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TASMANIA

REPORT

OF THE

DIRECTOR OF MINES

FOR

YEAR ENDED 31ST DECEMBER

1949

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

TASMANIA.

1950.

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TASMANIA.

REPORT OF THE DIRECTOR OF MINES.

Department of Mines,
Hobart.

SIR,

I HAVE the honour to present my report on the mining industry of the State for the year ended on the 31st December, 1949.

The total value, based on Australian prices, of the output of minerals and mineral products was £3,974,379, as compared with £3,566,361 for the previous year, representing an increase of £407,818. On the basis of sterling metal prices, the composite gross value of the production was £5,171,548.

There was a substantial improvement in the output of lead, scheelite, silver, wolfram, and zinc and there were risings in the production of coal, cadmium, kaolin, and limestone, but decreases were recorded in the output of copper, gold, granite, ochre, osmiridium, silica, talc, and tin.

The number of men employed in mining, quarrying, and metallurgical operations was 5659, as compared with 5399 for the previous year. The increase was insufficient to meet the requirements of development and production at established mines and there was a continued shortage of suitable labour for programmes of work in areas occupied for planned investigation and exploration of mineral potentialities.

There was a decline of 1,345·41 tons in the production of copper, due mainly to discontinuity of blast furnace operations as a result of interruptions in the supply of metallurgical coke.

The Mount Lyell Mining and Railway Company Limited continued to function as the major producer of copper. The output of crude ore, from surface and underground mining, was 1,472,401 tons and 102 tons of copper precipitate resulted from the treatment of mine waters, representing an increase of 167,853 tons of ore and a decrease of 25 tons of copper precipitate as compared with the previous year.

Surface mining at West Lyell provided 1,410,783 tons of ore, 60,310 tons accrued from underground operations at the Royal Tharsis mine and underground mining at the North Lyell mine accounted for 1308 tons of ore. A progressive approach to overburden removal and a forward policy in opencut practices resulted in a substantial increase in the output of ore from surface workings, but production of ore from underground operations was less, owing to a shortage of labour suitable for underground mining and for the satisfactory operation of mechanical loaders.

An appreciation of ore reserves, issued by the Company on the 30th September, 1949, was as follows:—

	Tons.	Copper. %	Silver. oz.	Gold. oz.
West Lyell	30,800,000	0·68	0·045	0·008
Royal Tharsis ..	1,300,000	1·60	0·08	0·016
Lyell Tharsis ..	900,000	1·00	0·15	0·01
Crown Lyell ..	190,000	1·50	0·25	0·015
North Lyell	3,000	3·60	0·35	0·01
	33,193,000	0·73	0·05	0·0084

Selective milling of 1,470,506 tons of crude ore resulted in a recovery of 32,835 tons of copper-pyrite concentrate and 60,140 tons of iron-pyrite concentrate. Interruptions in the supply of metallurgical coke reduced the effective period of smelting, the throughput at the blast furnace being 20,844 tons of copper concentrate, 1262 tons of ore from the North Lyell mine, and 106 tons of copper precipitate for a recovery of 4964 tons of blister copper. The blister copper was treated at the electrolytic refinery and yielded 4923 tons of cathode copper. The cell residue, containing 17,451 oz. of silver and 3019 oz. of gold, was exported for treatment.

Iron-pyrite concentrate, totalling 47,922 tons, was shipped to the mainland for acid manufacture.

The balance of the copper was contained in concentrate recovered from the selective flotation of sulphide ores at Rosebery.

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

Production from imported calcines was 58,460 tons of zinc, valued at £A2,455,320; 171·349 tons of cadmium, valued at £A194,880; and 13·931 tons of cobalt oxide, valued at £A6,408. Zinc concentrates from Tasmanian ores, actually calcined and processed, returned 22,496 tons of slab zinc, 44 tons of cadmium, 1028 tons of lead, 115,928 oz. of silver, and 0·27 ton of cobalt oxide.

The manufacture of sulphuric acid was continued and plans were advanced for the future 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 457 men were employed in mining and milling operations. The combined quantity of ore mined and milled was 140,509 tons. Selective flotation resulted

in the recovery of 42,177 tons of zinc concentrate, 9356 tons of lead concentrate, and 3695 tons of copper concentrate. The recoverable quantity of metallics was fixed at 20,285·93 tons of zinc, 6,938·82 tons of lead, 305·69 tons of copper, 37·96 tons of cadmium, 8,882·09 oz. of gold, and 889,587·78 oz. of silver. The zinc concentrate was railed to Risdon for processing and the lead and copper concentrates were exported.

Surveys and exploration were continued in the Comstock, Murchison, Pinnacles, Godkin, and Silver Falls areas on the West Coast, but no major mineral discovery was recorded.

A rising of 545·973 tons in the output of lead arrested the progressive decline in production recorded during the past five years. Operations by the Electrolytic Zinc Company of Australasia Limited, at the Rosebery and Hercules mines, accounted for the greater portion of the total output of 7,873·643 tons, and although a rising in production by that Company influenced the overall increase it was significant that miscellaneous operators were being induced by favourable export metal prices to resume the mining of silver-lead ores in the Zeehan-Dundas areas.

Zeehan Explorations proceeded with the sinking of a circular concrete-lined shaft for the future productive mining of silver-lead ore bodies located beyond the extremities of old workings in the Oceana area at Zeehan. The shaft was sunk to below 150 feet and, at that level, a crosscut was driven to intersect the lode series with satisfactory results. Field investigations were continued in the Dundas-Zeehan regions, but no developmental project resulted.

Production from tribute operations at the Montana Mine amounted to 228·783 tons of hand-picked ore and concentrate, containing 142·547 tons of lead and 22,863·399 oz. of silver. The result was a substantial improvement upon that for the previous year. With a maintenance of favourable metal prices, the developments at this mine favour a resumption of operations by the Company. This would result in the installation of a milling plant and a forward policy of mine development.

The Farrell Mining Company mined and milled 6982 tons of ore for a recovery of 1157 tons of silver-lead concentrate, containing 747 tons of lead and 77,300 oz. of silver. Stoping on Nos. 4, 5, 6, 7, and 8 levels provided 5075 tons of ore and 1907 tons resulted from development work. Surface and underground diamond drilling was pursued in the search for new ore bodies. No discoveries resulted from the former, but the latter drilling located new makes of ore which are to be developed for future production.

Metallic tin in the product from lode and alluvial mining was 631·231 tons, as compared with 777·124 tons for the previous year. Risings in tin prices favoured operations, and many producers recorded increased outputs, but these increases were off-set by reduced production at the principal mines. Successive declines in production since 1940, when the recorded output was 1430·198 tons have been significant of a deterioration in tin-mining activities. Labour shortages and adverse seasons in the supply of water for hydraulic mining have contributed to production declines, but there have been no developments to provide for the opening up of new mines.

Aberfoyle Tin N.L. operating on a multiple lode series; Renison Associated, mining and milling tin-pyrite ores; Briseis Tin Mine, sluicing relatively shallow ground; and Dorset Tin Dredge, dredging river flats, were principal producers and contributed 457·492 tons to the total output of metallic tin. This production was 118·76 tons less than that for the previous year.

The Endurance Tin Mining Company continued with mechanically-controlled sluicing at South Mount Cameron; Goshen Tin Mines N.L. was engaged in sluicing areas of alluvial ground at St. Helens; and underground mining was continued on the wolfram-tin lodes at the Storey's Creek Mine. The output of concentrates from these operations contained 70·787 tons of metallic tin.

Small mines and miscellaneous parties were less numerous, but those in operation were more actively engaged on alluvial, lode, and granitic occurrences. The output of concentrate contained 102·952 tons of metallic tin, as compared with 91·507 tons for the previous year.

Bucket-dredging was in constant operation on the Dorset Flats at South Mount Cameron. The throughput of ground increased to 1,665,000 cubic yards, but the overall value was less and the recovery of concentrate reduced to 128·85 tons, containing 95·827 tons of metallic tin, and 218·996 oz. of gold.

Briseis Tin N.L. was enterprisingly engaged in sluicing remnant ground along the course of the Cascade lead at Derby. Operations were on a lesser scale than formerly, 182,000 cubic yards of ground being sluiced for a recovery of 20·111 tons of tin-oxide, containing 14·381 tons of metallic tin.

The Endurance Tin Mining Company continued with mechanically-controlled sluicing at South Mount Cameron. The throughput of ground increased to 427,700 cubic yards, but the overall value was lower and the production of concentrate reduced to 74·674 tons, containing 53·95 tons of metallic tin.

Aberfoyle Tin N.L. operating on a multiple tin-wolfram series, continued with its progressive policy of lode exploration, mine development, and milling innovations. Ore production was mainly related to Nos. 4, 5, and 6 levels. The main shaft was sunk to 907 feet, in preparation for the development of Nos. 7 and 8 levels. Diamond drilling located the main lode series at a depth sufficient for future development at Nos. 9 and 10 levels. Drilling also revealed new ore veins on the western side of the main series and these were intersected by crosscuts at Nos. 4 and 5 levels for the development and production of ore. The output of finished products, from the mining and milling of 27,774 tons of ore, amounted to 396·195 tons of tin concentrate, containing 286·71 tons of metallic tin, and 98·3 tons of wolfram concentrate. Ore reserves were appreciated by new developments and the productive future of the mine has been enhanced thereby.

A shortage of suitable labour continued to hamper the mining and millings of tin-pyrite ores at the Renison Associated Tin Mines. Production of ore was mainly related to open-cutting on the Battery Lode, but 3291 tons accrued from stoping, and development work provided 465 tons. A total of 10,209 tons of pyrite ore was mined and milled for a recovery of 90·55 tons of concentrate, containing 60·574 tons of metallic tin.

A programme of diamond-drilling was implemented to explore the lode series and a geophysical survey is to be undertaken to assist in the planning of this essential exploration.

Suspension of mining and disposal of plant at the Mount Bischoff Tin Mine sharply depressed mining activities in the Waratah district. Two parties of men were engaged in cleaning up around the old mill and calciner, and in treating mill tailings. These operations accounted for 5·311 tons of concentrate, containing 3·54 tons of metallic tin. Encouraged by risings in metal prices and with confidence that useful quantities of essential tin are capable of being produced from undepleted ore bodies, several parties of men applied for rights to mine on the leases in occupation by the Commonwealth. It has been planned to arrange a group system of working to enable the proposals to be explored and developed, when the leases have reverted to the State.

The Mount Cameron Water Race Board continued to function in supplying water to parties engaged in the sluicing of tin-alluvials in the Gladstone district, but the production of tin-oxide declined and it was again necessary for the Government to provide finance to meet a deficit in the working and maintenance of the system.

The Ringarooma-Cascade Water Board established its functions in the control and development of the water system purchased from Briseis Consolidated N.L. for mining, agricultural, and township purposes. Surveys and investigations were made in connection with a proposal to convey water from the Cascade River to Branxholm to enable high-level areas of tin-bearing ground to be sluiced. Tenders are to be invited for the construction of necessary works.

The production of tungsten minerals attained a record level, the combined output of scheelite and wolfram concentrate being 1066·995 tons, as compared with 871·828 tons for the previous year. There were risings in the production and marketing of both minerals and developments have continued to establish a tungsten potential capable of meeting market expansions.

Progressive quarrying and milling of ore characterised activities by King Island Scheelite Limited on King Island. The throughput of ore inclined to 158,755 tons and resulted in the recovery of 802·6 tons of finished scheelite concentrate, as compared with 637·42 tons for the previous year. After allowing for depletion by extraction, proved ore reserves were regioned in the order of 2,789,999 tons. Research and milling innovations were carried out in a policy directed to elevating the effective recovery of marketable concentrate.

Storey's Creek Mine continued as the major producer of wolfram, 166 tons of wolfram concentrates being recovered from the mining and milling of 10,477 tons of wolfram-tin ore. The recovery of tin concentrate was 14·5 tons, containing 9·46 tons of metallic tin. Ore production was mainly related to No. 1A lode on Nos. 1, 2, 3, and 4 level. Developments maintained the productive potential, but there was no improvement in the availability of suitable labour and no material progress was made in implementing a planned programme of reconstruction.

In addition to the 98·3 tons, accruing from operations at the Aberfoyle Tin Mine, a small quantity of wolfram resulted from small-scale working on known lodes at Gipp Creek. There was no production of wolfram from the Moina-Mount Pelion series.

There was a further lowering in the production of gold. The recorded output of 12,151·731 oz. accrued mainly from the mining of copper and zinc-lead ores. Small quantities of gold resulted from the treatment of concentrates, recovered from the sluicing and dredging of gold-bearing stanniferous alluvials and from minor activities on auriferous alluvials. Cyanidation of dumps at the Golden Gate Mine, Mathinna, was abandoned.

Osmiridium mining was less active, the recorded output of 39·3 oz. accruing from operations, by small parties, on alluvial ground at Adamsfield.

The combined value of carbide, cement, and limestone was £496,518. The Australian Commonwealth Carbide Company at Electrona and Ida Bay, and the Goliath Portland Cement Company at Railton continued as the major producers and users of limestone in the manufacture of carbide and cement. There was a decrease of 445 tons in the production of carbide and the output of cement was 2897 tons less than for the previous year.

The recorded production of limestone was 168,803 tons, of which 128,094 tons were used in the manufacture of carbide and cement. Metallurgical, agricultural, and building industries absorbed 40,709 tons in either crushed, pulverised, or lime forms.

There was a rising in the output of clay for industrial uses, including the manufacture of paper. Small quantities of ochre, silica, and talc were produced but there was no major development in operations connected therewith. There was a lowering in the demand for red granite and the output declined to 61 tons.

Despite an industrial stoppage, extending over a period of seven weeks, coal mining continued to progress and the output attained a new high level of 181,618 tons.

The Cornwall Coal Company was the major producer and operations at the three collieries provided an output of 122,512 tons. Pillar extraction, bord and pillar mining, and developmental work resulted in a production of 93,551 tons at the Cornwall Colliery; 23,320 tons accrued from mechanised and other coal-winning at the Mount Nicholas Coal Mine; and increased activities at the Duncan Colliery provided an output of 5641 tons.

Troubled seam conditions hampered the regular development of the Main Heading section at the Jubilee Coal Mine, but coal-winning was more active and the production inclined to 20,841 tons.

At the Dalmayne Coal Mine, operations were confined to the lower section of the seam which provides a coal favoured as a fuel for railway engines. Major faulting has limited productive mining to a narrow field of coal and diamond drilling was commenced to prove seam horizons and reserves with a view to more active development.

Following the installation of electric drills to supplant hand-boring in bord and pillar work, there was a substantial increase in production at the Fingal Colliery, the recorded output of coal rising to 12,367 tons. Mechanical haulage and other innovations are to be made in a progressive approach to greater production.

There was no forward development in operations at the Stanhope Coal Mine. Seam conditions continued to be troubled by faulting and the output declined to 9535 tons.

The installation of a generator and electric drills enabled the hand-boring of coal faces to be supplanted at the Merrywood Coal Mine and production of coal inclined to 5241 tons. The mine is sufficiently developed for a greater output, but a shortage of labour, due mainly to lack of accommodation, has hampered progress.

Productive mining was less active at the Langloh Coal Mine, Hamilton, and the output of coal declined to 5606 tons.

The balance of the output of coal resulted from operations at small collieries in the north-western and southern districts.

Aluminium.

The Commonwealth-State project for the production of ingot aluminium continued to rest with a Commission and material progress was made in matters related to an establishment of the industry. Comprehensive surveys and strata boring were undertaken of potential plant sites and Bell Bay, on the eastern side of the Tamar River, was selected as the one most suitable for the industry. Land acquisition was proceeded with, available plant and building structures were purchased overseas and delivered to the site, advances were made in the designing of major operating units, and there was forward planning in construction camps, workshops, offices, and in a housing programme at George Town. The project embraces the construction of a reinforced concrete wharf and the provision of bulk handling equipment to cope with inward shipments of large quantities of bauxite, limestone, soda ash, and other materials as well as the outward shipment of ingot aluminium.

Production Statistics.

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

QUANTITY AND VALUE OF MINERALS.

STATISTICS RELATING TO THE MINING INDUSTRY FOR THE YEAR ENDING 31ST DECEMBER, 1949.

Mineral.	Mining Divisions.					Total Quantity.	Value.	
	Northern and Southern.	Eastern.	North-Eastern.	North-Western.	Western		Sterling.	Australian Prices.
							£	£
Coal .... (tons)	7,005	172,841	....	1,772	....	181,618	....	181,897
Copper .... (tons)	....	....	....	....	5,228·69	5,228·69	735,365	867,811
Cadmium .... (tons)	....	....	....	....	37·96	37·96	....	43,841
Cobalt Oxide .... (tons)	....	....	....	....	·27	·27	....	124
Carbide, Cement, and Limestone .... (tons)	26,370	....	....	105,066	4,390	135,826	....	496,518
Graphite .... (tons)	....	....	....	5	....	5	....	10
Gold .... (fine oz.)	30·068	....	220·573	....	11,901·09	12,151·731	122,447	152,977
Granite (Red) .... (tons)	....	61	....	....	....	61	....	673
Kaolin .... (tons)	1,528	....	5,788	....	....	7,316	....	24,621
Lead .... (tons)	....	....	....	....	7,873·634	7,873·634	796,701	275,577
Ochre .... (tons)	....	....	....	21·25	....	21·25	....	67
Osmiridium .... (oz.)	39·300	....	....	....	....	39·300	914	1,136
Pyrites .... (tons)	....	....	....	....	47,922	47,922	....	91,066
Scheelite .... (tons)	....	....	....	802·6	....	802·6	272,668	278,153
Silica .... (tons)	....	....	....	441·75	2,653	3,094·75	....	2,219
Silver .... (fine oz.)	....	....	....	....	1,011,032·138	1,011,032·138	207,238	236,563
Tin .... (tons)	2·796	330·74	232·156	4·301	61·238	631·231	380,942	391,363
Wolfram .... (tons)	....	264·395	....	....	....	264·395	100,738	118,246
Zinc .... (tons)	....	....	....	....	20,285·93	20,285·93	1,713,499	811,317
Total Value with Sterling Metal Prices	....	....	....	....	....	....	£5,171,548	
Total Value with Australian Prices	....	....	....	....	....	....	£A3,974,179	
Average Number of Men Employed	2,317	564	233	394	2,151	5,659	....	....
Limestone .... (tons)	34,683	....	....	129,730	4,390	168,803	....	Included in Carbide, Cement and Limestone.
Iron Ore .... (tons)	....	....	....	1,500	....	1,500	....	

The Electrolytic Zinc Company of Australasia Limited, recovered 58,460 tons of zinc, valued at £2,455,320 Australian; 171·849 tons of cadmium, valued at £194,880 Australian; and 13·931 tons of cobalt-oxide, valued at £6408 Australian; from other than Tasmanian ores and employed an average of 1899 men at Risdon.

ASBESTOS.

RETURN showing the Quantity and Value of Asbestos produced from 1899 to 1949 inclusive.

Year.	Quantity.	Value.
	Tons.	£
1899	200	363
1900	128	113
1901	46·5	45
1902–1915	—	—
1916	15	30
1917	271	271
1918	2854	5008
1919	51	1275
1920–1936	—	—
1937	2	29
1938	4·25	68
1939–1940	—	—
1941	3·5	120
1942	7	20
1943	18·25	365
1944	102·99	2242
1945	276·36	7193
1946–1949	—	—
Total	3979·85	£17,142

BISMUTH.

Return showing the Quantity and Value of Bismuth produced from 1904 to 1949 inclusive.

Year.	Quantity.	Value.
	Tons.	£
1904	·3	15
1905	3·5	800
1906	·3	24
1907	·175	27
1908	3·75	462
1909	2·9	980
1910	10·70	4249
1911	14·395	5758
1912	7·59	2646
1913	5·08	1627
1914	5·619	1666
1915	5·5	1203
1916	3·51	1059
1917	4·212	895
1918	4·608	1038
1919	1·77	573
1920	·10	9
1921	·05	21
1922–1929	—	—
1930	·97	475
1931	1·75	1015
1932	1·02	541
1933	1·32	705
1934	—	—
1935	·328	146
1936	—	—
1937	·216	78
1938	·871	396
1939	·623	296
1940	·565	270
1941	·032	16
1942	·02	10
1943	·309	241
1944	·151	126
1945	·529	373
1946	·392	293
1947	·399	305
1948	·078	88
1949	—	—
Total	83·632	£28,426

BARYTES.

RETURN showing the Quantity and Value of Barytes produced to 31st December, 1949.

Year.	Quantity.	Value.
	Tons.	£
Prior to 1916	50	100
1916	83	359
1917	52	234
1918	217	977
1919	558	1886
1920	1029	4116
1921–1924	—	—
1925	3·5	16
1926–1928	—	—
1929	9·5	24
1930–1932	—	—
1933	5	15
1934–1935	—	—
1936	33	66
1937	76	174
1938–1939	—	—
1940	36	58
1941	11·2	43
1942–45	—	—
1946	33	70
1947–1949	—	—
Total	2196·2	£8138

COAL.

RETURN showing the Quantity and Value of Coal raised to 31st December, 1949.

Year.	Quantity.	Value.
	Tons.	£
Previous to 1880	145,114	115,000
1880 to 1904 inclusive	828,370·5	710,952
1905	51,993	44,194
1906	52,895·75	44,962
1907	58,891	50,057
1908	61,067·75	51,907
1909	66,161·75	56,237
1910	82,445	48,609
1911	57,067	26,214
1912	53,560	24,568
1913	55,043	25,367
1914	60,794	27,853
1915	64,536·25	30,418
1916	55,575	27,736
1917	63,412	38,673
1918	60,163	37,676
1919	66,253	47,004
1920	75,429	64,005
1921	66,476	63,446
1922	69,238	61,016
1923	80,718	70,797
1924	75,988	66,555
1925	81,698	70,424
1926	102,358	90,401
1927	112,056	99,802
1928	128,500	106,558
1929	130,291	105,877
1930	138,716	110,253
1931	123,828	98,004
1932	111,853	86,733
1933	116,573	85,848
1934	113,633	81,262
1935	123,714	86,134
1936	132,264	92,269
1937	91,121	66,883
1938	83,753	61,991
1939	99,392	74,460
1940	83,136	63,688
1941	109,714	85,311
1942	134,442	108,241
1943	145,882	117,361
1944	143,641	122,673
1945	149,077	125,719
1946	158,751	137,736
1947	167,140	154,725
1948	179,393	177,652
1949	181,618	181,897
Total	5,393,735	£4,325,148

COPPER.

The production for the year was 5228·69 tons, valued at £735,365.

RETURN showing the Quantity and Value of Copper in Blister Copper, Copper Ore, and Zinc Lead Ore during the Years 1919 *to* 1949 *inclusive.*

Year.	In Zinc Lead Ore.		In Blister Copper.		In Copper Ore.		Total	
	Qty.	Value.	Q'ty.	Value.	Q'ty.	Value.	Q'ty.	Value.
	Tons.	£	Tons.	£	Tons.	£	Tons.	£
1919	...	...	5014	503,977	304	4651	5318	508,628
1920	...	...	4791	528,177	·75	60	4791·75	528,237
1921	...	...	6171	462,876	9·843	287	6180·843	463,163
1922	...	...	5616	391,535	—	—	5616	391,535
1923	...	...	6063	435,282	1·7	131	6064·7	435,413
1924	...	...	6698	457,386	—	—	6698	457,386
1925	...	...	6539	436,661	—	—	6539	436,661
1926	...	...	6915	454,854	—	—	6915	454,854
1927	...	...	5811	362,988	—	—	5811	362,988
1928	...	...	6421	444,802	—	—	6421	444,802
1929	...	...	8690·01	740,985	—	—	8690·01	740,985
1930	...	...	9940·68	620,578	—	—	9940·68	620,578
1931	...	...	9833·1	416,309	—	—	9833·1	416,309
1932	...	...	10,995	399,646	3·2	116	10,998·2	399,762
1933	...	...	10,734	395,109	5	177	10,739	395,286
1934	...	...	8,202	267,126	6·5	216	8208·5	267,342
1935	...	...	13,036	464,007	—	—	13,036	464,007
1936	...	...	13,040	556,734	—	—	13,040	556,734
1937	...	...	12,382	757,311	37·92	2021	12,419·92	759,332
1938	...	...	12,700·62	578,893	28·802	1345	12,729·422	580,238
1939	...	...	13,453	668,561	—	—	13,453	668,561
1940	...	...	11,570·2	717,356	1·8	108	11,572	717,464
1941	...	...	11,642·1	721,810	2·834	175	11,644·934	721,985
1942	529·58	32,827	11,255·132	697,818	·478	30	11,785·09	730,675
1943	464·38	28,791	10,684	662,408	—	—	11,148·38	691,199
1944	381·75	23,666	9831	609,522	—	—	10,212·75	633,188
1945	275·51	17,080	7197	446,214	—	—	7472·51	463,294
1946	245·88	18,714	9134	697,498	—	—	9379·88	716,212
1947	286·31	37,726	7666·733	1,019,925	1·267	174	7954·31	1,057,825
1948	248·10	33·275	6326	848,088	—	—	6574·1	881,363
1949	305.69	40·356	4923	695,009	—	—	5228·69	735,365
Total	2737·20	232,435	273,274·475	17,459,445	404·094	9491	276,415·769	17,701,371

The Mount Lyell Mining and Railway Company Limited. Return for the Calendar Year 1949.

Ore and metal-bearing material smelted:—

Source of Material.	Tons (Dry).
Ore:—From the Companys North Lyell Mine	1,262
Concentrates:—From the Company's North Lyell Mine, Royal Tharsis Mine, and West Lyell Mines ore	20,844
Precipate	106
Total	22,212

Source of Material.		Tons (Dry).
Limestone delivered at works (tons)		4,390
Silica delivered at works		3,439
Pyritic concentrate shipped from Regatta Point (tons), approximate value £A91,066		47,922
Blister copper produced, 4964 tons, containing:		
Copper (tons)	4,923	Approximate value £A919,495
Silver (oz.)	17,451	
Gold (oz.)	3,019	
Average number of men employed—		
Mining Department—At the Company's North Lyell Mine	2	
Ditto, Royal Tharsis Mine	82	
Ditto, West Lyell Mines	487	
Miscellaneous	186	
		757
Reduction Works Department (including Lake Margaret)		636
Railway Department—Mount Lyell Railway		94
Total		1,487

Copper produced from the inception of the Company to the 31st December, 1949, 431,868 tons.

Silver produced from the inception of the Company to the 31st December, 1949, 15,493,676 oz. (fine).

Gold produced from the inception of the Company to the 31st December, 1949 511,907 oz. (fine).

Dividends paid during the year, £77,500.

Dividends paid from the inception of the Company to the 31st December, 1949, £6,898,445.

CADMIUM.

The quantity recovered was 37·96 tons, valued at £43,841, compared with 34·22 tons, valued at £15,333 for 1948.

RETURN showing the Quantity and Value of Cadmium recovered for the Years 1936 *to* 1949.

Year.	Quantity.	Value.
	Tons.	£
1924-1936	114·3057	31,713
1937	45	18,161
1938	49	18,636
1939	48	16,249
1940	50	18,242
1941	47·07	21,087
1942	41·39	18,462
1943	40·34	18,072
1944	39·68	17,840
1945	29·38	13,161
1946	33·74	15,116
1947	34·53	15,470
1948	34·22	15,333
1949	37·96	43,841
Total	644·6157	£281,383

CEMENT, CARBIDE, AND LIMESTONE.

The combined value of output from these three industries amounted to £496,518, as compared with £489,277 for 1948.

GOLD.

The quantity won was 12,151·731 oz. fine valued at £122,447, as compared with 12,904·062 oz., valued at £111,127 for 1948.

Return showing the Quantity and Value of Gold won to 31st December, 1949.

Year.	Quantity.	Value.
	Oz.	£
Previous to 1867 and up to 1879 inclusive	131,583	512,557
1880 to 1903 inclusive	1,265,836·95	4,905,706
1904	65,921	280,015
1905	73,540·5	312,380
1906	60,023·4	254,963
1907	65,354·25	277,607
1908	57,085·1	242,482
1909	44,777·366	190,201
1910	37,048·053	157,370
1911	31,100·873	132,108
1912	37,973·252	161,300
1913	33,400·457	141,876
1914	26,243·453	111,475
1915	18,547·338	78,784
1916	15,790·096	67,072
1917	14,496·464	61,577
1918	10,528·930	44,724
1919	7,686·470	32,650
1920	6,246·192	29,796
1921	5,340·094	28,395
1922	3,431·486	15,998
1923	3,684·124	16,639
1924	4,625·600	21,563
1925	3,523·870	15,037
1926	4,222·748	17,936
1927	4860·7	20,649
1928	3603·43	15,306
1929	5596·88	23,772
1930	4467·2	18,975
1931	4759·31	22,118
1932	5937·17	34,943
1933	6672·74	41,783
1934	5612·26	38,930
1935	8342·68	59,255
1936	17,600·47	123,386
1937	20,276·31	143,138
1938	22,199·961	158,022
1939	19,984·066	154,471
1940	19,170·968	161,035
1941	19,908·498	167,229
1942	18,353·364	154,168
1943	17,245·253	144,860
1944	16,653·38	139,886
1945	13,049·804	111,452
1946	15,361·987	132,296
1947	15,051·185	129,619
1948	12,904·062	111,127
1949	12,151·731	122,447
Total	2,317,784·47	10,339,078

GRANITE (RED).

RETURN showing the Quantity and Value of Red Granite produced during the Years 1935 to 1949 inclusive.

Year.	Quantity.	Value.
	Tons.	£
1935	284	1432
1936	568	3209
1937	187	923
1938	173	885
1939	246	1300
1940	330	2031
1941	658·5	5661
1942	355	2937
1943–45	...	...
1946	60	600
1947	209	2211
1948	159	1710
1949	61	673
Total	3290·5	23,572

IRON PYRITES.

RETURN showing the Quantity and Value of Iron Pyrites produced during the Years 1915 to 1949 inclusive.

Year.	Quantity.	Value.
	Tons.	£
1915	12,835·59	8945
1916	14,005·084	13,597
1917	7,685·549	7137
1918	5,105·600	4667
1919	3,456·95	4288
1920	4,440	7346
1921	606·5	2579
1922	8,276	18,620
1923	11,882	26,737
1924–1930	—	—
1931	506·7	253
1932	274	150
1933	1498	1498
1934	12,030	12,030
1935	25,555	25,555
1936	34,071	34,071
1937	40,630	43,723
1938	50,277	62,845
1939	54,229	67,786
1940	37,819	47,274
1941	40,076	50,093
1942	34,449	43,061
1943	33,203	41,504
1944	29,136	36,419
1945	40,168	50,208
1946	37,294	49,145
1947	42,329	59,260
1948	44,263	61,968
1949	47,922	91,066
Total	674,022·973	£871,825

KAOLIN.

RETURN showing the Quantity and Value of Kaolin produced during the Years 1940 to 1949 inclusive.

Year.	Quantity.	Value.
	Tons.	£
1940	835·5	988
1941	1130	1428
1942	1098	1334
1943	1655	2438
1944	4193·25	4778
1945	5718	11,562
1946	6330·5	11,886
1947	3076	8800
1948	6741	21,955
1949	7316	24,621
Total	38,093·25	89,790

LIMESTONE.

RETURN showing the Quantity and Value of Limestone produced during the Years 1919 to 1936 inclusive

Year.	Quantity.	Value.
	Tons.	£
1919–1922 inclusive	200,454	199,470
1923	100,113	122,428
1924	146,140	146,140
1925	124,670	124,670
1926	153,707	153,219
1927	169,522	167,373
1928	98,654	79,050
1929	68,176	66,597
1930	100,251	94,977
1931	55,268	49,490
1932	90,335	18,725
1933	110,347	33,048
1934	174,767	44,877
1935	254,438	68,367
1936	262,101	71,243
Total	2,108,943	£1,439,674

LEAD.

The output was 7873·634 tons, valued at £796,701, as compared with 7327·661 tons, valued at £697,194 for 1948.

RETURN showing the Quantity and Value of Lead included in Sillver Lead during the Years 1919 *to* 1949 *inclusive.*

Year.	Quantity.	Value.
	Tons.	£
1919–1924	21,918·625	639,592
1925	5525·99	197,452
1926	5892·58	183,167
1927	5583·12	135,403
1928	4786·78	101,616
1929	5983·07	138,793
1930	4237·84	77,590
1931	2189·47	29,024
1932	2694·06	32,637
1933	2644·12	30,987
1934	1507	16,723
1935	1488	21,390
1936	7563·04	134,413
1937	9116·62	212,492
1938	10,652·21	163,102
1939	11,020·96	173,670
1940	13,550·85	338,771
1941	11,753·47	293,837
1942	9360·42	234,011
1943	8632·72	215,817
1944	8226·5	205,661
1945	6298·44	157,459
1946	6890·58	340,509
1947	7719·299	660,861
1948	7327·661	697,194
1949	7873·634	796,701
Total	190,437·059	£6,228,872

NICKEL.

RETURN showing the Quantity and Value of Nickel produced from 1927 *to* 1949 *inclusive.*

Year.	Quantity.	Value.
	Tons.	£
1927–1931	193·6	33,162
1932	0·55	136
1933	8·65	1948
1934–37	—	—
1938	19·75	3604
1939–49	—	—
Total	222·55	£38,850

OCHRE.

RETURN showing the Quantity and Value of Ochre produced during the Years 1918 *to* 1949 *inclusive.*

Year.	Quantity.	Value.
	Tons.	£
1918–1924	134	306
1925	—	—
1926	38	69
1927–1939	—	—
1940	3·5	9
1941	—	—
1942	21	53
1943	380	1681
1944	74·5	233
1945	66	191
1946	255	437
1947	395	405
1948	340	340
1949	21·25	67
Total	1728·25	3791

OSMIRIDIUM.

The quantity of metal won during the year was 39·300 oz., valued at £914, as compared with 92·393 oz., valued at £2094 for 1948.

RETURN showing the Quantity and Value of Osmiridium produced during the Years 1910 *to* 1949 *inclusive.*

Year.	Quantity.	Value.
	Oz.	£
1910	120	530
1911	271·88	1888
1912	778·77	5742
1913	1261·65	12,016
1914	1018·83	10,076
1915	247·048	1581
1916	222·150	1899
1917	332·079	4898
1918	1606·743	44,833
1919	1668·715	39,614
1920	2009·196	77,104
1921	1750·655	42,935
1922	1173·924	35,512
1923	673·423	19,642
1924	364·805	10,617
1925	3365·543	103,570
1926	3202·5	61,908
1927	632·777	7456
1928	1627·186	42,458
1929	1324	30,624
1930	952·7	16,235
1931	1279·54	18,028
1932	784·95	9075
1933	548	4843
1934	487·7	4622
1935	234·82	2103
1936	280·6	3862
1937	586·42	9077
1938	190·87	2976
1939	283·065	5014
1940	464·740	11,604
1941	206·578	4212
1942	142·094	2930
1943	89·695	2087
1944	107·02	2619
1945	108·75	2665
1946	94·522	2581
1947	98·766	2700
1948	92·393	2094
1949	39·300	914
Total	30,724·397	£665,144

SHALE.

RETURN showing the Quantity and Value of Shale produced during the Years 1910 *to* 1949 *inclusive.*

Year.	Quantity.	Value.
	Tons.	£
1910	364	214
1911	500	250
1912	—	—
1913	130	130
1914	75	75
1915	—	—
1916	1286	1286
1917	—	—
1918	—	—
1919	600	900
1920	140	172
1921	868	1506
1922	40	100
1923	1101	1094
1924	1576	1526
1925	820	559
1926	2127	1475
1927	3150	2050
1928	9052	7754
1929	4299	2982
1930	5428	4356
1931	1402	600
1932	1907	1074
1933	3401	1483
1934	3276	1630
1935	30	15
1936–1949	—	—
Total	41,572	£31,231

RETURN showing the Quantity of Oil Distilled from Shale.

Year.	Name of Company.	Gallons.
1910	Tasmanian Shale and Oil Company	4800
1915	Railton-Latrobe Shale Oil Co. N.L.	24,000
1927–1928	Australian Shale Oil Corporation	65,000
1929	Goliath Portland Cement Company	2200
1930	Goliath Portland Cement Company	20,101
	Tasmanite Shale Oil Company Ltd.	35,000
1931	Tasmanite Shale Oil Company Ltd.	31,915
1932	Tasmanite Shale Oil Company Ltd.	79,236
1933	Tasmanite Shale Oil Company Ltd.	56,958
1934	Tasmanite Shale Oil Company Ltd.	37,905
1935–49	Tasmanite Shale Oil Company Ltd.	—
	Total	357,115

SCHEELITE.

RETURN showing the Quantity and Value of Scheelite produced during the Years 1917 *to* 1949 *inclusive.*

Year.	Quantity.	Value.
	Tons.	£
1917–1920	589·07	112,468
1921–1937	—	—
1938	30·53	6193
1939	170·695	33,301
1940	275·48	49,120
1941	246·913	42,700
1942	215·332	71,353
1943	199·201	68,908
1944	32·21	10,842
1945	527·54	158,093
1946	627·8	165,264
1947	630·92	240,006
1948	637·42	254,517
1949	802·6	272,668
Total	4985·711	£1,485,433

SILVER.

The output was 1,011,032·138 oz. (fine), valued at £207,238, as compared with 907,215·613 oz., valued at £168,726 for 1948.

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* 1949 *inclusive.*

Year.	In Silver-Lead.		In Blister Copper.		In Copper Ore.		In Gold Ore.		In Zinc Lead Ore.		Total.	
	Quantity.	Value	Quantity.	Value	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Oz.	£	Oz.	£	Oz.	£	Oz.	£	Ozs.	£	Oz.	£
1919	296,719·27	71,831	228,624	53,733	...	...	...	...	...	...	525,343·27	125,564
1920	453,411	118,898	169,948	47,869	...	...	...	...	...	...	623,359	166,767
1921	165,637	27,181	183,021	30,395	...	...	...	...	...	...	348,658	57,576
1922	674,886	104,926	119,699	18,511	...	...	...	...	...	...	794,585	123,437
1923	516,073·61	73,742	122,528	17,597	...	...	...	...	...	...	638,601·61	91,339
1924	494,782	75,598	147,376	22,439	...	...	...	...	...	...	642,158	97,837
1925	597,012·67	86,283	133,181	19,226	...	...	...	...	...	...	730,193·67	105,509
1926	632,066	80,597	134,587	17,394	...	...	...	...	...	...	766,653	97,991
1927	640,575	75,135	101,207	11,889	...	...	...	...	...	...	741,782	87,024
1928	564,056	66,386	105,270	12,515	...	...	...	...	...	...	669,326	78,901
1929	714,939	78,252	149,424	16,308	...	...	...	...	...	...	864,363	94,560
1930	518,641	41,485	182,978	14,583	...	...	...	...	...	...	701,619	56,068
1931	242,950	16,104	148,782	9650	...	...	...	...	...	...	391,732	25,754
1932	301,854	24,399	161,634	12,905	...	...	...	...	...	...	463,488	37,304
1933	361,768	29,394	127,562	10,414	...	...	...	...	...	...	489,330	39,808
1934	194,747	18,401	89,940	8726	...	...	...	...	...	...	284,687	27,127
1935	191,044	24,780	132,857	17,543	...	...	...	...	...	...	323,901	42,323
1936	803,269	71,886	103,189	9150	...	...	...	...	...	...	906,458	81,036
1937	977,552	88,252	83,233	7518	...	...	...	...	...	...	1,060,785	95,770
1938	1,152,568	98,913	66,982	5758	...	...	...	...	...	...	1,219,550	104,671
1939	1,207,604	111,893	70,512	6417	...	...	...	...	...	...	1,278,116	118,310
1940	1,549,859	155,596	58,659	5854	119	13	44	4	...	...	1,608,681	161,447
1941	1,282,795	134,693	43,830	4601	113	12	...	...	...	...	1,326,738	139,306
1942	207,050	21,739	36,207	3802	...	...	...	...	946,804·44	99,414	1,190,061·44	124,955
1943	193,070	20,273	44,321	4653	...	...	...	...	879,184·67	92,315	1,116,575·67	117,241
1944	143,640	15,082	38,047	3994	...	...	...	...	846,489·29	88,881	1,028,176·29	107,957
1945	136,390	17,188	24,232	2917	...	...	...	...	655,535·38	81,996	816,157·38	102,101
1946	134,450	28,102	34,194	7127	...	...	...	...	727,648·76	152,199	896,292·76	187,428
1947	146,775·56	26,979	27,891·9	5028	...	...	...	...	744,123·63	137,061	918,791·09	169,068
1948	105,085·07	19,520	22,763	4233	...	...	...	...	779,367·54	144,973	907,215·61	168,726
1949	103,993·358	21,323	17,451	3942	...	...	...	...	889,587·78	181,973	1,011,032·138	207,238
Tot'l	15,705,262·538	1,844,611	3,110,129·9	416,691	232	25	44	4	6,468,741·49	978,812	25284,409·928	3,240,143

TALC.

RETURN showing Quantity and Value of Talc produced during the Years 1928 to 1949 inclusive.

Year.	Quantity.	Value.
	Tons.	£
1928	32	96
1929	23	45
1930	13·35	53
1931	15	58
1932	5	17
1933	8·75	22
1934	5·5	16
1935	—	—
1936	3	8
1937-1943	—	—
1944	4	16
1945	152·75	532
1946	49	192
1947	—	—
1948	22	22
1949	—	—
Total	333·35	1077

TIN.

The output was 631·231 tons, valued at £380,942, as compared with 777·124 tons, valued at £427,372 for 1948.

RETURN showing the Quantity and Value of Metallic Tin exported from Tasmania from 1873 to 1904 (compiled from Customs Returns only), and Metallic Tin produced during the Years 1905 to 1949 inclusive.

Year.	Quantity.	Value.
	Tons.	£
1873–1879 inclusive	16,429	1,054,923
1880 to 1905 inclusive	56,419·93	7,530,234
1906	3130·925	557,266
1907	3039·925	501,681
1908	3164·56	421,580
1909	3157·84	418,165
1910	2590·707	399,393
1911	2767·135	513,500
1912	2599·775	543,103
1913	2807·287	531,983
1914	1800·899	259,300
1915	1819·463	292,306
1916	1998·245	350,852
1917	1846·135	427,917
1918	1579·342	488,798
1919	1580·22	395,794
1920	1310·411	369,362
1921	790·395	130,257
1922	679·440	112,407
1923	1160·390	236,955
1924	1108·450	275,014
1925	1129·662	297,515
1926	1096·16	322,526
1927	1105·74	317,593
1928	1140·14	258,676
1929	640·36	130,014
1930	511·77	69,592
1931	588·83	70,634
1932	793·92	109,767
1933	957	190,041
1934	952·49	219,246
1935	1131	258,919
1936	1004·06	206,656
1937	1089·839	260,673
1938	1278·617	244,037
1939	1249·877	282,798
1940	1430·198	367,127
1941	1255·729	328,340
1942	1148·048	297,919
1943	948·817	246,218
1944	809·671	235,612
1945	801·239	240,369
1946	700·886	240,584
1947	830·176	353,045
1948	777·124	427,372
1949	631·231	380,942
Total	135,783·108	£22,169,170

WOLFRAM.

RETURN showing the Quantity and Value of Wolfram produced during the Years 1899 to 1949 inclusive.

Year.	Quantity.	Value.
	Tons.	£
1899 to 1904 inclusive	72·84	3304
1905	32·25	2371
1906	19·75	1465
1907	40·75	4411
1908	4·5	338
1909	28·35	2494
1910	67·35	7280
1911	69·96	7769
1912	66·49	6601
1913	68·07	7040
1914	46·873	4327
1915	94·685	11,115
1916	106·265	16,910
1917	172·190	28,714
1918	155·362	27,239
1919	120·907	26,613
1920	70·89	13,626
1921	10·34	676
1922	19·26	1024
1923	96·86	6150
1924	54	2785
1925	174·170	14,658
1926	83·15	5265
1927	148·57	9896
1928	176·15	12,094
1929	151·86	18,358
1930	112·6	12,216
1931	0·29	16
1932	—	—
1933	104·05	7,301
1934	194·19	27,375
1935	232·13	29,345
1936	207·13	28,323
1937	291·04	71,643
1938	299·104	63,348
1939	227·604	44,356
1940	234·304	42,319
1941	235·502	42,536
1942	183·23	58,397
1943	230·025	82,965
1944	241·875	86,749
1945	211·11	69,896
1946	156·573	44,553
1947	201·047	82,928
1948	234·408	103,193
1949	264·395	100,738
Total	6012·879	£1,240,710

ZINC.

RETURN showing the Quantity and Value of Zinc produced during the Years 1919 to 1949 inclusive.

Year.	Quantity.	Value.
*	Tons.	£
1919	285	13,110
1920	9·3	334
1921–1923	—	—
1924	2748·75	90,485
1925	3112·69	110,691
1926	5377·75	183,362
1927	6326·2	181,240
1928	7112	188,691
1929	6977	185,964
1930	943	19,322
1931–1935	—	—
1936	18,769	283,105
1937	23,481	525,824
1938	25,366	356,452
1939	25,021	366,176
1940	26,262	715,632
1941	24,468·6	666,768
1942	21,472·15	585,116
1943	21,078·81	574,398
1944	20,833·15	567,702
1945	15,609·34	407,307
1946	17,990·08	800,072
1947	18,512·663	1,295,883
1948	18,503·85	1,469,241
1949	20,285·93	1,713,499
Total	330,545·263	£11,300,374

* 1917, 1918 have been deleted. Product of Broken Hill.

ELECTROLYTIC ZINC COMPANY OF AUSTRALASIA LIMITED.

RETURN FOR THE YEAR 1949.

EXTRACTIONS FROM ORES AND CONCENTRATES: RISDON.

From other than Tasmanian Ores—

Zinc	58,460 tons
Cadmium	171·349 tons
Cobalt oxide	13·931 tons

From Tasmanian Ores—

Zinc	22,496 tons
Cadmium	44 tons
Cobalt oxide	·27 tons
Lead	1,028 tons
Silver	115,928 oz.

Men Employed—

The average number of men employed was 1899.

WEST COAST DIVISION.

Ore Mined—

From Hercules Mine	39,142
From Rosebery Mine	101,367
From Comstock Mine	....
Total	140,509

Concentrates Produced—

Zinc concentrates	42,177
Lead concentrates	9,356
Copper concentrates	3,695
	55,228

Recoverable Quantity in Ores Mined—

Zinc	20,285·93 tons
Lead	6,938·82 tons
Copper	305·69 tons
Cadmium	37·96 tons
Silver	889,587·78 oz.
Gold	8,882·09 oz. f.

Average Number of Men Employed—

Hercules Mine	58
Rosebery Mine	399
Zeehan Smelters	5
Comstock Mine	2
Total	464

QUANTITY AND VALUE OF METALS AND MINERALS PRODUCED.

RETURN showing Quantity and Value of Metals and Minerals Produced in Tasmania as at 31st December, 1949.

Mineral or Metal.	Quantity.	Value with Sterling Metal Prices.	Value with Aust. Metal Prices.
Asbestos (tons)	3,979·85	17,142	17,142
Barytes (tons)	2,196·2	8,138	8,138
Bismuth (tons)	83·632	28,426	29,636
Cadmium (tons)	644·6157	281,383	327,975
Carbide, Cement, and Limestone (tons)	3,109,461·6	5,453,999	5,453,999
Carbide to 1936 (now under Carbide, Cement, and Limestone) (tons)	62,090	1,212,207	1,212,207
Cement to 1936 (now under Carbide, Cement, and Limestone) (tons)	525,391	2,004,014	2,004,014
Coal (tons)	5,393,735	4,325,148	4,325,148
Cobalt Oxide (tons)	6·02	2,764	3,376
Copper (Blister) to 1918 (now shown under Silver and Copper) (tons)	166,600	13,788,527	13,788,527
Copper Matte (tons)	6,227	133,736	133,736
Copper Ore to 1918 (now under Copper) (tons)	41,768·63	577,873	577,873
Copper (from 1919) (tons)	276,415·769	17,701,371	20,174,467
Dolomite (tons)	10	25	25
Gold (fine oz.)	2,317,784·47	10,339,078	10,876,990
Granite (Red) (tons)	3,290·5	23,572	23,572
Graphite (tons)	17	26	26
Ilmenite (tons)	550	1,256	1,256
Iron Ore (tons)	46,181·5	31,776	31,776
Iron Pyrites (tons)	674,022·973	871,825	871,825
Kaolin (tons)	38,093·25	89,790	89,790
Lead (from 1919) (tons)	190,437·059	6,228,872	5,338,400
Limestone to 1936 (now under Carbide, Cement, and Limestone) (tons)	2,108,943	1,439,674	1,439,674
Manganese (tons)	·6	3	3
Monazite (tons)	32·6	488	607
Nickel (tons)	222·55	38,850	40,518
Ochre (tons)	1,728·25	3,791	3,791
Osmiridium (oz.)	30,724·397	665,144	685,641
Rutile (tons)	·5	18	18
Scheelite (tons)	4,985·711	1,485,433	1,639,251
Silica (tons)	87,830·75	40,841	40,841
Shale (tons)	41,572	31,231	31,231
Silver-Lead ore to 1918 (now under Silver and Lead) (tons)	1,083,897·821	6,429,291	6,429,291
Silver (from 1919) (fine oz.)	25,284,409·928	3,240,143	3,766,498
Talc (tons)	333·35	1,077	1,077
Tin (tons)	135,783·108	22,169,170	23,182,395
Wolfram (tons)	6,012·879	1,240,710	1,282,135
Zinc (tons)	330,545·263	11,300,374	8,464,009
Total	....	£111,207,196	£113,296,878

STATISTICS OF PRODUCTION.

RETURN showing the Annual Published Value of Mineral Products for the State of Tasmania from 1880 *to* 1949 *inclusive.*

Year.	Value.	Year.	Value.
	£		£
1880	554,031	1916	1,521,050
1881	602,723	1917	1,580,354
1882	556,306	1918	1,444,814
1883	560,873	1919	1,301,090
1884	468,302	1920	1,421,104
1885	518,885	1921	822,851
1886	489,966	1922	1,013,415
1887	593,256	1923	1,219,456
1888	616,733	1924	1,496,804
1889	504,718	1925	1,700,861
1890	444,210	1926	1,808,847
1891	528,388	1927	1,621,027
1892	526,909	1928	1,593,828
1893	627,909	1929	1,790,653
1894	732,764	1930	1,270,114
1895	575,692	1931	894,986
1896	662,058	1932	897,168
1897	1,006,140	1933	1,053,373
1898	1,071,084	1934	1,037,351
1899	1,660,622	1935	1,387,511
1900	1,888,695	1936	1,979,637
1901	1,763,896	1937	2,653,822
1902	1,378,406	1938	2,294,735
1903	1,354,044	1939	2,520,282
1904	1,379,204	1940	3,137,330
1905	1,729,129	1941	3,055,838
1906	2,257,147	1942	2,832,189
1907	2,277,159	1943	2,686,664
1908	1,650,027	1944	2,581,366
1909	1,574,995	1945	2,201,324
1910	1,432,193	1946	3,190,033
1911	1,349,497	1947	4,595,685
1912	1,493,502	1948	4,884,660
1913	1,415,700	1949	5,171,038
1914	1,007,038	Value of production 1867-1945, previously unrecorded	2,067,650
1915	1,225,575		
		Total	£111,206,686

STATISTICS OF MINING COMPANIES.

RETURN showing the Amounts Paid in Dividends by Mining Companies during the Year ending 31*st December,* 1949.

Mines.	Dividends.
	£ s. d.
Copper	77,500 0 0
Gold	...
Tin	83,478 0 0
Silver	...
Coal	...
Scheelite	50,000 0 0
Zinc	* 750,000 0 0
Total	£966,853 0 0

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

RETURN showing the Mining Companies Registered during the Year ending 31*st December,* 1949.

Number of Companies.	Capital.
Nil	Nil

No 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 Number of Leases and Licences in Force on 31*st December,* 1949.

Mineral.	Number.	Number of Sluiceheads.	Area
			Acres.
Bauxite	1	...	129½
Barytes	1	...	10
Bismuth	...	...	...
Coal	32	...	5754
Clay	9	...	251
Copper	1	...	33
Galena	...	...	...
Gravel	1	...	31
Granite	4	...	30
Gold	27	...	479½
Iron	2	...	107
Limestone	11	...	689
Lead-Zinc	1	...	80
Molybdenum	...	...	...
Minerals	35	...	8667
Marble	...	...	...
Nickel	5	...	249
Osmiridium	1	...	10
Ochre	2	...	24
Pyrites	1	...	80
Quartzite	...	...	...
Scheelite	3	...	281
Shale	...	...	...
Silica	2	...	25
Silver Lead	20	...	750
Stone	10	...	913
Sand	2	...	13
Serpentine, &c.	3	...	240
Tin	227	...	6728½
Wolfram	1	...	20
Mining Easements and Machinery Sites	100	...	1487½
Licences to Search	1	...	200
Water Licences	152	912	819¼
Total	655	912	28,101¼

RETURN showing the Total Amount of Rents, Fees, &c., received by the Mines Department during the Year ending 31*st December,* 1949.

Head of Revenue.	Amount.
	£ s. d.
Rent of Auriferous and Mineral Lands	6110 3 4
Fees, Auriferous and Mineral Lands	474 3 10
Survey Fees	460 10 8
Fees under the Explosives and Inflammable Liquids Act	3169 10 3
Total	£10,214 8 1

RETURN showing the Total Area of Land and Number of Sluiceheads of Water Applied for during the Year ending 31st December, 1949.

Mineral.	Number.	Area.	Sluiceheads.
		Acres.	
Asbestos	...	...	...
Bismuth	...	...	...
Barytes	...	...	...
Clay	...	...	...
Copper	2	1928	...
Coal	3	1039	...
Dolomite	...	...	...
Gold	5	149	...
Galena	...	...	...
Iron	...	...	...
Lead—Zinc, Silver	...	...	...
Lead—Antimony	...	...	...
Manganese	...	...	...
Minerals	8	318	...
Silver Lead	3	60	...
Silica	...	...	...
Stone	...	..	...
Sand	...	...	...
Talc	...	...	...
Tin	32	362	...
Wolfram	...	...	...
Zinc	...	...	...
Machinery Sites and Mining Easements	2	8	...
Water-rights and Dam Sites	7	...	32
Licences to search for Coal	...		...
Total	62	3864	32

RETURN showing Total Number and Area of Leases and Licences Issued during the Year ending 31st December, 1949.

Mineral.	Leases.	Area.	Sluiceheads.
		Acres.	
Asbestos	...	...	...
Bauxite	1	129½	...
Barytes	...	...	...
Clay	1	51	...
Copper	...	...	...
Copper-Nickel	...	...	...
Coal	1	60	...
Galena	...	...	...
Gold	1	5	...
Lead Zinc	...	...	...
Limestone	3	67	...
Minerals	8	3252	...
Manganese	...	...	...
Nickel, &c.	...	...	...
Ochre	...	...	...
Quartzite	...	...	...
Silver	...	...	...
Silica	...	...	...
Silver-Lead	3	100	...
Stone	...	...	...
Tin	19	208	...
Wolfram	...	...	...
Water-rights and Dam Sites	15	12	39
Licences to Search for Coal and Oil	...	...	...
Mining Easements and Machinery Sites	7	48	...
Total	59	3932½	39

Comparative Statement of Revenue from Mines, being Rents, Fees, Storage of Explosives, &c., (exclusive of Survey Fees), Paid to the Treasury for the Years ending 30th June, from 1883 to 1903, and for Six Months ending 31st December, 1903, and for the Years ending 31st December, 1904 to 1949 inclusive.

Year.	Amount.			Year.	Amount.		
	£	s.	d.		£	s.	d.
1883	15,439	14	5	1916	14,678	19	10
1884	6981	11	10	1917	14,669	7	2
1885	11,070	5	7	1918	17,833	14	9
1886	12,523	10	4	1919	15,388	7	7
1887	14,611	11	5	1920	16,767	11	6
1888	23,502	8	4	1921	11,248	14	11
1889	17,254	9	0	1922	14,184	7	3
1890	26,955	4	9	1923	13,224	11	9
1891	37,829	16	5	1924	14,678	13	11
1892	17,568	18	4	1925	14,229	8	7
1893	16,971	9	2	1926	15,163	15	7
1894	16,732	7	7	1927	16,887	9	9
1895	15,323	1	9	1928	14,313	12	0
1896	20,901	13	2	1929	14,665	10	7
1897	25,631	0	3	1930	11,166	7	2
1898	33,661	13	9	1931	11,520	1	10
1899	24,696	10	5	1932	10,097	18	6
1900	28,380	11	10	1933	9459	6	9
1901	21,569	5	2	1934	11,166	2	11
1902	19,471	0	1	1935	10,548	10	0
1903	17,776	14	3	1936	11,023	11	3
1903, 1 July to 31 Dec.	14,758	17	1	1937	12,206	10	1
1904, Jan. to Dec.	16,631	8	2	1938	11,177	11	5
1905	20,208	17	0	1939	11,556	5	1
1906	24,136	12	5	1940	11,018	3	9
1907	24,794	7	7	1941	10,835	18	8
1908	20,311	3	0	1942	9,509	18	2
1909	22,804	1	5	1943	9,449	9	7
1910	22,221	18	0	1944	8,952	5	3
1911	20,556	15	10	1945	9,108	18	6
1912	17,639	19	11	1946	8,716	8	8
1913	19,410	17	8	1947	9,569	12	9
1914	14,087	0	6	1948	10,637	2	1
1915	17,679	3	6	1949	9,753	17	5

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

RETURN showing the Number and Area of Leases Held under the Mining Act in force on 31st December, 1934 to 1949 inclusive.

Nature of Lease.	In force on 31st Dec., 1935.		In force on 31st Dec., 1936.		In force on 31st Dec., 1937.		In force on 31st Dec., 1938.		In force on 31st Dec., 1939.		In force on 31st Dec., 1940.		In force on 31st Dec., 1941.		In force on 31st Dec., 1942.		In force on 31st Dec., 1943.		In force on 31st Dec., 1944.		In force on 31st Dec., 1945.		In force on 31st Dec., 1946.		In force on 31st Dec., 1947.		In force on 31st Dec., 1948.		In force on 31st Dec., 1949.	
	No.	Area.	No.	Area.	No.	Area.	No.	Area.	No.	Area.	No.	Area.	No.	Area.	No.	Area.	No	Area.	No.	Area.	No.	Area.	No.	Area.	No.	Area	No.	Area.	No.	Area.
		Acres.		Acres.		Acres.		Acres.		Acres.		Acres.		Acres.		Acres.		Acres.		Acres.		Acres.		Acres.		Acres.		Acres.		Acres.
For Minerals, Silver, Tin, &c.	500	19,802	585	21,096	603	21,368	595	23,497	463	18,843	474	16,838	436	15,892	377	15,135	333	15,075	423	16,517·50	373	14,665	320	13,291	348	14,441	304	13,858	298	17,135
For Coal, Stone, Shale, &c.	47	6635	48	7249	50	6778	43	4904	49	6683	53	6517	56	7151	53	6732	53	6683	60	7032	63	6687	64	7059	70	7477	54	5808	77	7980
For Gold Mining	162	3190	155	3183	22	2619	117	2491	108	1850·5	110	1759·5	106	2041	75	1176	59	914	113	1948	55	955	56	992	53	953	26	464	27	479·5
Easements Machinery Sites	107	629	112	634	112	663	97	630	86	617·25	85	616·25	83	529	83	511·25	78	570·75	82	633·75	81	760	83	744	85	830	72	724	100	1487·5
Licences to search for Coal or Oil	2	4200	5	10,900	6	10,600	2	1180	2	1180	—	—	—	—	—	—	1	900	2	1800	—	—	—	—	—	—	1	200	1	200
Water-rights, Mineral and Gold	447	2092 & 1835 sluice-heads	466	1963 & 2034 sluice-heads	467	2243 & 2049 sluice-heads	448	1834 & 2191 sluice-heads	388	2172·75 & 1574 sluice-heads	395	2183 & 1478 sluice-heads	386	2065 & 1428 sluice-heads	346	2031·75 & 1586 sluice-heads	293	2015·25 & 1319 sluice-heads	300	2062·25 & 1343 sluice-heads	264	2005 & 1230 sluice-heads	256	1994 & 1131 sluice-heads	256	1999¼ & 1221 sluice-heads	212	1807¾ & 987 sluice-heads	152	819·25 & 912 sluice-heads

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

	Average for **1936.**	Average for **1937.**	Average for **1938.**	Average for **1939.**	Average for **1940.**	Average for **1941.**	Average for **1942.**	Average for **1943.**	Average for **1944.**	Average for **1945.**	Average for **1946.**	Average for **1947.**	Average for **1948.**	Average for **1949.**
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d	£ s. d.	£ s. d.	£ s. d.
Copper—Standard, spot: per ton	36 12 6	60 5 9	45 16 9	49 17 7	62 0 0	62 0 0	62 0 0	62 0 0	62 0 0	62 0 0	75 10 0	131 0 0	134 10 0	131 8 0
Lead—Soft Foreign: per ton	16 7 9	Electrolytic. 23 6 1	Electrolytic. 15 6 5	Electrolytic. 15 13 7	Electrolytic. 25 0 0	Electrolytic. 25 0 0	Electrolytic. 25 0 0	Electrolytic. 25 0 0	Electrolytic. 25 0 0	Electrolytic. 25 0 0	Electrolytic. 48 17 6	Electrolytic. 85 7 6	Electrolytic. 95 10 0	102 6 0
Spelter: per ton	14 6 11	22 6 8	14 1 7	14 14 0	25 15 0	25 15 0	25 15 0	27 5 0	27 5 0	27 12 6	42 16 3	70 0 0	79 3 4	85 18 4
Tin—Standard, spot: per ton	208 6 6	242 6 7	189 12 1	226 5 6	256 12 3	261 8 0	259 10 0	259 10 0	289 17 6	300 0 0	342 15 0	422 17 6	547 4 2	600 0 0
Silver—Standard, spot: per oz.	s. d. 1 9·647	s. d. 1 9·65	s. d. 1 9·066	s. d. 1 8·461	s. d. 2 1·048	s. d. 1 11·439	s. d. 1 11·439	s. d. 1 11·439	s. d. 1 11·439	s. d. 2 6	s. d. 4 1·75	s. d. 3 8·25	s. d. 3 9	s. d. 4 0
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Osmiridium per oz.	12 10 0	15 12 6	15 0 4	17 15 0	24 0 0	20 7 2	20 12 4	23 10 11	24 10 6	24 10 6	27 17 7	27 18 0	22 10 0	21 5 0
Wolfram: per ton	161 5 0	325 19 0	289 0 0	271 0 0	250 0 0	250 0 0	437 10 0	500 0 0	500 0 0	462 10 0	400 0 0	582 17 6	616 5 0	514 0 0
		WO_3	WO_3	WO_3	WO_3	WO_3	WO_3	WO_3	WO_3	WO_3	WO_3	WO_3	WO_3	WO_3
Gold: per f. oz.	7 0 4	7 1 3	7 2 6	7 15 2	8 8 0	8 8 0	8 8 0	8 8 0	8 8 0	8 10 10	8 12 3	8 12 3	8 12 3	9 14 2

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, but little advantage was taken thereof. An amount of £485 was expended and £313 was repaid against advances previously made.

An amount of £100 was repaid by the Jubilee Coal Company against financial assistance made available from sources other than the Mining Trust Fund and the Aid to Mining (Federal Grant) Trust Fund.

A loan of £10,000 made to Renison Associated Tin Mines, for the erection of dwellings and a community hall, was not drawn against beyond the £5500 already advanced.

THE AID TO MINING ACT, 1927.

STATEMENT OF RECEIPTS AND PAYMENTS OF THE MINING TRUST FUND FOR YEAR ENDED 31ST DECEMBER, 1949.

RECEIPTS.	£ s. d.	PAYMENTS.	£ s. d.
Balance, 31st December, 1948	11,519 3 6	Assistance	485 0 0
Repayments of loans	313 11 2	Insurances	2 3 5
Hire drilling plant	49 18 9	Total payments	487 3 5
Sale of plant	75 0 0	Excess of receipts over payments	11,470 10 0
	£11,957 13 5		£11,957 13 5

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. Item.	March, 1935 (commencement) to 31st Dec., 1949. £ s. d.	1st Jan., 1949. to 31st Dec., 1949. £ s. d.
Provided by—		
Commonwealth £25,750		
State 9,250	35,000 0 0	....
Transfer of balance from—		
The Aid to Mining (Federal Grant) Trust Fund, 1936-37 (1 Edw. VIII. No. 20)	1,883 18 2	....
The Aid to Mining (Federal Grant) Trust Fund, 1937-38 (1 Geo. VI. No. 32)	798 9 11	....
Other credits—		
Batteries	99 13 2	....
Advances	9,009 8 7	....
Plants and operation thereof	11 18 8	....
Metallurgical investigations	0 7 11	....
Staff	0 10 10	....
Balance brought forward period ended 31st December, 1948	....	5,266 13 4
	£46,804 7 3	£5,266 17 4

PAYMENTS. Item.	March, 1935 (commencement) to 31st Dec., 1949. £ s. d.	1st Jan., 1949, to 31st Dec., 1949. £ s. d.
Prospecting	1,584 6 6	....
Batteries	1,328 14 0	....
Advances	22,785 5 7	....
Plants and operation thereof	6,711 9 11	....
Metallurgical investigations	1,237 3 4	....
Roads and tracks	6,486 8 8	....
Transport	829 10 10	....
Staff	574 11 1	....
Total payments	41,537 9 11	....
Excess receipts over payments	5,266 17 4	5,266 17 4
	£46,804 7 3	£5,266 17 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, 1949.

RECEIPTS.	£ s. d.	PAYMENTS.	£ s. d.
Balance brought forward, 31st December, 1948	2,000 0 0	Advances	....
Repayments	....	Excess receipts over payments	2,000 0 0
Interest	....		
	£2,000 0 0		£2,000 0 0

STATEMENT OF LOANS UNDER THE AID TO MINING ACT, 1927.

EXPENDITURE.

Year.	Federal Funds.	The Mining Trust Fund and Other Funds.	Total.
	£ s. d.	£ s. d.	£ s. d.
1935	8,398 11 4	2,298 14 8	10,697 6 0
1936	10,462 3 7	2,807 12 10	13,269 16 5
1937	3,902 17 7	1,983 9 6	5,886 7 1
1938	3,337 2 7	1,937 1 0	5,274 3 7
1939	658 13 10	2,721 11 1	3,380 4 11
1940	866 3 5	4,188 5 4	4,984 8 9
1941	2 17 3	1,019 15 3	1,022 12 6
1942	....	1,433 3 3	1,433 3 3
1943	....	634 12 6	634 12 6
1944	....	813 9 7	813 9 7
1945	14 7 1	2,687 9 8	2,701 16 9
1946	....	408 9 4	408 9 4
1947	....	478 15 4	478 15 4
1948	....	76 12 2	76 12 2
1949	....	485 0 0	485 0 0
Totals	£27,642 16 8	£23,904 1 6	£51,546 18 2

REPAYMENTS.

Year.	Federal Funds.	The Mining Trust Fund and Other Funds.	Total.
	£ s. d.	£ s. d.	£ s. d.
1935	300 4 9	87 10 0	387 14 9
1936	1,286 12 5	1,078 5 11	2,364 18 4
1937	1,244 15 5	2,246 13 9	3,491 9 2
1938	3,796 4 7	422 15 3	4,218 19 10
1939	716 19 2	390 4 0	1,107 3 2
1940	599 6 2	944 3 9	1,543 9 11
1941	240 7 11	684 3 8	924 11 7
1942	357 7 10	262 11 4	619 19 2
1943	1,091 5 8	1,486 1 0	2,577 6 8
1944	233 3 2	653 16 0	886 19 2
1945	1,368 10 5	3,176 11 2	4,545 1 7
1946	201 17 0	1,810 0 9	2,011 17 9
1947	137 2 5	520 14 4	657 16 9
1948	148 0 2	493 4 10	641 5 0
1949	....	313 11 2	313 11 2
Totals	£11,721 17 1	£14,570 6 11	£26,292 4 0

DRILLING.

Departmental drilling plants were in constant operation on hire to the holders of mining tenements, in drilling areas reserved against occupation under the provisions of the Mining Act, in testing rock strata for the construction of dams and the siting of metallurgical works, and in boring for water on pastoral lands. Fifty-four bores, aggregating 4513 feet, were drilled. Expenditure on all fields was £2983 5s. 2d., and £2083 2s. was repaid under drilling agreements.

Established suitability of coal as a single fuel unit in railway engines, from a seam being mined at Dalmayne, influenced the implementation of a programme of diamond drilling to prove horizons and areal extent of the seam, for the purpose of assessing the merits of more systematic development and equipment of the colliery. Three holes were completed and revealed down-throw faulting of the coal series. Boring is being continued.

A diamond-drilling unit was employed in testing rock strata for the construction of a dam at Bronte and for siting the aluminium works at Bell Bay.

Percussion and hand-boring plants were employed in a search for suitable rock strata for siting the works of the Aluminium Production Commission on the eastern side of the Tamar River.

A programme of diamond drilling was commenced in exploration for tin-bearing lodes on a mineral lease at Rossarden.

The new percussion plant was again usefully employed in boring for supplies of underground water for pastoral purposes in the Oatlands district. Thirty-three bores, aggregating 2738 feet, were completed. Twenty-four bores located adequate supplies of water, seven were abandoned at shallow depths and two were classed as " dry-holes ".

Policy directed to an expansion of activities in exploring the mineral resources has been hampered by difficulties in obtaining personnel, either as experienced drillers or trainees.

DETAILS OF EXPENDITURE ON DRILLING DURING THE YEAR ENDED 31ST DECEMBER, 1949.

Plant.	Location.	Amount Expended.
		£ s. d.
Junior Straitline Diamond Drill	Waratah	113 12 6
Junior Straitline Diamond Drill	Dalmayne Coal Mine—St. Marys	1,097 19 8
Goldfields No. 10 Diamond Drill	Bronte	341 12 6
Goldfields No. 10 Diamond Drill	Bell Bay	194 14 6
Goldfields No. 10 Diamond Drill	Rossarden	48 4 2
G.33 Percussion Drill	Oatlands District	1,187 1 10
		£2,983 5 2

DEPARTMENTAL ACTIVITIES.

Technical services continued to be usefully directed 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 sources of underground water, and to the general development of mining.

Delays continued to be experienced in the delivery of laboratory units and in the completion of buildings for a planned assemblage of equipment for metallurgical research, but temporarily installed units were usefully employed in resolving problems of mineral separation and ore dressing. Services made available have merited the forward move inaugurated for expanding the activities of the laboratory. In order to provide more advanced service to industry, concerned with the utilization of non-metallics in the manufacture of bricks, pipes, tiles, and other earthenwares, it is planned to enter the field of ceramic technology.

Appreciation of the importance of the mineral industry in the prosperity and economy of the State compels recognition of the necessity for a forward policy in the investigation, exploration, development, and advancement of the mineral resources. In some recognition of that necessity, laboratory activities have been extended, ceramic technology is planned, an office has been opened

and a geological unit has been established at Zeehan, a commencement has been made with the provision of one access route to a potential mineral area, additional drilling plants have been purchased and a measure of financial assistance has been available, but those instrumentalities are fractional only of the technical and other staff, and the instrumental, research, and mechanical equipment essential for the organised implementation of an already planned policy in the investigation, exploration, development, and advancement of the mineral resources. Services rendered and results attained have been adequate to merit the financing of a broader and bolder policy in the field of metallic and non-metallic minerals.

STAFF.

Miss J. M. Firth, Clerk-Typist, resigned as from the 14th January, 1949.

Miss M. F. Ryan was promoted to Clerk-Typist as from the 24th February, 1949.

Mr. G. S. T. Robertson was appointed as Senior Field Assistant as from the 26th April, 1949.

Mr. K. A. Beatson was appointed as Technical and Administrative Assistant as from the 29th August, 1949.

Mr. S. R. Whitchurch was appointed as Clerk (Statist) as from the 4th July, 1949.

Miss E. R. Young was appointed as Typist-Stenographer as from the 10th November, 1949.

MINES DRAFTING BRANCH.

The number of working plans in use and which are kept up to date	225
Instructions issued to Surveyors	113
Diagrams received from Surveyors	12
Diagrams drawn on Leases	112
Consolidated and other diagrams drawn	16
Lithographs entered to date	162
Various tracings prepared	44
Tracings and photo-stats for Launceston office	29
Manuscripts entered to date	18
Manuscripts photo-lithographed	9
Underground survey plans examined and computations checked	5

APPRECIATION OF SERVICES.

Appreciation is recorded of the loyal and efficient services rendered by officers of the Department, including officers of the Mining Drafting Branch, Wardens of Mines, and Registrars of 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.

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

W. H. WILLIAMS, Director of Mines.

The Honourable the Minister for Mines,
Hobart.

APPENDIX I.

REPORT OF THE CHIEF GEOLOGIST.

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

Staff.

The Geological staff of the Department was increased to four by the appointment of Mr. Geo. Everard, B.A., as temporary Geologist. The staff then consisted of the Chief Geologist, H. G. W. Keid, M.Sc., M.I.M.M., and Geologists T. D. Hughes, B.Sc., B. L. Taylor, B.Sc., A.I.M.M., and G. Everard, B.A.

Field Work.

A considerable portion of the year was occupied by Mr. Hughes in surveying, in connection with the proposed deviation and reconstruction of the Branxholm-Cascade River Water-Race system and in estimating the economic possibilities of the district. The necessary plans, in connection with this investigation, were prepared. Survey work was also carried out at the Merrywood and Jubilee Coal Mines. Examinations in connection with underground water supplies and dam sites were carried out and the necessary reports and memoranda prepared.

In the report for 1948 it was mentioned that Geologist Taylor was occupied in an investigation of the asbestos deposits of the State. This work has been completed and a comprehensive report, on the subject, is available.

In order to complete the investigation of the West Coast asbestos deposits Mr. Taylor was based at Zeehan and after completion of the Asbestos Report he continued to be stationed at Zeehan and proceeded with a preliminary examination of the North Pieman mineral area.

Since his appointment Geologist Everard has been occupied with an examination of the limestone deposits of the Furneaux Group of Islands to determine their extent and suitability for agricultural and industrial purposes.

Reports of geological activities are submitted separately.

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

The greater part of the year was occupied with the examination of the bauxite deposits of the Swansea area and with an examination of the mineral deposits and underground water resources of the Flinders and Cape Barren Islands.

Minor investigations were carried out in the Oatlands and Bellerive Districts in connection with underground water, at Hamilton and Dalmayne in connection with coal and at Sorell in connection with limestones.

Bauxitic material from four areas in the vicinity of Swansea was tested by shaft sinking. A total number of 57 shafts were sunk from which 135 samples were taken. The ore was low in grade.

Plans showing the position of shafts and the grade of ore were prepared.

Very little development had taken place on the mineral deposits of the islands since the previous geological examination by a departmental officer in 1938 although several leases remain in force. Most of the workings are overgrown and neglected.

Underground water supplies are assured over the greatest part of Flinders Island. On the high lands, chiefly composed of granites, the possibilities of water are not great but the greater part of the island is low lying and water is assured at shallow depths. From analyses of samples, the quality of the water is good.

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

The main work performed during the year was the survey, levelling, examination, and other matters pertaining to the Branxholm-Cascade River Water-Race; its proposed deviation; neighbouring water-race systems; and examination of tin prospects likely to be effected either by the proposed deviation or by the restoration of a former syphon. Field work on all this work occupied over three months and further time was spent in the office. Altogether twenty plans, in connection with this project, were prepared.

In addition the following field examinations were made:—

1. Examination of underground water prospects at New Norfolk, Lindisfarne, and numerous places in the Oatlands Municipality.
2. Examination of limestones, Sorell district and Rekuna.
3. Examination of dam sites for Glenorchy and Kingborough Municipalities.
4. Examination of coal prospects at York Plains and George Town.
5. Contour survey of proposed open-cut at Merrywood Colliery.
6. Contour survey near Jubilee Mine.
7. Geological survey of area between Lewis Hill and Dalmayne (uncompleted).

Reports and memoranda have been prepared as follows:—

1. Limestone at King Island.
2. Underground water at Golf Links, New Norfolk.
3. Proposed dam site at Glenorchy.
4. Potential tin area east of Mr. Paris.
5. Nuggett Race.
6. Coal at Espie's property, York Plains.
7. Underground water at Lindisfarne.
8. Proposed dam site for Kingborough Council.
9. Limestone at Sorell.
10. Limestone at Rekuna.
11. Merrywood Colliery.
12. Coal at George Town.

In connection with these and other matters, thirty-two plans were prepared.

Time spent in office was occupied in writing reports, drawing plans, identifying rocks, minerals, and fossils, weighing osmiridium, &c.

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

General.

The whole of the year has been spent on the West Coast of Tasmania, Zeehan being used as a base. During the first half of the year, the asbestos investigation was continued, the following areas being visited:—

(*a*) Argent Tunnel and Dundas.
(*b*) Renison Bell.
(*c*) Rosebery.
(*d*) Wilson River.
(*e*) Trial Harbour.
(*f*) Bald Hills (Waratah).
(*g*) Asbestos Point (Macquarie Harbour).
(*h*) Pine Cove Creek (Macquarie Harbour).
(*i*) Spero River.
(*j*) Lynchford.

The report entitled "Asbestos in Tasmania" and consisting of 155 typed foolscap pages accompanied by ten plans was completed.

In addition the following brief investigations were made and reports furnished thereon:—

(*a*) Application for assistance, H. G. Watson, Zeehan.
(*b*) The Pieman and Wilson River Bridges.
(*c*) Tasmanian Mines N.L. prospecting area in the Wilson River district.
(*d*) The Mount Lindsay Tin Mine.

On completion of the asbestos investigation, attention was directed to the North Pieman mineral area and the remainder of the year was devoted to the initiation of a large-scale geological survey of this area of approximately 450 square miles of difficult country. As from 1st September, I was transferred permanently to Zeehan.

The North Pieman Mineral Area.

This area is bounded by the Pieman River from the Pieman Bridge on the Emu Bay Railway to Corinna, thence by the Corinna-Waratah road to Waratah, thence by a south-easterly line to the crossing of the Hatfield River by the Emu Bay Railway, thence by the Emu Bay Railway to the Pieman Bridge. The total area is about 450 square miles. The southern portion of the area, about 250 square miles, has recently been covered by aerial photography and photographs are available.

Within this area have been found almost all the minerals usually associated with Tasmanian mining, namely, gold, copper, iron, tin, monazite, osmiridium, barite, lead, zinc, silver, pyrite, and limestone. Nickel occurs just north of the area in the Bald Hills district.

From time to time, geological work has been done in portions of the area by the geological survey but no systematic treatment of the area, as a whole, has been attempted A plan prepared by the Geological Draughting Branch of the Mines Department shows that roughly one-third of the area has been surveyed geologically and shows the location of all known mineral deposits.

The only plans available for the area are the various mineral charts which show only a minor portion of the topography and on which large (and probably important) areas are blank. Past geological plans were based on these mineral chart surveys and show additional details mostly surveyed by pace and compass methods and by sketching. In the initiation of a systematic survey, it was felt that accurate and up-to-date topographical maps were essential as a basis for geological work and activities during the latter portion of the year have been directed towards this end. Modern methods and the latest equipment for rapid production of plans for aerial photographs are being used in this work and it is hoped to produce a topographic plan of the southern portion of the area on a scale of four inches to the mile by the end of 1950.

In this method, the topography is outlined on the photographs themselves which form a far more detailed record of ground features than any surveyor's notebook. The principal point of each photograph is transferred to each of its neighbours and, in addition, three points are selected along the top and three along the bottom margin of each photograph, each point being transferred to adjacent photographs. Thus each photograph has marked upon it a minimum of nine points, which points are used to "tie" the photographs together. For each photograph, a template is made and, by a special technique, a sheet is produced showing all points in their correct positions. Using these points, the topographic detail is then transferred from individual photographs to the base sheet and thus the basic plan is built up. In order to hold the templates firmly in place during the laydown process and in order correctly to locate the area in space, a number of fixed points are required evenly distributed over the area. These are obtained by transverse or by triangulation. In the present case, triangulation is being used to give the control.

The final plan will be adjusted to the Military Grid for Australia and will be made on a series of standard sheets each covering an area of 10,000 yards by 15,000 yards, the grid lines being spaced at 1000-yard intervals and numbered every 5000 yards.

Office work has been mainly concerned with the photographs. By the end of the year, all points had been determined and approximately 75 per cent of the topographic features delineated. In addition, standard sheets have been prepared for the southern half of the area. Field work has been delayed by the lack of suitable access and by bad weather. Much work by the geological party has been done in opening up the old track from Zeehan to the Stanley Reward. An old hut at the Stanley Reward has been reconditioned and is in use as a field base. This hut is at a distance of 22 miles from Zeehan and the work entails much walking. One trig. station has been built.

Much geological information can be obtained from the photographs and the broad distribution of rock groups can be mapped directly from the photographs themselves. From the inspection that has been made coupled with information gained from three visits to the field, it is possible to give a broad outline of the geology of the southern portion of the field. It is emphasised, however, that this is a preliminary statement only and will be subject to revision as more information is gained.

The oldest rocks in the area are the Davey Group of schists and quartzites, which outcrop west and south of the Meredith Range extending southwards across the Pieman River almost to Zeehan. In an east-west direction, they extend from a mile west of the Wilson River almost to the Pieman River. This group consists mainly of original sedimentary rocks with perhaps some igneous members. They have suffered several orogenies, are strongly and complexly folded but have not suffered a high degree of metamorphism. In most outcrops the original sedimentary banding is quite clear. No subdivision of the Davey Group has so far been made and it is hoped that this will be done during the course of the present survey. East of the Davey Group, and following the course of the Wilson River is a group of slates resting unconformably on the underlying rocks and showing fairly complex folding. The regional dip of these rocks, as far as it can be determined at present is northeast at a moderate angle. This group of rocks was referred to as the Dundas Series by Waterhouse ("The Stanley River Tin Field") and by Reid ("Osmiridium in Tasmania"). It is possible that they may include part of the Pieman System as constituted by Carey ("Report of the Director of Mines, 1945"). Succeeding this group eastwards is a belt of serpentine which is described below. Resting on the serpentine are rocks of the Junee and Eldon (Queen River) Groups. These younger rocks form a plunging syncline with the nose lying some two miles north of Renison Bell and the axis of the syncline lying north-west-southeast. This is the most prominent structural feature of the area and shows up exceptionally well on the photographs from which it can be mapped in detail. The syncline shows the effect of cross-folding and a major fault is apparent on the western limb, the fault striking northeast. This syncline lies between the Wilson and the Huskisson Rivers. It is a feature which has not been recognised before as far as the writer is aware. For it, the name "Huskisson Syncline" is proposed. East of the Huskisson Syncline, two patches of serpentine occur followed eastwards by the Dundas Series.

It is evident, therefore, that an east-west section across the southern portion of the area shows an anticline from which the younger rocks have been stripped revealing the ancient core, followed eastwards by a syncline.

West of the Davey Group, the position is not so clear. The Dundas Series certainly appears and the Junee and Eldon Groups probably appear. It is likely, therefore, that a second syncline occurs west of the ancient core.

The most prominent feature of the area is the Meredith Range, a granite massif extending from the Parsons Hood north to near the Waratah-Corinna road, and from the Whyte River eastwards to Mount Ramsay. The range lies at an elevation of about 2000 feet, the highest peaks being Mount Meredith and the Parsons Hood. A prominent feature of the granite, which shows clearly on the photographs, is the marked lineation in a northwest-southeast direction. A secondary lineation, much less pronounced, crosses this at right angles. This lineation may or may not be evidence in favour of granitisation.

The final major rock type so far recognised is the serpentine. The largest area forms the Wilson River Osmiridium Field and extends in a north-westerly direction from Riley's Knob to Keenan's Creek, a little north of the Wilson River, where it abutts the granite. The photographs show clearly that the serpentine is a sill and is interbedded between the Dundas Series and the Junee Group. As to whether the original ultrabasic magma was extruded onto the Dundas and preceded the Junee, or whether it was intruded along the Dundas-Junee contact and is thus of post-Junee age, the writer is not prepared at the present time to give an opinion. It seems clear, however, that the serpentine is post-Dundas in age. It is hoped eventually that the vexed question of the age of the serpentine will be solved by the occurrence in this area.

As regards the location of new mineral deposits, the writer is confident that a mineral area exists east of the Meredith Range along the course of the Huskisson Syncline. Pyrites, zinc, lead, and silver all occur a few miles to the east of the syncline in the Pinnacles-Silver Falls district. The resemblance between the Huskisson Syncline in which silver-lead-zinc has not so far been found and the Zeehan Syncline, in which rich deposits of this type were found, is very close. Systematic mapping will, it is felt, be well worth while in this area.

Geologist G. Everard, B.A., reports:—

I was appointed as a Geologist (temporary) on the 25th July, 1949, and, to the close of the year, was engaged in a geological survey of the limestone resources of Flinders Island.

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, bismuth, calcium, cadmium, chlorine, chromium, copper, iron, magnesium, manganese, molybdenum, nickel, potassium, phosphorus, silicon, sodium, sulphur, titanium, thorium, tungsten, zinc, zirconium, and calorific values of coal.

Analyses were made of ores, minerals, rocks, mill, and research products associated with ore dressing investigations, clays, coals, waters, &c. The number of determinations approximated 4500.

Ore Dressing Investigations.

Jamesonite-Blende Ore/Waratah (*R* 204).

Three bulk samples of ore, from the Newman-Tatchell prospect, were submitted for analyses and selective flotation tests, designed to produce concentrates of the economically important minerals (jamesonite and zinc blende). The analyses indicated that the jamesonite contents amounted to 4, 8·6, and 11·1 per cent and blende 5·7, 13·9, and 16·7 per cent. One sample was selected for the investigation and assayed: lead 4·4, antimony 3·9, zinc 11·2, iron 5·4, arsenic 1·5, copper 0·13, sulphur 10·8 per cent and 2·5 ozs. of silver per ton.

Investigation.—The variables investigated were ball mill reduction ranging from minus 72 to minus 200 mesh B.S., grinding at natural pH and with alkalies to pH 8. Reagents used for selective depression of zinc, iron, and arsenic minerals were lime, cyanide, zinc sulphate, sodium sulphite, and reagent 610.

Promotors for jamesonite used were various xanthates, aerofloats, reagents 242 and 444, mercapto-benzthiazole and thiocarbanalid 130. Copper sulphate and sodium aerofloat were used for flotation of the blende.

Results.—The highest grade jamesonite concentrate coupled with reasonable recovery accrued from grinding to substantially all minus 200 mesh (test 51). This resulted in a concentrate containing 24·7 per cent of lead and 16·3 per cent of zinc with recoveries of 75·9 and 21·7 per cent of the lead and the zinc respectively. Test conditions were as follows:—Reagents added to ball mill, Na_2CO_3 0·8, NaCN 1·0, $ZnSO_4$ 3·0, thiocarbanalid 130, 0·5 lbs. per ton and to the flotation cell Na_2CO_3 0·6, NaCN 0·2, $ZnSO_4$ 0·6 lbs. per ton.

Combined flotation of jamesonite and blende (test 58) resulted in recoveries of 85·5 and 93·9 of the lead and zinc in a concentrate amounting to 29·4 per cent and containing lead 13·9 per cent, zinc 33·7 per cent, antimony 11·4 per cent, arsenic 0·4 per cent, copper 0·25 per cent, iron 6.65 per cent, sulphur 27·3 per cent, and silver 6·7 ozs. per ton.

Test work indicated intimate association of jamesonite and blende, as the zinc content of jamesonite concentrates contained, at minus 72 mesh grind, 21·5 per cent of zinc and was progressively reduced to 16·3 per cent of zinc at minus 200 mesh grind. This was confirmed by mineragraphic examinations by C.S.I.R.O. which showed that sized fractions of a jamesonite concentrate, produced by a minus 72 mesh grind, contained major quantities of jamesonite-sphalerite composites. The intergrowth of jamesonite and sphalerite persists at fine sizings and a minus 150 plus 200 mesh fraction contained 60 per cent of composites of these minerals and only 19·4 per cent of free jamesonite. Optimum recovery of jamesonite and sphalerite can therefore only be obtained by production of a mixed concentrate as shown in test No. 58.

In tests Nos. 48 and 57, with grinds to minus 150 mesh and 82 per cent minus 200 mesh, 38 and 24 per cent of the zinc reported in the jamesonite concentrates and subsequent flotation of the zinc in the jamesonite flotation tailings resulted in recoveries of zinc amounting to 49 and 67 per cent in concentrates assaying 52 and 47 per cent of zinc and 1·7 and 4·3 per cent of lead. The characteristics of the ore sample showed similar complexity to the sample investigated in 1946, being report No. R 177 (old No. 932/46).

Aberfoyle Tin. N.L.

R 205-*Mill Slime Tailings.*—A sample, representative of two weeks operation from 28th February to 11th March, was submitted to sizing analysis. The sample contained 0·98 per cent of tin and 0·34 per cent of tungstic acid. The plus 200 mesh portion amounted to 13.1 per cent, and the three plus 200 mesh fractions thereof contained from 0·02 to 0·15 per cent tin and only 0·44 per cent of the total tin in the sample.

The minus 200 mesh fraction was sized by infrasizer and the seven fractions assayed from 0·11 per cent of tin in I.S. 1 to approximately 1.5 per cent tin in the four finest fractions. Only three per cent of the tin reported in sizings to fraction I.S. 2, whereas a similar sample submitted in 1947 contained 15·9 per cent of the tin to I.S. 2, indicating an improvement in milling operations in the slime section. Much of the tin in the finest fractions is too fine for economic concentration and increased recovery would necessitate additional mill units, designed for slime concentration.

R 213-*Mill Slime Tailing.* 0·89 *Per Cent Tin.*—This represented a check sampling from 20th of June to the 1st of July. Sizing analysis showed 19 per cent of the tin to I.S. 2 as compared with only 3 per cent in R 205. Table concentration tests with R 205 and R 213 showed recoveries of 10 and 15 per cent. Sizing analyses of samples R 205 and R 213 showed 13 and 35 per cent of the tin in sizings to I.S. 3 and the recovery in R 213 suggests losses of tin occasioned by composite grains.

R 216, 217, *and* 218: *Results of Heavy Media Tests in a 20-inch Test Cone.*—During 1947, tests were made of coarse tailings from the Aberfoyle mill to determine whether the heavy media separation process could have economic application for concentration of the small quantity of cassiterite in the tailings. Assay values of the tailings range from 0·1 to 0·2 per cent of tin. Separatory tests were conducted with heavy solutions at densities ranging from 2.66 to 2·95 and resulted in extractions of up to 70 per cent of the contained tin in sink products assaying approximately 2 per cent of tin. Following this test work, the company decided to explore the prospects of heavy media separation and, during the year, a 20-inch test cone, together with ancilliary equipment has been installed at the mill to conduct tests, primarily on coarse tailings and later on other materials. The results of this test work will enable the company to determine the economic possibilities of treatment of old and current coarse tailings and mullock dumps. Three tests have been made and the results generally confirm the work reported in 1947. Treatment of coarse tailings with tin contents of 0·11 to 0·15 per cent have resulted in production of sink products with tin contents ranging from 1·6 to 2·35 per cent and containing from 69 to 74 per cent of the tin in the tailings. Separation was made in a ferrosilicon and magnetite medium at a density of 2·8.

A typical result of treating coarse tailings from the dump is shown below.

	Weight	Tin	Tin Distribution
	%	%	%
Float at Sp. G. 2·8	95·6	0·03	25·95
Sink at Sp. G. 2·8	4·4	1·86	74·05
Composite	100·0	0·11	100·00

The cassiterite is present in the sink products as composites having specific gravities in excess of three and concentration of the cassiterite to marketable grade necessitates grinding to liberate the cassiterite, followed by rejection of sulphides by flotation and, finally, gravity concentration. Preliminary concentration tests of the sink products have resulted in recoveries ranging from 60 to 72 per cent.

A Sample of Ilmenite Sand from Woodbridge (*R* 206) was submitted for table concentration and the production of an ilmenite concentrate by electro-magnetic separation. The ilmenite concentrate amounted to 32 per cent and contained 51 per cent of titanium oxide, 0·07 per cent of chromium oxide, and 35 per cent of iron.

Endurance Tin Mine N.L.

R 211 *Concentration of Low Grade Pyritic Alluvial Concentrate.*—A sample, containing 30 per cent of pyrites and 60 per cent of cassiterite, was submitted for test work for removal of the sulphide and production of sale-grade concentrate. The process used at the mine consists of concentration in clean-up sluice boxes, classification and concentration with a Willoughby concentrator. This established process gives satisfactory results for the majority of the production. However the sample, submitted, represents the sizings which are not economically amenable to that process and an investigation of alternative methods was desired. The methods tested and

reported for separation of the sulphide were froth flotation and flash roasting at low temperature, followed by removal of the sulphide by electro-magnetic separation.

Both treatments resulted in rejection of 97 to 98 per cent of the sulphide. Flotation of the material was slow and 60 minutes were required for treatment. The coarse sizing and the nature of the iron sulphide caused the slow flotation. The sizing showed 52 per cent plus 72 mesh size B.S. and only 13 per cent minus 100 mesh. Reagents used were sulphuric acid 0·5, copper sulphate 0·25, butyl xanthate 2, eucalyptus phellandrine 0·56 lbs. per ton. The pH value during flotation was 5.5 to 5·9. The flotation sink product was tabled and resulted in a concentrate assaying 69·7 per cent of tin and 1·6 per cent of sulphur, with a recovery of 97 per cent of the tin.

The pyrite was magnetic after treatment for eight minutes at an ambient temperature of 470 degrees centigrade. Recovery of the tin amounted to 98 per cent in a non-magnetic product, assaying 69·7 per cent of tin and 0·5 per cent of sulphur.

R 215 *Mill Flotation Test.*—In report R 211 it was indicated that flotation of coarse sulphide with a test flotation cell should be checked in a commercial unit before consideration was given to a commercial installation. Arrangements were made to use a flotation unit at the Aberfoyle Tin Mine Company's mill at Rossarden for this purpose. The unit was of the M.S. type with cell dimensions of 2′ 6″ x 2′ 6″ x 2′ 9″ deep. The 15-inch impellor has four 45 degree blades with top shroud and is driven by a five horse-power motor at 390 R.P.M. Approximately 1200 lbs. were treated in two separate charges. Current consumption on full motor rating was stated to be eight amperes and current consumption with a 600-lbs. charge did not exceed six amperes. The maximum weight per charge, permissible without overloading the motor, was not determined.

It was found that the sulphide had suffered some decomposition during storage in bags and the pH value of the concentrate pulp when charged into the cell was 2·5 to 3. Water, soluble salts, and acid were removed by a water wash for 35 minutes before starting the addition of flotation reagents. Although total time for each batch amounted to 120 minutes, fresh material would not require the water wash and it is probable that, with experience in the behaviour of the material, a charge could be floated in less than one hour.

Sulphuric acid was excluded but otherwise the reagents used were as follows:—Copper sulphate 0·25, butyl xanthate 2·0, amyl xanthate 0·25, eucalyptus phellandrine 0·56 lbs. per ton. After the addition of the copper sulphate, other reagents were added in stages. The sample for test showed 58 per cent plus 72 mesh as compared with 50 per cent in the sample used for the laboratory tests (R 211).

Flotation resulted in excellent rejection of the sulphides with negligible loss of cassiterite. The sample, before treatment, contained 24·9 per cent of tin and 26·8 per cent of sulphur. Flotation rejection of sulphides resulted in a sink product amounting to 50·8 per cent and assaying 48·5 per cent of tin and 4·25 per cent of sulphur. Recoveries of the tin and sulphur in the sink product amounted to 98·9 and 8 per cent respectively. The sink product was further concentrated, by the Endurance Company, by streaming, tubbing, and re-streaming, with the production of a concentrate containing 69·1 per cent of tin and 1·1 per cent of sulphur. The overall recovery, by the treatments at the Aberfoyle and Endurance plants, amounted to 97 per cent. The sulphide float contained 0·5 per cent of tin and 50 per cent of sulphur. The tin content of the froth represented a loss of 1 per cent.

Langloh Coal R 214.—A sample of crushed coal from the upper seam was submitted for beneficiation by sink-float separation at various densities. Beneficiation was desired on the sample as received without further crushing. The sample was all minus 3-inch size and 31 per cent was plus 1-inch, 73 per cent plus ¼-inch, and 7 per cent minus 22 mesh, B.S. The sample as received was analysed with the following results:—

	Proximate Analysis	
Moisture	3·6	per cent
Ash	36·4	per cent
V.C.M.	22·1	per cent
F.C.	37·9	per cent
Sulphur	0·36	per cent
$CaCO_3$	4·6	per cent
B.Th.U's	8460	

Beneficiation was undertaken at densities ranging from 1.4 to 1·8 using heavy solution which resulted in float products containing from 16·9 to 22·7 per cent of ash. The quantities floated ranged from 47·2 to 75·6 per cent, and recoveries of coal, expressed as B.Th. Units, ranged from 64 to 94·4 per cent. Sink products contained from 56·4 to 84·3 per cent of ash.

Results (expressed on a moisture free basis)—

	Beneficiated Products						
	Weight	Ash	V.C.M.	F.C.	S.	$CaCO_3$	B.Th.U's
	%	%	%	%	%	%	
No beneficiation	100·0	37·8	22·9	39·3	0·4	4·8	8,780
Separation at Sp. G. 1·8	75·6	22·7	26·3	51·0	0·4	4·9	10,960
Separation at Sp. G. 1·7	73·6	21·9	26·5	51·6	0·4	5·0	11,100
Separation at Sp. G. 1·6	67·6	19·9	26·9	53·2	0·4	5·1	11,440
Separation at Sp. G. 1·4	47·2	16·9	27·4	55·7	0·4	5·4	11,890

	Distribution				
	Ash	V.C.M.	F.C.	$CaCO_3$	B.Th.U's
	%	%	%	%	%
No treatment	100·0	100·0	100·0	100·0	100·0
Separation at Sp. G. 1·8	45·4	86·0	98·1	77·2	94·4
Separation at Sp. G. 1·7	42·6	85·2	96·6	76·7	93·1
Separation at Sp. G. 1·6	35·5	79·6	91·5	72·2	88·1
Separation at Sp. G. 1·4	21·1	56·5	66·9	53·6	64·0

Some progress has been made in the installation of ore dressing research units in the new research laboratory at Wellington-street, Launceston.

In conclusion I desire to record my appreciation of the 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 average number of men employed in mining, quarrying, and metallurgical operations was 5659, as compared with 5399 for the previous year.

Programmes of development and production, at the principal mines and works, continued to be retarded by a shortage of suitable labour, and a similar disability was experienced in planned investigation and exploration of mineral potentialities.

Accidents.

The total number of accidents, registered under the provisions of Section 23 of the Act, was 65, as compared with 67 for last year.

The appended tables relate to—

(1) Fatalities and non-fatal casualties at mines, quarries, and works which latter involved absence from work for not less than 14 ordinary days; and

(2) The average number of persons employed and the rate, per 1000 persons employed, of fatal and non-fatal injuries in the State and in each mineral division.

The accident incidence was substantially less in the North-Eastern and Western Divisions, there was a similar number of accidents but an increase in the accident rate in the North-Western Division and there was an increase in the number of accidents in the other divisions.

There was one fatality and 64 accidents involving non-fatal injuries to a like number of persons.

The fatal accident occurred in the underground workings of a metalliferous mine. The guard of a rake of trucks was crushed between the hood of a truck and the leg of a set of timber when the rake of trucks was being pushed along a main gallery by an electric locomotive. It was suggested that the guard dismounted from the moving trucks and was jammed against the gallery timber.

Of the 64 accidents, resulting in non-fatal injuries, 42 were allied with surface operations and 22 occurred in underground workings. Eleven of the underground accidents were of a miscellaneous nature, one was due to a fall of coal, five resulted from falls of stone, and five were associated with trucking operations. Twenty-six of the surface accidents were of a miscellaneous nature, eight were allied with trucking operations, and eight were associated with mechanical movements.

Health and Sanitation.

There was no relaxation in efforts directed to the attainment and maintenance of conditions and appointments governing the health of persons employed in the industry. Records reveal instances of progressive approaches to suppression of atmospheric dusts, temperature regulation, air purity, ventilation, and sanitation. Observed failure to use appliances, provided for the prevention of dust, was rare and moves were made for the implementation of hydraulic and mechanical measures in cases where operations were found to have developed conditions of atmospheric dust.

Prosecutions.

There were no prosecutions for failure to use appliances for the prevention of dust. Legal proceedings were instituted against two persons for unseemly conduct and one person was prosecuted for being at work in a state of intoxication.

Inspectorial.

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

TABLE showing Rate per Thousand Killed and Injured in different Divisions for the Year 1949.

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	2317	23	...	23	23	9·926	...	9·926
North-Eastern	233	1	...	1	1	4·291	...	4·291
Eastern	564	14	...	14	14	24·822	...	24·822
North-Western	394	6	...	6	6	15.228	...	15·228
Western	2151	21	1	20	21	9·762	·465	9·297
Total	5659	65	1	64	65	11·484	·176	11·308

ANALYSIS of Statistics of Accidents for Western Division.

Division.	Number of Miners Employed.	Number of Accidents.	Number of Persons		Total Number Killed & Injured.	Average per 1000 Killed and Injured.	Average per 1000	
			Killed.	Injured.			Killed.	Injured.
Mount Lyell	1487	16	...	16	16	10·759	...	10·759
Zeehan, &c.	664	5	1	4	5	7·530	1·506	6·024
Total	2151	21	1	20	21	9·762	·465	9·297

COMPARATIVE Table of Statistics of Accidents in and about the Mines of Tasmania from 1st July, 1892, to 31st December, 1949.

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	2·351	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	0·868	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	96	100	18·409	0·736	17·673
,, 1937 ,, 1937	5876	107	5	103	108	18·379	0·850	17·529
,, 1938 ,, 1938	5891	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	1·084	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	11·484	0·176	11·308

* Mount Lyell disaster.

APPENDIX IV.

REPORT OF THE CHIEF INSPECTOR OF EXPLOSIVES.

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

Explosives Act, 1916.

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

	lb.
Monobel	82,950
Gelignite	1,115,250
Blasting Gelatine	7,500
Blasting Powder	12,000
Ligdyn	14,650
Ajax	67,700
Detonators:	No.
Ordinary	700,000
Electric-Ordinary	60,750
Electric-Delay-Action	20,500
Detonating Fuse:	Feet.
Cordtex	107,000

Compounds were of "Polar" manufacture and customary attention was directed to ensuring that they were in good chemical and physical condition at the date of importation.

The cycle of importation, storage, and consumption was kept under surveillance and, except in isolated cases, provided a rotational balance, which mitigated long periods of storage and contributed to an almost complete absence of faulty compounds. In one instance, a small quantity of nitro-compound was found to have deteriorated, through protracted storage on location, and was destroyed.

Supervision of landing of inward shipments of explosives was regularly exercised and there was an observed improvement in the structure of cases.

Bravadoism in one case, inexperience in another case, and an indiscretion in a third case resulted in three explosive accidents.

A young man attempted to use a detonator as a cracker, at a fireworks display, but misjudged the rate of burning of the fuse. The detonator exploded before it could be released and he sustained injuries to two fingers of the right hand.

A contractor, in a gravel quarry, ignited a charged "down hole" but the explosive charge failed to explode within a stated period of 25 minutes. He then returned to the location and proceeded to withdraw the fuse when the charge exploded and he sustained the loss of an eye. Investigations revealed deficiencies in storage and scant knowledge of explosive hazards.

Powder was being used to split logs at a sawmill. After inserting a charge of powder in a log, a person ignited the fuse and either indiscreetly returned or misjudged the rate of burning of the fuse and failed to move a short distance before the charge exploded. The explosion caused portion of the log to roll on his right leg and fracture it.

Inflammable Liquids Act, 1929.

There was a marked increase in activities in the commissioning of petrol pumps, installation of new outfits, building of compounds for storage in 44-gallon drums, alterations to bulk-storage depots, and in the provision of new terminals for the storage of inward shipments of petrols, kerosenes, and heavy oils. Plans were well advanced for the building of new major terminals at Devonport, Bell Bay, and Hobart.

Lack of recognition of the fire and explosion hazards continued to characterise indiscretions in the keeping of full and empty 44-gallon drums. Difficulties in policing the keeping of drums of inflammable liquid continued to lessen the effective regularising of methods of storage in the interests of public safety.

Hazards in factories using inflammable liquid in dry-cleaning processes have caused some concern. Effective and necessary control has been off-set by the use of liquid with a flash point above the limit to which the legislation has ordinarily applied. Several factories were built and equipped in accordance with explained principles but many factories have been established without proper regard for fire hazards and an amendment of the legislation has become necessary in the interests of safety and progressive control of fire hazards.

An amendment of the Act was made in order to provide for public safety in the importation, handling, and storage of dangerous commodities, whether liquid, gaseous, or solid, and not already within the compass of legislative enactments. Appropriate regulations are to be established.

APPENDIX V.

REPORTS OF INSPECTORS OF MINES AND EXPLOSIVES.

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

The Mines and Works Regulation Act.

Employment.

The Mount Lyell Mining and Railway Company Limited employed an average of 1487 persons, representing an increase of 14 persons as compared with the previous year. Seventy-one men were employed in the Zeehan and neighbouring areas, making a total of 1558 persons employed in mining, quarrying, and metallurgical operations in the inspectorate.

Accidents.

Seventeen accidents, involving non-fatal injuries to a like number of persons, were registered under the provisions of the Mines and Works Regulation Act, as compared with 16 accidents, resulting in fatal injuries to one person and non-fatal injuries to 15 persons, recorded for the previous year.

Twelve accidents were allied with surface operations and five occurred in underground workings. The injuries in seven cases were due to misadventure whilst the remaining accidents were the result of either carelessness or inexperience.

An unloaded semi-trailer truck was being driven across the floor of a quarry bench when ruts caused the steering wheel to jolt and spin and this resulted in the right arm of the driver being twisted in a manner as to cause a rupture of a sinew in his neck. He was incapacitated for 77 ordinary days.

An elderly labourer was stacking pass-logs on a truck, in a sawmill, when one of the logs fell from the truck, struck him on the leg and inflicted abrasions which incapacitated him for 42 working days.

An assayer was attempting to force a length of glass tubing into the rubber stopper of a wash bottle when the tubing broke, penetrated his right hand and severed a tendon. He was absent from work for 45 days.

The driver of a winding engine was sweeping the floor of the engine-house when he slipped on a concrete ledge, fell and fractured his left wrist. He was incapacitated for 64 ordinary days.

When entering a store for a supply of lubricating oil, a tractor driver slipped, fell and dislocated the cartilage of his right knee. He was absent from work for 43 days.

When a labourer stooped to pick up a shovel, lying on the ground near a concrete mixing machine, he placed his left hand on the belt of the machine at the critical moment of starting the machine. His hand was caught between the belt and pulley and severely lacerated, the fourth finger being fractured. Neither the labourer nor the machine operator was conscious of the presence or action of each other.

An elderly employee was stepping over an air main, 20 inches above the ground, when he fell and injured his groin. He was incapacitated for 110 ordinary days.

An operator, at a docking saw, sustained lacerated fingers when he accidently touched the revolving saw. He was absent from work for 17 days.

A labourer was trucking lime from a kiln when he was jammed between the truck and a post. He sustained a bruised back which incapacitated him for 25 working days.

An employee, in a flotation mill, sustained a fracture of the right index finger when his hand was caught between the belt and pulley of an electric-driven reagent feeder. He lost 20 working days.

A labourer, in an electrical repair shop, sustained a lacerated hand when a length of steel, being ground on a heavy-duty emery wheel, slipped and struck his hand.

An exercise of reasonable care would have averted the five accidents associated with operations in underground workings.

A labourer was engaged, with other persons, in cleaning spilt ore from the trucking road, at an underground loading station, when he was caught between truck buffers and sustained an injured right leg. Empty trucks had been moved to enable the track to be cleared. After the track had been cleared the trucks were slowly moved back into position but the labourer disregarded the warning given him with the result mentioned.

A miner was tightening a nut on a mechanical loader, in a stope, when the spanner slipped and caused him to fall onto broken ore. He sustained a fractured left wrist and was incapacitated for 34 ordinary days.

In one case, a miner sustained a crushed right thumb, and in a second case, a miner suffered a bruised foot as the result of lumps of ore rolling down ore-piles during shovelling operations.

After hauling timber into a stope by means of an air-hoist, a miner intended to lower the timber to a convenient place but erroneously operated the machine in a hoisting direction with the result that his hand was jammed and he sustained a fractured finger.

Safety.

Inspection duties have been regularly directed to the production and maintenance of safe working conditions. Occasionally, it was necessary to make specific representations for the attainment of safe working conditions. Generally, good co-operation was afforded in matters of safety.

In all mining operations, strict attention was given to having affected ground made safe before persons were allowed to work within the danger zone. Instances were encountered where miners considered ground to be safe but when tested, under my supervision, it was found to be in a dangerous condition. In all such cases, the miners were reprimanded.

No uncontrolled fall of ground occurred in underground workings and close attention has been given to the efficient filling of stoped areas and the erection of suitable timber structures to secure affected ground.

Ladderways, shaft equipment, lighting conditions, ore pass covers, safety ropes, haulage ropes, opencut batters, explosives in use, surface and underground transport, and other details of mining practice have been regularly examined in the interests of safety.

In metallurgical works and workshops allied with mining, similar examinations have been made to provide for safe operations.

Ventilation.

The ventilation of underground workings and surface installations received customary attention and, generally, it was found to be satisfactory. Gassy conditions were encountered in an old mine in the Zeehan district, when it was de-watered after having been abandoned for several years. The trouble was controlled by the installation of pressure fans and brattice conductors.

Health and Sanitation.

Supervision has been maintained of conditions affecting the health of employees in mines and works. Improvements were made in crib-places, changing and bathing accommodation and latrines but, generally, these provisions were maintained in reasonably good order. Chemical sanitary arrangements were adopted in the underground workings, at one mine, with beneficial results.

Explosives.

There were no mishappenings in connection with the transport or use of explosives at mines.

A youth sustained a loss of the thumb and portion of two fingers of the right hand at a fireworks display. It was alleged that the accident was due to a dangerous type of cracker but investigations revealed that he had obtained a No. 6 detonator and, with a short length of fuse, had attempted to use it as a cracker but had misjudged the rate of burning the fuse. The detonator exploded before being released and seriously injured hand.

Machinery.

Maintenance and protection of machinery and appliances received the attention required under the provisions of the Mines and Works Regulation Act.

Occasional conferences were held with the Inspector of Machinery in regard to the safe maintenance and protection of machinery.

Record books, containing the result of tests and examinations made by managers and other persons, were regularly posted and revealed nothing of an untoward nature.

Prosecutions.

Legal proceedings were instituted against three persons in connection with offences at a Reduction Works. Two employees were charged with unseemly conduct. Each pleaded guilty and was fined £2 with costs. The third person was charged with having been in a state of intoxication at work. The defendant, who pleaded guilty, was fined £2 and ordered to pay costs.

The Inflammable Liquids Act.

Inspections were made of the various premises licensed under the Inflammable Liquids Act. Conditions of storage were found reasonable.

Two accidents were reported and investigated. In one case, a fire occurred at a petrol service station located on a mineral lease. The cause of the fire could not be definitely established but the evidence suggested that an electric globe, in the head of the pump, exploded. As a precaution against similar mishaps, all electrical fittings were positioned at a clear distance from pump outfits and an improved system of ventilation was adopted.

A spark from the inadvertent short-circuiting of the battery of a motor vehicle, ignited the sleeve of overalls worn by a mechanic. He sustained a severely burnt arm. The mechanic had been using petrol as a cleaning medium and, apparently, the sleeve contained petrol saturated residue when the short circuit occurred.

The Workers' (Occupational Diseases) Relief Fund Act.

Certificates were received and registered in respect of 186 new employees in the Queenstown district and 93 in the Zeehan district. All were declared free from disease. Two persons, who presented themselves for examination as new employees were found to be suffering from silicosis.

Applications were made by 28 persons for examination for the effect of industrial occupations and six of them were found to be affected. A comparative analysis of the affected persons is as follows:—

	1948.	1949.
Incapacitated (affected by silicosis 100 per cent)	3	2
Partial incapacity (over 50 per cent affection)	1	2
Partial incapacity (up to 50 per cent affection)	1	2
Totals	5	6

The folowing tabulation illustrates the age, length of service in the mining industry and some details of the examination of the persons affected:—

Certified Incapacity Due to Silicosis	Age of Person Affected	Remarks
%	Years.	
100	42	Employed in underground mining, Mount Lyell, from 1927 to 1949. Employed in surface mining, Mount Lyell, from 1923 to 1927. Examined in 1949 and certified as incapacitated by silicosis. Now under treatment for tuberculosis.
100	45	Employed in underground mining, Mount Lyell, from 1933 to 1949. Examined in 1944, 1945, 1947, 1948 (twice), and in 1949, and also in 1945 by the medical referee at Hobart and was certified as being not affected by silicosis. In 1949 he again made an appeal to the medical referee and was certified as incapacitated by silicosis.
60	47	Employed in surface work, Mount Lyell, from 1915 to 1920. Out of mining industry from 1920 to 1934. Employed in underground mining, Mount Lyell, from 1934 to 1949. Examined in 1942, 1944, 1947 and certified free from silicosis. Examined in 1949 and certified as incapacitated to 60 per cent by silicosis.
65	41	Employed in underground mining, Mount Lyell, from 1930 to 1938. Examined in 1942 and 1945 and certified free from silicosis. Examined in 1949 and certified as incapacitated to 65 per cent by silicosis.
50	36	Employed in underground mining, Mount Lyell, from 1929 to 1949. Examined in 1945 and 1947 and certified free from silicosis. Examined in 1949 and certified as incapacitated to 50 per cent by silicosis.
40	42	Employed in underground mining, Mount Lyell from 1924 to 1949. Examined in 1940 and 1947 and certified free from silicosis. Examined in 1949 and certified as incapacitated to 40 per cent by silicosis.

The Explosives Act.

Supervision was maintained in respect to the importation, landing, transport, and storage of explosives.

Explosives landed at Regatta Point for Queenstown were—

	lbs.
Polar A.N. Gelignite "50", 1¼" x 13"	457,800
Polar A.N. Gelignite "50", 1¼" x 13", bulk packed	24,150
Polar A.N. Gelignite "50", 1¼" x 7", bag packed	2,050
	484,000
	Feet.
Plastic Cordtex Detonating Fuse	57,000
	Cases.
Safety Fuse	200
	No.
Fuse Igniters	30,000

In addition, the following explosives were brought in by rail and road to Queenstown:—

	Feet.
Plastic Cordtex Detonating Fuse	30,000
	No.
Detonators No. 6, Ordinary	230,000
Detonators No. 6, Electric	5,250

A trial consignment of 483 cases of bulk packed and 41 cases of bag packed nitro-compounds was received in order that this new type of packing could be observed and tested under conditions of storage and use existing at the Mount Lyell Mines.

The bulk packed explosives comprised 13" x 1¼" cartridges packed in wooden boxes, lined with a strong type of waterproof paper and effectively sealed. The compound behaved satisfactorily in storage and use. This type of packing is convenient where case lots of explosives are required in charging for major blasts in open-cut workings.

The only difference between the bag packed compounds and the usual carton pack is that each five pounds of cartridges is contained in a paper bag which is sealed with adhesive gum. The carton pack is similar except that the five pound unit is contained in a carton which is sealed with a water-proofed paper.

The bag container, in the test consignment, was not effective. Later, an improved type of bag was forwarded and, in my opinion, was a more effective container than the carton.

One new magazine was licensed. This and other licensed magazines have been maintained in a satisfactory condition.

No report was received of an unsatisfactory condition of explosives or detonators. All safety fuse gave proper tests for burning rate and quality.

Production and Development.

Copper.

The Mount Lyell Mining and Railway Company Limited.—The output from all operations was 1,472,401 tons of ore mined and 102 tons of copper precipitate recovered from mine drainage water, representing an increase of 167,853 tons of ore and a decrease of 25 tons of copper precipitate, as compared with the previous year.

Surface mining at the West Lyell group of mines resulted in 1,410,783 tons of ore, representing an increase of 172,824 ore tons, compared with last year. Additional to the ore produced, 17 tons of copper precipitate was recovered from drainage water.

Collaterally with ore production, 599,309 tons of waste rock was mined and transported to dumps, thus making a total of 2,031,812 tons of material mined at these workings.

Production of ore from underground mining was less as the result of a further decline in man-power.

An output of 61,618 tons of ore represented a decrease of 4971 tons.

The labour difficulty is represented by the fact that 84 men were employed underground as against 92 for the previous year. Although it was anticipated that the installation of two mechanical loaders, in stopes, would result in an increased output per man, it has been found difficult to obtain labour sufficiently skilled to satisfactorily operate the loaders.

The following tabulation represents the disposition of the ore and copper precipitate produced from all operations:—

	Ore Mined	Copper Precipitate
	Tons.	Tons.
West Lyell Opencut Mines	1,410,783	17
Royal Tharsis Mine	60,310	Nil
North Lyell Mine	1,308	76
Lyell Comstock Mine	Nil	9
Totals	1,472,401	102

The large primary jaw crusher, installed at West Lyell, has operated successfully. Beneficial results are shown by an increased throughput of ore together with a reduction in the explosives used in secondary blasting and a more regular flow of ore between the mine and mill.

A machine, designed to dress and sharpen the large cutting bits used in churn-drilling, has been obtained and will be in use early in the new year. Rapid progress was made in the erection of a new modern machine shop.

A tunnel blast, in which 8¾ tons of explosive was used, broke an estimated quantity of over 100,000 tons of overburden rock. The blast was designed to break down a mass of rock rising to over 100 feet above the level of a bench. An adit 56 feet in length, was driven from the bench, and galleries, each about 90 feet long, were then driven at right angles at the end of the adit.

Explosives were packed in prepared slots, in six groups, along the galleries and the whole charge was exploded by plastic cordtex detonating fuse. The adit and galleries were stemmed with 300 tons of earth. The blast was successful.

At the Reduction Works, the concentration plant was in operation for 350 days and treated 1,470,506 tons of ore for a recovery of 32,835 tons of copper-bearing concentrate and 60,140 tons of iron-pyrite concentrate.

The smelters operated for 150 days and treated 20,844 tons of copper-bearing concentrate, 1262 tons of ore from the North Lyell Mine and 106 tons of copper precipitate, for an output of 4964 tons of blister copper which, after treatment in the Electrolytic Refinery, yielded 4923 tons of cathode copper, 17,451 oz. of silver, and 3019 oz. of gold.

A quantity of 47,922 tons of iron-pyrite concentrate, valued at approximately £A91,066, was shipped from Regatta Point for acid manufacture.

Industrial unrest in Australia again caused a shortage of essential supplies, particularly coke. Smelting operations were suspended for a period of over three months in consequence.

Gold.

The only production of gold was that resulting from operations by the Mount Lyell Mining and Railway Company, the quantity being 3019 oz. valued at £S32,545·482.

Silver-Lead.

The revival of mining activities in the Zeehan district has been maintained. An average of 71 men was engaged in productive, developmental, and prospecting work relating to silver-lead ores.

Mining of silver-lead ore employed an average of 17 men and resulted in the sale of 308·693 tons of concentrate, which, on assay value, contained 26,693·362 oz. silver and 187·816 tons of lead, valued at £S5607·293 for silver and £S18,541·207 for lead.

Zeehan Explorations.—This company employed an average of 47 men mainly in the continued development of the Oceana Mine. The main shaft was sunk to below 150 feet. A plat was cut and a crossout was driven at the 150 level to intersect the lode series with satisfactory results.

Pumping operations were continued at the Spray Mine and the old workings were de-watered to below the No. 5 level. Sampling and geological investigations were carried out.

A comprehensive geological survey was continued in the Zeehan and adjacent districts.

The Electrolytic Zinc Company of Australasia Ltd.—This company employed an average of two men at the Comstock Mine, where prospecting and diamond drilling operations were continued. At the old Zeehan Smelters an average of five men was employed in dismantling portions of the Roasting Plant.

The Western Montana Silver-Lead Mine.—Working on a tributing basis, three men continued with ore extraction from above the top adit. Concentrates, from hand-picking and jigging amounted to 228·783 tons and, on assay value, contained 22,863·399 oz. of silver valued at £S4675·690 and 142·548 tons of lead, valued at £S13,828·867.

Lead-Nickel Company.—This company, which was formerly known as the Copper-Nickel Mining Company, transferred its activities from the Five-Mile to the old Great South Comet Mine, in the Dundas area. A gravity concentrating mill was erected and a limited quantity of ore was mined and milled for an output of 30·72 tons of concentrate, containing 1399·516 oz. silver, valued at £S372·271 and 18·433 tons of lead, valued at £S1924·405. An average of five men was employed.

T. Brampton.—Working intermittently in the Dundas district, this man recovered 10·2 tons of concentrate from re-treatment of old dumps. The parcel was sold and, an assay value, contained 846·6 oz. of silver, valued at £S225·195 and 5·61 tons of lead, valued at £S585·684.

R. Laffner.—Owner of lease 17/M 40 acres, this person was engaged in prospecting a low-grade ore body. Concentrate recovered by jigging concentration amounted to five tons and contained 350 oz. silver, valued at £S93·1 and 2·685 tons of lead, valued at £S280·314.

S. Clark.—This miner worked on an ore body containing pyromorphite. He sold 15 tons of ore, containing 37·5 oz. silver, valued at £S9·975, and 5·895 tons of lead, valued at £S615.438.

F. Bradshaw, East Dundas.—Working part-time, this man obtained 8.188 tons of concentrate from the re-treatment of dumps. The parcel contained 591.174 oz. silver, valued at £S106·433, and 5·293 tons of lead, valued at £S578·186.

W. J. Hodge, East Dundas.—From the treatment of old dumps, this man obtained 4·802 tons of concentrate, containing 175·753 oz. silver, valued at £S31·811, and 2·852 tons of lead, valued at £S244·188.

W. Higgins, North East Dundas.—This person operated on a pyritic ore deposit and obtained 3·9 tons of concentrate, containing 251·94 oz. silver, valued at £S45·369, and 2·722 tons of lead, valued at £S298·341.

W. Ledger, West Zeehan.—Working in part time, this miner produced 2·10 tons of concentrate, containing 118·23 oz. silver, valued at £S31·449, and 1·291 tons of lead, valued at £S134·78.

Miscellaneous parties in the Zeehan district recovered small lots of silver-lead concentrates, containing 0·487 ton of lead and 59·25 oz. of silver.

E. Coleman, South Heemskirk.—Small-scale operations on lease No. 20/M resulted in an output of 0·4809 ton of tin-oxide from lode material. The concentrate contained 0·2772 ton of metallic tin, valued at £S161·905.

H. G. Watson, Eureka Creek, North Heemskirk.—Irregular operations on tin-alluvials resulted in the recovery of 0·574 ton of tin-oxide, containing 0·35 ton of metallic tin, valued at £S201.

Miscellaneous parties in the Heemskirk district recovered 0·064 ton of tin-oxide, containing 0·043 ton of metallic tin.

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

THE MINES AND WORKS REGULATION ACT.

Employment.

An average of 744 men, employed in mining and metallurgical projects as compared with 715 in 1948, reflects the increased activity in the mining industry on the West Coast. At one mine, employment increased by 42 men in the latter part of the year. It is also of interest to record that the average number of men employed during the last nine months of the year was 753, the highest number being recorded in the final quarter of the year.

Accidents.

Six accidents, involving fatal injuries to one person and non-fatal injuries to five others, were registered under the provisions of the Mines and Works Regulation Act.

Marring what was otherwise a record low accident rate for the division, viz., 8 accidents per 1000 men employed, a "trucker" or guard on a rake of 13 trucks was fatally injured whe he apparently dismounted from the rake and was jammed between a gallery leg and the hood of a side-tipping truck. The rake of trucks was being pushed into the mine by an electric locomotive. The verdict of the jury was that "deceased met his death accidently and that no blame is attachable to anyone". Of the other five accidents, two occurred on the surface and three underground.

One man suffered a bruised foot when a portion of a heavy roaster tube, being cut, snapped off and fell on his left foot. The other surface accident occurred in a concentrating mill. An employee was feeding balls to a ball-mill when two steel balls jammed in the opening. He attempted to free the balls with a steel bar when the bar also jammed, turned with the mill and squeezed his right hand against the cat-walk immediately overhead. The back of his hand was severely lacerated.

When a mullock barricade gave way and allowed mullock to flow into a stope in which he was working, a miner sustained an injured back as the result of being struck by a piece of mullock while he was making a hurried exit from the stope.

A miner was descending a "rill" in his stope, with the use of a rope, when he slipped and fell on his right thumb fracturing it.

A miner sustained injuries to the right eyeball as a result of being struck in the eye during spalling operations.

Safety.

An examination of statistics for the last 16 years reveals that the six accidents for 1949 was the lowest for that period. Comparative accident rates per thousand men employed are shown as follows:—

Year	No. of Accidents	Accident Rate 1000 Men
1947	27	32·5
1948	9	12·5
1949	6	8·06

The comparison serves to indicate that reasonably safe conditions obtained in mines and works. Efforts are constantly directed to the attainment and maintenance of optimum safe working conditions. This involves frequent and thorough inspections of all mines, works, and quarries. Working conditions have been kept under constant review and, in record book reports, attention has been drawn to any unsafe condition observed or any unsafe practice detected. Further, recommendations are often made where it is considered that certain alterations, innovations, or improvements are necessary in the interests of safety. At one of the larger mines, a problem has arisen of raising and lowering men by skip haulage in an incline shaft. Much consultation and discussion has taken place between the management and this Department concerning the equipping of skips with safety devices, and, as a result of negotiation and research, it is hoped that a satisfactory arrangement will be made in the coming year.

Machinery.

Routine inspections were again made in accordance with the provisions of the Mines and Works Regulation Act, 1915, relating to machinery. In one instance, a machinery accident was referred to the Inspector of Machinery for investigation.

Health and Sanitation.

The general health of miners and others engaged in mining and metallurgical works is bound up with the conditions under which they work. As usual, attention has been directed to the necessity for mine managers to ensure satisfactory level drainage, hygienic latrine arrangements, provision of good clean drinking water, the installation of hand basins at cribrooms, dust control, and ventilation.

The effective drying of wet working clothes and the maintenance of cleanliness in change houses, crib-places, &c., have been a routine requirement. One point of interest lies in the increasing use of gloves for underground work in the West Coast mines.

Attention has been directed to the necessity for providing adequate ventilation in acetylene lamp charging stations.

First-Aid.

Inspections of first-aid equipment have been made from time to time and the adequacy of such equipment has been kept under review. The appointment of competent first-aid men, on each mine or works, has been a routine requirement.

Ventilation.

Ventilation of underground workings, in all mines throughout the inspectorate continued to give satisfaction. An established fan installation at one of the larger mines continued to operate effectively, whilst, at some of the smaller mines, the use of fans and ventura tubing provided necessary ventilating conditions in long exploration drives and crosscuts.

Special stress was laid on the danger to workmen of inhaling blasting fumes.

Action taken to reduce the health hazard consisted in the effective hosing and spraying of all freshly blasted material, the maintenance of satisfactory air circulation through stopes or dilution by compressed air and the provision of small fan units and air ducts to faces of drives and crosscuts.

Dust collection in metallurgical plants was continued on a satisfactory plane, the only cause for concern being the concentrate cleaning section of one mining plant where a change in the flow sheet caused a temporary lapse. This defect was overcome and, on the occasion of the final visit of inspection for the year, it was recorded that improved conditions were observed.

EXPLOSIVES ACT, 1916.

Work, in connection with the Act, consisted in the keeping of registers, the inspection of magazines, and the supervision of the importation, unloading, transport, and handling of three shipments of explosives at the port of Burnie.

At King Island, the Marine Board again deputised and exercised control over the relevant sections of the Explosives Act.

Details of explosive importations are as follows:—

Tasmania.

Port of Burnie:	Cases.	lbs.
Polar A.N. Gelignite	2,485	124,250
Polar Quarry Monobel	180	9,000
Blasting Powder	10	500
Detonators—		No.
No. 6, Ordinary	3	25,000
Gasless Electric Delay, 6 x 96	2	20,000

King Island.

Port of Currie:	Cases.	lbs.
Polar A.N. Gelignite "50"	550	27,500
Polar A.N. Gelignite "60"	50	2,500
Detonators—		No.
No. 6, Ordinary	1	5,000

At King Island the Marine Authority functioned efficiently in the administration of the sections of the Explosive Act relating to the importation, unloading, and transport of explosives.

General.

One explosive accident was reported. The injured person lost the sight of his right eye. The accident occurred at a gravel quarry near Ulverstone. A contractor loaded a down hole and ignited the fuse but the charge failed to explode. After waiting 25 minutes he returned and attempted to withdraw the fuse from the hole. The charge exploded and he was thrown a distance of 15 feet, with the result recorded. The investigation revealed certain irregularities in the storage and use of explosives by the contractor. The irregularities were due mainly to lack of knowledge of the proper procedure in the storage and use of explosives. The irregularities have been corrected. As users are not required to license the storage of less than 50 lbs. of nitro-compounds, difficulty is experienced in exercising control thereof. Wherever such storage comes under notice, efforts are made to investigate the circumstances and advise upon proper procedures.

INFLAMMABLE LIQUIDS ACT, 1929.

Discharge of Oil Tank Ships.

An important activitiy undertaken during the year was the administration of the Inflammable Liquids Act in regard to the discharge of oil tankers at Devonport.

Fraught with dangerous possibilities, due to the many avenues through which grave mishaps could occur, the strictest attention was given to precautionary details in the six pumping operations performed during the year. Details of the various shipments are shown hereunder:—

Ship	Pumping Time	Gallons		
		Mineral Spirit	Kerosene	Distillate
	Hours.			
Arena	26·500	461,029	149,418	32,480
James Stove	19·33	459,439	59,901	....
James Stoves	22·833	506,255	91,775	46,125
Diplodam	19·750	447,498	28,071	....
Cedar Breaks	29·133	575,540	75,880	....
Arena	21·833	418,317	107,209	....
Totals	139·882	2,868,078	512,254	78,605

No mishap occurred and there was no spillage of petrol or other inflammable liquid during the 140 hours of pumping.

The easing of restrictions on the sale of petrol, following the lifting of the petrol rationing, resulted in increased activity in the distribution of petrols by the major companies. In consequence, there was an increase in the number of applications for new pump installations.

Opportunity was taken, wherever possible, to inspect existing installations and, where any irregularity was observed, the licensee was required to rectify it. In this regard, uncharged or missing fire extinguishers proved to be the most frequent cause of complaint and, in all instances, such deficiencies were rectified.

Workers' (Occupational Diseases) Relief Fund Act.

In addition to the usual routine work conected with the Act, five applications, for compensation, were dealt with. Of these, two were granted compensation, details being as follows:—

Applicant	Age Years.	Years of Mining	Result of Examination	Percentage of Compensation %
Miner	49	6 in Tasmania 6 in Victoria	Silicosis in the Anti-Primary stage	30
Miner	71	50	Silicosis in the Primary stage	35

The other three applicants were listed as being free from disease within the meaning of the Act.

Aid to Mining and Mineral Resources.

An investigation was made of an application by an Adelaide company for assistance to rehabilitate a cage-crossing over the Pieman River to facilitate prospecting operations. An estimate was prepared of the cost and submitted to the Director of Mines. The crossing was constructed. There were no other applications for financial assistance under the Aid to Mining Act.

Several large prospecting areas were granted in the vicinity of the Pieman, Huskisson, and Wilson Rivers. Prospecting was pursued for dredging areas but the search was unsuccessful and the claims were relinquished.

A special prospecting area of 1186 acres was granted in the Dial Range. Some prospecting was done and the area was then offered to a major mining company. The company carried out a geological survey but did not acquire the area.

Planned exploration—including topographical, geological, and geophysical surveys followed by diamond drilling—was carried out over an extensive area on the West Coast and was in progress at the close of the year. This exploration characterised a constructive effort by enterprise to assess the potential mineral wealth of hitherto relatively unexplored regions.

Mining Operations and Production.

Cadmium.

The recorded output of cadmium was 37·96 tons, representing an increase of 3·74 tons as compared with the previous year. Production accrued from operations by the Electrolytic Zinc Company at Rosebery.

Copper.

There was an increase of 23·2 per cent in the production of copper, the assessed output being 305·69 tons.

Production and shipment of copper concentrates was continued by the Electrolytic Zinc Company at Rosebery. There was some desultory prospecting in the Balfour area but no new discovery resulted. Private enterprise was engaged in an examination of copper prospects at Natone, at the close of the year.

Gold.

With a recorded output of 8882·09 fine oz., the Electrolytic Zinc Company continued as the only producer of gold in the inspectorate. The gold occurs in the zinc-lead ores of Rosebery and Williamsford and is recovered with the copper-lead-zinc concentrates accruing from selective flotation practices.

Osmiridium.

Two men were engaged in fossicking at the Nineteen-Mile Creek but there was no recorded production despite the improving price.

Non-Metallics.

Mr. Alan Pearson, Ulverstone, employed three men and continued with the production of non-metallics, which included 7 tons of limonite from the old Penguin Iron Mine, 14 tons of red ochre from a deposit at Spalford, 440·75 tons of pebbles from beaches near Ulverstone, and 5 tons of graphitic schist from a deposit near Ulverstone.

Scheelite.

King Island Scheelite (1947) *Limited.*—This company established a record in the production of scheelite, the output of finished product being 802·6 tons as compared with 637·4 tons for the previous year.

Production progress has been as follows:—

	1947. Tons.	1948. Tons.	1949. Tons.
Crude ore quarried and milled	139,883	148,263	158,755
Scheelite concentrate produced	630·92	637·42	802·6
Men employed	155	133	137

After allowing for ore extracted, proved ore reserves were regioned in the order of 2,789,999 tons as at the 31st October, 1949. The Managing Director stated that the overall mill recovery was 72·2 per cent of which 59·1 per cent represented, sale grade, the balance of 13·1 per cent being low-grade concentrate stored for future treatment.

Alterations to the flow-sheet comprised the replacement of classifiers, in the ball-mill circuits, with hummer screens. It was learned that, following test work on the flotation product, a better result was obtained by re-dressing the flotation concentrate by vanner methods rather than by the current tabling practice. A new vanner section is being installed to dress the flotation concentrate. It was determined that vanner processing would provide a satisfactory recovery of scheelite for the stored low-grade material. Another innovation has been the introduction of rolls to form a fine crushing unit in place of the old system of feeding direct from the secondary crushing unit to the ball mills.

The power station functioned smoothly, generating 5,823,867 electrical units for servicing the plant, workshops, and township.

A large, new shovel-repair-shop, with annexes, was constructed.

A progressive policy was pursued in the construction of five new houses, transfer of three houses and two huts to new locations, and the construction of a club building with bar and billiard-room. The construction of a new mess building and quarters was commenced.

Silver-Lead.

The Farrell Mining Company, Tullah, continued as the major producer of straight silver-lead ore, the output of galena concentrate, from this mine, being 1157 tons. Other activities were confined to some prospecting by a party of three men at Tullah and treatment of mill tailings at Magnet.

Farrell Mining Company, Tullah.—The crude ore mined and milled amounted to 6982 tons. The recovery of finished silver-lead concentrate was 1157 tons, containing 747 tons of lead and 77,300 oz. of silver. The average number of men employed was 62, 34 being on the surface and 28 underground.

The milling plant was not worked to capacity, one shift daily being sufficient for the treatment of available ore. The installation of a cleaner cell in the flotation plant improved the treatment of low-grade ore.

Following discoveries by diamond drilling, 739 feet of driving and crosscutting opened up payable ore at No. 5 Level South Quartz Lode and at Nos. 6 and 8 Levels Main Lode North. Rises were connected for ventilation and stope filling.

An extensive diamond drilling programme was carried out on the surface, in the southern leases, but failed to locate new ore bodies. Underground drilling located new makes of ore which have been opened up.

The following is a summary of the crude ore mined and milled:—

	Tons.
No. 8 Level, North Stope	419
No. 8 Level, South Stope	922
No. 7 Level, North Stope	764
No. 7 Level, South Stope	324
No. 6 Level, North Stope	125
No. 5 Level, North Stope	709
No. 4 Level, South Stope	641
No. 4 Level, Intermediate, South Stope	78
No. 4 Level, North Stope	1,093
From Developmental Work	1,907
Total	6,982

Dutton and Party, Tullah.—Prospecting by this party comprised driving and the re-opening of an old winze.

Promising veins of silver-lead were met and exploration is proceeding. The Farrell Company secured an option over the claim and proceeded with a programme of diamond drilling.

L. & M. Newman Syndicate, Magnet Dredging Claim.—This syndicate has installed a two-head battery, screen, jig, and concentrating tables and was reported to have recovered 20·75 tons of concentrate, assaying 67 per cent lead and 126 oz. silver, from old dumps at the Magnet Mine, but there was no sale of finished products.

L. & M. Newman Syndicate, West Bischoff.—Extensive exploration was carried out on an antimonial lead-zinc lode series but the results were not encouraging and, with no improvement from diamond drilling, operations were suspended.

Tin.

Tin mining afforded employment for an average number of 35 men. An output of 64·87 tons of metallic tin was recorded. Renison Associated Tin Mines N.L. was the principal producer. Miscellaneous parties, aggregating seven men, contributed 4·303 tons to the total production.

Renison Associated Tin Mines N.L., Renison Bell.—The quantity of crude sulphide ore mined and milled was 10,209 tons and 90·55 tons of concentrate, containing 60·574 tons of metallic tin, was recovered.

Of the ore mined, 6612 tons came from opencuts, 3291 tons from stopes, and 465 tons from development. Overburden removal, at opencuts, amounted to 1834 tons and 175 cubic yards of waste was used for the filling of stopes. Underground development work comprised 196 feet of driving and 103 feet of rising. A new air compressor is being installed to provide more air for diamond drilling and developmental work.

Harrington, Kenworthy, and Party, Waratah.—This party was occupied cleaning up around the old Mount Bischoff Mill and recovered 4·98 tons of concentrate, containing 3·33 tons of metallic tin. Three men were employed.

H. C. L. Glozier, Tinstone Creek, Waratah.—Two men were engaged in crushing and tabling old dumps and tailings at West Bischoff. The recovery was 0·5552 ton of concentrate, containing 0·3679 ton of metallic tin.

H. T. Brooke, Tinstone Creek, Waratah.—Two men were engaged, during part of the year, in sluicing alluvial ground in Tinstone Creek for an output of 0·3628 ton of tin-oxide, containing 0·2425 ton of metallic tin.

J. Housego, Waratah.—Two men were employed in treating old mill tailings, near the Power Station, at the Mount Bischoff Tin Mine, and recovered 0·3308 ton of concentrate, containing 0·2098 ton of metallic tin.

Gatenby and Patterson, Naracoopa, King Island.—This party intermittently continued with the treatment of beach sands and recovered 0·1691 ton of tin-oxide, containing 0·0912 ton of metallic tin.

Zinc-Lead-Copper.

Electrolytic Zinc Company of Australasia Limited.—The value of zinc, lead, copper, gold, and silver in ores, produced from the Rosebery and Hercules Mines, was greater than for the previous year. Consistent with its usual constructive policy, the company continued with planned exploration in the Pinnacles, Murchison, and Godkin areas.

Production of crude ores and concentrates was as follows:—

	Tons.
Crude ore, Hercules Mine, Williamsford ..	39,142
Crude ore, Rosebery Mine, Rosebery	101,367
	140,509

	Tons.
Zinc concentrates recovered	42,177
Lead concentrates recovered	9,356
Copper concentrates recovered	3,695

The recoverable quantities of metallics were:—

	Tons	£S.
Lead	6,938·82	702,139·696
Zinc	20,285·93	1,713,500·009
Copper	305·69	40,356·424
	Fine Oz.	
Gold	8,882·09	87,518·938
Silver	889,587·78	181,973·0

In addition, there was a recorded output of 37·96 tons of cadmium valued at £43·841.

The total number of men employed was 464, being distributed as follows:—

Rosebery Mine—Surface	262
Underground	137
Hercules Mine—Surface	13
Underground	45
Zeehan Smelters	5
Comstock Mine	2

The following information was submitted by the Superintendent for the financial year ended 30th June, 1949:—

Diamond Drilling:	Feet.
Rosebery Mine, Underground	4,766
Hercules Mine, Underground	188
Pinnacles Area, Surface	3,160
Murchison Area, Surface	1,388
Godkin Area, Surface	1,904
Silver Falls, Surface	427
	11,853

Development:	Driving	Cross-cutting	Rising	Total
	Feet.	Feet.	Feet.	Feet.
Rosebery Mine	547	220	195·5	962·5
Hercules Mine	39	8	12·0	59·0

In addition, the Rosebery main shaft was sunk 140 feet, to 28·5 feet below No. 11 level, and timbered to 167 feet below No. 10 level.

Ore Production:	Stoping	Development	Total
	Tons.	Tons.	Tons.
Rosebery Mine	84,696	4,542	89,238
Hercules Mine	36,754	283	37,037

The Black P.A. sand filling project is nearing completion.

Blast hole stoping accounted for 7·2 per cent of the mine output. An additional 6000 tons was drilled but not fired.

Experiments were made with tungsten-carbide tipped bits with promising results.

Labour, generally, was more plentiful. Baltic migrants are adapting themselves well underground.

Outside prospecting was continued in the Pinnacles, Murchison, Comstock, and Godkin areas. No major ore bodies were located.

The milling rate for the year ended 31st December, 1949, was 16·9 tons per hour. No major alterations were made in the mill.

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

Employment.

The average number of men employed in mining and allied industries, other than coal mining, was 791, as compared with 766 for the previous year, the increase being due to a slight improvement in the labour position. However, there was still insufficient labour offering to satisfy requirements at the larger mines and works.

Accidents.

Fourteen accidents were registered under the provisions of the Mines and Works Regulation Act, and one accident, concerning the use of explosives, was investigated. No accidents, causing injuries to persons through the use of handling of inflammable liquids, came under notice.

Of the accidents recorded none caused injuries of a fatal nature and, of those connected with mining, seven occurred underground and seven on the surface.

Two of the underground accidents were caused by falls of ground. In one case, a piece of rock fell out of the "back" and struck a man, who was shovelling, on the ankle, causing a fracture. In the second case, a miner was building up a chute when a piece of the hanging-wall came away and crushed him against the chute, bruising his chest. Two other of the underground accidents were caused by the rock drill and equipment slipping during rigging, fingers of the injured persons being caught between the equipment and the rock walls of the stope. In the more serious of the two cases, the first joint of a finger required amputation. Of the remaining three underground accidents, one was resulted when a spalling hammer twisted on striking a stone and jarred the hand of the user. The other two were trucking accidents. In the first case, the injured person did not keep his arm clear of a projecting chute-lip and sustained a broken arm. In the second instance, the trucker had his arm caught between two moving trucks. His right wrist was fractured.

Of the surface mining accidents, the most serious occurred in a large quarry when ground fell from the face, struck an electric shovel and threw the driver to the ground causing him to suffer concussion and injuries to the right shoulder.

A second serious surface accident occurred when the load on a manually propelled rail truck became dislodged and fell on the workman, crushing his foot and thumb. The other surface accidents were of a miscellaneous nature. In one case, a man received an electric shock when taking down an electric lamp holder without taking precautions to see the power was disconnected. Another person received burns to the leg when his trousers caught alight from a firepot used for heating purposes. Whilst descending a ladder a man bruised his leg by striking it against a guard rail. Another man lacerated his right hand when cranking a motor truck whilst in gear. In the remaining case, a man, employed on construction work, was struck on the wrist by the handle of a winch when it swung aroung unexpectedly. He sustained a fractured left wrist and a broken small bone in the right hand.

The accident, concerning the use of explosives, occurred at a sawmill when a man was splitting logs with the use of gunpowder. After igniting a fuse, he mistakenly returned before the charge of powder had exploded. The explosion caused portion of the log to roll on his right leg and fracture it.

Safety.

Considerable time was spent on field duties directed to the maintenance of safe and satisfactory working conditions at mines, quarries, and works. Appreciation is recorded of the co-operation afforded by managements in this regard. However, at every opportunity, it was impressed upon managements, supervisors, and workmen that constant vigilance is necessary to avoid accidents.

No unusual incidents, concerning the safety of men in the industry, occurred during the year. Careful attention was given to details such as handling explosives, ladderways, shaft equipment, &c., as well as the general method of working at the mines and quarries.

Prosecutions.

Legal proceedings were not taken against any person. In some cases warnings were issued but generally there was a satisfactory observance of the relevant legislation.

Health and Sanitation.

Satisfactory accommodation, in the form of change houses, was maintained at the larger underground mines, and crib houses were also kept in a reasonably clean condition. Lavatory accommodation received attention and, at several mines and quarries, considerable improvement was effected. Housing schemes, central mess houses and canteens, together with other amenities, continued to function well and tended towards a more satisfactory type of employee being obtained by those companies supplying such amenities. The ventilation of underground mines was satisfactorily carried out by natural means but one mine, due to the depth of its workings, is now reaching a stage when some auxiliary form of ventilation will soon be necessary. This was receiving consideration at the close of the year. Satisfactory ventilation has assisted materially, together with the application of water where necessary, in maintaining at a minimum the dust hazard in underground workings.

The control of dust, at some of the crushing plants attached to quarries, was not satisfactory. Those concerned were anxious to eliminate the trouble but the difficulty of obtaining supplies of necessary material hampered their efforts.

The Workers' (Occupational Diseases) Relief Board was assisted by arranging the medical examination of new employees, and miners who requested re-examination.

Explosives.

Nitro-compounds, detonators, and fuse inspected were found to be satisfactory when examined, and no complaints were received concerning explosives. Importation of explosives was carried out at Launceston and the usual supervision was made of unloading and transportation to the Government magazines. A satisfactory certificate of analysis was received with each shipment and the unloading took place without unusual incident. The explosives were in good order and condition but in some shipments a few of the cases had some raised nails in the lids. The nails had apparently worked loose during transit. With the return of fireworks on to the market, samples were obtained, tested, and found to comply with the statutory requirements.

Machinery.

At the larger mines and works no new machinery, of any magnitude, was installed. A few minor alterations were made at the various plants. At one alluvial mine a 100 h.p. diesel engine was installed to drive a pressure pump in supplying water for sluicing purposes. All machinery at the various mines, works and quarries was inspected regularly and, working in conjunction with the Inspector of Machinery, any guarding or other improvements necessary for safety, was requested and obtained.

Inflammable Liquids.

Numerous applications were made for the installation of petrol pumps and were approved where the installing requirements were satisfied. Drum-storage compounds received a considerable amount of attention along with the inspection of existing installations. Administration of the Inflammable Liquids Act covers a very large field and involves an appreciable amount of time in order to maintain a reasonable standard in the storage of inflammable liquids and dangerous commodities covered by the legislation.

Aid to Mining.

In the course of duties, advice was proferred and suggestions were made to operators, particularly to small producers to enable them to more efficiently carry out operations. Reports were made in connection with various mining activities, including those connected with applications for assistance under the provisions of the Aid to Mining Act.

MINING OPERATIONS AND PRODUCTION.

Tin.

Production amounted to 562·9061 tons of metallic tin, valued at £338,943·34 sterling. This production was less than for the previous year due, probably, to the general shortage of labour both on the larger mines and among the smaller producers operating independently. Another factor which probably had some bearing upon production was the increase in the price of tin enabling lower grade or marginal ore to be worked.

W.X.X. Mine, Moorina.—This mine was operated under an arrangement with the owner, by a working party averaging five men. By usual sluicing operations, they recovered 8·4344 tons tin concentrates, containing 5·6552 tons of metallic tin, valued at £3306·26 sterling.

Miscellaneous, Moorina.—The smaller producers in this area decreased to six in number, with a resulting decline in production compared with the previous year. The production amounted to 3·6415 tons tin concentrates, containing 2·5508 tons metallic tin, valued at £1559·96 sterling.

Weld Tin Syndicate, Weldborough.—(T. H. Bryce and others.) Two men were responsible for the operations of this syndicate and they produced 0·9335 ton tin concentrates, containing 0·622 ton of metallic tin, valued at £354 sterling. This production was spread over a period of about nine months and was obtained by ordinary hydraulic sluicing methods, when water was available. The quantity of ground sluiced was 4200 cubic yards.

Cambria Mine, Weldborough.—R. Symons and partner operated the small stamp battery at this mine, during the latter half of the year, when sufficient water was available for power purposes. Selected granitic material, from the old dumps, was crushed for an output of 0·8281 ton tin concentrate, containing 0·5797 ton metallic tin, valued at £371·70 sterling.

Miscellaneous, Weldborough.—Smaller mines and miscellaneous parties produced 5·4170 tons tin concentrate, containing 3·6861 tons metallic tin, valued at £2276·68 sterling.

Anchor Tin Mine, Lottah.—This mine operated throughout the year, although production was held up for short periods when insufficient water was available for power purposes to drive the milling plant. A total of 5017 tons of tin-bearing granitic ore was quarried and crushed, using ten head of stamps, and 11·9175 tons of tin concentrate was recovered with the Wilfley concentrating tables. This concentrate contained 8·6298 tons of metallic tin, valued at £5171·15 sterling. During the year, the two vanners, in the concentrating plant, were disposed of to the King Island Scheelite Company and were shipped to King Island. No other alterations were made to equipment at this mine. The number of men employed again averaged five, although, had more men been available, the number would have been increased.

Miscellaneous, Lottah and Blue Tier.—There was some increase in activities by small producers in the Blue Tier area. One party operated a pressure pump, driven by a diesel engine to supply water for sluicing purposes but after about ten weeks' activity they were apparently not satisfied with the results and ceased. A second party constructed a small pebble mill and installed it, together with a small crusher and sluice-box, for treating some of the tin-bearing granite at the old Puzzle Mine. Operations were in progress at the close of the year.

The average number of men engaged in miscellaneous operations amounted to four and they were responsible for the production of 2·9438 tons tin concentrate, containing 2·0561 tons metallic tin, valued at £1274·77 sterling.

Miscellaneous, Goshen and Gould's Country.—Three men worked spasmodically in this district. Their production was not large, amounting to 0·8335 ton tin concentrates, containing 0·5332 ton metallic tin, valued at £339·23 sterling.

Goshen Tin Mines, St. Helens.—Owing to difficulty in obtaining sufficient labour, particularly for shift work, production was curtailed. It was decided to abandon the high-level Siamese Race, in consequence of the high cost of maintenance, and to obtain water from the Saxelby dam, which was enlarged, in order that operations could be maintained at a reasonable scale. Operations ceased at "Bog" No. 2 Face and production was confined to the Argonaut and George's Bay faces, where 22,300 cubic yards of alluvial material was sluiced. Total production amounted to 11·8499 tons tin concentrate, containing 7·3765 tons metallic tin, valued at £4503·02 sterling. A minor portion of the production accrued from the treatment of old residues by tributers. An average number of nine men was employed.

Bell Creek Tin Mine, St. Helens.—Production at this mine resulted from the sluicing of 6000 cubic yards of alluvial ground during the latter part of the year—the only portion of the year when sufficient water was available for productive operations. The output was 1·6076 tons tin concentrate, containing 1·2057 tons metallic tin, valued at £835·55 sterling. Two men were employed.

Miscellaneous, St. Helens.—The small mines of this area were worked by an average of five men, who recovered 1·7446 tons tin concentrate, containing 1·0825 tons metallic tin, valued at £679·65 sterling.

Aberfoyle Mine, Rossarden.—As the largest producer of tin in the inspectorate, this mine treated 27,774 tons of ore for a production of 396·1953 tons tin concentrate, containing 286·7104 tons metallic tin, value at £173,528·6 sterling. The major portion of this ore was obtained from the 4, 5, and 6 levels. Shaft sinking was continued to a depth sufficiently below No. 8 level for the opening up of this level. Development work amounting to 2847 feet comprised driving 1420 feet, rising 492 feet, cross-cutting 804 feet, and shaft sinking 131 feet. Development of No. 7 level had proceeded to such a stage, at the close of the year, where it was considered that there were sufficient exposures of the lode formation to reasonably assume that the ore bodies were maintaining their width and grade at this level. In carrying out its active prospecting campaign 6542 feet of diamond drilling was completed from surface set-ups and 3114 feet from underground sites. The concentration plant continued to operate satisfactorily and a third magnetic separator was installed, together with a small heavy media experimental plant. However, the results with heavy media separation were not completed at the close of the year. The company continued its policy of providing amenities for employers and improvements were made to the mess house and the single mens' huts. Several cottages, for married men, were also built in the township of Rossarden. An average number of 151 men was employed.

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

Tin production amounted to 14·5 tons of concentrate, containing 9·46 tons of metallic tin, valued at £5767·14 sterling.

Miscellaneous, Avoca.—An average of three men was engaged on small ventures and produced several small parcels of concentrates, amounting to 0·8393 ton and containing 0·5956 ton metallic tin, valued at £387·05 sterling.

Miscellaneous, Scottsdale.—Three men were employed in sluicing operations at small mines when sufficient water was available but as the period was of short duration the combined production only amounted to 0·91 ton of tin concentrate, containing 0·5379 ton metallic tin, valued at £336·45 sterling.

Abra Tin Mine, Branxholm (Walsh & Co.).—As in previous years, ten men found employment in carrying out normal sluicing operations with hydraulic elevation of the sluiced material to the sluice boxes where the tin concentrate was recovered. Production, which was slightly greater than last year, amounted to 15·6933 tons of tin concentrate, containing 11·7403 tons metallic tin, valued at £7281·90 sterling. To obtain this production, it was necessary to handle large quantities of tailings which had been deposited over the alluvial tin-bearing wash by previous operations.

Baker's Discovery, Branxholm.—Owing to a very dry year in the vicinity of this mine and the shortage of labour, very little productive work was carried on. Two men were employed on production for about two months and recovered 0·3545 ton tin concentrate, containing 0·2141 ton metallic tin, valued at £148·37 sterling.

Ruby Flat Mine, Branxholm (Walsh & Co.).—An average of three men was employed at this mine. The ground sluiced was comparatively shallow but 38,500 cubic yards of ground was sluiced for a recovery of 8·6903 tons tin concentrate, containing 6·2897 tons metallic tin valued at £3976·58 sterling.

Ormuz Mine, Branxholm.—A. S. Edwards and party resumed operations at the original main face of the old Arba Tin Mining Company. Water for sluicing purposes was obtained, by arrangement, from the Ringarooma Race which was able to supply a reasonable quantity and at sufficient pressure to enable operations to be carried on in a satisfactory manner. Seven men, on an average, were employed and the earlier part of the year was occupied in the laying of pipe columns and in other preliminary work. The mine was brought into production about the middle of the year and 60,600 cubic yards of basaltic overburden and alluvial drift were sluiced for a recovery of 6·3893 tons of tin concentrate, containing 4·3485 tons metallic tin, valued at £2706·08 sterling.

Miscellaneous, Branxholm.—Eight men were engaged at small mines in the Branxholm district and their total production amounted to 8·4669 tons of tin concentrate, containing 6·2083 tons metallic tin, valued at £3796·35 sterling. The major portion of the output resulted from sluicing in the vicinity of Ruby Flat.

Briseis Mine, Derby.—The new company operated continuously and whilst cleaning up the remaining tin bearing material available in the old main workings, constructed a new sluice box and tail race box at the Cascade workings. These workings had been prospected and, from boring results, were considered to contain sufficient payable ground to warrant exploitation. Production was not interrupted because, at the completion

of mining at the old main face, operations were transferred to the Cascade workings and at the close of the year sluicing was proceeding there normally, although large quantities of small stone in the tin-bearing material had reduced the cubic yardage through-put to some extent. The company, under arrangement with the Department of Mines, carried out a considerable amount of repairs to and maintained supervision of the Ringarooma Water Race. In all, 182,000 cubic yards of material were treated and 20·1108 tons of tin concentrate were recovered in the sluice boxes. The concentrate contained 14·3826 tons metallic tin, valued at £8630·06 sterling. An average number of 37 men was employed.

Miscellaneous, Derby.—Small parties averaging nine men operated intermittently and produced 2·5384 tons tin concentrate, containing 1·7658 tons metallic tin, valued at £1034·39 sterling. The concentrate was mainly obtained from the bed of the Ringarooma River, below the Briseis Mine, during periods when the river flow was sufficiently slack to enable portions of the river bed to be worked.

Miscellaneous, Herrick and Winnaleah.—P. V. Cross was again the major producer at small mines in this area. The total production, by four men, was 2·6114 tons of tin concentrate, containing 1·8307 tons metallic tin, valued at £1154·54 sterling.

Banca Tin Mine, Winnaleah.—R. L. Rainbow, assisted by one man, worked this mine. With the aid of storage dams, to conserve the water supply, he was able to carry out sluicing operations during the major portion of the year. The production amounted to 2·3298 tons of tin concentrate, containing 1·6845 tons metallic tin, valued at £1003·74 sterling and resulted from the treatment of 6700 cubic yards of alluvial tin-bearing ground.

H. & V. Wood, Bradshaw's Creek.—As sufficient water was available only during the latter half of the year, these two men were only engaged in mining activities during that period. Their operations consisted of sluicing the bed of portion of the Wyniford River, which had been diverted, and hydraulically elevating sluiced material to the sluice box. A total of 3350 cubic yards of material was sluiced for a recovery of 0·654 ton of tin concentrate, containing 0·4712 ton of metallic tin, valued at £286·50 sterling.

O. J. Walsh & Hookway, Bradshaw's Creek.—These two men operated in a similar way to H. and V. Wood but nearer to the head waters of the Wyniford River. Their activities were also confined to the latter half of the year, and from the treatment of 3090 cubic yards of alluvial material, from the bed of the Wyniford River, they obtained 1·0152 tons of tin concentrate, containing 0·7155 ton metallic tin, valued at £472·75 sterling.

Miscellaneous, Bradshaw's Creek and South Mt. Cameron.—Operating over a fairly wide-spread area, small parties, aggregating ten men, produced 10·1424 tons of tin concentrate, containing 7·053 tons of metallic tin, valued at £4372·92 sterling.

Dorset Dredge, South Mt. Cameron.—This dredge, operated by the Department of Supply and Development, continued dredging operations on Dorset Flats and maintained the satisfactory figure of 83·3 per cent of the possible period, the remainder being occupied with repairs and maintenance. A total of 1,665,000 cubic yards of the Dorset Flats were dug and passed through the dredge, the jig concentrating plant recovering 128·85 tons of tin concentrate, containing 95·8264 tons of metallic tin, valued at £57,299·44 sterling. The concentrate also contained alluvial gold, which was recovered on mercury amalgamation plates and sold as a separate product, shown under "Gold".

The average depth of the alluvial ground was 33 feet and 47 men were employed in operating the dredge. Very little prospecting was carried out by the dredge staff as the anticipated equipment was not received. Improvements were the erection of a new store, installation of a petrol pump for the more satisfactory handling of petrol, and repairs and improvements to the staff and employees' houses.

Endurance Tin Mine, South Mt. Cameron.—Sluicing operations were carried on, throughout the year, at the Clifton area, operations progressing gradually towards the west. The barge, on which are installed the two gravel pumps, was shifted to a new site, approximately 10 chains west, and connected to a newly constructed sluice box. At the close of the year, operations had advanced to such an extent that preparations were again being made to shift the barge in a westerly direction. Material amounting to 427,000 cubic yards was handled by the gravel pumps and discharged into the sluice boxes where 74·6731 tons of tin concentrate were extracted. The concentrate contained 53·9504 tons of metallic tin, valued at £30,697·78 sterling. Fifty-nine men were employed, including those men at the company's power station on the Frome River which supplies the electric power, and their electric pumping station on the Ringarooma River, which supplies the necessary water for sluicing purposes. The company's power station was able to supply power during the major portion of the year but when insufficient water was available for operation of the power station, electric power was obtained from the Hydro-Electric Commission to enable productive operations to be carried on continuously. To assist employees, two houses were constructed, extensive alterations were made to other houses and general repairs were carried out.

Mount Cameron Water-Race, Gladstone.—As in past years, this Government-controlled scheme operated satisfactorily to supply water for mining purposes in the Gladstone district. Water was supplied under two arrangements to the producers. In the case where the water was supplied on a contract basis the production is shown under the individual mine. The smaller producers obtained water under a royalty system and an average of nine men took advantage of this scheme. Between them they treated 44,825 cubic yards of alluvial material by hydraulic sluicing methods and recovered 10·9776 tons of tin concentrate, containing 7·3503 tons of metallic tin, valued at £4508·97 sterling.

Lanka Tin Mine, Gladstone.—This mine, which is operated by a local syndicate, carried out operations on the Mussel Roe River and also smaller operations in the vicinity of Amber Creek. At the Mussel Roe workings, a 100 h.p. diesel engine was installed, and, driving a Thompson centrifugal pump, supplied water from the Mussel Roe River for sluicing purposes. Some water was also obtained from the Mount Cameron Water-Race, on a royalty basis, to operate a small face and the production from this is not included under this heading. However, at the close of the year, consideration was being given to obtaining water from the Mount Cameron Race, on a contract basis, so that two faces could be operated at the Mussel Roe workings, the water from the Mount Cameron Race to be used in the nozzles, and water from the Mussel Roe River to be used in the hydraulic elevators. The usual minor troubles were experienced with the diesel engine and pumping unit, on starting up, but at the close of the year these had been overcome and the plant was operating very satisfactorily. Total production from this mine, other than that produced on a royalty basis, accrued from the treatment of 15,400 cubic yards of alluvial material for a recovery of 7·1955 tons of tin concentrate, containing 5·1593 tons of metallic tin, valued at £3268·75 sterling. Employment was found for four men.

Star Hill Syndicate, Gladstone.—Purchasing water under a contract system from the Mount Cameron Water-Race, this syndicate pumps the water, with the electrical pumping equipment, to obtain the necessary pressure for sluicing operations. Sluicing was practically continuous at two faces but operations were hampered, to some extent, by the shortage of labour. The five men employed, however, were responsible for the treatment of 58,000 cubic yards of alluvial material. The recovery was 9·9629 tons of tin concentrate, containing 7·1583 tons of metallic tin, valued at £4329·51. This syndicate purchased S. Long's mine, near the old McGregor Mine, and worked it in a small way with water supplied from the Mount Cameron Water Race on a royalty basis.

Miscellaneous, Gladstone.—In addition to activities already mentioned, 11 men found employment at small mines in the district, their activities being accelerated during the wetter period of the year. Production amounted to 9·7040 tons of tin concentrate, containing 4·6451 tons of metallic ton, valued at £2759·69 sterling.

Strait Islands.—Productive operations were pursued on Flinders and Cape Barren Islands to a limited extent. The average number of men engaged in mining was three and the output amounted to 0·5549 ton of tin concentrate, containing 0·2985 ton of metallic tin, valued at £186·74 sterling.

Wolfram.

Although the sterling price of wolfram fluctuated considerably, during the year, and was at its lowest figure, £442·5 at the close of the year, production was higher than in 1948, amounting to 264·3974 tons of wolfram, valued at £100,738·61 sterling. Production was confined to the Storey's Creek-Rossarden district.

Storey's Creek Mine, Storey's Creek.—This mine maintained its position as the largest producer of wolfram in the inspectorate. Production was again hampered by the shortage of suitable labour. An average of 72 men

was employed. In an endeavour to attract labour to the mine, the company has planned for the construction of a number of cottages for married employees. There is suitable accommodation for single men, but they seem to be of a roving disposition and only remain for short periods. Mining operations were confined to the 1A lode on Nos. 1, 2, 3, and 4 levels, and the development work carried out amounted to 800 feet of driving and 250 feet of rising. The southern extensions of this lode have now been linked up with shallow surface workings of the original company which ceased operations about 1890. The ore mined and treated totalled 10,477 tons from which, in the concentrating plant, a tin-wolfram concentrate was obtained with jigs and tables. The concentrate was magnetically separated to recover 166 tons of wolfram concentrate with a tungstic trioxide content of 120·46 tons, valued at £62,798·01 sterling. The tin concentrate is shown under the appropriate heading.

Aberfoyle Mine.—The production of wolfram was 98·3086 tons, and, with a tungstic trioxide content of 71·5661 tons, was valued at £37,903·65. The output was 24 tons of wolfram in excess of that for the previous year. Activities at this mine are reviewed under "Tin".

Miscellaneous, Avoca.—One parcel of wolfram concentrates was sold from this centre. It weighed 0·0999 ton, contained 0·0629 ton tungstic trioxide and was valued at £36·95 sterling.

Gold.

With the devaluation of the pound, the sterling price of gold rose to £12·4 per fine oz. during the latter part of the year. There was no production by the syndicate re-treating the old dumps of the Golden Gate Mine, Mathinna. Gold production was much less than for previous years, the appreciated price having no immediate effect on gold prospecting activities. Total gold output was 250·641 fine oz. valued at £2383·74 sterling.

Dorset Dredge.—As a subsidiary product from the tin concentrate, the Dorset Dredge was the largest gold producer in the inspectorate. From the treatment of the tin concentrate, gold bullion, containing 218·996 fine oz. of gold, was obtained, the sterling value being £2038·35.

Miscellaneous.—The remaining production of gold accrued from small operations on the various old goldfields of Lisle, Beaconsfield, and Lefroy, with a small amount from Flinders Island. Eight men found employment in gold mining activities. In some cases, activities were confined to prospecting only. The combined output of gold from these old fields, contained 31·645 fine oz., valued at £345·39 sterling.

Silver, Lead, and Zinc.

A syndicate, formed in Sheffield to carry out prospecting at the old Round Hill Mine, engaged in developmental activities on some lode formations. A small concentrating plant, consisting of jaw crusher, rolls, screens, and jigs, was also erected but, to the close of the year, there was no sale of any products.

Limestone.

Exclusive of limestone used in the manufacture of cement, 23,722 tons of limestone were produced at various quarries and used for conversion to burnt lime, agricultural purposes, and aerodrome runway construction.

Melrose Agricultural Lime.—The owner completed the taking over of the quarries and plant remaining from the activities of the Broken Hill Pty. Ltd. and carried on with the production of ground limestone for agricultural purposes. A contract was also entered into for the supply of crushed limestone for use in the construction of runways at the aerodrome being built to service the town of Devonport. This contract resulted in increased activity and an average number of 28 men was employed. The output of limestone was 16,512 tons, valued at £20,442 Australian currency.

Railton Limeworks.—Due to the large demand for building lime and lime for other purposes, there was an increase in production as compared with the previous year. Three men were employed and 2194 tons of limestone, valued at £902 Australian currency, were used in the manufacture of lime.

Beaconsfield Lime Products, Flowery Gully.—Owing to difficulty in obtaining necessary materials, this company did not proceed with re-organization to the extent programmed. However, eight men were given employment in the manufacture of ground limestone and burnt limestone, with the plant available. Limestone production amounted to 4636 tons, valued at £A2340.

Beams Bros., Flowery Gully.—Operating one old type lime kiln, this party produced burnt lime for building and agricultural purposes. Three hundred and eighty tons of limestone, valued at £A147, were converted to lime.

Cement.

Goliath Portland Cement Company, Railton.—The production of Goliath Cement and Tasbestos (Asbestos Cement Sheeting) was carried on continuously, and, in prosecuting these activities 111,024 tons of limestone and 1500 tons of iron ore were quarried and used. Difficulties in the supply of suitable asbestos fibre continued to limit the production of asbestos sheeting, although a considerable variety of sizes and shapes of sheets was produced.

At the cement plant, construction work was continued on the new bagging section and the asbestos sheet factory was enlarged and new office accommodation was completed.

The general offices were also being enlarged to satisfactorily house the additional staff required with the increased activties of the company.

Amenities, provided, were the installation of crib rooms in the mill and burning sections, new staff house, continuation of employees housing scheme and operation of a cafeteria. The Welfare Committee also purchased a piano for use at evening functions conducted in the cafeteria building.

An average of 182 persons was employed.

Clay.

Clay was produced for use in connection with paper and brick manufacture.

Endurance Clay Pit, South Mount Cameron.—The Endurance Tin Mining Company continued with the production of clay for the paper mills at Burnie. Normal sluicing was adopted in removing the overburden from the clay and the good quality white grit-free clay was bagged and forwarded to the Associated Pulp and Paper Mills, Burnie. Enquiries were made, without result, for a market for the fine textured clays at this pit which are unsuitable, in colour, for use in paper manufacture. Production of clay amounted to 5788 tons and was valued at £A16,691.

Haines Brick Works, Dulverton.—Eleven men were employed in manufacturing bricks, for which purpose 1929 tons of clay was quarried.

Inspector D. Besford, Hobart, reports:—

Employment.

The average number of persons directly employed in mines, works, and quarries, operating under the Mines and Works Regulation Act, was 2565, compared with 2378 for the previous year.

The distribution was as follows:—

Works	2,122
Coal mining	315
Quarries and brickworks	121
Osmiridium and tin	7
	2,565

Accidents.

Twenty-eight accidents, resulting in non-fatal injuries to a like number of persons, were registered under the provisions of the Mines and Works Regulation Act, Twenty-two accidents were associated with surface operations and six occurred underground.

The most serious accident occurred on the surface. In this case, a workman attempted to stop a moving truck of limestone, on an elevated tramway, when he was knocked off the platform to the ground below, a distance of about fifteen feet. The workman sustained a fractured pelvis and injuries to the head.

Another workman fell from the same elevated platform a few weeks later. When he withdrew a long pole, being used as a brake-stick, he fell backwards through a hole

in the platform which was left open to receive the material from the tipped trucks. He sustained severe head injuries. Fortunately, the accidents were not attended with fatal results, both men making a recovery from the injuries.

Only one accident was caused by a fall of ground in underground workings. A piece of coal fell from the "face" and struck a wheeler who was sitting on the floor of the place, waiting for the miners to fill the truck. He sustained injuries to the back.

Most of the accidents were of a minor nature and were the result of simple causes.

Safety.

Constant care was directed to the maintenance of safe working conditions, and every underground working place was visited at each inspection. In some cases it was considered necessary to withdraw workmen until work was carried out to make conditions safer.

Working places underground were regularly tested, by means of the flame safety lamp, for the presence of inflammable gas, but no gas was found. Tests were also made at several places in the old workings and at the edge of the "goaf" in the pillar workings but inflammable gas was not detected.

Quarry faces were regularly inspected and instructions were issued for any work deemed necessary to make the places safe for workmen.

Underground electrical equipment was regularly inspected and tested to ensure that it was maintained in safe working condition. When found faulty or defective, necessary repairs were ordered to be carried out before the equipment was allowed to be used.

Ventilation.

Main air currents were regularly tested by means of the anemometer to ensure that a sufficient quantity of air was produced. In some cases, leakages were discovered and steps were taken to eliminate the cause thereof.

Wet and dry bulb temperatures were recorded in every underground working place, and in only one case was the standard below that required by the regulations. This place was in an old pillar section and when the place broke through to an old roadway, the temperature of the air coming from the old roadway was 74 degrees Fahrenheit dry bulb and 73 degrees wet bulb temperature. This warm air increased the temperature in the working place to 71 degrees on the dry bulb and 70 degrees on the wet bulb. As the regulations provide that there must be at least two degrees difference between the wet and dry bulb at that temperature, the place was classed as unfit and the miners were withdrawn. It was necessary to provide a circulation of air to ventilate the place consequently it was decided to seal off the old workings, from which the heated air was escaping, and install an auxiliary fan. When this was completed, the place was found to be suitable for work, and the miners were allowed to resume. Later, the place was connected with the air course and conditions became normal.

The temperature of 71 degrees Fahrenheit was the highest temperature recorded in any place during the year, the next highest being 68 degrees on the dry bulb, which was also recorded in the same pillar section. With the exception of this pillar section, where only four parties of miners were employed, the temperature in any working place did not exceed 64 degrees on the dry bulb, with a corresponding temperature of 62 degrees on the wet bulb. The majority of the recordings were below 62 degrees dry bulb, and in some cases the temperature was down to 50 degrees dry bulb and 47 wet bulb.

Although temperature readings were low, it was sometimes found that working places were not sufficiently ventilated and it was necessary, in some cases, to withdraw workmen until measures had been taken to provide a brisker current of air.

Health and Sanitation.

Matters affecting health and sanitation have been given due attention, and where it was considered that conditions should be improved, the necessary improvements were ordered to be carried out.

Explosives.

The storage and use of explosives have been constantly checked, including the construction of new magazines. Instances of improper storage were remedied without recourse to legal proceedings. Some explosive, which was found to have deteriorated, owing to long storage, was destroyed.

In spite of the greatly increased number of shots in coal mines, no miss-fired shots were recorded during the year, and no accident occurred due to explosives.

Inflammable Liquids.

Conditions governing the storage and handling of inflammable liquids were kept under surveillance, and any observed irregularities were corrected without the necessity of legal proceedings.

Machinery.

Inspections and tests of underground electrical machinery were regularly carried out, at each periodical visit, to ascertain whether the equipment was in safe working condition. In some cases, the equipment was regarded as unsafe, and the necessary alterations and adjustments had to be carried out before the equipment was allowed to be used. New installations were made during the year. These were inspected and tested prior to use. In some cases, the new installations were found faulty, and were not allowed to be brought into service until the faults were remedied.

One case of electric shock was recorded when some workmen received slight shocks from the endless rope haulage and telephone equipment. A fall occurred in one of the roadways, and buried the main supply cable, which was of the four-core lead covered type. The cable was damaged, and a short circuit occurred, causing the earth leakage equipment to operate and open the main switch at the surface. Although the haulage rope did not approach within several chains of the damaged cable, some workmen reported receiving slight shocks when handling clips attached to the under-rope haulage, more than a mile distant in the underground workings. Another workman received a slight shock when he lifted the telephone receiver. It was assumed that the current had travelled through the endless rope and back to the earthing system at the transformer, the circuit being completed in part through the earth. The telephone system was of the earthed type. This system was discontinued and another telephone wire was installed, from the surface, in order to prevent a recurrence.

Operations and Production.

The total production of coal was 181,618 tons valued at £181,897 at the mine bins. An average number of 315 persons was employed at the mines. The corresponding figures for the previous year were 179,393 tons, valued at £177,652 and 274 persons.

The output was again a record in spite of the loss of production for a period of seven weeks due to a strike.

Increased production was recorded from fifty per cent of the working mines. The Fingal Coal Mine accounted for the greatest increase, the output rising by 3000 tons, representing an increase of 34·6 per cent. An average increase of 36 per cent in the number of employees accounted for the greater part in the increased production, but the average output per underground employee also increased. The Duncan Coal Mine, at Fingal, also increased production by 2440 tons, representing an increase of more than 76 per cent, chiefly due to an increase of 100 per cent in the number of persons employed. The Jubilee Coal Mine, at St. Marys, increased production by 1409 tons, representing an increase of about 7 per cent. This mine employed 13 per cent more persons but the output per underground employee remained about the same as in the previous year. The Merrywood Coal Mine increased production by about 850 tons, representing an increase of 19 per cent. Sandfly Coal Mine increased production by about 650 tons which was 86·5 per cent greater than the prevous year, and Dalmayne Coal Mine increased production by 577 tons, an increase of 32·6 per cent with an average increase of 35 per cent in the number of persons employed.

The greatest reduction in production was recorded at the Stanhope Coal Mine where the output was lowered by 2244 tons, representing a reduction of 19 per cent for approximately the same average number of employees. The Langloh Coal Mine showed a decrease of more than 1900 tons, a reduction of 25·7 per cent for the same number of employees. The Mount Nicholas Coal Mine recorded a decrease of 1759 tons, representing a reduction of 7 per cent although five more men were employed. The Cornwall Coal Mine showed a reduction of 668 tons and employed an average of 9 per cent more employees, but the output per employee increased for the first two

quarters prior to the strike, while the output per underground employee for the first, second, and last quarters showed a large increase. The small mines in the North-West also showed a reduction in output owing to the strike.

The loss in output for the strike period can be calculated at about 70 tons per employee which represents a loss of more than 22,000 tons, therefore the production for the year would have exceeded 200,000 if the mines had worked normal time.

Fingal-Mount Nicholas-Dalmayne Coalfield.—The total production from this coal field was 158,065 tons, which represents 87 per cent of the State's coal production; nearly 5200 tons more coal was produced, although seven weeks were lost owing to the coal strike.

The Cornwall Coal Mine produced 93,551 tons, valued at £84,196 at the mine bins, and employed an average of 128 persons. The corresponding figures for the previous year were 94,219 tons, valued at £84,797, and 116 persons.

Operations continued on the same lines as in the previous year, but a reduced number of miners was engaged on pillar extraction. A small output was obtained from the Blue Seam, where the workings are fast approaching the boundary.

The Mount Nicholas coal mine produced 23,320 tons, valued at £20,989, and employed an average of 46 persons, compared with 25,079 tons, valued at £22,571, and 41 persons for the previous year.

The opening of the 6-feet seam continued, and more miners were engaged in production from this level. The roof conditions improved in the workings as they advanced into the hill.

Faulting occurred in the Main Seam and prevented the development of the workings to the east of the Main Tunnel. The Main Return Airway deteriorated and several falls occurred, necessitating the reconditioning of a large section of the road in order to provide a suitable second means of egress from the workings.

Production continued from the 8-feet seam on the lower level, where conditions remained fairly constant, very little faulting being encountered.

The Jubilee Coal Mine produced 20,841 tons, valued at £21,988, and employed an average of 44 persons, compared with 19,432 tons, valued at £19,483, and 38 persons for the previous year.

Operations continued on the same lines as in the previous year. Frequent faulting was encountered, retarded the development of the Main Heading Section and caused upsets in the ventilation. One place completely collapsed and closed the airway, which had to be re-opened by driving another roadway around the fallen section. In spite of these difficulties and the stoppage due to the strike, the output was only about 1000 tons below the record output of 21,880 tons produced in 1943 when 47 persons were employed.

Arrangements are to be made for opening up another airway to the surface, on the west side of the Main Heading, in order to increase the quantity of air to adequately ventilate the workings.

The Dalmayne Coal Mine produced 2345 tons, valued at £2945, and employed an average of seven persons compared with 1768 tons, valued at £1706, and four persons for the previous year.

The production continued from the two development headings, which were advanced to the south-east. These headings were dipping slightly, and the inflow of water caused considerable inconvenience and loss in production, as it had to be pumped out by hand pumps. Arrangements are to be made to install a suitable electric pump in order to handle the water. This should improve the conditions in the headings. Another outlet to the surface is required in order to provide suitable ventilation.

The Fingal Coal Mine produced 12,367 tons, valued at £14,608 and employed an average of 15 persons, including the two men engaged in transporting the coal from the mine bins to the railway siding at Fingal. The corresponding figures for the previous year were 9187 tons, valued at £10,099, and 11 persons.

This mine had the largest increase in production, being an increase of 34·6 per cent. The average yearly output per person employed underground showed an increase in spite of the seven weeks stoppage. This was chiefly the result of the installation of electric drills to replace hand boring methods previously employed. No new developments were undertaken and the output continued to be produced from places, in the Main Heading, being worked on the Bord and Wall system.

The Duncan Coal Mine produced 5641 tons, valued at £5077, and employed an average of 12 persons, compared with 3201 tons, valued at £2881, and six persons for the previous year. Production represented a 76 per cent increase but such was chiefly the result of a 100 per cent increase in the average number of persons employed. The output was obtained from the same development headings, as in the previous year, and additional men were engaged on the afternoon shift in order to drive the headings in the main area. Some men were engaged in driving another roadway to the surface in order to provide a suitable haulage road and intake airway.

Avoca Coalfield.—The Stanhope Coal Mine produced 9535 tons, valued at £9447, and employed an average of 27 persons. Figures for the previous year were 11,779 tons, valued at £13,982, and the same number of persons.

Faulting was encountered in the Main Heading and also in some roads to the right of the Main Heading. As the fault cut off these workings, some pillars were extracted and the workings were abandoned. All the workmen were then engaged in the workings to the left, where the seam remained fairly constant except for an occasional fault. The Main Return Airway developed into very bad repair and falls of grounds occurred along some portions thereof. Repairs had to be made and in some cases it was necessary to re-open the airway in order to provide a satisfactory means of egress.

The Merrywood Coal Mine produced 5241 tons, valued at £5449, and employed an average of seven persons, compared with 4402 tons, valued at £4394, and six persons for the previous year.

A small electric generator and suitable electric drills were installed and electic boring replaced hand boring methods underground. Overburden removal was suspended and all production came from the underground workings. New bins were erected in front of the old tunnel and haulage was recommenced from this tunnel as the adit near the open cut workings became unsafe and had to be abandoned. Transport from the mine to the railway siding at Avoca continued to cause delays, owing to breakdowns of motor vehicles. A large diesel motor lorry has been ordered to transport the coal from the mine bins to the railway siding.

Upper Derwent Coalfield.—The Langloh Coal Mine, at Hamilton, produced 5606 tons, valued at £10,636, and employed an average of 20 persons. The corresponding figures for the previous year were 7545, tons, valued at £12,218, and the same number of persons.

Production continued, on the same lines as in the previous year, from a seam which remained fairly regular. Some delays were experienced due to breakdowns of the machine, and also due to the collapse of a section of the brace, the uprights of which had, apparently, rotted below the surface level. Repairs to the structure caused production to cease for three weeks.

Sandfly-Cygnet Coalfield.—The Sandfly Coal Mine, at Kaoota, produced 1399 tons, valued at £2487 at the mine bins, and employed an average of three persons, compared with 750 tons, valued at £1779, and the same number of persons for the previous year.

Mining continued on the same lines as in the previous year, the workings being free from any large faults. Roof conditions became bad in the workings to the right of the main dip tunnel, and work was abandoned, but a new road is to be advanced further down, and an attempt will be made to drive this road to the surface, in order to provide another outlet and airway.

The Mersey Coalfield.—The output from this field was 1772 tons, valued at £4075 and seven men were employed. Figures for the previous year were 2031 tons, valued at £3743, and the same number of persons.

Production was obtained from the same small coal mines where conditions remained the same, small faults being met with in both mines.

Ore Treatment.

The Electrolytic Zinc Company treated 167,727 tons of imported and Tasmanian calcines at the Risdon works, compared with 173,125 tons for the previous year. The reduced throughput was due to shortages chiefly caused by shipping delays, whilst some delays were also caused by power failures.

Zinc recovery amounted to 80,956 tons having a gross value of £3,400,152. Cadmium production was 215·35 tons, having a gross value of £244,160 and 14·2 tons of cobalt oxide was recovered, valued at £6532. The production of superphosphate was increased to 45,000 tons, and zinc sulphate production was also increased.

No. 1 Flash Roasting Furnace continued to operate successfully after the initial difficulties were overcome, and the first unit of the Contact Acid Plant gave good results, with a consequent increase in the production of sulphuric acid. Work is proceeding on the erection of No. 2 Flash Roasting Furnace, and also on a second unit of the Contact Acid Plant. Excavational work was commenced, towards the close of the year, in preparation for the erection of plant to produce ammonium sulphate. Work was also commenced on the provision of a new storage reservoir to hold twenty million gallons of water, to supply water necessary when the new ammonium sulphate plant commences production. The material produced in excavating for the new plant is used for constructing the dam.

Carbide and Limestone.

The Australian Commonwealth Carbide Company produced 8757 tons of calcium carbide, valued at £246,679, and employed an average of 162 persons. The corresponding figures for the previous year were 9202 tons, valued at £240,331 and 156 persons. The reduced output of carbide was the result of a short supply of materials, chiefly coke, the supply of which was affected by the coal strike.

Owing to the reduced production of carbide, the carbon black factory was shut down for several months.

The installation of a new electric furnace continued at a slow rate, due chiefly to labour shortage, but it is expected that the furnace will be completed during the coming year.

Limestone.

Production of limestone amounted to 29,667 tons, valued at £26,592 at the quarry, and an average of 51 persons was employed, as compared with a production of 24,651 tons, valued at £26,709, and 46 persons for the previous year.

A total of 17,070 tons was delivered to the Carbide Works, at Electrona, for use in the manufacture of calcium carbide, compared with a delivery of 18,650 tons for the previous year. Nearly 11,000 tons were delivered to the Electrolytic Zinc Company at Risdon. The balance of the output was used for building and agricultural purposes.

Only 61 tons of granite were produced from the quarry at Coles Bay, as compared with 159 tons for the previous year. The quarry worked for only two quarters, owing to labour difficulties.

Osmiridium.

The production of osmiridium from Adamsfield was 39·3 oz., valued at £914, and an average of about four men was employed. Production for the previous year was 92·39 oz. The reduced output was due mainly to a smaller number of claims being worked. Byrne's shaft workings did not produce. These workings were responsible for a large proportion of the output of osmiridium during the previous year. The workings are now full of water but, with the necessary labour, could be quickly brought into production.

Tin.

Metallic tin, in tin-oxide produced at Cox Bight, was 2·796 tons, valued at £1802, and three men were employed, as compared with 4·13 tons, valued at £2274, and four persons for the previous year.

Kaolin.

The production of kaolin, from Surges Bay, amounted to 1528 tons, valued at £7930, and an average number of five persons was employed. Figures for the previous year were 1278 tons, valued at £6118, and the same number of persons. The clay is produced from surface workings and is supplied to the Associated Pulp and Paper Mills at Burnie.

Quarries.

The average number of persons employed in quarries, operating under the Mines and Works Regulation Act, was 121, as compared with 137 for the previous year. All quarries and brickworks were short of the necessary labour and the production of materials was less than that for the previous year.

APPENDIX VI.

REPORT OF THE MOUNT CAMERON WATER-RACE BOARD FOR THE YEAR ENDED 31ST DECEMBER, 1949.

SIR,

We have the honour to submit the report of the Mount Cameron Water-Race Board for the year ended the 31st December, 1949.

Production of tin-oxide from all activities, serviced by the race, was 20·2926 tons, as compared with 30·9401 tons for the previous year, representing a decrease of 10·6475 tons. The output under the fixed scale of payment for water was 9·3094 tons and that under the royalty scale was 10·9832 tons, representing decrease of 2·0254 tons in the former and 8·6221 tons in the latter productions.

Revenue was £1089 12s. 7d., as compared with £1612 7s. for last year. Included in the revenue was an amount of £39 received from the sale of pipes and valves.

Expenditure was £1708 18s. 3d., as against £1115 0s. 8d. for the previous year, the increase being due mainly to increments in salaries and wages, payment of wages in lieu of long-service furlough and payment of a retiring allowance to a channel-keeper.

There was a loss of £243 16s. 7d. on the normal working of the race system but this was increased to a deficit of £619 5s. 8d. as the result of a payment of £375 9s. 1d. to a channel-keeper as a retiring allowance and in lieu of long-service furlough. A special appropriation was made for additional expenditures of £647 19s. 9d. on the cleaning and conditioning of races and £1192 2s. 3d. on completing a duplication of the Edina Syphon, building of new intake and outlet boxes and repairs to the existing syphon. Including all expenditure, the overall deficit was £2459 7s. 8d.

Depressed revenue from normal activities was due largely to the sharp decline in the output of tin-oxide by users of water under the royalty scale of payment, a consequence of less production by a major operator and a lowering in the number of producing parties. On a unit basis of 100 sluicehead-weeks the output was 0·588 ton under the royalty scale and 1·591 tons under the fixed scale, but revenue under the former was £72·34 per ton of tin-oxide as compared with £27·5 per ton of tin-oxide under the latter scale of charges. With the object of easing the disparity between payments for water, a regulation was enacted to lift the charge for water under the fixed scale from sixteen to twenty shillings per sluicehead but the period of operation of the new charge was insufficient to reveal the relative effect thereof.

Races.

Race conditioning was continued as circumstances permitted and the planned programme of rehabilitating the main system was completed. With minor exceptions, the branch races are in reasonably good order.

Syphons.

As was expected, the No. 3 Syphon, across the Ringarooma River, collapsed and, although the township of Gladstone was deprived of a supply of water for garden and domestic purposes, a timely duplication of the Edina Syphon averted a loss of water for mining operations. Restoration of No. 3 Syphon would involve complete replacement at a high cost. It was considered inappropriate to proceed with restoration until such time as there are mining prospects of sufficient magnitude on the western side of the Ringarooma River to merit the expenditure. The Amber Creek Syphon is being re-conditioned, deteriorated sections being replaced with sections from the Cybele Syphon, which is not required in the present working of the system.

Flumes.

Necessary maintenance work has been carried out and all flumes are in good order.

Dams and Culverts.

All dams and culverts were held in good condition.

General.

The average rainfall was five inches greater than that for the previous year and distribution was more equitable, following duplication of the Edina Syphon and race conditioning. There were no further developments in the use of hydro-electric power for mining purposes.

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

W. H. WILLIAMS, Chairman of the Board.

V. C. DAWE, } Members.
CECIL G. RYAN, }

The Hon. the Minister for Mines,
Hobart.

STATEMENT FOR THE YEAR ENDED 31ST DECEMBER, 1949.

Rainfall.

The registered rainfall for the year was as follows:—

Great Mussel Roe	35 inches 94 points
Little Mussel Roe	35 inches 88 points

Revenue.

Revenue from the sale of water for mining purposes was £1050 12s. 7d., representing a decrease of £559 10s. 5d., as compared with that for the previous year. Total revenue, from all sources, amounted to £1089 12s. 6d.

Disbursements.

Expenditure amounted to £1708 18s. 3d., representing an increase of £593 17s. 7d., as compared with that of the previous year.

Statistics.

The statistics for the year are as follows:—

Average number of claims supplied per week	4
Greatest number supplied in any one week	6
Total number of heads supplied:—	
Fixed or cash scale	585
Royalty or credit scale	1,864

Tin ore raised:—

	tons.	cwts.	qrs.	lbs.
Under fixed scale	9	6	....	21
Under royalty scale	10	19	1	24
	20	5	2	17

Average number of men employed per week—10.

Statement of Receipts and Payments of the Mount Cameron Water-Race Suspense Account for the Year Ended 31st December, 1949.

Receipts.

	£	s.	d.
Water sold under fixed scale	256	1	4
Water sold under royalty scale	794	11	3
Sale of pipes and valves	39	0	0
	1,089	12	7
Balance—Excess of payments over receipts	619	5	8
	£1,708	18	3

Payments.

	£	s.	d.
Salaries and wages	1,174	1	6
Pay-roll tax	33	18	11
Repairs, main race and culverts	40	19	5
Tools for use on race	5	1	3
Car allowance for Manager	45	14	8
Cartage and freight	8	11	6
Repairs to cottages of channel-keepers	8	11	8
Insurance	12	12	11
Expenses annual meeting	0	11	0
Advertising	2	9	10
Telephones and postages	0	16	6
Payment in lieu of long-service furlough	184	3	8
Retiring allowance	191	5	5
	£1,708	18	3

L. G. SHEA, Acting Government Printer, Hobart, Tasmania.