

TASMANIA

REPORT

OF THE

DIRECTOR OF MINES

FOR

YEAR ENDING 31ST DECEMBER

1941

WITH REPORTS OF THE GEOLOGICAL SURVEY, CHIEF CHEMIST AND METALLURGIST, ACTING CHIEF INSPECTOR OF MINES, ACTING CHIEF INSPECTOR OF EXPLOSIVES, DISTRICT INSPECTORS OF MINES, AND THE MOUNT CAMERON WATER-RACE BOARD.

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



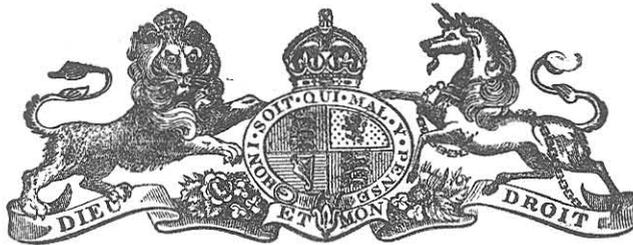
TASMANIA:

H. H. PIMBLETT, GOVERNMENT PRINTER, HOBART

1943.

TABLE OF CONTENTS.

	PAGE.
Annual Report of the Director of Mines	5
Mineral Production	5
Aluminium	7
Shale	7
Quantity and Value of Minerals	8
Asbestos	9
Barytes	9
Bismuth	9
Coal	9
Cadmium	10
Copper	10
Cement, Carbide, and Limestone	10
Gold	10
Iron Pyrites	11
Lead	11
Limestone	11
Nickel	11
Ochre	11
Osmiridium	12
Shale	13
Scheelite	13
Silver	13
Talc	14
Tin	14
Wolfram	14
Zinc	14
Value of Metals and Minerals Raised since 1880	15
Statistics of Production	15
Statistics of Mining Companies	15
Mining Companies Registered	15
Land and Water Applied for: Total Area and Sluiceways	16
Number and Area of Leases and Licences Issued ..	16
Leases and Licences in Force	16
Total Revenue	16
Net Revenue: Comparative Statement	17
Number and Area of Leases, 1927-1941	18
Average Annual Prices of Minerals	19
Aid to Mining	20
Drilling	21
Drilling Results	21
Departmental Activities	22
Drafting Branch	22
Staff	22
Appreciation of Services	22
Report of Geological Survey	23
Report of Chief Chemist and Metallurgist	24
Report of Acting Chief Inspector of Mines	25
Report of Acting Chief Inspector of Explosives	25
Accident Statistics	26
Reports of Inspectors of Mines	27
Report of Mt. Cameron Water-race Board	36



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 31st December, 1941.

MINERAL PRODUCTION.

The total value of the output of minerals and mineral products, in Australian currency, was £3,662,842, as compared with £3,782,161 for the previous year, representing a decrease of £119,319. There was a substantial increase in the collective value of copper, coal, cadmium, carbide, cement, limestone, gold, granite, iron ores, wolfram, and pyritic products, but this increase was off-set by a decline in the production of lead, osmiridium, scheelite, silver, tin, and zinc.

A diversion of labour to war services, disabilities in the marketing of lead ores due to war conditions, and protracted dry weather in areas concerned with hydraulic mining were related more to the decreased output of metallics than any factor affecting exhaustion of mineral resources.

The Electrolytic Zinc Company of Australasia Limited was in continuous operation at Risdon in processing zinciferous calcines, imported from other States, and recovered from the selective treatment of Tasmanian ores. Production from imported calcines was 55,094 tons of slab zinc, valued at £1,267,162; 144.8 tons of metallic cadmium, valued at £48,622; and 19.27 tons of cobalt oxide, valued at £8869. Calcines actually processed from Tasmanian ores returned 22,604 tons of slab zinc, valued at £519,892; 42.7 tons of cadmium, valued at £14,346; 1092 tons of lead, valued at £22,938; 225,867 oz. of silver, valued at £29,773; and .5962 ton of cobalt oxide, valued at £274. An average number of 1535 men was employed at these works.

The Tasmanian ores resulted from continued exploitation of the extensive occurrences of the complex zinc-lead sulphides at the Read-Rose-

bery mines on the West Coast, where an average number of 447 men was employed in mining and metallurgical practices. The combined quantity of ore mined was 167,246 tons, and selective flotation resulted in the production of 52,295 tons of zinc concentrates and 13,992 tons of lead concentrates. The recoverable quantity of metallics was fixed at 8829.55 tons of lead, 24,468.63 tons of zinc, 47.07 tons of cadmium, 940,377 oz. of silver, and 10,549 oz. of gold.

The Mount Lyell Mining and Railway Company Limited continued to function as the major producer of copper. Crude ore from surface and underground mining totalled 1,354,232 tons, of which 1,346,613 tons were treated for a recovery of 52,293 tons of copper concentrate and 51,400 tons of iron pyrite concentrate. The recorded production of copper was 11,642 tons, and this resulted from the smelting of 52,293 tons of flotation concentrates, 6642 tons of crude ore, and 123 tons of copper precipitate recovered from mine water. Of the iron pyrite concentrate recovered by selective flotation of low grade ores, 40,076 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 by the Company substantially added to the total output of gold and silver, and afforded direct employment to an average of 1742 men.

The strategic importance of copper continued to attract attention to other cupriferous areas, but there was no major development. Trial parcels of ore from eastern and north-western fields returned 2.842 tons of copper.

Marketing disabilities and a lesser demand for lead products from Tasmanian mines, for strategic purposes, resulted in a decline in the output of lead. The total production was 11,753.47 tons, as against 13,550.85 tons for the previous year.

Operations by the Electrolytic Zinc Company at the Read-Rosebery mines accounted for the greater portion of the recorded production.

Marketing disabilities restricted the activities of the Mount Farrell Mining Company, but the securing of an overseas market enabled the Company to continue productive mining and usefully contribute to the total output of lead. Ore mined and milled was 16,537 tons, for a finished product of 3875 tons, containing 2856 tons of lead and 335,352 oz. of silver. Operations afforded employment for an average of 97 men.

The Montana Silver Lead Mining Company recovered 96.7 tons of concentrate, containing 65.9 tons of lead and 6916 oz. of silver, from the milling of 919 tons of crude ore. Marketing conditions were unfavourable for continued mining, with the grade of ore available, and operations were suspended.

Conditions of marketing of silver-lead ores continued to be averse to productive activities at small mines.

Metallic tin in the product from lode and alluvial operations was 1255.729 tons valued at £328,340 sterling. The output was 174.469 tons less than that for the previous year, but compared more than favourably with normal production. Protracted dry weather, in areas where the rainfall is a critical factor in sluicing periods, and the absence of new producers of material magnitude largely contributed to the decline.

The Briseis Consolidated and the Endurance Company, operating on tin alluvials; the Aberfoyle Tin No Liability, operating on a lode series; and the Bischoff Tin Mining Company, as a result of activities by tribute parties, continued as the principal producers. These operations resulted in an output of 840 tons of metallic tin.

Quarrying of tin granites was continued by a tribute party at the old Anchor Mine at Lottah; the Goshen Tin Mining Company was actively engaged in sluicing tin alluvials in the St. Helens district, and quantities of tin oxides resulted from operations on the wolfram-tin lodes at the Storey's Creek Mine. The production from these operations was 160 tons of tin concentrate, containing 112 tons of metallic tin.

Small mines, miscellaneous parties, and individuals continued to be engaged on alluvial, lode and granite occurrences throughout the State and these operations were of collective importance in tin mining, the recorded output being 303.7 tons of metallic tin.

In quantity and value, silver continued as an important product, the recorded output being 1,326,738 oz., valued at £139,306 sterling. 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 was substantially augmented by silver-lead ores from the Farrell Mine at Tullah.

The average price of tungsten ores remained at £250, and the aggregate output of scheelite and wolfram was 482.41 tons, valued at £85,236 sterling, as against 509.78 tons, valued at £91,439 sterling, for the previous year. The decrease was due more to domestic arrangements than to exhaustion of reserves, as the productive capacity of developed mines is greater than the actual output.

Opencutting and milling were actively pursued by King Island Scheelite No Liability at King Island, and 246.9 tons of scheelite concentrate, valued at £42,699.5 sterling were recovered from the treatment of 29,810 tons of ore.

Operations at the Storey's Creek Mine were directed mainly to the production of wolfram, but, in addition to the recovery of 205 tons of high-grade wolfram, tin concentrate recovered from the milling of 13,009 tons of wolfram-tin ores contained 44.35 tons of metallic tin. The productive possibilities of this mine were further enhanced by developmental work.

Progressive developmental and productive policies were pursued by Aberfoyle Tin No Liability. An innovation in the stripping of pyrite from tin concentrate, by flotation practices, improved the marketable grade of finished products. A quantity of 16,185 tons of ore was mined and milled. From stock products, 356.5 tons of tin concentrate, containing 252.8 tons of metallic tin, and 28.48 tons of wolfram were sold.

The balance of the output of wolfram resulted from activities at small mines in eastern and north-western parts of the State.

The recorded output of gold was 19,908.5 oz., valued at £167,229 sterling, as compared with 19,171 oz., valued at £161,035 sterling, for the previous year.

The major portion of the gold was recovered from copper ores mined by the Mount Lyell Company, from zinc-lead ores produced by the Electrolytic Zinc Company at the Read-Rosebery mines, and from slime dumps at the Golden Gate Mine following the installation of suitable agitation and cyanidation units. Small quantities of gold accrued from the working of auriferous alluvials, the crushing of lode quartz, the treatment of mine dumps, the cyanidation of old tailings, and from the treatment of tin-oxides recovered from the sluicing of gold-bearing stanniferous alluvials.

The quantity of iron pyrites recovered from the selective flotation of copper ores and exported to the mainland for utilisation in the manufacture of fertilisers inclined to 40,076 tons, valued at £50,095.

The market for osmiridium was less buoyant and the average price declined to £20.36 sterling per oz. Adamsfield was the principal area of alluvial activities but small lots continued to come forward from irregular operations on alluvials in the Savage River areas. The recorded output was 206.6 oz., valued at £4212 sterling, as compared with 464.74 oz., valued at £11,604 sterling, for the previous year.

The production of silica inclined to 9268 tons as a result of increased export, greater consumption in metallurgical operations, and the use of Tasmanian materials in the manufacture of ferro-silicon and calcium silicide.

The principal contributors to the production of carbide, cement, and limestone were the Australian Commonwealth Carbide Company at Electrona, the Goliath Portland Cement Company

at Railton, and the Broken Hill Proprietary Company Limited at the Melrose limestone quarries. The total output of combined products was 363,431 tons, valued at £476,915, representing an increase of 30,249 tons in the combined output recorded during the previous year.

Appreciation of the red granite at Coles Bay, as an ornamental stone, continued to be expressed in the output, which advanced from 330 tons, valued at £2031, to 658.5 tons, valued at £5661. This development resulted from efforts directed to expanding the use of natural stones for building and ornamental purposes.

More interest was evinced in asbestos possibilities and investigational work was undertaken in extensive tracts of asbestos-bearing serpentines with the object of locating a sufficient concentration of fibre veins in an area of desired magnitude for commercial exploitation. Prospects in the Dundas serpentine were encouraging and developmental work is to be undertaken.

The coal mining industry benefited by improved trade and a period of settled industrial conditions, the recorded output being 109,714 tons, valued at £85,311, as compared with 83,136 tons, valued at £63,688, for the previous year.

The Cornwall Coal Company continued as the major producer and increased productive activities resulted in an output of 75,086 tons, as compared with 58,191 tons for the previous year. General advancement of coal faces and more active pillar extraction accounted for 63,338 tons at the Cornwall Colliery, whilst 11,748 tons resulted from mechanised coal winning at the Mount Nicholas Colliery.

Main heading development was continued at the Jubilee Colliery and production inclined to 16,599 tons, valued at £12,487.

The balance of the production resulted from operations at small collieries in the southern, eastern, and north-western districts.

Developmental and productive activities at the mines and works are reviewed by the district inspectors in the appended reports.

ALUMINIUM.

The identification of bauxite, an important ore of aluminium, was a valuable contribution, by the technical services of the Department, to the mineral resources of the State.

The initial location was at Ouse and this was followed by discoveries at Campbell Town, Swansea, St. Leonards, and in the Tamar Valley,

Investigations indicated a grade of ore commercially suitable for the production of aluminium and, as areal extents were of material magnitude, immediate attention was directed to carrying out systematic surveys and developmental work to prove grades and tonnages. This work was in progress at the close of the year.

SHALE.

A conscious regard has been maintained in the possibilities of converting the oil-shale of the Mersey Valley into a commercial asset. A diamond drilling campaign was completed to determine a mineable area of shale for the purpose of an assured production for a reasonable period. On the basis of whole-seam mining a calculated reserve of 408,805 tons was defined with an average content of 26 gallons of crude oil per ton. With selective mining, the reserve approximated 395,000 tons, averaging 32.9 gallons per ton. The assembled data indicated that considerable accessions could be made to the proved reserve by further drilling. Efforts to induce interest in exploiting the shale for fuel-oil did not produce material results during the period under review. A 2-ton parcel of shale was despatched to the mainland for experimental processing but the result was inconclusive. Further retorting trials are to be undertaken.

QUANTITY AND VALUE OF MINERALS.

STATISTICS RELATING TO THE MINING INDUSTRY FOR THE YEAR ENDING 31ST DECEMBER, 1941.

(No. 30.)

Mineral.	MINERAL DIVISIONS.					Total Quantity.	Value.
	Northern and Southern.	Eastern.	North-Eastern.	North-Western.	Western.		
Asbestos (tons)	....	....	....	....	3.5	3.5	£ 120
Barytes (tons)	....	....	....	11.2	....	11.2	43
Bismuth (tons)	....	....	....	.032	....	.032	16
Copper (tons)	....	2.280	....	.562	11,642.092	11,644.934	721,985
Coal (tons)	2,744	101,908	....	5,062	....	109,714	85,311
Cadmium (tons)	....	....	....	....	47.07	47.07	21,087
Carbide, Cement, and Limestone (tons)	19,661	....	....	338,093	5,677	363,431	476,915
Graphite (tons)	....	....	....	5	....	5	8
Gold (fine oz.)	451.210	454.803	113.670	305.010	18,583.805	19,908.498	167,229
Granite (Red) (tons)	....	658.5	....	....	....	658.5	5,661
Iron Ore (tons)	....	....	....	2,180	....	2,180	4,146
Kaolin (tons)	25	....	....	1,105	....	1,130	1,428
Lead (tons)	....	....	....	2,836.47	8,917	11,753.47	293,837
Manganese (tons)	....	....	....	.6	....	.6	3
Osmiridium (oz.)	192.246	....	....	14.314	....	206.578	4,212
Pyrites (tons)	....	....	....	....	40,076	40,076	50,093
Scheelite (tons)	....	....	....	246.913	....	246.913	42,700
Silica (tons)	2,338	....	....	386	6,544	9,268	4,094
Silver (fine oz.)	....	113	....	150	1,326,475	1,326,738	139,306
Tin (tons)	2.767	415.260	611.190	97.929	128.583	1,255.729	328,340
Wolfram (tons)	....	233.48	....	2.022	....	235.502	42,536
Zinc (tons)	....	....	....	....	24,468.6	24,468.6	666,768
Total Value .....	....	....	....	....	....	....	£3,055,838
Total Value Australian Currency .....	....	....	....	....	....	....	£A3,662,842
Average Number of Men Employed	1,956	575	361	560	2,404	5,856	....

The Electrolytic Zinc Company of Australasia Limited recovered 55,094 tons of zinc, valued at £1,267,162; 144.8255 tons of cadmium, valued at £48,662; and 19.8730 tons of cobalt oxide, valued at £9143, from other than Tasmanian ores, and employed an average of 1535 men at Risdon. 622 tons of ferro silicon, valued at £17,458, and 161 tons of calcium silicide, valued at £13,268, were manufactured from Tasmanian products.

ASBESTOS.

RETURN showing the Quantity and Value of Asbestos produced from 1899 to 1941 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
Total.....	3575·25	£7322

BARYTES.

RETURN showing the Quantity and Value of Barytes produced during the Years 1916 to 1941 inclusive.

Year.	Quantity.	Value.
	Tons.	£
1916.....	83	359
1917.....	52	234
1918.....	217	977
1919.....	399	1160
1920.....	1048	4163
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
Total.....	1975·2	£7289

BISMUTH.

RETURN showing the Quantity and Value of Bismuth produced from 1904 to 1941 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.....	·22	78
1938.....	·871	396
1939.....	·623	296
1940.....	·565	270
1941.....	·032	10
Total.....	81·758	£26,990

COAL.

RETURN showing the Quantity and Value of Coal raised from 1880 to 1941 inclusive.

Year.	Quantity.	Value.
	Tons.	£
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	86,204
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
Total.....	3,988,677	£3,084,214

CADMIUM.

The quantity recovered was 47·07 tons valued at £21,087, compared with 50 tons valued at £18,242 for 1940.

RETURN showing the Quantity and Value of Cadmium recovered for the Years 1936 to 1941.

Year.	Quantity.	Value.
	Tons.	£
1924-1936	114·50	31,713
1937	45	18,161
1938	49	18,636
1939	48	16,249
1940	50	18,242
1941	47·07	21,087
Total	353·57	£124,088

COPPER.

The production for the year was 11,644·934 tons, valued at £721,985.

RETURN showing the Quantity and Value of Copper in Blister Copper and Copper Ore during the Years 1919 to 1941 inclusive.

Year.	In Blister Copper.		In Copper Ore.		Total	
	Q'ty.	Value.	Q'ty.	Value.	Q'ty.	Value.
	Tons.	£	Tons.	£	Tons.	£
1919...	5014	503,977	13	984	5027	504,961
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...	8689	740,985	—	—	8689	740,985
1930...	9940	620,578	—	—	9940	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...	8202	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...	12,700·6	578,893	28·802	1345	12,729·402	580,238
1939...	13,453	668,561	—	—	13,453	668,561
1940...	11,570·2	717,356	1·746	108	11,572	717,464
1941...	11,642·0	721,810	2·842	175	11,644·934	721,985
Total	206,255·9	11,782,963	108·461	5445	206,367·349	11,788,583

The Mount Lyell Mining and Railway Company Limited.
Return for the Calendar Year 1941.

Ore and metal-bearing material smelted:—	Tons (Dry).
Source of Material.	
Ore:—From the Company's North Lyell Mine	6,642
Concentrates:—From the Company's North Lyell Mine, Lyell Comstock Mine, Crown Lyell Mine, and West Lyell Mines ore	52,293
Purchased ore	18
Total	58,953
Source of Material.	
Limestone delivered to works (tons)	5,677
Silica delivered at works	6,544
Pyritic concentrate shipped from Regatta Point (tons), approximate value	40,076
Blister copper produced, containing:	
Copper (tons)	11,644
Silver (oz.)	43,920
Gold (oz.)	7,971
Approximate value	£A990,703.

Average number of men employed—

Mining Department—At the Company's	
North Lyell Mine	91
Ditto, Lyell Comstock Mine	124
Ditto, Crown Lyell Mine	14
Ditto, Royal Tharsis Mine	110
Ditto, West Lyell Mines	388
Miscellaneous	197
	924
Reduction Works Department (including Lake Margaret)	700
Railway Department—Mount Lyell Railway	118
Total	1,742

Copper produced from the inception of the Company to the 31st December, 1941, 364,850 tons.

Silver produced from the inception of the Company to the 31st December, 1941, 15,248,070 oz. (fine).

Gold produced from the inception of the Company to the 31st December, 1941, 467,524 oz. (fine).

Dividends paid during the year, £135,000 = 1s. 9d. per share.

Dividends paid from the inception of the Company to the 31st December, 1941, £6,278,444.

CEMENT, CARBIDE, AND LIMESTONE.

The combined value of output from these three industries amounted to £476,915, as compared with £440,549 for 1940.

GOLD.

The quantity won was 19,908·498 oz., fine, valued at £167,229, as compared with 19,170·968 oz., valued at £161,035 for 1940.

RETURN showing the Quantity and Value of Gold won from 1880 to 1941 inclusive.

Year.	Quantity.	Value.
	Oz.	£
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	23,395
1922	3,431·486	15,998
1923	3,684·124	16,639
1924	4,625·600	21,563
1925	3,523·870	15,041
1926	4,222·748	17,936
1927	4,860·7	20,646
1928	3,603·43	15,306
1929	5,596·88	23,772
1930	4,466·61	18,976
1931	4,759·59	22,118
1932	5,937·17	34,943
1933	6,672·74	41,783
1934	5,622·26	38,930
1935	8,342·68	59,255
1936	17,600·47	123,383
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
Total	2,065,430·363	£8,780,665

IRON PYRITES.

RETURN showing the Quantity and Value of Iron Pyrites produced during the Years 1915 to 1941 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.....	33,711	33,711
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
Total.....	364,898·973	£438,834

LEAD.

The output was 11,753·47 tons, valued at £293,837, as compared with 13,550·85 tons, valued at £338,771 for 1940.

RETURN showing the Quantity and Value of Lead included in Silver-Lead during the Years 1919 to 1941 inclusive.

Year.	Quantity.	Value.
	Tons.	£
1919.....	2357·142	64,403
1920.....	3855·639	142,268
1921.....	1434·794	32,241
1922.....	4925·880	118,257
1923.....	4784·057	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	138,793
1930.....	4237·84	77,590
1931.....	2189·47	29,024
1932.....	2694·06	32,637
1933.....	2644	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
Total.....	128,105·612	£2,920,659

LIMESTONE.

RETURN showing the Quantity and Value of Limestone produced during the Years 1923 to 1936 inclusive.

Year.	Quantity.	Value.
	Tons.	£
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.....	174,757	44,877
1935.....	254,438	68,357
1936.....	262,301	71,243
Total.....	1,908,679	£1,240,194

NICKEL.

RETURN showing the Quantity and Value of Nickel produced from 1927 to 1941 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.....	—	—
1935.....	—	—
1936.....	—	—
1937.....	—	—
1938.....	19·75	3604
1939.....	—	—
1940.....	—	—
1941.....	—	—
Total.....	222·55	£38,850

OCHRE.

RETURN showing the Quantity and Value of Ochre produced during the years 1918 to 1941 inclusive.

Year.	Quantity.	Value.
	Tons.	£
1918.....	100	200
1919.....	—	—
1920.....	—	—
1921.....	14	56
1922.....	—	—
1923.....	—	—
1924.....	20	50
1925.....	—	—
1926.....	38	69
1927-1941.....	—	—
Total.....	172	£375

OSMIRIDIUM.

The quantity of metal won during the year was 206·578 oz., valued at £4212, as compared with 464·74 oz., valued at £11,604 for 1940.

The following table gives particulars of osmiridium won from Adamsfield since its discovery up to 31st December, 1941:—

RETURN showing the Quantity and Value of Osmiridium produced during the Years 1910 to 1941 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.....	1669·715	39,614
1920.....	2009·196	77,114
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.....	3172·5	61,908
1927.....	632·687	7456
1928.....	1627·186	42,458
1929.....	1360	30,624
1930.....	952·7	16,235
1931.....	1279·54	18,028
1932.....	784·95	9075
1933.....	548	4843
1934.....	487·7	4622
1935.....	235	2103
1936.....	280·6	3862
1937.....	586·42	9077
1938.....	190·87	2976
1939.....	283·065	5015
1940.....	464·740	11,604
1941.....	206·578	4212
Total.....	29,958·947	£646,565

Period.	Quantity.	Value.
Quarter ending—	Oz. dwt. gr.	£ s. d.
30th June, 1925.....	9 1 12	281 8 11
30th September, 1925...	625 19 9	20,144 10 11
31st December, 1925...	2238 5 9	68,757 1 4
31st March, 1926.....	992 13 7	23,339 0 1
30th June, 1926.....	633 12 20	12,202 18 4
30th September, 1926...	862 18 16	8475 8 11
31st December, 1926...	555 6 6	5539 1 3
31st March, 1927.....	203 9 11½	1909 5 7
30th June, 1927.....	142 3 9	1706 0 6
30th September, 1927...	93 16 6	1132 1 6
31st December, 1927...	113 10 8	1362 0 0
31st March, 1928.....	442 8 9	10,509 18 2
30th June, 1928.....	261 19 7	6529 9 1
30th September, 1928...	551 16 2	15,350 18 0
31st December, 1928...	293 5 0	7840 11 4
31st March, 1929.....	168 9 8	4147 6 4
30th June, 1929.....	262 7 16	5683 4 7
30th September, 1929...	292 2 23	7905 14 9
31st December, 1929...	313 2 17	6208 3 0
31st March, 1930.....	186 9 17	3278 17 0
30th June, 1930.....	67 6 11	1300 12 1
30th September, 1930...	126 16 9½	1898 4 10
31st December, 1930...	347 12 17	4302 11 5
31st March, 1931.....	240 19 14	4008 2 4
30th June, 1931.....	251 9 6	3104 14 9
30th September, 1931...	251 10 15	3428 14 6
31st December, 1931...	354 12 3	4741 11 10
31st March, 1932.....	250 5 21	3372 19 9
30th June, 1932.....	136 12 19	1504 8 9
30th September, 1932...	80 19 3	869 2 8
31st December, 1932...	123 7 18	1038 2 1
31st March, 1933.....	161 0 0	1368 0 0
30th June, 1933.....	162 0 0	1458 0 0
30th September, 1933...	153 0 0	1364 0 0
31st December, 1933...	60 0 0	540 0 0
31st March, 1934.....	148 5 0	1408 0 0
30th June, 1934.....	107 15 0	969 0 0
30th September, 1934...	71 14 0	645 0 0
31st December, 1934...	160 0 0	1600 0 0
31st March, 1935.....	40 0 0	350 0 0
30th June, 1935.....	12 0 0	108 0 0
30th September, 1935...	127 9 10	1147 4 7
31st December, 1935...	55 0 0	495 0 0
31st March, 1936.....	30 0 0	270 0 0
30th June, 1936.....	30 0 0	285 0 0
30th September, 1936...	133 12 0	2004 0 0
31st December, 1936...	65 0 0	1105 0 0
31st March, 1937.....	54 0 0	918 0 0
30th June, 1937.....	150 10 0	2709 0 0
30th September, 1937...	48 10 0	897 0 0
31st December, 1937...	76 1 15	723 0 0
31st March, 1938.....	28 10 0	413 0 0
30th June, 1938.....	13 0 0	174 0 0
30th September, 1938...	33 7 0	540 0 0
31st December, 1938...	97 7 0	1558 0 0
31st March, 1939.....	65 0 0	1105 0 0
30th June, 1939.....	100 5 0	1704 0 0
30th September, 1939...	48 0 0	816 0 0
31st December, 1939...	52 11 11	1051 0 0
31st March, 1940.....	124 3 0	2793 0 0
30th June, 1940.....	118 14 0	3412 0 0
30th September, 1940...	62 0 0	1550 0 0
31st December, 1940...	53 14 14	1075 0 0
31st March, 1941.....	38 17 12	777 0 0
30th June, 1941.....	48 0 0	960 0 0
30th September, 1941...	60 16 9	1265 0 0
31st December, 1941...	44 11 10	919 0 0
Total.....	14,309 4 22	£282,347 9 2

SHALE.

RETURN showing the Quantity and Value of Shale produced during the Years 1910 to 1941 inclusive.

Year.	Quantity.		Value.	
	Tons.	£		
1910.....	364	214		
1911.....	500	250		
1912.....	—	—		
1913.....	130	130		
1914.....	75	75		
1915.....	—	—		
1916.....	1286	1286		
1917.....	—	—		
1918.....	—	—		
1919.....	600	900		
1920.....	140	172		
1921.....	868	1506		
1922.....	40	100		
1923.....	1101	1094		
1924.....	1576	1526		
1925.....	820	559		
1926.....	2127	1475		
1927.....	3150	2050		
1928.....	2595	1297		
1929.....	4299	2982		
1930.....	5428	3490		
1931.....	1402	600		
1932.....	1097	1074		
1933.....	3401	1483		
1934.....	3276	1630		
1935.....	30	15		
1936-1941.....	—	—		
Total.....	34,305	£23,908		

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.....	Tasmanite Shale Oil Company Ltd.....	—
1936-1941 ...	Tasmanite Shale Oil Company Ltd.....	—
	Total	357,115

SCHEELITE.

RETURN showing the Quantity and Value of Scheelite produced during the Years 1917 to 1941 inclusive.

Year.	Quantity.		Value.	
	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		
Total.....	1312.688	£243,782		

SILVER.

The output was 1,326,738 oz. (fine), valued at £139,306, as compared with 1,608,681 oz., valued at £161,447 for 1940.

RETURN showing the Quantity and Value of Silver contained in Silver-Lead, Blister Copper, Copper Ore, and Gold Ore during the Years 1919 to 1941 inclusive.

Year.	In Silver-Lead.		In Blister Copper.		In Copper Ore.		In Gold Ore.		Total.	
	Quantity.	Value	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Oz.	£	Oz.	£	Oz.	£	Oz.	£	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	75,398	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.....	564,156	66,386	105,270	12,515	...	...	...	...	669,426	78,901
1929.....	714,930	78,252	149,424	16,308	...	...	...	...	864,354	94,560
1930.....	523,641	41,485	182,978	14,583	...	...	...	...	711,619	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.....	803,369	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	91,913	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	155,576	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
Total.....	14,544,999.5	1,674,405	2,865,023	380,905	130	25	44	4	17,410,298.55	2,055,429

TALC.

RETURN showing Quantity and Value of Talc produced during the Years 1928 to 1941 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
1937-1941.....	—	—
Total	105·6	315

TIN.

The output was 1255·729 tons, valued at £328,340, as compared with 1430·198 tons, valued at £367,127 for 1940.

RETURN showing the Quantity and Value of Tin exported from Tasmania from 1880 to 1904 (compiled from Customs Returns only), Tin Ore produced during the Years 1905 to 1918 inclusive, and Metallic Tin produced during the Years 1919 to 1941 inclusive.

Year.	Quantity.	Value.
	Tons.	£
1880 to 1904 inclusive	76,708·4	7,167,564
1905.....	3891·5	362,670
1906.....	4472·75	557,266
1907.....	4342·75	501,681
1908.....	4520·8	421,580
1909.....	4511·2	418,165
1910.....	3701·01	399,393
1911.....	3953·05	513,500
1912.....	3713·825	543,103
1913.....	4010·41	531,983
1914.....	2572·713	259,300
1915.....	2599·234	292,306
1916.....	2854·636	350,852
1917.....	2637·337	427,917
1918.....	2256·203	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
Total.....	149,730·576	£18,690,021

* Metallic Tin.

WOLFRAM.

RETURN showing the Quantity and Value of Wolfram produced during the Years 1899 to 1941 inclusive.

Year.	Quantity.	Value.
	Tons.	£
1899 to 1903 inclusive	57·25	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	23,714
1918.....	155·362	27,239
1919.....	120·907	26,613
1920.....	70·89	13,626
1921.....	10·34	676
1922.....	19·26	1024
1923.....	96·86	6150
1924.....	54	2785
1925.....	174·170	14,658
1926.....	83·15	5265
1927.....	148·57	9886
1928.....	176·15	12,094
1929.....	151·86	18,358
1930.....	112·6	12,216
1931.....	0·29	16
1932.....	—	—
1933.....	104	7,301
1934.....	194·19	27,375
1935.....	232	29,345
1936.....	207·13	28,323
1937.....	291·04	71,613
1938.....	299·104	63,348
1939.....	227·604	44,356
1940.....	234·304	42,319
1941.....	235·502	42,536
Total	4289·426	£611,291

ZINC.

RETURN showing the Quantity and Value of Zinc produced during the Years 1919 to 1941 inclusive.

Year.	Quantity.	Value.
	Tons.	£
1919.....	285	13,110
1920.....	9·3	334
1921-1923.....	—	—
1924.....	2748·75	90,485
1925.....	3112·69	110,691
1926.....	5377·75	183,362
1927.....	6326·2	181,242
1928.....	7112	188,691
1929.....	6997	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.....	26,126	711,931
1941.....	24,468·6	666,768
Total.....	176,143·29	£3,883,457

*Electrolytic Zinc Company of Australasia
Limited—*

Return for the calendar year 1941:— Tons.
 Production of slab zinc 55,094
 Production of metallic cadmium .. 144·8262
 Production of cobalt oxide .. 19·2779

The above is from ores other than Tasmanian.

The average number of men employed at Risdon was 1535.

West Coast Division.—The production on the West Coast properties during the year was:—

Tons.
 Slab zinc 24,468·6
 Metallic cadmium 47·07

The average number of men employed was 450.

**VALUE OF METALS AND MINERALS
RAISED.**

*RETURN showing Value of Metals and Minerals Raised
in Tasmania from 1880 to 1941 inclusive.*

Mineral or Metal.	Value.
	£
Asbestos	7322
Barytes	7289
Bismuth	26,990
Cadmium	124,088
Carbide, Cement, and Limestone	2,335,328
Carbide to 1936 (now under Carbide, Cement, and Limestone)	1,212,207
Cement to 1936 (now under Carbide, Cement, and Limestone)	2,004,014
Coal	3,084,214
Cobalt	243
Copper (Blister) to 1918 (now shown under Silver and Copper)	13,778,527
Copper Matte	133,736
Copper Ore to 1918 (now under Copper) ..	577,873
Copper (from 1919)	11,788,583
Gold	8,780,665
Granite (red)	14,009
Graphite	16
Ilmenite	1256
Iron Ore	31,756
Iron Pyrites	438,834
Kaolin	2416
Lead (from 1919)	2,920,659
Limestone to 1936 (now under Carbide, Cement, and Limestone)	1,240,194
Nickel	38,850
Ochre	375
Osmiridium	646,565
Red Oxide	9
Scheelite	243,782
Silica	17,410
Shale	23,908
Silver-Lead to 1918 (now shown as Silver and Lead)	6,429,291
Silver	2,055,429
Talc	315
Tin	18,690,021
Wolfram	611,291
Zinc	3,883,457
Unenumerated prior to 1894	31,988
Manganese	3
Total	£81,182,913

STATISTICS OF PRODUCTION.

*RETURN showing the Annual Value of Mineral Products
for the State of Tasmania from 1880 to 1941 inclusive.*

Year.	Value.	Year.	Value.
	£		£
1880	554,031	1912	1,493,502
1881	602,723	1913	1,415,700
1882	556,306	1914	1,007,038
1883	560,873	1915	1,225,575
1884	468,302	1916	1,521,050
1885	518,885	1917	1,582,322
1886	489,966	1918	1,597,694
1887	593,256	1919	1,301,090
1888	616,733	1920	1,421,104
1889	504,718	1921	822,851
1890	444,210	1922	1,013,415
1891	528,388	1923	1,219,456
1892	526,909	1924	1,496,804
1893	627,909	1925	1,700,861
1894	732,764	1926	1,808,847
1895	575,692	1927	1,621,027
1896	662,058	1928	1,593,828
1897	1,006,140	1929	1,790,653
1898	1,071,084	1930	1,270,114
1899	1,660,622	1931	894,986
1900	1,888,695	1932	897,168
1901	1,763,896	1933	1,053,373
1902	1,378,406	1934	1,037,351
1903	1,354,044	1935	1,387,511
1904	1,379,204	1936	1,979,637
1905	1,729,129	1937	2,653,822
1906	2,257,147	1938	2,294,735
1907	2,277,159	1939	2,520,282
1908	1,650,027	1940	3,137,330
1909	1,574,995	1941	3,055,838
1910	1,432,193	Unenumerated prior to 1894	31,988
1911	1,349,497	Total	£81,182,913

STATISTICS OF MINING COMPANIES.

*RETURN showing the Amounts Paid in Dividends by
Mining Companies during the Year ending 31st
December, 1941.*

Mines.	Dividends.
	£ s. d.
Copper	*51,304 0 0
Gold .....	...
Tin	70,919 0 0
Silver	2730 0 0
Coal	3525 0 0
Scheelite	3125 0 0
Zinc	*288,929 0 0
Total	£420,532 0 0

* These amounts represent total dividends out of Tasmanian profits, the remainder being paid from profits ex-Tasmanian.

*RETURN showing the Mining Companies Registered
during the Year ending 31st December, 1941.*

Number of Companies.	Capital.
2	£7000

In addition to the above, 4 agents for foreign companies under the Mining Companies (Foreign) Act, 1884, were registered, no syndicates under Part V. of the Mining Companies Act, 1884, were registered.

RETURN showing the Total Area of Land and Number of Sluiceways of Water Applied for during the Year ending December, 1941.

Mineral.	Number.	Sluiceways.	Area.
			Acres.
Asbestos .....	...	...	...
Bismuth .....	...	...	...
Barytes .....	...	...	...
Clay	1	...	5
Coal .....	...	...	...
Copper	2	...	28
Gold	8	...	149
Granite	2	...	15
Iron .....	...	...	...
Lead .....	...	...	...
Limestone .....	...	...	...
Manganese .....	...	...	...
Minerals	2	...	80
Nickel-Silver .....	...	...	...
Osmiridium .....	...	...	...
Phosphate	1	...	7
Sand .....	...	...	...
Silica	2	...	20
Tin	31	...	453
Wolfram .....	...	...	...
Machinery Sites and Mining Easements ...	5	...	7
Water-rights and Dam Sites	20	66	11
Licences to search for Coal .....	...	...	...
Total	74	66	775

RETURN showing Total Number and Area of Leases and Licences Issued during the Year ending 31st December, 1941.

Mineral.	Leases.	Sluiceways.	Area.
			Acres.
Asbestos .....	...	...	...
Barytes .....	...	...	...
Clay	2	...	76
Copper	1	...	10
Copper-Nickel .....	...	...	...
Coal .....	...	...	...
Granite	1	...	10
Gold	12	...	161
Iron Ore	1	...	75
Limestone .....	...	...	...
Minerals .....	...	...	...
Manganese .....	...	...	...
Nickel .....	...	...	...
Osmiridium .....	...	...	...
Pyrites .....	...	...	...
Silver .....	...	...	...
Scheelite .....	...	...	...
Silver-Lead .....	...	...	...
Stone	1	...	10
Tin	36	...	193½
Wolfram .....	...	...	...
Water-rights and Dam Sites	40	110	14
Licences to Search for Coal and Oil .....	...	...	...
Mining Easements and Machinery Sites	5	...	43½
Total	99	110	593

RETURN showing the Total Number of Leases and Licences in Force on 31st December, 1941.

Mineral.	Number.	Number of Sluiceways.	Area.
			Acres.
Antimony .....	...	...	...
Asbestos	1	...	10
Barytes	1	...	10
Bismuth .....	...	...	...
Coal	31	...	5973
Clay	3	...	78
Copper	3	...	80
Copper-Nickel	5	...	249
Dolomite	3	...	365
Granite	3	...	25
Gold	106	...	2041½
Gravel .....	...	...	...
Iron	5	...	298
Limestone	5	...	434
Lead-Zinc	1	...	80
Molybdenum .....	...	...	...
Minerals	42	...	5442
Marble .....	...	...	...
Manganese	1	...	10
Osmiridium	1	...	10
Pyrites	1	...	80
Scheelite	3	...	281
Shale	3	...	117
Silica	1	...	40
Silver	14	...	482
Stone	5	...	104
Sand	1	...	5
Tin	353	...	8621
Wolfram	6	...	249
Mining Easements and Machinery Sites	83	...	529½
Licences to Search .....	...	...	...
Water Licences	380	1428	2064½
Total	1067	1428	27,678½

RETURN showing the Total Amount of Rents, Fees, &c., received by the Mines Department during the Year ending 31st December, 1941.

Head of Revenue.	Amount.
	£ s. d.
Rent of Auriferous and Mineral Lands	7314 9 6
Fees, Auriferous and Mineral Lands	478 4 6
Survey Fees	450 13 3
Fees under the Explosives and Inflammable Liquids Act	3043 4 8
Total	£11,286 11 11

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 1941 inclusive.

Year.	Amount.	Year.	Amount.
	£ s. d.		£ s. d.
1882.....	23,077 1 9	1911.....	20,556 15 10
1883.....	15,439 14 5	1912.....	17,639 19 11
1884.....	6981 11 10	1913.....	19,410 17 8
1885.....	11,070 5 7	1914.....	14,087 0 6
1886.....	12,523 10 4	1915.....	17,679 3 6
1887.....	14,611 11 5	1916.....	14,678 19 10
1888.....	23,502 8 4	1917.....	14,669 7 2
1889.....	17,254 9 0	1918.....	17,833 14 9
1890.....	26,955 4 9	1919.....	15,388 7 7
1891.....	37,829 16 5	1920.....	16,767 11 6
1892.....	17,568 18 4	1921.....	11,248 14 11
1893.....	16,971 9 2	1922.....	14,184 7 3
1894.....	16,732 7 7	1923.....	13,224 11 9
1895.....	15,323 1 9	1924.....	14,678 13 11
1896.....	20,901 13 2	1925.....	14,229 8 7
1897.....	25,631 0 3	1926.....	15,163 15 7
1898.....	33,661 13 9	1927.....	16,887 9 9
1899.....	24,696 10 5	1928.....	14,313 12 0
1900.....	28,380 11 10	1929.....	14,665 10 7
1901.....	21,569 5 2	1930.....	11,166 7 2
1902.....	19,471 0 1	1931.....	11,520 1 10
1903.....	17,776 14 3	1932.....	10,097 18 6
1903, 1 July to 31 Dec.	14,758 17 1	1933.....	9459 6 9
1904, Jan. to Dec.	16,631 8 2	1934.....	11,166 2 11
1905.....	20,208 17 0	1935.....	10,548 10 0
1906.....	24,136 12 5	1936.....	11,023 11 3
1907.....	24,794 7 7	1937.....	12,206 10 1
1908.....	20,311 3 0	1938.....	11,177 11 5
1909.....	22,804 1 5	1939.....	11,556 5 1
1910.....	22,221 18 0	1940.....	11,018 3 9
		1941.....	10,835 18 8

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, 1927 to 1941 inclusive.

Nature of Lease.	In force on 31st Dec., 1927.		In force on 31st Dec., 1928.		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.	
	No.	Area.	No.	Area.	No.	Area.	No.	Area.	No.	Area.	No.	Area.	No.	Area.	No.	Area.	No.	Area.	No.	Area.	No.	Area.	No.	Area.	No.	Area.	No.	Area.	No.	Area.
For Minerals, Silver, Tin, &c.	642	Acres. 25,604	728	Acres. 28,103	652	Acres. 27,052	418	Acres. 18,321	379	Acres. 17,101	284	Acres. 13,320	326	Acres. 16,734	444	Acres. 18,716	500	Acres. 19,802	585	Acres. 21,096	603	Acres. 21,368	595	Acres. 23,497	463	Acres. 18,843	474	Acres. 16,838	436	Acres. 15,892
For Coal, Slate, Shale, &c.	39	11,077	52	15,407	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
For Gold Dredging Claims	38	749	40	830	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
Mining Easements	41	502	52	626	60	756	30	353	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Machinery Sites	77	484	77	475	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
Licences to search for Coal or Oil	21	110	29	169	25	171	18	117	20	209	18	120	17	119	2	3670	2	4,200	5	10,900	6	10,600	2	1,180	2	1,180	—	—	—	—
Water-rights, Mineral and Gold	4	5,090	7	7,200	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	—	—	—	—
	394	2,246 & 1,748 sluice-heads	371	1,552 & 1,581 sluice-heads	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

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

	Average for 1928.	Average for 1929.	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.
	£ 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	72 2 10	75 19 7	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
Lead—Soft Foreign: per ton	22 13 6	23 4 11	18 3 1	13 0 7	12 0 9	11 16 1	11 1 0	14 5 8	16 7 9	Electrolytic. 23 6 1	Electrolytic. 15 6 5	Electrolytic. 15 13 7	Electrolytic. 25 0 0	Electrolytic. 25 0 0
Spelter: per ton	25 14 9	24 15 1	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
Tin—Standard, spot: per ton:	216 6 6	263 18 10	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
Silver—Standard, spot: per oz.	s. d. 2 2·15	s. d. 2 0·57	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.	£ 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.
Osmiridium: per oz. ...	25 9 0	22 18 1	17 0 9	14 7 9	11 11 0	8 16 9	9 11 2	9 0 0	12 10 0	15 12 6	15 0 4	17 15 0	24 0 0	20 7 2
Wolfram: per ton	104 5 0	144 5 0	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
										W.O. ₃	W.O. ₃	W.O. ₃	W.O. ₃	W.O. ₃
Nickel: per ton .....	...	171 0 0	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	...	...

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 were reported.

The total amount expended was £1099, affording employment to approximately 80 men. The total value of ore raised by those assisted amounted to £12,334. Repayments made against advances totalled £925.

Expenditure continued to be incurred in cutting and conditioning tracks to known and potential mineral areas as an item of policy directed to the development of the mineral resources.

THE AID TO MINING ACT, 1927.**STATEMENT OF RECEIPTS AND PAYMENTS OF THE MINING TRUST FUND FOR YEAR ENDED 31st DECEMBER, 1941.**

RECEIPTS.			PAYMENTS.		
	£	s. d.		£	s. d.
Balance, 31st December, 1940	107	6 4	Sustenance allowance	76	0 0
Repayment of loans	684	3 8	Assistance	319	15 3
Refund drilling costs	103	1 5	Drilling	34	9 0
Refund insurance premiums	1	6 11	Miscellaneous expenses	10	11 5
Proceeds from sale cottage, Lefroy	100	0 0	Total payments	640	15 8
Hire drilling plant, &c.	36	5 8	Excess receipts over payments	3,391	8 4
Appropriation Act, 1940-41	3,000	0 0			
	£4,032	4 0		£4,032	4 0

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., 1941.		1st Jan., 1941, to 31st Dec., 1941.		Item.	March, 1935 (commence- ment) to 31st Dec., 1941.		1st Jan., 1941, to 31st Dec., 1941.	
	£	s. d.	£	s. d.		£	s. d.	£	s. d.
Provided by—					Prospecting	1,584	6 6		
Commonwealth	£25,750				Batteries	1,328	14 0	5	5 0
State	9,250				Advances	22,770	18 6	2	17 3
	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	6,416	8 8	30	13 10
The Aid to Mining (Federal Grant) Trust Fund, 1937-38 (1 Geo. VI. No. 32)	798	9 11			Transport	829	10 10	11	11 0
Other credits—					Staff	574	11 1		
Batteries	99	13 2	4	12 8	Total payments	41,453	2 10	50	7 1
Advances	5,472	1 11	240	7 11	Excess receipts over payments	1,813	17 9	1,813	17 9
Plants and operation there- of	11	18 8							
Metallurgical investigations	0	7 11							
Staff	0	10 10							
Balance brought forward period ended 31st Decem- ber, 1940			1,619	4 3					
	£43,267	0 7	£1,864	4 10		£43,267	0 7	£1,864	4 10

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, 1941.

RECEIPTS.			PAYMENTS.		
	£	s. d.		£	s. d.
Advanced by Commonwealth	2,000	0 0	Advances	500	0 0
Repayments	Nil		Excess receipts over payments	1,500	0 0
Interest	Nil				
	£2,000	0 0		£2,000	0 0

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.				
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
Total	£27,628	9	7	£16,886	9	8	£44,514	19	3	Total	£8,184	10	5	£5,853	16	4	£14,038	6	9

DRILLING.

Departmental drilling plants were in constant operation, partly on hire to holders of mineral leases and partly in drilling areas reserved against occupation under the provisions of the Mining Act. The total expenditure on all fields was £5481, and £155 was repaid under drilling agreements.

Drilling continued to be directed to prospecting the extent and value of the deep tin-bearing lead in the Scotia area at Gladstone. The course and nature of the lead were more clearly defined and, although results have varied, further drilling has been warranted to demonstrate if there is a sufficient yardage of average low-grade drifts to merit large-scale working.

A programme of drilling was carried out on shale areas at Latrobe and defined a mineable reserve for fulfilling the immediate requirements of any industrial venture directed to a commercial utilisation of the oil-shales of the Mersey Valley.

Following the completion of a geological survey, exploratory drilling was commenced to determine the prospective merits of a projection of the copper series beyond the lateral limits of old workings at Upper Scamander. Calculated ore ranges had not been reached at the close of the year.

Boring was continued at Beaconsfield. A comprehensive survey was made of lode positions and a third hole was commenced and drilled to 1140 feet, but the objective depth was not reached at the close of the period under review.

DETAILS OF EXPENDITURE ON DRILLING DURING THE YEAR ENDED 31ST DECEMBER, 1941.

Plant.	Location.	Amount.
		£ s. d.
Diamond Drill	Beaconsfield	2,627 17 9
Diamond Drill, No. 2	Tarraleah (agreement)	34 9 0
Diamond Drill, No. 3	Latrobe	780 10 8
Diamond Drill, No. 3	Scamander	214 3 5
Calyx and Surge Drills	Gladstone	1,703 7 9
Surge Drill	South Boobyalla (agreement)	120 17 0
Total		£5,481 5 7

(During the year a refund of £155 6s. was obtained from drilling carried out by agreement.)

DRILLING RESULTS.

SULLIVAN "B" DIAMOND DRILL.

This plant was employed at the Tasmanian Gold Mine, Beaconsfield. No. 3 bore was commenced on 31st March and had reached a depth of 1140 feet at the close of the year.

CANADIAN LONGYEAR JUNIOR STRAITLINE DIAMOND DRILL.

This plant completed the drilling campaign designed to locate a mineable reserve of oil-shale in the Latrobe district and successfully achieved the objective in the vicinity of the old Tasmanite Mine. The number of holes drilled was 17 with an aggregate depth of 2414 feet.

The plant was then transferred to Upper Scamander and was engaged in a drilling campaign directed to the exploration of copper prospects in the vicinity of the Orieco Mine.

No. 1 bore had reached a depth of 138 feet at the close of the year.

CALYX AND SURGE DRILLS.

These plants were engaged in testing the extent and value of the deep tin-bearing lead north of the Scotia workings at Gladstone. The number of holes drilled was

131 and the aggregate depth of the bores was 13,154 feet. The following tabulation indicates the tin content of the lead tested:—

No. of Bore.	Depth to Bedrock.		Average Values. Oz. per c. yd. of 70% Conc.	Best Values			
				Depth.		Oz. per c. yd. of 70% Conc.	
	ft.	in.	ft.	in.	ft.	in.	
1G	109	6	3.13	102	8—109	6	35.2
8H	101	9	3.86	95	4—101	9	29.5
11H	104	0	10.95	85	4—102	8	146.0
2J	109	7	7.8	102	8—109	7	96.9
3J	108	1	3.78	95	4—102	8	34.5
4J	103	0	9.41	102	8—103	0	268.4
13J	122	4	7.95	117	4—122	4	128.0
14J	120	7	7.08	117	4—120	7	148.0
1M	104	6	3.15	80	8—88	0	27.6
2M	118	3	5.34	117	4—118	3	68.8
3M	118	4	16.1	102	8—110	0	168.8
4M	94	3	2.84	88	0—94	3	33.0
1P	116	4	3.8	102	8—110	0	27.6
2P	121	9	3.9	117	4—121	9	23.5
1R	107	4	2.74	102	8—107	4	47.0
2R	108	5	4.15	95	4—108	5	22.75
4R	120	7	2.23	88	0—95	4	10.2

CALYX AND SURGE DRILLS—*continued.*

No. of Bore.	Depth to Bedrock.		Average Values. Oz. per c. yd. of 70% Conc.	Best Values.			
				Depth.		Oz. per c. yd. of 70% Conc.	
	ft.	in.		ft.	in.	ft.	in.
6R	101	0	2.54	95	4-101	0	31.2
8R	118	4	5.7	117	4-118	4	202.0
9R	119	5	3.0	110	0-117	4	30.6
1S	122	5	3.28	117	4-122	5	33.0
10R	120	3	8.3	117	4-120	3	92.0
12R	123	4	7.4	117	4-123	4	124.0
13R	118	6	2.78	117	4-118	6	47.5
14R	122	1	5.9	117	4-122	1	58.9
2I	128	0	10.22	124	8-128	C	213.7
7I	124	8	4.1	113	4-124	8	34.25
8I	119	6	9.17	113	4-119	6	143.0
2L	115	6	12.43	113	4-115	6	206.0
1N	123	0	10.52	113	4-123	0	131.8
5O	45	3	3.18	34	0-45	3	12.5
1Q	127	0	19.8	113	4-124	8	146.0
2Q	110	6	2.73	90	8-110	6	13.3
5Q	125	0	14.55	124	8-125	0	1358.0
6Q	124	8	9.7	113	4-124	8	87.0
7Q	124	4	11.0	113	4-124	4	110.0
8Q	122	0	3.67	113	4-122	0	27.5
9Q	124	6	3.95	113	4-124	6	24.6
10Q	124	5	6.05	113	4-124	5	64.0
11Q	122	6	3.7	113	4-122	6	33.0
13Q	122	3	8.5	113	4-122	3	70.0
7T	126	0	2.3	124	8-126	0	21.3
8T	119	3	3.7	113	4-119	3	40.8
9T	129	0	7.88	124	8-129	0	93.0
10T	129	3	17.4	113	4-124	8	162.5
11T	127	0	7.6	124	8-127	0	147.0
15T	119	0	2.3	113	4-119	0	32.6
16T	126	0	3.72	124	8-126	0	46.5
17T	112	0	4.16	102	0-112	0	40.75

DEPARTMENTAL ACTIVITIES.

Establishment of services to create an important addition to technical functions in mineral research and beneficiation of ores and material bearing upon the commercial exploitation of the mineral resources, was retarded by the release of permanent officers for war and other services, and difficulties in obtaining technical officers and equipment under war-time conditions. However, useful progress was made in the designed policy.

The capacity of the State to respond to any demand for an increased production of strategic minerals was the subject of an examination and much useful information was assembled. The identification of bauxite, an important ore of aluminium, was a valuable contribution, by the technical services, to the mineral resources of the State.

The appointment of an additional inspector and contraction of inspectorates resulted in an exercise of more regular surveillance of conditions affecting the health and safety of those employed in mines, quarries, and works.

MINES DRAFTING BRANCH.

The number of working plans in use and which are kept up to date is 224, as compared with 223 in 1940.

Instructions issued to surveyors	68
Diagrams received from surveyors	66
Diagrams drawn on leases	200
Consolidated and other diagrams drawn	29
Lithographs entered to date	82
Various tracings prepared	25
Tracings for Launceston	94
Manuscripts entered to date	5
New manuscript plans drawn	Nil
Meteorological colour work, rain map	36
Underground surveys examined	30
Geological plans compiled and tracings made	137

STAFF.

Mr. P. B. Nye, Government Geologist, returned to the Department on the 2nd July, 1941, but was released on the 11th November, 1941, following his acceptance of a position on the permanent staff of the Commonwealth Geological Survey.

Mr. D. R. Dickinson, B.Sc., was appointed to the position of Extension Officer as from the 26th May, 1941.

Miss J. Firth was appointed typiste as from the 15th September, 1941.

Mr. C. G. O'Byrne was appointed clerk in the office of Chief Inspector of Mines and Explosives, Launceston, as from the 13th January, 1941.

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 FOR 1941.

The Field Geologist (Mr. Q. J. Henderson) reports:—

Field Work.

The field work of the Geological Survey continued to be seriously affected by the release of officers for war services. The Government Geologist (Mr. P. B. Nye) returned to office for a period of four months, but, with this exception, the staff was reduced to one officer.

The following items relate to field visits, surveys, and examinations made in connection with mineral deposits, mines, and other matters:—

- (1) Frequent visits to Beaconsfield, in connection with diamond drilling at the old Tasmania Gold Mine, by Q. J. Henderson.
- (2) Geological Survey of the Scamander Copper Field, by Q. J. Henderson.
- (3) Visits to Mathinna regarding applications for assistance under the Aid to Mining Act, by Q. J. Henderson.
- (4) Detailed survey, including levelling, of the diamond drilling campaign on the Tasmanite Shale Area at Latrobe, by Q. J. Henderson.
- (5) Inspection of the old A.I. gold prospect at Mangana, in connection with an application for assistance, by Q. J. Henderson.
- (6) Geological examination of the Woodstock Copper Area, by Q. J. Henderson.
- (7) Examination of a gold prospect at Golden Hill, near Lorinna, by Q. J. Henderson.
- (8) Detailed survey, including levelling, of the Gladstone drilling campaign, by Q. J. Henderson.
- (9) Several visits to Scamander in connection with diamond drilling at the North Orisco Copper Prospect, by Q. J. Henderson.
- (10) Geological Survey of the Mount Farrell silver-lead district, by Q. J. Henderson.
- (11) Geological examination of dam-sites in the proposed water-scheme for Burnie, by Q. J. Henderson.
- (12) Geological examination of portion of the Storey's Creek-Aberfoyle and Constable Creek tungsten areas, by P. B. Nye.
- (13) Visit to Mathinna, in connection with several applications for assistance, by P. B. Nye.
- (14) Examination of a tin prospect at Goshen, by P. B. Nye.
- (15) Geological investigations of portion of the River Derwent and Nive River Hydro-electric Schemes, by P. B. Nye.

Reports.

In connection with the above and other examinations, the following reports were prepared:—

- (1) The Scamander Copper Field, by Q. J. Henderson.
- (2) The Woodstock Copper Prospect, by Q. J. Henderson.
- (3) Notes on a gold prospect at Golden Hill, near Lorinna, by Q. J. Henderson.
- (4) Antimony Minerals in Tasmania, by P. B. Nye.
- (5) Report on Drilling Operations at Zeehan, Copper Nickel, and Renison Bell in connection with recommendations of the Imperial Geophysical Experimental Survey, by P. B. Nye.
- (6) Report on Plummer's workings (Layhoe Syndicate), Rossarden, by P. B. Nye.
- (7) Supplementary report on Antimony Minerals in Tasmania, by P. B. Nye.

- (8) Report on the City of Melbourne Mine, Mathinna, by P. B. Nye.
- (9) Report on C. R. Cox's application for assistance at the New Eldorado Mine, Mathinna, by P. B. Nye.
- (10) Report on Lease 326P/M (Chapman and Dwyer), Goshen, by P. B. Nye.
- (11) Geological Report on portions of the River Derwent and Nive River Hydro-Electric Schemes, by P. B. Nye.
- (12) Lease 11,866/M. (Southern Portion of Western Pinnacles), by P. B. Nye.
- (13) The Tungsten Resources of Tasmania, by P. B. Nye.
- (14) Copper Deposits of Tasmania (Summary of Literature), by P. B. Nye.
- (15) Report on Minnow Gold Deposits, by P. B. Nye.

In addition, numerous departmental reports and recommendations were made in connection with applications for assistance to mining in various parts of the State.

Staff.

Mr. P. B. Nye continued to carry out the duties of Executive Officer of the Geological, Geophysical, and Aerial Survey of Northern Australia until the end of June, when he resumed the duties of Government Geologist. Mr. Nye resigned on the 16th November, 1941, to take up a permanent appointment with the Commonwealth Government.

Routine and Other Duties.

Much energy has been directed to making accurate and comprehensive surveys of all current drilling campaigns.

A new departure was the instituting of internal surveys of diamond drill-holes for deflection determinations.

A re-interpretation of the geology of the Mount Farrell silver-lead district was commenced, utilising modern concepts and technique in the location of structural control, but was temporarily abandoned owing to war time conditions requiring full time attention to more strategic minerals.

Special attention has been devoted to the production of improved geological reports and of maps which represent the geological structure in such a manner as to demonstrate the intimate relationship between general and economic geology. In this respect, the method of procedure adopted, and the material which is presented, will prove of permanent value and assistance to the mining industry.

It is satisfactory to be able to note that the geological survey has been successful in accomplishing economic work which is of admitted benefit to the mining industry.

The usual duties of interviewing visitors and answering technical correspondence were undertaken. These were concerned chiefly with the identification of mineral and rock specimens and supplying information relating to mineral deposits, mines, and reports in connection with the mining industry.

Other duties of the Geological Survey included:—

- (1) Attendance at meetings of the Mining Managers' Board.
- (2) Preparation of rock and mineral sections.
- (3) Weighing and certifying to parcels of osmiridium being shipped overseas.
- (4) Compilation of drilling records.
- (5) Attention and additions to departmental library.
- (6) Preparation of plans, sections, and maps to accompany reports.
- (7) Preparation of mineral specimens.
- (8) Attention to departmental rock and mineral collections.

APPENDIX II.

REPORT OF THE CHIEF CHEMIST AND METALLURGIST.

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

During the year the following determinations were made:—Gold, silver, tin, lead, aluminium, arsenic, antimony, cerium, beryllium, barium, bismuth, boron, calcium, chlorine, chromium, copper, iron, magnesium, manganese, mercury, molybdenum, nickel, osmiridium, phosphorus, thorium, tungsten, titanium, zinc, zirconium. Analyses were made of ores, minerals, clays, rocks, coal, shale, bauxite, water, &c. The number of determinations approximated 4500.

Metallurgical Investigation.

A sample of gold bearing sands from West Arm, Beaconsfield, was received for cyanidation extraction and flotation tests. The samples consisted mainly of quartz with minor quantities of sulphides, and contained 54 grains of gold per ton and 0.12 per cent of copper. Eighty-two per cent of the sample was plus 80 mesh screen.

Cyanidation of the sample as received gave an extraction of 16 grains per ton, and after grinding to 90 per cent minus 200 mesh, an extraction of 26 grains was obtained. Flotation without grinding resulted in a concentrate assaying 36.37 dwts. per ton, equivalent to 21.9 grains per ton of sands. Cyanidation of the flotation tailings gave an additional 8.7 grains recovery, or a total of 56.6 per cent. Similar treatment, after a ball mill grind to 90 per cent minus 200 mesh, resulted in a total recovery of 50.2 grains or 93 per cent of which the flotation concentrate represented 41 grains or 76 per cent of the total.

Gold-bearing sands and slimes from Chum Creek and Lefroy were tested for extraction of gold by cyanidation.

Investigations were undertaken to assist commercial operations and recommendations made for improvement in treatment, of which control of reagents and precipitation of the gold in the zinc boxes were of major importance.

Further research assistance, directed to improving operations, has been undertaken for the Golden Gate Syndicate. Treatment at this plant consists of agitating slimes with cyanide and lime, separation of the solids with an Oliver filter and precipitation of the gold in zinc boxes. This industry was established as a direct result of investigations carried out in this laboratory.

A sample of scheelite concentrate produced by King Island Scheelite N.L. was submitted for sizing analysis. The sample was finer than a 200 mesh screen, and was sized by elutriation. Ninety-nine per cent consisted of particles larger than 30 microns, and indicated the ineffectiveness of shaking tables to concentrate scheelite minus a hypothetical equivalent screen size of 500 mesh.

A cassiterite concentrate from the Aberfoyle Mine was submitted for investigation into a reduction of arsenic content. A sizing analysis from 40 mesh to minus 8 microns showed arsenic contents of the twelve fractions of 0.02 to 0.15 per cent, with the exception of the minus 8 micron fraction which contained 1.4 per cent of arsenic. Elimination of this fraction reduced the arsenic content from 0.116 per cent to 0.06 per cent, and equipment was subsequently installed at the mine for this purpose.

During the year orders have been placed for additional ore dressing research equipment, and include a Rapid magnetic separator, ball, rod, and tube mills, Wilfley table, Infralyzer, Superpanner, and Fagergren and Fahrenwald flotation machines.

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 5856 compared with 6000 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 85, as against 103 for the previous year. The 85 accidents resulted in injury to 90 persons.

There were five accidents less in the Northern and Southern Division, four less in the North-Western Division, three less in the Eastern Division, and eight less in the Western Division, whereas there was an increase of two accidents in the North-Eastern Division.

Four accidents were attended with fatal injuries to five persons as compared with two accidents, involving fatal injuries to two persons, for the previous year. The four fatal accidents occurred in the Western Division.

Of the fatal accidents, three occurred on the surface and caused loss of life to four persons, whilst the fourth accident, involving the death of one person, happened in underground workings.

One fatality was due to two employees taking a motor vehicle without authority to go down a new road being constructed. The brakes failed to act and the vehicle went over the bank, causing fatal injury to one of the men.

The second fatality occurred at open-cut workings.

A deep hole was being loaded with gelignite when an explosion occurred and resulted in the death of two men. A wooden tamping stick, with a copper finish, was being used. It was concluded that there was an obstruction in the hole, and that the men were either forcing the loading past the obstruction or forcing the obstruction to clear the loading, and caused the premature explosion.

The third accident occurred on the surface. A youth, 17 years of age, was employed working a flying-fox when the beam to which the rope was attached broke and the rope struck him, causing fatal injuries.

An employee sustained fatal injuries, when walking along a drive, as a result of being struck on the head by a stone, weighing 86 lbs., which ricocheted from an airpass and bounded 30 feet along the drive.

The non-fatal accidents totalled 81, causing injury to 85 persons, compared with 101 accidents, involving injury to 102 persons, for the previous year.

The rate per 1000 persons employed, killed, and injured, was 15.368 compared with 17.333 for the previous year.

The rate per 1000 persons employed, fatally injured, was 0.853, compared with 0.383 for the year 1940.

The rate per 1000 incapacitated for more than 14 days was 14.515 compared with 17.000 for the previous year.

Of the non-fatal accidents, totalling 81, 25 occurred in connection with surface operations, 37 underground, and 19 at metallurgical and other works.

No accidents reported from coal mines.

Twenty accidents resulted in ossea fractures or permanent injury.

Prosecutions.

It was not found necessary to take legal proceedings for failure to comply with the provisions of the Act. In a number of cases, attention was drawn to non-compliance, and warning had the desired effect.

APPENDIX IV.

REPORT OF THE ACTING CHIEF INSPECTOR OF EXPLOSIVES.

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

The Explosives Act, 1916.

The imports of explosives were as follows:—

	Lbs.
Monobel	52,000
Gelignite	840,250
Ligdyn	64,100
Gelatine dynamite	49,150
Blasting powder	11,050
Sporting powder	375
	Number.
Detonators	1,026,450

Attention was directed to ensure that the compounds were in good chemical and physical condition. There were few recorded instances of deterioration, and in all cases the cause was due to faulty storage. The defect of absorption of moisture, due to the faulty wrapping of cartridges and cartons, which was very prevalent last year, has not been apparent this year.

Four accidents were due to explosions:—

- (1) A miner was attempting to light 34 fuses at a firing underground, when the first charge exploded and caused slight injury to two men.

- (2) A surface employee found a fuse and detonator in a rock pile. He ignited the short piece of fuse and the detonator exploded, causing serious injury to his left hand.
- (3) Two men were charging a deep hole at an open-cut. When the hole was partly charged, a stone became jammed in the hole. The men were endeavouring to remove the stone with a wood tamping stick when the charge exploded, causing fatal injury to both men.
- (4) Five persons, employed in the vicinity of a fine crushing plant, were slightly injured owing to a dust explosion in the circuit.

The Inflammable Liquids Act, 1929.

The absence of untoward incidents in connection with the handling and storage of inflammable liquids again reflected creditably upon the care exercised in the control of safety and fire hazards.

The installation of large overhead tanks at Launceston was commenced.

Prosecutions.

There were seven prosecutions for breaches of the Act and Regulations. Convictions were obtained in all cases.

*COMPARATIVE Table of Statistics of Accidents in and about the Mines of Tasmania
from 1st July, 1892, to 31st December, 1941.*

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	8.709
" 1907 " 1907	7516	68	6	64	70	9.314	0.798	8.515
" 1908 " 1908	6464	60	6	58	64	9.900	0.928	8.972
" 1909 " 1909	6054	54	6	49	55	9.085	0.991	8.093
" 1910 " 1910	5770	63	8	57	65	11.265	1.386	9.878
" 1911 " 1911	5247	80	4	77	81	15.437	0.762	14.675
" 1912 " 1912	5566	60	53*	53	106	19.044	9.522	9.522
" 1913 " 1913	6106	64	6	60	66	10.809	0.982	9.826
" 1914 " 1914	4741	69	9	62	71	14.977	1.896	13.081
" 1915 " 1915	3908	71	6	67	73	18.679	1.535	17.144
" 1916 " 1916	3864	53	2	51	53	13.716	0.517	13.198
" 1917 " 1917	4050	50	2	48	50	12.345	0.493	11.852
" 1918 " 1918	4279	50	5	45	50	11.684	1.168	10.516
" 1919 " 1919	4413	58	1	57	58	13.143	0.226	12.917
" 1920 " 1920	5364	52	2	50	52	9.694	0.372	9.322
" 1921 " 1921	4011	40	3	37	40	9.972	0.748	9.224
" 1922 " 1922	3835	31	4	27	31	8.083	1.043	7.040
" 1923 " 1923	4785	64	2	63	65	13.584	0.417	13.166
" 1924 " 1924	5264	72	1	73	74	14.057	0.189	13.867
" 1925 " 1925	5110	62	2	61	63	12.328	0.391	11.937
" 1926 " 1926	5309	54	5	52	57	10.736	0.941	9.794
" 1927 " 1927	5044	70	5	65	70	13.877	0.991	12.886
" 1928 " 1928	5170	47	1	46	47	9.090	0.193	8.897
" 1929 " 1929	4986	59	17	55	72	14.440	3.409	11.031
" 1930 " 1930	4606	55	4	52	56	12.158	0.868	11.289
" 1931 " 1931	4391	38	8	35	43	9.792	1.821	7.970
" 1932 " 1932	4605	71	4	67	71	15.418	0.868	14.549
" 1933 " 1933	4510	77	7	71	78	17.295	1.552	15.742
" 1934 " 1934	4843	108	4	105	109	22.506	0.826	21.680
" 1935 " 1935	5409	142	1	141	142	26.252	0.184	26.067
" 1936 " 1936	5432	97	4	96	100	18.409	0.736	17.673
" 1937 " 1937	5876	107	5	103	108	18.379	0.850	17.529
" 1938 " 1938	5891	103	2	102	104	17.654	0.339	17.315
" 1939 " 1939	5928	87	2	87	89	15.013	0.337	14.676
" 1940 " 1940	6000	103	2	102	104	17.333	0.333	17.000
" 1941 " 1941	5856	85	5	85	90	15.368	0.853	14.515

* Mount Lyell disaster.

TABLE showing Rate per Thousand Killed and Injured in different Divisions for the Year 1941.

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	1956	5	...	9	9	4.601	...	4.601
North-Eastern	361	5	...	5	5	13.850	...	13.850
Eastern	575	2	...	2	2	3.478	...	3.478
North-Western	560	8	...	8	8	14.285	...	14.285
Western	2404	65	5	61	66	27.453	2.079	25.374
Total	5856	85	5	85	90	15.368	0.853	14.515

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	1742	35	4	32	36	20.665	2.296	18.369
Zeehan, &c.	662	30	1	29	30	45.317	1.511	43.806
Total	2404	65	5	61	66	27.453	2.079	25.374

APPENDIX V.

REPORTS OF INSPECTORS OF MINES.

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

Employment.—The average number of men employed in mining, quarrying, and metallurgical activities was 864, a decrease of 113, chiefly on account of the war. Operations afforded employment to 222 men in portion of the north-western mineral division, and 642 in the western division, exclusive of Mount Lyell.

There was a shortage of labour in all districts, especially of experienced miners.

Accidents.—Thirty-one accidents were registered under the provisions of the Mines and Works Regulation Act. Nineteen of the accidents occurred underground, and twelve, including one fatal accident, were associated with surface operations. An exercise of care would have averted at least fifteen of the mishaps, but the others were, so far as could be judged, due to misadventure. The largest proportion of the accidents was associated with operations by one mining company, and, doubtless, the necessity for employing men who possessed no previous experience in the class of work in which they were engaged was a contributing factor. One of the accidents was due to negligence on the part of mine officials.

The fatal accident was due to the collapse of a fixture of a main carrying rope of a self-acting ropeway used for the transport of ore from mine to mill bins. A youth, aged 17 years, had completed the loading of a bucket when the rope collapsed, struck him under the chin, and forced him against the front of the bin. Death was instantaneous. The ore bin had been moved from its original position, and the alignment of the ropeway was irregular. The irregularity was overcome by fastening the carrying rope to a piece of 6 x 3-inch timber with a U-bolt. The timber fixture failed, as the youth was moving from the bin to the control position of the ropeway. At the coronial inquest, the jury recorded a finding of accidental death.

An accident, which may have had more serious consequences, occurred when two men attempted to light forty-four holes underground, ten holes in the face of a crosscut and thirty-four in the face of a drive, with only a short distance between. One man lit the fuses of the ten holes in the crosscut, and it is stated that they completed lighting the fuses of the thirty-four holes in the drive when one of the holes in the latter place exploded and knocked them down. They crawled away and received no further injuries than the shock and abrasions sustained from the first explosion. One man was incapacitated for more than 14 days, but the other resumed work in less than that period.

An underground employee was lagging a set of timber in a stope when a piece of rock fell from the wall and jammed his left hand against the lagging, severing the first joint of the first finger.

An employee was wearing over-size rubber boots, and, when descending an underground man-way, he slipped and fell a distance of 18 feet, sustaining abrasions to the left side. The management, unsuccessfully, endeavoured to prohibit the wearing of rubber boots in the underground workings, but a special rubber boot with leather soles was introduced. This innovation eliminated the danger of rubber soles and afforded the advantage of rubber boots.

A person was mixing concrete when the wind blew some cement into his right eye and caused acute inflammation. He reported the incident to the management and continued work, but the condition of the eye deteriorated and its removal was necessary.

An accident, which caused an eye injury to a second person, occurred when a barricade in a stope was being dismantled. A man requested his mate to strike one of the boards with the end of a pick. Without ascertaining that his mate was safely away, he swung the pick to comply with the request and struck him in the right eye, knocking it out.

When a man slipped on a "rill," a lump of ore rolled and struck him on the knee. The injury was not regarded as of serious moment until an extremely painful condition developed, and it then appeared as though the leg would have to be amputated, but no medical decision had been made at the close of the year.

There were thirteen cases of injuries to arms, hands, and fingers; five of injuries to legs; four of injuries to toes; and one case of a fractured pelvis.

Safety.—At three open-cut workings, difficulty was experienced in obtaining a reasonable degree of safety, and it was necessary to take drastic action at two of the workings by ordering the men out, until the mullock overburden, under which it was unsafe to work, was removed. The removal was effected, but it is necessary to persevere with matters of this nature. Attention has been directed to similar cases on two subsequent occasions. Better conditions should result from a subsequent change of management. Otherwise, no opposition was encountered, and suggested improvements were usually adopted, although a reminder was necessary in some cases.

Numerous improvements have been effected and, at one group of mines, the practice of working one shift instead of two has helped considerably.

Ventilation.—The question of adequate ventilation has received constant attention. Dust counts were taken at works and mines, where detrimental conditions were considered to be present, but tests proved conditions to be within the limit which is recognised as satisfactory. There is still room for improvement at one large mine, where stoping is advanced on the rise of the "rill" to the mullock pass and the stoped area then mullocked close to the roof. In the absence of auxiliary means or airways, the close filling cuts off the circulation of air.

Health and Sanitation.—Regular attention was directed to matters affecting health and sanitation. Improvements were effected in crib-places, latrines, change-houses, and in the cleaning up of underground roadways. Men responded more readily in regard to the use of means provided for the prevention of dust dispersion. An anonymous complaint, which it is considered was not justified, was received regarding dusty conditions at one works. If the instructions of the management had been carried out, the condition complained of would not have existed. More stringent instructions were issued, and should produce good results.

A complaint was received in regard to the inadequacy of the supply of hot water in the change house at one mine. Enquiries revealed that the first men to arrive, at the close of a shift, used more water than was necessary, and allowed large quantities to run to waste, thereby resulting in a shortage for the men arriving later at the change house. The management was appealed to, and instructions were issued to duplicate the hot water system. Owing to lack of material, this was delayed, but the difficulty has now been overcome, and provision for additional hot water should be completed at an early date.

Generally, first-aid equipment was reasonably satisfactory. On occasions the supplies at smaller mines became limited, but were replenished when attention was directed to the deficiency.

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 fuse in use.

Three shipments of explosives, comprising 2075 cases of nitro-compounds, were received at Burnie. Unloading and despatching were supervised.

At two mines, tests were carried out with anti-fume bullets, which were later adopted at these and other mines. Opinion seems to be divided in regard to their utility. It was generally agreed that they were useful in rises for removing offensive odours, but opinions differed upon whether they had the same effect in "muck-piles" during shovelling operations. The Mines and Works Regulation Act provides that "No person shall work, enter, remain, or be permitted or ordered to work or remain in any place in a mine where the air is not free from dust, smoke, or fumes perceptible by sight, smell, or other senses," and, if put into practice this should cover the whole position. Nevertheless, anti-fume

bullets may have a useful effect on fumes in such places as dead ends, winzes, and rises, which are dry, particularly so, where the ventilation is not good.

Inflammable Liquids.—Many irregularities were encountered in the storage of inflammable liquids, due largely to ignorance of the requirements of the Act. These were remedied when attention was drawn to the defects.

Occupational Diseases.—A considerable amount of work was involved in attending to matters for the purpose of the Workers' (Occupational Diseases) Relief Fund Act.

Two persons were certified as suffering from the effect of dust. One person, a former shift boss, was granted full compensation, and the other applicant was allowed 40 per cent of full compensation. One applicant was refused compensation on the grounds that he was not suffering from any disease covered by the Act. Clean certificates were issued in respect of 197 new employees.

General.—Owing to war conditions, a shortage of skilled labour existed, which rendered it necessary to keep a very close touch with operations, in order to prevent serious accidents. Appreciation is expressed of the assistance rendered me by managers, foremen, and employees at the mines, works, and quarries in the execution of duties directed to obtaining the best possible conditions in occupations which are allied with many hazards.

Mineral Resources, Reports, Examinations, and Prospects.

Many examinations were made in connection with mineral resources, and many interesting and profitable results should accrue therefrom. Observations at one mine indicated the possibility of an extensive occurrence of ore, in the footwall country, and it is pleasing to record that developments proved the indications to be correct. More than 60,000 tons of high grade ore was proved, and there are prospects of additional developments.

It is considered that there are many places in the district that warrant examination by geophysical survey methods, and, no doubt, many valuable discoveries would result therefrom.

Numerous applications for financial assistance were investigated. Several were declined, but others, which presented mineral prospects of a promising nature, were recommended. Work is still proceeding at most of these, and further information is contained in the resumé of mining operations and production.

OPERATIONS AND PRODUCTION.

Asbestos.

No further developmental work has been pursued on the occurrence of asbestos, which was exposed during the construction of the road between Zeehan and Renison Bell.

A small sample of asbestos, stated to be from private property, was submitted by a prospector, and warrants investigation, but pressure of other duties has prevented an early examination of the deposit.

Cadmium.

The recoverable quantity of cadmium in ores produced by the Electrolytic Zinc Company of Australasia Limited from the Read-Rosebery Mines was 47.07 tons, valued at £21,087.

Clay.

In addition to clays normally required for the manufacture of bricks, 1,105 tons of white clay, valued at £1,400, was produced from deposits at Mabana and Hellyer for use at the Associated Pulp and Paper Mill, at Burnie. Supplies now being drawn from the deposit at Hellyer are treated at the Burnie Works, and it is hoped that all future clay requirements will be obtained from this source. A quantity is still being imported from Victoria.

Copper.

There was 0.5629 ton of copper, valued at £34,962, obtained from precipitates from the old mines at Balfour.

Gold.

The recorded output of fine gold was 10,847.551 oz., valued at £91,119.4282. Of this quantity, 10,549.21 oz. was recovered from zinc-lead ores mined by the Electrolytic Zinc Company at the Read-Rosebery Mines.

West Coast Gold Mines.—As was anticipated by the management, the operation of the steam plant at Middleton Creek, Corinna, proved too costly. The management

changed hands, and after some holes were sunk, which were reported satisfactory, a small plant was installed to explore the terrace ground. After operations commenced it was found that most of the terrace ground had been worked by the early diggers, and operations were abandoned. The plant was removed, and the field is now deserted. According to reports, 13.6 oz. of gold was recovered, valued at £114.24.

It is believed that crossing the Middleton Creek flats there are five leads which, on account of their depth, have never been explored, except for two holes bored by two different companies, and reported to contain excellent gold values. A series of holes, bored in this area, should result in encouraging values being revealed.

A. Davie recovered 3.969 oz. fine gold, valued at £33.34, by ground sluicing at True Lovers Creek, off the Savage River. It was also reported that another man won 9 oz. in the same area, but no official figures were received.

An old-age pensioner obtained .364 oz. of gold, valued at £3.06 from Middleton Creek.

S. A. Betts continued with prospecting operations in the vicinity of Mount Ramsay, and recovered 0.2125 oz. of gold, valued at £1.785. Small quantities of tin and osmiridium were also obtained.

Doctor's Rocks.—As the result of operations by various persons along the beach from Somerset to Seabrook Creek, principally in the vicinity of Doctor's Rocks, 385.36 oz. of alluvial gold was won, containing 277.54 fine oz., valued at £2,331.336. The possibilities of installing a dredge were examined by a mainland mining engineer, but further investigation was delayed owing to war conditions.

An examination was made, and a small amount of work carried out, in the Seabrook Creek area with the object of having it tested by drilling. Boring operations have just commenced, and if the lead should prove payable there are several others in the district which it is considered carry higher values and are, therefore, worthy of investigation.

Geale and Party was engaged in cutting tracks from the Mawbanna-road to their claim west of the Lyons River. Levels were taken, and a dam and pipeline completed, but activities were curtailed by continuous dry weather.

Prospecting.—Miscellaneous prospecting was pursued in the vicinity of the Rocky River, 19-Mile Creek, Savage River, Calder, and Mount Hicks, but no important discoveries were reported.

Graphite.

One parcel of 5 tons of graphite, valued at £7.5, was produced from a deposit at East Ulverstone and despatched to the mainland.

Barytes.

A parcel of 11.2 tons, valued at £42.55, was sent to the mainland from a surface deposit at Riana, in the Penguin Municipality. Activities were discontinued as the material contained too much silica and was affected by discolouration.

Iron.

From a deposit on the property of M. L. Sushames, at Cuprona, 2180 tons of iron ore, valued at £4146, was despatched to the Australian Commonwealth Carbide Works, at Electrona, for the manufacture of ferro-silicon.

No work was carried out on Rutherford's area at Natone, held by J. Linell-Cook (Holdings) Pty. Ltd. The title of the company was altered, and it is intended to commence operations immediately.

Mr. A. Gordon Gutteridge, consulting engineer, of Melbourne, became interested in some deposits at Cuprona, running south-east from the Blythe Iron Deposits. Permits to enter were obtained from private property owners to enable geophysical surveys to be made with a view to drilling, but no actual work was done on the properties. It is believed that the deposits contain good possibilities.

Iron Pyrites.

No work was carried out on the property at Chester, held under mineral lease by the Pacific Phosphate Company, but the manager reported that further work was carried out on the samples obtained with a view to future milling operations.

Limestone.

The Associated Pulp and Paper Mills at Burnie commenced the opening of a quarry at Lower Scotchtown and obtained 239 tons of limestone, valued at £63.

Manganese.

A sample parcel of manganese, weighing 0.581 ton, and valued at £2.7, was forwarded to the mainland by Mr. A. G. Black, who started to drive a tunnel into the hillside some distance below the ore exposed in open-cut workings to the south. Mr. Black died after the tunnel had been driven only a short distance. The work was taken over by another person, but was discontinued before the lode was reached. It is considered that there are excellent prospects to be derived from the driving of this tunnel, and it is to be regretted that work ceased before the objective was reached.

Osmiridium.

Despite the improvement in price, there was no increased activity in the production of osmiridium. The reported quantity produced and sold was 14.3 oz., valued at £292. Most of this was obtained in the vicinity of 19-Mile Creek, Savage River area.

Scheelite.

Opencutting and milling operations were actively pursued by King Island Scheelite N.L. on King Island, 29,810 tons of ore being broken and treated at the mill, and 246,856 tons of concentrate were sold, containing 170.8 tons tungstic acid, valued at £42,699.55. There were 78,114 cubic yards removed from the overburden by the power shovel and conveyed to dumps by motor lorries. Crude ore was obtained from the 90, 120, and 150 feet contours.

Development.—The driving of an adit with crosscuts on the 45 feet contour proved the continuation of the ore body below the 90 feet contour, and was in operation throughout the year. An adit, in a northerly direction on the 170 feet contour, traversed slates and sandstone, but a west crosscut, from this adit, located an ore body to the north of the present quarry workings.

Boring.—Eighteen vertical bores were put down from the surface to about 100 feet, and several passed through good grade ore bodies, which considerably augmented ore reserves. Operations afforded employment for an average of 70 men.

Prospecting was carried out to the south of the King Island Tin Mine, and some very encouraging results obtained. Application was made to the Department, by interested parties, for financial assistance to enable further testing, by drilling, to be carried out. Where a shaft was sunk to 26 feet, the ore, which is much cleaner than that at Grassy, returned from 0.6 per cent to 4 per cent WO₃ per ton.

Silver Lead.

Farrell Mining Company Limited, Tullah.—Ore mined and milled was 16,537 tons. Finished lead product was 3875 tons, containing 2856 tons of lead and 335,352 ozs. of silver, valued at £106,611.96. The number of men employed during the first quarter averaged 108, but decreased to 85 during the last quarter, the average for the year being 97 men.

Work was continued at Nos. 7, 6, 5, 3, 2 and 1 levels. Although the ore channel was of a patchy nature, up to 10 feet of solid galena was exposed at times. The Mines Department commenced a geological structural examination of the mine, which it is hoped will be of assistance to the management in the future development of the mine.

An examination was made of country to the north, where conditions appear favourable for the extension of mining operations. A diamond drilling campaign is necessary to prove the area.

A small amount of other work was carried out in the district, but nothing of value was discovered.

Montana Silver-Lead Mine.—Approximately 919 tons of crude ore was treated, and 96.7 tons of concentrate was recovered by flotation. The concentrate contained 6916 oz. of silver and 65.9 tons of metallic lead, valued at £2373.68. Marketing and other disabilities resulted in a suspension of operations.

Silica.

The *Leven Silica Quarry* was worked according to the demand for silica, and the quantity exported to the mainland was 386 tons, valued at £386. The manager

reported that he expected to have a more consistent output for 1942, as a trial parcel of 84 tons had been supplied to the Electrolytic Zinc Company at Risdon, and there is every likelihood of this amount being the minimum requirement for an indefinite period. There is also the possibility of an increased demand for export to the mainland.

Tin.

Metallic tin in the recorded output of tin products was 226.16 tons, valued at £58,151.81. There were 128.79 tons of metallic tin accrued from operations in the Western Division, and 97.37 tons from that portion of the North-Western Division under my jurisdiction.

Mount Bischoff Tin Mining Company.—There were 25,664 tons of crude ore crushed for a recovery of 109.16 tons of concentrates, 5562 tons of tailings were re-treated by various parties down the Waratah River, and 19.99 tons of concentrates were recovered. There were 6539 cubic yards of alluvial ground sluiced for a return of 7.51 tons of tin oxide. The total production was 136.66 tons of concentrate, containing 93.57 tons of metallic tin, valued at £24,549.67. The number of men employed during the first quarter average 102, but decreased to 92 during the last quarter, the average for the year being 97 men.

The manager reported that no developments of importance occurred during the year. Values were maintained at the North Valley Lode Workings, which was the greatest single producer. The No. 4 level was extended 149 feet south-east, the total length now being 864 feet. The average width of the lode for the 149 feet, is 33 inches, carrying good milling ore. A rise now connects the end of this level with No. 5 adit level. Between these levels there is a good block of ore available for stoping.

An additional 5-head battery was installed at these workings to treat the increased tonnage available, but since its completion there has been a shortage of labour, and this has prevented the full benefits of the plant being obtained.

Early in December the extension of the lower level at the Slaughter Yard Face Lode was commenced, and before the end of the month a small seam of good tin was struck, 68 feet from the head of the tunnel. Driving is proceeding on this lode.

A comparatively large tonnage of ore was won from the Gassan, White, and Slaughter open-cut faces, but the grade was lower than usual.

As the ground sluiced at the North Valley alluvial workings was of lower grade than usual, and more difficult to work owing to its cementation, operations became unprofitable. The sluice-boxes and plant were transferred to a new location upstream, and sluicing was resumed under more favourable conditions.

H. Stanley and Party.—This party was engaged picking over old dumps, running the mullock out of some of the top level stopes and picking off blobs of ore left on the footwall. The larger mullock was packed back in the stopes and the fines treated at the Mount Bischoff Tin Mining Company's Mill at Waratah. A small quantity of solid ground was also worked. The total quantity of concentrates recovered was 2.727 tons, containing 1.8127 tons of metallic tin, valued at £471.835.

Renison Associated Tin Mines.—Work has been continuous throughout the year, sometimes from two open-cut workings, and occasionally from five faces, known as the Black Face, the Lead Lode, the Boulder, the Cable, and Read's Workings, the latter being the old Dalcoath. Experiments are being made with the concentrating plant in an endeavour to obtain an improved recovery. There were 18,138 tons of crude ore treated for a recovery of 124.7 tons of concentrates, containing 80.62 tons of metallic tin, valued at £21,043.1.

Tasmanian Amalgamated Tin Mines, Renison Bell.—A total of 8631 tons of crude ore was broken from the opencuts and underground workings on what is now known as the 95 feet level. The ore was conveyed down numerous passes, crushed at the foot of an incline drive, then conveyed by belt into ore bins and down a flying fox to the mill bin. An extension of the 200 feet level is in progress, and a rise connection will be made to eliminate much of the present costly method of handling. There were 60.56 tons of concentrates recovered at the mill, containing 41 tons of metallic tin, valued at £10,713.642. The mill is now capable of treating 350 tons of oxidised ore weekly, the plant consisting of a 10-head stamp battery, 4 grinding pans with accessory classifiers, 11 concentrating tables, pump, and a double batch flotation cell. It is reported that the batch float, installed for re-dressing the concentrates, is very satisfactory and has been a great asset.

X-Gorge Tin Mine.—A. J. Salmon is still prospecting and producing in a few places. He recovered 1.18 tons of concentrates, containing 0.77 ton of metallic tin, valued at £203.5. The best of the ore is broken, burnt on a flat sheet, crushed with a hammer, and then boxed. It is regretted that this mine is lying almost idle when it should be a good producer of tin.

J. S. Fenton has been re-treating the material sent down the Dalcoath Creek in previous years by G. Cox and others, and has recovered 1.125 tons of concentrates, containing 0.615 ton of metallic tin, valued at £160.23.

Old Federation Tin Mine.—J. Geason is still prospecting intermittently about the old mine, and has opened up several places where good tin can be washed from the ore exposed. He has recovered 2.18 tons of concentrates, containing 1.02 tons of metallic tin, valued at £289.1, by boxing and treating a small quantity of specimen ore at the 130-lb. stamp battery.

M. Humphries, by prospecting at the Wakefield and other workings at South Heemskirk, obtained a few tons of ore from a winze carrying good tin values, but an inflow of water prevented further activities. From ore broken up with a hammer on a flat sheet he obtained 0.8 ton of concentrates, containing 0.52 ton of metallic tin, valued at £135.8.

M. Donoghue obtained 0.244 ton concentrates, containing 0.13 ton of metallic tin, valued at £34.25, by breaking and treating some soft tourmalinised ground.

R. Smith, at North Heemskirk, was engaged in working shallow alluvial ground and recovered 0.93 ton of tin oxide, containing 0.61 ton of metallic tin, valued at £159.75.

H. G. Watson, working for only a short period, won 0.45 ton of tin oxide, valued at £80.28, from 18-inch ground.

Coleman and Heywood opened up a very promising formation. Plant installed comprised a small grinding pan, an 8 feet x 4 feet concentrating table, and a eight-gauge 1600 feet aerial ropeway. Some of the best ore was picked out and treated for a return of 0.37 ton of concentrates, valued at £46.8. This lode appears to have very good possibilities.

At the *Mount Lindsay Tin Mine*, R. M. Clarke did a little prospecting work and obtained a few bags of tin concentrates, weighing 0.184 ton, valued at £25.5.

Gattenby and Patterson, Naracoopa, King Island, treated 266 yards of beach sand and obtained 2.14 tons of concentrates, containing 1.5 ton of metallic tin, valued at £385.67. Two men were engaged.

Grand Prize Mine.—Developmental work was continued during the first part of the year, after which the two employees were allowed the right to break ore at their own expense. They won 0.56 ton of concentrates, containing 0.356 ton of metallic tin, valued at £95. The owner relinquished the leases, whereupon the two men acquired the southern lease and moved a small stamp battery to where there was a better supply of water in the creek. In a few weeks they recovered 2.466 tons of concentrates, containing 1.69 ton of metallic tin, valued at £435.352. These concentrates were won from a small irregular seam of rich ore.

The northern lease was taken up by Wallace Brothers. Out of a shallow shaft, sunk by the former lessee, they won some very rich ore, which required to be carried some distance to water, but, in a few weeks, they obtained 0.584 ton of concentrates, containing 0.313 ton of metallic tin, valued at £80.535, by hand crushing and boxing.

It is considered that the formations developed by the former lessee, and exclusive of the small rich seam from which the above tin was taken, have been "flat floors" and that the main "Rozorback" series is not far distant to the west, where there are encouraging prospects.

Costain and Higgins, Birthday Tin Mine.—The lower adit was continued, but as the ground was hard and the values very erratic, varying from 0.19 per cent to 1.2 per cent tin, the work was discontinued. Attention was paid to the surface workings, and some good grade ore was exposed. A track was cut through the bush to the main road, and when wire is available an aerial ropeway will be erected to transport the ore to the mill.

R. W. Pryde, working at Campbell's Creek on shallow ground, won 0.36 ton, valued at £60.5.

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

Name.	Tin Oxide.	Metallic Tin.	Value.
	Tons.	Tons.	
J. Westerway	0.048	0.024	6.12
J. Copping	0.124	0.081	21.12
J. Pepper	0.225	0.140	36.41
A. Abel	0.057	0.016	4.43
G. Leach	0.153	0.07	17.88
J. Murray	0.02	0.013	3.21
S. A. Betts	0.235	0.109	28.82

Betts and Son prospected for the greater part of the year with Government assistance. The results were encouraging for tin, osmiridium, and gold, but the country is very rough and difficult.

Stanley Laffer intermittently prospected at the Five-Mile Mine, Zeehan, and opened a fairly large lode, but tin values were rather low.

Some work has been done by various tin prospectors, but nothing of a payable nature was brought under notice.

Zinc-Lead.

Electrolytic Zinc Company of Australasia Limited, Rosebery, Williamsford, and Zeehan.—The Hercules Mine produced 58,105 tons and the Rosebery Mine 109,141 tons of ore, a total of 167,245 tons being treated at the Rosebery mill. From this was won 52,295 tons of zinc concentrates and 13,992 tons of lead concentrates, containing 10,549.21 oz. of gold, valued at £88,613.364; 940,377.753 oz. of silver, valued at £98,739.611; 47.07 tons of cadmium, valued at £21,087; 24,468.63 tons of zinc, valued at £666,770.1675; and 8829.55 tons of lead, valued at £220,738.75; making a total value of £1,095,948.893. The total average number of men employed at these mines and works was 426. In addition, an average of 24 men was employed at the calcining works, Zeehan. These works are for the calcining of zinc concentrates from Rosebery prior to despatch to Risdon for final treatment.

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

"Diamond Drilling.—Footage bored totalled 9895 feet, of which 2342 feet was bored to complete the drilling programme following the geological survey of the Hercules Mine. The remainder was directed towards delimiting ore-bodies, testing walls of ore-bodies, locating geological structures, and exploration adjacent to existing ore-bodies.

Exploratory work at the Hercules Mine failed to disclose major ore occurrences, but useful extensions of known ore were proved. A total of 3414 feet of drilling was completed, but owing to war conditions developmental work practically ceased because of the necessity to concentrate all available labour on maintaining production.

There have been no alterations in mining methods, but mechanisation has been extended by superseding hand trucking with electric locomotive haulage on No. 4 level, Rosebery Mine, where an additional Eimco-Findlay Loader was installed. Bulldozing equipment was put into operation for handling stope filling to the Rosebery Mine, and the use of scrapers underground was increased at the Hercules Mine.

To assist in meeting the requirements of essential war-time industries, preparations are in hand to mine copper ore from the Hercules Mine. Occurrences of copper are in the form of chalcopyrite and do not occur as distinct ore-bodies, but rather as a late phase of deposition usually occurring at the southern extremities of zinc-lead sulphide ore. These deposits are limited in extent, and are of an irregular nature.

Milling.—Milling practice has been modified to permit of the production of a copper concentrate. To make flotation cells available for this purpose, lead flotation has been reduced from three to two stages.

An additional 7 feet ball mill and auxiliary equipment was installed for regrinding zinc concentrate middlings. A small saving of gold is being effected by passing residues over corduroy strakes.

Testing and experimental work has been continued in the test mill."

Inspector J. F. Shaw, Launceston, reports:—

Mines and Works Regulation Act.

Employment.—The average number of men employed in the industry was 1068. No comparison is made with the previous year, in part of which employees at district coal mines were included. It can be stated, however, that the number of employees was less, largely owing to the transfer of men to military services and to protracted dry weather affecting the supply of water for alluvial tin mining.

Accidents.—Thirteen accidents, causing non-fatal injuries to 13 persons, were registered under the provisions of the Mines and Works Regulation Act. Of these, 11 occurred on the surface and two were associated with underground operations.

Strained muscles, while lifting, resulted from four of the accidents. Two accidents, resulting in a fractured toe in one case and a fractured and badly cut thumb in the other case, were due to stones rolling down rills at quarry faces. Attention had previously been directed to the necessity of keeping rills of stone worked down, as a tendency to have them too steep had been noted. At an alluvial mine a man was barring the top of the face, for safety, when the surface broke away from behind him and he fell a distance of 22 feet.

An employee was endeavouring to withdraw a broken shank from the chuck of a pneumatic shovel, while it was connected to an air hose, when the air trigger was inadvertently pressed, and the hammer of the machine struck the broken part causing it to fly out with force and strike him in the face.

In another case a stone, barred from a quarry face, rolled in a semicircle and struck a man on the foot and shin, causing a fractured ankle.

A miner and his mate were driving a stull into position with a hammer when one of them slipped on the sloping footwall and his hammer struck the other in the face.

A man was rolling a large log when an obstruction caused it to swing round and squeeze his leg between it and another log.

While two men were hand drilling, a piece of steel came off the head of the drill causing the hammer to glance off the drill and strike the arm of the man turning the drill.

Another man was carrying a sheet of glass and fell while descending steps. The glass broke, and a piece of it inflicted a cut on his back.

Safety.—The attention of both employers and employees was continually directed to the prevention of accidents, and it is pleasing to record that the provision and maintenance of safe conditions is being, in general, observed. Since attention was drawn to the necessity of working down the rills of large heaps of broken stone at quarry faces, an improvement has been noted. Other matters which have received particular attention are the barring of unsound ground from the backs and sides of underground workings and from the faces of quarries, the safe battering of races in alluvial workings, and the keeping of nozzles at a safe distance from high faces in alluvial workings.

Ventilation.—The ventilation of underground workings has been satisfactory.

Health and Sanitation.—At the larger mines and works the provision of crib houses, change houses, sanitary conveniences, and first-aid appliances has been satisfactory.

It is to be regretted that employees have made very little use of a well-equipped change house at a large alluvial mine.

Some further small additions to sprays for the suppression of dust have been made at limestone quarries. The avoidance of dust is, to a large extent, in the control of employees. The installation was completed, at a magnetic separator plant, of dust collecting equipment, and in consequence of this innovation a material improvement resulted.

Explosives.—The only report received at this office which might suggest any fault in explosives was that a few plugs of A.N. gelignite at one mine had become soft and moist at the end of the plugs. They were destroyed. The softening and moistening were probably due to absorption of moisture by the ammonium nitrate in the explosive, a possible result of faulty wrapping. Careless handling may have contributed to the condition by causing the wax of the wrappers to crack and admit atmospheric moisture.

Only one accident in connection with the handling of explosives came under notice, and, fortunately, the injuries

were slight. In an underground stope, two large stones blocked the top of an ore chute, and it was decided to fire blister-shots to break them. Two men in the stope frayed the ends of the fuses, and it was stated that each man lit a fuse and retired. One charge exploded in normal time, and one of the men, having doubts about the ignition of the other fuse, after an estimated delay of five minutes, was returning to the place when a second explosion occurred.

Inflammable Liquids.—Owing to restrictions on the use of petrol, a large number of licences was either cancelled or amended by reducing the quantity of petrol to be stored. This resulted in many petrol pumps being out of commission. A small number of new installations was approved.

Machinery.—Matters which received attention have been the periodic medical examination of winder drivers, the examination of winding ropes, and the testing of cages and general safety precautions regarding machinery.

Workers' (Occupational Diseases) Relief Fund Act.—One applicant claiming incapacity was certified by the medical officer to be suffering from fibrosis to the extent of 100 per cent incapacity. He had a record since 1923 of 16½ years' underground mining in Tasmania and Victoria.

There were other applicants whose examinations were not completed. A recommendation on an application by a beneficiary for a lump sum was made to the Board.

General.—Sluicing operations, which comprise the main mining in the district have been adversely affected by continued dryness. Another factor which has mitigated against production has been the transfer of many men from mining to military services.

Aid to Mining.—Much time was occupied in the inspection of properties and furnishing of reports in connection with matters pertaining to the Aid to Mining Act.

Mining Act and Mineral Resources.—Reports have been furnished in connection with consolidation of leases.

Inspections have been made and reports furnished in regard to matters relative to the provisions of the Mining Act and to occurrences of non-metallic minerals.

MINING OPERATIONS AND PRODUCTION.

Gold.

The total recorded production was 1029·7 oz. fine gold, valued at £8616 sterling. This was an increase of 417·1 oz. over the previous year.

Lisle, Nabowla.—From alluvial workings a total of 47·4 oz. of fine gold was recovered by miscellaneous parties.

Beaconsfield.—The only recorded production was by F. G. Clay, who crushed over 60 tons of stone from about the Golden Horseshoe Mine for bullion containing 13·87 oz. fine gold.

Lefroy.—F. Randell crushed selected stone from the Pinafore mullock dumps for bullion containing 29·66 oz.

Lefroy Dump Syndicate.—By cyanide treatment of 4849 tons of old battery sand from Sludge Creek, bullion containing 258·4 oz. fine gold was recovered.

New Chum Creek Cyanide Syndicate.—By cyanide treatment of 3808 tons of battery sand from New Chum Creek, bullion containing 88·07 oz. of fine gold was recovered. There was considerable organic matter in the sand, and difficulty was experienced with precipitation of the gold.

Miscellaneous Gold.—Miscellaneous producers accounted for 12·96 oz. fine gold.

Mathinna.—The installation of plant for treatment by cyanide of the Golden Gate dumps of slime was sufficiently advanced for operations to commence in the latter half of the year. A total of 5634 tons was treated for bullion containing 404·79 oz. of fine gold. Many adjustments of the plant were carried out in the early part of the treatment period.

H. Moses crushed a quantity of stone from the Old Boys lease, and produced 11·4 oz. fine gold, treated a quantity of battery debris and recovered concentrates containing 8·19 oz. fine gold, and returned 17·92 oz. fine gold from the cyanidation of accumulated tailings.

Moses and Rayner crushed a small tonnage from South Mount Victoria for 1·48 oz. fine gold.

C. R. Cox crushed 1 ton of surface stone for 69 oz. fine gold.

Other miscellaneous production from Mathinna was 1.9 oz. fine gold.

Mangana.—A start was made to re-open some of the Alpine workings, but work was later suspended.

Fingal.—R. H. Box and H. Jenner crushed 27 tons of selected stone from the West Miami Mine for 7.3 oz. fine gold.

H. Rodman recovered .65 oz. fine gold from a small crushing.

Gold Quarries Company suspended operations at Tower Hill, and sold the plant.

Miscellaneous operations on auriferous alluvials at New River accounted for 11.47 oz. fine gold, and extraction of gold from tin oxides recovered by miscellaneous parties in the Pioneer-South Mount Cameron-Gladstone areas resulted in 19.74 oz. fine gold.

Alluvial gold extracted by the Endurance Tin Mining Company from tin concentrates recovered from the sluicing of tin alluvials at South Mount Cameron returned 81.44 oz. fine gold.

At *Alberton* mining was quiescent, and the only production was 1.04 oz. fine gold, by J. C. Matthews, from the mechanical treatment of 20 tons of Mount Victoria battery tailings.

In the North-Western Division A. H. Higgs recovered 5.59 oz. fine gold from the Wolber Valley leases near Moina.

Copper.

Scamander Copper Mine, Upper Scamander.—From cleaning up the adit and selecting ore from the debris, three parcels, totalling 22 tons, were sent to Mount Lyell smelters. The metallic contents were 113 oz. fine silver and 2.27 tons copper. Two men were employed.

Tin.

The recorded production for the year was 1027.3 tons of metallic tin, valued for statistical purposes at £268,595 sterling, compared with 1214.3 tons for the previous year.

Piper's Beach.—V. J. Miller worked for a short period on the treatment of beach sand for a recovery of concentrates containing .33 ton metallic tin. A resumption of operations is contemplated.

Storey's Creek Tin Mine, Storey's Creek.—A total of 13,009 tons of ore was milled, from which were recovered 67.1 tons of tin oxide, containing 44.35 tons metallic tin and 205 tons of high grade wolfram. Routine stoping and driving were carried on continuously during the year. The southern end of the mine was further developed by extending a drive on the adit level. A rise was put through to the surface from the southern drive. A set of rolls and a vibrating screen were added to the equipment at the magnetic separator plant. Equipment for the control of dust was completed at this plant. Average employment was 91 men, but at the end of the year difficulty was experienced in keeping the mine manned.

Aberfoyle Tin N.L., Rossarden.—The sinking of No. 1 shaft to No. 4 level, and connecting it to the workings at that level, was completed. Development of the ore bodies on No. 4 level by crosscutting, driving, and taking off leading stopes was continued, the lodes maintaining normal characteristics. On the surface a new concrete change house, with hot air drying-room and hot and cold water washing and shower facilities, was completed. This replaced the old change house, which was destroyed by fire.

The grinding and flotation unit for the treatment of tin concentrates to eliminate pyritic impurities was completed, and has been in operation throughout the year. As a result of this treatment, a high-grade tin concentrate is now produced.

Ore mined and milled was 16,185 tons. Sales of concentrates were 356.5 tons of tin oxide, containing 252.8 tons of metallic tin and 28.48 tons of wolfram.

The average number of employees was 108.

A. McDonald, Rossarden, and an employee, by surface stoping on some lode formations, produced 2.44 tons of tin oxide, containing 1.72 tons of metallic tin.

The Spartan Company, on a lease north of the Aberfoyle mine, stripped to 50 feet deep and timbered a shaft to two compartments. Owing to shortage of labour, work had to be suspended, but it is intended to later continue sinking to 100 feet and test the country by crosscutting and driving.

Miscellaneous prospectors and fossickers in the Storey's Creek-Rossarden district produced and sold .36 ton of tin concentrates, containing .25 ton metallic tin. Some attention was given to wolfram lodes at Gipp Creek, but there was no recorded production.

Goshen Tin Company, St. Helens.—From faces in St. Helens district 57.4 tons of tin oxide were produced, containing 41.45 tons of metallic tin. The average return obtained was about 8 ozs. tin oxide per cubic yard of ground sluiced. Owing to variations in water supply for sluicing, due to the dry season, employment was irregular and varied from 11 to 35 men.

At the company's property, on the Groom River, Goshen, 6300 cubic yards of ground were sluiced for a recovery of 1.25 tons of tin oxide, containing .89 tons of metallic tin. Owing to shortage of water, work was carried on for only a short period during which 8 men were employed.

Georges Bay Tin Mining Company, St. Helens.—No productive work was done in the first half of the year and, in the later half, work was on a small scale owing to the shortage of water. Production was 2.78 tons of concentrates, containing 2.04 tons of tin. Employment varied from 2 to 5 men.

Miscellaneous producers in the St. Helens, Pyengana, and Gould's Country districts sold 14.73 tons of concentrates, containing 10.47 tons of tin. The number of men concerned in this production was 32.

Tasman Tin N.L., Lottah.—The tribute party crushed 10,942 tons of tin-granite, from which 35.68 tons of tin oxide were sold. The estimated content of metallic tin was 26.11 tons. An average of 22 men was employed. A policy of selecting the better parts of the granite was adopted, and this improved the grade of ore milled.

Bryce Bros. and Eddy, Weldborough.—Working on the Recreation Reserve, two men produced 1.27 tons of tin oxide having a content of .76 ton of metallic tin.

Bryce and Co., Weld River.—Sluicing was interrupted by shortage of water. When working, four men were employed and the output was 1.96 ton concentrates, containing 1.23 ton of metallic tin.

V. A. Walker.—From intermittent work at Fancy Creek and the Laffer workings 2300 cubic yards of ground were sluiced for a recovery of .84 ton of oxide, containing .61 ton of metallic tin.

H. Harridge, working on leases at the Frome River, Moorina, produced 4.22 tons of concentrates, containing 3.09 tons of metallic tin. Three men were employed.

A. W. Bird, Moorina, from alluvial workings adjacent to the Weld River, produced 24.91 tons of concentrates, containing 16.96 tons of metallic tin. The average number of men employed was ten.

Miscellaneous production from the Lottah, Weldborough, and Moorina districts totalled 17.78 tons of tin oxide, containing 12.47 tons of metallic tin. The number of men concerned in this production was 38.

Miscellaneous production from Herrick, Pioneer, and South Mount Cameron was 24.01 tons of oxide, containing 17.44 tons of metallic tin. Employment was given to an average of 32 men.

Eastern Leads Tin Mine (W. J. Ponting and Sons), Pioneer, sluiced 8250 cubic yards of ground for 3.67 tons of tin oxide, containing .270 tons of metallic tin. From the tin oxide the equivalent of 7.94 ozs. of fine gold was recovered.

Shean Bros., Pioneer, with five men, sluiced 13,500 cubic yards of terrace ground, near the Wyniford River, for a recovery of 9.94 tons of concentrates, containing 7.43 tons of metallic tin.

Endurance Tin-mining Co., South Mount Cameron.—The protracted dry season limited the power available from the company's hydro-electric power plant, and a larger proportion of shallow ground was sluiced in order to utilise gravity outfall as against gravel-pump elevation necessary with the working of deep ground. A total of 447,700 cubic yards of ground was sluiced, and 82.26 tons of tin oxide, containing 60.73 tons of metallic tin, was sold. A quantity of alluvial gold, containing 81.44 fine ozs., was extracted from tin oxide.

A party working under tribute agreement with the company, the Pioneer dumps recovered 10.28 tons of concentrates, containing 7.54 tons of metallic tin. Average employment at both places was 43 men.

Star Hill Syndicate, Gladstone, using Mount Cameron race water and a steam-driven pump for nozzle pressure, sluiced 28,000 cubic yards of ground for a recovery of 7.56 tons of tin oxide, containing 5.25 tons of metallic tin. From four to eight men were employed.

Lanka Tin Mine, using Mount Cameron race water, produced 8.15 tons of tin oxide, containing 5.91 tons of metallic tin. Five men were employed.

Other parties, using Mount Cameron race water, and averaging 19 men, produced 22.37 tons of oxide, estimated to contain 15.63 tons of metallic tin.

J. H. Dobson, at Boobyalla, using natural pressure for nozzling and a steam driven gravel pump for elevating, treated 50,000 cubic yards of alluvial ground for a recovery of 14.92 tons of oxide, containing 10.79 tons of metallic tin. Average employment was six men.

Other miscellaneous producers in the Gladstone district, numbering 12, sold 5.05 tons of oxide, containing 3.44 tons of metallic tin.

Briseis Consolidated N.L., Derby.—Of the two tunnels being driven during the previous year for conveyance of overburden, the lower or rock section has been completed and is in use. The drift tunnel has been advanced far enough for present requirements, and driving has been suspended.

The programme of boring to test the country ahead of the workings and down the old river bed was completed. A gravel pump unit has been installed nearer the working face than No. 2 unit, and has taken the place of the latter as second in series between No. 1 pump and the tin boxes. No. 2 pump has been lifted and is being re-erected nearer the northern face, where it will later do the work now being done by No. 1 pumping unit.

The dryness of the season again adversely affected the removal of overburden. During the year material removed by sluicing was:—Overburden, 205,000 cubic yards; drift, 733,000 cubic yards. From the drift the recovery of tin oxide was 590.4 tons, estimated to contain 425.09 tons of metallic tin. The net sale value, delivered in Launceston, of the tin oxide was approximately £123,204 in Australian currency. An average number of 152 men was employed.

Miscellaneous producers in the Derby and Winnaleah districts sold 12.69 tons of oxide, containing 8.72 tons of metallic tin. These operations afforded employment to an average of 16 men.

Arba Tin Mine, Branxholm.—Two tribute parties, with an average employment of 8 men, produced 21.3 tons of oxide, containing 14.27 tons of metallic tin.

Ormuz Tin Mine, Branxholm.—A tribute party of two men, sluicing top drift only on Arba Hill, produced 2.04 tons of oxide, containing 1.34 tons of metallic tin. Shortage of water restricted mining.

Ruby Flat Tin Mine (O. J. Walsh).—Sluicing was pursued on detrital material and granite-leader formation for an output of 12.02 tons of oxide, containing 8.56 tons of metallic tin. Five men were employed.

W. A. Walsh and party, Branxholm, working in the last quarter of the year, produced 3.94 tons of oxide, containing 2.89 tons of metallic tin.

Bakers Discovery, Branxholm.—R. B. Hill produced 2.52 tons of oxide, containing 1.71 tons of metallic tin by sluicing shallow ground. No work was done on the leader formations owing to shortage of water.

Miscellaneous producers in the Branxholm district produced 6.5 tons of concentrates, containing 4.66 tons of metallic tin.

John Bull Tin Mining Company, Bell's Hill.—Following the installation of a crushing and concentrating plant, 544 tons of forkings, from early-day sluicing, were crushed for a recovery of 2.68 tons of concentrates, estimated to contain 1.74 tons of metallic tin.

Miscellaneous producers in the Ringarooma and New River districts sold 1.68 tons of oxide, containing 1.18 tons of metallic tin.

Miscellaneous producers in the North Scottsdale area produced 2.09 tons of oxide, containing 1.42 tons of metallic tin.

Strait Islands.—Mining was not materially active. The recorded production from Cape Barren Island was 2.56 tons of tin oxide, containing 1.65 tons of metallic tin, and from Flinders Island 1.56 tons oxide, containing 1.10 tons metallic tin.

Wolfram.

The total production of wolfram was 235.5 tons, valued for statistical purposes at £42,537 sterling. The main producers were Storey's Creek Company, 205 tons; and Aberfoyle Tin No. Liability, 28.48 tons. The operations of these mines have been reviewed under "Tin." The only other producers were in the Moina district, where sales were made from the All Nations mine of .29 ton wolfram; from the Wolber Valley Company's Mine of .095 ton wolfram; from operations by Dodd and Williams of mixed concentrates containing .19 ton of tin, .127 ton of wolfram, and .0328 ton of bismuth; and from the Red Robin alluvial workings of mixed concentrates containing .38 ton of tin and 1.39 ton wolfram.

Silver-Lead.

The Dove River Mine, Middlesex, sold 1.93 tons concentrates, containing .34 oz. fine gold, 149.6 oz. fine silver, and 1.23 tons lead.

Limestone.

The Broken Hill Proprietary Co. Ltd. shipped from the Melrose quarry 249,391 tons of limestone valued at £A71,697. An average number of 138 men was employed. Other limestone production recorded, including ground limestone for agricultural purposes, amounted to 4937 tons, valued at £A4079.

Cement.

The Goliath Portland Cement Company was continuously engaged in the production of cement at Railton.

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

Employment.—The average number of persons employed in the mining industry was 1758, representing a decrease of 82 in the number employed last year.

Of the total number, 1742 were employed in connection with operations by the Mount Lyell Mining and Railway Company Limited, 10 persons were engaged in diamond drilling activities, and the balance was intermittently occupied in prospecting for asbestos and alluvial gold.

Accidents.—Thirty-five accidents, causing fatal injuries to four persons and non-fatal injuries to 32 persons, were registered under the provisions of the Mines and Works Regulation Act; compared with 41 accidents, causing injury to 42 persons, registered during the previous year.

Of these accidents, 11 were recorded as having been caused through misadventure, 16 by carelessness of either the person concerned or his mate, three were due to lack of supervision by a senior employee, two were due to inexperience of the persons in the work which they were doing, and one was caused by an employee disregarding instructions for the safe handling of explosives.

The cause of two fatal accidents was not completely established.

One fatal accident occurred underground and resulted in the death of one person, while 14 other below-ground accidents caused non-fatal injuries to a like number of persons.

Surface operations resulted in 20 persons receiving injuries from 19 recorded accidents, two of which caused fatal injuries to three men.

Of the underground accidents, one person was fatally injured when a stone fell down a main pass, hit a ledge on the side of the pass, ricocheted 30 feet along a small-sectioned drive, and struck the victim a glancing blow on the head. Another person, through becoming excited during blasting operations, attempted to hurry down a ladder way. He slipped and fell 25 feet, fracturing his thigh. An inexperienced worker was shovelling in a stope, when he caused a stone to roll from the side wall and strike his leg, causing a fracture thereof. This accident was due to insufficient supervision by senior employees. In another instance, an inexperienced trucker proceeded to clean out the bottom of an ore chute, when a piece of rock fell from the chute and struck him on the side. He sustained a broken rib. Whilst working in a stope, a person was injured as the result of a stone falling through overhead lagging. When spalling a rock, a "scat" flew and struck the worker in the eye, causing serious injury to his sight.

Other underground accidents were of a less serious nature, resulting in minor injuries to hands and feet.

In accidents allied with surface operations, two men, employed as fitters, left the allotted work and, without having any authority to do so, entered a motor truck belonging to their employers, and drove it down a steep road to practise driving. The truck got out of control and, when attempting to jump clear, one man sustained fatal injuries. Two men were loading a deep vertical hole with about 25 lb. of Polar A. N. gelignite, when the

charge exploded prematurely, and they were fatally injured. Evidence obtained during the investigation of the accident failed to establish the cause, but it was generally accepted that the cause was due to the man attempting to force cartridges past an obstruction that partially blocked the hole. In doing this, it was considered that a film of gelignite was smeared on the side of the hole and on the obstruction, and, when using the charging stick with excessive force, the deceased probably caused the film of gelignite to explode. Much attention and consideration have been given to the prevention of similar accidents.

One man, engaged for many years in charge of a saw-sharpening machine, attempted to catch hold of the small driving belt. The belt, which had been stopped, moved, and caused the man's hand to be severely jammed in a guard designed to prevent accidents. In a smelter plant, two men received severe burns through hot metal splashing and falling in their boots.

An inexperienced person was engaged in removing blister copper from the moulding machine, when one of the moulded anodes fell and crushed his foot.

A ganger was climbing the face of an open-cut, with the aid of a rope, when he dislodged a small stone, which fell and struck him on the head. A person tripped over a hose in a fitting shop, and, in falling, dislocated his shoulder.

The other accidents were of a less serious nature.

Safety.—Maintenance of safe working conditions has been given close attention, and inspection work has materially assisted towards this, by advice and the correction of unsafe practices.

During the driving of a large transport tunnel, in which motor vehicles were being used to remove the broken rock, representation was made to the management to have an exhaust fan installed to remove danger of noxious gases from the exhausts of the motor trucks. The desired result was achieved.

Discussion with officials controlling various departments, has generally produced satisfactory results in the adoption of safer working conditions in the respective departments.

The usual type of hinged cage-chair has not always been recognised as serving the best interests of safety in shafts owing to minimum clearance, complexity of levers, possible interference, and dangers attending laxity in supervision and operation. Following a recent shaft-accident, involving the chairs, consideration was given to the possibilities of an innovation to reduce the elements of hazard to a minimum. The foreman at one mine designed and installed a simple form of chain hangers for cages, and this apparatus has completely satisfied the purpose for which it was designed.

Ventilation.—Generally, the ventilation of underground workings was satisfactory, and no undue temperature conditions were noted. In one mine, the occasional use of a main ore pass, as a transfer pass for an adjoining mine, caused a bad condition of atmospheric dust. This matter was controlled by the erection of brattices and air-flow control doors on levels and stope airways, enabling a strong air flow to be directed to the places affected by dust accumulations. Arrangements have also been made to increase the volume of air passing through this mine, by replacing the present suction fan with one of larger capacity. It is considered that this will allow for the removal of any unforeseen atmospheric dust condition that may develop.

Health and Sanitation.—Regular attention has been directed to matters affecting the health of employees. Conditions of crib-places, change-houses, latrines, and drinking water have been satisfactorily maintained. Representations were made regarding an unsatisfactory surface crib-place, due to overcrowding, and a new room was built. Several other crib-places were improved.

In response to a request for better conditions in the fitting up and control of casualty dressing rooms, two have been conditioned to a better standard. Arrangements are being made to use men, trained by the St. John Ambulance Society, to attend to first-aid work at the mines.

Conditions of atmospheric dust have been examined by the use of a Konimeter sampler, tests being made at surface and underground working places. In some instances it was necessary to obtain a correction of excessive dust conditions.

No complaint or dissatisfaction was expressed by users of change-houses or bathing facilities at the mines.

Explosives.—Supervision, as required under the Mines and Works Regulation Act, has been maintained of the handling and general use of explosives. Two persons

were fatally injured when a charge of gelignite exploded during the loading of a hole. Another person, employed as a power shovel attendant, picked up a capped fuse, and, after lighting the fuse, held the cap in his hand until it exploded. He sustained a lacerated hand and was reprimanded for disregarding instructions.

When a number of "pops" was being fired, on a rill of broken ore at an open-cut working, one exploded prematurely, but no person was injured. Investigations proved that the fuse being used was in perfect order, and that the probable cause of the accident was due to a burning fuse-igniter being allowed, accidentally, to come in contact with the fuse at a point hazardously close to the detonator. Instructions were issued by the management to safeguard against a recurrence of this type of accident.

Chain screens were introduced to prevent scats from flying during "bulling" operations at open-cut mines.

Machinery.—Several mishaps occurred in connection with machinery at the mines and works. An electrical fitter was painting the fittings at an underground transformer station when he accidentally broke the insulation on a high-voltage cable and sustained a severe shock.

Additional safeguards have been provided at this and other similar underground equipment.

A defective water jacket resulted in a violent explosion in a blast furnace. New jackets were fitted, and it was found necessary to provide a screen for the protection of the furnace operator.

Protective devices were provided as required for belt fittings, air winches, and miscellaneous moving gear.

Records of regular inspections and tests, by registered managers of mines and works, were checked with satisfactory results. Consultations were held and occasional joint inspections were made with the Inspector of Machinery.

Explosives Act.—Supervision has been maintained in respect of the importation, landing, transport, storage and general use of explosives. Explosives landed at Regatta Point for Queenstown were:—

	lbs.
Polar A.N. gelignite "50".....	385,000
Polar A.N. gelignite "60".....	7,250
Polar A.N. gelatine dynamite "75".....	47,750
Total	440,000

	Number.
Detonators No. 6 L/A.....	450,000
Fuse igniters	30,000

	Cases.
Safety fuse, in reels	450

Deterioration, due to deliquescence of ammonium salts under conditions of storage, persisted in the ammonium nitrate gelignites. Representations were made to the manufacturers, and tests revealed that, although a proportion of the strength was lost, the safety of the compound was not affected. Deficiencies in the wrapping of cartridges and cartons were located and remedied with beneficial results.

Lead azide detonators of Australian manufacture have been used with satisfactory results. Five instances of miss-fires were investigated and in each case the cause was due to moisture in the detonator.

Frequent examinations were made of main and subsidiary magazines, and the burning rate of safety fuse has been kept under surveillance.

Inflammable Liquids Act.—Regular inspections were made of the storage outfits and depots. There was one additional licence issued for the storage of 500 gallons of mineral spirit, and three licences, covering a storage of 2200 gallons of mineral spirit, were cancelled. In one instance it was necessary to prosecute an owner of a licensed premises for incorrect storage of petrol in drums.

Prosecutions.—Legal proceedings were instituted against one person for storing petrol, in 44-gallon drums, at a depot that was not provided with a compound, as required by Regulation 138 of the Inflammable Liquids Act, 1929. A conviction was recorded and a fine imposed.

The Workers' (Occupational Diseases) Relief Fund Act.—Clean certificates were issued in respect of 297 new employees. Application was made by 69 persons for examination for industrial afflictions. Eight applicants were

found to be partially incapacitated by silicosis, the remaining 61 being pronounced free from disease. A comparable analysis of the affected cases is as follows:—

	1940.	1941.
Incapacitated (affected by silicosis 100 per cent	5	Nil
Partially incapacitated (over 50 per cent affection)	2	1
Partially incapacitated (50 per cent affection)	1	1
Partially incapacitated (under 50 per cent affection)	6	6
Totals	14	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.
60	44	25 underground, 3 surface
50	38	19 underground
40	34	14 underground
40	39	13 underground, 3 surface
40	38	11 underground, 4 surface
30	39	15 underground
20	44	25 underground
20	42	13 underground

General.—Satisfactory industrial conditions have been maintained by the employers and employees, minor disputes having been settled by conference. A Sick and Accident Fund, Hospital Union, and Dental Clinic, in connection with the mines, have functioned smoothly and to the benefit of all concerned. Consideration is being given to establishing an air raid scheme for protection of employees at the mines and works.

Much overtime is being worked by employees owing to a shortage of manpower.

Work in connection with munition production has also been undertaken by one mining company at the machine shops and foundry. Castings weighing over 4 tons in weight, to be used in the making of certain machinery required for defence purposes, have been produced and machined.

Aid to Mining.—Work in connection with the development of the mineral resources of this district has been retarded owing to several prospectors engaged in such work having either enlisted in the fighting forces or taken up other work. No applications for assistance under the Aid to Mining Act were granted.

Mining Operations and Production.

Asbestos.—Minerals (Vic.) Proprietary Limited employed two men in prospecting and testing a deposit of asbestos at Asbestos Point in Macquarie Harbour. Approximately 60 tons of serpentine rock was mined, and from this 4 tons 6 cwt. of material was selected and shipped to Melbourne and processed, for a recovery of 3½ tons of asbestos, valued at £120 gross. No further work was done.

A party of two persons has been intermittently engaged in prospecting an occurrence of asbestos at Lynch Creek, but developments have not been of commercial value.

Copper.

The Mount Lyell Mining and Railway Company Limited.—The output from all mines was 1,354,232 tons of ore, representing an increase of 162,450 tons, as compared with the previous year. This increase of tonnage was obtained from surface mining, production of ore from underground operations declining to the extent of 10,647 tons.

Opencutting at the West Lyell and Prince Lyell Mines resulted in the production of 1,161,840 tons of ore, an increase of 173,097 tons. This production was facilitated by an extension of the opencut benches, additional transport, and improved transport organisation. Three semi-trailer type, 20-ton capacity, Foden motor trucks were added to the transport fleet, and a 2½-yd. capacity electric power shovel is under construction. The completion of a 24 by 24 feet section transport tunnel has enabled a new bench to be brought into production. Additional road systems have been constructed as required.

Surface and underground mining was continued at the the Lyell Comstock Mine, but the output declined by 14,860 tons. Reduced activities were due to the loss of manpower, and the mine worked one shift only.

Production from the underground workings of the Crown Lyell Mine decreased by 28,658 tons, owing to shortage of labour. This mine was closed for the latter half of the year.

The available labour has been concentrated at the Royal Tharsis underground workings, and this mine is producing nearly up to capacity. An increase in production of 65,511 tons was recorded.

The ore reserves at the North Lyell Mine are becoming depleted, and the production of 21,330 tons represents a decrease of 32,640 tons, as compared with last year.

With the exception of the Lyell Comstock Mine, mill tailings have been regularly pumped to the underground workings for filling stoped areas, and these tailings have continued to contribute to safe mining. A mullock quarry supplies filling for the workings at the Lyell Comstock Mine.

No settlements of ground of a serious nature occurred during the year.

The following tabulation represents the disposition of ore production:—

	Tons.
North Lyell Mine	21,330
Crown Lyell Mine	7,098
Lyell Comstock Mine	71,163
Royal Tharsis Mine	92,801
West Lyell opencuts	1,161,840
Total	1,354,232

Reduction Works.—The concentration plant operated for 363 days, and processed 1,346,613 tons of ore, for a recovery of 52,293 tons of copper-bearing concentrates, and 51,400 tons of iron pyritic concentrates, 40,076 tons of the latter being exported for use in the manufacture of fertilisers.

The smelting plant treated the copper-bearing concentrate, together with 6642 tons of North Lyell ore, 18 tons of purchased ore, and 123 tons of copper precipitates collected from solutions draining from the various mines. The production of 11,730 tons of blister copper resulted from these operations.

Under normal running conditions, the refinery produced 11,644 tons of cathode copper and also recovered a concentrate containing 43,920 oz. of silver and 7971 oz. of gold.

Plant additions, as designed to effect a general increase in the treatment capacity of the Reduction Works, are nearing completion.

Two ball mills and additional classifiers have been installed. A six-unit Fagergren flotation set has been added to the flotation plant, and a 100-ft. diameter classifier is under construction.

On completion of the additions to the milling section, it is planned to alter the flotation process from the present differential to bulk flotation. A higher recovery and better separation of the valuable metal contained in the ore is anticipated.

Concentrates are now conveyed from the smelter bins to the furnace by an electrically operated grab conveyor, running on a single overhead rail.

To restrict the loss sustained by the escape of very fine metallic particles in the flue dust during smelting operations, a new dust filter plant is being installed. Steel wool is being used as the filtering medium. The plant will consist of six units, one of which has been installed and is working successfully. The flue gases, prior to entering the filter, are cooled by passing through a large diameter steel pipe which is exposed to the open air.

On completion of the additions to the milling section, it is anticipated that 29,000 tons of ore will be treated each week. This through-put should be readily obtained as already over 5000 tons have been processed during a 24-hour run.

Improved working conditions have been maintained at the smelters, and improvements in the control of atmospheric dust at the grinding sections of the mill have also been achieved. A new crib-room has been provided at the carpenters' shop, and one is under construction at the mill.

Motor traffic, on the new road at the Reduction Works, caused a degree of risk to pedestrians passing between some of the buildings. Representation of this danger to the management resulted in safety devices being installed to improve the condition.

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

	1940.		1941.	
		£		£
Copper (Electrolytic)	11,572 tons	717,464 S	11,642·104 tons	721,810·45 S
Silver.....	58,678 oz. f.	5867 S	43,831·950 oz. f.	4602·249 S
Gold.....	7260 "	60,977 S	7970·790 "	66,954·636 S
Pyritic concentrates.....	37,819 tons	47,274 A	40,076 tons	50,095 A
Limestone	5482 "	1919 A	5677 "	1987 A
Silica	3789 "	947 A	6544 "	1636 A

S = Sterling value

A = Value in Australian currency

f = Fine

Miscellaneous.—Six men were intermittently engaged in prospecting and working auriferous ground. These operations accounted for 27·32 oz. of fine gold, valued at £229·4943 sterling. Operations on the auriferous alluvials in the Jane River district resulted in an output of 36·49 oz.

fine gold, valued at £306 sterling. No discovery of commercial importance resulted. A tract of copper-bearing schist was located near Mount Arrowsmith, but determined values were too low to be of economic moment.

APPENDIX VI.

REPORT OF THE MOUNT CAMERON WATER-RACE BOARD FOR THE YEAR ENDING 31st DECEMBER, 1941.

SIR,

We have the honour to submit our report for the year ended 31st December, 1941.

Races.

Sections of the main race were scrubbed and cleaned out, and, with usual patrol work, placed the race in good order.

All branch races have been maintained in serviceable condition.

Syphons.

The new flexible concrete section of the Ringarooma Syphon has exhibited no weakness, and constant conditioning has enabled the wood section to be maintained in serviceable condition.

The metal syphon, near Moore's cottage, is developing bottom corrosion, and this condition has necessitated care and attention to preserve a maximum life. The Little Mussel Roe Syphon has been maintained in a satisfactory condition. The No. 6 syphon is in good order, and the old metal syphon near the Fly-by-night workings is giving useful service.

Flumings.

All flumings are in good order.

Dams.

Repairs were made to breaches in No. 1 dam and the dam at Cook's Creek. All dams are now in good order. The intake wall of the main race at the Great Mussel Roe River is serviceable, but it is not in good condition and may have to be replaced with a new wall, as the present structure cannot be repaired.

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.

STATEMENT FOR THE YEAR ENDED 31ST DECEMBER, 1941.

Rainfall.

The registered rainfall for the year was as follows:—
Great Mussel Roe 22 inches 50 points
Little Mussel Roe 22 inches 50 points

Revenue.

The revenue for the year amounted to £1122 6s. 7d., being a decrease of £342 5s. 11d. on that for the previous year.

Disbursements.

The expenditure for the year amounted to £908 14s. 5d. being decrease of £257 10s. 10d. against that of the previous year.

Statistics.

The statistics for the year are as follows:—
Average number of claims supplied per week 9
Greatest number supplied in any one week 12
Total number of heads supplied under:—
Fixed or cash scale 304
Royalty or credit scale 2829
Tin ore raised—
Under royalty scale tons. cwt. qr. lb.
Under fixed scale 6 10 3 21
36 5 3 0

Average number of men employed per week—23.

Statement of Receipts and Payment of the Mount Cameron Water-race Suspense Account for the Year ended 31st December, 1941.

	£	s.	d.
Receipts.			
Workers' compensation	24	7	8
Water sold under fixed scale	149	5	4
Water sold under royalty scale	973	1	3
	£1,146	14	3

	£	s.	d.
Payments.			
Salaries and wages	783	6	8
Travelling expenses	1	0	0
Stationery and printing	3	10	2
Insurance	9	14	5
Stores	17	1	9
Repairs to race, syphons, dams, and culverts	70	12	1
Repairs to channel keepers' cottages	7	1	6
Cartage and freight	8	1	2
Child Endowment pay-roll tax	8	6	8

Total payments 908 14 5
Excess receipts over payments 237 19 10

£1,146 14 3

Inspector T. Platt, Hobart, reports:—

Employment.—The average number of persons engaged in mines, works, and quarries included in my inspectorial circuit was 2144, as compared with 1856 for the previous year.

Accidents.—Nine persons were incapacitated for more than 14 days as the result of injury during the course of employment. The accidents occurred at the surface. One explosion of air-borne calcium-silicide dust in a reducing plant, comprising a ball mill, cyclone, &c., caused injury to five persons. The remaining four persons were incapacitated by separate occurrences.

Safety.—Considerable attention was paid to the safe reduction of calcium-silicide. An electric remote control endless-rope haulage engine was rejected as unsafe without an attendant owing to the lack of adequate automatic braking equipment. Boring ahead and on the flanks was insisted on in mine workings approaching an accumulation of water. Operations at some quarries were temporarily suspended until efficient barring down of loose stone on the face had been effected.

Ventilation.—There was no incident involving danger from accumulation of inflammable or noxious gases in mines. Some small coal mines are still dependent on natural means. It is possible to tolerate such a condition under some circumstances, but generally, not when shot-firing is resorted to in the breaking of ground. Objection has been taken to the production of smoke, fumes, and dust by blasting from the solid coal in these small coal mines under the above conditions, and suspension has been effected. The ventilation in some larger mines is adversely affected by improper stoppings, between main intakes and returns, having been erected, allowing of constant leakage, especially as resistance to the air increases in extended workings.

Health and Sanitation.—Steps have been taken for the elimination of dust from crushing, drilling, coal-cutting, and other machines. Bathing and cribbing accommodation has been provided or improved in some instances. Some sanitary conveniences were found inadequate or unclean, and improvements were arranged.

Explosives.—No difficulties in the way of defective or unsafe explosives arose. Some instances of improper storage were remedied without recourse to legal proceedings. There was one dangerous incident from the handling or use of explosives. Two men were injured in a farm building through one of them placing a tin containing detonators in an unsafe place. Some of the detonators were exploded in the fireplace when the men kindled a fire.

Inflammable Liquids.—A number of irregularities in storage were investigated. Three prosecutions were made and in each case a fine was imposed.

First-Aid.—Some improvement has been effected in the provision of equipment and dressing stations.

Machinery.—This was maintained in a safe condition. One accident, causing death to one person and serious injury to another, resulted from improper procedure in the operation of switchgear at the Electrolytic Zinc Company's Power House at Risdon. The Machinery Department completed the subsequent investigation.

General.—Examinations were made of areas reported by interested persons as having potential mineral value. War-time restrictions, limitation or elimination of supplies in regard to essential needs has, to some extent, impeded production and retarded investigation of certain factors, such as mine air analysis. A combined electric and oil-burning safety lamp has been secured, and is being assiduously used in mine inspections.

OPERATIONS AND PRODUCTION.

Coal.

The total output of black coal for the State was 109,714 tons, valued at £85,311. Two hundred and thirty-two men were employed directly in production. The quantity is a 33 per cent increase on the previous year. The greater demand for coal in other States for munition manufacture, coupled with shipping difficulties, has made less coal available from New South Wales; hence the greater consumption of Tasmanian coal. The output from existing mines could be further materially increased and other areas, at present not producing, could be exploited, should an increased demand arise. Although the bituminous coal of this State is not generally high-grade in quality, it does form a great national asset. It must be realised that throughout the world, there has been an increasing use of much lower grade coals than are found here by the utilisation of modern methods of combustion.

Fingal-Mount Nicholas-Dalmayne Coalfield.—The Cornwall Mine gave employment to 114 men. The output was 63,338 tons, valued at £51,435. The increased quantity per man employed is mostly accounted for by the extraction of pillars of coal from previous solid workings, and more regular employment. Pillar extraction has given some minor ventilation difficulties, as was expected. No general stoppage of work occurred. The affected miners lodged their respective complaints in a proper manner and were satisfied with the adjustments made.

The Mount Nicholas Mine is the most highly mechanised coal mine in the State. The output was 11,748 tons, valued at £7218, and 26 men were employed. Adverse natural conditions were partly responsible for the low output, as such conditions are not conducive to successful machine mining. The seam is faulted and has insufficient thickness and a weak roof. Restrictions in regard to the methods of working and timbering were imposed on account of the general roof condition and previous superincumbent workings.

The Jubilee Mine produced 16,599 tons, valued at £12,487, and employed 44 men. The more extended use of electrically-driven coal-cutting machines is contemplated.

The Dalmayne Mine produced 2052 tons, valued at £1187, and employed five men.

The Fingal Mine had an output of 2680 tons, valued at £1341, and engaged three men.

Avoca Coalfield.—The Stanhope Mine produced 4761 tons, valued at £4150, and employed 15 men. An electric coal-cutting machine is at the mine, but has not been installed. Coal crushing and sizing machinery has been erected to grade the coal.

The Mount Christie Mine produced 730 tons, valued at £558, and employed two men. Faulting has seriously broken the continuity of the coal seam and it is doubtful whether further exploitation of the seam is practical at this point.

Sandfly-Cygnets Coalfield.—The Sandfly Mine produced 1819 tons, valued at £1701, and employed five men. Owing to the very limited area and the friability of the roof, which prevents the economical extraction of the pillars of coal, the upper bituminous seam has ceased to produce. Exploitation is only being carried out in the lower semi-anthracite seam.

Upper Derwent Coalfield.—The Langlosh Mine produced only 230 tons, valued at £236. It closed down during the first quarter due to failure of the company to provide equipment. The tributor abandoned the project. No doubt further exploitation of the field will be carried out in the near future. The natural conditions and fairly close proximity to Hobart are favourable.

York Plains Coalfield.—The York Plains Mine produced 695 tons, valued at £991, and employed three men.

The Mersey Coalfield.—The Aberdeen Mine produced 1921 tons, valued at £1435, and employed six men.

The Tarleton Mine produced 1252 tons, valued at £989, and engaged four men.

The Illamatha Mine produced 903 tons, valued at £865, and engaged three men.

The Black Beauty Mine produced 509 tons, valued at £378, and engaged two men.

Bott's No. 2 Mine produced 477 tons, valued at £340, and engaged two men.

Carbide, Limestone, and Silica.

Limestone and silica were quarried at Ida Bay for the Australian Commonwealth Carbide Company. The minerals are used mostly in the manufacture of products by that Company. The Company also arranges the supply of limestone to the Risdon Works. The quantity of limestone quarried was 14,159 tons, and its value £9381; the quantity of quartzite was 2338 tons, valued at £2073. The number of persons engaged was 40.

The Australian Commonwealth Carbide Company produced 8564 tons of calcium carbide, valued at £171,280. In addition 622 tons of ferro silicon, valued at £17,458, and 161 tons of calcium silicide, valued at £13,268, were produced. New plant comprising furnaces, &c., has been installed. The number of men employed was 176.

Red Granite.

The Balmoral Red (Aust.) Pty. Ltd. produced 643 tons of red granite, valued at £5581, and employed 11 men at Coles Bay.

B. Zanchetta produced 15.5 tons of granite, valued at £80, from a neighbouring locality.

Osmiridium.

At Adamsfield about 35 men were engaged in alluvial operations for the recovery of 192 ozs. of osmiridium, valued at £3909. Sluicing plants worked intermittently owing to insufficient water. Production shows a decrease from the previous year. The field becomes more difficult for individual miners. Work is being carried out with the object of exploiting a lode formation. Production from this source should add materially to the future output of the field.

Ore Treatment.

The operation of the plant of the Electrolytic Zinc Co. of Australasia Ltd. at Risdon has been continuous. Further additions to plant have been made.

The metals extracted from ores, concentrates, &c., obtained from New South Wales and Tasmania, comprised:—Slab zinc, 77,698 tons, having a gross value of £1,787,054; metallic cadmium, 187,5262 tons, valued at

£63,008; cobalt oxide (containing 12,8249 tons cobalt), 19,873 tons, valued at £9143; lead, 1092 tons, valued at £22,938; silver, 225,867 ounces, valued at £29,773.

Actual production from Tasmanian ores processed was:—Slab zinc, 22,604 tons, valued at £519,892; metallic cadmium, 42,70 tons, valued at £14,346; lead, 1092 tons, valued at £22,938; silver, 225,867 ounces, valued at £29,773; cobalt oxide, 0.5962 ton, valued at £274.

The average number of men employed was 1535.

Tin.

Alluvial tin at Cox Bight and Coles Bay employed three men. The returns were 2.5 tons of metallic tin, valued at £651.

Quarries.

Additional quarries were brought under the Mines and Works Regulation Act. Brickworks and quarries maintained continuous production. The operations gave employment to 116 men.