limestone was used for the production of Calcium Carbide at the Works. Some of the waste burnt lime was disposed of to the farmers and orchardists, but the amount was not large.

The production of limestone from a quarry at Juneec was 6,903 tons, and an average of five persons was employed. The limestone is quarried by the Australian Newsprint Mills, and is conveyed to the Lime-kilns at Granton, where it is burnt; the burnt lime is bagged and taken to the Newsprint Mills at Boyer for use in the plant.

Some of the limestone was delivered to the Electrolytic Zinc Company's Works at Risdon, where it is used in the treatment plant, and a small quantity of the waste product at the lime-kiln was delivered to local dealers.

Osmiridium.

The production of osmiridium declined to 15.9 ounces, valued at £1,166, and an average of four persons was engaged in production. The dry weather throughout Tasmania adversely affected production at Adamsfield, as operations are totally dependent upon the use of water, which was not available for the greater part of the year.

Granite.

The production of Red Granite from Coles Bay increased to 55 tons, valued at £575, and two (2) men were employed at the quarry.

Tin.

The output of Tin Oxide from Cox Bight increased to 4.77 tons, containing 3.49 tons of metallic tin, valued at £3,291. An average of four persons was employed in production.

Kaolin.

Kaolin production from Surges Bay declined to 2,245 tons, valued at £19,528, and six (6) men were engaged in production from the open-cut workings. The Kaolin was forwarded to Burnie for use in the Paper industry.

REPORT OF THE MOUNT CAMERON WATER-RACE BOARD FOR THE YEAR ENDED 31st DECEMBER, 1954.

Sir,

We have the honour to submit the report of the Mount Cameron Water-Race Board for the year ended on the 31st December, 1954.

Production of tin-oxide from all activities serviced by the race system, was 29,145 tons, as compared with 28,965 tons for the previous year, representing an increase of 0.18 tons.

The output of tin-oxide under the fixed scale of payment for water was 29,039.2 tons and that under the royalty scale was 0.1058 tons, representing an increase of 1.7944 tons in the fixed scale and a decrease of 1.7245 tons in the royalty scale.

Revenue was £1,201 5s. 1d., as compared with £1,548 17s. 11d. for last year.

Expenditure was £2,335 18s. 3d., as against £3,633 4s. for the previous year.

Expenditure during last year included the payment of a retiring allowance and in lieu of furlough to the former Manager and the actual operational expenditure was £2,683 16s. 2d., as against £2,335 18s. 3d. for the current year. The operational loss for 1953 was £1,143 18s. 3d., as compared with £1,134 13s. 2d. for the current year. Expenditure was less by £347 17s. 11d., but revenue declined by £347 12s. 10d. The reduced expenditure was

due to no race cleaning having been undertaken. It must be expected that maintenance work will be necessary during 1955.

The rise in the output of tin-oxide continued, but the sale of water was restricted almost entirely to the fixed or cash scale of charges. Under existing conditions of demand for water it must be expected that losses will continue to accrue.

Races, syphons, flumes, culverts and dams were maintained in good order.

Mr. W. H. Williams, Director of Mines, retired as Chairman of the Board, and it is desired to record the valuable services rendered during his term of office in installing concrete syphons and in rehabilitating the deteriorated condition of the race system.

We have the honour to be

Sir,

Your obedient servants,

J. G. SYMONS, Chairman.

B. DUNN, Member.

H. KEITH TURNER, Member.

The Hon. the Minister for Mines,

Hobart.

STATISTICS FOR THE YEAR ENDED 31ST DECEMBER, 1954.

Registered Rainfall.

Great Mussel Roe	26 inches 37 points
Little Mussel Roe	26 inches 17 points

Revenue.

Revenue from the sale of water for mining purposes was £1,201 5s. 1d., representing a decrease of £302 12s. 10d.

Expenditure.

Expenditure was £2,335 18s. 3d., representing a decrease of £1,297 5s. 9d.

Water Services.

Average number of claims supplied per week	2.5
Greatest number of claims supplied in any week	4

Total number of sluiceways supplied:—

Fixed or cash scale	1,227
Royalty or credit scale	105

Production and Employment.

Tin-oxide produced:—

	tons.	cwts.	qrs.	lbs.
Under fixed scale	29	—	3	4
Under royalty scale	—	2	0	13
Total	29	2	3	17

Average number of men employed per week ... 5

Statement of Receipts and Payments of the Mt. Cameron Water Race Suspense Account for the Year Ended 31st December, 1954.

<i>Receipts.</i>			<i>Payments.</i>		
	£	s. d.		£	s. d.
Sale of Water—			Salary and wages	2,182	0 4
Fixed scale	1,111	10 0	Pay-roll tax	55	6 10
Royalty scale	50	15 1	Car allowance—Manager	36	16 8
Swimming-pool, Gladstone	1	0 0	Insurance	28	17 2
Hire of pipes	38	0 0	Stationery	9	0 6
			Tools and general requisites	2	16 9
Balance (excess payments over receipts)	£1,201	5 1	Repairs—residences	21	0 0
Loss for 1954	1,134	13 2			
	£2,335	18 3		£2,335	18 3

REPORT OF THE RINGAROOMA AND CASCADE WATER BOARD FOR THE YEAR ENDED 31st DECEMBER, 1954.

Sir,

We have the honour to submit the report of the Ringarooma and Cascade Water Board for the year ended 31st December, 1954.

The Ringarooma-Cascade Water Board functioned to an extent necessary in the control of the Ringarooma-Cascade Water System.

The Cascade Section remained in use by Briseis Tin N.L. on a basis of rental at the rate of £211 per annum, and responsibility for maintenance of the system to the satisfaction of the Board.

Briseis Tin N.L. maintained the Ringarooma Race on a cost plus supervision basis, but small revenue from users of water and high costs of maintaining the system resulted in a deficit of £6,363 5s. 6d. for the year.

Members of the Board have been confronted with further deterioration of races, flumes, and syphons, with

lowerings in flow-through of water that follow long years of usage without full conditioning and replacement of essential units. Investigations into increasing possible revenue from sale of water were not completed, and will be further examined.

The Chairman (Mr. W. H. Williams), retired during the year, and the Board desires to record its appreciation of the services rendered since its establishment in 1947.

We have the honour to be Sir,
Your obedient Servants,

J. G. SYMONS, Chairman.
H. KEITH TURNER, Member.
N. P. EDWARDS, Member.

The Hon. the Minister for Mines.
Hobart.

Statement of Receipts and Payments of the Ringarooma and Cascade (Water) Suspense Account for the Year ended 31st December, 1954.

<i>Receipts.</i>			<i>Payments.</i>		
	£	s. d.		£	s. d.
Revenue from sale of water	652	12 1	Ringarooma Race—		
Rent of Cascade Race and Dams	211	0 0	Wages—Caretakers	2,599	16 7
			Wages—Maintenance	2,245	15 3
Balance (excess payments over receipts)	£863	12 1	Holiday pay	261	8 11
Loss, 1954	6,363	5 6	Pay-roll tax	130	3 11
			Workers' Compensation Insurance	103	8 0
			Stores	911	18 1
			Hire of motor truck	398	13 0
			Hire of horse	40	0 6
			Supervision	180	0 0
			Rent of private land	24	19 0
			Interest on capital cost of the Ringarooma and Cascade Water System	330	14 4
	£7,226	17 7		£7,226	17 7