

TASMANIA

TABLE OF CONTENTS

REPORT

OF THE

DIRECTOR OF MINES

FOR

YEAR ENDED 31ST DECEMBER

1943

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



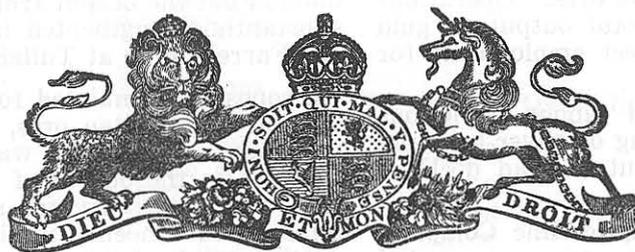
TASMANIA:

H. H. PIMBLETT, GOVERNMENT PRINTER, HOBART

1945,

TABLE OF CONTENTS.

	PAGE.
Annual Report of the Director of Mines	3
Mineral Production	3
Aluminium	5
Shale	5
Quantity and Value of Minerals	6
Asbestos	7
Barytes	7
Bismuth	7
Coal	7
Cadmium	8
Copper	8
Cement, Carbide, and Limestone	8
Gold	9
Iron Pyrites	9
Limestone	9
Granite (Red)	9
Kaolin	9
Lead	10
Nickel	10
Ochre	10
Osmiridium	10
Shale	11
Scheelite	11
Silver	11
Talc	12
Tin	12
Wolfram	12
Zinc	12
Quantity and Value of Metals and Minerals Raised to 1943	13
Statistics of Production	14
Statistics of Mining Companies	14
Mining Companies Registered	14
Leases and Licences in Force	14
Total Revenue	14
Land and Water Applied for: Total Area and Sluiceways	15
Number and Area of Leases and Licences Issued	15
Net Revenue: Comparative Statement	15
Number and Area of Leases, 1928-1943	16
Average Annual Prices of Minerals	17
Aid to Mining	18
Drilling	19
Drilling Results	19
Departmental Activities	20
Drafting Branch	20
Staff	20
Appreciation of Services	20
Report of Geological Survey	21
Report of Chief Chemist and Metallurgist	25
Report of Acting Chief Inspector of Mines	29
Report of Acting Chief Inspector of Explosives	31
Accident Statistics	30
Reports of Inspectors of Mines	31
Report of Mt. Cameron Water-race Board	43



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 the 31st December, 1943.

MINERAL PRODUCTION.

The total value, in Australian currency, of the output of minerals and mineral products was £3,266,668, as compared with £3,392,583 for the previous year, representing a decrease of £125,915.

Sharp declines were recorded in the production of copper, lead, silver, scheelite, tin, and zinc but there was a recovery in the output of wolfram, and major developmental programmes should result in an early increase in the production of scheelite and tin.

The combined output of carbide, cement, and limestone was less but a short supply of materials for industries, absorbing non-metallics, attracted more attention to potential resources and there was an increase in the production of asbestos, dolomite, kaolin, ochre, and silica.

Coal mining was free from industrial stoppages and the output reached a new high-level of 145,882 tons, production being stepped-up to meet a deficiency accruing from restricted importations of mainland coal.

The number of men employed in mining, quarrying, and metallurgical operations was 5535, as compared with 5572 for the previous year. A small number of men was released from military services and works for employment in mines but these transfers were insufficient to balance diversions and wastages, and there was a continued shortage of labour in the mining industry.

The Electrolytic Zinc Company of Australasia Limited was in continuous operation at Risdon, in processing zinciferous calcines imported from the mainland and accruing from the calcining of concentrates recovered from the selective flotation of Tasmanian ores. Production from imported calcines was 51,266 tons of slab zinc, valued at £1,179,118; 117.23 tons of metallic cadmium, valued at £52,537; and 13.695 tons of cobalt

oxide, valued at £6300. Calcines actually processed from Tasmanian ores returned 24,490 tons of slab zinc, 43.55 tons of cadmium, 1315 tons of lead, 165,850 oz. of silver, and 0.66 ton of cobalt oxide. An average number of 1639 men was employed at these works.

The Tasmanian ores resulted from continuous exploitation of the extensive occurrences of complex zinc-lead sulphides at the Rosebery and Hercules mines on the West Coast, where an average of 425 men was employed in mining, milling, and calcining operations. The combined quantity of ore mined was 151,963 tons. Selective flotation resulted in the production of 44,827 tons of zinc concentrates, 9056 tons of lead concentrates, and 4785 tons of copper concentrates. The recoverable quantity of metallics was fixed at 21,078.8 tons of zinc; 6973.56 tons of lead; 464.38 tons of copper; 40.34 tons of cadmium; 879,185 oz. of silver; and 9519 oz. of gold. Lead concentrates were exported and zinc concentrates were calcined at Zeehan and despatched to Risdon for processing.

The production of copper concentrates accrued more from the selective stripping of the complex zinc-lead ores than from the mining of copper-sulphide sections of the ore bodies, at the Hercules Mine, as initially innovated for stepping-up the output of copper for war purposes.

The Mount Lyell Mining and Railway Company Limited again functioned as the major producer of copper. The output of crude ore, from surface and underground mining, was 1,528,337 tons, being 3737 tons less than for the previous year. Due mainly to reduced activities at the Lyell-Comstock Mine, ore extracted from underground workings was 25,957 tons less, whereas an additional 22,220 tons of ore accrued from an expansion in open-cutting and innovations to the transport system. At the concentration plant 1,525,079 tons of ore was processed for a selective recovery of 46,619 tons of copper-sulphide concentrate and 50,365 tons of iron-pyrite concentrate. The copper concentrate, together with 3258 tons of high-grade siliceous ore from the North Lyell Mine and a quantity of copper precipitate extracted from mine waters, was smelted for a recovery of 10,758 tons of blister copper. Normal operations at the refinery resulted in an output of 10,684 tons of electrolytic copper and the cell residue returned 7220 oz. of gold and 44,321 oz. of silver. Of the iron-pyrite concentrate, recovered

by selective flotation of low-grade ores, 33,203 tons were exported for use in the manufacture of fertilisers. Activities continued to be characterised by progressive advances in mining and metallurgical practices as applied to the handling of large volumes of low-grade ores. Operations substantially added to the total output of gold and silver, and afforded direct employment for 1577 men.

Marketing disabilities and labour depletions continued to retard the mining of silver-lead and zinc-lead ores, and the output of lead declined from 9360.42 to 8632.72 tons.

Operations by the Electrolytic Zinc Company at the Rosebery and Hercules mines accounted for the greater portion of the output. The Farrell Mining Company maintained an overseas market but the throughput of ore declined to 9648 tons owing to the labour shortage. Ore treatment resulted in a recovery of 2250 tons of silver-lead concentrate, containing 1659 tons of lead and 193,070 oz. of silver.

Conditions of marketing were adverse to operations at small silver-lead mines and there were no developmental or productive activities.

Metallic tin, in the product from lode and alluvial mining, was 948.817 tons, valued at £246,218 sterling. The output was 199.231 tons less than for the previous year. Diversions of labour from the industry, closing down of small mines, and an absence of new producers largely contributed to the decreased output.

The Briseis Consolidated and the Endurance Company, operating on tin alluvials, and the Aberfoyle Tin No Liability, operating on a lode series, continued as the principal producers. These operations resulted in an output of 612.65 tons of metallic tin.

Hydraulic mining was continued by the Goshen Tin Mining Company on tin alluvials in the St. Helens district; quantities of tin oxide resulted from operations on the wolfram-tin lodes at the Storey's Creek Mine; productive mining was continued by Renison Associated Tin Mines on the tin-pyrite ore bodies at Renison Bell, and the Mount Bischoff Tin Mine was held in active production by the Commonwealth Mineral Production Directorate. The output of concentrate from these operations accounted for 204.25 tons of metallic tin.

Small mines, miscellaneous parties, and individual operators continued to be engaged on alluvial, lode, and granitic occurrences throughout the State. These activities were of collective importance in tin mining, the recorded output being 131.9 tons of metallic tin.

A forward move was made in the implementation of proposals formulated for stabilising the declining output of tin. The production decline should disappear in western and north-western areas but the output of tin will further decline in the north-eastern tin fields and recovery will be dependent upon continued activities by major producers, re-habilitation of small producers, and results attending the inauguration of large-scale dredging of the tin-alluvials of Dorset Flat, which venture should materialise towards the close of the coming year.

In quantity and value, silver continued as an important produce but the output was governed by activities in base-metal mining and as these activities declined the output of silver receded to 1,116,575.67 oz., valued at £117,241, as against

1,190,061 oz., valued at £124,955 sterling, for the previous year. Operations by the Electrolytic Zinc Company, on zinc-lead ores at Rosebery, and by the Mount Lyell Company, on copper ores at Queenstown, contributed largely to the total production but the output from those operations was substantially augmented by silver-lead ore from the Farrell Mine at Tullah.

Proposals formulated for stepping-up the production of tungsten ores, to assist in balancing the short supply for war requirements, were effective in the output of wolfram, but preparatory work necessary for stimulating the output interrupted scheelite mining activities and production will be depressed until mining and milling practices have been reconstructed. The output of wolfram increased from 183 to 230 tons but the production of scheelite receded from 215 to 199 tons.

The depressed production of scheelite was due to the inception of a reconstructional programme at the King Island Scheelite Mine. The current scale of operations resulted in the open-cutting of 29,500 tons and the milling of 29,180 tons of ore for a recovery of 199 tons of scheelite concentrate for the year, whereas it is planned to mine and mill 20,000 tons of ore for a calculated recovery of 120 tons of scheelite concentrate per month. The reconstructional programme comprises a major development in the mining industry.

A correction of the labour shortage at the Storey's Creek Mine resulted in a reversion to two shifts and an inversion of the declining output of wolfram. Ore mined and milled totalled 10,536 tons and resulted in a recovery of 143 tons of wolfram and 55.45 tons of tin-oxide concentrates. Lode dimensions and values were maintained and the mine potential was enhanced by underground developments.

The quantity of ore mined and milled at the Aberfoyle Mine was 16,462 tons. Concentrates marketed were 84.58 tons of wolfram and 347 tons of tin-oxide. Operations were characterised by a progressive policy of mining and milling innovations.

The balance of the output of wolfram accrued from operations at small mines in the Moina district.

The recorded output of gold was 17,245.25 oz., valued at £144,860 sterling, as compared with 18,353.36 oz., valued at £154,168 sterling, for the previous year.

The major portion of gold was recovered from copper ores, mined by the Mount Lyell Company; from zinc-lead ores, produced by the Electrolytic Zinc Company; and from the cyanidation of tailing dumps at the Golden Gate Mine. Small quantities of gold accrued from the working of auriferous alluvials, the cyanidation of old tailings, and the processing of tin-oxides recovered from the sluicing of gold-bearing stanniferous alluvials. Production from the major activities was 17,140.39 oz. and from miscellaneous operations 104.86 oz. of fine gold.

Conditions of marketing were stabilised and the price of osmiridium was stepped-up to £A28.283 per oz. net to the producer in an endeavour to stimulate production but the absence of new discoveries, gradual exhaustion of ground within the working capacity of small claimholders and a continued drift of miners from the various fields resulted in a further decline in production, the

recorded output being 89·695 oz., as compared with 142·094 oz. for the previous year. Adamsfield was the principal field of activities and two sluicing projects were financially assisted in order to appreciate the production for war-time requirements.

The Australian Commonwealth Carbide Company at Electrona, the Goliath Portland Cement Company at Railton, and the Broken Hill Proprietary Company Limited at the Melrose Quarries continued as the principal producers of calcium carbide, cement, and limestone. The total output of combined products was 195,101 tons, valued at £356,947, as compared with 239,951 tons of products, valued at £395,114 for the previous year. There was a decrease of 255 tons in the output of calcium carbide and a reduction of 35,472 tons in the quantity of limestone exported for the iron and steel industry, largely as the result of labour depletions. Cement production continued to be affected by war-time restrictions in building industries and public works.

The manufacture of calcium silicide from Tasmanian materials was continued by the Australian Commonwealth Carbide Company and the output remained constant at 417 tons, valued at £35,393.

An establishment of new industries and expanding requirements of existing industries continued to create interest in the potential resources of asbestos, bauxite, dolomite, kaolin, limestone, silica, ochre, and other members of the group of non-metallic minerals.

Kaolin, other than clay used in the manufacture of bricks, agricultural and sewerage pipes, and earthenwares, was produced in increasing quantities for State industries, including the manufacture of paper. The quantity marketed was 557 tons greater than that for the previous year.

Ochre mining, revived during the previous year, was more active and 380 tons was exported.

A test parcel of 10 tons of dolomite was exported and it is expected that a more active interest will be directed to production possibilities, initially for the purpose of refractories.

An extraction plant was installed and the mining and milling of asbestos-bearing serpentine was commenced at Zeehan, the recorded production of asbestos being 18·25 tons. An increase in the output is anticipated.

The quantity of high-grade silica used in metallurgical industries and in the manufacture of calcium silicide was 8184 tons of which 295 tons was exported.

Settled industrial conditions prevailed in coal mining and the output of 145,882 tons was a record in the history of coal mining in the State. The war-time development of Tasmanian coals

has further demonstrated their suitability for the fuel requirements of several industries where imported coals were formerly used.

The Cornwall Coal Company continued as the major producer and increased activities resulted in an output of 99,150 tons, as compared with 94,265 tons for the previous year. Pillar extraction and developmental work accounted for 81,700 tons at the Cornwall Colliery, whilst 17,450 tons resulted from mechanised coal-winning at the Mount Nicholas Colliery.

General advancement of faces resulted in an output of 21,880 tons at the Jubilee Coal Mine. It is proposed to instal a modern coal-cutting machine to substantially increase the output.

Mechanised coal-cutting resulted in an increase in the output from 7502 to 10,481 tons at the Stanhope Colliery.

Production was resumed, under new ownership, at the Langloh Coal Mine and 2935 tons of coal was marketed. It is proposed to mechanise production as soon as the colliery is suitably equipped.

The balance of the output of coal accrued from operations at small collieries in the eastern, southern, and north-western districts but there were no new developments in connection with these activities.

Developmental and productive operations are reviewed, in detail, by district inspectors in the appended reports.

ALUMINIUM.

The proposal to establish an aluminium production industry within the Commonwealth induced additional interest in the bauxite resources of the State. Initial investigations, to determine possible volume-grades and the amenability of known ore to normal alumina extraction processes, were followed by preliminary surveys of new locations of deposits of bauxite, in order to arrange a set-up in grade variations for the purpose of planned developmental work in the event of the indicated grades of ore being accepted by aluminium technicians as satisfactory for the economics of the industry. Investigations continued to indicate that a large volume of bauxite would be available from deposits in southern, northern, and north-western parts of the State.

OIL-SHALE.

Attention continued to be focussed on the possibilities of utilising oil-shales of the Mersey Valley for the extraction of fuel oils but the low-grade nature of the shale, under necessary methods of mining, retarded the establishment of an industry.

QUANTITY AND VALUE OF MINERALS.

STATISTICS RELATING TO THE MINING INDUSTRY FOR THE YEAR ENDING 31ST DECEMBER, 1943.

(No. 27.)

Mineral.	MINERAL DIVISIONS.					Total Quantity.	Value.
	Northern and Southern.	Eastern.	North-Eastern.	North-Western.	Western.		
Asbestos (tons)	....	....	....	....	18·25	18·25	£ 365
Bismuth (tons)	....	....	....	·309	....	·309	241
Coal (tons)	4,074	138,518	....	3,290	....	145,882	117,361
Cobalt Oxide (tons)	....	....	....	....	·66	·66	304
Copper (tons)	....	....	....	....	11,148·38	11,148·38	691,199
Cadmium (tons)	....	....	....	....	40·34	40·34	18,072
Carbide, Cement, and Lime-stone (tons)	16,639	....	....	172,803	5,659	195,101	356,947
Dolomite (tons)	....	....	....	10	....	10	25
Gold (fine oz.)	44·42	401·413	32·28	....	16,767·14	17,245·253	144,860
Graphite (tons)	....	....	....	7	....	7	10
Haematite (tons)	....	....	....	7	....	7	14
Kaolin (tons)	382	....	....	1,273	....	1,655	2,438
Lead (tons)	....	....	....	....	8,632·72	8,632·72	215,817
Monazite (tons)	....	....	32·5	....	....	32·5	486
Ochre, Yellow (tons)	....	....	....	344	....	344	1,591
Ochre, Red (tons)	....	....	....	36	....	36	90
Osmiridium (oz.)	84·582	....	....	5·113	....	89·695	2,087
Pyrites (tons)	....	....	....	....	33,203	33,203	41,504
Scheelite (tons)	....	....	....	199·201	....	199·201	68,908
Silica (tons)	656	....	....	295	7,233	8,184	3,523
Silver (fine oz.)	....	....	....	....	1,116,575·67	1,116,575·67	117,241
Tin (tons)	3·743	347·717	446·856	77·480	73·021	948·817	246,218
Wolfram (tons)	....	227·640	....	2·385	....	230·025	82,965
Zinc (tons)	....	....	....	....	21,078·81	21,078·81	574,398
Total Value .....	....	....	....	....	....	....	£2,686,664
Total Value Australian Currency .....	....	....	....	....	....	....	£A3,266,668
Average Number of Men Employed	2,005	548	362	469	2,151	5,535	....

The Electrolytic Zinc Company of Australasia Limited recovered 51,266 tons of zinc, valued at £1,179,118; 117·2307 tons of cadmium, valued at £52,537; and 13·695 tons of cobalt oxide, valued at £6300, from other than Tasmanian ores; and employed an average of 1639 men at Risdon.
 The Australian Commonwealth Carbide Company, Electrona, produced 417 tons of calcium silicide, valued at £35,393.

ASBESTOS.

RETURN showing the Quantity and Value of Asbestos produced from 1899 to 1943 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
Total.....	3600·50	£7707

BARYTES.

RETURN showing the Quantity and Value of Barytes produced to 31st December, 1943.

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
1942-43.....	—	—
Total.....	2163·2	£8068

BISMUTH.

RETURN showing the Quantity and Value of Bismuth produced from 1904 to 1943 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.....	—	—
1923.....	—	—
1924.....	—	—
1925.....	—	—
1926.....	—	—
1927.....	—	—
1928.....	—	—
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
Total.....	82·083	£27,241

COAL.

RETURN showing the Quantity and Value of Coal raised to 31st December, 1943.

Year.	Quantity.	Value.
	Tons.	£
Previous to 1880.....	145,114	115,000
1880 to 1903 inclusive	767,261·5	659,010
1904.....	61,109	51,942
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
Total.....	4,414,115	£3,424,746

COPPER.

The production for the year was 11,148·38 tons, valued at £691,199.

RETURN showing the Quantity and Value of Copper in Blister Copper, Copper Ore, and Zinc Lead Ore during the Years 1919 to 1943 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.....	529·580	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
Total.....	993·960	61,618	228,196·742	13,143,189	402·827	9317	229,593·529	13,214,124

The Mount Lyell Mining and Railway Company Limited.
Return for the Calendar Year 1943.

Ore and metal-bearing material smelted:—	Tons (Dry).
Source of Material.	
Ore:—From the Company's North Lyell Mine	3,258
Concentrates:—From the Company's North Lyell Mine, Lyell Comstock Mine, Crown Lyell Mine, and West Lyell Mines ore	46,619
Purchased ore	—
Total	49,877

Source of Material.	Tons (Dry).
Limestone delivered at works (tons)	5,659
Silica delivered at works	7,033
Pyritic concentrate shipped from Regatta Point (tons), approximate value £A41,504	33,203
Blister copper produced, 10,750 tons, containing:	
Copper (tons)	10,684
Silver (oz.)	44,321
Gold (oz.)	7,220
Approximate value	£A1,114,628.
Average number of men employed—	
Mining Department—At the Company's	
North Lyell Mine	20
Ditto, Lyell Comstock Mine	60
Ditto, Crown Lyell Mine	—
Ditto, Royal Tharsis Mine	135
Ditto, West Lyell Mines	417
Miscellaneous	190
	822
Reduction Works Department (including Lake Margaret)	642
Railway Department—Mount Lyell Railway	112
Total	1,577

Copper produced from the inception of the Company to the 31st December, 1943, 386,789 tons.

Silver produced from the inception of the Company to the 31st December, 1943, 15,328,698 oz. (fine).

Gold produced from the inception of the Company to the 31st December, 1943, 481,996 oz. (fine).

Dividends paid during the year, £135,625 = 1s. 9d. per share.

Dividends paid from the inception of the Company to the 31st December, 1943, £6,549,694.

CADMIUM.

The quantity recovered was 40·34 tons valued at £18,072, compared with 41·39 tons valued at £18,462 for 1942.

RETURN showing the Quantity and Value of Cadmium recovered for the Years 1936 to 1943.

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
Total	435·10	£160,622

CEMENT, CARBIDE, AND LIMESTONE.

The combined value of output from these three industries amounted to £356,947, as compared with £395,114 for 1942.

GOLD.

The quantity won was 17,245·253 oz., fine, valued at £144,860, as compared with 18,353·364 oz., valued at £154,168 for 1942.

RETURN showing the Quantity and Value of Gold won to 31st December, 1943.

Year.	Quantity.		Value. £
	Oz.		
Previous to 1867 and up to 1879 inclusive.....	181,583	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	
Total	2,232,602·321	£9,592,251	

GRANITE (RED).

RETURN showing the Quantity and Value of Red Granite produced during the Years 1935 to 1943 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	2987	
1943.....	...	...
Total.....	2801·5	18,378	

IRON PYRITES.

RETURN showing the Quantity and Value of Iron Pyrites produced during the Years 1915 to 1943 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.....	—	—	
1925.....	—	—	
1926.....	—	—	
1927.....	—	—	
1928.....	—	—	
1929.....	—	—	
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	
Total	432,910·973	£523,759	

KAOLIN.

RETURN showing the Quantity and Value of Kaolin produced during the Years 1940 to 1943 inclusive.

Year.	Quantity.		Value. £
	Tons.		
1940.....	835·5	988	
1941.....	1130	1428	
1942.....	1098	1334	
1943.....	1655	2438	
Total.....	4718·5	6188	

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 8632.72 tons, valued at £215,817, as compared with 9360.42 tons, valued at £234,011 for 1942.

RETURN showing the Quantity and Value of Lead included in Silver Lead during the Years 1919 to 1943 inclusive.

Year.	Quantity.	Value.
	Tons.	£
1919.....	2357.142	64,403
1920.....	3855.642	142,268
1921.....	1434.794	32,241
1922.....	4925.880	118,257
1923.....	4786.057	127,542
1924.....	4559.110	154,881
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
Total.....	146,100.945	£3,370,487

NICKEL.

RETURN showing the Quantity and Value of Nickel produced from 1927 to 1943 inclusive.

Year.	Quantity.	Value.
	Tons.	£
1927.....	86.2	14,656
1928.....	10	1697
1929.....	85.44	14,765
1930.....	11.76	1999
1931.....	0.2	45
1932.....	0.55	136
1933.....	8.65	1948
1934-37.....	—	—
1938.....	19.75	3604
1939-43.....	—	—
Total.....	222.55	£38,850

OCHRE.

RETURN showing the Quantity and Value of Ochre produced during the Years 1918 to 1943 inclusive.

Year.	Quantity.	Value.
	Tons.	£
1918.....	100	200
1919.....	—	—
1920.....	—	—
1921.....	14	56
1922.....	—	—
1923.....	—	—
1924.....	20	50
1925.....	—	—
1926.....	38	69
1927-1941.....	—	—
1942.....	21	53
1943.....	380	1681
Total.....	573	£2109

OSMIRIDIUM.

The quantity of metal won during the year was 89.695 oz., valued at £2087, as compared with 142.094 oz., valued at £2930 for 1942.

RETURN showing the Quantity and Value of Osmiridium produced during the Years 1910 to 1943 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
Total.....	30,183.646	£651,571

SHALE.

RETURN showing the Quantity and Value of Shale produced during the Years 1910 to 1943 inclusive.

Year.	Quantity.		Value.	
	Tons.	£	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		
1936-1943.....	—	—		
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
1935-43	Tasmanite Shale Oil Company Ltd.....	—
	Total	357,115

SCHEELITE.

RETURN showing the Quantity and Value of Scheelite produced during the Years 1917 to 1943 inclusive.

Year.	Quantity.		Value.	
	Tons.	£	Tons.	£
1917.....	69	12,130		
1918.....	216	39,252		
1919.....	198·98	43,181		
1920.....	105·09	17,905		
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		
Total.....	1727·221	£384,043		

SILVER.

The output was 1,116,575·67 oz. (fine), valued at £117,241, as compared with £1,190,061·44 oz., valued at £124,955 for 1942.

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 1943 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	75,898	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
Total	14,934,928·55	1,716,417	2,945,551	389,450	232	25	44	4	1,823,989·11	191,729	19,706,744·66	2,297,625

TALC.

RETURN showing Quantity and Value of Talc produced during the Years 1928 to 1943 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.....	—	—
Total	105·6	315

WOLFRAM.

RETURN showing the Quantity and Value of Wolfram produced during the Years 1899 to 1943 inclusive.

Year.	Quantity.	Value.
	Tons.	£
1899 to 1903 inclusive	57·34	2157
1904.....	15·5	1147
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.....	143·57	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
Total	4703·471	£752,653

TIN.

The output was 948·817 tons, valued at £246,218, as compared with 1148·048 tons, valued at £297,919 for 1942.

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 1943 inclusive.

Year.	Quantity.	Value.
	Tons.	£
1873-1879 inclusive.....	16,429	1,054,923
1880 to 1904 inclusive	53,695·88	7,167,564
1905.....	2724·05	362,670
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.....	1809·899	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
Total.....	131,232·781	£20,291,246

ZINC.

RETURN showing the Quantity and Value of Zinc produced during the Years 1917 to 1943 inclusive.

Year.	Quantity.	Value.
	Tons.	£
1917.....	48	1968
1918.....	3822	152,880
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	181,242
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
Total.....	222,680·25	£5,201,518

ELECTROLYTIC ZINC COMPANY OF AUSTRALASIA LIMITED.

RETURN FOR THE YEAR 1943.

EXTRACTION FROM ORES AND CONCENTRATES:
RISDON.

<i>From other than Tasmanian Ores—</i>	
Zinc	51,266 tons
Cadmium	117·2707 tons
Cobalt oxide	13·6960 tons
<i>From Tasmanian Ores—</i>	
Zinc	24,490 tons
Cadmium	43·55 tons
Cobalt oxide	·66 tons
Lead	1,315 tons
Silver	165,850 oz.

*Men Employed—*The average number of men employed was
1639.

WEST COAST DIVISION.

<i>Ore Mined—</i>	Tons.
From Hercules Mine	47,741
From Rosebery Mine	104,222
Total	<u>151,963</u>

Concentrates Produced—

	Tons.
Zinc concentrates	44,827
Lead concentrates	9,056
Copper concentrates	4,785
Total	<u>58,668</u>

Recoverable Quantity in Ores Mined—

Zinc	21,078·85 tons
Lead	6,973·56 tons
Copper	464·38 tons
Cadmium	40·34 tons
Silver	879,184·89 oz.
Gold	9,518·99 oz.

Average Number of Men Employed—

Hercules Mine	82
Rosebery Mine	318
Zeehan Smelters	25
Total	<u>425</u>

QUANTITY AND VALUE OF METALS AND MINERALS RAISED.

RETURN showing Quantity and Value of Metals and Minerals Raised in Tasmania as at
31st December, 1943.

Mineral or Metal.	Quantity.	Value.
Asbestos	(tons) 3,600·50	£ 7,707
Barytes	(tons) 2,163·2	8,068
Bismuth	(tons) 82·083	27,241
Cadmium	(tons) 435·1057	160,622
Carbide, Cement, and Limestone	(tons) 2,328,883	3,087,389
Carbide to 1936 (now under Carbide, Cement, and Limestone)	(tons) 62,090	1,212,207
Cement to 1936 (now under Carbide, Cement, and Limestone)	(tons) 525,391	2,004,014
Coal	(tons) 4,414,115	3,424,746
Cobalt Oxide	(tons) 4·50	2,044
Copper (Blister) to 1918 (now shown under Silver and Copper)	(tons) 166,600	13,788,527
Copper Matte	(tons) 6,227	133,736
Copper Ore to 1918 (now under Copper)	(tons) 41,768·63	577,873
Copper (from 1919)	(tons) 229,593·529	13,214,124
Dolomite	(tons) 10	25
Gold	(fine oz.) 2,232,602·321	9,592,251
Granite (Red)	(tons) 2,801·5	18,378
Graphite	(tons) 17	26
Ilmenite	(tons) 550	1,256
Iron Ore	(tons) 46,177	31,770
Iron Pyrites	(tons) 432,910·973	523,759
Kaolin	(tons) 4,718·5	6,188
Lead (from 1919)	(tons) 146,100·945	3,370,487
Limestone to 1936 (now under Carbide, Cement, and Limestone)	(tons) 2,108,943	1,439,674
Manganese	(tons) ·6	3
Monazite	(tons) 32·5	486
Nickel	(tons) 222·55	38,850
Ochre	(tons) 573	2,109
Osmiridium	(oz.) 30,183·646	651,571
Red Oxide	(tons) 3·5	9
Scheelite	(tons) 1,727·221	384,043
Silica	(tons) 52,290	22,844
Shale	(tons) 41,572	31,231
Silver Lead to 1918 (now shown under Silver and Lead)	(tons) 1,083,897,821	6,429,291
Silver (from 1919)	(fine oz.) 19,706,744·66	2,297,625
Talc	(tons) 105·6	315
Tin	(tons) 131,232·781	20,291,246
Wolfram	(tons) 4,703·471	752,653
Zinc	(tons) 222,680·25	5,201,518
Total .....	.....	£88,735,906

STATISTICS OF PRODUCTION.

RETURN showing the Annual Published Value of Mineral Products for the State of Tasmania from 1880 to 1943 inclusive.

Year.	Value.	Year.	Value.
	£		£
1880	554,031	1914.....	1,007,038
1881	602,723	1915.....	1,225,575
1882	556,306	1916.....	1,521,050
1883	560,873	1917.....	1,582,322
1884	468,302	1918.....	1,597,694
1885	518,885	1919.....	1,301,090
1886	489,966	1920.....	1,421,104
1887	593,256	1921.....	822,851
1888	616,733	1922.....	1,013,415
1889	504,718	1923.....	1,219,456
1890	444,210	1924.....	1,496,804
1891	528,388	1925.....	1,700,861
1892	526,909	1926.....	1,808,847
1893	627,909	1927.....	1,621,027
1894	732,764	1928.....	1,593,828
1895	575,692	1929.....	1,790,653
1896	662,058	1930.....	1,270,114
1897	1,006,140	1931.....	894,986
1898	1,071,084	1932.....	897,168
1899	1,660,622	1933.....	1,053,373
1900	1,888,695	1934.....	1,037,351
1901	1,763,896	1935.....	1,387,511
1902	1,378,406	1936.....	1,979,637
1903	1,354,044	1937.....	2,653,822
1904	1,379,204	1938.....	2,294,735
1905	1,729,129	1939.....	2,520,282
1906	2,257,147	1940.....	3,137,330
1907	2,277,159	1941.....	3,055,838
1908	1,650,027	1942.....	2,832,189
1909	1,574,995	1943.....	2,686,664
1910	1,432,193	Value of pro-	
1911	1,349,497	duction 1867-	
1912	1,493,502	1943, pre-	
1913	1,415,700	viously un-	
		recorded	2,066,118
		Total.....	£88,735,906

RETURN showing the Total Number of Leases and Licences in Force on 31st December, 1943.

Mineral.	Number.	Number of Sluiceways.	Area Acres.
			Acres.
Antimony .....	...	...	...
Asbestos	1	...	10
Barytes	1	...	10
Bismuth .....	...	...	...
Coal.....	30	...	5922
Clay	3	...	78
Copper	1	...	33
Copper-Nickel .....	...	...	...
Dolomite .....	...	...	...
Granite	4	...	30
Gold	59	...	914
Iron	5	...	298
Limestone	5	...	434
Lead-Zinc	1	...	80
Molybdenum.....	...	...	...
Minerals	40	...	5412
Marble .....	...	...	...
Manganese.....	1	...	10
Osmiridium	1	...	10
Ochre	1	...	4
Pyrites	1	...	80
Quartzite	1	...	8
Scheelite	3	...	281
Shale	3	...	117
Silica	1	...	10
Silver	10	...	337
Stone	3	...	65
Sand	1	...	5
Tin	266	...	8417
Wolfram.....	3	...	119
Mining Easements and Machinery Sites.....	78	...	570½
Licences to Search.....	1	...	900
Water Licences.....	293	1319	2015½
Total	817	1319	26,170

STATISTICS OF MINING COMPANIES.

RETURN showing the Amounts Paid in Dividends by Mining Companies during the Year ending 31st December, 1943.

Mines.	Dividends.
	£ s. d.
Copper	79,113 0 0
Gold .....	...
Iron	53,439 0 0
Silver .....	...
Coal.....	3525 0 0
Scheelite.....	6250 0 0
Zinc	*270,000 0 0
Total	£412,327 0 0

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

RETURN showing the Mining Companies Registered during the Year ending 31st December, 1943.

Number of Companies.	Capital.
—	—

In addition to the above, 1 agent for foreign companies under the Mining Companies (Foreign) Act, 1884, was registered. No syndicates under Part V. of the Mining Companies Act, 1884, were registered.

RETURN showing the Total Amount of Rents, Fees, &c., received by the Mines Department during the Year ending 31st December, 1943.

Head of Revenue.	Amount.
	£ s. d.
Rent of Auriferous and Mineral Lands.....	6496 18 9
Fees, Auriferous and Mineral Lands	3 6 19 8
Survey Fees	503 14 9
Fees under the Explosives and Inflammable Liquids Act	2625 11 2
Total	£9,953 4 4

RETURN showing the Total Area of Land and Number of Sluiceways of Water Applied for during the Year ending 31st December, 1943.

Mineral.	Number.	Sluiceways	Area.
			Acres.
Asbestos	3	...	120
Bismuth .....	...	...	...
Barytes .....	...	...	...
Clay .....	...	...	...
Coal	1	...	5
Dolomite	1	...	129
Gold	8	...	105
Granite .....	...	...	...
Iron .....	...	...	...
Lead .....	...	...	...
Limestone .....	...	...	...
Manganese .....	...	...	...
Minerals .....	...	...	...
Nickel-Silver .....	...	...	...
Ochre .....	...	...	...
Phosphate .....	...	...	...
Serpentine	3	...	240
Talc	1	...	40
Tin	35	...	903
Wolfram .....	...	...	...
Machinery Sites and Mining Easements ...	3	...	113
Water-rights and Dam Sites	12	25	22
Licences to search for Coal	1	...	900
Total	68	25	2577

RETURN showing Total Number and Area of Leases and Licences Issued during the Year ending 31st December, 1943.

Mineral.	Leases.	Sluiceways	Area.
			Acres.
Asbestos .....	...	...	...
Barytes .....	...	...	...
Clay .....	...	...	...
Copper	2	...	51
Copper-Nickel .....	...	...	...
Coal .....	...	...	...
Granite .....	...	...	...
Gold	2	...	55
Iron Ore	3	...	191
Limestone .....	...	...	...
Minerals	8	...	462
Manganese .....	...	...	...
Nickel .....	...	...	...
Ochre	1	...	4
Quartzite	1	...	8
Silver .....	...	...	...
Silica .....	...	...	...
Silver-Lead .....	...	...	...
Stone .....	...	...	...
Tin	37	...	1768
Wolfram .....	...	...	...
Water-rights and Dam Sites	32	103	19½
Licences to Search for Coal and Oil .....	...	...	...
Mining Easements and Machinery Sites	4	...	12
Total	90	103	2570½

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 1882 to 1903, and for Six Months ending 31st December, 1903, and for the Years ending 31st December, 1904 to 1943 inclusive.

Year.	Amount.	Year.	Amount.
	£ s. d.		£ s. d.
1882.....	23,077 1 9	1913.....	19,410 17 8
1883.....	15,439 14 5	1914.....	14,087 0 6
1884.....	6,981 11 10	1915.....	17,679 3 6
1885.....	11,070 5 7	1916.....	14,678 19 10
1886.....	12,523 10 4	1917.....	14,669 7 2
1887.....	14,611 11 5	1918.....	17,833 14 9
1888.....	23,502 8 4	1919.....	15,388 7 7
1889.....	17,254 9 0	1920.....	16,767 11 6
1890.....	26,955 4 9	1921.....	11,248 14 11
1891.....	37,829 16 5	1922.....	14,184 7 3
1892.....	17,568 18 4	1923.....	13,224 11 9
1893.....	16,971 9 2	1924.....	14,678 13 11
1894.....	16,732 7 7	1925.....	14,229 8 7
1895.....	15,323 1 9	1926.....	15,163 15 7
1896.....	20,901 13 2	1927.....	16,887 9 9
1897.....	25,631 0 3	1928.....	14,313 12 0
1898.....	33,661 13 9	1929.....	14,665 10 7
1899.....	24,696 10 5	1930.....	11,166 7 2
1900.....	28,380 11 10	1931.....	11,520 1 10
1901.....	21,569 5 2	1932.....	10,097 18 6
1902.....	19,471 0 1	1933.....	9,459 6 9
1903.....	17,776 14 3	1934.....	11,166 2 11
1903, 1 July to 31 Dec.	14,758 17 1	1935.....	10,548 10 0
1904, Jan. to Dec.	16,631 8 2	1936.....	11,023 11 3
1905.....	20,203 17 0	1937.....	12,206 10 1
1906.....	24,136 12 5	1938.....	11,177 11 5
1907.....	24,794 7 7	1939.....	11,556 5 1
1908.....	20,311 3 0	1940.....	11,018 3 9
1909.....	22,804 1 5	1941.....	10,835 18 8
1910.....	22,221 18 0	1942.....	9,509 18 2
1911.....	20,556 15 10	1943.....	9,449 9 7
1912.....	17,639 19 11		

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, 1929 to 1943 inclusive.

Nature of Lease.	In force on 31st Dec., 1929.		In force on 31st Dec., 1930.		In force on 31st Dec., 1931.		In force on 31st Dec., 1932.		In force on 31st Dec., 1933.		In force on 31st Dec., 1934.		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.		
	No.	Area.	No.	Area.	No.	Area.	No.	Area.	No.	Area.																					
For Minerals, Silver, Tin, &c.	652	27,052	418	18,321	379	17,101	284	13,320	326	16,734	444	18,716	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	
For Coal, Stone, Shale, &c.	36	11,022	32	9,960	25	7,223	32	6,104	39	7,495	51	8,439	47	6,635	48	7,249	50	6,778	43	4,904	49	6,683	53	6,517	56	7,151	53	6,732	53	6,683	
For Gold Dredging Claims	36	746	40	830	57	999	77	1,987	128	3,879	167	3,987	162	3,190	155	3,183	22	2,619	117	2,491	108	1,850.5	110	1,759.5	106	2,041	75	1,176	59	914	
Mining Easements	55	409	73	504	77	434	48	316	79	475	94	578	107	629	112	634	112	663	97	630	86	617.25	85	616.25	83	529	83	511.25	78	570.75	
Machinery Sites	25	171	18	117	20	209	18	120	17	119																					
Licences to search for Coal or Oil	9	10,844	3	1,080	1	800	1	320	2	790	2	3,670	2	4,200	5	10,900	6	10,600	2	1,180	2	1,180								1	900
Water-rights, Mineral and Gold	486	2,359 & 2,053 sluice-heads	364	2,095 & 1,558 sluice-heads	388	2,078 & 1,546 sluice-heads	391	2,448 & 1,473 sluice-heads	400	1,905 & 1,650 sluice-heads	403	2,015 & 1,760 sluice-heads	447	2,092 & 1,835 sluice-heads	466	1,963 & 2,034 sluice-heads	467	2,243 & 2,049 sluice-heads	448	1,834 & 2,191 sluice-heads	388	2,172.75 & 1,574 sluice-heads	395	2,183 & 1,478 sluice-heads	386	2,065 & 1,428 sluice-heads	346	2,031.75 & 1,586 sluice-heads	293	2,015.25 & 1,319 sluice-heads	

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

	Average for 1930.	Average for 1931.	Average for 1932.	Average for 1933.	Average for 1934.	Average for 1935.	Average for 1936.	Average for 1937.	Average for 1938.	Average for 1939.	Average for 1940.	Average for 1941.	Average for 1942.	Average for 1943.
	£ 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	54 3 7	38 7 9	31 14 7	32 11 4	30 6 4	31 18 1	36 12 6	60 5 9	45 16 9	49 17 7	62 0 0	62 0 0	62 0 0	62 0 0
Lead—Soft Foreign: per ton	18 3 1	13 0 7	12 0 9	11 16 1	11 1 0	14 5 8	16 7 9	23 6 1	15 6 5	15 13 7	25 0 0	25 0 0	25 0 0	25 0 0
Spelter: per ton	16 16 9	12 9 0	13 13 10	15 14 11	13 15 6	14 0 0	14 6 11	22 6 8	14 1 7	14 14 0	25 15 0	25 15 0	25 15 0	27 5 0
Tin—Standard, spot: per ton	141 19 1	118 9 1	135 18 10	194 13 4	230 7 5	225 14 6	208 6 6	242 6 7	189 12 1	226 5 6	256 12 3	261 8 0	259 10 0	259 10 0
Silver—Standard, spot: per oz.	s. d. 1 5·66	s. d. 1 2·593	s. d. 1 5·842	s. d. 1 6·144	s. d. 1 9·208	s. d. 1 9·951	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
Osmiridium: per oz. ...	£ s. d. 17 0 9	£ s. d. 14 7 9	£ s. d. 11 11 0	£ s. d. 8 16 9	£ s. d. 9 11 2	£ s. d. 9 0 0	£ s. d. 12 10 0	£ s. d. 15 12 6	£ s. d. 15 0 4	£ s. d. 17 15 0	£ s. d. 24 0 0	£ s. d. 20 7 2	£ s. d. 20 12 4	£ s. 23 10 11
Wolfram: per ton	105 0 9	64 0 0	62 16 0	81 2 6	94 0 0	175 0 0	161 5 0	325 19 0	289 0 0	271 0 0	250 0 0	250 0 0	437 10 0	500 0 0
Nickel: per ton	170 0 0	183 15 0	234 7 6	235 0 0	225 0 0	200 0 0	178 4 0	145 0 0	182 10 0	185 0 0	...	...	...	...
								W.O. ₃	W.O. ₃	W.O. ₃	W.O. ₃	W.O. ₃	W.O. ₃	W.O. ₃

AID TO MINING.

The policy of assistance to mining was continued under the provisions of the Aid to Mining Act. Several grants were made for the development of mines, purchase of plants, provision of supplies of water, and for other purposes allied with mining. Sustenance allowance was granted to several organised parties for prospecting in approved localities, but no discoveries of economic moment resulted.

The total amount expended was £635, affording employment to approximately 25 men. The total value of ore raised by assisted parties amounted to £27,000. Repayments made against advances totalled £2577.

An amount of £10 was expended on the cutting and conditioning of tracks to known and potential mineral areas, but there was reduced activity in prospecting in localities served by track facilities.

War-time conditions resulted in less encouragement being afforded lead and gold mining, but greater interest was directed to stepping-up the production of tin, wolfram, scheelite, and other minerals in short supply for the requirements of war. The advent of National Security (Minerals) Regulations, with provision for loans to ventures concerned with the production of strategic minerals, resulted in financial advances being made, under Commonwealth direction, to several projects directed to the production of tin.

THE AID TO MINING ACT, 1927.

STATEMENT OF RECEIPTS AND PAYMENTS OF THE MINING TRUST FUND FOR YEAR ENDED 31ST DECEMBER, 1943.

RECEIPTS.			PAYMENTS.		
	£	s. d.		£	s. d.
Balance, 31st December, 1942	4,100	8 2	Sustenance allowance	34	0 0
Repayment of loans	1,486	1 0	Assistance	634	12 6
Hire drilling plant	28	10 0	Insurances	3	0 6
Deposit on purchase engines	25	0 0			
Appropriation Act, 1941-42—			Total payments	671	13 0
Item 10—The Mining Trust Fund (balance)	1,000	0 0	Excess receipts over payments	9,557	11 6
Item 10—Federation Tin Mines Limited	157	9 0			
Appropriation Act, 1942-43—					
Item 10—The Mining Trust Fund	2,000	0 0			
Item 20—New Catamaran Collieries Pty. Ltd.	1,431	16 4			
	£10,229	4 6		£10,229	4 6

THE AID TO MINING (FEDERAL GRANT) TRUST FUND.

(22 Geo. V. No. 92, and 26 Geo. V. No. 8, and 2 Geo. VI. No. 68.)
RECEIPTS AND PAYMENTS STATEMENT.

RECEIPTS.				PAYMENTS.					
Item.	March, 1935 (commence- ment) to 31st Dec., 1943.		1st Jan., 1943, to 31st Dec., 1943.		Item.	March, 1935 (commence- ment) to 31st Dec., 1943.		1st Jan., 1943, to 31st Dec., 1943.	
	£	s. d.	£	s. d.		£	s. d.	£	s. d.
Provided by—					Prospecting	1,584	6 6		
Commonwealth	£25,750				Batteries	1,328	14 0		
State	9,250				Advances	22,770	18 6		
	35,000	0 0			Plants and operation thereof	6,711	9 11		
Transfer of balance from—					Metallurgical investigations	1,237	3 4		
The Aid to Mining (Federal Grant) Trust Fund, 1936-37 (1 Edw. VIII. No. 20)	1,883	18 2			Roads and tracks	6,486	8 8	10	0 0
The Aid to Mining (Federal Grant) Trust Fund, 1937-38 (1 Geo. VI. No. 32)	798	9 11			Transport	829	10 10		
Other credits—					Staff	574	11 1		
Batteries	99	13 2			Total payments	41,523	2 10	10	0 0
Advances	6,920	15 5	1,091	5 8	Excess receipts over payments	3,192	11 3	3,192	11 3
Plants and operation thereof	11	18 8							
Metallurgical investigations	0	7 11							
Staff	0	10 10							
Balance brought forward period ended 31st December, 1943			2,111	5 7					
	£44,715	14 1	£3,202	11 3		£44,715	14 1	£3,202	11 3

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, 1943.

RECEIPTS.		PAYMENTS.	
	£ s. d.		£ s. d.
Balance brought forward, 31st December, 1942	1,563 12 8	Advances	
Repayments		Excess receipts over payments	1,563 12 8
Interest			
	£1,563 12 8		£1,563 12 8

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

EXPENDITURE.				REPAYMENTS.							
Year.	Federal Funds.		The Mining Trust Fund and Other Funds.		Total.	Year.	Federal Funds.		The Mining Trust Fund and Other Funds.		Total.
	£	s. d.	£	s. d.	£ s. d.		£	s. d.	£	s. d.	£ s. d.
1935	8,398	11 4	2,298	14 8	10,697 6 0	1935	300	4 9	87	10 0	387 14 9
1936	10,462	3 7	2,807	12 10	13,269 16 5	1936	1,286	12 5	1,078	5 11	2,364 18 4
1937	3,902	17 7	1,983	9 6	5,886 7 1	1937	1,244	15 5	2,246	13 9	3,491 9 2
1938	3,337	2 7	1,937	1 0	5,274 3 7	1938	3,796	4 7	422	15 3	4,218 19 10
1939	658	13 10	2,721	11 1	3,380 4 11	1939	716	19 2	390	4 0	1,107 3 2
1940	866	3 5	4,188	5 4	4,984 8 9	1940	599	6 2	944	3 9	1,543 9 11
1941	2	17 3	1,019	15 3	1,022 12 6	1941	240	7 11	684	3 8	924 11 7
1942			1,433	3 3	1,433 3 3	1942	357	7 10	262	11 4	619 19 2
1943			634	12 6	634 12 6	1943	1,091	5 8	1,486	1 0	2,577 6 8
Total	£27,628	9 7	£18,954	5 5	£46,582 15 0	Total	£9,633	3 11	£7,602	8 8	£17,235 12 7

DRILLING.

Departmental drilling plants were in constant operation, partly on hire to holders of mining tenements and partly in drilling areas reserved against occupation under the provisions of the Mining Act. The total expenditure on all fields was £3193 13s. 11d., and £657 18s. 8d. was repaid under drilling agreements.

Boring was continued on the tin-bearing deep lead north of the Scotia workings at Gladstone, to determine the course and nature of the lead and the sufficiency of a yardage of average low-grade drifts for large-scale mining.

A planned campaign of diamond drilling was continued along the line of a tin-copper lode at Weldborough but lode widths and average values were insufficient to merit commercial exploitation under the existing conditions.

An agreed boring campaign was carried out in the Pig Flat area at the Mount Bischoff Tin Mine and scout boring was pursued in a tract of alluvial ground in the Waratah district.

Arrangements were made for diamond-drilling the coal series at Hamilton for the purpose of planning the future development of the Langloh Coal Mine.

DETAILS OF EXPENDITURE ON DRILLING DURING THE YEAR ENDED 31ST DECEMBER, 1943.

Plant.	Location.	Amount.
		£ s. d.
Diamond Drill, No. 3	Weldborough	773 6 6
Calyx and Surge Drills	Gladstone	1,596 14 8
Calyx Drill	Waratah (agreement)	527 0 9
Calyx Drill	Waratah-Corinna	183 1 3
Hand Plant	Dorset Flats (agreement)	113 10 9
Total		£3,193 13 11

(During the year a refund of £657 18s. 8d. was obtained from drilling carried out by agreement.)

DRILLING RESULTS.

CANADIAN LONGYEAR JUNIOR STRAITLINE
DIAMOND DRILL.

This plant was employed in drilling a tin-copper lode at Frome River, Weldborough. Seven holes, aggregating 1412 feet, were bored and the lode was defined and sampled, both below old workings and along its north-westerly extension. Interesting values were revealed in the various sections but the average grade, in relation to ore widths, was insufficient to merit commercial exploitation under the prevailing conditions.

The plant was transferred to Hamilton for drilling a coal series concerned with the future lay-out and development of the Langloh Coal Mine.

CALYX AND SURGE DRILLS.

The Surge plant was employed for a period, under agreement with the Commonwealth Minerals Production Directorate, in boring the Pig Flat area at the Mount Bischoff Tin Mine, which is being worked as a Commonwealth venture.

Scout boring was carried out in a tract of alluvial ground near the Corinna Road in the Waratah district but results were not encouraging and the project was abandoned.

Exclusive of the foregoing drilling, both plants were employed in testing the extent and value of the tin-bearing deep lead north of the Scotia workings at Gladstone. The aggregate depth of bores was 10,430 feet and

the major campaign was carried to its concluding stages. The following tabulation indicates the tin content of the lead as traced by the bores:—

No. of Bore.	Depth to Bedrock.		Average Values. Oz. per c. yd. of 70% Conc.	Best Values		Oz. per c. yd. of 70% Conc.	
				Depth.			
	ft.	in.		ft.	in.		
36z	87	0	0.80	80	8—87	0	10.9
37z	106	6	17.80	102	8—106	6	261.0
38z	104	0	31.10	102	8—104	0	498.0
39z	102	8	2.40	95	4—102	8	30.7
40z	105	0	13.60	102	8—105	0	450.0
41z	102	0	4.33	95	4—102	0	61.8
42z	101	0	5.76	95	4—101	0	74.8
43z	102	0	3.20	95	4—102	0	37.7
44z	99	0	7.60	95	4—99	0	107.0
47z	103	0	8.37	95	4—102	8	102.9
48z	101	6	3.70	95	4—101	6	58.8
49z	97	6	11.20	95	4—97	6	378.0
50z	97	0	4.08	95	4—97	0	89.5
51z	99	0	1.85	95	4—99	0	32.0
53z	104	0	1.35	102	8—104	0	101.0
56z	99	0	2.15	95	4—99	0	33.6
61z	91	0	4.60	88	0—91	0	128.0
64z	90	0	9.40	88	0—90	0	243.0
67z	85	0	4.32	80	8—85	0	83.5
68z	85	0	23.00	80	8—85	0	455.0
69z	86	6	6.10	80	8—86	6	90.8
71z	82	0	5.70	80	8—82	0	62.0
72z	84	0	1.32	80	8—84	0	18.3
74z	84	6	4.76	80	8—84	6	93.2
75z	77	6	6.70	73	4—77	6	125.3
76z	77	0	2.78	73	4—77	0	58.4
90z	92	0	3.80	88	0—92	0	82.5
92z	90	0	1.22	88	0—90	0	55.0
93z	90	0	2.10	88	0—90	0	94.5
95z	95	0	1.75	88	0—95	0	23.8
97z	81	0	2.23	51	4—58	8	27.5
102z	106	0	8.73	102	8—106	0	278.0
103z	106	0	3.60	102	8—106	0	112.0
104z	107	0	2.50	102	8—107	0	62.1
105z	105	0	9.36	102	8—105	0	245.0
106z	104	0	7.80	102	8—104	0	440.0
108z	101	0	3.35	95	4—101	0	59.8
111z	109	0	9.28	102	8—109	0	159.7
112z	108	0	12.27	102	8—108	0	248.6
113z	105	0	6.64	102	8—105	0	258.8
114z	105	0	6.01	102	8—105	0	197.6
115z	104	6	2.27	102	8—104	6	80.2
116z	101	0	1.26	95	4—101	0	22.5
117z	108	0	2.54	102	8—108	0	51.4
119z	110	0	8.46	102	8—110	0	126.9
120z	107	0	5.29	102	8—107	0	130.7
45x	101	0	3.59	90	8—101	0	35.1
46x	100	0	2.14	90	8—100	0	22.8
48x	103	6	5.10	102	0—103	6	285.0
49x	110	0	3.86	102	0—110	0	58.5
52x	99	6	4.30	90	8—99	6	48.6
53x	103	0	7.20	102	0—103	0	378.0
54x	103	0	3.00	102	0—103	0	210.0
55x	101	0	16.70	90	8—101	0	164.0
56x	101	0	2.50	90	8—101	0	25.0
59x	96	0	4.20	90	8—96	0	62.8
63x	95	0	9.72	90	8—95	0	225.0

DEPARTMENTAL ACTIVITIES.

Technical services of the Department have been usefully directed to the economics and geology of mineral occurrences, to research in ore-dressing, to boring coal and mineral deposits, and to the general development of mining for the requirements of war and in planning programmes of exploration and development for the post-war period.

The value of technical innovations in ore dressing has been demonstrated by recorded appreciations of the useful results accruing from the research processing of ore samples, particularly in regard to the recovery of cassiterite from sulphide ores.

Changes in the inspectorial staff and difficulties in obtaining suitably qualified officers, under war conditions, continued to affect the regularity of inspection services but the available staff exercised every endeavour to maintain surveillance of conditions governing the health and safety of persons employed in the mines, quarries, and works.

MINES DRAFTING BRANCH.

The number of working plans in use and which are kept up to date is 224.

Instructions issued to surveyors	56
Diagrams received from surveyors	56
Diagrams drawn on leases	246
Consolidated and other diagrams drawn	8
Lithographs entered to date	59
Various tracings prepared	101
Tracings for Launceston	74
Manuscripts entered to date	5
New manuscript plans drawn	—
Meteorological colour work, rain map	—
Underground surveys examined	—
Geological plans compiled and tracings made	—

STAFF.

Mr. H. Taylour resigned his appointment as Assistant Chief Inspector of Mines and Explosives on the 15th January, 1943.

Mr. H. A. Vaudeau retired as Inspector of Mines and Explosives on the 10th July, 1943, but continued to act in a temporary capacity.

Mr. D. Besford was appointed to the position of Inspector of Mines and Explosives on the 30th August, 1943.

Mr. F. N. Stops, Warden of Mines, entered upon a period of long-service leave on the 3rd December, 1943, prior to his retirement from the Public Service.

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.
Acting Chief Inspector of Mines.
Acting 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.

APPENDIX I.

REPORT OF THE GEOLOGICAL SURVEY.

The Government Geologist (Dr. D. E. Thomas) reports:—

The following is a summary of the work performed during the year:—

1. The Blue Tier Tin Field. Field work was completed and plans and reports were prepared.
 2. Osmiridium deposits at Adamsfield were investigated.
 3. River gravels were microscopically examined for the Hydro-Electric Commission.
 4. An investigation was made of underground water supplies at Parattah.
 5. An examination was made of the Smithton, Montague, and Black River dolomite deposits.
- In company with Field Geologist Q. J. Henderson the following surveys were carried out:—
6. Iron ore deposits at Natone, Highclere, Penguin, and Hampshire.
 7. Manganese deposits of Dial Range.
 8. Talc at Gawler, Mount Stewart, and Dundas.
 9. Ochre deposits at Smithton.
 10. Balfour Mineral Field.
 11. Osmiridium and chromite at Mount Stewart, Nineteen Mile, Bald Hill, and Savage River.
 12. Razorback Tin Mine.
 13. Wollastonite at Ulverstone.
 14. Asbestos near Ulverstone.

Details may be consulted in the full reports filed in the Department but a summary of the main conclusions of the most important investigations is appended.

During the year the usual routine of office duties, determining samples of minerals and fossils, and checking parcels of osmiridium were carried out.

The members of the staff are to be commended on their industry, initiative, and co-operation.

The Blue Tier Tin Field.

In this report is a resumé of the work of previous investigators, the relationship of the various granites, and the distribution of the tin ore in the granite. A contour value plan was prepared utilising all the available information, and shows that the Blue Tier Tin Field cannot be considered as a large low-grade proposition but as an area with local enrichments. Most attention was thus paid to the geology of these enrichments. The evidence is conclusive that there are two granites in this district—the older porphyritic granite being intruded by the tin granite. The introduction of the tin-bearing solutions is associated with the final phase and cooling of the tin granite. The contact between these granites can be studied in several places and is found to vary from nearly horizontal to nearly vertical. Where the contact is fairly flat, conditions for the segregation of the cassiterite are most favourable. The porphyritic granite is thus not in itself tin-bearing, but through it are the quartz, greisen, aplite, and pegmatite veins, of the later intrusion which may be tin-bearing. These, as a rule, are thin, but if several occur together, they can be profitably mined provided the granite is sufficiently altered and thereby softened so as to allow for the concentration of these veins by sluicing. As a rule these narrow veins have then to be crushed to release their tin content. Unless the granite is soft enough to allow this concentration to be effected, no economic mining is possible. The veins partly soften the enclosing granite by the process of partial kaolinisation or hydrothermal alteration, but it is depth of weathering that is the chief factor in determining how soft it becomes and how deep it can be sluiced. Residual surface concentration from the greisen veins has been the source of much of the tin, but only those areas where these veins are concentrated can be mined with any hope of financial success.

The tin granite contains rich deposits in limited areas. The tin-bearing portions owing to pneumatolytic and hydrothermal reactions associated with the introduction of tin-bearing solutions are more susceptible to weathering than the barren portions, thus accounting for the discovery of these, mainly during sluicing operations. Normally the granite is fairly even grained, but is finer grained near its contact with the porphyritic granite. The normal tin

granite contains very little or no tin, so the search for tin has to be confined to those areas where altered tin granite is known to outcrop.

The main distribution of the tin granite has been shown on the plans and can be conveniently described as a southern belt, on the southern slopes of the Tier to the west of Lottah, and a northern belt on the plateau itself. These are joined by the narrow dyke-like bodies north of the Ethel Prospect.

In the southern area are located the Anchor Mine, Crystal Hill and Duco Workings, Don, Australia, and Summit Mines.

The Anchor Mine is by far the largest of the Tier deposits, but future expansion is governed by the following factors:—

1. The steep (over 45°) dip to the south prevents any expansion southwards.
2. The thick cover of overburden, both east and west, renders the removal of this uneconomical.

Any expansion in fresh ground has thus to be northwards.

The results of boring show that the grade of ore is low as a whole, but attempts should be made to prove the extent of the enrichments known to exist, and to prospect the area to the north, for example, around Breadmore's Face and in the gullies to the east and west of this ridge.

The Don Workings are on a very rich floor, which has been worked by chambering beyond the limits of the quarry faces thus leaving a great deal of low-grade material. The exact extent of this floor has not been determined, but the bores of the Mount Lyell Company show that the rich patch does not extend far beyond the limits of the chambers. Shallow bores could determine the extent of this floor with a high degree of accuracy.

In the Crystal Hill and Duco Workings, several small patches of tinbearing ore have been located, but they are apparently very limited in extent as is the case with the Liberator Mine. It should be noted that these workings, as well as the Don, are arranged around a bulge of porphyritic granite, which is not shown on the older plan.

The Australia and Summit Mines are on the steep southern face of the Tier, and the former workings are on a "floor" much lower than the latter. In both cases close boring is necessary to delimit the boundaries of the tin-bearing ore.

If the Summit Workings are a floor-like deposit of any extent, its limits could easily be proved by shallow bores.

The long, thin dyke-like belts of stanniferous tin granite vary in width from 30 to 120 feet, and have a general northerly sinuous trend, with dips 40°-50° to the west. The ore shoots in these bodies are patchy in nature, and mining has been carried on at the Planet Workings in the south, the Southern Cross and Marie Sections to the north.

The Moon Workings are in a roughly rectangular area of tin granite with a length of 350 feet. The western boundary dips steeply to the west, but the eastern boundary with the overlying porphyritic granite is about 12° East. The outcrop has been tested by bores, but the results of these, apart from one small patch worked in recent times, were not encouraging.

The Mount Michael Mine lies in the northern belt of tin granite. The boring of the Mines Department in 1935 around the open cut is not encouraging, but, unfortunately, the spacing of the bore holes leaves much to be desired, and none were placed in the quarry itself. The shaft in the open cut gave assays of 0.2% Sn.

Several other workings were inspected, for example, Chintock's Prospect, the F.B. Lode, Doyle's Mine, the Kent Workings, Cream Creek, Lottah Tunnel, and details of these and the workings are given in the report.

The chief fact, stressed in the report, is that the tin ore is associated with the final phases of the intrusion of the tin granite. All the tin granite is not stanniferous and search for fresh shoots of ore should be concentrated in the areas of altered tin granite. In these areas, enrichments occur as "flat floors" especially near where the junction of the two granites is a flat one, and in thin, nearly vertical seams which run parallel to the major system of joints in the granite. The rich shoots are

separated by larger, harder, and poorer bands. The Blue Tier Tin Field must thus be considered as a field with localised enrichments, and the problem, as far as future developments are concerned, resolves itself into the problem of finding a repetition of these enrichments and then economically mining them.

Before any scheme of treatment or mining of these deposits can be considered, it is essential that exploratory work be carried out to locate the ore and to determine its extent. As the field as a whole is a low-grade proposition, care should be exercised in the selection of localities where these tests are conducted, for example, in areas not covered by the porphyritic granite. The exploratory work should also be arranged so as to test the particular type of ore occurrence of the Blue Tier Tin Field—small enrichments giving “floors” of no great lateral extent developed especially where the contact between the two granites is fairly flat, and with thin vertical feeders forming the means of ingress of these mineralising solutions. Trenches should thus be cut in a general east and west direction, but vertical bore holes, although necessary to test the “floor” type of deposit, are not suitable for testing the rather narrow and nearly vertical veins. Bores inclined to the east or west would best serve the purpose they were intended for. Exploratory work should be confined to those areas already shown to be tin-bearing and should be designed to find enrichments in those areas and the continuation or repetition of the channels of mineralisation.

Before considering any scheme of mining, it is necessary that exploratory work be carried on to determine what ore is available. The available evidence is such that no estimate of this is possible, and without this knowledge, no mining scheme can reasonably be formulated.

Several areas have been indicated in the report as to the areas considered most suitable for testing. While the Blue Tier Tin Field forms a potential and promising source for tin, it is essentially a low-grade proposition, and a close and rigid exploratory boring campaign is necessary to enable estimates of available ore to be made. The potentialities of the field are such that rigid exploration is justified.

The Razorback Tin Mines, Dundas.

The lode formation is on the eastern side of the Razorback Fault and has been prospected by several adits and two open cuts. The workings have not penetrated beyond the zone of oxidation, with here and there remnants of pyritic ore, so that any sampling would give divergent results.

Further exploration is necessary to determine reserves, and the geological history of the lode formation can be utilised in designing this exploration. The mineralisation of the western edge of the ultrabasic rock has taken place along the faults and shears that characterise this junction. Carbonation was followed by silicification and mineralisation.

The prospecting work already accomplished shows that the tin content is not evenly distributed. This variation in tenor extends both laterally and vertically, and the mineable ore occurs in short shoots of restricted extent. No doubt the high cost of transport of the ore to the mill formed a disproportionately costly item in the mining costs of the ore, due to the steep grade of the tramline. Before consideration can be given to such matters, the quantity and grade of ore that is available has to be determined. It is considered that a prospecting drive with short exploratory crosscuts, westerly as far as the bounding fault and easterly as far as the carbonated and talcose rock on the side of the lode, is the best way of obtaining this information. The drive in No. 1 open cut should be continued northwards as far as the adit shown as “Westerway’s” on the plan.

The returns for the open cut workings show that there had been so much dilution of ore that this method of working cannot be recommended.

Osmiridium Mining at Mount Stewart, Nineteen Mile, and Bald Hill.

At Mount Stewart no mining is now being carried out, and the track is, after the heavy falls of snow which smashed the trees, in an impassable condition. It will be necessary to clear this track before any work can be carried out. There has been no active mining on this field for ten years, and if the production of osmiridium is to be resumed, the disability of transport from the Corinna-road must be overcome.

Apart from the metal that could be obtained by reworking the old ground, there is the possibility that rigorous prospecting of the Castra Flats may reveal concentrates of sufficient grade and magnitude to justify some scheme of hydraulic sluicing, which would yield not only osmiridium but other associated minerals such as gold, tin, and monazite which collectively could make the proposition an economic one.

Nineteen Mile and Bald Hill.

At Bald Hill the detrital deposits are very shallow. The main difficulty in the way of increased production is the inadequate water supply, and a gravity scheme is not feasible.

The erratic and limited distribution of the osmiridium had discouraged operators, and the rich alluvial concentrations are so narrow that prospects are not encouraging.

The wash in the lower end of the Nineteen Mile Creek has been reworked so many times that there appears to be little hope of locating any fresh ground.

Savage River.

The Savage River terrace gravels most probably offer the best prospects for sustained working, but work would be hampered by flooding in winter. Systematic prospecting of these terraces is essential in order to determine their potentialities.

Chromite.

This occurs as disseminated grains or rarely as veinlets, in the ultrabasic rocks, but nowhere is the concentration sufficient to justify mining or open cutting. Owing to the relatively low cost of the mineral, it would be necessary to treat the alluvial deposits that contain a natural concentration of this mineral, and where costs of transport are low. Very few localities satisfy these conditions and even where the alluvial deposits are being treated for the precious minerals, the chromite has been discarded.

Woodstock Copper Prospect.

The gossanous outcrops of the copper lodes occur as isolated lenses along a shear zone trending north-easterly in a folded belt of Cambro-Ordovician rocks.

An ore body has been proved over a length of 60 feet, and to a maximum width of 15 feet in No. 2 prospect. The existing drive should be continued along the lode to prove its length before attempting to prove its depth. The latter operation will be more costly due to the fact that water is already present underfoot.

The present work is in the oxidised zone, and values at depth will probably be poorer than in the shallower workings.

Wollastonite at Hampshire.

Rocks containing wollastonite are present both in Limestone Creek and Emu Creek. The calc-silicate rocks are interbedded with quartzites and recrystallised limestones.

The wollastonite in the rocks is associated with some diopside and a considerable amount of free calcite.

Samson's Ochre Deposits at Smithton.

These are of Recent or Pleistocene age and form a mound spring. The spring itself is a typical mineral spring, the water being potable. The general type of spring is chalybeatic, and the mineral quarried is probably an ochreous ferric hydroxide, which is very consistent in colouration and is extremely fine-grained.

Attention has been drawn to these mineral springs which could be developed as such and so form an attraction to the tourist industry, and to the formation of a natural aerated water industry.

Some Iron Deposits in the Vicinity of Burnie.

These can be considered as belonging to three distinct types. Those at the Blythe River, Penguin Creek, Natone, and Highclere are replacement bodies developed along fracture zones. The Dial Range deposits have been largely derived from the erosion of deposits similar to the above. The Hampshire Hills iron deposits form another group by replacements in dykes of basic rock intrusive into the granite, and differ from the other types by being mainly magnetite.

The deposits at Natone and Blythe River are the only ones where sufficient prospecting has been done to indicate the quantities available and the variation in grade.

The Penguin Creek deposits yielded 40,000 tons of ore but no prospecting has been carried on beyond the open cuts, so no estimates of reserves are available.

The Blythe River deposits have been quarried in recent years, and 3408 tons valued at £6055 have been used for the manufacture of ferrosilicon. It is considered that P. B. Nye's estimate of 7,000,000 tons reserve is reasonable.

At Highclere no prospecting has been attempted, but the main exposures were mapped.

The Hampshire Hills deposits are of a different type, being primarily of magnetite instead of hæmatite as with the other deposits. When originally investigated, insufficient prospecting had been undertaken to form estimates of quantities, and since then, conditions for examination had deteriorated.

At Natone, the prospecting work has been designed to demonstrate the structural set-up and to enable estimates of grade and quantity to be formed. This work has been carried out in the area which covered the maximum concentration of the ore, and the surface exposures of solid ore cover but a tenth of this area. The ratio of waste that would have to be rejected in mining would be nearly 6 to 1, so that selective mining would be necessary. This, together with the lack of continuity of the isolated outcrops, would increase the cost of production to such an extent that it is extremely doubtful whether tonnages sufficient for the establishment of an iron industry can be extracted profitably. The purity of the ore compares favourably with hæmatite ores in other parts of the world, and evidence was found showing that the solutions which carried the iron ore were primarily iron-silica solutions.

Manganese Deposits in the Vicinity of the Dial Range.

Two localities which are probably on the same belt of country have yielded manganese. At Black's four separate bodies have been found. These are elongated roughly parallel to the strike of the beds and are associated with separate beds of breccia conglomerates, and as localised concentrations near the bases of these particular beds where thin limonitic bands and iron-manganese seams partly replace the bedrock. The manganese is concentrated near the surface, so that the deposits are shallow and the quantity available is not great, and does not extend in depth.

Further prospecting is recommended along the belt between the known occurrences and on the line of continuation.

Dolomite Deposits at Smithton, Montague, and Black River.

A structural examination revealed that the sections as shown in the Smithton Bulletin (Geol. Surv. Tas. No. 41) have been oversimplified. The Duck River exposures, although showing a preponderance of western dips, also disclosed numerous folds. This was to be expected, as numerous and extensive zones of brecciation were found in the surface exposures. At Irishtown, sharp folding was also detected, while near Edith Creek, overfolds are shown in the quarries. It is thus evident that surface exposures do not give a true indication of the beds at depth, and it makes necessary a careful boring programme by means of vertical holes.

In all cases, there is a sand cover, which is much thinner at Watson's Bend, so that this area is recommended as the site of preliminary operations.

The Montague deposits are exposed only in the river sections, the sand cover is thicker, and transport facilities are bad.

The Black River deposits occur as a small syncline in which only limited quantities would be available. As a result, this cannot be recommended as a suitable locality for boring.

A careful sampling campaign was undertaken of all the surface exposures. While some chert and quartz lenses are developed in certain beds, as a whole the deposits are of commercial grade.

The possibility of striking underground water is serious in the flat lying portions, so a careful check should be made of the presence of sink holes, cavities and underground water that may be encountered during boring.

The possibility of establishing normal quarrying operations is greater at Irishtown and Edith Creek than in the Smithton area, but a great deal depends on the results of the boring campaign.

Points of Geological Interest.

During the year, a careful study was made of the Graptolite Record of Tasmania. The original specimens

were critically examined and the claims that graptolites had been found in the Dundas Series were rejected, and as a corollary, the age determinations based on these erroneous identifications are not upheld.

A suite of fossils from Dundas were found and studied. These are fossil Dendroids and Hydroids and are compared with similar fossils from Victoria where they have been found in association with trilobites which fix the age of the beds as low as the Middle Cambrian.

At Adamsfield, a collection of fossils was made from the sandstones overlying the massive conglomerates which prove beyond doubt that the beds are a continuation of the Junee beds and are thus of Lower Ordovician age.

The results of these three investigations give important evidence as to the relationship of certain rock groups generally included as Cambro-Ordovician and supplies proof that it is possible to chart these formations. The Dundas Series are thus of Cambrian age, while the rocks at Adamsfield must be considered as part of the Junee Series and not as part of the Silurian rocks as stated in the Adamsfield Bulletin.

The investigation of the iron deposits near the Dial Range proved the existence of a period of mineralisation preceding the deposition of the West Coast Range conglomerates. Included pebbles of hæmatite are abundant in the conglomerates and characteristic colourings of parts of the conglomerate are due to the effects of these older iron deposits. The Dial conglomerates are part of the West Coast Range conglomerates series and are succeeded by the Tubicolar sandstones. Significant advances were thus made in our knowledge of the Lower Palæozoic rocks which, when taken into consideration with the fresh determination of the age of the West Coast Range Series, makes it necessary to change many of the current ideas as to the relationship of these rocks. The presence of Pleurodictyum in the sandstones overlying and interbedded with the limestones at Zeehan, shows that these rocks are of Devonian age. The following tables illustrate these changes in age conception:—

	<i>Present Age Determinations.</i>	<i>Previous Age Determinations.</i>
Devonian	Queen River Series Tubicolar Sandstones West Coast Range Conglomerates	Silurian
	UUUUUU Diastrophic Period and Iron Mineralisation	
Silurian	?	
Ordovician	Junee Series	Cambro-Ordovician
	UUUUUU Diastrophic Period	
Cambrian	Dundas Series	

During the year, evidence was found which extends our knowledge of the Tertiary history of the State. Fossiliferous Tertiary beds were found under the basalts at Kaywood, near Temma, underneath the basalt at Irishtown, and under the basalt at Edward's property near Redpa. It is claimed that these beds are probably Miocene in age and are identical with those outcropping on the beach between Green Point (Marawah) and Mount Cameron West. Collections were made and have been forwarded to various specialists for determination, as Dr. A. B. Edwards (1938 Proc. Roy. Soc. Vic) claimed a recent age for these rocks.

It should also be recorded that volcanic craters are present in the districts east of Smithton and that several of the isolated peaks of basalt were originally points of eruption.

It is extremely doubtful whether Mount Cameron West is a laccolith, as although the main peak can be considered as a plug, the two small peaks are composed of basalt flows, resting on the denuded flanks of the Miocene limestone.

Field Geologist Q. J. Henderson reports:—

The following brief summary outlines the field investigations undertaken:—

Greater Burnie Water Supply.

A visit was made to the proposed Pet River Storage Basin for the purpose of conferring with the consulting engineer, made available to the Burnie Municipal Council by the Hydro-Electric Commission, on the geological features affecting dam construction at this site.

The general geological structure consists of a series of thin basalt flows resting on Cambro-Ordovician slates. The minimum thickness of basalt on the crest-line of the proposed dam is not less than 100 feet, and provides ample stability for the size of dam contemplated. Apart from slump areas, in the vicinity of the spillway, developed along the edges of the top flow, where some attention must be given to providing an effective cut-off, there are no geological features requiring specialised dam construction.

Alleged Oil at Rhyndaston.

A brief examination was made of an alleged oil seepage. The occurrence was reported to be in the creek, just north of the underground storage tank, which maintains engine-water supplies at the Rhyndaston railway station. The creek follows the contact of dolerite intruding sandstones of the Felspathic Series. There is no evidence, at present, of any seepage of oil. Apparently the iridescent film of iron oxide leaching from the dolerite to the west has been mistaken for oil.

Tungsten Deposits at the Interview River.

Owing to the war-time demand for tungsten, every facility is given to private enterprise to prospect and develop tungsten deposits of sufficient prospective merit, and when private interests obtained a special prospecting claim over the Interview River wolfram deposits, it was arranged that I undertake a geological survey of the deposits, and formulate a comprehensive prospecting campaign.

The survey indicated that the tungsten deposits consisted of a number of short and narrow quartz-wolfram veins, with minor quantities of pyrite, chalcopyrite, arsenopyrite, and a little scheelite. These conform to a strongly suggestive stress pattern and indicate definite directional trends for prospecting.

Owing to the remoteness of the area, adequate facilities for unwatering the old workings could not be provided, consequently they could not be examined, and, therefore, no additional evidence regarding their nature and extent, at depth, could be obtained.

The difficulties of transport so retarded operations that prospecting of the deposits was abandoned, before the winter set in, without doing any effective work.

Location of Cyaniding Plant at Beaconsfield.

As a dispute arose as to ownership of some abandoned cyaniding plant located on the old Tasmania mine tailing dump in Middle Arm, a visit was made to Beaconsfield for the purpose of determining by survey the actual position of the plant.

Geological Examination of Eager's Section, M.L. 11839/M, Branxholm.

The survey of this section was undertaken to determine the possibilities of increasing the production of tin, but the examination revealed that the main source of the tin produced by sluicing was a system of narrow quartz-greisen veins or "leaders," and not from disseminations of cassiterite in the so-called tin-granite. The extent of the "tin-granite" was more restricted than anticipated, and the prospects of increasing the production of tin from this section, by increasing the plant capacity, were not regarded as favourable.

Pollution in the Saxelby Dam by the Bell Creek Sluicing Operations.

A visit was made to St. Helens to establish bench marks in the Saxelby dam before the Bell Creek sluicing operations were commenced, in order that the amount of pollution in the dam, due to these operations, could be assessed.

Butler's Gorge Dam-site.

A visit was made to the Butler's Gorge Dam-site for the purpose of examining the fault revealed when the excavations for the dam foundations were being made. A study of this fault suggested that it was of some magnitude, but without detailed mapping, over a large area, no idea of the approximate displacement could be given, but sufficient evidence is available to indicate that the

fault will persist in depth far beyond that contemplated for the foundation excavations and that some special treatment will be necessary. As the dolerite is practically impervious, no trouble is anticipated, even if the fault is not effectively cut off.

Junee Limestone.

A geological investigation of the Junee limestone was undertaken for the purpose of locating additional supplies of limestone, of metallurgical purity, for use in the manufacture of carbide. A suitable deposit, ideally situated for quarrying and transport, was located and a comprehensive drilling campaign laid out. Sufficient drilling was completed to establish the existence of the necessary reserves to justify the immediate commencement of productive operations. Limestone quarrying was commenced at this location.

Mount Stronach Molybdenite.

A visit was made to the Mount Stronach molybdenite prospects, in company with the Extension Officer, to obtain sufficient ore to yield ten pounds of molybdenite for experimental use in tests by the Department of Agriculture.

Drilling at Gladstone.

Surveyed and levelled all drill-holes completed up to the 10th November, 1943, in order that the detail plans of the Gladstone drilling can be kept up to date.

General.

A period of approximately thirteen weeks was occupied in accompanying the Government Geologist on numerous surveys and inspections in western and north-western parts of the State.

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

During the year a total period of 30 weeks was occupied in investigations in the field. Apart from inspections of individual mines, four areas, Renison Bell, South Heemskirk, Moina, and Weldborough, were examined.

The Renison Bell area was examined in company with Dr. Fisher, of the Commonwealth Service. A report and a series of plans covering this work were prepared by Dr. Fisher, and have confirmed and correlated the reports of previous writers.

In the South Heemskirk area the existing mines were examined, and sampling of the ore bodies was carried out to indicate the grades of ore available. The field was inactive during the period of investigation. Future prospects of this field depend on development of small occurrences of high grade ore known to exist and the probable discovery of similar bodies. The history of the field suggests that at no time were large-scale developments possible, and operations will be of minor proportions directed towards development of small deposits of high-grade ore.

In the Moina field, a mixed tin-wolfram-bismuth concentrate is produced from sluicing operations in comparatively shallow alluvial and detrital deposits. Only two parties were operating and the output was low. It was unfortunate that the underground workings were inaccessible, and no attempt has been made to estimate ore reserves. Possibilities exist for future prospecting, particularly in the area between the Shepherd and Murphy and the All Nations Mines.

In the Weldborough area, tin concentrates have been produced from alluvial and detrital material. Practically no underground development has taken place, but what has been carried out has proved only low grade ore. There is some slight possibility of favourable development at Bell Hill Mine, where sampling suggests the occurrence of a vein ranging in width up to 12 feet and of a grade of 0.5 per cent tin. Generally, recovery of concentrates is by ground-sluicing. Operations of this nature have been, in general, carried out in fracture zones in granite country and have revealed high-grade ore occurring as short shoots in pegmatitic veins ranging up to 2 feet in width. The average grade of the vein material as a whole may be low, but the material from the ore shoots is sufficiently high in grade to warrant stacking for future treatment. Several treatment plants have been erected in the area, but as the result of inexperience and mismanagement all have been operated unprofitably.

The increased price for wolfram has directed attention to its presence in, at least, one locality where bismuth is also known to occur. Greater attention is, at present, being given this locality.

An examination of the Fraser Tin Mine, 5 miles from Williamsford, was carried out and a short report submitted.

APPENDIX II.

REPORT OF THE CHIEF CHEMIST AND METALLURGIST.

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

Determinations and Analyses.

Determinations were made for gold, silver, tin, lead, aluminium, arsenic, antimony, cerium, beryllium, barium, bismuth, boron, calcium, chlorine, chromium, osmiridium, phosphorus, thorium, tungsten, titanium, zinc, and zirconium.

Analyses were made of ores, minerals, clays, rocks, coal, shale, bauxite, water, &c.

The number of determinations approximated 3500.

Ore Dressing Investigations.

Tin.

Mount Bischoff Tin Mine.—Comprehensive investigations were undertaken for the Minerals Production Division of the Commonwealth Department of Supply and Shipping.

Pyritic table concentrates from milling operations at Waratah, containing three to four per cent of tin as cassiterite, were submitted for tests to indicate the quantities of sulphides that could be rejected by flotation without subjecting the samples to any grinding. Flotation conditions required were minimum losses of cassiterite in the flotation concentrates.

Sizing Analyses of Pyritic Table Concentrates.

B.S. Screen Size.	No. 322		No. 309		No. 310	
	Weight.					
	Per Cent.	Per Cent. Cum.	Per Cent.	Per Cent. Cum.	Per Cent.	Per Cent. Cum.
+ 22	5.7	5.7	4.1	4.1	2.1	2.1
+ 30	8.3	14.0	5.8	9.9	5.0	7.1
+ 44	9.1	23.1	5.9	15.8	6.8	13.9
+ 60	13.9	37.0	11.7	27.5	11.2	25.1
+ 85	17.4	54.4	19.1	46.6	16.2	41.3
+ 100	4.7	59.1	5.0	51.6	4.3	45.6
+ 120	6.8	95.9	7.7	59.3	8.2	53.8
+ 150	10.2	76.1	12.7	72.0	11.8	65.6
+ 200	11.2	87.3	12.8	84.8	14.1	79.7
— 200	12.7	100.	15.2	100.	20.3	100.

Assays.

	Per Cent.		
	S.	As.	Cu.
No. 309 North Valley	38.1	5.4	0.21
No. 310 Pig Flat	23.5	0.57	Nil
No. 322 North Valley	Sizing only.		

Mill treatment, in producing these pyritic concentrates, briefly consists of reduction by gravity stamps fitted with

12 mesh battery screens (aperture 0.043 inch), classification, and concentration by tabling.

Flotation test work proved that minimum loss of cassiterite could be attained with frothers that produced fragile froths, and cresylic acid was found well suited for this purpose. Flotation is assisted by minor quantities of pine oil, after the majority of the sulphides have been floated with a cresylic acid froth. Cresylic acid and pine oil, as indicated, were the frothers in the quoted test results. The majority of the sulphides, floated under these conditions, are minus 60 mesh screen size.

Test No.	Reagents - lbs. / ton // Time Minutes.			
	H ₂ SO ₄	CuSO ₄	Ethyl Xanthate	T43
309/12	- -	- -	1//10	- -
309/14	- -	- -	- -	1//10
309/13	- -	1//10	1//10	- -
309/ 9	2//30	1//5	1//10	- -
310/ 2	- -	- -	1//10	- -
310/ 3	2//10	1//5	1//10	- -

Flotation Results.

Test No.	Product.	Weight.		Tin.	
		Per Cent.	Per Cent.	Per Cent. Distribution.	
309-12	Rougher Conc.	66.4	0.14	2.75	
309-12	Rougher Tail	33.6	9.78	97.25	
309-12	Composite	100.	3.38	100.	
309-14	Rougher Conc.	76.5	0.2	4.8	
309-14	Rougher Tail	23.5	12.85	95.2	
309-14	Composite	100.	3.17	100.	
309-13	Rougher Conc.	67.6	0.14	2.80	
309-13	Rougher Tail +22 mesh	3.6	1.80	1.92	
309-13	Rougher Tail -22+30 mesh	4.3	2.57	3.28	
309-13	Rougher Tail -30 mesh	24.5	12.67	92.00	
309-13	Composite	100.	3.37	100.	
309-9	Rougher Conc.	74.0	0.11	2.42	
309-9	Rougher Tail	26.0	12.60	97.58	
309-9	Composite	100.	3.36	100.	
310-2	Rougher Conc.	37.0	0.04	0.52	
310-2	Rougher Tail	63.0	4.50	99.48	
310-2	Composite	100.	2.85	100.	
310-3	Rougher Conc.	38.2	0.09	1.2	
310-3	Rougher Tail	61.8	4.62	98.8	
310-3	Composite	100.	2.89	100.	

Flotation is effective in pulps of p.H. values from 4 to 8 and values of 5 to 6 are preferable. The test work shows the quantities of sulphides that can be rejected by flotation with negligible loss of tin. An important feature of the treatment is the concentration of the cassiterite by rejection of the sulphides. With the North Valley sample, the flotation tailings contained 10 to 12 per cent tin. For comparative purposes, the North Valley sample was subjected to flotation tests after ball-mill reduction to minus 85 mesh screen size. This resulted in a more complete flotation of sulphides: the flotation concentrate, representing 85 per cent by weight, contained 0.12 per cent of tin or 3 per cent of the total. The flotation tailings, containing 97 per cent of the tin, assayed 21.87 per cent tin.

A sample of battery box discharge from North Valley Mill was submitted for the following investigations:—

1. Treatment similar to present mill practice. This resulted in a recovery of 69.06 per cent of the tin in a pyritic concentrate, assaying 2.47 per cent tin.

2. Flotation rejection of sulphides and tabling of flotation tailings. This test resulted in a flotation concentrate amounting to 42.73 per cent by weight and assaying 0.05 per cent of tin. The table concentrate contained 5.74 per cent tin, 33 per cent sulphur, and represented a recovery of 70.43 per cent of the tin. The weights of the table concentrates of Tests 1 and 2 amounted to 28.8 and 12.35 per cent respectively.

3.—Closed circuit ball-mill grind to minus 85 mesh screen size, flotation of sulphides and gravity concentration to a finished concentrate.

After reduction to the desired sizing by ball-mill grinding and hydraulic classification, the pulp was hydro-sized to separate slimes containing non-recoverable cassiterite, sulphides floated with copper sulphate 0.5 lb., ethyl xanthate 0.4 lb., amyl xanthate 0.1 lb., and cresylic acid 0.1 lb. per ton: p.H. value of pulp 4.6. Flotation tailings were classified preparatory to tabling.

Table Showing Products of De-sliming, Sulphide Flotation and Classification of Flotation Tailings.

Product.	Weight		Tin.		Sulphur.
	Per Cent.	Per Cent.	Per Cent. Distribution.	Per Cent.	
Flotation Concentrates	54.34	0.04	2.1	47.5	
Flotation Tail; Spigot	22.49	3.48	75.67	...	
Flotation Tail C/o	15.52	1.28	19.20	...	
Slime	7.65	0.41	3.03	...	
Composite	100.	1.03	100.	31.8	

Table concentration of the flotation tailings, followed by flotation for removal of residual sulphides and vanning to finished concentrates gave the following results:—

Finished Concentrates Overall Weights and Recoveries.

Concentrates.	Weight.	Per Cent.				Per Cent.
	Per Cent.	Sn.	WO ₃	S.	As.	Tin Recovery.
From Spigot ...	0·8924	71·25	0·39	0·19	0·09	61·48
From Class/Overflow ...	0·0916	73·8	N.D.	0·31	0·08	6·54
Total ...	0·984	71·5	...	...	...	68·02

Ratio of concentration 101. Weight of products discarded prior to tabling (flotation concentrates and slimes) 62 per cent.

Liberation of Cassiterite.—A sample of North Valley battery box discharge was submitted for determinations of the quantities of free cassiterite in sizings of 200 mesh screen size. In addition, information was desired as to the existence of cassiterite-sulphide composites, particularly in reference to a sizing wherein they would be virtually non-existent.

Table Showing Percentage of Free Cassiterite in Each Sizing and Proportion in the Plus 200 Mesh Portion of the Sample.

B.S. Screen Size.	Per Cent.		Per Cent Free Tin.	
	Weight.	Tin.	Each Sizing.	Total of plus 200 mesh sizings.
+ 22	3·66	0·6	53·3	1·76
+ 30	6·52	0·7	59·4	4·12
+ 44	7·40	0·88	66·3	6·52
+ 60	10·00	1·08	71·2	11·60
+ 85	11·79	1·25	73·7	16·40
+ 100	2·88	1·50	63·2	4·12
+ 120	3·94	1·32	76·4	6·00
+ 150	6·26	1·41	78·8	10·50
+ 200	6·65	1·36	82·1	11·22
Total ...	59·1	...	...	72·24

Liberation of cassiterite and sulphides is reasonably complete at 60 mesh screen size. No effort was made to determine the degree of liberation at coarser sizes.

Pig Flat Ore.—Following preliminary tests at Waratah and Launceston, a sample of Pig Flat ore was submitted for disintegration tests. The ore is physically of a clayey nature, and data were desired for consideration as to suitability of a tube mill for the purpose and capacity of same. The mill used for the test was a 3 ft. by 1 ft. Denver mill charged with 55 lbs. weight of crushed dolerite up to 2-inch size. The mill was fed with slightly moist ore broken to approximately minus 3-inch size at the rate of 180 lb. per hour. Per cent solids 50. At this rate the disintegration proceeded satisfactorily and the weight of "clay" balls or partially disintegrated material dis-

charged from the mill amounted to 3·5 per cent of the feed. Sizing analyses of Pig Flat ore indicates that 40 to 50 per cent of the ore could be rejected by hydro-sizing with but negligible loss of cassiterite.

Sizing analyses, including division of the minus 200 mesh portions by elutriation or infra-sizing, were undertaken on various samples, including Pig Flat ore after reduction to minus half-inch size, mill battery discharge, mill tailings, North Valley ore rolled crushed to minus 12 mesh battery screen, mill battery discharge and mill tailings. Calciner discharge (calcined table concentrates).

Aberfoyle Tin Mining Co.—Jig concentration tests were undertaken on two samples of mill products:—

No.	Description.	Per Cent.			Per Ct. Weight Mesh.	
		Sn.	WO ₃	S.	+60	-60
430	1-16 in. Primary Jig Feed ...	3·4	0·46	2·6	80·7	19·3
431	Recrushed Jig Middling ...	6·62	0·84	18·89	46·02	53·98

Concentration tests were performed in a laboratory Denver mineral jig and operated to concentrate the plus 60 mesh cassiterite and wolfram only. Jig concentration of No. 430 to a high grade concentrate containing 66 per cent tin and 7·1 per cent tungstic acid resulted in a recovery of 44 per cent of the tin whereas by decreasing the grade to 44 per cent tin and 5 per cent of tungstic acid a recovery of 80 per cent was obtained. Of the tin in the

plus 60 mesh portion of the sample the above recoveries amounted to 60 and 95 per cent respectively. Tabling of the jig tailings inclined the overall recovery in the test from 80 to 94 per cent. Jig concentration of sample No. 431 resulted in a recovery of 82 per cent of the tin in the plus 60 mesh portion of the sample in a concentrate assaying 59·8 per cent tin and 8·9 per cent tungstic acid.

Scheelite.

King Island Scheelite N.L.—A sample of scheelite ore was submitted for gravity concentration tests by stage reduction and jig concentration, and treatment of jig tailings by grinding to minus 48 mesh and table concentration. A feature of the test work was that all roll reductions and ball-mill grindings were undertaken by continuous operations. Treatment consisted of:—Roll reduction to minus $\frac{3}{8}$ -inch size and jig concentration of the minus $\frac{3}{8}$ -inch +

$\frac{3}{8}$ -inch product, closed circuit roll reduction of the + $\frac{3}{8}$ -inch and minus $\frac{3}{8}$ -inch ore and — $\frac{3}{8}$ + $\frac{3}{8}$ -inch jig tailings to minus $\frac{3}{8}$ -inch, the minus $\frac{3}{8}$ -inch + 10 mesh product was jigged. Final reduction by ball mill, the minus 10 mesh + 65 mesh product being jigged and final jig tailings, after grinding by ball mill to minus 48 mesh, were tabled with the minus 65 mesh products. The complete treatment gave the following results:—

Concentrate.	WO ₃	Weight	WO ₃ Per Cent.
	Per Cent.	Per Cent.	Distribution.
— $\frac{3}{8}$ in. + $\frac{3}{8}$ in. Jig Conc.	7.5	0.008	0.08
— $\frac{3}{8}$ in. + 10 mesh Jig Conc.	24.68	0.057	1.78
—10 + 65 mesh Jig Conc.	32.42	0.217	8.89
Table Concentrate	48.65	1.056	65.10
Total ... ..	...	1.338	75.85

The ore sample contained 0.79 per cent tungstic acid and 0.35 per cent of sulphur.

A sample of mill jig feed, containing 0.73 per cent tungstic acid, was submitted for concentration tests in a

Denver laboratory jig. Concentration resulted in recoveries ranging from 72.9 to 75.6 per cent, with concentrates and tailings containing 38 to 47 and 0.18 to 0.2 per cent respectively. Eighty-eight per cent of the sample was plus 36 mesh screen size.

Antimony.

A two cwt. sample of antimony ore from Costerfield, Victoria, was submitted by the Department of Supply and Shipping for gravity concentration tests by jigging and tabling. The predominant sulphide was stibnite. Minor quantities of oxidation products of stibnite, pyrite, and arsenopyrite were observed. The stibnite occurred as massive pieces and very small grains included in quartz. Concentration treatment consisted of roll reduction to minus $\frac{3}{8}$ -inch and jig concentration of the minus $\frac{3}{8}$ -inch

plus 12 mesh (battery screen) product. Roll reduction of the jig tailings to minus 12 mesh screen, sizing of the the jig tailings and original minus 12 mesh ore to plus and minus 30 mesh screen size and tabling separately. Reduction and sizing of the two table tailings to minus 60 mesh screen size by closed circuit ball mill grinding and wet screening, classification, and tabling separately with the following results:—

Product.	Per Cent.		Per Cent. Antimony.	Arsenic
	Weight.	Antimony.	Distribution.	Per Cent.
Jig Concentrates	0.77	55.36	36.42	0.15
Primary Table Concs. + 30 mesh	0.45	28.44	10.94	2.16
— 30 mesh	0.48	27.46	11.26	7.14
Secondary Table Concs.—				
Spigot	0.27	22.56	5.20	2.76
C/O	0.16	24.18	3.30	4.94
Tails (Spigot)	20.17	0.29	5.00	0.03
Tails C/O	77.70	0.42	27.88	0.04
Composite	100.	1.17	100.	0.098

Recovery 67.12 per cent.

Bauxite.

Bauxite from the Ouse district was submitted to preliminary tests for beneficiation by hand sorting and sizing and information obtained relating to the possible applications of these methods for beneficiation.

Gold.

Quartz gold ore from Black Bluff, containing 7.5 dwts. of gold per ton, was submitted for examination. Much of the gold is of small grain size, and a cyanidation test, after reduction to minus 36 mesh screen size, resulted in an extraction of 5.6 dwts. of gold or 74.7 per cent.

Beach Sand.

Beach sands from Piper River containing ilmenite and zircon were concentrated by tabling. A recovery of 95 per cent of the titanium in a concentrate amounting to 13.4 per cent by weight and containing 40 per cent TiO₂ was obtained. The concentrate contained 18.4 per cent of zircon and less than 1 per cent of monazite.

In conclusion, I wish to place on record my appreciation of the services rendered by the staff.

APPENDIX III.

REPORT OF THE ACTING CHIEF INSPECTOR OF MINES.

The Acting Chief Inspector of Mines (Mr. J. O. Hudson) reports:—

Mines and Works Regulation Act, 1915.

The average number of persons employed in mining, metallurgical, and quarrying operations was 5535, compared with 5572 for the previous year.

The appended tables relate to—

- (1) Fatalities and non-fatal casualties at mines, works, and quarries, which involved absence from work for more than 14 days.
(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.

Accidents.

The total number of accidents, registered under the provisions of Section 23 of the Act, was 73, as against 89 for the previous year. The 73 accidents resulted in injury to 73 persons. There were fourteen accidents less in the northern and southern divisions, seven less in the north-western division, and two less in the eastern division, whereas there was an increase of four accidents in the western division and of three in the north-eastern division.

Six accidents were attended with fatal injuries to six persons, as compared with three accidents, involving fatal injuries to four persons for the previous year. One occurred in the southern division, two in the eastern division, and three in the western division.

Of the fatal accidents, three occurred on the surface, involving the death of three persons, and three happened underground, resulting in the death of three persons. One fatality occurred at works, three at metalliferous mines, and two at coal mines.

In the fatality at metallurgical works, a man was changing points at a bin when he was jammed between the bin and horse-drawn trucks.

The two fatalities at a coal mine were caused by falls of roof.

Of the three fatalities at a metalliferous mine, one occurred underground and two happened on the surface. The underground accident was due to a man riding in a cage with timber and piping. Some of the material caught in the shaft timbers and forced him out of the cage. He fell several hundred feet.

A man attempting to jump on to a moving motor truck slipped off the footboard and fell under the vehicle, the wheels passing over him.

A driver was backing a motor truck into position to unload, when the wheels dislodged the chock. The truck went over the tip, which had a slope of almost forty degrees, and fell a distance of about two hundred feet. The driver was killed instantly.

Non-fatal accidents totalled 67, causing injury to 67 persons, as compared with 86 accidents, causing injury to 86 persons, for the previous year. The rate per 1000 persons employed, killed and injured, was 13.188, as compared with 16.153 for the previous year.

The rate per 1000 persons employed, fatally injured, was 1.084, as compared with 0.718 for the previous year.

The rate per 1000 incapacitated for more than 14 days was 12.104, as compared with 15.434 for the previous year.

Of the non-fatal accidents, totalling 67, 36 occurred in connection with surface operations, 17 underground, 10 at metallurgical and other works, and 4 in connection with coal mining.

Nineteen accidents resulted in ossea fractures or permanent injury.

Prosecutions.

There were fifteen prosecutions for breaches of the Act and Rules. In all cases convictions were obtained and fines were imposed. Six cases were for unseemly conduct and fighting, five were for failing to use appliances for the prevention of dust, two were for firing shots likely to cause injury to persons, one for allowing explosives to remain in a working place, and one case was for travelling in a cage with material. In connection with the last case, another man, travelling in the cage, was fatally injured.

Table with multiple columns and rows, containing statistical data related to accidents and prosecutions. The text is very faint and difficult to read.

*COMPARATIVE Table of Statistics of Accidents in and about the Mines of Tasmania
from 1st July, 1892, to 31st December, 1943.*

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	8·8001	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	61	65	9·280	0·571	8·700
" 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	0·389	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

* Mount Lyell disaster.

TABLE showing Rate per Thousand Killed and Injured in different Divisions for the Year 1943.

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	2005	5	1	4	5	2·493	·498	1·995
North-Eastern	362	4	...	4	4	11·049	...	11·049
Eastern	548	5	2	3	5	9·124	3·650	5·474
North-Western	469	7	...	7	7	14·925	...	14·925
Western	2151	52	3	49	52	24·174	1·394	22·780
Total	5535	73	6	67	73	13·188	1·084	12·104

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	1577	30	3	27	30	19·023	1·902	17·121
Zeehan, &c.	574	22	...	22	22	38·327	...	38·327
Total	2151	52	3	49	52	24·174	1·394	22·780

APPENDIX IV.

REPORT OF THE ACTING CHIEF INSPECTOR OF EXPLOSIVES.

The Acting Chief Inspector of Explosives (Mr. J. O. Hudson) reports:—

Explosives Act, 1916.

The imports of explosives were as follows:—

	Lb.
Monobel	12,250
Gelignite	763,250
Gelatine dynamite	62,950
Blasting powder	2,700
Sporting powder .....	.....
Ligdyn	41,750
Ajax	17,450
	Number.
Detonators	753,500

Attention was directed to ensure that compounds were in good chemical and physical condition, and only small quantities were found defective owing to absorption of moisture resulting from the age of explosives and faulty storage.

The two magazines, which were air conditioned last year, continue to give very satisfactory results.

Two accidents were recorded as having occurred from the use of explosives. In one case two men were bulling a deep hole. After the fuse, attached to the primer, had been ignited the tamping stick became jammed in the hole. While the men were endeavouring to free the stick the charge exploded, causing shock and injury to one man's knee. In the other case, a man employed in alluvial mining ignited a fuse attached to a primer with the intention of dropping it into a hole in the wash. He failed to notice that the fuse had ignited, and the primer exploded causing serious injury to the left hand. The accident was due to the use of a very short length of fuse.

The Inflammable Liquids Act, 1929.

There were no major installations during the year, and the pump storage was considerably restricted owing to petrol rationing. There was an absence of untoward incidents.

Prosecutions.

Legal proceedings were instituted in one case relating to the storage of 44-gallon drums of petrol. A fine of £5, with costs, was imposed.

APPENDIX V.

REPORTS OF INSPECTORS OF MINES.

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

Employment.—The average number of persons employed in the mining industry was 1,577, representing a decrease of 23 in the number employed last year.

Accidents.—Thirty accidents, causing fatal injuries to three persons and non-fatal injuries to twenty-seven persons, were registered under the provisions of the Mines and Works Regulation Act, as compared with thirty-two accidents, resulting in fatal injuries to two persons and non-fatal injuries to thirty-one persons, recorded during the previous year.

Twenty-one accidents, involving fatal injuries to two persons and non-fatal injuries to nineteen persons, associated with surface operations, while nine accidents, resulting in one fatality and eight non-fatal casualties occurred in connection with underground mining operations.

Eighteen of the accidents were due to lack of care either by the injured persons or their working mates. Seven accidents were regarded as having been due to misadventure, and three resulted from inexperience or bad judgment. The two fatal accidents accrued from a disregard of safety rules prescribed under the Mines and Works Regulation Act.

Of the accidents allied with surface operations, one person was killed when attempting to get on a moving motor truck. The driver of a large semi-trailer motor truck, loaded with 20 tons of rock, was slowing down to pick up the deceased, who, instead of waiting until the truck had stopped, attempted to jump on the running board and slipped. He fell, and his head was crushed by the rear wheels of the vehicle.

The driver of a 3.5-ton capacity truck was engaged in backing the truck to tip a load over a road embankment when, through some unknown reason, the truck failed to stop and carried the driver with it over the embankment. He was killed instantly.

A person was engaged in greasing a large motor vehicle at a service yard when the driver, unconscious of the presence of the greaser, backed the truck and caused one of the front wheels to move on to and inflict serious injury to the chest of the greaser.

In another instance of accidents connected with motor vehicles, a man jumped from the body of a stationary truck and severely sprained his ankle.

At an ore concentrating plant a man was walking up a stairway alongside a belt conveyor when he slipped, and, in attempting to regain his balance, caught hold of the conveyor belt at the point where it passed below the feed hopper. His arm was dragged under the hopper and severely lacerated.

An employee was attempting to adjust a weight on the moving rake of an ore classifier when his hand was jammed between the machine frame and the rake. He sustained a severely fractured hand.

When operating an acid pump in a copper refinery, a man was burnt on the face and arms by acid as the result of an error by an assistant in opening a wrong valve.

Four persons were injured in actual surface mining operations. One sustained a leg injury as the result of being struck by a tamping stick projected from a bulled hole. In this instance, two men were engaged in firing a "bull shot" in a toe hole, and when pushing a lighted fuse and primer to the bottom of the 20-foot hole the tamping stick jammed. They attempted to free the stick but delayed too long and the charge exploded. The stick was projected from the hole and struck one of the men on the knee. When attempting to move his air hose, a miner approached too close to a rock-rill, which was being barred down, when a rock fell and struck him, fracturing both legs. Two other miners were injured, one as the result of being struck by a stone rolling down a face, and the other by having his foot jammed by a stone. These injuries were of a less serious nature. Excepting two instances, where men received injuries through hernia developing while they were lifting weights, the other surface accidents were of lesser moment and consisted of finger, toe, hand, and body bruises.

One person was killed, three suffered from fractured bones, another person developed an infection from a slight

cut, and four employees sustained finger or toe injuries as the result of nine accidents allied with underground operations.

The fatal accident occurred in a main shaft. Two experienced men, a platman and bracceman, loaded a cage with an assortment of timber dunnage and a bent 14 feet length of $\frac{3}{4}$ -inch pipe and, standing on the timber in the cage, they proceeded up the shaft in contravention of a known rule. While the cage was travelling in the shaft some of the timber fouled the shaft sets and caused one man to be dragged out of the cage. He fell down the shaft about 500 feet and was killed.

A mine foreman was assisting a party of miners to bar down a rill of broken rock in a stope when a stone rolled and struck his leg, causing a severe fracture.

A miner barring down after firing in a stope was struck by a stone, which fractured the fibula bone of his leg.

Another miner was assisting two of his mates to lift a truck from one set of rails to another when he stepped backwards into an ore pass and fell about 80 feet. He sustained an injured pelvis and heel. The pass was covered with a standard iron grid, but he fell through the grid spacing.

A miner was using a hammer when he sustained a small laceration as the result of being struck by a "scat." Infection supervened, and the wound became a serious disability.

The remaining four accidents resulted in minor injuries to fingers and toes.

Safety.—Inspectorial duties have been regularly directed to the production and maintenance of safe working conditions. Corrections have been made and advice has been given, when required, to achieve the desired conditions.

In the supervision of surface and underground mining operations, strict attention has been given to the removal of affected ground before persons are permitted within its influence.

In the underground workings no uncontrolled rock movement occurred and safe conditions were maintained by timbering and filling in a routine manner. Whenever structural weaknesses were observed in stoping roofs or walls additional precautions were taken.

Ladderways, shaft equipment, lighting facilities, ore-pass coverings and guards, transfer pass control, and the handling of explosives as well as many other items, have been examined and kept efficient.

A standard type of ore-pass cover, constructed of heavy 50-lb. rails, was adopted and proved satisfactory.

Additional vacuum-brake provision was recommended and is to be provided to a section of ore-trucks used in an underground electric powered transport system.

Attention has been given to open-cut mining, milling, smelting, motor, electric and steam traffic, and other kindred operations allied with surface mining work.

Difficulty is always encountered in the control of a safe batter at open-cut mines. This is partly due to a lack of a definite law in regard to an allowable height of a quarry face. It is my opinion that, when quarrying hard rock, a maximum height should be imposed and the angle of batter should not exceed 60° from the horizontal. Soft rock and clays could be worked to greater heights provided that a suitable batter was maintained.

Life lines, used in surface and underground work, have caused some concern owing to the rope manufacturers having to use a sisal fibre in place of the usual hemp. These ropes are found to stretch badly and require closer attention to ensure safe conditioning.

In general, employees have responded reasonably well in observing measures of protection such as are prescribed by the Mines and Works Regulation Act. Exceptions have been noted, and those concerned have been reprimanded. In instances where such measures have not been observed, accidents have resulted. Two persons were prosecuted for neglect of this nature.

Shaft equipment, haulage ropes, and engine hoists, have been regularly examined and kept in efficient order. An experiment was made in the illumination of cages while in motion in a vertical shaft on the principle of light reflected from electric globes arranged in the shaft. This experiment was not successful because the cage, in movement, caused excessive flicker of the light. It is proposed to experiment with battery-lighting of cages.

Ventilation.—Ventilation of underground workings and surface buildings has received due attention, and, in the main, satisfactory conditions have been maintained. Some minor adjustments were made to underground air-flow systems by the installation of small auxiliary fans and air control doors,

One portion of a mill building required additional ventilation during hot periods, and this was provided by additional vent openings.

Thermometrical conditions have been noted in working places, and, generally, have been satisfactory.

Health and Sanitation.—Conditions affecting the health of employees, in mines and works, were regularly supervised. Reasonable conditions have been maintained at crib-places, change-houses, latrines, and working places.

A good standard of equipment has been achieved at casualty dressing rooms. At a reduction works three such units are now in charge of personnel, who, as members of a branch of St. John's Ambulance Brigade, are well trained in up-to-date methods of first aid. Two other stations are in charge of men who have had training in first-aid work.

It is of interest to record that approximately 1300 treatments were given at these stations during the year, and, of that number, some 1215 injured persons were able to return to their work after treatment. The remainder was either sent to their homes or directed for medical treatment. Those results not only illustrated the usefulness of efficient first-aid practice, but demonstrated the manner in which minor injuries could be prevented from developing complications and incurring protracted periods of incapacity.

Attention was given to prevention of excessive concentrations of atmospheric dust in working places, and, generally, reasonable conditions were maintained.

A suction fan was installed to exhaust dust from ore bins, and resulted in materially improved conditions.

In underground workings attention was given to the ventilation of stopes and drives and to the use of water sprays during the breaking and handling of ore. Generally, reasonable conditions of control were maintained.

Legal proceedings were taken against three miners working in open-cut for failing to use water for the prevention of dust arising from rock drilling operations. Several persons were reprimanded for not using sufficient water when engaged in work that created dust.

Explosives.—Close supervision was exercised in regard to the use and handling of explosives, and reasonable conditions were maintained. Two explosive accidents were recorded. One was due to carelessness on the part of two experienced men when "bulling" a toe hole, as reviewed under "Accidents," and the second accident was the result of an inexperienced person applying a fuse igniter to the detonator of a capped fuse, which he picked up after it had been accidentally withdrawn from a short "pop" hole. No personal injury resulted in the latter case.

Two persons were reprimanded for using a tamping stick in a dangerous manner, and legal action was taken against a miner for neglecting to remove unused explosives from a stope after charging a round of holes.

V.D.C. officers were advised upon the mode of storage of military explosives, and, by request, a gathering of 60 members of the Australian Workers' Union was addressed and instructed upon the recognition and safe method of handling frozen explosives.

Machinery.—Due regard was given to the safe protection and maintenance of machinery and appliances as required by the Mines and Works and the Inspection of Machinery Acts. Records of regular inspections and tests, as kept by registered managers, were examined and checked, and conditions were found satisfactory. Occasional joint inspections were made with the Inspector of Machinery. No "Machinery Accidents" were recorded.

Prosecutions.—Legal action was taken against six persons for contraventions of the Mines and Works Regulation Act. All were convicted and fines were imposed.

Three persons were charged with having failed to use water to allay dust while drilling rock at an open-cut. A miner was charged with having omitted to remove unused explosives from a stope immediately after he had completed loading a round of holes. A platman was convicted on a charge of riding in a cage in which he had loaded a quantity of timber and gear. This action was taken, for exemplary purposes, against the survivor of two men who were involved in an occurrence, described under "Accidents," in which one man was killed through being dragged from a moving cage. Proceedings were instituted in one case against a person for causing a disturbance by behaving in an unseemly manner.

Explosives Act.—Supervision has been maintained in respect of the importation, landing, transport, and use of explosives,

Explosives landed at Regatta Point for Queenstown were:—

	Lb.
Polar A.N. gelignite "50" 1½ in.	350,000
Polar A.N. gelatine dynamite "75" ¾ in.	52,600
A.N. gelignite "50" 1½ in.	157,850
A.N. gelatine dynamite "75" ¾ in.	18,400
Total	578,850

	Number.
Detonators, No. 6 L/A	400,000
Detonators, electric No. 6	5,200
Fuse igniters	21,000
	Cases.
Safety fuse, in reels	400

Because of the demand on supplies, caused by war conditions, manufacturers were unable to maintain the usual supply of polar type of explosives, and this necessitated the importation of 3157 cases of A.N. gelignite "50" 1½-inch. During cold weather this compound hardened and became non-plastic, whereupon instructions were issued that it was not to be used while in a hardened condition.

The development of hardening, at moderately low temperatures, was investigated by officers of the Department and a technical representative of the manufacturers, and it was revealed that the condition was not due to freezing of the nitro-glycerine component but to a physical fault of the ammonium nitrate faction. It was found that the explosives regained plasticity when stored in an atmosphere maintained at a temperature of 70°F.

To the average person, it was difficult to differentiate between the hardened compound and frozen explosive, consequently it was decided to regard all hardened compound as frozen explosive and treat it accordingly.

This involved the thawing out of the entire shipment, and to effect this three storage magazines were fitted with an air conditioning apparatus which produced a controlled room temperature of 68° to 70° F. The explosive was stored in these magazines for a period of 7 to 8 days and was found to regain normal plasticity without detriment to the chemical arrangement of the components. Explosives were taken directly from the magazines to the place of use and were found to remain in good condition, even under severe winter temperatures, for a period of two or three hours. Unused explosives were then returned to the heated magazines.

The method proved successful and had an added advantage of preventing deliquescence of the ammonium nitrate component to a marked degree.

Detonators, both ordinary and electric, have been found to give satisfactory service.

Attention was given to testing the burning rate of all safety fuse used. The tests revealed a uniform and satisfactory rate of burning.

Inflammable Liquids Act.—Inspections were made of premises licensed under the provisions of the Inflammable Liquids Act, and reasonable conditions have been maintained. Consideration was given to a proposal for an alteration from underground to elevated tank storage, but the proposal presented difficulties and was not proceeded with.

No additional storage was applied for during the year, and one installation was reduced by 2760 gallons.

The Workers' (Occupational Diseases) Relief Fund Act.—Certificates, certifying that 43 new employees were free from disease, were received and registered.

Applications were made by 40 persons for examination for the effects of industrial disease. In 9 instances the applicants were found to be suffering from silicosis, but one applicant, who was certified as suffering to the extent of 20 per cent affliction, appealed, and, on examination by the Medical Referee, was certified to be free from disease.

The following is a comparative tabulation of affected cases:—

	1942.	1943.
Incapacitated (affected by silicosis 100 per cent)	1	1
Partially incapacitated (over 50 per cent affection)	1	Nil
Partially incapacitated (50 per cent affection)	Nil	Nil
Partially incapacitated (under 50 per cent affection)	5	7
Totals	7	8

The following tabulation illustrates the ages and length of service in mining occupations of the eight persons certified as suffering from silicosis:—

Certified Incapacity due to Silicosis. Per cent.	Age of Person Affected. Years.	Length of Service in Mining Occupations. Years.
100	44	16 underground
40	53	23 underground
40	66	25 underground
40	39	11 underground
		6 surface
30	36	16 underground
20	44	27 underground
20	45	16 underground
20	42	17 underground
		4 surface

General.—During the early part of the year I continued the supervision of the Zeehan district until the inspector of the North-Western Division resumed duties from long-service leave.

Several visits of inspection were made to the district, and operations by prospectors on tin-bearing formations at South Heemskirk and Dundas were examined. Visits were also made to the workings of Tasmanian Asbestos Proprietary Limited and to the calcining works of the Electrolytic Zinc Company.

On relinquishing the Zeehan district, several visits of inspection were made to the Storey's Creek and Aberfoyle mines in the Avoca district.

Industrial conditions in the latter district have continued on a reasonable basis, although many difficulties have been encountered through wartime conditions. Co-operation between the National Service Officer and myself in connection with man-power problems have proved of mutual benefit.

Labour shortage is still causing curtailment of some needed mining work, and much overtime work has to be done.

The Sick and Accident Fund, Hospital Union, and Dental Clinic for mine employees has worked successfully. An excellent new hospital has been completed and commissioned.

Aid to Mining.—Advice in regard to the working of tin-producing claims has been given to prospectors working at South Heemskirk and North Dundas.

There is no production of gold recorded from operators in this district.

Mining Operations and Production.

Copper.

The Mount Lyell Mining and Railway Company Limited.—The output from all mines was 1,528,337 tons of ore, representing a decrease of 3737 tons compared with the production last year.

Surface mining resulted in an increase of 22,220 tons, while the underground output declined by 25,957 tons.

Surface mining at the West Lyell group of mines, which includes the West Lyell, Prince Lyell, Lyell Tharsis, and Royal Tharsis sections, produced a record of 1,366,825 tons of ore, compared with 1,344,605 tons of last year.

The increased production has been effected by the re-opening of the Royal Tharsis section and a general extension of the other open-cut sections.

Additions to the plant include three semi-trailer motor trucks, each of 20 tons capacity, and an efficient type of transport vehicle used in conveying bulldozers from one section to another section of the mine. This effects a great saving of time in travel and also prevents undue wear on important machines. Damage to road surfaces by machine treads is also reduced.

Extra space has been provided in the main repair shops by an extensive addition to the present building.

Underground mining proceeded at about full capacity at the Royal Tharsis mine, and resulted in an output of 124,376 tons of ore, which represents a decrease of 5553 tons compared with last year.

At the North Lyell underground workings, productive work was confined to one stope on pillar extraction. The output of 2905 tons compared with last year represents a decrease of 4233 tons.

The Lyell Comstock mine, working only on one shift per day, produced 34,231 tons of ore from underground and surface operations. This output was 15,773 tons less than for the previous year.

The Crown Lyell mine was idle throughout the year, and, compared with last year, represents a decrease of 398 tons.

Owing to labour shortage, no development work of importance was effected at any of the underground mines.

Pumped mill tailings have been used to fill depleted portions of the underground workings in all mines, excepting Lyell Comstock, where mullock from an adjacent quarry is used for filling.

Mining operations have been conducted in a safe manner and no uncontrolled settlements of ground occurred.

The following tabulation represents the disposition of the ore production:—

	Year 1942. Year 1943.	
	Tons.	Tons.
North Lyell Mine	7,138	2,905
Crown Lyell Mine	398	Nil
Lyell Comstock Mine	50,004	34,231
Royal Tharsis Mine	129,929	124,376
West Lyell Opencut Mines	1,344,605	1,366,825
Totals	1,532,074	1,528,337

In addition to the quantity of ore produced at the West Lyell group of mines, it is of interest to note that 331,025 tons of waste rock, associated with the ore body, were

mined and transported for road making and other purposes. Thus a record total of 1,697,850 tons of material was mined, handled, and transported at these opencut workings.

Reduction Works.—The concentration plant, operating for 358 days, processed 1,525,079 tons of ore and recovered 46,619 tons of copper-bearing concentrates and 50,365 tons of pyritic concentrates.

The copper-bearing concentrate was smelted, and 33,203 tons of pyritic concentrate was shipped from Regatta Point for use in the manufacture of acid.

The smelting plant treated the copper-bearing concentrate, together with 3258 tons of high grade siliceous ore from the North Lyell mine and a quantity of copper precipitates derived from mine water. A production of 10,750 tons of blister copper resulted from these operations.

Under normal running the refinery produced 10,684 tons of electrolytic copper, and recovered a concentrate, which was shipped for treatment and yielded 44,321 ozs. of silver and 7220 ozs. of gold.

All units of the reduction works operated efficiently, and attention and co-operation were afforded in the improvement of working conditions by the control of dust concentrations, cleanliness in change-houses, crib places, latrines, and work places, and by the provision of suitable protection against accident.

The main portion of the work in connection with the construction of a large flue-dust collecting plant has been completed, and the use of concrete vats to replace wooden ones formerly in use has proved successful, and is being extended throughout the refinery electrolyte cells.

Productive activities by the Mount Lyell Company are contained in the following comparative table:—

	1942.		1943.	
	Weight.	£	Weight.	£
Copper (Electrolytic) ..	11,255·138 tons	697,818·562 S.	10,684·000 tons	662,408·000 S.
Silver	36,207·920 oz. f.	3,801·832 S.	44,321·000 oz. f.	4,653·705 S.
Gold	7,251·946 oz. f.	60,916·346 S.	7,220·000 oz. f.	60,648·000 S.
Pyritic concentrate	34,499 tons	43,061·000 A.	33,203·000 tons	41,503·150 A.
Limestone	5,523 tons	1,783·000 A.	5,659·000 tons	1,980·650 A.
Silica	5,487 tons	1,743·000 A.	7,033·000 tons	2,502·702 A.

S. = Sterling value

A. = Australian currency.

f. = fine.

Gold.—Other than that produced by the Mount Lyell Company, there has been no recorded production of gold from mining operations in the district.

Inspector H. A. Vaudeau, Upper Burnie, reports:—

Employment.—The average number of men employed in mining, quarrying, and metallurgical activities was 816, as compared with 795 for the previous year. Operations afforded employment for 243 men in portion of the north-western mineral division and 573 men in the western division, exclusive of Mount Lyell. Shortage of labour for mining continued to be very acute. The average number of men increased as the result of constructional work at the King Island scheelite mine during the latter part of the year. An average of 171 men was employed in the north-western division at the beginning of the year, and the number increased to 309 at the close of the period. In the western part of the inspectorate the number of men declined from 580 to 562.

Accidents.—Twenty-two accidents were registered under the provisions of the Mines and Works Regulation Act. Twelve accidents occurred on the surface and ten were associated with underground workings. An exercise of merited care would have averted more than one-half the accidents recorded. There were no fatalities.

The most serious accident occurred when a miner, travelling down a manway, had to pass through a stope which had been made ready for mullocking. It appears that the men doing the work had placed a piece of sawn timber behind one of the ladders in the manway, thereby reducing the 5-inch clearance required under the provisions of the Mines and Works Regulation Act. The man descending the ladder kicked his toe against the piece of timber and this caused him to lose his foothold and fall down the ladder-way, a distance of about 50 feet. He sustained a deep cut in the right hip, a dislocated right shoulder, and body bruises.

A miner and his mate were nailing lining boards on square-set timbers to form an ore pass. A staging had been constructed, but there was a piece of projecting lagging which they considered sound and left in position as it was holding back some mullock. In the process of nailing the lining boards one of the miners stood on the projecting lagging when it carried away and caused him to fall down the pass, a distance of about 30 feet. He sustained shock and abrasions.

The only eye injury reported was in the case of an employee who was hammering a steel plate when a piece of hot scale flew into his right eye. He continued work for eight days, but was then incapacitated for several weeks.

A man was scraping down mullock to level off the bottom of a rill-stope when a piece of mullock rolled down the rill and struck him on the back. He was disabled for several weeks.

There were nine finger injuries. When timbering, one man rolled a cap on to his first right finger. Another man was shaping a piece of timber with a half axe to use it as a peg for holding a pipe hanger when the timber slipped and caused the axe to sever the first and second fingers of his right hand. A third man was assisting to lift a cap on to the legs of a gallery set when his first right finger was crushed between the cap and ground. A fourth person was pulling a wire rope on a scraper hoist when a wire pierced the third right finger. Infection followed and he was incapacitated for several weeks. A person was standing bulk logs and, when putting one down, crushed his finger nail between the log and a lump of ore. An employee was placing a furnace barring-tool on overhead grating when the index finger of his right hand was

caught between the handle of the tool and an angle-iron cross member. The finger was badly injured, and he was disabled for several weeks. Another man was attempting to clean the surface of a head pulley of a belt conveyor while it was running. He was using a short bat which caught in an elevator belt, and after slipping on the pulley lacerated his right hand. He had been told not to attempt this work when the belt was in motion. An employee was cleaning a vibrating screen of an idle mill when the hammer he was using slipped and caught his finger on the skirting board of a conveyor, tearing the nail from the third left finger. A person was carrying a length of 2-inch diameter pipe when he tripped and, as he placed his left hand on another pipe to steady himself, the pipe he was carrying fell on his left hand fracturing the third finger.

There were four toe injuries. A man was loading a truck and his foot slipped under a wheel as the truck moved, resulting in a crushed right great toe. Infection followed, and he was incapacitated for several weeks. An underground employee was sliding a large lump of ore down a rill when the ore rolled on to his right foot fracturing the second toe. A third person was lifting a tray of jackbits from a peg in the machine shop when the tray slipped and fell on his left foot, fracturing the great toe. A fourth man was assisting to roll some boulders from the face of an open-cut, after blasting, when a boulder rolled on to his right foot and fractured a toe.

A youth was assisting to remove steel plates from a rack in a fitting shop when one of the plates tipped and pinned him against the building, breaking his left collar-bone.

Another man was pulling ore down a rill into an ore pass when a lump of ore, alleged to be 20 lb. in weight, rolled on to his left leg. Infected hematoma resulted and he was incapacitated for 15 days.

Two men were using a crab-winch to pull some lining boards from an ore bin when the load surged forward and dropped about 18 inches. The sudden jerk of the winch threw the pawl over and out of action and caused the set screw of one handle to loosen and throw the stress on to the other handle, transmitting a jar which fractured a bone in the left arm of one of the men.

A millhand was descending a set of steps when he slipped and sustained an injured ankle.

The last accident was of a peculiar nature. A man was driving a hardened pin out of a tractor chain when a piece of steel flew from the hammer and lodged in his thigh. He worked on for five days, but was compelled to undergo an operation for a removal of the piece of steel which had been deeply embedded in the flesh.

An exercise of more care would have averted most of the accidents recorded.

Health and Sanitation.—Much attention was directed to matters affecting health and sanitation. Complaints were directed against conditions obtaining at two mines regarding the need for improved change houses, meal places, and latrine accommodation owing to increased activities. Some improvement has been obtained, but when seeking reasons for delay in producing the desired results the response has been lack of man power and difficulty in obtaining materials. This excuse has been reasonable to a degree, but appears to have been used unnecessarily in some instances. Improvements are possible, and every effort is being made to obtain them.

Ventilation.—The production and maintenance of adequate ventilation has received close attention. Improved ventilation has been required at two mines. At one large mine an improvement resulted from the installation of a larger fan to clean up the lower levels, but innovations are necessary to clear the upper levels during close and muggy weather.

Explosives.—Due regard was given to an observance of the requirements of the Explosives Act and that portion of the Mines and Works Regulation Act relating to explosives. No instance of defective explosives was encountered and no complaint was received regarding the quality of the nitro-compounds, detonators, and the fuse in use. Unloading and despatch of explosives at the port of Burnie was attended to as occasion demanded.

Inflammable Liquids.—Some irregularities were encountered in the storage and handling of inflammable liquids, but all were corrected with the exception of one case, which is to be remedied.

Safety.—Difficulty is still being experienced in obtaining the maintenance of safe batters at silica, clay, and ochre quarries. Those responsible have been finally warned that if conditions are not kept under proper control measures will be taken to enforce the provisions of the Act in regard to safety.

There has been a tendency at two mines to develop steep stoping rills to allow the broken ore to travel more easily to the ore passes. This condition of working may be reasonable in wide stopes, but it is dangerous in narrow stopes and has been the cause of contention. However, the position was relieved by the installation of scraper systems and the flattening of rills, all of which have made for greater safety in stopes.

Frequent directions have been necessary in matters affecting the extension of bulking and other systems of timbering, the improvement of ladderways, and the controlling of details of a miscellaneous nature to ensure the production and maintenance of greater degrees of safety in working conditions. Every encouragement has been extended to officials and employees in the matter of keeping all affected ground barred down, and it is believed that closer attention is being given to this important detail. The fact that no person was struck by "scats" of ground is evidence of greater care. There was one large setoff of ground along a main underground gallery, but there was ample warning of the impending movement, and no person was in the immediate locality when the ground finally settled.

A settlement of ground occurred at a second mine during a week-end and buried some drilling equipment. The affected area has been cleared and mullocked.

Machinery.—Maintenance and protection of machinery and appliances received the attention demanded by the provisions of the Act. Safety cages and winding haulage ropes were kept under close observation, and at one mine a new rope was installed when required. There has been close co-operation with the Inspector of Machinery in matters relating to machinery, and the result has been beneficial to all concerned.

Prosecutions.—Legal action was taken against seven persons. Two men were prosecuted for unseemly conduct in a workshop at a mine. Each was convicted, fined 10s., and ordered to pay 8s. 3d. court costs. Two men were proceeded against for blasting under circumstances likely to injure persons. One was convicted, fined £1, and ordered to pay 14s. 6d. court costs. The second person was in hospital for some time, but the case was heard at an appropriate time and he was convicted, fined £1, and ordered to pay 1s. court costs.

Action was taken against two men for failing to use water to allay dust during rock-drilling operations. Each was convicted, fined £1, and ordered to pay 7s. court costs.

One person was prosecuted for using insulting words within the hearing of another person in a workshop at a mine. He was convicted, fined £2, and ordered to pay 7s. court costs.

The Workers' (Occupational Diseases) Relief Fund Act.—The following tabulation gives particulars regarding the persons who applied for examination under the provisions of the Act:—

Certified Incapacity Due to Silicosis. Local Medical Officer.	Incapacity Certified by Referee Medical Officers.	Length of Service in Mining Operations.
Per Cent.	Per Cent.	Years.
50	50	35
50	50	40
Nil	Nil	9
25	Nil	22
20	Nil	15
50	Nil	16
Nil	Nil	31
Nil	Nil	9
Full	Unknown	38
Nil	Nil	9
40	Nil	30
(re-examination)		(about)
Nil	Nil	22
20	Nil	17
Nil	Nil	9
Nil	Nil	15

The board may have arranged other examinations of which I have no knowledge.

General.—Upon return from long-service furlough it was found that inspectorates had been amended to provide temporarily for the reduced staff, but with a restoration of staff personnel the former inspectorates were reverted to so as to provide the improved system of working established by the Director of Mines in 1940.

Appreciation is recorded of the assistance afforded me by most of those in charge of operations at mines and works and by those actually engaged in operations. Arrangements were made to meet employers and employees for discussions upon contentious matters, and in this manner it was hoped to secure full co-operation in matters affecting health and safety.

Mineral Resources.—Several properties were examined in connection with applications for financial assistance under the provisions of the Aid to Mining Act. As opportunity permitted, in the general execution of duties, prospects and possibilities of some areas, having a material bearing upon the development of the mineral resources, were examined and reports were compiled thereon.

MINING OPERATIONS AND PRODUCTION.

Asbestos.

Development work was continued by the Tasmanian Asbestos Pty. Ltd. at Zeehan, and the results were deemed sufficient to proceed with the installation of an asbestos extraction plant. The plant was installed and production was commenced towards the close of the year, when 318 tons of asbestos-bearing serpentine was processed for a recovery of 18.25 tons of fibre, valued at £365. The average number of men employed was fourteen.

Cadmium.

The recoverable quantity of cadmium, in ores produced by the Electrolytic Zinc Company of Australasia Limited from the Read-Rosebery mines, was 40.34 tons, valued at £18,072.

Clay.

In addition to clay normally required for the manufacture of bricks, 1.273 tons of white clay, valued at £1601.75 was won from a deposit at Hellyer for use at the Associated Pulp and Paper Mills at Burnie.

A tractor driven bulldozer was hired for the removal of overburden, but mechanical difficulties developed on two occasions and hampered operations. However, a large quantity of overburden was stripped, and the output of clay was 175 tons in excess of that for the previous year. An average number of 4 men was employed.

Copper.

An output of 464.38 tons, valued at £28,791.6, resulted from operations by the Electrolytic Zinc Company of Australasia Limited. A limited quantity of low-grade copper sulphides was broken from known ore bodies at the Hercules mine, but following the improvement in the Australian copper position the mining of copper sulphide ore was discontinued and copper concentrates continued to accrue from a selective stripping of the zinc-lead ores.

Dolomite.

A 10-ton parcel of dolomite was broken at Smithton and despatched to the mainland for testing purposes. The parcel was valued at £25.

Gold.

The recorded output was 9519 ozs. fine gold, valued at £A79,967.516. This gold was recovered from the zinc-lead sulphide ores mined by the Electrolytic Zinc Company of Australasia Limited at the Read-Rosebery mines.

Operations by Geale and party on the area west of the Lyons River were practically discontinued, only a small amount of work being done by members of the party when a visit was made to the area.

A small quantity of gold was won at Doctor's Rocks and at the 19-mile osmiridium diggings, but no record of sales has become available.

Farmers at Seabrook, Cam, Big Creek, and Calder River areas do a little fossicking during unfavourable farming weather. Attractive samples of gold have been seen, but no development has resulted.

Graphite.

Seven tons of graphite were mined by A. Pearson at East Ulverstone and forwarded to the mainland. The product was valued at £10.5 at the mine.

Iron.

Ferrico Proprietary Limited.—Some trenching and cross-cutting were carried out during the first half of the year, after which work was discontinued. Some very good haematite was exposed by surface trenching southerly from the iron hill.

Five tons of haematite was despatched from Spalford to the mainland by A. Pearson. The ore was valued at £7.5.

A sample parcel of 2 tons of limonite was forwarded to the mainland from Smithton by M. Sampson. The parcel was valued at £6.

Some prospecting work was carried out on the eastern and southern sides of Mount Duncan and at Dial Range by an Ulverstone Syndicate, but no development of moment resulted.

Limestone.

A quantity of 744 tons of limestone was broken and despatched from lower Scotchtown to the Associated Pulp and Paper Mills at Burnie. One hundred tons were broken from Fenton's Lime Pit at Irishtown by various local farmers for soil treatment.

Osmiridium.

The only production recorded was 5.2 ozs. osmiridium, valued at £122.249, and this was won at the 19-Mile Creek and Bald Hills in the Waratah area.

Ochre.

Ochre mining was more active. A quantity of 311 tons of yellow ochre was broken from a deposit at Penguin Creek, Penguin, and forwarded to the mainland. Parcels of yellow ochre were won from a deposit at Deep Creek, Smithton, and 33 tons was despatched to the mainland. As required, red ochre was quarried from a deposit at Spalford, and a quantity of 36 tons was forwarded to the mainland. Given favourable marketing conditions, ochre mining could be further appreciated.

Scheelite.

Opencutting and milling operations were actively pursued by the King Island Scheelite N.L. at Grassy, King Island, 29,500 tons being broken and despatched to the concentrating mill, where a total quantity of 29,180 tons was treated for a recovery of 199.201 tons of scheelite concentrate, containing 137.816 tons of WO_3 , valued at £A68,908. An average number of 105 men was employed. The average for the first quarter was 70 men, whereas 182 men were employed in the last quarter due to a forward policy of development and reconstruction for stepping-up the output of scheelite.

In addition to normal operations, extensive investigations were carried out in connection with the new milling project. Preparatory work for the erection of a new mill was commenced.

A series of diamond drill holes, commenced in 1942, was completed in 1943. From 35 holes, aggregating 7650 feet, a much clearer knowledge of the geological structure of the ore body was obtained and should greatly assist future mining operations. A total of 74,442 cubic yards of overburden was removed during the period.

The provision of a 55 R.B. shovel with 2½-yard bucket and a D 8 caterpillar tractor with a 12 cubic yard carry-all comprising an initial mechanical set-up for more active quarrying.

The crude ore for milling was obtained from the 90-foot, 120-foot, and 140-foot benches above sea level. Experiments were made with diamond drill blast holes.

Gravity concentration was employed in milling operations working three shifts daily and aggregating 138 hours each week. One 5 feet x 4 feet Marcy mill was installed to replace two existing mills.

General preparation of the new mill site, and the erection of mill buildings, dwellings, and other facilities were well in hand at the close of the year.

Some prospecting work was carried out to the south-east of Grassy at the week ends, but nothing of value was exposed.

Silica.

The Leven silica quarry was worked according to the demand for silica, and the quantity despatched was 295.5 tons, valued at £295.5. Operations afforded employment for 3 to 4 men during actual quarrying periods.

Silver-Lead.

Farrell Mining Company, Tullah.—Crude ore mined and milled was 9648 tons, resulting in a recovery of 2250 tons of concentrates, containing 193,070 oz. silver, 1659 tons of lead, valued at £A61,747.4. The average number of men employed was 67.

The south drive on No. 7 level was advanced 226 feet, making the total distance from the crosscut 514 feet. For a length of about 80 feet, in this driving, payable ore was disclosed, averaging about 2 feet wide. The north main drive was extended 140 feet, making a total of 166 feet from the crosscut. At 130 feet payable ore was revealed on both walls. This development has proved satisfactory over a width of 8 feet and was continuing strongly in the face at the end of the year.

On No. 1 level, crosscuts have been driven east 193 feet, but nothing of a payable nature was intersected. The mullock from this prospecting work was used for filling stopes below No. 1 level.

Stoping was carried out continuously on Nos. 7 and 6 levels south of the main crosscut. North of the main crosscut stoping has been carried on at Nos. 4, 3, and 2 levels, the lodes generally producing very good grade ore in payable quantities.

The crusher and flotation plant worked satisfactorily and treated all milling ore available.

Twenty more men could have been employed if they had been available.

Tin.

The recorded output of metallic tin was 148.7 tons, valued at £38,683.7 sterling. Of this quantity 73.02 tons accrued from operations in the western division and 75.66 tons resulted from activities in that portion of the north-western division under my jurisdiction.

The Mount Bischoff Tin Mine, Waratah.—The mine had been worked for many years on the tributing system, but, towards the close of the year, it was resumed by the Commonwealth Minerals Production Directorate for the purpose of working it as a Commonwealth venture to maintain and, where practicable, step up the production of tin essential for war purposes.

The following particulars of operations have been supplied by the management:—

North Valley Mine.—One 500 cubic feet Ingersoll Rand compressor, receiver, and 100 h.p. motor have been installed. A jack-bit grinder was purchased and "jack-bits" are now being used and sharpened at the mine. A new air main was provided to underground workings. New change house was erected.

North Valley Concentrating Mill.—The whole mill has been reconditioned, all tables overhauled, lino tops installed, and new head-gears fitted. Two 5-head batteries installed in place of old battery boxes. Hydro-classifiers were installed. New concentrates bin and settler tank were built in.

North Valley Road.—Traffic telephone signal has been installed. This road has been graded and repaired to cope with heavy traffic.

Southern Slopes of Mount.—One $\frac{3}{4}$ -yard electrical shovel was installed to load low-grade ore into main line trucks. Main line has been reconditioned. Twenty new 2-ton trucks have been made and 13 renovated. A 6-ton 30 h.p. "International" petrol locomotive now replaces the horse-team in hauling trucks from the mill to the mine. A 2-truck tippler has been installed at the 40-head mill, and trucks can now be emptied at the rate of one per minute.

"40-Head Mill."—An extra 5-head battery has been placed in commission, and three 5-head batteries have been reconditioned. Total now in use, 20 heads. All tables have been overhauled and reconditioned headgears installed. Provision has been made to instal 4 hydro-classifiers, one to each 5-head battery.

Calciner.—This unit has been completely overhauled, discharge from the furnaces has been graded to a Warman pump on table floor level and from here the product is pumped up to a hydro classifier and distributed to various tables. All tables have been overhauled and new head-gears provided. Three new large concentrate bins have been built to take concentrates from North Valley, Happy Valley, and 40-Head Mill. The flues from the furnaces have been overhauled and new water jets installed, thereby greatly reducing the fumes.

Power Supply.—An extra machine has been placed in commission at the hydro-power station—755 k.w. now being available. Fluming has been repaired and renewed where required. New supports have been fitted to the hydro-pipe-line.

General.—Mount Bischoff cottages have been reconditioned. A Ford V8 utility has been purchased for conveyance of staff and workmen to and from the various workings.

Mining.—North Valley Mine: Rising 111 feet, driving 225 feet, and crosscutting 139 feet. Ore mined 9431 tons. Pig Flat Southern Slopes: Quantity excavated by electrical shovel 31,039 tons. Happy Valley Workings: 3993 tons of ore delivered to the battery. Tin despatched 107.8 tons (oxide).

Stanley's Tin Mine.—A total of 38 tons of ore was sent to the Mount Bischoff mill, and a recovery of 0.675 ton of tin oxide was made containing 0.442 tons of metallic tin valued at £114.44. Work was discontinued towards the end of year.

R. W. Pryde, Tinstone Creek.—Ground sluiced 450 cubic yards for a recovery of 0.21 ton of tin oxide, valued at £32.95.

Treatment of tailings at Housego's tin mine on the Waratah River resulted in a recovery of 1.438 tons of tin oxide containing 0.953 ton of metallic tin valued at £247.3.

Work was carried on at the Big Dipper on Wombat Flat for a few months. Approximately 1500 cubic yards of ground was sluiced for a recovery of 0.8 ton of tin oxide containing 0.533 ton of metallic tin valued at £138.314. A final clean up was made, and the claim was then abandoned.

W. Betts did some prospecting work at Ritchie Creek, and exposed a narrow run of good grade ground, but there is not sufficient to warrant the assemblage of plant necessary for sluicing and elevating.

In addition to the foregoing, a little prospecting was pursued in the environments of Waratah, but no development of moment resulted, and there is no record of production from these operations.

Revison Associated Tin Mines.—Mining and milling were continued for most of the year. Ore mined and milled was 11,630 tons for a recovery of 95.33 tons of tin concentrates, containing 61.193 tons of metallic tin, valued at £15,879.687. An average of 41 men was employed.

Some very good ore was developed at the Dalcoath and the Boulder Faces. Most of the milling ore was obtained from these open-cut workings. The overburden became heavy at the Boulder workings and caused some concern. Fortunately, rich ore was struck in the floor of the workings and eased the position whilst a productive face was being opened up further to the north, where there was an encouraging development of ore towards the end of the year. Some underground driving and crosscutting have been carried out with the view of adopting the "glory hole" method of mining. A forward policy of mine development and mill innovations was planned, and representations were made to Commonwealth and State Governments for assistance to enable the policy to materialise.

The tin potentialities of the area are promising, but improved methods of development, mining, and milling are essential if the property is to become an asset.

Tasmanian Amalgamated Tin Mines, Revison Bell.—A total of 1706 tons of ore was mined and milled for a recovery of 8.932 tons of tin concentrates containing 6.47 tons of metallic tin valued at £1678.966. All the handy, accessible oxidised ore was won from the Federal Workings, the mill not being suitable for the treatment of the sulphide ore. The mine was unpayable under the conditions of working and operations were suspended. The leases and plant were sold. Amalgamation of all leases in the area is desirable for the future of the field for systematic development, collective working, and the proper handling of oxidised and sulphide ores.

J. S. Fenton purchased the lease of G. Cox, put the races and pipeline in order, and commenced sluicing. An estimated quantity of 2787 cubic yards of ground was sluiced for a recovery of 1.967 tons of tin oxide containing 1.23 tons of metallic tin valued at £318.406.

At the Razor Back Tin Mine approximately 18 tons was treated by hand for 0.37 ton of concentrates containing 0.212 ton of metallic tin valued at £55. An option of purchase was taken over the property, and two men were employed driving an adit in kindly looking country, but one of the men was recalled to work he had left and operations were temporarily suspended.

At the Grand Prize Mine, Casey and Smith continued the mining of a rich seam of ore, then proceeded to crush some of the richest of the dumped ore, an oil engine having been installed to drive the small battery when no water was available for driving the water-wheel. The party

crushed 120 tons and recovered 1.89 tons of tin concentrates containing 1.094 tons of metallic tin valued at £283.8.

Ex Gorge Tin Mine.—Most of the year was devoted to trenching to expose the continuation of the known lode. The lode has been exposed for approximately 1600 feet, and free tin can be washed from its full length. The lode varies from 20 inches to six feet in width. The adit, driven many years ago by Adelaide investors, has been cleaned out, and it is considered reasonably certain that the adit was not driven sufficiently far to intersect the lode being worked by the present lessee. If payable ore is struck in the adit there should be sufficient inducement for the installation of a mill. The present operator burnt and hammer-crushed 5 tons of ore for a recovery of 0.205 ton of tin concentrate valued at £34.77.

At Balfour a party of two men were prospecting for part of the year, principally at Specimen Hill. From these operations 0.6 ton of tin oxide was recovered containing 0.434 ton of metallic tin valued at £113. The operators also won 0.117 ton of wolfram valued at £6. The principal member of the party is sanguine in regard to the possibilities of the field, and considers that isolation is the only deterrent to more active production.

At North Heemskirk R. Smith is still ground working, and sluiced approximately 515 cubic yards for a recovery of 0.834 ton of tin oxide containing 0.572 ton of metallic tin valued at £148.434. H. G. Watson ground sluiced approximately 350 cubic yards for a recovery of 1.29 tons of tin oxide containing 0.91 ton of metallic tin valued at £237.44.

At South Heemskirk operations were intermittent and values have been patchy. Some very good milling ore has been exposed up on the summit known as "Big Trench Workings," but is not rich enough to be handled in the prevailing manner with a miniature mill sited near the old mill of the Federation Tin Mine.

At Naracoopa, King Island, Gatenby and Patterson installed a larger concentrating table and treated about 150 tons of beach sand for a recovery of 0.344 ton of tin oxide containing 0.23 ton of metallic tin valued at £59.69. An experimental magnetting machine was assembled for splitting the magnetic products in the mineral sands.

Other parties, working at different places for varying periods, obtained the following results:—

Name.	Tin Oxide. Tons.	Metallic Tin. Tons.	Value £	Locality.
Geason	0.609	0.272	23.875	South Heemskirk
Robertson & Party	1.004	0.603	156.479	ditto
Humphries... ..	0.242	0.142	36.849	ditto
Coleman	0.244	0.121	31.399	ditto
Copping	0.359	0.251	65.135	Ex River
Pepper	0.135	0.080	20.76	Renison Bell
Ferguson & Wallace	0.194	0.092	23.875	Five Mile
Hayes	0.198	0.104	26.989	Kara
Housego	1.438	0.953	247.304	Waratah

Housego obtained his tin from retreating old tailings on the Waratah River below the leases of the Mt. Bischoff Tin Mine.

Zinc-Lead-Copper.

Electrolytic Zinc Company of Australasia Limited, Rosebery, Williamsford, and Zeehan.—The Hercules mine produced 47,741 tons of ore and the Rosebery mine 104,222 tons of ore, the total of 151,963 tons being treated at the Rosebery mill for a recovery of 44,827 tons of zinc concentrates, 9056 tons of lead concentrates, and 4785 tons of copper concentrates, containing 6973.56 tons of lead valued at £174,339.00, 879,184.89 oz. of silver valued at £92,314.21, 21,078.85 tons of zinc valued at £574,398.67, 9518.99 ozs. of gold valued at £79,969.52, 464.38 tons of copper valued at £28,791.6, and 40.34 tons of cadmium valued at £18,072, making a total value of £967,885. The average number of men employed at the mines and works at Williamsford and Rosebery was 400. An average of 25 men was employed at the calcining works at Zeehan, where zinc concentrates from Rosebery were calcined and despatched to Risdon for final treatment.

The superintendent has supplied the following information regarding developmental work:—

Diamond Drilling.—Footage bored during the year totalled 5326, 3447 feet being drilled at the Rosebery mine and 1870 feet at the Hercules mine. No major ore occurrences were disclosed by drilling, but useful information was obtained and extensions of known ore bodies were proved.

Prospecting Drilling.—Since the prospect drilling campaign commenced in August, 1942, a total of 2247 feet has been drilled. Prospects drilled were the Dalmeny area, Jupiter mine, and the Ring P. A. mine. No ore of commercial value was disclosed, but wide low-grade formations were intersected at the Jupiter mine.

Inspector L. F. Egan, Launceston, reports:—

Employment.—The average number of men employed in metalliferous mining was 897 as compared with 867 for the previous year. The increase was due largely to a diversion of labour from a State undertaking for absorption in the mining industry.

Accidents.—Eleven accidents, causing non-fatal injuries to a like number of persons, were registered under the provisions of the Mines and Works Regulation Act. The eleven accidents were associated with surface operations.

Development completed at the Rosebery mine comprised 683 feet of driving, 133 feet of crosscutting, 300 feet of rising, and 137 feet of winzing. Included in these figures is 99 feet of driving on No. 10 level.

Developmental work completed at the Hercules mine comprised 446 feet of driving, 11 feet of crosscutting, and 213 feet of rising. The south drive to J-K lodes on No. 6 level reached its first objective, and has opened up a fair body of ore. Driving south on the 5-B level proved that the south lode lived to that horizon, good grade ore being disclosed. Mining of low grade copper ore was discontinued during the year owing to the improvement in the Australian copper position.

Ore Production.—Ore mined for the year was below normal. Full production could not be maintained owing to the shortage of manpower. Miners had to be taken from stopes to carry out urgent development work.

Remarks.—The year has been a difficult one owing to ore breaking having caught up with development work. Shortage of man-power and absenteeism are still serious problems. A dispute with the contract miners at the Hercules mine over contract prices seriously affected production. The dispute lasted six weeks, during which period the men went on wages. There have been no major alterations in mining methods. Rising on pilot diamond drill holes is still proving successful. No fatal accidents occurred during the year.

Milling.—Although the mining of copper ore at the Hercules Mine was discontinued, copper concentrates are still being made from the normal copper content of the zinc-lead sulphides. No material changes were made in the concentrating mill.

There were four lifting accidents, involving strained muscles, a rupture, and other injuries.

A miner was lighting the fuse of an explosive charge to disrupt alluvial wash but failed to notice the fuse ignite and the charge exploded, causing shock and injury to his left hand. The mishap was due to carelessness and the use of a fuse too short for safe blasting.

There were two machinery accidents, resulting in a broken rib in one case and a fractured pelvis in the second case.

Three accidents were due to stones rolling down steep rills of fallen ground. One person sustained an injured hand and abrasions, a second person sustained a bruised foot, and, in the third case, the injured person suffered a fracture of the left radius bone.

One person was loading a truck with limestone when his finger was jammed against the side of the truck.

Safety.—Every care has been given to the production and maintenance of safe working conditions. In this regard attention has been directed to the establishment of safe battering of walls and faces of workings; regular and frequent barring down of affected ground; control of alluvial drift faces to preserve safe angles of repose; the elimination of overhanging banks of races; the efficiency and adequacy of lifelines at quarry faces; the conduct of safe blasting practices; and the use of efficient warning signals in blasting.

The small number of accidents indicates the care that has been exercised in the control of safety throughout the division.

Health and Sanitation.—In accordance with the constructive policy of the Department, efforts have been directed to the establishment and maintenance of hygienic and comfortable crib places, change houses, latrines, and first-aid rooms.

Dust Conditions.—Conditions of atmospheric dust have received constant care, and, as a result, a fairly good standard of efficiency has been maintained. In one instance, construction work is proceeding on a stone crushing plant, and any possible dust generation is being watched with a view to its control.

Explosives.—No instances of defective nitro compounds, safety fuse, or detonators have been encountered. Sensitivity tests have been made from time to time on nitro compounds at mines and works, and on all occasions satisfactory results have been obtained. Tests were made of the burning rates of safety fuse, and no irregularities were observed.

Machinery.—Special attention was directed to the guarding and protection of mining appliances and machinery on mines and works. As a result of the care exercised, machinery accidents were kept at a minimum.

Inflammable Liquids.—The handling and storage of inflammable liquids was carried on throughout the year without mishap or untoward incident.

A further diminution is recorded in the number of licensed installations, due largely to petrol rationing.

Mineral Resources.—Several applications for financial assistance, under the provisions of the Aid to Mining Act, were investigated, the properties in question being examined and reports thereon being furnished.

In the execution of routine inspection duties, every available opportunity was taken to visit and report upon mineral possibilities and prospects to ascertain their suitability for economic exploitation. In this manner it was hoped to advance the constructive policy of the Department in the development of the mineral resources.

Mining Operations and Production.

Gold.—The output of fine gold for the year totalled 478·113 oz. valued at £3976·149 sterling compared with 908·436 oz. valued at £7631 sterling for 1942. These figures are indicative of the falling off in activity of gold mining. At the same time, prospects for post-war development are improved by virtue of some promising formations recently uncovered in the South Mt. Victoria area. With relaxation of restrictions on man power and materials in the post-war period there should be a forward development in gold mining.

Lisle, Nabowla.—Production for the year was confined to the first quarter when 0·64 oz. fine gold valued at £5·37 sterling was produced. Fossickers were responsible for this production.

Lefroy.—Treatment of old battery tailings by cyanidation was carried out by Lefroy Dumps Syndicate over the first six months of the year, and resulted in the production of 43·78 oz. fine gold valued at £367·75 sterling. Operations were suspended owing to labour shortage.

Mathinna.—Cyanidation of sands was continued at the Golden Gate mine, and resulted in a recovery of 401·413 oz. of fine gold valued at £3371·86 sterling from 6966 tons of material treated.

Miscellaneous fossickers at Herrick, Pioneer, South Mount Cameron, and Bradshaw's Creek were responsible for the recovery of 17·057 fine ozs. valued at £143·28 sterling.

Gold recovered by the Endurance Tin Mining Company amounted to 7·48 fine ozs. valued at £62·83 sterling.

Fossickers in the Ringarooma and New River area produced 6·63 fine oz. valued at £55·692 sterling, while gold from Gladstone field amounted to 1·12 oz. valued at £9·41 sterling.

Tin.—A further decline in production is recorded for metallic tin, the output being 796·436 tons, valued at £206,675·132 sterling. This represents a falling off in production of 169·72 tons, the value of which would amount to £44,042·34 sterling.

The cessation of mining activities at the Anchor mine, Lottah, the Harridge mine at Moorina, the Lanka Tin Mine at Gladstone, and the John Bull Mine at Bell's Hill contributed in large measure to this falling off in production. To this must be added the further disability of protracted spells of dry weather, during which water was either not available or inadequate for sluicing needs in the various alluvial tin fields. The closing down of the present face at the Endurance Mine is also worthy of note along with its falling off in production.

The opening up of two mines by mainland interests, one the Golden Sovereign Tin Mine situated at Herrick, and the other the Banca Mine at Winnaleah, will be followed with interest. In addition, another potential tin producer was brought into operation during the second half of the year in the form of the Bell Creek Mine (Kirwan Bros., St. Helens). These new ventures were operating for only a portion of the year and taken over the full year the output does not compensate for the loss sustained to the industry by the closing down of the mines indicated.

Storey's Creek Tin Mine, Storey's Creek.—Operations at this mine were of a progressive nature. Ore mined and milled totalled 10,556 tons, representing an increase of 1534 tons over the output for the previous year. Tin oxide produced amounted to 55·45 tons compared with 40·1 tons for 1942. Whereas in the previous year employment figures declined from 91 to 69, the number of men employed increased from 69 to 104 during the period under review.

Surface developments included new hut accommodation and renovations to existing cottages.

Harmonious conditions obtained under existing industrial awards.

Aberfoyle Tin N.L.—Additions to surface plant and underground development work, driving, cross-cutting, and shaft sinking combined to make the year one of progress and ultimate profit. Hours milled totalled 2767. The recorded output for the year amounted to 347·041 tons tin oxide from 16,462 tons of crude ore treated. Plant additions included two small bins, a jaw crusher 16 inches x 10 inches, belt conveyor 150 feet long delivering ore to a new bin at the mill, a small gyratory crusher, two bucket elevators, a vibrating screen, and a set of 30-inch x 15-inch slow speed rolls.

Underground: The main shaft was sunk 89 feet below No. 4 plat. Driving and crosscutting distances totalled 1663 feet. Diamond drilling was continued, the depth completed being 2200 feet.

Satisfactory industrial conditions obtained under existing awards.

Goshen Tin Mines, St. Helens.—The Goshen Tin Mining Company operated four faces intermittently. The George's Bay Tin Mine was absorbed by the Goshen Company and was put into immediate production. The output of tin oxide for the year equalled 45·985 tons, representing 32·565 tons metallic tin. The average number of men employed totalled 34.

Tasman Tin, Lottah.—Tributing ceased on this mine during the year, and the affairs of the company were wound up. It is pleasing to note, however, that the mine has been purchased by a small syndicate with a view to its re-opening when labour again becomes available.

Bryce and Eddy, Weldborough.—This shallow alluvial proposition, on the Recreation Reserve, gave employment to one man, and tin oxide produced for the year amounted to 1·1898 tons, representing 0·6231 ton metallic tin.

Fancy Creek, Weldborough.—Operations here were discontinued, and a new face known as the Waverley was developed.

Waverley Tin Mine, Weldborough.—The first face opened up on the Waverley increased very rapidly in depth and encountered a hard granite bar. This necessitated a new approach and a new face had to be developed. Production from sluicing amounted to 1·847 tons of tin oxide, representing 1·442 tons of metallic tin. The mine provided employment for three men.

H. Hirridge, Moorina.—Enlistments for war service by the owners caused the suspension of operations on these leases.

A. W. Bird, Moorina.—Sluicing was carried on throughout the year on two faces, both flanking the western side of the Moorina-Weldborough road. Production totalled 8-9178 tons of tin oxide, representing 5-9778 tons metallic tin. An average of seven men derived employment from these activities.

Miscellaneous parties working shallow alluvial tin runs in the Weldborough, Lottah, Moorina, and Blue Tier areas were responsible for the production of 6-2354 tons of tin oxide, which contained 4-3881 tons metallic tin. The average number of men employed was 25.

Shean Bros., Bradshaw's Creek.—In the production of 4-6385 tons of tin oxide, containing 3-4917 tons of metallic tin, 2 to 5 men were engaged in sluicing operations. This proposition, which adjoins that of H. V. and L. Wood flanks the left bank of the Wyniford River, and one clean-up, after treating 6000 cubic yards, yielded 3-75 tons of tin oxide, thus averaging 1-4 lb. of tin oxide per cubic yard of ground sluiced.

Eastern Leads Tin Mine, Bradshaw's Creek.—Production on this sluicing proposition amounted to 7-384 tons concentrates, containing 5-49 tons metallic tin. To obtain this, 14,400 cubic yards were treated, four men being employed. These figures represent an increase of 1400 cubic yards treated over and above the previous year, and an increase of 1 ton in concentrates produced.

Endurance Tin Mining Co. N.L.—The year marked the close of operations on the northern end of the lease. It is proposed to move the scene of operations to the southern end of the tenement, on the area known as the Clifton. The construction of the barge for the new set-up is already well advanced, and it is anticipated that sluicing will commence on the new location towards the close of 1944. During the period under review, this mine treated 421,300 cubic yards for a recovery of 144-54 tons of concentrate, containing 107-209 tons metallic tin. In addition, 7-48 ozs. fine gold was recovered. A quantity of 32-5 tons of monazite sand from past operations was sold.

H. F. Woods and Party, Bradshaw's Creek.—Shortage of man power, through war service enlistments, made it difficult to pursue continuous sluicing and maintain the plant. The owner persisted in working under these difficulties and was responsible for the single-handed recovery of 2-0184 tons tin concentrate, containing 1-4678 tons metallic tin.

Miscellaneous parties in the Herrick, Bradshaw's Creek, South Mount Cameron area produced 9-21 tons tin concentrates, containing 6-648 tons metallic tin. In addition, 17-05 ozs. of fine gold was recovered and employment figures fluctuated between 13 and 33.

Star Hill, Gladstone.—Here, again, active mining was pursued throughout the year, the recorded output being 13-21 tons of tin concentrates, representing 9-575 tons of metallic tin. Operations here afforded employment for five men.

Lanka Tin Mine, Gladstone.—No sales were recorded by this mine after the first quarter, the production to then being 1-36 tons concentrates, containing 0-922 tons metallic tin. Plant was dismantled and the mine was temporarily idled.

J. H. Dobson, Boobyalla.—Diminishing values in the alluvial face at Boobyalla influenced the owner to transfer operations to another area. The change over to the new area (situated on the same lease but further along in the direction of Gladstone) is designed to take place early in the new year. It is proposed to use the steam plant on the new location.

Actual production was confined to the latter half of the year, when 22,000 cubic yards of ground were treated for a recovery of 4-34 tons concentrate containing 3-049 tons metallic tin. Five men were employed.

Briseis Consolidated N.L., Derby.—Developmental work was limited to driving of tunnels to facilitate the removal of overburden, and to a diversion of the Ringarooma River. In all, 2000 feet of tunnelling was completed, the same being close timbered and equipped with sluice channels for the passage of the overburden detrital matter. The completion of the new overburden tunnel is expected to bring under control a greater area of pay dirt than was hitherto thought possible by the removal of a larger expanse of overburden. Regular developmental work comprised the usual stripping of basaltic overburden, and in this work 203,000 cubic yards of ground was removed. The production of tin oxide amounted to 352 tons containing 253-44 tons of metallic tin from the treatment of 748,000 cubic yards of tin drifts. The mine provided continuous employment for 150 men,

Miscellaneous parties in the Winnaleah and Derby areas recovered 5-577 tons of tin concentrate containing 3-627 tons of metallic tin. The recovery of this metal afforded employment for 10 men, and represents an increase of 1-5 tons of tin-oxide over the production from the same source in the previous year.

Arba Tin Mine, Branxholm.—Steady production continued at this mine as a result of the activities of several tribute parties. Output of tin oxide totalled 25-42 tons containing 18-8 tons of metallic tin. Two men were employed in its recovery.

Ruby Flat (O. J. Walsh), Branxholm.—Recorded recovery of tin oxide on this sluicing proposition was 4-3367 tons, estimated to contain 2-978 tons of metallic tin. Men employed varied from 2 to 5 according to seasonal conditions.

Baker's Discovery, Branxholm.—As in the previous year, protracted spells of dry weather continued to limit productive periods at this mine. Output amounted to 3-5786 tons of tin oxide, estimated to contain 2-557 tons of metallic tin. Towards the latter end of the year sluicing was confined to some shallow ground on the eastern end of the lease owing to inadequacy of the water supply.

Operations by miscellaneous parties in the Branxholm area resulted in a recovery of 7-126 tons of tin oxide estimated to contain 4-92 tons of metallic tin. These operations afforded employment for 10 men.

Strait Islands.—Mining was at a low ebb. The aggregate output at Cape Barren Island was 0-297 ton of tin oxide containing 0-206 ton of metallic tin.

Production of Flinders Island amounted to 0-905 ton of oxide, representing 0-504 ton of metallic tin.

Bell Creek Tin Mine.—This mine, the subject of assistance under the Aid to Mining Act, came into active production in the latter half of the year; 10,700 cubic yards were treated for a recovery of 2-9216 tons of tin oxide representing 2-147 tons of metallic tin. It is of interest to note that in the second three months of sluicing 10,000 cubic yards were treated, yielding 2-6116 tons of tin oxide. Operations afforded employment for 5 men.

The Golden Sovereign, Herrick.—Production commenced at the close of the year, the first clean-up yielding 0-6307 ton of tin concentrate estimated to contain 0-4167 ton of metallic tin. The mine operates under water pressure supplied by an 8-inch centrifugal pump and a 100 h.p. electric motor. Three men were employed.

The Banca, Winnaleah.—The Banca Mine was taken over by mainland interests in the second half of the year, and much dead work was done in the form of race cutting and box building. Sluicing was commenced at one face and 0-4353 ton of tin oxide was recovered from the treatment of 650 cubic yards of ground. The concentrate contained 0-2726 ton of metallic tin.

Wolfram.—The total production of wolfram amounted to 230-029 tons. This represents an increase of 46-799 tons compared with the output for the previous year. The two chief contributors to increased production were Storey's Creek Mine and Aberfoyle Tin Mine. Storey's Creek production increased from 115-9 tons to 143-02 tons of wolfram.

A production of 84-5796 tons of wolfram at the Aberfoyle Mine is an increase of 13-5796 tons in the output of 71 tons for the previous year.

Miscellaneous parties in the Gipps Creek area were responsible for an output of 1-140 tons of wolfram.

A slight increase in production was recorded in the Moina district, where one operator was responsible for the entire output of 2-3893 tons of wolfram.

Limestone.—An output of 122,793 tons is recorded from Broken Hill Proprietary Company Limited compared with 158,265 tons for the previous year. This 35,472 tons reduction in output coincides with a loss of manpower amounting to 18 men. The number employed during the year under review totalled 85 as compared with 103 for the previous year.

Other producers, including a crushing unit for the conditioning of stone for agricultural purposes, were responsible for an output of 6501-75 tons.

Goliath Portland Cement Company, Railton.—As in the previous year, output was on a reduced scale. Production was again confined to one kiln, and the labour position remained more or less stationary.

In addition to the quarrying of limestone pursued at the plant, the winning of iron ore for use in the process was continued in a minor way at the company's iron ore deposit some miles away. An innovation of interest at the quarry, and one which demonstrates the progressive and modern outlook of the company, is evident in a device installed for hauling loaded motor trucks up an exit gradient from the quarry too steep for the power capacity of the trucks.

Inspector D. Besford, Hobart, reports:—

Employment.

The average number of persons directly employed in mines, works, and quarries, including the small coal mines in the North-western Mineral Division, was 2237 as compared with 2296 for the previous year. A distribution of employment was as follows:—

Coal mining	280
Limestone and kaolin production	36
Quarry operations	59
Osmiridium and tin mining	25
Metallurgical and other works	1,838
Total	2,238

Accidents.

Three fatal accidents occurred during the year, two being due to falls of roof in the underground workings of a coal mine and one resulting when a workman was crushed between a set of moving trucks and an upright pier at a metallurgical works.

At one inquest the jury recorded that more care should be taken by the management for the safety of the employees. Accidental death was recorded in the other two cases, no blame being attached to anyone.

In addition to the fatal accidents, eight persons were incapacitated for more than 14 days as a result of injury received during the course of their employment. Three of these accidents occurred underground, and five on the surface. One of the surface accidents occurred at a mine, while the other four occurred at a metallurgical works. None of the accidents was of a dangerous nature, and the workmen returned to work without suffering permanent disablement.

Safety.

Attention was directed to the safe working of mines, works, and quarries, with special attention to the extraction of pillars at one of the coal mines. This method of work calls for a concentrated effort by all concerned in order that the maximum amount of coal may be extracted with the minimum amount of risk. Exception was taken to the method of extraction whereby workmen were subjected to danger, and the extraction of the pillar on the retreating system, was ordered. It was also found necessary to insist upon more substantial timber for the support of the roof, as the quality was not in accord with good standard practice. It cannot be too strongly stressed that the miner must be supplied with sufficient supports, which must also be substantial for the work they may be called upon to do, and these must be erected as soon as sufficient area is exposed. The tendency at several mines is to delay the setting of the roof supports, and more supervision on the part of the management should ensure they are set without delay. The entrances to the "lifts" should be substantially supported either by chocks or good substantial props, and an instruction was issued to that effect.

Quarries were generally worked in a safe manner, but isolated cases occurred where the batter could not be regarded as safe in all respects, and this matter must be kept continually to the fore. In one case it was found necessary to withdraw the men from the bottom of the quarry face and place them in another part of the quarry while loose rock was being barred down.

Amendments to the General Rules under Part III. of the schedule to the Mines and Works Regulation Act, 1915, were gazetted in November. These amendments were adopted to reduce the hazard caused by the extension of grunching and the firing of a number of shots at a time by fuse firing, a practice which is regarded as dangerous in any coal mine. These amendments provide for the electrical firing of more than one shot at a time in any one place where coal is worked. Other provisions include the appointment of authorised persons to connect and fire shots electrically, and the provision of suitable non-combustible material for the stemming of the shot-holes to eliminate the unsafe practice of stemming the hole with material containing coal dust. They also provide for proper examinations to be carried out after shot-firing to ensure that the place is safe in all respects before persons are permitted to work, for steps to be taken to prevent injury to persons due to the firing of shots, and for the prohibition of other than permitted explosives in coal mines. Other matters provided for include the issue of explosives to authorised persons at approved places and the treatment of misfired shots.

Ventilation.

No inflammable gas was discovered in any coal mine, and only isolated cases of black-damp were encountered. A case was reported of an emission of gas near a fault at one of the mines, and it was found that the gas given off was "black-damp." This was diluted and rendered harmless by the natural current of air, which was conducted to the place by means of brattice cloth.

Auxiliary fans have been installed in some cases, and have resulted in improved local conditions. These fans are only to be regarded as temporary installations, and will be replaced when conditions allow the installation of main fans at the surface. Some of the working places were not adequately ventilated, and in several cases instructions were issued to have the necessary works carried out in order that more air could be circulated through the place where it was most needed. The amount of air entering a mine cannot be regarded as a criterion of efficient ventilation because the best ventilated mine is the one with the best ventilated working faces, and it is, therefore, necessary for the management to pay particular attention to the conducting of the air to the workings and the prevention of wasteful leakage. It was found that some of the stoppings between the main intake and return airways were in a bad state of repair, and allowed excessive quantities of air to escape. These were repaired with beneficial results.

Several small mines still rely upon natural ventilation, but it is proposed to instal fans at some of them when improved working conditions should result.

Machinery.

Machinery was generally maintained in good order, but some of the electrical machinery was not altogether satisfactory. It was necessary to order the discontinuance of units which were not fitted with proper safeguards for the protection of the operator. Some equipment, when tested, did not prove satisfactory and adjustments were ordered.

The use of electrical machinery has been extended during the past year in an effort to increase the production of coal with the available man-power. The addition of 160 h.p. to underground machinery and about 60 h.p. to surface plant at coal mines has called for special attention, in the absence of electrical rules covering the Installation and Use of Electrical Machinery in Collieries. It is proposed to have electrical rules formulated in the near future, as the use of electricity will be further extended during the coming year.

Health and Sanitation.

Complaints were investigated regarding dust and fumes at some quarries and works, and remedial measures were recommended. There is still some work required to completely eliminate the dust nuisance at crushing plants. The dust nuisance at one of the tiplers at a coal mine was considered excessive, and measures were required for a correction of the condition. The provision of crib houses and change rooms was given consideration, and improvements are expected when new plant is installed.

First Aid.

Instances of inadequate equipment were encountered, and improved supplies were ordered and provided. It is necessary that a sufficient supply of first aid equipment should always be available in case of accidents.

Explosives.

Some attention was given to the storage of explosives and detonators, and the provision of properly constructed magazines was insisted upon. No complaints were received regarding the quality of explosives or detonators, although one accident occurred which the miners claimed was due to faulty fuse. Upon investigation, however, it was found that the accident was probably caused by the fuse being cut too short. A complaint was received regarding mis-fired shots after the introduction of electrical shot-firing, but upon investigation it was found that the cause was due to the shotfirer trying to fire a number of shots with a single-shot exploder, while another case was due to faulty apparatus, the condition having deteriorated due to moisture and dirt. When this machine was taken out of the mine and cleaned, it gave satisfactory results. The above instances point out the necessity of maintaining shot-firing equipment in good order, and to use it according to the design.

Inflammable Liquids.

Conditions governing the storage and handling of inflammable liquids were kept under surveillance, and when irregularities were observed corrections were effected without the necessity of legal proceedings. There were very few new installations, due to war restrictions.

General.

Investigations were carried out regarding the possibilities of increasing production from some areas, but manpower limitations retarded operations in producing areas and restricted exploitation of new areas.

Complaints in connection with the firing of excessive charges of explosives at one quarry were investigated, and the amount of explosives to be used in any one shot-hole was reduced.

Operations and Production.

The total output of coal for the past year was 145,882 tons valued at £117,361, the average number of persons employed in production being 280. The corresponding figures for the previous year were 134,442 tons valued at £108,241 and 244 persons. The demand for Tasmanian coal exceeds the present production, and it is expected that the output will be further increased during the coming year. The output per person employed was 521 tons compared with 551 during the previous year, but this may be accounted for by the fact that a greater number of men was engaged in constructional and developmental work during the year. Most mines showed an increased output, the exceptions being three small collieries in the North-Western Division and a small mine in the South-east.

Fingal-Mount Nicholas-Dalmayne Coalfield.—The Cornwall Coal Mine continued to be the chief coal producer of the State, and the output was increased by more than 4000 tons for the year, reaching a total of 81,700 tons, valued at £65,360, compared with 77,550 tons valued at £62,038. The average number of persons employed was 133 compared with 121 persons for the previous year. Most of the coal was produced from pillar extraction, and developmental work was suspended in the main tunnel, the only development work being carried out in the Eastern Section, where a modern Arc-wall coal-cutting machine was installed. The machine should ensure rapid development of this section of the mine, as the seam is fairly thick and suitable for that type of machine. It is expected that the development of the main heading section will shortly be undertaken, as some of the pillar sections are becoming depleted.

The Jubilee Coal Mine produced 21,880 tons valued at £19,593 and employed an average of 47 persons, the corresponding figures for the previous year being 21,735 tons valued at £17,162 and 45 persons. An electric coal-cutting machine of the Sisco type is used at this mine, but these machines do not compare with more modern types and the results are unsatisfactory. It is intended to instal more modern electric machines, and there is no reason why good results should not be achieved, as the seam is of good thickness and the roof conditions are generally good. Some difficulties have been encountered during the past year due to excessive quantities of water and faulting in the main heading.

Mt. Nicholas Coal Mine produced 17,450 tons valued at £13,960 and employed 34 persons, compared with 16,715 tons valued at £13,371 and 25 persons for the previous year. The mine continued to operate on the Bord and Pillar system, with modern type of loading machine and a coal-cutting machine of the chain type. The seam was reduced to a little more than twelve inches in the main heading, and this put an excessive strain upon the machinery at the face and retarded development. In spite of the difficulties the output was increased, but the increase was disproportionate to the number of persons engaged. Unless the thickness of the seam increases it will be difficult to continue with the development of this mine.

The Fingal coal mine produced 4329 tons valued at £2165 compared with 3937 tons valued at £1969 for the previous year, an average number of three persons being employed compared with four for the previous year. The method of working is by Bord and Pillar, all the coal being produced by hand-mining methods. The seam is of good thickness and has a good roof.

Dalmayne Coal Mine produced 2249 tons valued at £1301 compared with 1757 tons valued at £803 for the previous year, the same number of persons being engaged. The increased output should be maintained during the coming year, as some of the retarding factors should be eliminated when the bins at the surface of the mine are

constructed. The seam is of good quality and thickness, and is not difficult to get by hand-mining methods, very little shotfiring being necessary.

Avoca Coalfield.

The Stanhope Coal Mine showed an increase of nearly 3000 tons, and employed three more persons compared with the previous year, the total amount of coal produced being 10,481 tons valued at £11,388, compared with an output of 7502 tons valued at £7613 for the previous year. This mine obtains production chiefly by the Bord and Pillar method of working, employing a coal-cutting machine of the chain type. The new development in the main heading section, where a short-wall face is being opened up over the 10-ft. fault, should increase the output from this machine as it will reduce the amount of time spent in fitting the machine and thus increase the amount of time in actual cutting. It is essential for successful and safe working that roof subsidence should be under complete control, and sufficient material for the support of the roof in the "waste" will have to be obtained if the system is to be a success.

Mount Christie Coal Mine increased production to 430 tons valued at £398, and employed two men against three for the previous year.

Upper Derwent Coalfield.

The Langloh Coal Mine commenced production and occupied sixth place in the State, producing 2935 tons valued at £2721 and employing an average of 16 persons. Nearly 50 per cent of the employees were engaged on surface constructional work. The sinking of an air shaft has delayed development, but when completed it should be possible to arrange development of the mine on a much larger scale and the output of coal should increase. A boring programme is also to be undertaken, and will provide much valuable information for the future development of the area.

York Plains Coalfield.

The York Plains Coal Mine produced 722 tons of coal valued at £1083 compared with 537 tons valued at £805 for the previous year, and employed the same number of persons. The method of working is by longwall hand-mining. The coal is chiefly used for hop drying.

Sandfly-Cygnets Coalfield.

The output from the Sandfly Mine, which is the only mine operating in this area, showed a further reduction to 417 tons valued at £668 compared with 939 valued at £997 for the previous year, two men being employed, compared with three for the previous year. The decline in output was due to the abandonment of the old tunnel workings and the opening up of a new tunnel. The coal is of a semi-anthracite nature, and is suitable as a fuel for the conversion of limestone to lime and for hop-kiln practices. The seam is of good thickness and is fairly easy to work without the use of machines.

Mersey Coalfield.

The abandonment of producing areas and the development of new areas resulted in a decline in the output of coal from this field. One area was being opened up by the sinking of a vertical shaft, where the coal was previously transported through tunnels. The total output of coal was 3290 tons valued at £3817 as compared with 3644 tons valued at £3203. Operations afforded employment for 16 men as against 15 men for the previous year. The reduced output per man was due to the developmental work and the increased value was the result of a better appreciation of the quality of the coal.

The Illamatha Coal Mine produced 1554 tons valued at £1872 compared with 757 tons valued at £783 for the previous year, the number of persons employed being eight as against five for the previous year. A shaft was put down to a depth of about 80 feet to develop the area to the right of the old tunnel, where the seam was rendered difficult to work owing to the long roads which necessitated hand wheeling. The area in the vicinity of the shaft is much faulted, and this has caused some difficulty in maintaining the output. The seam in the area is slightly thicker than that in the old tunnel, but owing to the faulted nature it is difficult to work as the thickness is still less than two feet. The shaft is not laid out for a large output, but is capable of handling a larger output than is being produced at present.

The Aberdeen Coal Mine produced 849 tons valued at £925, and employed three persons, compared with 1322 tons

valued at £1099 and four persons for the previous year. The method of working is by a system of step longwall, all the coal being produced by hand mining methods from a seam only eighteen inches thick. The coal is hand-wheeled from the face to the surface.

The Tarleton Coal Mine also operates on the step longwall method in a seam of the same thickness, and produced 558 tons of coal valued at £655, and employed two persons, compared with 860 tons valued at £726 and three persons for the previous year.

The Black Beauty Coal Mine produced 329 tons valued at £365 compared with 433 tons valued at £394 for the previous year with the same number of persons. The thickness of this seam is only about 14 inches and is very difficult to work, the method being similar to other mines in the district.

Carbide, Limestone, and Silica.

Limestone was quarried at Ida Bay, Junee, and Granton, a total of 24,728 tons being produced valued at £19,294 compared with 22,654 tons valued at £16,150 for the previous year. The average number of persons engaged in production was 36. Most of the limestone is used by the Australian Commonwealth Carbide Company, which company also supplies a small quantity to the Electrolytic Zinc Company at Risdon.

The amount of silica quarried was 656 tons valued at £726. This was used by the Australian Commonwealth Carbide Company in the manufacture of 417 tons of calcium silicide valued at £35,393, showing an increase of 3 tons compared with the previous year. This company also produced 9382 tons of calcium carbide valued at £187,640, a reduction of 255 tons as compared with the production of carbide for the previous year. An average of 199 men was employed.

Ore Treatment.

The Electrolytic Zinc Company worked continuously during the year, and further additions were made to the plant.

The metals extracted from ores, concentrates, &c., obtained from New South Wales and Tasmania comprised:—

Slab zinc 75,756 tons, having a gross value of £1,742,388; cadmium 160·8207 tons valued at £72,047; cobalt oxide (containing 8·8976 tons cobalt) 14·3560 tons valued at £6604.

Actual production from Tasmanian ores processed was:—

Slab zinc 24,490 tons valued at £563,270, cadmium 43·55 tons valued at £19,510. The average number of persons employed was 1639.

Tin.

The production of tin increased to 4·963 tons, containing 3·703 tons of metallic tin valued at £961, compared with 2·14 tons of metallic tin for the previous year. No tin was produced from Coles Bay.

Osmiridium.

The production of osmiridium declined to 84·52 ozs. valued at £1963 compared with a production of 117·621 ozs. for the previous year.

Kaolin.

The amount of kaolin produced from Surges Bay was 327 tons valued at £775, three men being employed in operations.

APPENDIX VI.

REPORT OF THE MOUNT CAMERON WATER-RACE BOARD FOR THE YEAR ENDING 31st DECEMBER, 1943.

SIR,

We have the honour to submit the report of the Mount Cameron Water-race Board for the year ending 31st December, 1943.

The production of tin oxide from all activities serviced by the race decreased from 33·9772 to 27·7902 tons. There was a decline of 2·583 tons by users of water on a royalty basis and a decrease of 3·604 tons by users of water supplied on a fixed scale.

The average number of producers declined to 14, and the revenue was £108 8s. 5d. less than for the previous year. Expenditure was £123 16s. 6d. less, due mainly to less expenditure on repairs to races, syphons, dams, and culverts. Adjustments in wages and costs of living accounted for an increase of £15 8s. 7d. in salaries and wages. The reduced operational expenditure was insufficient to compensate a greater decline in production and a net loss of £88 15s. 5d. resulted in the working of the race.

The average recorded rainfall was 27·905 inches as compared with 46·625 inches for the previous year, and the average output per man declined from 2·265 tons to 1·985 tons of tin oxide.

The continued decline in production is of serious moment to the financial outlook of the Board. Operational costs are at a minimum, and the ageing of the race system presents a constant possibility of heavy expenditure in replacements and maintenance. The stability of the Gladstone township is mainly dependent upon the Mount Cameron Water Race, and members of the Board agree that the incurrence of a reasonable deficit where no profit is visible is merited in the preservation of the race.

Races.

Developing growths of aquatic weed will require clearing in the coming year, but races generally are otherwise in reasonable order.

Syphons.

The metal syphon, near Moore's cottage, is causing concern due to advanced corrosion. This syphon has served a useful life of more than 30 years. Periodical bursts have been arrested by banding, but the future life of the syphon is indeterminate and complete replacement is the only effectual remedy for the visible deterioration. Other syphons have been maintained in serviceable condition, and the trestling of the Ringarooma Syphon has exhibited no further weakness.

Flumings.

The flume tunnel and flumings are in good order.

Dams.

All dams were maintained in good order. The intake wall of the main race at the Great Mussel Roe River has exhibited no further weakness, and is being held in serviceable condition pending the availability of suitable labour for its replacement.

We have the honour to be,

Sir,

Your obedient servants,

W. H. WILLIAMS,

Chairman of the Board.

C. G. RYAN,
G. MALLINSON, } Members.

The Hon. the Minister for Mines, Hobart.

STATEMENT FOR THE YEAR ENDING 31ST DECEMBER, 1943.

Rainfall.

The registered rainfall for the year was as follows:—

Great Mussel Roe	28 inches 14 points
Little Mussel Roe	27 inches 67 points

Revenue.

The revenue for the year amounted to £853 6s., being a decrease of £108 8s. 5d. on that of the previous year.

Disbursements.

The expenditure for the year amounted to £942 1s. 5d., being a decrease of £123 16s. 6d. against that of the previous year.

Statistics.

The statistics for the year are as follows:—

Average number of claims supplied per week	6
Greatest number supplied in any one week	8
Total number of heads supplied under:—	
Fixed or cash scale	281
Royalty or credit scale	2130
Tin ore raised—	
	tons. cwt. qr. lb.
Under royalty scale	17 6 3 1
Under fixed scale	10 9 0 5
	27 15 3 6

Average number of men employed per week—14.

Statement of Receipts and Payments of the Mount Cameron Water-race Suspense Account for the Year ended 31st December, 1943.

Receipts.

	£	s.	d.
Water sold under fixed scale	112	8	0
Water sold under royalty scale	713	18	0
Water sold for domestic purposes	27	0	0
Total receipts	853	6	0
Excess payments over receipts	88	15	5
	£942	1	5

Payments.

	£	s.	d.
Salaries and wages	868	14	6
Travelling expenses	2	4	4
Stationery and printing	5	6	4
Insurance	9	2	7
Stores	1	10	6
Repairs to race, syphons, dams, and culverts	33	5	3
Child Endowment pay-roll tax	21	17	11
	£942	1	5

APPENDIX VI

REPORT OF THE MOUNT CAMERON WATER-RACE BOARD FOR THE YEAR ENDING 31st DECEMBER, 1943.

The Mount Cameron Water-Race Board has the honor to submit the report of the Mount Cameron Water-Race Board for the year ending 31st December, 1943.

The Board has the honor to submit the report of the Mount Cameron Water-Race Board for the year ending 31st December, 1943.

The Board has the honor to submit the report of the Mount Cameron Water-Race Board for the year ending 31st December, 1943.

The Board has the honor to submit the report of the Mount Cameron Water-Race Board for the year ending 31st December, 1943.

The Board has the honor to submit the report of the Mount Cameron Water-Race Board for the year ending 31st December, 1943.

The Board has the honor to submit the report of the Mount Cameron Water-Race Board for the year ending 31st December, 1943.

The Board has the honor to submit the report of the Mount Cameron Water-Race Board for the year ending 31st December, 1943.

The Board has the honor to submit the report of the Mount Cameron Water-Race Board for the year ending 31st December, 1943.

The Board has the honor to submit the report of the Mount Cameron Water-Race Board for the year ending 31st December, 1943.

The Board has the honor to submit the report of the Mount Cameron Water-Race Board for the year ending 31st December, 1943.

The Board has the honor to submit the report of the Mount Cameron Water-Race Board for the year ending 31st December, 1943.

The Board has the honor to submit the report of the Mount Cameron Water-Race Board for the year ending 31st December, 1943.

The Board has the honor to submit the report of the Mount Cameron Water-Race Board for the year ending 31st December, 1943.

The Board has the honor to submit the report of the Mount Cameron Water-Race Board for the year ending 31st December, 1943.

The Board has the honor to submit the report of the Mount Cameron Water-Race Board for the year ending 31st December, 1943.

The Board has the honor to submit the report of the Mount Cameron Water-Race Board for the year ending 31st December, 1943.

The Board has the honor to submit the report of the Mount Cameron Water-Race Board for the year ending 31st December, 1943.