

TASMANIA

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REPORT

OF THE

DIRECTOR OF MINES

FOR

YEAR ENDED 31ST DECEMBER

1953

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



TASMANIA:

L. G. SHEA, GOVERNMENT PRINTER, HOBART.

1954

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TASMANIA



REPORT OF THE DIRECTOR OF MINES

Department of Mines,
Hobart, 23rd August, 1954.

SIR,

I HAVE the honour to present my report on the mining and allied industries for the year ended on the 31st December, 1953.

The total value, based on Australian prices, of the output of metallic and non-metallic minerals was £11,069,667, as compared with £10,809,888, representing the value of minerals and mineral products, for the previous year.

There were risings in the production of zinc, wolfram, tin, silver, scheelite, lead, limestone, kaolin, gold, dolomite and cadmium but there was a lowering in the output of copper, coal and silica. Production was continued of small quantities of hematite, limonite, ochre, red granite, graphitic schist and osmiridium. There was an easing in the export of iron-pyrites for the manufacture of sulphuric acid.

The number of men employed in mining, metallurgical and quarrying operations was 7,370 as compared with 6,820 for the previous year.

Increased employment, risings 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.

Many parts of the State were visited and numerous samples of mineral and rock types were tested in the search for uranium, without positive results beyond the tracing of uranium oxide in widely distributed radio-active thorium-bearing monazite. Systematic ground searches, with Geiger Counter equipment, have been impaired by difficult topographical and other features, and, in order to expedite the search for uranium mineral deposits, arrangements were made with the Atomic Energy Commission and the Commonwealth Bureau of Mineral Resources for an aerial survey as soon as suitably equipped aircraft becomes available. Pending the survey, ground searches are being continued by officers of the Department and by private parties with equipment on hire from the Department.

An output of 9,136.5 tons of copper was 732.3 tons less than that for the previous year.

The Mount Lyell Mining and Railway Company Limited continued as the major producer of copper. Operations were again characterised by a forward policy in the mining and processing of large volumes of low grade ore. The output of crude ore, from surface and underground mining, was 1,470,350 tons and 95 tons of copper precipitate was recovered from mine water. In addition, 1,378,124 tons of waste material was dumped.

Selective milling of 1,469,682 tons of ore resulted in a recovery of 33,491 tons of copper-pyrite concentrate and 56,636 tons of iron-pyrite concentrate. From the production and stock-piling of copper-pyrite concentrate, 36,656 tons, together with 96 tons of copper precipitate and 922 tons of North Lyell ore, were smelted for a recovery of 8,814 tons of blister copper, containing 8,741 tons of copper, 28,701 oz. of silver and 5,289 oz. of gold.

A quantity of 51,559 tons of iron-pyrite concentrate was exported to the mainland for acid manufacture. Stock-piling of concentrate was continued with the expectation that improvements in port and shipping facilities will result in increased exportations and more substantially contribute to meeting the demand for sulphur materials used, in the stead of elemental sulphur, for the manufacture of sulphuric acid.

There was a rising in the production of zinc, the recoverable quantity in milled ores being 23,080.1 tons.

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 the treatment of zinc concentrates arising from the selective milling of Tasmanian ores.

Production from imported calcines was 66,508 tons of zinc valued at £A6,066,460; 180.9548 tons of cadmium, valued at £A315,355; and 16.4189 tons of cobalt oxide, valued at £A18,390.

Zinc concentrates, from the milling of Tasmanian ores, actually calcined and processed, returned 23,371 tons of zinc, 40 tons of cadmium, 880 tons of lead and 110,961 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 533 men were employed in mining and milling operations. The quantity of ore mined and milled was 180,563 tons. Selective milling resulted in the recovery of 49,443 tons of zinc concentrates, 9235 tons of lead concentrates and 5160 tons of copper concentrates. The recoverable quantity of metallics was fixed at 23,680.1 tons of zinc, 7,735.41 tons of lead, 395.5 tons of copper, 44.51 tons of cadmium, 971,815.11 oz. of silver and 10,423.76 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 less activity, by miscellaneous parties, in the mining of zinc-lead ores in the Zeehan district.

There was a rising of 928.789 tons in the output of lead, due mainly to increased production by the Electrolytic Zinc Company of Australasia Limited at Rosebery and by Montana Silver-Lead N.L. at Zeehan.

Operations by the Electrolytic Zinc Company of Australasia Limited, at the Hercules and Rosebery Mines, accounted for 7,735.41 tons of the recorded output of lead.

Zeehan Mines Proprietary Limited, Zeehan, progressively prepared for the production of silver-lead concentrates at the Oceana Mine. The No. 2 level was recovered, from an underground influx of water, the main shaft was deepened on a rectangular basis, stoping preparations were made, and the installation of a milling was commenced, the objective being to produce finished concentrates about the middle of the coming year.

At the Montana Silver-Lead Mine, Zeehan, the installation of a mineral flotation plant was completed and provided a high order of effective recovery of silver-lead concentrate. Ore production was stepped up and there was a marked increase in the output of marketable concentrates. Ore mined and milled was 9143 tons and 941.825 tons of silver-lead concentrate was recovered. The quantity of concentrate marketed was 748.647 tons, containing 468.957 tons of lead and 55,296.305 oz. of silver.

The Farrell Mining Company, Tullah, mined and milled 6282 tons of ore, for a recovery of 1737 tons of concentrates, containing 1132 tons of lead and 145,863 oz. of silver. Operations were mainly related to the southern sections of Nos. 5 and 7 levels where ore developments, in the undepleted zone between the old and new workings, had appreciated the production potential.

Miscellaneous parties continued to be engaged in the small-scale mining of silver-lead ores 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 788.248 tons, as compared with an output of 771.186 tons for the previous year. Decontrol of tin ensued and was followed by a marked decline in the price available to producers. Concern was exercised with regard to the future prosperity of the industry, as there was no proportionate easing in the cost structure, but established producers continued with operations in expectation of some movement to reasonably equate the price to the economics of production.

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 658.266 tons of metallic tin.

Miscellaneous parties, tributary 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 a recovery of 67.637 tons of concentrate, containing 45.675 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 50.175 tons of concentrates, containing 34.283 tons of metallic tin.

Small mines and miscellaneous parties were mainly engaged in the sluicing of tin-alluvials. These operations usefully contributed 50.024 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 and wolfram concentrates. The output of finished products, from the mining and milling of 49,006 tons of ore, was 576.58 tons of tin concentrates, containing 407.173 tons of metallic tin, and 370.665 tons of wolfram concentrates.

The Dorest 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 1,685,000 cubic yards and, as a result, the output of products inclined to 148.4 tons of concentrate, containing 110.186 tons of tin and 416.703 oz. of gold. A 16-inch boring plant was purchased and a progressive policy was implemented in testing areas of alluvial ground exterior to the already proved dredging areas.

The Endurance Tin Mining Company sluiced 277,700 cubic yards of ground and recovered 61.437 tons of tin-oxide, containing 45.138 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 399,830 cubic yards of alluvials, recovered 37.073 tons of concentrate, containing 26 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 15,834 tons of pyritic ore there was a recovery of 107,952 tons of concentrates, containing 69,7694 tons of metallic tin. A programme of diamond drilling was implemented to test anomalies outlined by geophysical surveys and, as a result, additional ore was located. A constructive programme of milling research was pursued to determine possible appreciations in effective recoveries.

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. There was an improvement in production activities but revenue was insufficient to meet operational costs. Maintenance of the system was merited as it provided for employment, added materially to the output of tin and usefully contributed to the stability of the Gladstone township.

The Ringarooma-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 1130,139 and 521,853 tons respectively. An easing in prices and market avenues repressed interest in exploration but major producers were secured by period contracts and production progressed.

King Island Scheelite (1947) Limited continued its forward policy of quarrying and milling scheelite ore on King Island. An industrial stoppage disturbed the continuity of operations but a throughput of 193,208 tons of ore, for a recovery of 1130,139 tons of scheelite concentrate, was a new high level in production activities.

In addition to 576,580 tons of tin concentrate, Aberfoyle Tin No Liability recovered 370,664 tons of wolfram from the mining and milling of 49,006 tons of ore from the multiple tin-wolfram lode series at Rossarden.

There was a rising to 10,598 tons in the quantity of ore mined and milled at the Storey's Creek Mine, Storey's Creek. Recoveries inclined to 147,70 tons of wolfram concentrate and 15,244 tons of tin concentrate, the latter containing 9,603 tons of metallic tin. Lode developments maintained their productive potentials and the new vertical shaft was connected between the surface and No. 6 level.

Moina Tungsten Tin Mining Company proceeded with a constructive programme in re-opening the Shepherd and Murphy Mine at Moina. The old workings are being conditioned for mining the multiple ore-vein series and a new milling plant is to be installed for the initial recovery of wolfram and tin concentrates, with consideration for the ultimate recovery of bismuth and any other metallics of commercial significance.

There was no waning of interest in the wolfram-scheelite series at Interview River but there was no forward move to establish production activities.

Interest was maintained in scheelite occurrences exterior to producing areas on King Island. Old workings are to be opened for examination and diamond drilling is to be pursued to determine production possibilities.

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 16,181.92 oz. mainly as the result of a rising in the mining of zinc-lead ores containing gold. The output regioned in the order of 5289 oz. from the processing of copper ores, 10,423.76 oz. from the mining and selective milling of zinc-lead ores, and 416,703 oz. from the dredging of auriferous-tin alluvials, the balance resulting from small-scale operations on auriferous alluvials.

There were no new developments in the mining of osmiridium and, despite a high Australian price, production remained at a low level of 58,831 oz., the result of sporadic operations on shallow alluvials at Adamsfield.

The recorded production of limestone was 182,302 tons, of which 161,472 tons was used in the manufacture of calcium carbide and cement. Metallurgical, agricultural and building industries absorbed 20,830 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 developments in the future production of limestone, of which there are widely spread resources within the State.

Iron ore to an amount of 4527 tons was quarried and used in the manufacture of cement.

Limonite was used in gas purification but the quantity quarried and marketed declined to 299.5 tons.

There was less demand for red ochre for the manufacture of pigments and the output receded to 19.5 tons.

There was a rising to 9061 tons in the production of kaolins and clays for industrial uses, including the manufacture of paper but excluding the making of bricks, tiles, pipes and other earthenwares.

The production of silica for metallurgical and other purposes lowered to 6189.75 tons.

There were no interruptions in the continuity of coal mining but there was an easing in market requirements and some stockpiling was necessary. The output of coal was 233,629 tons, as compared with 247,899 tons for the previous year.

The Cornwall Coal Company functioned as the major producer. Operations at the three collieries provided an output of 149,479 tons, as compared with 158,901 tons for the previous year. Bord and pillar mining, pillar extraction and developmental work resulted in the production of 86,759 tons of coal at the Cornwall Colliery. Mechanised and other practices resulted in an output of 35,739 tons at the Mount Nicholas Coal Mine. Increased coal winning, at the Duncan Colliery, provided an output of 26,981 tons.

There were no new developments at the Jubilee Coal Mine, where the output rose to 26,852 tons from a normal advancement of bord and pillar places.

Progressive production from solid places resulted in a rising of the output to 22,092 tons of coal at the Fingal Colliery.

Small-scale operations provided an output of 3078 tons at the Dalmayne Coal Mine but overall production costs were excessive and the mine closed down.

At the Merrywood Colliery, production was mainly related to underground coal winning, open-cutting being temporarily suspended. The recorded output was 16,002 tons, 74 tons accruing from opencast operations and 15,828 tons resulting from underground bord and pillar practices.

Production was more active at the Langlosh Coal Mine, the output rising to 8203 tons.

Sub-anthracite coal continued to be mined at the Sandfly Colliery for fuel requirements in hop-kiln practices. An output of 1724 tons resulted from small-scale operations.

Faulting continued to hamper a development of the thin seam of coal at the Illamatha Coal Mine but there was a slight rising in production to 930 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 1953 inclusive.

Year	Quantity Tons	Value £
1899-1949	3979.85	17,142
1950-1953	.....	.....
Total	3979.85	£17,142

BARYTES.

RETURN showing the Quantity and Value of Barytes produced from 1899 to 1953 inclusive.

Year	Quantity Tons	Value £
1899-1949	2196.2	8,138
1950-1953	.....	.....
Total	2196.2	£8,138

BISMUTH.

RETURN showing the Quantity and Value of Bismuth produced from 1904 to 1953 inclusive.

Year	Quantity Tons	Value £
1904-1949	83.6320	28,426
1950	.0039	6
1951-1953	.....	.....
Total	83.6359	£28,432

CADMIUM.

The quantity recovered was 44.51 tons valued at £70,712 compared with 42.83 tons valued at £78,129 for 1952.

RETURN showing the Quantity and Value of Cadmium recovered for the years 1924 to 1953.

Year	Quantity Tons	Value £
1924-1949	644.6157	281,383
1950	43.70	75,334
1951	37.80	77,236
1952	42.83	78,129
1953	44.51	70,712
Total	813.4557	£582,794

COPPER.

The production for the year was 9136.50 tons, valued at £2,305,788.
RETURN showing the Quantity and Value of Copper in Blister Copper, Copper Ores and Zinc Lead Ores during the years 1919 to 1953 inclusive.

Year	In Zinc-Lead Ores		In Blister Copper		In Copper Ores.		Total	
	Quantity Tons	Value £	Quantity Tons	Value £	Qty. Tons	Value £	Quantity Tons	Value £
1919 to 1949 (inclusive)	2,737.20	232,435	273,274.475	17,459,445	404.094	9,491	276,415.769	17,701,371
1950	343.46	62,061	6,898	1,246,417	.....	.....	7,241.46	1,308,478
1951	280.59	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	2,205,995	.....	.....	9,136.50	2,305,788
TOTAL	4,084.24	539,201	305,838.475	25,044,137	404.094	9,491	310,326.809	25,593,858

The Mount Lyell Mining and Railway Company Limited.
Return for the Calendar Year 1953.

Ore and metal-bearing material smelted:—	Tons (Dry).
Source of Material.	
Concentrates:—From the Company's North Lyell Mine, Royal Tharsis Mine, and West Lyell Mines ore	36,656
North Lyell ore	922
Precipitate	96
Total	37,674
Source of Material.	
Limestone delivered at works (tons)	4,066
Silica delivered at works	5,580
Pyrite concentrate shipped from Regatta Point (tons), approx. value £A154,677	51,559
Blister copper produced, 8814 tons, containing:	
Copper (tons) 8,741	Approximate value
Silver (oz.) 28,701	£A3,024,141
Gold (oz.) 5,289	
Average number of men employed—	
Mining Department—At the Company's	
North Lyell Mine	1
Ditto, Royal Tharsis Mine	89
Ditto, West Lyell Mine	551
Miscellaneous	164
	805
Reduction Works (including Lake Margaret)	751
Railway Department—Mount Lyell Railway	109
Total	1,665

Copper produced from the inception of the Company to the 31st December, 1953, 464,433 tons.

Silver produced from the inception of the Company to the 31st December, 1953, 15,599,308 oz. (fine).

Gold produced from the inception of the Company to the 31st December, 1953, 531,733 oz. (fine).

Dividends paid during the year, £145,312.

Dividends paid from the inception of the Company to the 31st December, 1953, £7,447,403.

CEMENT, CARBIDE AND LIMESTONE.

The combined value of output from these three industries amounted to £954,507 as compared with £715,666 for 1952.

COAL.

RETURN showing the Quantity and Value of Coal raised to 31st December, 1953.

Year	Quantity Tons	Value £
Previous to 1950	5,393,735	4,325,148
1950	222,351	231,599
1951	236,888	305,548
1952	247,899	341,561
1953	233,629	445,316
Total	6,344,502	5,649,172

DOLOMITE.

RETURN showing the Quantity and Value of Dolomite produced from 1899 to 1953 inclusive.

Year	Quantity Tons	Value £
Prior to 1950	10	25
1951		
1952	1,002.76	3,247
1953	2,565	7,695
Total	3,577.76	£10,967

GOLD.

The quantity won was 16,181.920 fine oz. valued at £200,556 as compared with 16,245.645 fine oz. valued at £201,446 for 1952.

RETURN showing the Quantity and Value of Gold won to 31st December, 1953.

Year	Quantity Oz.	Value £
Previous to 1950	2,317,784.47	10,339,078
1950	15,577.788	193,164
1951	14,445.676	179,126
1952	16,245.649	201,446
1953	16,181.920	200,556
Total	2,380,235.503	£11,113,370

GRANITE (RED).

RETURN showing the Quantity and Value of Red Granite produced during the years 1935 to 1953.

Year	Quantity Tons	Value £
1935 to 1949 inclusive	3,290.5	23,572
1950	93	1,045
1951	60	834
1952	93	1,387
1953	39	654
Total	3,575.5	27,492

IRON PYRITES.

RETURN showing the Quantity and Value of Iron Pyrites produced during the years 1915 to 1953 inclusive.

Year	Quantity Tons	Value £
1915 to 1949 (inclusive)	674,022.973	871,825
1950	51,105	101,876
1951	49,925	107,339
1952	54,421	143,710
1953	51,559	154,677
Total	881,032.973	£1,379,427

KAOLIN.

RETURN showing the Quantity and Value of Kaolin produced during the years 1940-1953 inclusive.

Year	Quantity Tons	Value £
1940 to 1949 (inclusive)	38,093.25	89,790
1950	10,199	33,996
1951	8,075	29,991
1952	8,366	39,182
1953	9,061	41,424
Total	73,794.25	£234,383

LEAD.

The output was 9353.045 tons, valued at £852,591, compared with 8575.566 tons valued at £1,168,758 for 1952.

RETURN shows the Quantity and Value of Lead included in Silver Lead during the years 1919 to 1953 inclusive.

Year	Quantity Tons	Value £
1919 to 1949 inclusive	190,437.059	6,228,872
1950	8,726.281	951,574
1951	7,850.970	1,278,907
1952	8,575.566	1,168,758
1953	9,353.045	852,591
Total	224,942.921	£10,480,702

LIMESTONE.

RETURN showing the Quantity of Limestone produced during the years 1919 to 1953 inclusive. 1919 to 1936 inclusive, 2,108,943 tons, £1,430,674.

Year	Limestone used in	Limestone used
	the Manufacture of Carbide and Cement.	for Metallurgical, Building and other Purposes.
	Tons	Tons
1937-1949 inclusive	1,502,361	1,983,945
1950	127,334	29,918
1951	128,437	25,573
1952	147,212	23,811
1953	161,472	20,830
Total	2,066,816	2,084,077

LIMONITE.

RETURN showing Quantity and Value of Limonite produced during the years 1950 to 1953 inclusive.

Year	Quantity Tons	Value £
1950	366.5	715
1951	377.5	1,914
1952	519.75	2,807
1953	299.5	899
Total	1,562.25	£6,335

NICKEL.

RETURN showing the Quantity and Value of Nickel produced from 1927 to 1953 inclusive.

Year	Quantity Tons	Value £
1927-1938	222.55	38,850
1939-1953	.....	.....
Total	222.55	£38,850

OCHRE.

RETURN showing the Quantity and Value of Ochre produced during the years 1918 to 1953 inclusive.

Year	Quantity Tons	Value £
1918 to 1949 inclusive	1,728.25	3,791
1950	100.5	200
1951	28	80
1952	23.5	132
1953	19.5	59
Total	1,847.25	£4,157

OSMIRIDIUM.

The quantity of metal won during the year was 58.831 oz., valued at £2354 as compared with 50.962 oz., valued at £2038 for 1952.

RETURN showing the Quantity and Value of Osmiridium produced during the years 1910 to 1953 inclusive.

Year	Quantity Oz.	Value £
1910 to 1949 inclusive	30,724.397	665,144
1950	46,141	1,339
1951	33.378	1,216
1952	50.962	2,038
1953	58.831	2,354
Total	30,913.709	672,091

SILVER.

The output was 1,203,256.167 oz. (fine), valued at £370,603, as compared with 1,114,229.888 oz. valued at £345,226 for 1952.

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 1953 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 £
1919-1949	15,705,262.538	1,844,611	3,110,129.9	416,691	232	25	44	4	6,468,741.49	978,812	25,284,409.928	3,240,143
1950	115,016.784	31,061	24,084	6,476	.....	.....	.....	.....	990,739.25	267,377	1,129,840.034	304,814
1951	124,799.113	40,618	22,749	9,423	.....	.....	.....	.....	836,677.96	272,915	984,226.073	321,056
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
Total	16,313,328.610	£2,017,045	3,215,851.9	£449,156	232	£25	44	£4	10,186,505.58	£2,115,612	29,715,962.090	£4,581,842

SHALE.

RETURN showing the Quantity and Value of Shale produced during the years 1910-1953 inclusive.

Year	Quantity Tons	Value £
1910-1935	41,572	31,231
1936-1953 .....	.....	.....
Total	41,572	£31,231

SCHEELITE.

RETURN showing the Quantity and Value of Scheelite produced during the years 1917 to 1953 inclusive.

Year	Quantity Tons	Value £
1917 to 1949 inclusive	4,985.711	1,485,433
1950	791.53	465,296
1951	1,020.09	1,692,631
1952	969.59	1,321,664
1953	1,130.139	1,163,585
Total	8,897.060	£6,128,609

SILICA.

RETURN showing Quantity and Value of Silica produced during the years 1936 to 1953 inclusive.

Year	Quantity Tons	Value £
1936 to 1949 inclusive	87,830.75	40,841
1950	7,443	3,572
1951	7,062	4,726
1952	9,067.5	7,685
1953	6,189.75	5,430
Total	118,133	£62,254

TALC.

RETURN showing the Quantity and Value of Talc produced during the years 1928 to 1953 inclusive.

Year	Quantity Tons	Value £
1928-1948	333.35	1,077
1949-1953 .....	.....	.....
Total	333.35	£1,077

TIN.

The output was 778.248 tons valued at £552,452, as compared with 771.186 tons valued at £744,618 for 1952.

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 1953 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 1949 inclusive	62,934.178	13,584,013
1950	684.948	505,668
1951	705.834	742,683
1952	771.186	744,618
1953	788.248	552,452
Total	138,733.324	£24,714,591

WOLFRAM.

RETURN showing the Quantity and Value of Wolfram produced during the years 1899 to 1953 inclusive.

Year	Quantity Tons	Value £
1899 to 1949 inclusive	6,012.879	1,240,710
1950	200.103	114,083
1951	378.834	715,295
1952	481.476	719,370
1953	521.853	596,897
Total	7,595.145	£3,386,355

ZINC.

RETURN showing the Quantity and Value of Zinc produced during the years 1919-1953 inclusive.

Year	Quantity Tons	Value £
1919 to 1949	330,545.263	11,300,374
1950	23,230.024	2,806,697
1951	20,463.609	3,485,654
1952	22,396.254	3,292,441
1953	23,680.10	1,763,608
Total	420,315.250	£22,648,774

ELECTROLYTIC ZINC COMPANY OF AUSTRALASIA LIMITED.

RETURN FOR THE YEAR 1953.

EXTRACTION FROM ORES AND CONCENTRATES: RISDON.

From other than Tasmanian Ores—

Zinc	66,508	tons
Cadmium	180,9548	tons
Cobalt oxide	16.4189	tons

From Tasmanian Ores—

Zinc	23,371	tons
Cadmium	40	tons
Cobalt oxide	0.2399	tons
Lead	880	tons
Silver	110,961	oz.

Men Employed—

The average number of men employed was 2,382.

WEST COAST DIVISION.

Ore Mined—

	Tons
From Hercules Mine	27,267
From Rosebery Mine	153,296
Total	180,563

Concentrates Produced—

	Tons
Zinc Concentrates	49,443
Lead Concentrates	9,235
Copper Concentrates	5,160
Total	63,838

Recoverable Quantity in Ores Mined—

Zinc	23,680.10	tons
Lead	7,735.41	tons
Copper	395.50	tons
Cadmium	44.51	tons
Silver	971,815.11	oz.
Gold	10,423.76	oz. (fine)

Average Number of Men Employed—

Hercules Mine	60
Rosebery Mine	573
Total	633

STATISTICS OF PRODUCTION.

RETURN showing the Annual Published Value of Mineral Products for the State of Tasmania from 1880 to 1953 inclusive.

Year	Value £
1880-1949 inclusive	111,207,196
1950	7,677,831
1951	11,222,287
1952	11,746,606
1953	9,494,075
Total	151,347,995

QUANTITY AND VALUE OF METALS AND MINERALS PRODUCED.

RETURN showing Quantity and Value of Metals and Minerals Produced in Tasmania as at 31st December, 1953.

Table with 4 columns: Mineral or Metal, Quantity, Value with Sterling Metal Prices, and Value with Aust. Metal Prices. Rows include various minerals like Antimony, Asbestos, Barytes, Bismuth, Cadmium, Carbide, Cement, and Limestone, Coal, Cobalt Oxide, Copper, Dolomite, Gold, Granite, Graphite, Hematite, Ilmenite, Iron Ore, Iron Pyrites, Kaolin, Lead, Limestone, Limonite, Magnetite, Manganese, Monazite, Nickel, Ochre, Osmiridium, Rutile, Scheelite, Silica, Shale, Silver-Lead ore, Talc, Tin, Wolfram, and Zinc, ending with a Total row.

QUANTITY AND VALUE OF MINERALS.

STATISTICS RELATING TO THE MINERAL INDUSTRY FOR THE YEAR ENDED 31ST DECEMBER, 1953.

Mineral.	MINING DIVISIONS.					Total Quantity.	VALUE.	
	Northern and Southern.	Eastern.	North-Eastern.	North-Western.	Western.		Sterling.	Australian Prices.
							£S.	£A
Aluminium (tons)	....	....	....	....	....	....	....	....
Antimony (tons)	....	....	....	....	....	....	....	....
Bismuth (tons)	....	....	....	....	....	....	....	....
Copper (tons)	....	....	....	....	9,136·50	9,136·50	2,305,788	3,086,951
Cobalt Oxide (tons)	....	....	....	....	2399	2399	....	269
Coal (tons)	9,927	222,722	....	930	....	233,629·0	....	445,316
Cadmium (tons)	....	....	....	....	44·51	44·51	70,712	76,222
Dolomite (tons)	....	....	....	2,565	....	2,565	....	7,695
Gold (fine oz.)	52·457	....	416·703	....	15,712·76	16,181·92	200,556	250,690
Granite (Red) (tons)	....	39	....	....	....	39	....	654
Graphite (tons)	....	....	....	12·75	....	12·75	....	38
Iron Ore (tons)	....	....	....	4,527	....	4,527	....	3,961
Kaolin (tons)	2,622	3,743	2,696	....	....	9,061	....	41,424
Lead (tons)	....	....	....	....	9,353·045	9,353·045	852,591	972,171
Limestone (tons)	22,727	....	....	155,509	4,066	182,302	....	132,836
Limonite (tons)	....	....	....	299·5	....	299·5	....	899
Ochre (Red) (tons)	....	....	....	19·5	....	19·5	....	59
Osmiridium (fine oz.)	58·831	....	....	....	....	58·831	2,354	2,941
Pyrites (tons)	....	....	....	....	51,559	51,559	....	154,677
Scheelite (tons)	....	....	....	1,130·139	....	1,130·139	1,163,585	1,699,732
Silica (tons)	....	....	....	609·750	5,580	6,189·75	....	5,430
Silver (fine oz.)	....	....	....	....	1,203,256·167	1,203,256·167	370,603	456,714
Tin (tons)	1·377	428·960	240·359	45·722	71·830	788·248	552,452	709,567
Wolfram (tons)	....	519·161	173	2·519	....	521·853	596,897	853,865
Zinc (tons)	....	....	....	....	23,680·10	23,680·10	1,763,608	2,167,556
Total Value with Sterling Metal Prices	....	....	....	....	....	....	£8,672,404	....
Total Value with Australian Metal Prices	....	....	....	....	....	....	£11,069,667	....
Average Number of Men Employed	3,393	692	224	614	2,447	7,370	....	....
Manufactured Products:	....	....	....	....	....	....	....	....
Carbide and Cement	8,558	....	....	113,805	....	122,363	....	821,671

The Electrolytic Zinc Company of Australasia Limited recovered 66,508 tons of Zinc, valued at £6,066,460; 180·9548 tons of Cadmium, valued at £315,355; and 16·4189 tons of Cobalt Oxide, valued at £18,390 from other than Tasmanian ores and employed an average number of 2,382 men at Risdon.

STATISTICS OF MINING COMPANIES.

RETURN showing the Amounts Paid in Dividends by Mining Companies during the Year ending 31st December, 1953.

Mines	Dividends
Copper	174,375
Gold	
Tin	447,197
Silver	
Coal	
Scheelite	800,000
Zinc	1,200,000
Total	2,621,572

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

RETURN showing the Mining Companies Registered during the Year ended 31st December, 1953.

Number of Companies	Capital
Nil	Nil

Three agents for foreign companies under the Mining Companies (Foreign) Act, 1884, were 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, 1953.

Head of Revenue	Amount		
	£	s.	d.
Rent of Auriferous and Mineral Lands	7,084	16	9
Fees, Auriferous and Mineral Lands	518	2	4
Survey Fees	1,018	9	0
Fees under the Explosives and Inflammable Liquids Act	4,669	15	0
Total	£13,291	3	1

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 1953.

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

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, 1953.

Mineral	Number	Number of Sluiceways	Area Acres.
Bauxite	1		129½
Barytes	1		10
Coal	33		6,589
Clay	9		251
Copper	1		33
Granite	4		30
Gold	26		665½
Iron	1		50
Limestone	13		831
Minerals	35		11,247
Nickel	5		249
Osmiridium	1		10
Ochre	2		24
Pyrites	1		80
Scheelite	3		281
Silica	3		35
Silver Lead	18		660
Stone	11		1,098
Sand	2		13
Serpentine, &c.			
Tin	190		6,971
Tin Wolfram	4		350
Wolfram	2		86
Mining Easements	61		676
Water Licences	172	841	1,028½
Total	599	841	31,397½

RETURN showing the Total Area of Land and Number of Sluiceways of Water Applied for during the Year ending 31st December, 1953.

Mineral	Number	Area Acres.	Sluiceways
Coal	2	290	
Gold	1	30	
Limestone	1	10	
Minerals	5	303	
Stone	3	430	
Scheelite	1	3	
Tin	18	266	
Tin-Wolfram	4	125	
Wolfram	5	150	
Water-rights and Dam Sites	14	23	82
Mining Easements and Machinery Sites	3	175	
Total	57	1,805	82

RETURN showing Total Number and Area of Leases and Licences Issued during the Year ending 31st December, 1953.

Mineral	Leases	Area Acres	Sluiceways
Gold	1	30	
Tin-Wolfram	4	350	
Tin	3	418	
Water-rights and Dam Sites	24	170	11
Wolfram	2	86	
Mining Easements	1	1	
Total	35	1,055	11

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

	Average for 1950			Average for 1951			Average for 1952			Average for 1953		
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
Copper—Standard, spot: per ton	179	2	0	216	13	0	264	14	5	252	7	4
Lead—Soft Foreign: per ton	107	17	6	162	18	3	136	7	8	91	3	1
Spelter: per ton	119	4	0	170	6	8	147	10	3	74	9	6
Tin—Standard, spot per ton	737	8	6	1,065	8	11	965	11	0	700	16	2
	s.	d.		s.	d.		s.	d.		s.	d.	
Silver—Standard, spot: per oz.	5	5		6	6	3	6	2	4	6	2	4
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
Osmiridium, per oz.	28	10	0	36	4	0	39	19	10	40	0	0
Wolfram, per ton	816	0	0	2,726	0	0	2,244	13	0	1,656	17	6
	W.O.			W.O.			W.O.			W.O.		
Gold, per fine oz.	12	8	0	12	8	0	12	8	0	12	8	0

AID TO MINING.

The policy of assistance to mining was maintained to the extent provided for under the provisions of the Aid to Mining Act. An amount of £3,195 11s. was expended in sustenance allowance, assistance, drilling operations and insurance. Repayments, covering loans, tribute royalties and interest, amounted to £1,275 13s. 5d. The amount standing to the credit of the Mining Trust Fund was £11,009 18s. 4d. Where investigations have revealed merit in projects, applications for assistance have not been denied. Although there has been no condition of repayment in many cases, the fund has prospered sufficiently to warrant a substantial increase in the amount of £300 capable of being made available in any one case, without a resolution of both Houses of Parliament, to make the extent of assistance more compatible with the hardened cost structure.

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 67·637 tons of concentrates, containing 45·675 tons of metallic tin, afforded employment to 20 men and contributed materially to the stability of Waratah. Royalty payments amounted to £832 9s. 8d.

An amount of £150 was repaid by the Jubilee Coal Mining Company in respect of the loan of £2,500 made available to meet developmental and operational expenditure at the colliery.

There was an amount of £275 outstanding against the £5,500 advanced to Renison Associated Tin Mines for the erection of dwellings and a community hall.

THE AID TO MINING ACT, 1927.

STATEMENT OF RECEIPTS AND PAYMENTS OF THE MINING TRUST FUND FOR THE YEAR ENDED 31st DECEMBER, 1953.

RECEIPTS.			PAYMENTS.		
	£	s. d.		£	s. d.
Balance 31st December, 1952	12,928	5 11	Sustenance allowance	90	0 0
Repayment of loans	435	17 10	Assistance	861	5 0
Interest	7	5 11	Drilling	2,242	17 1
Tribute royalty	832	9 8	Insurance	0	8 11
			Total Payments	3,194	11 0
			Balance (excess receipts over payments)	11,009	18 4
	£14,204	9 4		£14,204	9 4

THE AID TO MINING (FEDERAL GRANT) TRUST FUND.

(22 Geo. V. No. 92, and 26 Geo. V. No. 8, and 2 Geo. VI. No. 68.)

RECEIPTS AND PAYMENTS STATEMENT.

RECEIPTS.				PAYMENTS.					
Item.	March, 1935 (commence- ment) to 31st Dec., 1953.		1st Jan., 1953 to 31st Dec., 1953.		Item.	March, 1935 (commence- ment) to 31st Dec., 1953.		1st Jan., 1953 to 31st Dec., 1953.	
	£	s. d.	£	s. d.		£	s. d.	£	s. d.
Provided by—					Prospecting	1,584	6 6		
Commonwealth	£25,750				Batteries	1,328	14 0		
State	9,250				Advances	22,785	5 7		
		35,000	0 0		Plants and operation thereof	6,711	9 11		
Transfer of balance from—					Metallurgical investigations	1,237	3 4		
The Aid to Mining (Federal Grant) Trust Fund, 1936-37 (1 Edw. VIII. No. 20)	1,883	18 2			Roads and tracks	6,486	8 8		
The Aid to Mining (Federal Grant) Trust Fund, 1937-38 (1 Geo. VI. No. 32)	798	9 11			Transport	829	10 10		
Other credits—					Staff	574	11 1		
Batteries	99	13 2			Total payments	41,537	9 11		
Advances	9,092	4 7			Excess receipts over pay- ments	5,349	13 4	5,349	13 4
Plants and operation there- of	11	18 8							
Metallurgical investigations	0	7 11							
Staff	0	10 10							
Balance brought forward period ended 31st Decem- ber, 1952			5,349	13 4					
			£46,887	3 3		£46,887	3 3	£46,887	13 4

GOLD MINING ENCOURAGEMENT ACT, 1940.

(Commonwealth Act, No. 38 of 1940.)

RECEIPTS AND PAYMENTS STATEMENT OF THE GOLD MINING ENCOURAGEMENT (COMMONWEALTH) DEPOSIT ACCOUNT FOR THE YEAR ENDED 31st DECEMBER, 1953.

RECEIPTS.			PAYMENTS.		
	£	s. d.		£	s. d.
Balance brought forward, 31st December, 1952	2,000	0 0	Advances		
Repayments			Excess receipts over payments	2,000	0 0
Interest					
	£2,000	0 0		£2,000	0 0

DRILLING.

Department drilling plants were in operation on hire to holders of mining tenements, in drilling areas reserved against occupation under the provisions of the Mining Act, in boring for water on pastoral lands and in testing foundation strata for building structures. Bores aggregating 4,077 feet were drilled. Expenditure in all fields of boring was £5,858 15s. 9d. and £2,890 15s. 7d. was repaid under drilling agreements.

A further 480 feet of diamond drilling was completed at Dalmayne in tracing the areal extent and horizons of coal seams.

Diamond drilling was continued in testing tin occurrences in the Rossarden region. Thirteen bores, aggregating 1,036 feet, were drilled.

One percussion plant was in constant operation in boring for supplies of underground water on pastoral land. Nineteen holes aggregating 2,379 feet, were completed, an adequate supply of water being obtained in each bore.

A second percussion plant was engaged in testing foundation strata at Launceston and in boring for underground water at Chudleigh.

Three percussion plants were available but difficulty in obtaining crews enabled only one unit to be held in constant commission. A school of instruction was set up and selected personnel were in training at the close of the year.

DETAILS OF EXPENDITURE ON DRILLING DURING THE YEAR ENDED 31ST DECEMBER, 1953.

Plant.	Location.	Amount Expended.	
		£	s. d.
Junior Straitline Diamond Drill	St. Marys	1,684	7 11
Goldfields No. 10 Diamond Drill	Rossarden	1,280	7 11
G33 Percussion Drill No. 1 Unit	Oatlands	1,277	17 0
G33 Percussion Drill No. 1 Unit	Kempton	729	8 2
G33 Percussion Drill No. 1 Unit	Lutana	65	7 2
G33 Percussion Drill No. 2 Unit	Chudleigh	821	7 7
		£5,858	15 9

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 patterned 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. Results are trending to a more rational arrangement of the mineral potentialities, and, in order that this service may be expanded, it is planned to set up an establishment at Port Davey, for a detailed investigation and exploration of the mineral resources of the South-Western region of the State.

STAFF.

Miss E. R. Young resigned as Stenographer.

Mr. G. R. Barnes was appointed as a Field Assistant, but resigned later in the year.

Mr. N. G. Haig was appointed as a Field Assistant.

Mr. D. E. Sargison resigned as a Field Assistant.

Mr. H. J. Dabner resigned as Caretaker-Cleaner, Research Laboratories, Launceston, and Mr. H. B. Holmes was appointed in his stead.

Mr. A. V. Jackson was appointed as a Field Assistant.

MINES DRAFTING BRANCH.

Number of working plans in use and kept up to date	238
Mineral leases applied for	50
Instructions issued to Surveyors	62
Diagrams received from Contract Surveyors	2

Diagrams received from Staff Surveyors	50
Diagrams and Consolidated Diagrams compiled and drawn	54
Manuscripts traced for reproduction	3
Manuscripts brought up-to-date	11
Manuscripts forwarded to Printer	5
Leases drawn	108
Leases transferred	43
Special Prospector's Licences—Areas described and charted	10
Permits to enter charted	25
Photostats forwarded to Northern Office	51
Lithographs entered to date	128
Underground Mining Plans examined and checked	8

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, Wardens of Mines, and Registrars of Mines in the several mining districts.

APPENDICES.

The following reports are appended:—

Geological Survey.
Chief Chemist and Metallurgist.
Chief Inspector of Mines.
Chief Inspector of Explosives.
Inspectors of Mines and Explosives.
Mount Cameron Water Race Board.
Ringarooma-Cascade Water Board.

I have the honour to be,

Sir,

Your obedient servant,

W. H. WILLIAMS, Director of Mines.

APPENDIX I. REPORTS OF GEOLOGISTS.

The Chief Geologist H. G. W. Keid, M.Sc., reports:—

Following the work of the previous year the early part of 1953 was occupied in the preparation of plans and reports on certain areas of Gladstone district which had been selected and recommended for testing by hand-boring.

The latter half of the month of March was spent at Smithton where, prior to a contemplated programme of boring for water a number of residents were interviewed and their properties examined to determine the possibilities of securing water supplies. Upwards of twenty people were interviewed and bore sites selected or approved for them. It was anticipated that, in most cases, water supplies were assured.

The remainder of the year was occupied with the supervision of a hand-boring campaign in the Gladstone district. Boring was commenced on 28th April and terminated on 19th December. The object of the campaign was to determine whether or not the areas previously selected for boring were tin bearing. In all 303 bores were completed for a total footage bored of 5620 feet. The results, in general, were disappointing as only one area, limited in extent, was shown to be of an economic grade.

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

The principal investigation was the mapping and description of the Dial Range Mineral Field. This area of some seventy square miles had never previously been mapped, although near-surface development has occurred, over much of the countryside, in the search for ores of copper, gold, silver, tin, lead, iron, manganese, barium and sulphur. The rock types and structure pattern of the district were determined and recommendations made for detailed investigation of certain deposits by drilling and geophysical methods.

Another investigation of major importance was at the Cleveland Mine, where in conjunction with the Geophysical Section of the Bureau of Mineral Resources, the tin-bearing sulphide ores were examined and mapped. A structural interpretation and its relationship to further sulphide ore bodies was discussed.

During the investigation of a pyrite deposit to the east of Port Sorell, it was decided to map the surrounding countryside and some ninety square miles, mainly of Pre-Cambrian rocks were mapped. It was found that although a certain amount of prospecting and development for copper and gold had taken place, this area did not constitute a favourable metallogenetic province for either of these metals.

Country round the middle reaches of the Don River was mapped during an investigation into proposed dam sites for the new Devonport Water Scheme. The geological factors affecting several sites were discussed, and recommendations were made.

Areas in various parts of Tasmania were visited and reports submitted in connection with water supplies for farmers and public bodies, as at Rosevears, Carlton, Chudleigh, Exton, Dunorian, East Devonport, Sandfly, Spreyton, Epping, King Island, Kempton, Melton Mowbray, Launceston, Risdon and Mangalore.

Other matters investigated and reported on included Lime Deposits at Maydena, Margate and King Island, supposed mineral occurrences at Burnie and Meander, an alleged oil occurrence at Strahan and an investigation of rock types at Somerset.

Geologist G. Everard, B.A., reports:—

Both field and laboratory investigations were undertaken.

In the field the following investigations were made:—

Lake Pedder and Cinder Hill Areas—Reconnaissance surveys in connection with prospecting work.

Dial Range Mineral Field—Sampling of mineral deposits.

Storey's Creek—Survey of diamond drill holes on H. E. Brock's Tin Prospect.

Crayfish Point—Examination of proposed site for bowlfish green.

The steady increase in volume of laboratory work, mentioned in previous reports, was maintained. Additional equipment permitted greater accuracy and detail in determinations. Rock and mineral specimens and samples of concentrates to the number of over one hundred were individually examined and reported on, including eight detailed petrological reports on suites of specimens collected at Dial Range Mineral Field, Mt. Cleveland Mine, Somerset and elsewhere.

Diamond drill core, from Gunns Plains, was examined for assay and three rock and mineral collections were prepared for scientific and educational purposes in Australia and abroad.

Regional Geologist B. L. Taylor, B.Sc., Zeehan, reports:—

Mr. D. Burger continued as a geologist. Mr. D. E. Sargison, resigned as field assistant at the end of April and Mr. A. V. Jackson was appointed to this position as from 27th July.

Regional geological work has been continued in the North Pieman Mineral Area—

- (1) Along portion of the Pieman River;
- (2) West of the Wilson River in the vicinity of Four Mile Creek;
- (3) Between Renison Bell and Rosebery; and
- (4) In the vicinity of the Eureka.

During the year the boundaries of the areas to be covered by each of the regional establishments were discussed at a conference in Hobart. The area to be covered from the Zeehan office has been defined as from between 830,000 yards N. and 890,000 yards N. and from the coastline to 370,000 yards E. (Australian Military Grid).

Detailed geological work was undertaken over an area of twenty to thirty square miles west and north of Zeehan. This work is now progressing. As a result of this investigation, an area north of the Montana Mine was selected as being likely to contain silver-lead lodes. Traverses for a geophysical survey reconnaissance have been prepared in this area.

An investigation of the Bon Accord-Owen Meredith area west of Renison Bell has been undertaken and is proceeding. Gridded geophysical traverses over the known lode are being prepared to determine the lateral and vertical persistence of ore.

Geophysical work in the copper-nickel field was completed early in the year and survey assistance was again given in this work. Later, the interested company embarked on a programme of diamond drilling in the northern portion of this field. Assistance was given in this work in the matter of drillhole siting, core logging and assessment of results.

Mine survey and geological mapping have been undertaken, from time to time, at the Montana Silver-Lead Mine.

An investigation of three leases in the Swansea district, held by Mr. R. B. Hill, was undertaken and a report was furnished thereon.

The cage crossing over the Pieman River, near its junction with the Stanley River, was completed by the contractor early in the year. Following this, a track gang was formed to complete track formations associated with the crossing. Later, the services of this gang were utilised in traverse cutting.

Occasional mineral determination have been made for local prospectors.

Regional Geologist John Elliston, B.Sc., reports:—

In undertaking a geological survey of the 900 square miles in the Lorinna area, sufficiently detailed to sensibly assess the mineral potential, one of the major problems has been map-making.

No topographic maps of the required standards existed and it has been necessary to prepare these maps before any geological work could be properly recorded.

During the summer of 1952-53 the trigonometrical stations, to be used for controlling the aerial photo. map-making, were erected and observed.

The photogrammetry and computations of the surveying were undertaken during the winter months together with what field work was possible with the snow coverage and temporarily impassable jeep tracks.

The final computations of the triangulation has been delayed pending the re-observation and re-calculation of the base stations by the Lands Department.

The regional geological work has elucidated the main local structures and stratigraphy of about one third of the area but the details are still under compilation.

In addition to the regional geological survey, other work undertaken includes a detailed survey of the Stanhope Coal Field at Avoca and the All Nations area at Moina with brief investigations at Interview River and at Port Sorell.

APPENDIX II.

REPORT OF THE CHIEF CHEMIST AND METALLURGIST.

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

DETERMINATIONS AND ANALYSES.

Determinations were made of gold, silver, tin, lead, aluminium, arsenic, antimony, barium, beryllium, bismuth, manganese, molybdenum, nickel, potassium, phosphorus, silicon, sodium, sulphur, titanium, thorium, tungsten, uranium, zinc, and zircon.

Analyses were made of ores, minerals, rocks, mill and research products associated with ore dressing investigations, clays, coal and water. The number of determinations approximated 3500.

ORE DRESSING INVESTIGATIONS.

Ore dressing investigations were made on mill tailings from the King Island Scheelite Company and examinations were made to determine the reasons for losses in the tailings. Problems were investigated for the Aberfoyle

Mining Company and consisted of rod-mill grinding of coarse tailings followed by table concentration and in addition separation of cassiterite and wolfram was attempted by flotation. An extensive examination of milling practice of the Renison Associated Company's mill at Renison Bell, was undertaken and recommendations made for improved operation. A flow sheet prepared for a more efficient mill at the existing mill site. The old S. & M. Mine at Moina, now owned by the Tasmanian Tungsten Tin Mining Co., is being put into commission and investigations have been made for treatment of the ore which contains wolfram, cassiterite, bismuthinite, scheelite, chalcocopyrite, sphalerite and pyrite. Concentration tests were undertaken on a complex lead, zinc, gold, silver ore from the Silver Spur Mine, Queensland.

Coal samples were received from the Mt. Nicholas and Merrywood Collieries for beneficiation tests by heavy media treatment.

Appreciation is recorded of services rendered by the staff.

APPENDIX III.

REPORT OF THE CHIEF INSPECTOR OF MINES.

The Chief Inspector of Mines (Mr. W. H. Williams) reports:—

MINES AND WORKS REGULATION ACT.

Employment.

The number of men employed in mining, metallurgical and quarrying operations was 7,370, as compared with 6820 for the previous year. Increased employment and risings in the output of metallic and non-metallic minerals continued to emphasise the importance of the mineral industry to the prosperity and economy of the State.

Accidents.

The number of accidents registered under the provisions of Section 23 of the Act was 73 as compared with 61 for last year.

The appended tabulations relate to:—

- (1) Fatalities and non-fatal casualties at mines, quarries and works, which later involved absence from work for not less than 14 ordinary days; and
- (2) The average number of persons employed and the rate, per 1000 employees, of fatal and non-fatal injuries in the State and in each Mineral Division.

There were less accidents in the Northern and Southern Division but there was an increase in the number in other divisions.

Twenty-three accidents occurred in underground workings and 50 were associated with surface operations at mines, quarries and metallurgical works.

There were six fatal accidents, three being allied with surface operations and three occurring in underground workings.

Two fatalities were due to falls of work in underground workings.

A miner was fatally injured when the flange of a hoisting winch fractured, sheared the rope and allowed the loaded bucket to fall down a winze. The bucket bounced into the drive, at the bottom of the winze, and struck the miner who was engaged in shovelling operations.

A labourer sustained fatal injuries when a tree stump he was barring from the top of a road cutting rolled on him.

An employee was fatally injured when he fell from a structure being used in connection with the installation of metallurgical plant.

In the sixth case, a mine employee fell from a head-frame, being erected over a vertical shaft, and sustained fatal injuries.

With few exceptions, the non-fatal accidents were not of serious moment, the injuries resulting from misadventure in miscellaneous operations at mines and works.

In one case, a miner bored into a "miss-hole" and caused the charge of nitro-compounds to explode. He sustained facial injuries which resulted in the loss of an eye.

A carpenter sustained a fractured leg and other injuries when he fell from a "walkway", under construction, on to a ball mill.

In a third case, an employee was handling timber which rolled, jammed and fractured his leg.

Health and Sanitation.

High relative humidities prevailed in underground workings but atmospheric temperatures remained below the upper limits of lawful tolerance. Investigations had revealed many instances of inadequate control of air migration to provide desirable ventilation and to assist in the dilution of atmospheric dusts. Ventilation and atmospheric dust surveys were made in underground workings and ore crushing plant. Many instances of inferior conditions were encountered but forward moves made for the implementation of measures that, when matured, will result in a substantial betterment of conditions.

Inspectorial.

The inspectorial staff was maintained at normal level, and the extent to which officers functioned in matters of health and safety is revealed in the summarised reports.

APPENDIX VI
TABLE showing Rate per Thousand Killed and Injured in different Mineral Divisions for the Year, 1953.

Mineral Division.	Average Number of Men Employed.	Number of Accidents.	Number of Persons		Total Number Killed & Injured.	Average per 1000 Killed and Injured.	Average per 1000	
			Killed.	Injured.			Killed.	Injured.
Northern and Southern	3393	19	1	18	19	5.603	0.295	5.308
North-Eastern	224	2	...	2	2	2.890	...	2.890
Eastern	692	18	1	17	18	26.026	1.431	24.595
North-Western	614	6	1	5	6	9.772	1.629	8.143
Western	2447	28	3	25	28	11.42	1.225	10.217
Total	7370	73	6	67	73	9.892	0.861	9.091

COMPARATIVE Table of Statistics of Accidents in and about the Mines of Tasmania from 1st July, 1892, to 31st December, 1953.

Period.	Number of Miners Employed.	Number of Accidents.	Number of Persons		Total Killed and Injured.	Average per 1000 Killed and Injured.	Average per 1000.	
			Killed.	Injured.			Killed.	Injured.
1 July, 1892, to 30 June 1893	3295	28	4	25	29	8.800	1.214	7.586
" 1893 " 1894	3403	25	7	20	27	7.934	2.057	5.877
" 1894 " 1895	3789	26	4	24	28	7.390	1.058	6.332
" 1895 " 1896	4160	22	7	16	23	5.529	1.682	3.847
" 1896 " 1897	4303	36	7	31	38	8.831	1.627	7.204
" 1897 " 1898	5530	36	13	33	46	8.318	0.351	5.967
" 1898 " 1899	6180	35	9	34	43	6.957	1.456	5.501
" 1899 " 1900	6834	19	7	16	23	3.365	1.024	2.341
" 1900 " 1901	7017	29	8	23	31	4.417	1.140	3.278
" 1901 " 1902	6438	38	7	35	42	6.524	1.088	5.437
" 1902 " 1903	6484	44	6	43	49	7.557	0.925	6.632
" 1903, to 31 Dec., 1903	5604	27	8	20	28	4.977	1.428	3.569
1 Jan., 1904 " 1904	6192	73	9	65	74	11.951	1.454	10.497
" 1905 " 1905	6586	34	7	30	37	5.618	1.063	4.555
" 1906 " 1906	7004	65	4	1	65	9.280	0.571	8.709
" 1907 " 1907	7516	68	6	64	70	9.314	0.798	8.515
" 1908 " 1908	6464	60	6	58	64	9.900	0.928	8.972
" 1909 " 1909	6054	54	6	49	55	9.085	0.991	8.093
" 1910 " 1910	5770	63	8	57	65	11.265	1.386	9.878
" 1911 " 1911	5247	80	4	77	81	15.437	0.762	14.675
" 1912 " 1912	5566	60	53*	53	106	19.044	9.522	9.522
" 1913 " 1913	6106	64	6	60	66	10.809	0.982	9.826
" 1914 " 1914	4741	69	9	62	71	14.977	1.896	13.081
" 1915 " 1915	3908	71	6	67	73	18.679	1.535	17.144
" 1916 " 1916	3864	53	2	51	53	13.716	0.517	13.198
" 1917 " 1917	4050	50	2	48	50	12.345	0.493	11.852
" 1918 " 1918	4279	50	5	45	50	11.684	1.168	10.516
" 1919 " 1919	4413	58	1	57	58	13.143	0.226	12.917
" 1920 " 1920	5364	52	2	50	52	9.694	0.372	9.322
" 1921 " 1921	4011	40	3	37	40	9.972	0.748	9.224
" 1922 " 1922	3835	31	4	27	31	8.083	1.043	7.040
" 1923 " 1923	4785	64	2	63	65	13.584	0.417	13.166
" 1924 " 1924	5264	72	1	73	74	14.057	0.189	13.867
" 1925 " 1925	5110	62	2	61	63	12.328	0.391	11.937
" 1926 " 1926	5309	54	5	52	57	10.736	0.941	9.794
" 1927 " 1927	5044	70	5	65	70	13.877	0.991	12.886
" 1928 " 1928	5170	47	1	46	47	9.090	0.193	8.897
" 1929 " 1929	4986	59	17	55	72	14.440	3.409	11.031
" 1930 " 1930	4606	55	4	52	56	12.158	0.863	11.289
" 1931 " 1931	4391	38	8	35	43	9.792	1.821	7.970
" 1932 " 1932	4605	71	4	67	71	15.418	0.868	14.549
" 1933 " 1933	4510	77	7	71	78	17.295	1.552	15.742
" 1934 " 1934	4843	108	4	105	109	22.506	0.826	21.680
" 1935 " 1935	5409	142	1	141	142	26.252	0.184	26.067
" 1936 " 1936	5432	97	4	93	100	18.409	0.736	17.673
" 1937 " 1937	5876	107	5	103	108	18.379	0.850	17.529
" 1938 " 1938	5391	103	2	102	104	17.654	0.339	17.315
" 1939 " 1939	5928	87	2	87	89	15.013	0.337	14.676
" 1940 " 1940	6000	103	2	102	104	17.333	0.333	17.000
" 1941 " 1941	5856	85	5	85	90	15.368	0.853	14.515
" 1942 " 1942	5572	89	4	86	90	16.152	0.718	15.434
" 1943 " 1943	5535	73	6	67	73	13.188	1.044	12.104
" 1944 " 1944	5439	73	4	71	75	13.789	0.735	13.054
" 1945 " 1945	5178	46	2	44	46	8.883	0.386	8.497
" 1946 " 1946	5255	63	1	62	63	11.989	0.19	11.798
" 1947 " 1947	5316	74	...	74	74	13.920	...	13.920
" 1948 " 1948	5399	67	3	64	67	12.409	0.555	11.854
" 1949 " 1949	5659	65	1	64	65	11.481	0.176	11.308
" 1950 " 1950	5892	62	2	62	64	10.862	0.339	10.524
" 1951 " 1951	5928	49	2	50	52	8.772	0.337	8.335
" 1952 " 1952	6820	62	1	61	62	9.691	0.147	8.944
" 1953 " 1953	7370	73	6	67	73	9.892	0.861	9.091

* Mount Lyell disaster.

APPENDIX IV.

REPORT OF THE CHIEF INSPECTOR OF EXPLOSIVES.

The Chief Inspector of Explosives (Mr. W. H. Williams) reports:—

EXPLOSIVES ACT.

The following quantities of explosives were imported through the ports of Hobart, Launceston, Devonport, Burnie, Regatta Point and Currie:—

	lbs.
Monobel	17,500
Gelignite	1,514,200
Quarigel	436,200
Semibel	3,150
Plastergal	14,800
Blasting Powder	2,500
Sporting Powder	100
Ligdyn	12,500
Ajax	135,650
	Feet.
Detonating Fuse Cordtex	504,000
	No.
Fuse Igniters	6,000
Detonators—	
Ordinary	535,000
Electric	286,550

Precautions were taken to ensure that all compounds were in good chemical and physical condition at the date of importation and there was no record of deteriorated explosives at regular points of consumption.

Quarigel, semigel and plastergal, as new nitro-compounds, were permitted for importation and use. The behaviour of these compounds was satisfactory.

In the case of one shipment of explosives, the hold of the vessel developed a leak and 200 cases of gelignite were soaked by sea-water. Conditioning was undertaken and it was necessary to condemn 21 cases. These were destroyed by fire.

Several instances of "miss-fired" charges were investigated and the cause was traced to defective fuse due to exposure to wet conditions.

A timber-cutter was killed when he attempted to shatter a tree stump with gelignite. Investigations revealed that he was not experienced in the use of explosives.

Legal proceedings were instituted in a case where a person had kept explosives without the authority of an inspector.

Several instances were encountered where wood-getters had carelessly left explosives in the "bush". The explosives were destroyed but the offenders were not located.

The careless keeping and disposal of nitro-compounds and detonators was the cause of much concern. In one case, children found an ordinary 100-detonator container, partly full of detonators. They succeeded in causing the detonators to explode with the result that three children were seriously injured.

Consideration was given to the implementation of measures to better control the liberation of explosives and in order that children may be educated in the appearance and hazards thereof a cabinet of dummy compounds, empty detonator shells and fuses, was made available for circulation to schools throughout the State.

INFLAMMABLE LIQUIDS ACT.

Rising activities in the distribution and means of distribution of inflammable liquids and in the building of major terminals and country depots, added substantially to engineering services necessary, beyond prescribed requirements to ensure a constant recognition of fire, explosion and other hazards. Difficulty in obtaining experienced technical personnel caused occasional delays but engineering services were progressively provided in physical, mechanical, electrical and other issues and practices were held at standard comparable with standards in other countries.

Bulk storage terminals were built at Devonport and Self's Point. There was a considerable expansion in the building of new service stations and in the installation of electric petrol service pumps.

Surveillance was exercised of the discharge of oil tankers at several ports.

There were no recorded fires, explosions or other untoward happenings in the storage and handling of inflammable liquids.

APPENDIX V.

REPORTS OF INSPECTORS OF MINES AND EXPLOSIVES.

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

Employment.

The average number of persons employed in the mining and metallurgical operations was 1726 as compared with 1661 for the previous year. The Mount Lyell Mining and Railway Company employed 1665 persons.

Accidents.

Nineteen accidents, resulting in fatal injuries to two persons and non-fatal injuries to 17 persons, were registered under the provisions of the Mines and Works Regulation Act. With the exception of one fatality, all accidents were allied to surface operations. In 11 instances the injuries were due to misadventure. Inexperience was the cause of two accidents and carelessness resulted in eight persons being injured.

One fatal accident occurred, at Zeehan, when a miner, working underground, was shovelling in a drive adjacent to the bottom of a winze in which spoil was being hoisted by a tigger winch. The outer flange of the winch broke and caused the rope to cut and break. A loaded bucket fell 80 feet and bounced into the drive, striking the miner and causing injury which necessitated amputation of the lower part of the left leg. After the operation the miner collapsed and died.

The second fatal accident occurred at Queenstown. A labourer was engaged in barring a stump from a road cutting when it overturned and struck him. He suffered from simple fractures of the collar bone and thigh but, after four days, complications developed and he died from embolism of the brain, said to be caused by fatty substance from the collar-bone fracture entering the blood stream.

The seventeen non-fatal accidents resulted in periods of incapacity ranging from 15 to 73 working days. Nine of the accidents resulted in finger injuries, three in foot injuries, two in head injuries and the balance in limb and body injuries.

Safety.

Inspection services continued to be related to the production and maintenance of safe working conditions in all details of mining and metallurgical operations.

Ventilation.

The ventilation of underground workings and surface installations received customary attention. Ventilation effect was checked by konimeter surveys.

Health and Sanitation.

Supervision was maintained in matters affecting the health of employees. Change rooms, bath houses and meal places have been kept in reasonable condition.

Explosives.

A timber cutter working on his own timber lease, was fatally injured by a blast when he attempted to blow out a stump with gelignite and safety fuse. Investigations revealed that the deceased had little or no experience in handling and use of explosives.

With the assistance of the district police, several parcels of explosives were found to have been planted in the bush. Much of the explosives was in a dangerous condition and was destroyed.

Machinery.

Maintenance and protection of machinery and appliances were kept under surveillance. One unusual accident occurred when an apprentice fitter had his hair caught in the twist-bit of a radial drill and had portion of his scalp torn away.

Inflammable Liquids Act.

Routine examinations have been made of established storage premises and conditions were generally reasonable. No fires or explosions were recorded.

Explosive Act.

Supervision has been maintained of the landing of explosives at Regatta Point and of the subsequent storage thereof.

Explosives landed at Regatta Point comprised:—Gelignite 380,600 lbs.; Quarigel 436,150 lbs.; Plastergel, 4600 lbs.; Safety fuse, 75 cases; Fuse igniters 10,000; Cordtex plastic detonating fuse 264,000 feet.

All nitro-compounds were of "Polar" type and proved to be satisfactory in storage and use.

Tests of the burning rate of safety fuse and the quality of the fuse were satisfactory.

The Workers' (Occupational Diseases) Relief Fund Act.

Medical certificates were received and registered in respect of 305 new employees. Thirty-eight of those examined were shown to have increased markings on the lungs but were accepted as eligible. Six persons were rejected.

Biennial examination of 162 persons resulted in one person being shown as affected with silicosis to an extent of 20 per cent incapacity.

Prosecutions.

Two persons were prosecuted under the provisions of section 74 of the Mines and Works Regulation Act for unseemly behaviour. Both were convicted, fined £3, and ordered to pay costs.

PRODUCTION AND DEVELOPMENT.

Copper.

The Mount Lyell Mining and Railway Company Limited.—The output, from all operations, was 1,470,350 tons of ore mined and 95 tons of copper precipitate recovered from mine drainage water, representing an increase of 15,422 tons of ore and a decrease of six tons of copper precipitate, as compared with the previous year.

Surface mining at the West Lyell group of mines resulted in 1,422,240 tons of ore, representing an increase of 6,308 tons, compared with last year. Additional thereto 11 tons of copper precipitate were recovered from drainage water.

Selective mining and the removal of overburden to safe better limits resulted in 1,378,124 tons of waste material being mined and removed. The combined quantity of ore and waste rock was 2,800,364 tons, which represented an increase of 129,351 tons, compared with the record tonnage of last year.

Production from underground workings totalled 48,110 tons of ore, representing an increase of 9,114 tons. Of this increase, 8015 tons was produced from the Royal Tharsis Mine, 1036 tons was mined in the North Lyell Mine whilst testing the value of a remnant of the old ore body and 63 tons was recovered from an old ore pass at the Crown Lyell Mine.

The following tabulation sets forth the sources of ore and copper precipitate production:—

	Ore Mined Tons	Copper Precipitate Tons
West Lyell Open-cut Mines	1,422,240	11
Royal Tharsis Mine	47,011	....
North Lyell Mine	1,036	64
Crown Lyell Mine	63	....
Lyell Comstock Mine	....	20
Total	1,470,350	95

At the Reduction Works, the mill operated for 351 days and treated 1,469,682 tons of ore, for a recovery of 33,491 tons of copper-bearing concentrate and 56,626 tons of iron-pyrite concentrate of which latter 51,559 tons was shipped.

The smelters were in operation for 252½ days and treated 36,656 tons of copper-bearing concentrate, 922 tons of North Lyell ore and 96 tons of copper precipitate, for an output of 8,814 tons of blister copper, which, after treatment in the electrolytic refinery, yielded 8,741 tons of electrolytic copper, 23,701 oz. of silver and 5,289 oz. of gold.

In addition to the foregoing mining operations, 4,066 tons of limestone and 5,580 tons of silica were quarried and delivered to the Reduction Works, mainly for fluxing purposes.

The Mount Lyell Company employed an average of 1,549 persons in surface operations and 116 persons underground.

Silver-Lead—Zeehan District.

Production of ore employed 30 men continuously and four on part time. Operations resulted in 773·195 tons of concentrate and hand-picked ore being sold. This product contained 485·645 tons of lead and 56,377·057 oz. of silver.

The Zeehan Mines Pty. Ltd.

At the Oceana Mine, an average of 31 persons was employed mainly in development and pumping operations. Stopping on No. 1 level yielded 290 tons of ore which was stockpiled. The ore is estimated to contain 35 tons of lead and 1400 oz. of silver.

A timbered three compartment frame-set ventilation shaft was completed from the surface to 20 feet below the 300 feet level and the main pumping units were installed. Concrete dams were constructed on the 300 feet level, to hold the inflowing water, away from the main shaft, in order that sinking could be continued. Whereas the shaft had been a circular one, sinking was continued below the 340 feet mark on the basis of a four compartment one. The shaft was sunk to near the 420 feet level at the close of the year. A concentration plant, consisting of coarse and fine grinding units and flotation cells, has been designed and is under construction.

The Montana Silver-Lead Mine.

This Company mined and treated 9141 tons of ore, for a recovery of 941·825 tons of flotation concentrate which was forwarded to Burnie for shipment to America. Concentrate amounting to 748·647 tons was delivered to America and contained 468·957 tons of lead and 55,296·205 oz. of silver. At the mine, a limited amount of development work was carried out but there were no appreciable additions to ore reserves.

W. J. Hodge, East Dundas.—Two men, in spare time, obtained, from old dumps, 9·585 tons of concentrate, containing 6·73 tons of lead and 665·121 oz. of silver.

Swansea Silver-Lead Mine, West Zeehan.—J. J. Hill, owner of the mine, sold 5·725 tons of ore, containing 3·939 tons of lead and 256·48 oz. of silver.

R. Laffer, Zeehan.—From intermittent work, this man produced and sold 3·375 tons of ore, containing 2·255 tons of lead and 186·638 oz. of silver.

H. Main, Zeehan.—From surface work, H. Main obtained and sold 4·913 tons of ore, containing 3·026 tons of lead and 395·948 oz. of silver.

W. Payne, Zeehan.—This miner produced and sold 0·95 ton of ore, containing 0·698 ton of lead and 76·665 oz. of silver.

Tin.

A total of 3·677 tons of tin-oxide, containing 1·895 tons of metallic tin, was produced and sold. Production was the result of the efforts of four men working full time and eight others working intermittently.

Razor Back Tin Mine, Dundas.—Three men were engaged in mining and treating lode material for a recovery of 1·754 tons of concentrate, containing 0·899 ton of tin.

E. Coleman, South Heemskirk.—From lode deposits, this man obtained 1·318 tons of concentrate which contained 0·690 ton of tin.

T. Dunn, North Heemskirk.—From alluvial workings, this party recovered 0·176 ton of tin-oxide, containing 0·092 ton of tin.

Messrs. L. Morrisby, H. G. Watson, H. Stokes, E. S. Cook, V. Midson, C. Reid, and C. Anderson each sold one parcel of ore, obtained in spare time working. The total weight of tin-oxide produced was 0·429 ton, containing 0·214 ton of metallic tin. Operations were in the Heemskirk area.

Inspector L. F. Egan, Upper Burnie, reports:—*Employment.*

The average number of men employed in the industry increased from 959 to 1062. The manufacture of red brick absorbed an additional 15 men.

MINES AND WORKS REGULATION ACT.

Accidents.

Of the nine accidents registered under the provisions of the Mines and Works Regulation Act, one proved fatal. A block of ore estimated to weigh between 3-3½ tons slipped from the face in a wide timber stope and rolled

over pinning the miner against a low gap. Death resulted from internal injuries and shock. The verdict of the Coroner's Court was that deceased met his death accidentally and not otherwise.

Of the remaining eight accidents, fractured ribs, lacerations, abrasions and internal injuries were suffered by a carpenter when he inadvertently trod on an overhanging board while building a railed walkway and fell onto the "V" Belt Ball Mill Drive.

Another falling accident occurred underground when a timberman was levering a cap into position. He lost his leverage, slipped and fell eight feet to the level, sustaining concussion and shock.

A fracture of a bone in the right foot was sustained by a miner when a scraper bucket rolled over on it.

Another miner bored into a miss-hole and precipitated an explosion causing injuries to his right eye, eventually resulting in loss thereof.

A simple accident occurred to a miner when a foot-wall pin, supporting a staging in a 45° rise, broke under the weight of a lump of mullock and caused him to slip four or five feet down the footwall. He sustained a lacerated wrist.

In another instance a miner suffered a crushed foot. When lifting a bulky piece of soft mullock onto a truck, the lump broke in two, one piece falling on his foot.

Safety.

Inspection services had as their prime motive the promotion and maintenance of safe working conditions both underground and on the surface in all phases of mining and metallurgical activity.

Ventilation.

At one large mine, increased mill throughput and expanding developmental work underground raised problems associated with the control of dust and the provision of additional ventilation appliances to supplement ventilation equipment already installed.

To this end Departmental dust sampling campaigns and ventilation surveys were carried out and at one large underground mine a supplementary ventilating scheme is being installed.

At a large ore dressing plant the medium crushing section dust collecting system was revised and an entirely new system was designed. Work was proceeding on this project during the year, but was retarded somewhat by the inordinate delays in the supply of equipment ordered.

Health and Sanitation.

Among the prophylactic measures insisted on may be cited the efforts to maintain dust free conditions on the surface and underground, and to provide adequate supplies of fresh air to underground working faces in general.

The provision of additional heated crib rooms with washing facilities at two mines was designed to provide protection against germs and chills. Crib rooms, change houses and latrines at all mines were maintained at a satisfactory level of cleanliness.

First Aid equipment, at all mines and works, was kept under constant review and any inadequacies were pointed out as noticed. At one large mine a First Aid class was held and all candidates for the final examination were successful.

Assistance was rendered to the Workers' Occupational Diseases Relief Fund Board in carrying out the examination of new employees, registration of same, recording of medical certificates and so on. No applications for Compensation were dealt with during the year.

Explosives Act, 1915.

Governmental surveillance was exercised over the importation, distribution and storage of six shipments, totalling 472,200 lbs. of nitro-compounds and 42 cases of gasless delay electric detonators.

In the final shipment of nitro-compounds for the year the wooden explosive vessel developed a leak and water entered the hold, severely soaking over 200 cases. These were subsequently unpacked and examined to detect degree of deterioration. As a result 21 cases were condemned as unfit for use. These were ultimately destroyed.

The necessity of finding a new magazine site for Burnie has become urgent and efforts have been directed to locating a satisfactory site.

Once again the Marine Authority at Currie exercised control, on behalf of the Department, of all explosives imported into King Island during the year.

Inflammable Liquids Act, 1929.

The administration of the Inflammable Liquids Act involved the usual inspections of installations as opportunities offered, as well as control over the discharge of oil tankers at Devonport. With the recent introduction of electric petrol pumps, compliance with Departmental requirements, generally, was particularly good.

In all, 11 oil tankers were attended at Devonport and the total gallonage of all inflammable liquids discharged was 6,628,577. There were no untoward incidents during any of the pumping operations and no spillage occurred.

MINING OPERATIONS AND PRODUCTION.

Cadmium.

The Electrolytic Zinc Co. of Australasia Ltd., continued as the sole producer of cadmium, the entire output of 44.51 tons being derived from the mines at Rosebery and Williamsford.

Copper.

Production of copper was confined to the Electrolytic Zinc Co. of Australasia Ltd., which recovered 5160 tons of copper concentrates, containing 395.5 tons of copper. This represents an increase of 843 tons of copper concentrates containing 80.7 tons of copper over the previous production.

Gold.

As with copper and cadmium, production of gold was confined to the Electrolytic Zinc Co. of Australasia Ltd. at the Rosebery and Hercules mines, the gold being recovered as an important by-product in the subsequent refining of the zinc, lead and copper concentrates.

Limonite.

A total of 235.5 tons of limonite was produced from the Iron Cliff deposits at Penguin. This represents a decrease of 224.25 tons.

Red Ochre.

As in the previous year, the demand for red ochre was slight, production from the Spalford deposit being only 13.5 tons.

Graphite.

A deposit of graphitic schist, South of the Ulverstone Rifle Range, yielded 12.75 tons, production being restricted to the demand.

Beach Pebbles.

Used for grinding softer materials 479.75 tons of beach pebbles were collected from deposits at Ulverstone.

Quartz.

A production of 130 tons of high-grade surface quartz was obtained from Mawbanna and was disposed of readily as a smelting flux on the mainland.

Hematite.

The demand for hematite was negligible, a production of only six tons (from Penguin) being recorded.

Scheelite.

Production was derived from the King Island Scheelite Mine, Grassy, King Island.

Although operations were interrupted by an industrial strike, towards the latter end of the year, production figures were better than for the previous year. Thus 194,208 tons were mined and milled for the recovery of 1130.05 tons scheelite as against 174,563 tons mined and milled for 969.59 tons scheelite in the previous year. The mine gave employment to an average of 290 men for the year.

An important move, was the commencement of the construction of a large new dam in the Grassy River. Work on this project is proceeding.

Miscellaneous (Interview River).—Operations in this area by a small mining group were spasmodic, scarcity of suitable labour making the task difficult.

Miscellaneous (King Island).—Some desultory prospecting was carried out mainly at week ends, although one party entered into an arrangement with a large mining company to carry out prospecting work. No major developments occurred through this channel.

Silver-Lead.

Farrell Mining Company Limited continued as a producer of straight silver-lead ores. Production figures for the year under review indicate an improvement in grade over the previous year.

Ore mined and milled totalled 6282 tons, a decrease of 523 tons on 1952, yet the concentrates totalled 1737 tons an improvement of 66 tons on the previous year. The 1737 tons of concentrates yielded 145,863 fine ounces of silver and 1132 tons of lead. Average number of men employed was 57.

Underground development work was confined to levels Nos. 5 South and 7 South. On level No. 7 South the development drive has already passed along 125 feet of payable ore and the drive has not yet reached the southern extent of the ore body. Diamond drilling is due to commence at the end of No. 5 South drive.

Two new modern homes were constructed during the year to house employees.

Tin.

Tin production amounted to 176,013 tons of concentrates, containing 115,657 tons of metallic tin, and afforded employment to an average of 67 men.

Chief producers were the Renison Associated Tin Mining Company and Mount Bischoff tributing parties.

Renison Associated Tin Mines was responsible for the milling of 15,834 tons of crude sulphide ore for the recovery of 107,952 tons of concentrates containing 69,7694 tons of metallic tin.

Employment averaged 30 men. During the year, the Company obtained the services of a mining engineer as a consultant.

An exploratory programme of drilling was laid out and implemented, with the result that a further ore development was established on a lower horizon.

Mt. Bischoff Tin Mine.—Tribute parties continued operations on the old Mt. Bischoff leases. Harrington, Kenworthy and Party were the chief producers and mined and milled 6526 tons of Griesen ore for a recovery of 59,584 tons of tin concentrates, containing 40,386 tons of metallic tin. This tribute provided employment for 16 men.

Miscellaneous parties in the Waratah area, produced 7,961 tons of concentrates, containing 5,078 tons of metallic tin.

R. J. Fenton, Renison Bell.—Sluicing part time, this operator won 0,275 tons of concentrates, containing 0,164 tons metallic tin.

Lead-Zinc-Copper.

Electrolytic Zinc Company of Australasia Limited.—Indicative of the progressive policy pursued by the Electrolytic Zinc Company of Australasia Limited, at the Rosebery and Hercules Mines, was the installation of grinding, thickening and flotation equipment at the Rosebery Mill to cope with an anticipated milling rate of 30 tons per hour as compared with 20 tons per hour.

The management report that, while the geological exploration of outside areas revealed nothing of economic importance, further extensions of the ore bodies were located in the operating mines.

In the main shaft, sinking was continued below No. 12 Level, provision being made for four compartments.

A further innovation was preparatory work in connection with the installation of the E. Long Safety Device for use in the Main Shaft. It is anticipated that this device will be in operation during the coming year.

Crude ore mined and milled totalled 180,563 tons, representing an increase of 17,479 tons over the previous year.

In the milling of this ore, selective flotation yielded 49,443 tons of Zinc concentrates 9235 tons of lead concentrates and 5160 tons of copper concentrates.

Recoverable metallics were placed at 23,680.1 tons of zinc, 7735.41 tons of lead, 395.5 tons of copper, 44.51 tons of cadmium, 10,423.76 oz. of gold and 971,815.11 oz. of silver.

Inspector R. J. Muir, Launceston, reports:—*Employment.*

The average number of men employed in mining and allied industries, other than coal mining, was 1563, compared with 1458 for the previous year. This increase was due to an expanding policy at some of the larger mines and the requirements of the project to establish an Aluminium Production Industry at Bell Bay.

Accidents.

There were two fatalities, one occurred underground and was the result of a fall of rock, and the second occurred on the surface when the deceased fell from a shaft head-frame to the ground, during the construction of the head-frame. Seventeen other accidents were registered under the provisions of the Mines and Works Regulation Act, nine occurring underground and eight on the surface. Five of the underground accidents happened whilst handling timber and the most serious case resulted in a fractured leg. The surface accidents were of a miscellaneous nature, the most serious one was a man being struck on the face by the handle of a hand-winch, which had got out of control.

Safety.

Inspection services continued to be related to the production and maintenance of safe conditions in underground and surface operations at the various mines and works.

Health and Sanitation.

Supervision was maintained in matters affecting the health of employees. At one of the larger mines, underground crib houses were brought into use and were maintained in a clean and tidy condition. New surface lavatory accommodation was completed at the same mine. Ventilation surveys were carried out at two mines and conditions were found to be satisfactory.

The Workers' (Occupational Diseases) Relief Fund Board was assisted in carrying out the examination of mining employees. A new mine commenced operations and this has increased the time it is necessary to devote to giving this worthy scheme assistance.

Explosives.

Personal supervision of the importation of explosives at Launceston was carried out, all explosives being in good order and condition on arrival. No reports were received of faulty explosives, nor were any accidents recorded. Legal proceedings were taken in one case against a person improperly storing explosives and he was fined £1, Court cost 6s. 6d. and Counsels fee £3 3s.

Machinery.

Maintenance and protection of machinery and appliances were kept under surveillance and in co-operation with the Inspector of Machinery a satisfactory standard was obtained. A new winding engine was installed at one of the larger mines and, after the initial testing period, is giving satisfactory service.

Inflammable Liquid.

Personal supervision was made of the unloading of shipments of inflammable liquid at the Tanker Terminal at Bell Bay. Compliance with the requirements of the Inflammable Liquids Act 1929, were found to be reasonably good, and no fires or accidents concerning inflammable liquid came under notice for the year.

Aid to Mining.

When required reports were compiled in connection with applications for assistance under the Aid to Mining Act 1927, and as opportunity arose, aid was given to the mining industry by advice to those concerned particularly the smaller operators.

MINING OPERATIONS AND PRODUCTION.*Tin.*

The market price of tin deteriorated greatly during the year after control of the price was abandoned. This resulted in a lower production of tin by the smaller producers. However, Aberfoyle Mine, which was responsible for more than half the production, increased its output and the combined production of 669,446 tons of metallic tin was practically the same as last year.

Miscellaneous, Moorina.—From sluicing operations conducted near the Weld and Frome Rivers, an average of five men produced 2,972 tons of tin concentrates, containing 1,953 tons of metallic tin.

Weldborough Tin Mines, Weldborough.—Productive operations were confined to the sluicing of alluvial ground along the banks of Main Creek, where 11,300 cubic yards of material were treated for 1,617 tons of tin concentrates, containing 1,124 tons of metallic tin. Preliminary work was carried out to re-open the old Waverly Face and some sluicing was done towards the end of the year, but no clean up had taken place. An average of seven men was employed.

Miscellaneous, Weldborough.—An average of seven men found employment in the smaller mines of this district and their combined production amounted to 2.754 tons of tin concentrates, containing 1.829 tons of metallic tin.

Miscellaneous, Lottah and Blue Tier.—There was very little mining in this area, but three men worked on a part-time basis and produced 0.337 ton of tin concentrates, containing 0.247 ton of metallic tin.

Miscellaneous, Goshen and Goulds Country.—Operations were in the bed of the Groome River and, with the use of mechanical pumping equipment, the production was increased. The total production of four individual operators amounted to 1.522 tons of tin concentrates, containing 1.096 tons of metallic tin.

Goshen Tin Mines, St. Helens.—Productive operations were carried out practically continuously throughout the year, but the ground treated was very low grade, and 67,800 cubic yards of alluvials were treated for a recovery of 5.114 tons of tin concentrates containing 3.573 tons of metallic tin. The majority of the production was from the Argonaut Workings and an average of 10 men was employed.

Bell Creek Mines, St. Helens.—Owing to a shortage of water for sluicing purposes, productive operations were confined to the later half of the year. The two men, employed, produced 0.978 ton of tin concentrates, containing 0.717 tons of metallic tin.

Miscellaneous, St. Helens.—The smaller mines gave employment to an average of five men and their combined production amounted to 1.639 tons of tin concentrate, containing 1.064 tons of metallic tin.

Aberfoyle Mine, Rossarden.—Operating its progressive policy, this mine was the largest tin and wolfram producer in the division. Tonnage of ore produced was a record for the mine and amounted to 49,006 tons from which 576.580 tons of tin concentrates, containing 407.173 tons of metallic tin and 370.664 tons of wolfram concentrates, with a tungstic trioxide content of 252.266 tons, were recovered.

A new winding engine was installed at the Main shaft. The sinking of the shaft was continued to No. 12 level. Two diesel electric generating units were also installed for emergency use should power failures occur. Employment was increased with the increasing activities, 232 men being the average number engaged.

Storey's Creek Mine, Storey's Creek.—Operations of this mine are reviewed under "Wolfram".

Miscellaneous, Gipps Creek and Avoca.—Working on the southern slopes of Ben lomond, on areas of alluvial ground and small lode deposits, three men produced 0.624 ton of tin concentrates, containing 0.443 ton of metallic tin.

Miscellaneous, Scottsdale.—The three men produced 0.179 ton of tin concentrates, containing 0.114 ton of metallic tin.

Miscellaneous, Ringarooma and Alberton.—A production of 1.097 tons of tin concentrates, containing 0.757 ton of metallic tin, was obtained by four operators of small alluvial mines.

Arba Mine, Branchholm.—Walsh and Company, who were working the Grouper section, ceased operations owing to a depletion of economic values in the available ground. The 0.944 ton of tin concentrates, containing 0.712 tons of metallic tin, resulted from the sluicing of small remnants of payable alluvial wash.

Ruby Flat, Branchholm.—From the treatment of 28,000 cubic yards of material by normal sluicing methods at the Gordon workings, Walsh and Company obtained 1.257 tons of tin concentrates, containing 0.874 tons of metallic tin. As the recovery was not as good as was expected the company was considering a cessation of operations at the close of the year.

Ormuz Mine, Branchholm.—Purchasing water from the Ringarooma Race of the Ringarooma-Cascade Water Board, Edwards Bros. conducted sluicing operations, at the Main Face of the old Arba Tin Mining Company, and produced 11.715 tons of tin concentrates, containing 8.040 tons of metallic tin, from the treatment of 59,469 cubic yards of material. This work gave employment to eight men.

Miscellaneous, Branchholm.—An average of nine men worked small mines, near Ruby Flat and Black Creek, to produce 6.939 tons of tin concentrates, containing 4.906 tons of metallic tin.

Briseis Mine, Derby.—Productive operations were continuous along the bed and banks of the Cascade River, the flow of the river having been diverted. A new sluice box and tin dressing shed were constructed, near the workings, to facilitate operations. An average of 40 men was employed in treating 399,830 cubic yards of alluvial material for a recovery of 36.073 tons of tin concentrates, containing 26.000 tons of metallic tin.

Miscellaneous, Derby.—Operating in the bed of the Ringarooma River, during periods of low water level, 12 men produced 6.581 tons of tin concentrates, containing 4.358 tons of metallic tin.

Miscellaneous, Herrick and Winnaleah.—A combined production of 2.046 tons of tin concentrates, containing 1.383 tons of metallic tin, was the result of five men operating small alluvial mines.

Banca Mine, Winnaleah.—Employment was given to two men at this alluvial mine and, by the use of the usual sluicing practice, they treated 6440 cubic yards of alluvial material, for a recovery of 2.457 tons of tin concentrates, containing 1.753 tons of metallic tin.

Walsh and Hookway, Bradshaws Creek.—This party operated in the bed of the Wynifred River, for about six months of the year, when water was available for sluicing. They treated 6250 cubic yards of alluvial material. Progress was hindered by large boulders. Their sales amounted to 0.772 ton of tin concentrates, containing 0.560 ton of metallic tin.

Miscellaneous, Bradshaws Creek and South Mount Cameron.—An average of eight men found employment at various small mines, the returns from some of which were very satisfactory. Total production amounted to 12.311 tons of tin concentrates, containing 9.017 tons of metallic tin.

Dorset Dredge, South Mount Cameron.—This dredge worked practically continuously throughout the year without any major breakdowns, maintenance work being well sustained. Production was a little higher than the previous year and amounted to 148.400 tons of tin concentrates, containing 110.186 tons of metallic tin, and 416.703 fine oz. of gold were extracted from the tin concentrate. The Management gave serious consideration to an active prospecting campaign and a prospecting drill, to bore 16-inch diameter test holes, was purchased and put into operation.

Endurance Mine, South Mount Cameron.—Sluicing operations were carried out at the Clifton area, it being necessary to shift the gravel pump barge once. Although the 277,700 cubic yards treated was greater than the previous year, the recovery of 61.437 tons of tin concentrates, containing 45.138 tons of metallic tin, was less, due to marginal value ground being worked in order to conserve the ore reserves as much as possible.

Mount Cameron Water Race, Gladstone.—Although some financial assistance is required from the Government for the operation of this race, it plays an important part in the economy of the Gladstone district. Production, with the water purchased on a royalty basis, amounted to 2.892 tons of tin concentrates, containing 1.929 tons of metallic tin. The output was obtained from the treatment of 11,115 cubic yards of material.

Water was also sold on a fixed scale basis and the resultant production is recorded under the respective mines.

Star Hill Syndicate, Gladstone.—Using water from the Mount Cameron Water Race and then obtaining the necessary pressure for sluicing purposes by electrically driven pressure pumps, 73,200 cubic yards of ground were handled, for a recovery of 18.102 tons of tin concentrates, containing 13.062 tons of metallic tin. Operations are progressing near Lark Creek, but the value of the ground to date worked, is only marginal.

Miscellaneous, Gladstone.—A total of 11 men found employment at the smaller mines in the area and their production was 15.959 tons of tin concentrates, containing 10.892 tons of metallic tin.

Strait Islands.—Small-scale alluvial mining was carried out on Flinders and Cape Barren Islands by four men and they produced 1.142 tons of tin concentrates, containing 0.675 tons of metallic tin.

Miscellaneous, Moina.—Mixed concentrates were produced in small quantities, the tin concentrate portion amounting to 0.420 ton containing, 0.263 ton of metallic tin.

Wolfram.

The output of wolfram concentrate was greater than previously, largely as the result of increased production by the Aberfoyle Mine, the largest producer. Small producers experienced difficulty in disposing of their product. Production, for the division, was 521,853 tons of wolfram concentrates.

Aberfoyle Mine, Rossarden.—Reviewed under "Tin".

Storey's Creek Mine, Storey's Creek.—Major attention was given to developmental work. The No. 6 level was commenced and opened up. Construction of the new vertical service shaft was continued and there is now a connection from the surface to No. 6 level. There is, however, still a considerable amount of work, in timbering and fitting out the shaft, before it will be ready for use. An average of 79 men was employed, and 10,598 tons were mined and treated for a recovery of 147.7 tons of wolfram concentrates, the major product, and 15,244 tons of tin concentrates, containing 9,603 tons of metallic tin.

Miscellaneous, St. Helens and Scamander.—One parcel of wolfram concentrates amounting to 0.194 tons was sold during the year. Prospecting of a quartz-wolfram lode near Constable Creek, was carried out by two men.

Miscellaneous, Gipps Creek and Avoca.—The small mines of this area, worked by three men, produced 0.603 ton of wolfram concentrates.

Miscellaneous, Moira and Sheffield.—A production of 2,519 tons of wolfram concentrates was the result of the labours of four men in small mines.

Shepherd and Murphy Mine, Moira.—The Moira Tungsten Tin Mining Company N.L. was formed with the intention of bringing this old mine into production again. The mine was dewatered and the lodes were sampled and preliminary work had progressed with the installation of surface plant, housing and other amenities.

Gold.

Practically all the gold produced, 469.16 fine oz. was a secondary product in alluvial-tin mining operations.

Dorset Dredge, South Mount Cameron.—Reviewed under "Tin".

Miscellaneous.—The Lisle goldfield produced 51,449 fine oz. of gold from alluvial workings, and 1,008 fine oz. were produced at Beaconsfield.

Limestone.

A total of 15,874 tons of limestone was quarried and either burnt for the production of lime or pulverised for agricultural purposes. In addition, limestone was produced for the manufacture of cement.

Melrose Agricultural Lime Quarries, Eugenana.—Producing pulverised limestone for agricultural purposes, 15 men were employed and crushed 8761 tons of limestone.

Railton Lime Works, Railton.—In the manufacture of burnt lime and pulverised limestone, three men were employed, obtaining 2673 tons of limestone for processing.

Beaconsfield Lime Products, Flowery Gully.—A total of 3590 tons of limestone was quarried by the six employees and processed to produce agricultural limestone and burnt lime.

Beams Bros., Flowery Gully.—Producing lime for building purposes, two men quarried 850 tons of limestone. This was burnt and bagged for sale.

Cement.

Goliath Portland Cement Company, Railton.—Productive operations continued normally, the plant working at capacity for practically the whole of the year, and 144,075 tons of limestone and 4527 tons of Iron Ore were quarried locally for use in the manufacture of cement.

Clay.

Clay production was mainly for use in connection with the manufacture of paper at the Australian Pulp and Paper Mills, Burnie. At the Endurance Mine, South Mount Cameron, 2696 tons of white clay were mined and 3743 tons of similar clay were mined near St. Helens for the same purpose.

The remaining 3184 tons of clay was produced at L. W. Smith's Brickworks, Dulverton, and this was absorbed in the manufacture of building bricks and earthenware pipes.

Inspector, D. Besford, Hobart, reports:—

Employment.

The average number of persons employed in Mines, Quarries, and Works operating under the Mines and Works Regulation Act was 3019, compared with an average of 2657 persons for the previous year.

Accidents.

Twenty-six accidents, resulting in fatal injuries to one person and non-fatal injuries to 25 persons, were registered under the provisions of the Act. Twenty accidents were associated with surface operations and six occurred underground.

The fatality occurred when a workman, engaged in the erection of new plant, fell from a height of about 30 feet on to the concrete floor below, receiving severe injuries from which he died.

Other than the fatal accident, the injuries were not of a dangerous character and the injured persons were able to resume their ordinary occupation after a short absence.

The total number of accidents was less than for the previous year, and the average accident risk fell from 1.242 per cent to 0.862 per cent.

Safety.

Attention was directed to the maintenance of safe working conditions in mines, works, and quarries. Working places were regularly inspected to ensure that workmen were not exposed to danger. Underground roadways, used for travelling, were regularly examined. Where any danger or weakness was detected, necessary precautions were ordered to be taken.

Quarry faces were regularly inspected to ensure the provision of safe batters, and the removal of unstable rock from ledges, in order to ensure that workmen were not exposed to danger.

Ventilation.

Main air currents were regularly measured to determine whether an adequate amount of air was available to maintain the underground places in a fit state for working.

Underground working places were regularly tested for inflammable gas, but none was detected.

Wet and dry bulb temperatures were recorded in underground working places and in the main air currents, and were found to be within the prescribed limits.

The state of the ventilation in the working places in one colliery caused much concern, and greater volumes of air must be produced if the workings are to be regarded as adequately ventilated.

A small amount of blackdamp was discovered in one of the underground working places. This gas was issuing from some old workings below the level of the working seam. The amount was not large, and it was possible to dilute the gas and divert it into the return airway.

Leakages of air were detected and effective sealing thereof resulted in more efficient ventilation.

Health and Sanitation.

Matters affecting health have been given due attention, and observed deficiencies were quickly remedied.

Explosives.

Due attention has been given to the proper storage and handling of explosives. Complaints regarding dangerous blasting were investigated and in one case, a recommendation that a more efficient Powder Monkey be engaged, resulted in improved blasting conditions and the elimination of dangerous blasting.

Several miss-fired detonators were recovered and tested, and the faulty ones were destroyed. An investigation into the cause of miss-fired shots at one quarry, revealed that the fuse had been exposed to damp conditions. The stock of fuse was destroyed.

No accidents were reported in connection with explosives and no exudation of nitro-glycerine was observed or reported.

Inflammable Liquids.

Installations were inspected and, generally, were found to comply with the provisions of the Inflammable Liquids Act. Investigations were made into storage in 44-gallon drums and persons were instructed to comply with the provisions of the Act or cease storing.

Machinery.

Machinery was regularly inspected and, generally was found to be in safe condition and properly fenced. Faulty electrical equipment was speedily repaired or replaced as required.

Operations and Production.

The output of coal was 233,629 tons valued at £445,316 at the mine bins. An average of 344 persons was employed at the mines.

The output was 14,270 tons less than the previous year, due to reduced demand, and several thousand tons were stockpiled at the surface, in order to avoid the suspension of some employees.

Open-cut operations, at Merrywood, were suspended owing to an easing in market requirements, and only 74 tons was produced as compared with 8351 tons for the previous year.

Based on quarterly averages, the production per man employed was 680.3 tons compared with 712.4 tons per person for the previous year. The production per man employed underground was 934 tons, as compared with 1000 tons per underground employee for the previous year.

FINGAL-MOUNT NICHOLAS-DALMAYNE COALFIELD.

The total production from this coalfield was 201,501 tons which represents 86.5 per cent of the State's total coal production. The figures for the previous year were 210,168 tons and 84.8 per cent. Only the Cornwall and Dalmayne Collieries showed a reduction in output.

Cornwall Colliery.

This colliery produced 86,759 tons, valued at £141,312, at the mine bins, compared with 106,002 tons, valued at £111,302 for the previous year. The large decline was due to reduced demand. Several thousand tons had to be stockpiled at the surface, in order to hold full employment. The production per man year, based on quarterly averages, declined from 815 tons to 662 tons.

Pillar extraction commenced in one section in the No. 2 Tunnel when the solid workings had advanced towards the old section.

The Continuous Mechanical Miner did not work constantly owing to the decline in the demand.

The new loading bins were completed and resulted in improved loading facilities at the railway siding.

Mount Nicholas Colliery.

This colliery produced 35,739 tons, valued at £57,833, at the mine bins, compared with 31,170 tons, valued at £32,729, for the previous year. The average number of employees was 55 compared with 50 persons for the previous year. No new developments occurred and operations remained on the previous pattern.

Jubilee Colliery.

This colliery increased production to 26,852 tons, valued at £58,155, and employed an average of 46 persons. The production was a record for this colliery. The output per man employed increased to 580.9 tons, compared with 494.8 tons for the previous year. The increased production per man-year was due mainly to the introduction of a contract system, as mining was on the same pattern as in the previous year. More than 8000 tons of coal was placed at grass in order to maintain production and avoid the suspension of some employees. This coal will be available in the event of any sudden demand which cannot be fulfilled by normal production.

Dalmayne Colliery.

Production declined to 3078 tons, valued at £6790, at the mine bins. An average of six persons were employed. The production was slightly less than last year but the production per man-year showed an increase of about 10 tons. In spite of this increase per man, the cost of production was regarded as too great and the mine was closed at the end of the year.

Fingal Colliery.

This colliery increased production to 22,092 tons, valued at £57,713, at the mine bins, and employed an average of 16 persons. The corresponding figures, for the previous year, were 21,867 tons, valued at £34,472, and 17 persons. The production per man-year, based on quarterly averages, was 1361 tons, compared with an average of 1307 tons for the previous year. The output per man remains the highest for any mine in the State and exceeds the next highest by 350 tons per man.

No new developments occurred, and output was obtained from solid places using electric drills.

Duncan Colliery.

This colliery produced 26,981 tons, valued at £43,839, and employed an average of 31 persons. Figures for the previous year were 21,729 tons, valued at £22,821, and 25 persons. This colliery showed the largest increase in production, due to the increase in the number of employees.

Operations were along the same lines as in the previous year, the production being obtained from solid places by hand-got methods using electric drills.

AVOCA COALFIELD.

Stanhope Colliery.

The output from this colliery showed a further decline to 5269 tons, valued at £13,797, at the mine bins, and employed an average of 16 persons. Although the total production was less than the previous year, the production per man-year showed an increase of about 26 tons, as less men were employed at the mine owing to restricted working places.

Operations consisted of pillar extraction, operating on some old pillars near the entrance to the mine. Unless some new development is undertaken the life of this mine is very limited. Boring to test the continuity of the seam, to the East, was undertaken towards the end of the year.

Merrywood Colliery.

Production from this colliery declined to 16,002 tons, valued at £28,355. An average of 16 persons were employed. Output was reduced owing to an easing in market requirements. Operations were suspended in the opencut until the demand increases. Several thousand tons of coal are exposed ready for extraction when necessary.

The production from underground operations was increased to 15,928 tons. Mining was conducted on the same pattern as in the previous year. The production per man-year was increased to 1008 tons, compared with 980.5 tons for the previous year.

UPPER DERWENT COALFIELD.

Langloh Colliery.

Production from this colliery increased to 8203 tons, valued at £29,744, at the mine bins. An average of 19 persons was employed. No new developments occurred and production continued on the same pattern as formerly, with the use of an Arc-wall coal cutter and electric drills.

SANDFLY COALFIELD.

Sandfly Colliery.

This colliery increased production to 1724 tons, valued at £3813, at the mine, and employed the same number of persons. Water difficulties were experienced, but production kept pace with the demand.

MERSEY COALFIELD.

Illamatha Colliery.

Output from this colliery increased to 930 tons, valued at £3964. Faulting continued to hamper operations and the seam remained fairly thin, averaging only 24 inches.

Ore Treatment.

The Electrolytic Zinc Company processed 174,938 tons of calcines at the Risdon Works, and produced 89,879 tons of zinc, valued at £8,197,920; 220.95 tons of cadmium, valued at £377,699, and 16.66 tons of cobalt oxide, valued at £18,659.

Although a less tonnage was processed the production of zinc and cobalt oxide was greater owing to increased efficiency in extraction methods. The reduced cadmium production was due to a breakdown in the cadmium treatment plant, which breakdown necessitated a closing of the plant until necessary repairs were effected.

Superphosphate production increased to about 65,000 tons and the output exceeded the market requirements. The excess quantity was stored at the plant and this severely tested the storage facilities.

Construction of the necessary buildings and the installation of new plant for use in connection with the new Sulphate of Ammonia treatment plant continued during the year, and the plant should be able to commence production towards the end of the coming year.

The new No. 2 Contact Acid Plant was completed and put into service but will not operate to full capacity until the new Fertilizer Plant is commissioned.

The new Residue Treatment plant did not function as expected, and work is continuing in an endeavour to bring it into operation.

RINGAROOMA—CASCADE WATER BOARD.

The Chairman of the Board (Mr. W. H. Williams) reports:—

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 made it necessary to provide an amount of £4503 5s. 1d. to meet the overall deficit.

Members of the Board were conscious of the heavy deficit and have been searching avenues for increasing the revenue without adding to operational costs but have been confronted with deterioration of races, flumes and syphons and lowerings in flow-through of water that follow long years of usage without full conditioning and replacement of essential units.

Statement of Receipts and Payments of the Ringarooma and Cascade (Water) Suspense Account for the Year ended 31st December, 1953.

RECEIPTS.			PAYMENTS.		
	£	s. d.		£	s. d.
Revenue from sale of water for mining purposes from the Ringarooma Race	1,009	8 9	Ringarooma Race—		
Rent of Cascade Race and Dams	211	0 0	Wages—Caretakers	2,697	19 6
			Wages—Maintenance	1,082	5 7
			Holiday pay	253	7 0
	£1,220	8 9	Pay-roll Tax	104	19 11
Balance (Excess Payments over Receipts)—			Workers' Compensation Insurance	83	4 6
Loss for 1953	4,503	5 1	Stores	686	6 8
			Hire of motor truck	156	7 0
			Hire of horse	9	0 0
			Supervision	180	0 0
			Rent of private land	82	12 6
			Interest on capital cost of the Ringarooma and Cascade Water System	387	11 2
	£5,723	13 10		£5,723	13 10