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TASMANIA

REPORT

OF THE

DIRECTOR OF MINES

FOR

YEAR ENDED 31ST DECEMBER

1956

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

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

1957

22712

TABLE OF CONTENTS

REPORT OF THE DIRECTOR OF MINES

Department of Mines,
Hobart, 1st May, 1957.

SIR,

I HAVE the honour to present my report on the mining industry for the year ended 31st December, 1956.

The total value of the output of metallic and non-metallic minerals on the basis of Australian prices was £15,339,005 as compared with £14,364,337 for the previous year.

There were increases in both Sterling and Australian prices for lead, zinc, tin and silver and this allied with higher production of these metals was responsible for the overall increase in the value of the production by the mining industry.

There were increases in the production of cadmium, cobalt oxide, copper, gold, granite, lead, ochre, osmiridium, scheelite, silver, tin, wolfram and zinc, but there was a fall in the production of coal, dolomite, iron ore, kaolin, limestone, pyrites and silica.

The average number of men employed in the industry was 7692 as compared with 7095 for last year.

PRODUCTION.

No new mines were opened during the year.

Copper.

The Mt. Lyell Mining and Railway Company Ltd. at Queenstown was responsible for the major portion of the production, but the Electrolytic Zinc Company at Rosebery and Aberfoyle Tin N.L. also contributed to the overall production. The Mt. Lyell Mining and Railway Co. produced 1,599,777 tons of ore from the West Lyell opencut and 62 tons of copper precipitate was recovered from mine waters. Copper pyrite concentrate amounted to 34,230 tons and 56,293 tons of iron pyrite concentrates were recovered. Smelter recoveries consisted of 7627 tons of blister copper containing 7571 tons of copper, 28,343 ozs. of silver and 4390 ozs. of gold. Pyritic concentrate shipped from Regatta Point for acid manufacture totalled 58,469 tons. There has been a re-assessment of West Lyell ore reserves and total reserves at 30th June, 1956, were estimated at 45,000,000 tons of ore assaying 0·73 per cent copper, 0·065 oz. silver per ton and 0·008 oz. gold per ton.

Zinc.

The Electrolytic Zinc Company of Australasia Ltd., operating on the zinc-lead ore bodies at Rosebery, mined 202,672 tons of ore which were milled for a recovery of 59,239 tons of zinc concentrates, 10,041 tons of lead concentrates and 6315 tons of copper concentrates, containing 30,306·10 tons of zinc, 9076·49 tons of lead, 546·16 tons of copper, 53·32 tons of cadmium, 1,005,109·65 oz. of silver and 11,470·78 oz. of gold. The zinc concentrates were treated at Risdon, but the copper and lead concentrates were exported overseas.

The Risdon works of the company produced 77,558 tons of zinc valued at £A8,340,990, 182·2419 tons of cadmium valued at £A289,683 and 18·5946 tons of cobalt oxide valued at £A20,930 from imported calcines; and from Tasmanian ores produced 27,453 tons of zinc, and 44 tons of cadmium making a total of 104,993 tons of zinc and 226·2419 tons of cadmium. The tonnage of ore mined and treated and the total concentrate produced are the highest on record. Development footage showed a substantial increase and at the Rosebery Mine there has been encouraging additions to the ore reserves which are now estimated at 2,300,000 tons. A large programme of work is being undertaken at Rosebery to improve mining and treatment operations.

Construction and development work at the Risdon works of the company continued to be active. A fourth flash roaster and its associated equipment was constructed in the Zinc Section. The sulphate of ammonia plant was completed and commenced production.

Lead.

Lead produced in lead concentrates totalled 11,421·645 tons representing an increase of 863·1081 tons on the previous year.

Operations of the Electrolytic Zinc Company of Australasia Ltd. contributed 9076·490 tons, and the balance of the production was derived from the operations of Zeehan Mines Pty. Ltd. at Zeehan which mined 15,442 tons of ore for a recovery of 2355·88 tons of concentrates containing 1731·787 tons of lead and 71,334·270 oz. of silver; Montana Silver Lead Mine at Zeehan which produced 407·560 tons of silver-lead concentrates containing 198·219 tons of lead and 18,717 oz. of silver; the Farrell Mining Company Limited at Tullah which produced 676 tons of concentrate containing 406 tons of lead and 43,691 oz. of silver from the mining of 3605 tons of ore, and miscellaneous small parties in the Zeehan district.

Tin.

The output of tin in concentrates was 938·391 tons as compared with 852·9845 last year.

The average Australian price was £1029 5s. 8d. per ton, which represents an increase of £73 per ton. There was an increase of £37 14s. in the average sterling price, which was £784 0s. 8d. per ton.

The principal producers were Aberfoyle Tin N.L., operating on a multiple lode series at Rossarden; Renison Associated Tin Mines, mining and milling tin-pyrite ores at Renison Bell; Briseis Tin N.L., sluicing relatively shallow ground at Derby; Endurance Tin Mining Co. N.L., engaged in sluicing operations at South Mt. Cameron; Goshen Tin Mines, St. Helens; and the Ormuz Tin Mine at Branxholm, each sluicing alluvial ground; the Storeys Creek Tin Mine at Storeys Creek, working on a wolfram-tin lode series; and the Dorset Tin Dredge, treating river flats at South Mt. Cameron.

Tribute parties, working on an area marked out under the provisions of the Aid to Mining Act, 1927, at the site of the old Mt. Bischoff Tin Mine at Waratah, produced 26·647 tons of tin concentrates containing 17·673 tons of metallic tin. Miscellaneous small operators, mainly on tin alluvials in the north-eastern part of the State, were responsible for a production of 47·033 tons of metallic tin.

Aberfoyle Tin N.L., working on a tin-wolfram lode series at Rossarden, mined and milled 60,042 tons of ore to recover 768·684 tons of tin concentrates and 398·361 tons of wolfram concentrates. The metallic tin content was 559·479 tons. Additional equipment was installed in the concentrating plant during the year.

The Dorset Tin Dredge continued its operations on the alluvial flats flanking the Ringarooma River at South Mt. Cameron. The throughput was 1,638,500 cubic yards and 110·450 tons of concentrate were recovered which contained 82·773 tons of metallic tin and 214·675 oz. of gold.

The Endurance Tin Mine sluiced 369,300 yards of ground for a recovery of 101·867 tons of tin oxide containing 75·792 tons of metallic tin.

Briseis Tin N.L., Derby, sluiced 253,734 cubic yards of alluvial ground flanking the Cascade River and recovered 23·279 tons of concentrate containing 16·155 tons of metallic tin.

Renison Associated Tin Mines N.L. produced 127·485 tons of concentrates containing 84·463 tons of metallic tin from the mining and milling of 10,207 tons of tin-pyrite ores at Renison Bell.

The Mt. Cameron Water Race Board, which supplies water to tin mining in the vicinity of Gladstone, continued to function, but revenue was insufficient to meet operating expenditure.

The Ringarooma and Cascade Water Board, which controls the water system formerly operated by Briseis Consolidated N.L. is faced with progressive deterioration of the Ringarooma section of the race and revenue from the sale of water is insufficient to meet operational costs. Water was supplied to Briseis Tin N.L., the Ormuz Tin Mine and small operators, and supplies have also been diverted for township use and for irrigation.

Tungsten.

King Island Scheelite (1957) Ltd. mined and milled 265,606 tons of ore for the recovery of 1488 tons of scheelite concentrate.

The construction of the new dam on the Grassy River was completed. A second blast-hole drill was commissioned and two 2½ C.Y. shovels were purchased to supplement the open-cut mining equipment. Four new trucks were added to the fleet of vehicles.

Ore reserves are estimated at 2,874,000 tons assaying 0·48 per cent tungstic oxide. Recoveries improved during the year and additions to the crushing section of the plant are in progress.

Aberfoyle Tin N.L., in addition to its production of tin, recovered 398·361 tons of wolfram concentrate from operations on the tin-wolfram lode series at Rossarden.

At the Storey's Creek Tin Mine, 15,358 tons of ore were mined and milled for a recovery of 239·500 tons of wolfram concentrate and 20·880 tons of tin concentrate containing 12·873 tons of metallic tin.

Moina Tungsten Tin Mining Co. N.L., which has re-opened the former Shepherd and Murphy Mine, commenced the production of tin and tungsten concentrates in the new mill at Moina. A total of 9651·4 tons of ore was mined and treated, and 8·996 tons of wolfram concentrates and 31·525 tons of tin concentrates were recovered.

Gold.

The production of gold increased to 16,532·453 oz. An output of 4390 oz. resulted from the treatment of copper ores, 11,919·440 from zinc lead ores, and 223·013 oz. from the dredging of auriferous-tin alluvials. There was no production from reef mining or from alluvial deposits.

Limestone.

The recorded production of limestone was 179,095 tons. The manufacture of carbide and cement absorbed 145,642 tons and the balance of 33,452 tons was used for metallurgical purposes and for agricultural and building purposes. There are widely spread resources of limestone in the State and all demands can be satisfied.

Coal.

The production of coal showed a small decline from 299,221 tons last year to 298,713 tons for 1956. Four coal mines recorded increases in production, but seven mines had reduced outputs.

The Cornwall Coal Co. was the major producer and the output from its three collieries was 188,641 tons. The Cornwall Colliery, St. Marys, contributed 92,937 tons, the Mt. Nicholas Colliery, St. Marys, 37,262 and the Duncan Colliery, Fingal, 58,442 tons. At the Cornwall Mine there was a fall in production of 9214 tons resulting from sealing off of sections of the mine affected by a fire in old workings which occurred in July, 1955. The mine continued to operate on two shifts, but a reduction of miners was necessary because of shortage of underground working places. A reversion to single shifts was made towards the end of the year.

The Jubilee Coal Mine, St. Marys, produced 23,281 tons, and at Fingal the Fingal Coal Mine mined 21,936 tons and the Tasmanian Coal Company 11,883 tons. The Stanhope Coal Mine at Avoca contributed 5290 tons. The Merrywood Coal Mine at Avoca continued in underground and open-cut operations and produced a total of 40,027 tons, 18,381 being from open-cut working and 21,646 from underground. At Hamilton the Langloh Mine output was 5241 tons. Small scale operations continued on the sub-anthracite coal at Sandfly and 1827 tons were produced. The Illamatha Coal Mine at Spreyton continued as a small producer and the output was 587 tons.

ASBESTOS.

RETURN showing the Quantity and Value of Asbestos produced from 1899 *to* 1956 *inclusive.*

Year	Quantity Tons	Value £
1899-1950	3979·85	17,142
1951-1956	....	....
Total	3979·85	£17,142

BARYTES.

RETURN showing the Quantity and Value of Barytes produced from 1899 *to* 1956 *inclusive.*

Year	Quantity Tons	Value £
1899-1950	2196·2	8,138
1951-1956	....	....
Total	2196·2	£8,138

BISMUTH.

RETURN showing the Quantity and Value of Bismuth produced from 1904 *to* 1956 *inclusive.*

Year	Quantity Tons	Value £
1904-1949	83·6320	28,426
1950	·0039	6
1951-1956	....	....
Total	83·6359	£28,432

CADMIUM.

The quantity recovered was 53·32 tons valued at £71,662 compared with 45·66 tons valued at £58,809 for 1955.

RETURN showing the Quantity and Value of Cadmium recovered for the years 1924 *to* 1956.

Year	Quantity Tons	Value £
1924-1952	768·9457	512,082
1953	44·51	70,712
1954	49·20	68,639
1955	45·66	58,809
1956	53·320	71,662
Total	961·6357	£781,904

COPPER.

The production for the year was 8298·719 tons, valued at £2,824,734.

RETURN showing the Quantity and Value of Copper in Blister Copper, Copper Ores and Zinc Lead Ores during the years 1919 *to* 1956 *inclusive.*

Year	In Tin Ores		In Zinc-Lead Ores		In Blister Copper		In Copper Ores		Total	
	Quantity	Value	Quality	Value	Quality	Value	Quantity	Value	Quantity	Value
1919-1952 (inclusive)	Tons	£	Tons 3,688·704	£ 440,442	Tons 297,097·475	£ 22,838,137	Tons 404·094	£ 9,491	Tons 301,190·309	£ 23,288,070
1953	....	....	395·50	98,759	8,741	2,207,029	....	....	9,136·50	2,305,788
1954	....	....	535·94	133,185	8,920	2,218,672	....	....	9,455·94	2,351,857
1955	....	....	503·34	179,065	7,582	2,673,759	....	....	8,085·34	2,852,824
1956	182·559	58,364	545·160	189,029	7,571	2,577,341	....	....	8,298·719	2,824,734
TOTAL	182·559	£58,364	5,668·680	£1,040,480	329,911·475	£32,514,938	404·094	£9,491	336,166·808	£33,623,273

The Mount Lyell Mining and Railway Company Limited.
Return for the Calendar Year 1955.

Ore and metal-bearing material smelted:—

Source of Material.	Tons (Dry).
Concentrates:—From the Company's West Lyell, North Lyell and Lyell Comstock Mines	1,600,411
Precipitate	62
Total	1,600,473

Source of Material.		Tons (Dry).
Limestone delivered at works (tons)		4,249
Silica delivered at works		4,843
Pyrite concentrate shipped from Regatta Point (tons), approx. value £175,407		58,469
Blister Copper produced, 7627 tons, containing:		
Copper (tons)	7,571	
Silver (oz.)	29,343	Approximate value £A3,342,963
Gold (oz.)	4,390	
Average number of men employed—		
Mining Department—At the Company's Royal Tharsis Mine	25	
Ditto, West Lyell Mine	541	
Miscellaneous	129	
		695
Reduction Works (including Lake Margaret)		719
Railway Department—Mount Lyell Railway		99
Total		1,513

Copper produced from the inception of the Company to the 31st December, 1956, 488,505 tons.

Silver produced from the inception of the Company to the 31st December, 1956, 15,692,415 oz. (fine).

Gold produced from the inception of the Company to the 31st December, 1956, 545,640 oz. (fine).

Dividends paid during the year, £280,938.

Dividends paid from the inception of the Company to the 31st December, 1956, £8,309,591.

COAL.

RETURN showing the Quantity and Value of Coal raised to 31st December, 1956.

Year	Quantity Tons	Value £
Previous to 1953	6,100,873	5,203,856
1953	233,629	445,316
1954	264,202	511,040
1955	299,221	604,803
1956	298,713	594,090
Total	7,196,638	£7,359,105

DOLOMITE.

RETURN showing the Quantity and Value of Dolomite produced from 1899 *to* 1956 *inclusive.*

Year	Quantity Tons	Value £
Prior to 1952	3,577·76	10,967
1954	2,846·5	8,599
1955	2,266	6,798
1956	788	2,320
Total	9,478·26	£28,684

GOLD.

The quantity won was 16,532·453 fine oz. valued at £205,578, as compared with 16,112·601 fine oz. valued at £202,075 for 1955.

RETURN showing the Quantity and Value of Gold won to 31st December, 1956.

Year	Quantity Oz.	Value £
Previous to 1953	2,364,053·583	10,912,814
1953	16,181·920	200,556
1954	18,730·745	233,516
1955	16,112·601	202,075
1956	16,532·453	205,578
Total	2,431,611·302	£11,754,539

GRANITE (RED).

RETURN showing the Quantity and Value of Red Granite produced during the years 1935 *to* 1956.

Year	Quantity Tons	Value £
1935 to 1952 inclusive	3,536·5	26,838
1953	39	654
1954	55	575
1955	41	690
1956	59·5	1,041
Total	3,731·0	£29,798

IRON PYRITES.

RETURN showing the Quantity and Value of Iron Pyrites produced during the years 1915 *to* 1956 *inclusive.*

Year	Quantity Tons	Value £
1915 to 1952 (inclusive)	829,473·973	1,224,750
1953	51,559	154,677
1954	51,162	153,486
1955	67,420	202,260
1956	58,469	175,407
Total	1,058,083·973	£1,910,580

KAOLIN.

RETURN showing the Quantity and Value of Kaolin produced during the years 1940-1956 *inclusive.*

Year	Quantity Tons	Value £
1940 to 1952 (inclusive)	64,733·25	192,959
1953	9,061	41,424
1954	7,948	36,139
1955	9,740	53,034
1956	6,267	37,798
Total	97,749·25	£361,354

LEAD.

The output was 11,421·645 tons valued at £1,321,672 compared with 10,558·5369 tons valued at £1,128,950 for 1955.

RETURN shows the Quantity and Value of Lead included in Silver Lead during the years 1919 *to* 1956 *inclusive.*

Year	Quantity Tons	Value £
1919 to 1952 (inclusive)	215,589·876	9,628,111
1953	9,353·045	852,591
1954	10,779·504	1,032,914
1955	10,558·5369	1,128,950
1956	11,421·645	1,321,672
Total	257,702·6069	£13,964,238

LIMESTONE.

RETURN showing the Quantity of Limestone produced during the years 1919 *to* 1956 *inclusive.*
1919 *to* 1936 *inclusive,* 2,108,943 *tons,* £1,430,674.

Year	Limestone used in the Manufacture of Carbide and Cement.	Limestone used for Metallurgical, Building and Other Purposes.
	Tons	Tons
1937-1952 (inclusive)	1,905,344	2,063,247
1953	161,472	20,830
1954	171,768	24,717
1955	175,081	31,057
1956	145,642	33,452
Total	2,559,307	2,173,303

IRON ORE.

RETURN showing the Quantity and Value of Iron Ore produced to 1956. *Production of Hematite, Limonite and Magnetite is included under this heading.*

Year	Quantity Tons	Value £
Prior to 1955	66,262·175	58,521
1956	5,684·500	6,374
Total	71,946·675	£64,895

NICKEL.

RETURN showing the Quantity and Value of Nickel produced from 1927 *to* 1956 *inclusive.*

Year	Quantity Tons	Value £
1927-1938	222·55	38,850
1939-1956	....	....
Total	222·55	£38,850

OCHRE.

RETURN showing the Quantity and Value of Ochre produced during the years 1918 *to* 1956 *inclusive.*

Year	Quantity Tons	Value £
1918 to 1952 (inclusive)	1,827·75	4,098
1953	19·5	59
1954	47	141
1955	6	18
1956	20·50	141
Total	1,920·75	£4,457

OSMIRIDIUM.

The quantity of metal won during the year was 25·36 oz., valued at £1,479, as compared with 21·493 oz., valued at £860, for 1955.

RETURN showing the Quantity and Value of Osmiridium produced during the years 1910 *to* 1956 *inclusive.*

Year	Quantity Oz.	Value £
1910 to 1952 (inclusive)	30,854·878	669,737
1953	58·831	2,354
1954	15·896	636
1955	21·493	860
1956	25·360	1,479
Total	30,976·458	£675,066

SILVER.

The output was 1,328,114·939 oz. (fine), valued at £437,525, as compared with 1,127,791·5037 oz., valued at £363,809, for 1955.

RETURN showing the Quantity and Value of Silver produced during the years 1919 *to* 1956 *inclusive.*

Year	In Tin Ore		In Silver Lead		In Blister Copper		In Copper Ore		In Gold Ore		In Zinc Lead Ore		Total	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
	Oz.	£	Oz.	£	Oz.	£	Oz.	£	Oz.	£	Oz.	£	Oz.	£
1919-1952	....	....	16,110,588·553	1,967,608	3,187,150·9	439,943	232	25	44	4	9,214,690·47	1,803,659	28,512,705·923	4,211,239
1953	....	....	202,740·057	49,437	28,701	9,213	....	....	....	....	971,815·11	311,953	1,203,256·167	370,603
1954	....	....	178,081·089	54,809	32,301	9,871	....	....	....	....	1,067,786·57	325,946	1,278,168·659	390,126
1955	....	....	154,802·493	49,514	31,375	10,151	....	....	....	....	941,614·01	304,144	1,127,791·503	363,809
1956	59,506·139	19,850	134,156·150	44,125	29,343	9,670	....	....	....	....	1,105,109·65	363,880	1,328,114·939	437,525
Total	59,506·139	£19,850	16,780,368·342	£2,164,993	3,308,870·9	£478,848	232	£25	44	£4	13,301,015·81	£3,109,582	33,450,037·191	£5,773,302

SHALE.

RETURN showing the Quantity and Value of Shale produced during the years 1910-1956 *inclusive.*

Year	Quantity Tons	Value £
1910-1935	41,572	31,231
1936-1955	....	....
Total	41,572	£31,231

SCHEELITE.

RETURN showing the Quantity and Value of Scheelite produced during the years 1917 *to* 1956 *inclusive.*

Year	Quantity Tons	Value £
1917 to 1952 (inclusive)	7,766·921	4,965,024
1953	1,130·139	1,163,585
1954	1,317·420	755,864
1955	1,431·566	1,205,297
1956	1,488·000	1,228,640
Total	13,134·046	£9,318,410

SILICA.

RETURN showing Quantity and Value of Silica produced during the years 1936 *to* 1956 *inclusive.*

Year	Quantity Tons	Value £
1936 to 1952 (inclusive)	111,943·25	56,824
1953	6,189·75	5,430
1954	6,556·5	5,220
1955	6,199·5	6,240
1956	5,392·05	7,479
Total	136,281·05	81,193

TALC.

RETURN showing the Quantity and Value of Talc produced during the years 1928 *to* 1956 *inclusive.*

Year	Quantity Tons	Value £
1928-1948	333·35	1,077
1949-56	....	....
Total	333·35	£1,077

TIN.

The output was 852·9845 tons valued at £635,491 as compared with 852·9845 tons valued at £635,491 for 1955.

RETURN showing the Quantity and Value of Metallic Tin exported from Tasmania from 1873 *to* 1904 *(Compiled from Customs Returns) and Metallic Tin produced during the years* 1905 *to* 1956 *inclusive.*

Year	Quantity Tons	Value £
1873 to 1879 inclusive	16,429	1,054,923
1879 to 1905 inclusive	56,419·93	7,530,234
1906 to 1952 inclusive	65,096·146	15,576,982
1953	788·248	552,452
1954	946·751	683,628
1955	852·984	635,491
1956	938·391	730,197
Total	141,171·450	£26,763,907

WOLFRAM.

RETURN showing the Quantity and Value of Wolfram produced during the years 1899 *to* 1956 *inclusive.*

Year	Quantity Tons	Value £
1899 to 1952 (inclusive)	7,073·292	2,789,458
1953	521·853	596,897
1954	581·228	371,281
1955	578·415	495,721
1956	647·162	552,171
Total	9,401·950	£4,805,528

ZINC.

RETURN showing the Quantity and Value of Zinc produced during the years 1919-1956 *inclusive.*

Year	Quantity Tons	Value £
1919 to 1952	396,635·150	20,885,166
1953	23,680·10	1,763,608
1954	26,079·384	2,032,209
1955	24,036·140	2,203,401
1956	28,138·340	2,738,025
Total	498,569·114	£29,622,409

ELECTROLYTIC ZINC COMPANY OF AUSTRALASIA LIMITED.

RETURN FOR THE YEAR 1956.

EXTRACTION FROM ORES AND CONCENTRATES: RISDON.

From other than Tasmanian Ores—

Zinc	77,558	tons
Cadmium	182·24	tons
Cobalt oxide	18·60	tons

From Tasmanian Ores—

Zinc	27,435	tons
Cadmium	44	tons
Cobalt oxide	0·5982	tons
Lead	937	tons
Silver	105,669	oz.

Men Employed—

The average number of men employed was 2,671.

WEST COAST DIVISION.

Ore Mined—

	Tons
From Hercules Mine	23,232
From Rosebery Mine	179,440
Total	202,672

Concentrates Produced—

	Tons
Zinc Concentrates	59,239
Lead Concentrates	10,041
Copper Concentrates	6,315
Total	75,595

Recoverable Quantity in Ores Mined—

Zinc	28,138·34	tons
Lead	9,076·49	tons
Copper	545·16	tons
Cadmium	53·32	tons
Silver	1,105,109·65	oz,
Gold	11,919·44	oz. (fine)

Average Number of Men Employed—

Hercules Mine	46
Rosebery Mine	598
Total	644

STATISTICS OF PRODUCTION.

RETURN showing the Annual Published Value of Mineral Products for the State of Tasmania from 1880 *to* 1956 *inclusive.*

Year	Value £
1880 to 1952 (inclusive)	141,853,920
1953	9,494,075
1954	9,769,278
1955	11,069,444
1956	12,045,461
Total	£184,232,178

PRODUCTION FROM OTHER THAN TASMANIAN ORES.

Product	Quantity Tons	Value £A	Persons Employed
Aluminium	10,390*	Not available	
Cadmium	182·24	289,683	2,671
Cobalt Oxide	18·60	20,930	
Zinc	77,558	8,340,990	
Titanium Dioxide	6,168	1,518,217	266

* Includes 1,246 tons produced in 1955 from inception.

QUANTITY AND VALUE OF METALS AND MINERALS PRODUCED.

RETURN showing Quantity and Value of Metals and Minerals Produced in Tasmania as at 31st December, 1956.

Mineral or Metal.	Quantity.	Value with Sterling Metal Prices.	Value with Aust. Metal Prices.
		£	£
Aluminium (tons)	Not available	....	....
Antimony (tons)	2·6640	815	1,017
Asbestos (tons)	3,979·8500	17,142	17,142
Barytes (tons)	2,196·2000	8,138	8,138
Bismuth (tons)	83·6359	28,432	29,644
Cadmium (tons)	961·6357	781,904	891,026
Carbide, Cement and Limestone to 1953 (tons)	6,636,670·600	12,970,370	12,970,370
Carbide and Cement from 1954 (tons)	384,297	2,831,883	2,831,883
Coal (tons)	7,196,638	7,359,105	7,359,105
Cobalt Oxide (tons)	7·7728	4,622	5,234
Copper (Blister) to 1918 (now shown under Silver and Copper) (tons)	166,600	13,788,527	13,788,527
Copper Matte (tons)	6,277	133,736	133,736
Copper Ore to 1918 (now shown under Copper) (tons)	41,768·630	577,873	577,873
Copper (from 1919) (tons)	336,166·808	33,623,273	39,572,090
Dolomite (tons)	9,478·260	28,684	28,684
Gold (fine oz.)	2,431,611·302	11,754,539	12,647,977
Granite (Red) (tons)	3,731·000	29,798	29,798
Graphite (tons)	39·750	107	107
Ilmenite (tons)	550	1,256	1,256
Iron Ore (including the production of Hematite, Limonite and Magnetite) (tons)	71,946·675	64,895	64,895
Iron Pyrites (tons)	1,058,083·973	1,910,580	1,910,580
Kaolin (tons)	97,749·250	361,354	361,354
Lead (from 1919) (tons)	257,702·6069	13,964,237	12,050,864
Limestone from 1954 (tons)	581,718	445,678	445,678
Manganese (tons)	·600	3	3
Monazite (tons)	32·600	488	607
Nickel (tons)	222·550	38,850	40,518
Ochre (tons)	1,920·750	4,457	4,457
Osmiridium (fine oz.)	30,976·458	675,066	699,102
Rutile (tons)	·500	18	18
Scheelite (tons)	13,134·046	9,318,410	14,225,372
Silica (tons)	136,281·050	81,193	81,193
Shale (tons)	41,572	31,231	31,231
Silver-Lead Ore to 1918 (now under Silver and Lead) (tons)	1,083,897·821	6,429,291	6,429,291
Silver from 1919 (fine oz.)	33,450,037·191	5,773,302	6,807,596
Talc (tons)	333·350	1,077	1,077
Tin (tons)	141,471·450	26,763,907	28,762,217
Wolfram (tons)	9,401·950	4,805,528	6,227,265
Zinc (tons)	498,569·114	29,622,409	23,510,368
Total	....	184,232,178	192,547,293

QUANTITY AND VALUE OF MINERALS.

STATISTICS RELATING TO THE MINERAL INDUSTRY FOR THE YEAR ENDED 31ST DECEMBER, 1956.

Mineral	Mineral Divisions.					Total Quality.	Value.	
	Northern and Southern.	Eastern.	North-Eastern.	North-Western.	Western.		Sterling.	Australian
							£S.	£A.
Aluminium (tons)	....	....	....	....	....	....	....	....
Cadmium (tons)	....	....	....	....	53·32	53·32	71,662	84,302
Coal (tons)	7,068	291,058	....	587	....	298,713	....	594,090
Cobalt Oxide (tons)	....	....	....	....	·60	·60	....	565
Copper (tons)	....	183	....	....	8,116	8,299	2,824,734	3,433,474
Dolomite (tons)	....	....	....	788	....	788	....	2,320
Gold (fine oz.)	....	....	223	....	16,310	16,533	205,578	258,320
Granite (Red) (tons)	....	60	....	....	....	60	....	1,041
Iron Ore (tons)	....	....	....	5,685	....	5,685	....	6,374
Kaolin (tons)	3,735	970	1,562	....	....	6,267	....	37,798
Lead (tons)	....	....	....	....	11,422	11,422	1,321,671	1,601,430
Limestone (tons)	28,586	....	....	146,260	4,249	179,095	....	144,130
Ochre (tons)	....	....	....	21	....	21	....	141
Osmiridium (fine oz.)	25	....	....	....	....	25	1,479	2,085
Pyrites (tons)	....	....	....	....	58,469	58,469	....	175,407
Scheelite (tons)	....	....	....	1,488	....	1,488	1,228,640	2,288,356
Silica (tons)	....	....	....	549	4,843	5,392	....	7,479
Silver (fine oz.)	....	59,506	....	....	1,268,609	1,328,115	437,525	546,520
Tin (tons)	2	589	222	38	87	938	730,197	948,045
Wolfram (tons)	....	638	....	9	....	647	552,171	809,980
Zinc (tons)	....	....	....	....	28,138	28,138	2,738,025	3,432,764
Total Value with Sterling Metal Prices	....	....	....	....	....	....	....	11,081,027
Total Value with Australian Metal Prices	....	....	....	....	....	....	....	14,374,621
Average Number of Men Employed	3,476	691	190	1,021	2,314	7,692	....	
Manufactured Products: Carbide and Cement (tons)	8,406	....	....	115,398	....	123,804	....	964,434

STATISTICS OF MINING COMPANIES.

RETURN showing the Amounts Paid in Dividends by Mining Companies during the Year ending 31st December, 1956.

Mines	Dividends
Coal	7,050
Copper	280,937
Scheelite	500,000
Tin	2,368
Wolfram-Tin	249,500
Zinc	1,950,000
Total	£2,989,855

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

RETURN showing the Mining Companies Registered during the Year ended 31st December, 1956.

Number of Companies	Capital
One	£33,750

One agent for foreign companies under the Mining Companies (Foreign) Act, 1884, was registered. Two syndicates under Part V of the Mining Companies Act, 1884, were registered.

Return showing the Revenue Collected during the Year ending 31st December, 1956.

Head of Revenue	Amount £	s.	d.
Public Works and Services—Mines Department	5,260	16	11
Rent of Auriferous and Mineral Lands	7,372	10	10
Fees, Auriferous and Mineral Lands	1,478	8	7
Survey Fees	2,245	7	4
Fees under the Explosives and Inflammable Liquids Act	5,540	18	3
Rent and Sale of Government Property	217	2	6
Total	£22,015	4	5

Comparative Statement of Revenue from Mines, being Rents, Fees, Storage of Explosives, &c., (exclusive of Survey Fees), Paid to the Treasury during the Years 1952 to 1956.

Year	Amount £	s.	d.
1952	11,539	17	2
1953	12,272	14	1
1954	11,089	17	5
1955	19,584	15	11
1956	22,015	4	5

The above Statement does not include Stamp Duties upon Transfer of Leases.

RETURN showing the Total Number of Leases and Licences in Force on 31st December, 1956.

Mineral	Number	Number of Sluiceheads	Area Acres.
Barytes	1	....	10
Bauxite	1	....	129½
Clay	10	....	226
Coal	39	....	8,947
Copper	1	....	33
Easement Licences	62	....	714
Granite	3	....	25
Gold	24	....	617½
Iron	1	....	50
Limestone	12	....	807
Minerals	43	....	9,947
Nickel	5	....	249
Osmiridium	1	....	10
Ochre	2	....	24
Scheelite	3	....	281
Silica	3	....	35
Silver Lead	18	....	660
Stone	22	....	2,012
Sand	1	....	5
Tin	178	....	6,578
Tin-Wolfram	8	....	497
Wolfram	4	....	101
Wolfram-Gold	3	....	120
Water Licences	171	841	1,100¾
Total	616	841	41,578¾

RETURN showing Total Number and Area of Leases and Licences Issued during the Year ended 31st December, 1956.

Mineral	Leases	Area Acres	Sluiceheads
Clay	3	30	....
Coal	4	1,833	....
Gold	2	40	....
Granite	1	10	....
Limestone	1	40	....
Minerals	6	340	....
Scheelite	2	271	....
Silver Lead	4	160	....
Stone	6	679	....
Tin	21	206	....
Water and Easement Licences	17	117	17
Wolfram	2	45	....
Wolfram-Tin	1	10	....
Total	70	3,781	17

RETURN showing Total Number and Area of Leases and Licences Applied for during the Year ended 31st December, 1956.

Mineral	Number	Area Acres.	Sluiceheads
Clay	3	30	....
Coal	5	1,516	....
Copper	2	160	....
Easements	1	5	....
Gravel	1	19	....
Minerals	56	5,284	....
Osmiridium	1	20	....
Rutile	6	480	....
Sand	3	283	....
Silver Lead	2	20	....
Stone	2	20	....
Tin	25	369	....
Wolfram	1	135	....
Water Licences	11	3	29
Total	125	8,345	29

RETURN showing the Total Number and Areas of Authorities to Prospect issue during the Year ended 31st December, 1956.

Type of Authority.	No.	Area available for Occupation. acres.
Permits to enter on leased Crown land	10	18,390
Permits to enter and owners' consents on private land	60	42,130
Special prospectors' licences	24	4,842,151
Prospectors' licences	121	6,050
Miners' Rights	89	44
Licence to search for coal and oil	3	8,400
Total	307	4,917,165

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

Mineral.	1954. Sterling.	1954. Australian.	1955. Sterling.	1955. Australian.	1956. Sterling.	1956. Australian.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Copper .... per ton	246 17 10	314 5 0	354 16 1	448 7 3	345 7 6	421 16 0
Lead .... per ton	95 7 11	113 5 9	106 15 8	128 10 5	115 15 4	140 7 2
Zinc .... per ton	77 14 4	96 0 10	91 7 10	115 5 3	97 8 0	122 2 6
Tin .... per ton	720 7 2	909 13 10	746 6 8	956 4 2	784 0 8	1,014 5 8
Silver .... per oz.	0 6 1	0 7 5	0 6 5	0 7 7	0 6 7	0 8 3
Osmiridium .... per oz.	40 0 0	70 0 0	40 0 0	70 0 0	55 0 0	90 0 0
Wolfram .... per ton (W.O.3.)	841 0 0	957 10 0	1,265 1 6	1,266 12 0	1,249 11 0	1,525 0 0
Gold .... per fine oz.	12 9 3	15 11 7	12 15 10	15 12 6	12 8 9	15 12 6
Scheelite .... per unit (W.O.3.)	168/3	191/6	238/-	253/4	250/-	305/-

AID TO MINING.

The policy of assistance to mining was maintained under the provisions of the Aid to Mining Act, 1927, and amounts were advanced to assist in establishment of productive operations on the osmiridium lode formation at Adamsfield, and for the purchase of equipment for a coal mine in the St. Marys District. An amount of £1024 2s. 5d. was expended.

Tribute operations at Waratah resulted in royalty receipts amounting to £367 14s. 11d. The present rate of royalty is in all cases 2½ per cent of the proceeds from tin produced.

STATEMENT OF RECEIPTS AND PAYMENTS OF THE MINING TRUST FUND FOR THE YEAR ENDED 31ST DECEMBER, 1956.

Receipts.	£ s. d.	Payments.	£ s. d.
Balance 31st December, 1955	11,541 0 7	Sustenance	45 0 0
Repayment of loan	176 11 11	Assistance	1,024 2 5
Interest on loans	13 7 8	Refund excess tribute royalty	114 10 2
Tribute royalty	367 14 11	Insurance	0 8 11
		Transfer to adjust amount credited in error in 1955	275 0 0
		Total Payments	1,459 1 6
		Balance (Excess Receipts over Payments)	10,639 13 7
	£12,098 15 1		£12,098 15 1

DRILLING.

During the year five drilling plants were in operation consisting of three diamond drills and two percussion plants. Boring was undertaken for gold, coal, uranium, copper-nickel, supplies of underground water, and for building foundations.

Diamond Drilling.

One diamond drill on O'Briens lease in the Mathinna district continued boring hole No. 5 to the required depth of 258 feet. The plant was then transferred to the St. Marys district to drill for coal from on top of the Mount Nicholas range. A vertical bore, No. 1, reached a depth of 604 feet. A second hole had progressed to a depth of 100 feet when drilling was suspended to enable boring to be carried out on Tasmanian United Uranium Syndicate's lease at Storey's Creek. The first hole was 100 feet deep at the end of the year.

Continuing boring for copper-nickel at Zeehan bore No. 2 was taken to 186 feet and bore No. 3 to 113 feet with bore No. 4 to a depth of 285 feet. The plant was then moved to a new section where bores No. 5, 132 feet, No. 6, 142 feet and No. 7, 118 feet were completed. Bore No. 7 was sited on the Vaudeau Lease and reached a depth of 142 feet.

Percussion Drilling.

The percussion plants operated by the Department were in constant use.

For determination of building foundations five bores, total depth 149 feet, were completed at Smithton for the P.M.G. Department.

Boring for underground water supplies was carried out at Smithton, Ross, Bagdad, Hamilton, Gretna, Clarence, Richmond and Spring Bay areas.

In the Smithton area 35 bores were completed varying in depth from 17 feet 6 inches to 115 feet of which 22 bores were wet with output ranging from 200 to 500 gallons per hour. The total footage bored was 1887 feet.

In the remaining districts 29 holes were bored of which 21 holes were wet. The depths ranged from 14 feet to 330 feet. The total footage bored was 2854 feet.

Three holes totalling 159 feet were drilled on the Langloh Coal Leases to determine the depth to the seam preparatory to the opening of a new heading.

DETAILS OF EXPENDITURE ON DRILLING DURING THE YEAR ENDED 31ST DECEMBER, 1956.

Plant	Location	Amount £ s. d.
G33 Percussion Drill	Smithton District	2,771 10 7
G33 Percussion Drill	Southern Districts	2,624 13 5
Goldfields No. 10 Diamond Drill	Zeehan	1,140 11 3
E1000 Diamond Drill	Mt. Nicholas	741 14 2
Junior Straitline Diamond Drill	St. Marys	918 6 8
Miscellaneous (including purchase of spare tools)	....	708 15 10
	Total	£8,905 11 11

METAL PRICES.

The major factors which influenced the prices of non-ferrous metals during the year were movements in the strategic stockpiling programmes of the United Kingdom and United States Governments, the Suez Canal disturbance, introduction of oil rationing in the United Kingdom and Europe following the closing of the Suez Canal, and uncertainties associated with political and industrial conditions in Malaya.

On the basis of sterling there were increases in the average price of lead, zinc, tin, silver, and osmiridium but the price of copper, wolfram and gold fell slightly. There were increases in the average Australian prices of all base metals with the exception of copper which showed a decrease of £27 per ton. This appears to have resulted from an easier supply position, a weakening of demand and the marketing of quantities of wire bars stockpiled by the United Kingdom Government.

It is pleasing to note that the average Australian price of tin for 1956 showed an increase of £58 per ton. The unit rate for 70 per cent concentrates payable to producers after maintaining an average in the vicinity of 160s. per unit during 1955 reached a peak of 178s. 1d. per unit in December, 1955. This declined early in 1956 and fluctuated between 159s. 8d. and 166s. 11d. until September when the price commenced to rise and ranged between 166s. 1d. and 178s. per unit until near the end of the year when a downward tendency was evident.

The price of tungsten was 320s. per unit during the first half of the year but then declined to 290s. per unit and at the close of the year had fallen to 275s. per unit. This is likely to have a serious effect on the operations of producers who do not possess long term contracts.

The average price of zinc in world markets was higher than during the previous year and the average Australian price increased by £7 per ton to £122 2s. 6d. per ton. Both lead and silver were favoured with higher prices both in terms of Sterling and Australian currencies.

A tabulation of the average annual prices of the principal minerals produced is appended.

LEGISLATION.

The Mining Act, 1929—No amendments were made to this Act, but several Statutory Rules were proclaimed to make areas subject to the Act which were previously reserved from occupation. Amending legislation is pending.

The Mining Companies Act, 1884—This Act was amended to remove the limitation on the subscriptions by members of a mining syndicate. The Act provided that such subscriptions should not exceed One thousand pounds in any period of 12 months, and this was regarded as being unnecessarily restrictive under present economic conditions. The amending Act also made provision for statements of accounts to be published yearly in place of half-yearly as originally required.

The Mining Companies (Foreign) Act, 1884—It was necessary for companies incorporated outside Tasmania before commencing mining operations in this State to register an agent and office in accordance with the provisions of the Act. As many of the companies were also required to register under the Companies Act, 1920, an amendment was made to make it unnecessary for companies to satisfy the Mining Companies (Foreign) Act, 1884, when registration under the Companies Act, 1920, had been arranged.

Provision was also made for companies to publish statements of accounts yearly and to submit copies to the Department.

Other Acts—No amendments were made to the Explosives Act, 1916, the Inflammable Liquids Act, 1929, The Aid to Mining Act, 1927, and the Mines and Works Regulation Act, 1915, although amendments to all these Acts were pending at the end of the year.

TRIBUTES—MT. BISCHOFF MINE—WARATAH.

Following the closing of the Mt. Bischoff Tin Mine at Waratah in 1950 the mine and an adjoining area were occupied for tribute purposes under the Aid to Mining Act, 1927, and production of tin concentrates have usefully contributed to the total production of tin throughout the State. During the year the main tribute party disbanded and several new tributes were arranged. The total number of parties now operating is 15 and employment is provided for an average of 20 men. An amount of £1114 was provided for the purchase of the treatment plant and other equipment from the main party and placed at the disposal of the tributors. A committee formed from the parties has been appointed to arrange the use and maintenance of the plant.

URANIUM.

The scintillometer survey of the State in the search for radio-active minerals which was commenced last year was continued by the Bureau of Mineral Resources and maps of completed areas have been made available to those interested in prospecting for uranium. The survey has revealed favourable indications at the sites of previous ground discoveries and parties have continued the testing of these areas. Since my last report numerous leases have been taken up in the vicinity of Rossarden where prospecting revealed the presence of pitch-blende which is a primary uranium mineral. The Government has constructed a road to give access to the leases and has made a diamond drill available on hire to the lessees. The Department is also co-operating in the matter of geological advice, assaying and ore dressing research.

Progress at the old Royal George Mine, where the first discovery of the uranium bearing mineral torbenite was made in January, 1955, has been retarded because of litigation to determine occupational rights on the land. The parties have now reached an agreement and further investigations are now proceeding.

There have been no developments of importance on other known deposits in the north-eastern portion of the State, but there has been constant demand for geiger counter equipment which the Department has available for hire to prospectors. Geologists have visited several reported discoveries and advised prospectors as to future work considered necessary.

EXPLORATION.

There has been considerable activity in the field of exploration by both the Government and private enterprise.

The known iron ore deposits in the north-western and western parts of the State were reserved from occupation under the Mining Act, and an airborne magnetometer survey by the Bureau of Mineral Resources in co-operation with the Department has confirmed the known deposits and has revealed the existence of other deposits on the West Coast which may greatly add to the potential tonnages available to a steel industry. The results are encouraging and arrangements are in hand for a closer examination by field parties to determine the type of ore and to map the area geologically. A diamond drilling campaign will then be necessary to prove the deposits.

Special Prospector's Licences have been issued for areas in the west, north-west, north-east, and eastern portions of the State and at King Island for prospecting for tin, silver-lead, zinc, gold, scheelite, beach sands, chromite, and uranium minerals. Operations are in progress in all cases and results are not yet available. The most significant event has been the interest of the Rio Tinto Group in the mineral potential of a large area on the west and north-west coasts embracing 3750 square miles. The Company is engaged in a comprehensive programme of investigational work using airborne magnetometer and electro-magnetic geophysical instruments to be followed by closer examination of anomalies by helicopter-borne instruments and by appropriate ground prospecting techniques. An expenditure of at least £150,000 is planned. The Rio Tinto Group has been joined by the Mt. Lyell and Electrolytic Zinc Companies in providing for an investigation of the mineral resources of the whole of the West Coast by means of modern airborne and ground prospecting techniques. Special Prospector's Licences have been granted to representatives of the Mt. Lyell and Electrolytic Zinc Companies for areas totalling 2878 square miles and an expenditure of £50,000 is to be committed in the work. The results of all operations must be furnished to the Department of Mines and will add considerably to the knowledge of the area.

The search for deposits of beach sands containing rutile and ilmenite is becoming very active and applications for prospecting rights over beaches on the southern, eastern, north-eastern and northern coasts are under consideration. Prospecting on the west coast and at King Island has revealed promising results.

PUBLICATIONS.

A publication on the Asbestos deposits of the State, a geological map of the Great Lake area, and a volume of geological reports to accompany my annual report for 1955 have been issued by the Department.

These represent the first publications printed since 1938 and it is planned to continue such publications in line with all Departments of Mines and similar institutions throughout the world. The publications and maps have been widely distributed throughout Australia and overseas and will prove of value for scientific purposes and to mining interests concerned in the exploration and development of particular mining products, by making known the variety and extent of the mineral resources of Tasmania.

A publication on the Limestone Resources is being printed and a volume of technical reports prepared during 1956 will be issued shortly. Publication of further geological maps ultimately intended to represent a Geological Atlas of Tasmania will be continued during 1957.

DEPARTMENTAL ACTIVITIES.

The geological services of the Department have been fully engaged in investigating and reporting on the geology and economics of mineral deposits, the investigation of rock structures for engineering purposes, the location of sources of underground water and in the general development of mining programmes.

The Regional Geological Establishments set up by the Department at Lorinna and Port Davey have continued to function in geological surveys and mineral investigations. The Zeehan Establishment did not function because of the inability to obtain suitable staff. The Department has co-operated with other Government Departments and instrumentalities in the hire of a helicopter to expedite geological mapping in remote and inaccessible areas. A reconnaissance flight was made over the south-western portion of the State and the value of the machine in examining such areas was demonstrated. The high cost is a limiting factor in planning field programmes based on extensive use of the helicopter, but it is intended to employ the machine in some difficult country during the coming summer.

Drilling plants have been in continuous operation in boring for supplies of underground water, testing a gold reef series, proving coal seams and in testing anomalies on a copper-nickel deposit. A new diamond drill has been purchased and is in operation, but shortage of skilled drillers has limited the amount of drilling that could be undertaken.

Research was concerned with investigation into the reduction of the zinc content of wolfram concentrates at one mine and a mill survey was undertaken to determine the efficiency of present treatment methods preparatory to undertaking a mill design flow sheet of a new mill double the capacity of the existing plant. At a mine which re-opened last year further investigations were made to provide a satisfactory separation of wolfram, tin, bismuth, and molybdenum. Tests were also undertaken to separate tin and wolfram in a wolfram-cassiterite-siderite concentrate. Beneficiation tests were carried out on a sample of dune limesand to determine its possibilities for agricultural purposes. Research has continued and technical advice given as to the production of a marketable pyrite concentrate from a deposit near Port Sorell.

The Department has well equipped ore dressing research and chemical laboratories and is providing and is capable of providing valuable service to the mining industry. The Parliamentary Public Works Committee has recently approved of the construction of a new laboratory to accommodate both chemical and ore-dressing facilities which are at present located in separate buildings in different parts of Launceston. The estimated cost is £47,000. The new laboratory will enable

the Department to expand and improve its service to the industry. There is a proposal at present in hand to equip the Department to undertake research and advise producers in the ceramic industry. It is hoped to advance the proposal as soon as a suitably experienced Ceramic Technologist can be appointed.

There were no candidates for examination for Certificate of Competency as Mine Managers.

Certificates were issued by the Board without examination to the following applicants who presented Mine Manager's Certificates recognised by the Board or otherwise satisfied the Board as to qualifications and experience:—

Gavan Newman.
Clifford Harry Studley Burton.

DECISIONS OF THE WARDEN'S COURT.

Objection to application 478P/M at Royal George: W. Pitulej v. A. Gee.

This case was heard by the Warden of Mines at Launceston on 7th February, 1956. The objection was disallowed with costs against the applicant.

Objection to applications 107M/55, 108M/55, 109M/55, and 110M/55 at Red Hills: Electrolytic Zinc Co. of Australasia Ltd. v. J. Elliston.

The case was heard by the Warden of Mines at Devonport on 7th and 8th February, 1956. The objections were upheld in respect of applications 109M/55 and 110M/55 and applications 99M/55, 100M/55 and 102M/55 of the Electrolytic Zinc Company of Australasia Ltd. were awarded priority. Lots were drawn to determine priority of applications 107M/55 and 108M/55 as against applications 103M/55, 104M/55, 105M/ 55 and 106M/55 lodged by the Company. The Company was successful and their applications were granted priority. Costs were awarded against the applicant.

EXHIBITIONS.

The Department followed the usual practice of staging an exhibit at the Royal Hobart Show and a display of uranium minerals and geiger counter equipment was featured.

STAFF.

The following were the staff movements during the year:—

Officer	Position	Remarks
Mayne, S. J.	Geologist	Resigned
Robertson, G. S.	Inspector of Mines and Explosives	Resigned
Allen, Miss B.	Junior Typist	Resigned
Burrell, T. N.	Field Assistant	Resigned
Morris, L. W.	Inspector of Mines and Explosives	Appointed
Olds, H. L.	Inspector of Mines and Explosives	Appointed
Burns, K. L.	Geologist	Appointed
Gulline, B.	Geologist	Appointed
Baker, W.	Geologist	Appointed, later resigned
McFadzean, A.	Field Assistant	Appointed
Robinson, R. G.	Geologist	Appointed

MINES DRAFTING SECTION.

Tracings, &c.	39
Number of working plans in use and kept up to date	238
Mineral leases applied for	106
Instructions issued to surveyors	44
Diagrams received from Contract Surveyors	—
Diagrams received from Staff Surveyors	44
Diagrams and consolidated diagrams compiled and drawn	41
Manuscripts brought up to date	8
Manuscripts forwarded to printer	3
Leases drawn	85
Leases transferred	30
Special Prospector's Licences—Areas described and charted	25
Permits to enter charted	42
Photostats forwarded to Northern office	76
Lithographs entered up to date	253
Underground mining plans examined and checked	7

GEOLOGICAL AND ENGINEERING DRAFTING SECTION.

This section has been responsible for the preparation of geological maps for inclusion in field reports, base maps for regional geological work, maps for Departmental publications including requirements for colour separation in printing, and engineering drawing for drilling and other Departmental requirements.

APPRECIATION OF SERVICES.

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

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

J. G. SYMONS, Director of Mines.

APPENDIX I.

THE GEOLOGICAL SURVEY OF TASMANIA.

H. G. W. KEID, M.Sc., Chief Geologist.

The work of the Geological Survey was continued from the three centres of Hobart, Lorinna and Port Davey, the Zeehan Regional Establishment having been closed since the resignation, on 16th October, 1955, of the newly appointed Regional Geologist Mr. I. S. Gregory, B.Sc.

During the year the Department has published one map sheet, Great Lake Sheet No. 53, of the Geological atlas one mile series, and Mineral Resources No. 9, "Asbestos in Tasmania". The manuscript and plans of Mineral Resources No. 10. "The Limestones of Tasmania" have been prepared for publication and are now in the hands of the printers.

The following reports have been written by the officers concerned and have been prepared for publication with relevant plans:

By the Senior Geologist, T. D. Hughes, B.Sc.
- Radio Active Material in Vicinity of Great Republic Mine, Gipps Creek.
- Radio Active Material in the Heemskirk District.
- Chwalczyk's Uranium Prospect, Storey's Creek.
- Uranium Deposit at Castle Carey Creek.
- Notes on Alluvial Chromite Deposits near Montagu Swamp.
- Nickel near Beaconsfield.
- Landslip near Cemetery Hill, Penguin.

By Geologist R. G. Robinson, B.Ap.Sc.
- Correlation of Granite at Aberfoyle Tin N.L.

By Geologist K. Burns, B.Sc.
- The Distribution of Coal at Mt. Lloyd.
- Landslides in the Paloona District.
- Reservoir sites on Kelcies Tier.

Typed reports and memoranda (unpublished) were prepared as follows:—

By the Chief Geologist, H. G. W. Keid, M.Sc.
- Underground Water, Mr. Cuthbertson, "Lowlands" Cambridge.
- Underground Water, Mr. Morrisby, Howrah.
- Underground Water, Mr. P. W. Newman, Mrs. Smith, Bagdad.
- Nurses Home, New Norfolk.
- Visit to Smithton.
- Underground Water, H. Banks, Penna.
- Dam Site, Mr. Parson's "Bloomfield" Gretna.
- Report on Open-Cut Coal at Jubilee Mine.
- Artesian Water, Harrison's Orchard.
- John Dunhams Quartzite, Ulverstone.
- Leases, Cape Barren Island.
- Wolfram Creek, Lutwyche.
- Assistance Stanhope Colliery.

By the Senior Geologist, T. D. Hughes, B.Sc.
- Underground Water at Bruny Island.
- Notes on Harrington, Kenworthy and Party's prospecting of Greisen Lode, Mt. Bischoff.
- Helicopter Flight to Port Davey.
- Underground Water at Church of England Youth Camp, Snug.
- Hamilton (Langloh) Coal Mine.
- Water Supply for Tootal-Broadhurst-Lee Co. Ltd., Devonport.
- Jackson Alleged Copper Show, Swan Island.
- Tribute Areas at Waratah.
- Site for Glenorchy Council Reservoir.
- Logging of No. 1 D.D. Bore Cornwall Coal Mine.

By Geologist F. Blake A.M.(Aus.) I.M.M.
- Limestone at Little Denison River Huon District for inclusion in Mineral Resources No. 10.
- Boring for Underground Water on Property of K. Chancellor, Sandford.
- Ground Water Possibilities on R. C. Wright's property, Orielton.
- Supposed Iron Deposit in Catamaran District.

By Geologist R. G. Robinson, B.Ap.Sc.
- Examination of Road Metal Quarries, Proctors Road, Kingston.

By Geologist B. Gulline, B.Sc.
- Underground Water Investigations at "Clevefarm", Howrah.

By Petrologist and Mineralogist, G. Everard, B.Sc.
- Bore-Hole Samples, New Bridge, Huonville.
- Nickeliferous Serpentine, Beaconsfield.
- Black Slaty Rock, Aberfoyle.
- Description of Rocks from Port Davey.

Aerial Inspections.

To enable an estimate to be made of the suitability of a Helicopter in Geological Survey work a trial flight was made in June by the Director of Mines who, accompanied by the Senior Geologist and one geologist made a flight from Hobart to Port Davey and return. Its suitability for the type of work contemplated was demonstrated.

The search for Uranium in Tasmania has been intensified, the most interesting development being the establishment of the occurrence of pitchblende in Chwalczyk's prospect at Storey's Creek, which is now known as Tasmanian United Uranium Company N.L.

Staff.

Staff changes have taken place during the year when Mr. Bruce Gulline, B.Sc., was promoted to Geologist after serving for a period as field assistant, and by the appointment of Mr. R. G. Robinson, B.Ap.Sc. as geologist. Geologist Mr. S. J. Mayne, B.A., M.Sc., tendered his resignation from Lorinna in July.

At the end of the year the staff of the Geological Survey comprised:—

Chief Geologist, H. G. W. Keid, M.Sc., M. (Aus.) I.M.M.

Hobart Centre:
- Senior Geologist, T. D. Hughes, B.Sc.
- Geologists, F. Blake, A.M. (Aust.) I.M.M., R. G. Robinson, B.Ap.Sc., B. Gulline, B.Sc.
- Petrologist & Mineralogist, G. Everard, B.Sc.
- Drilling Superintendent, K. L. Evans.
- Mapping and Engineering Draftsman-in-Charge, K. T. Kendall.
- Mapping and Engineering Draftsman, R. E. J. Cannell.

Lorinna Centre:
- Regional Geologist, I. B. Jennings, B.Sc.
- Geologist, K. Burns, B.Sc.
- Senior Field Assistants, N. G. Haig, A. V. Jackson.

Port Davey Centre:
- Regional Geologist, M. Z. Stefanski, M.Sc., who was assisted in the field by temporary field assistants.

Reports from the various officers dealing with their individual activities are appended.

Hobart Centre.

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

The greater part of the year was spent in office on administrative duties but field work was carried out relative to:

Underground water supplies at Bagdad, Penna and Hamilton. Visits were made to Smithton, St. Marys and Hamilton relative to boring in progress and to George Town and Strahan to inaugurate boring programmes.

Demonstrations of drilling were attended to estimate the merits of methods used.

The Regional establishments of Lorinna and Port Davey were visited to evaluate progress made there.

An inventory of the Department's assets in the Launceston store was made.

Senior Geologist T. D. HUGHES, B.Sc., reports:—

Interest continued in the search for uranium minerals and various prospects were visited. Notes were written relative to a trip, in July, in company with the Director of Mines, on a visit to the uranium occurrences of the Northern Territory and Queensland, and reports were prepared on local occurrences at Gipps Creek, Heemskirk, Storey's Creek and Castle Carey Creek.

Advice was tendered at both Langloh and Stanhope collieries relative to boring and visits were made to the Mt. Lloyd coal field.

Reports were prepared on alluvial deposits of chromite at Montagu Swamp and a nickel-bearing serpentine near Beaconsfield.

Liaison has continued with officers of the Commonwealth Bureau of Mineral Resources particularly in connection with the iron-bearing areas of the west and north-west of the State.

Minor investigations covered underground water, track cutting, tribute holdings, bridge and road sites, and gravel deposits for the public, municipal councils and the Public Works Departments.

The latter part of the year was spent in the preparation of the publication " Limestone in Tasmania " Mineral Resources No. 10.

Geologist F. BLAKE, A.M. (Aus.) I.M.M., reports:—

The greater part of the year was occupied in the mapping of the area covered by Snow Hill National Map Sheet in preparation for publication.

In preparation for the geophysical survey of the iron-ore deposits an area extending from near Burnie to the south of Hampshire was geologically mapped to define the relation between the Tertiary basalts and the Devonian and pre-Devonian sediments.

Visits were also made to the Rio Tinto iron area in connection with track access and to Geeveston in relation to a reported iron deposit near Catamaran.

The possibilities of obtaining underground water supplies at Sandy Bay, Sandford, Orielton, Smithton, and Montague were investigated.

Examinations of limestone areas in the Avoca-St. Marys and the Denison River, Huon districts were made and reports submitted for inclusion in the forthcoming publication " Limestone in Tasmania ".

Minor investigations carried out related to:

Brickmaking materials at Berriedale, Collinsvale and Glenorchy.

Uranium-bearing carbonaceous shales at Castle Carey Creek.

Oil shales at Karoola.

Water supplies for tin mines near Branxholm.

Geologist R. G. ROBINSON, B.Ap.Sc., reports:—

Duty with the Department of Mines was commenced on 16th July.

The chief investigation was the correlation of the source granite of the tin-wolfram mineralisation at the Aberfoyle Mine, Rossarden, as a guide for future geophysical prospecting there.

Other activities included quarry inspection, water supplies and logging of diamond drill cores.

Geologist A. B. GULLINE, B.Sc., reports:—

My service with the Department commenced on 12th January, 1956, and until 7th June, when I was promoted to Geologist, I acted as field assistant at Port Davey and in the Avoca district.

The greater part of the last half-year has been spent on field work in the Smithton district in preparation of data and samples for the publication " The Underground Water Resources of the Smithton District ", but some time was occupied on the iron-ore deposits near Burnie.

Petrologist and Mineralogist G. EVERARD, B.Sc., reports:—

During the year 1956, petrologic and minerographic examinations were made for members of the general public, and for public bodies and Government Departments.

Some 90 specimens and samples of concentrates were examined for members of the public.

For the Public Works Department samples from percussion drilling in the Huon river were examined and advice tendered relative to the nature of the river bed.

Rock specimens were examined for departmental officers. These included radioactive material from the Rossarden and Avoca districts, diamond drill cores from O'Briens mine at Dan Rivulet; and Aberfoyle Mine at Rossarden, diamond drill cores and concentrates from the copper-nickel occurrence at Zeehan, and suites of rocks from both the Lorinna and Port Davey Regional Geologists.

Mapping and Engineering Draftsman-in-Charge, K. T. KENDALL, reports:—

During the year 1956, both coloured and black and white maps were prepared and printed. The principal map produced was the Great Lake Sheet No. 53, the first of a series on a scale of one inch to a mile prepared for the Geological Atlas.

Three coloured and eight black and white geological maps were prepared and printed for inclusion in the Mineral Resources No. 9 publication " Asbestos in Tasmania ".

Thirteen black and white geological maps and diagrams were prepared for printing as line blocks for the Appendix of Geological Reports accompanying the Director of Mines Annual Report for 1955.

Preparation of four colour and 39 black and white geological maps for the Mineral Resources No. 10 publication " Limestone in Tasmania " began in the year.

The balance of time was used in preparing geological and engineering plans related to normal field services and the Mines Department exhibit at the Royal Show.

Lorinna Centre.

Regional Geologist I. B. JENNINGS, B.Sc., reports:—

Staff.—Mr. S. J. Mayne resigned from the Department and took up a new appointment on 7.7.1956.

Mr. K. Burns, assistant geologist, continued part-time duties at Lorinna throughout the year.

Messrs. N. G. Haig and A. V. Jackson were retained as senior field assistants.

A great deal of progress has been made with mapping the Sheffield and Middleton quadrangle. Both of these sheets are now nearing completion. As well as routine mapping in these areas it has been necessary to carry out research into a number of basic geological problems. The main investigations of this nature which have been completed are:—

(1) The nature and genesis of the Cambrian porphyries and lavaes.
(2) The detailed stratigraphy of the Permian system.
(3) The stratigraphic relationship of the various coal and oil shale beds.
(4) The emplacement of various granite masses.
(5) The passage beds between the Permian and Triassic systems.

During the early part of the year the entire staff of the Lorinna establishment concentrated on a detailed mapping programme in the Mole Creek district. All the limestone deposits in this area were mapped and a sampling programme carried out. A report and map of the area were prepared as portion of the State-wide survey of limestone resources. In addition to this, reports were also prepared on the limestone deposits at Railton, Lorinna and Moina. Some further mapping and sampling was also carried out in these areas.

Mr. Burns concentrated on mapping in the Sprent-Preston areas and has brought this section almost to completion. Mr. Mayne continued mapping the Sheffield quadrangle in the vicinity of Latrobe and the writer was engaged in mapping the area south and west from Railton. A start has also been made on determining the regional structure and stratigraphy of the Precambrian rocks in the south of the Middlesex quadrangle.

A number of small mines and mineral occurrences in the area were examined and advice and mineral determinations made for interested parties.

Port Davey Centre.

Regional Geologist, M. Z. STEFANSKI, M.Sc., reports:—

During 1956 further detailed mapping has been carried out over an area east of Cox Bight up to the Red Point, and then further north through Buoy Creek, Ray River, East Bathurst Harbour Range up to Bathurst Harbour to the Old River.

The stratigraphy and structure of the Davey group of rocks is well in hand.

In addition a number of tin prospects have been examined. A wolfram deposit has been found and partly examined at Buoy Creek. A preliminary report has been prepared.

APPENDIX II.

REPORT OF CHIEF CHEMIST AND METALLURGIST.

The Chief Chemist and Metallurgist MR. W. ST. C. MANSON, M. (Aust.) I.M.M., reports:—

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

Number of determinations made during 1956:—

Ore Types.	Number.
Aluminium	110
Antimony	260
Arsenic	22
Bismuth	52
Calcium	107
Cadmium	34
Carbon in steel	116
Chromium	110
Coal Analysis	52
Copper	437
Gold	64
Iron	223
Lead	98
Magnesium	98
Manganese	112
Moisture	60
Molybdenum	36
Nickel	212
Phosphorus	94
Potassium	50
Qualitative Tests	500
Radio-activity Tests	24
Sizings	34
Silicon	130
Silver	70
Sodium	53
Sulphur	75
Tin	351
Titanium	107
Tungstic Oxide	106
Uranium	16
Water	33
Zinc	42
Zircon	5
Miscellaneous	154
TOTAL	4,047

ORE DRESSING INVESTIGATIONS.

Ore dressing investigations completed during the year were as follows:—

Copper-Nickel	2
Chromite-Rutile-Tin	5
Tin-Tungsten-Bismuth	8
Uranium	1
TOTAL	16

Montana Silver-Lead N.L., Zeehan.

R 290.

A small sample of diamond drill cores from the "CuNi" area (Bore M.6) at five mile near Zeehan was received for a flotation test to determine probable recovery of copper and nickel minerals. The sample contained 1·12 per cent of copper and 0·62 per cent of nickel present as chalcopyrite and millerite. Sulphur content was 2·1 per cent. Ninety-one per cent of the copper and 81 per cent of the nickel were recovered in a concentrate assaying 8 per cent of copper and 4 per cent of nickel. The sample of core was too small to determine the highest obtainable grade of concentrate.

R 291.

A bulk sample of dense sulphide ore, weighing 570 lb. was submitted for concentration by flotation. The sample was from a surface dump from the "CuNi" area, and showed evidence of weathering. The sample contained 3·7 per cent of copper and 5·6 per cent of nickel present mainly as chalcopyrite and pentlandite. Pyrrhotite was the predominant associated sulphide mineral.

Examinations of polished specimens by chromographic printing particularly to show the association of nickel using dimethylgloxime as the specific reagent and rochelle salt to depress the action of iron gave evidence of intimate association of all minerals, and also of a nickel content in pyrrhotite due to solid solution of the pentlandite in the pyrrhotite.

Bulk flotation of the sulphides resulted in over 97 per cent recovery of the copper and nickel minerals in a concentrate containing 7·3 per cent of nickel, 5 per cent of copper and 20·5 per cent of iron. Main reagents being copper sulphate, amylxanthate and cresylic acid.

Selective flotation from pyrrhotite using lime and cyanide to depress the pyrrhotite gave a slight increase in grade with drop in recoveries. Copper plus nickel increased from 12 to 15 per cent. Fifty per cent of the copper was recovered in a concentrate containing 9·3 per cent of copper. Twenty per cent of the nickel reported in this concentrate with an assay value of 5·9 per cent. Nickel was progressively floated in low grade concentrates with a total recovery of 87 per cent. The rougher tailing contained 2·1 per cent of nickel and 0·8 per cent of copper. Selective flotation resulted in a reduction of concentrate from 75-65 per cent by weight with approximate drop in recoveries of nickel and copper of 10 and 5 per cent respectively.

Chromite, &c., Montagu Swamp (A. A. Walker).

R 292, R 293, R 294, & R 295.

Four investigations were undertaken with samples from Montagu Swamp in the Smithton District. The alluvial material consists mainly of water worn quartz. Minerals of economic interest are chromite with minor quantities of rutile, cassiterite, and gold.

R 292.

Sizing Analysis.

Fraction (B.S.)	Per Cent	Fraction (B.S.)	Per Cent
+ 6	21·3	+ 52	3·3
+10	20·2	+ 60	1·2
+14	11·8	+ 85	1·7
+16	6·5	+100	0·4
+22	10·6	+200	1·1
+30	7·6	—200	7·2
+44	7·1		

No minerals of economic interest were detected in the coarse material. Concentration was made of the minus 6 mesh fraction by jigging followed by table concentration of the minus 30 mesh fraction of the jig tailings. Jig concentrate amounted to 2·57 per cent, and the table concentrate 0·29 per cent.

The chromite could be separated from cassiterite and rutile by electro-magnetic means and amounted to 2·83 per cent with the following analysis:—

Cr_2O_3	55·3
Al_2O_3	12·8
Fe	16·3
MgO	10·3

The non-magnetic concentrate amounted to 0·03 per cent and was assayed as follows:—

Tin	7·5 per cent
Rutile	40·8 per cent
Gold	5 dwts. per ton of non-magnetic concentrate.

The chromite is fairly fine 43·7 per cent being plus 44 mesh and 87 per cent plus 85 mesh.

R 293, R 294 & R 295.

These investigations were extensions of R 292 and showed variations in proportions of economic minerals. The quality of the chromite was reasonably constant.

R 297.

A two ton sample was obtained for concentration on a Humphreys spiral concentrator to test the efficiency of this concentrator for the chromite, &c., and to obtain further samples for a check on quality and sizings.

The concentrator is a five-turn standard unit, 2 feet in diameter, 6 feet 4 inches high and with a 13½ inch pitch. Two screens were used to remove barren oversize, and the minus "Ton-Cap" No. 302 product amounting to half a ton per hour was fed to the spiral. Water used amounted to 1100 gallons per hour as follows:—

To sprays on Hunner screen 330 gallons, to spiral 636 gallons, and to spiral wash water 144 gallons. The rougher concentrate amounted to 7·3 per cent and represented a ratio of concentration of 13·7 to 1. It contained 24·34 per cent heavy minerals equivalent to 1·777 per

cent of clean concentrate. The spiral tailings were sized and reconcentrated by jigging and tabling which resulted in a further heavy mineral yield of only 0·013 per cent indicating that the spiral had recovered 99·26 per cent of that obtainable by sizing, jigging, and tabling.

The quality and sizing of the chromite was similar to that shown in R 293. The quantities of cassiterite and rutile recovered amounted to 0·05 lb. and 0·15 lb. per cubic yard respectively.

Storey's Creek Tin Mining Co. N.L.

Following a mill survey (R 289) last year a design flowsheet was prepared on the data obtained in this survey. The company desired to utilize a sloping site for their new mill, and a site was selected above the existing mill site. Plans and sections were prepared for the company for this site for a throughput of five tons per hour. The mill design is similar to current practice, and in addition provision has been for modern dewatering, sizing and concentration of the finest ore on tables and vanners.

R 296.

A sample of trial vanner concentrate was submitted to sizing analysis. The concentrate is the finest concentrate produced from retreatment of jig middlings by rod mill grinding and classification, followed by table and vanner concentration. The concentrate contained 45 per cent of tungstic oxide. Sizing showed recovery of fine sizes as shown in the following tabulation.

Sizing by Hydraulic Elutriator.

Fraction	Rising Velocity m.m./Sec.	Nominal Grain Size, Microns for Wolfram	Per Cent Weight	Per Cent WO_3	Per Cent Dist.
+200 mesh		+76	2·6	60·0	3·4
E.F. 1	6·17	—76+40	1·4	61·0	1·9
E.F. 2	3·05	—40+28	20·6	55·9	25·4
E.F. 3	1·54	—28+20	34·7	44·4	34·0
E.F. 4	0·61	—20+13	33·6	40·4	29·9
E.F. 5	0·19	—13+10	1·4	44·6	1·4
E.F. 6	overflow	—10	5·7	32·3	4·0

Eighty-nine per cent of the wolfram reported in fractions 2 to 4 the sizings of which are equivalent to hypothetical screen sizes from 400 to 1300 mesh.

Tasmanian United Uranium Co.

R 298.

Ore from Chwalczyk prospect at Rossarden was submitted for examination and tests to determine recoveries obtainable by gravity concentration. The sample contained 3·4 per cent of U_3O_8. The uranium mineral has been identified as pitchblende.

Mineragraphic examination shows that " the mineral is amorphous and individual grains are generally very small, many being of the order of one micron. The pitchblende is closely associated with sericitic and clay minerals. These latter are disposed in masses of minute flakes in which regular masses and particles of the pitchblende are embedded ". A previous high grade sample laboratory Reg. No. 191, February, 1956, was analysed as follows: U_3O_8 13·6 per cent, P_2O_5 0·2 per cent, K_2O 0·23 per cent, S 0·82 per cent, Pb 1·36 per cent, Fe 1·59 per cent, Zn 0·19 per cent and acid insoluble 69·7 per cent.

The following were not detected Cu, Bi, Sb, V, Co and rare earths. Preliminary examinations show the ore to be too finely disseminated for effective gravity concentration.

The object of the concentration was to attempt maximum recovery with moderate increase in grade.

The ore was crushed to minus 10 mesh B.S. by jaw crusher and rolls. The plus 30 mesh B.S. fraction was concentrated in a Denver test jig, and the minus 30 mesh fraction was classified and concentrated by tabling. The total concentrate amounted to 21·8 per cent by weight and contained 6·19 per cent of U_3O_8, and represented a recovery of 39·5 per cent. Another test, on similar lines, but in addition the jig tailings were ground to minus 30 mesh and concentrated by tabling resulted in a recovery of 57 per cent with an assay value of 5·46 per cent U_3O_8. Total concentrate amounted to 35·7 per cent by weight.

Moina Tungsten Tin Mining Co. N.L.

R 299.

A magnetic mill residue, containing wolfram and cassiterite, was submitted for investigation of improved separation and cause of tin reporting as a magnetic product. The sample contained 7·7 per cent and 41·2 per cent of tungstic oxide. Sizing was minus 30 mesh and practically nothing finer than a 200 mesh screen. 46·8 per cent of the sample was highly magnetic with assay values of 15·9 and 13·4 per cent of tin and tungstic oxide respectively. This product represented 97 per cent of the contained tin in the sample, and 15 per cent of the tungstic oxide. Magnetic separations were made at three sizings with tin contents varying from 12 per cent in the minus 150 mesh fraction to 20·7 per cent in the plus 60 mesh fraction. This highly magnetic property persisted after acid treatment to remove magnetic coatings, and mineragraphic examination showed inclusions of magnetite. Associated quartz and felspar contained similar inclusions.

85 per cent of the tungstic oxide was recovered as a feebly magnetic product containing 65·8 per cent of tungstic oxide, and 0·4 per cent of tin indicating that retreatment by electro-magnetic separation could improve separation.

R 300.

A sample of minus 30 mesh (B.S.) mill table wolfram concentrates after magnetic separation was submitted to determine prospects of improved separation by sizing and retreatment on an electro-magnetic separator. Ten sizings were treated and each showed a similar tin-wolfram distribution. The sample was totally magnetic, and no improvement to mill treatment was experienced.

R 301 to R 304.

Mill products and an ore sample were examined to investigate means of reducing excessive losses of cassiterite in mill rejects obtained by flotation of sulphides. Mill treatment of the non-magnetic product containing cassiterite, sulphides, &c., consisted of grinding in a ball mill to about minus 80 mesh size, sulphides rejected by flotation and the flotation sink product is the final tin concentrate. Current and amended flotation reagents showed that between 80 and 90 per cent of the cassiterite floated with the sulphides. A sample of ore was obtained and subjected to concentration similar to mill treatment. The non-magnetic concentrate was ground to minus 60 mesh and sulphides rejected by flotation. Only 3·5 per cent of the tin in the non-magnetics was lost by flotation as compared with over 80 per cent in the mill product. This low loss could indicate an extreme variation in the nature of the ore, but as examinations of the cassiterite in the sulphides did not indicate a cause for floating, it was suspected that lubricants used in mining or milling could be a major cause. Overgrinding in the mill circuit is responsible for some loss of tin by flotation.

R 305.

Stored floated sulphides were tested to develop flotation procedure for the recovery of the contained bismuthinite as a saleable bismuth concentrate. The sample contained 14·3 per cent of bismuth, 33 per cent of iron, 5·3 per cent of tin, 1 per cent of zinc, 0·4 per cent of copper, and 38·2 per cent of sulphur.

Production of a bismuth concentrate was attempted by two procedures.

A. Flotation of the bismuthinite whilst depressing the pyrite and cassiterite with lime and cyanide and flotation with small additions of amyl xanthate and cresylic acid at a pH of 9·5 to 10.

B. Depression of the bismuthinite and flotation of the pyrite. Depression of the bismuthinite with sodium silicate or potassium bichromate, or permanganate with sulphuric acid. Method A gave a higher bismuth content with lower recovery and better rejection of the cassiterite, but may be a more reliable means of producing a bismuth concentrate with variable and lower grade material. Recoveries of bismuth generally amounted to about 70 per cent with method A, and 90 per cent with method B.

Typical analysis of bismuth products are shown below.

	Method A	Method B
	%	%
Bismuth	46·5	37·7
Tin	7·3	14·3
Iron	9·6	14·0
Copper	0·5	0·4
Zinc	0·6	0·5

APPENDIX III.

REPORT OF THE CHIEF INSPECTOR OF MINES.

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

THE MINES AND WORKS REGULATION ACT, 1915.

Employment.

The average number of persons employed in mining, metallurgical and quarrying operations was 7692, an increase of 597 as compared with the previous year. Of this increase 266 persons represent the employees of a works brought under inspection, and the balance a general increase on mines.

Accidents.

The total number of accidents registered under Section 23 of the Act was 130, compared with 100 last year, and these are dissected in the appended tables. There was a slight increase in collieries, but the main source was underground in metalliferous mines, and in works. The increased number was not offset by the greater number of employees, and the rate per thousand rose by 3 to 17.

The incidence of fatalities remained steady at four, one in a quarry and three on works. One, where a man attempted to mount a moving motor-lorry and fell under the wheels, and another, where a man climbed onto a fibro-cement roof and broke through, were particularly unfortunate in that the actions were apparently committed without rhyme or reason. In the other two cases a man fell off the gantry of a dredge and another man was struck by a crane out of control.

One of the 40 underground accidents was caused by an explosion and is dealt with under the Explosives Act. Accidents in works numbered 48 and above ground 32.

Inspection.

Two appointments were made during the year, one to the vacancy at Queenstown and the other to fill a vacancy caused at Hobart by a resignation. The Assistant Chief Inspector commenced duty at the beginning of the year.

Inspections were made to promote the safety and hygiene of employees, to advise where requested on practice, and to assemble statistical and general knowledge of the industry. Reports from the inspectors are appended.

INCIDENCE OF ACCIDENTS.

Place and Cause of Accident.	Number of Persons Killed.	Number of Persons Injured (incapacitated for over 14 days).
Section A.—Metalliferous Mines—		
1. Below Ground:		
(*a*) Explosions	....	2
(*b*) Falls of Ground	....	4
(*c*) Falling down Shafts, &c.	....	....
(*d*) Other Causes	....	33
2. Above Ground:		
(*a*) Machinery in Motion	....	6
(*b*) Other Causes	1	19
3. Accidents in Batteries, Ore-dressing, Smelting and other Metallurgical Works, &c.	3	45
Total Metalliferous Mines (A)	4	109
Section B—Coal Mines—		
4. Below Ground:		
(*a*) Mine Explosions (fire, damp, &c.)	....	....
(*b*) Explosives (dynamite, &c.)	....	....
(*c*) Falls of Earth	....	4
(*d*) Other Causes	....	7
5. Above Ground:		
(*a*) Machinery in Motion	....	2
(*b*) Other Causes	....	4
Total Coal Mines (B)	....	17
Total All Mines (A and B)	4	126

TABLE SHOWING RATE PER THOUSAND KILLED AND INJURED, 1956.

Mining Division	Average Number of Men Employed	Number of Accidents	Number of Persons Killed	Number of Persons Injured	Average per 1,000 Killed and Injured	Killed and Injured	Killed	Injured
Northern and Southern	3,476	25	1	24	25	7·192	·288	6·904
North-Eastern	190	2	1	1	2	10·526	5·263	5·263
Eastern	691	23	....	23	23	33·285	....	33·285
North-Western	1,021	12	1	11	12	11·753	·980	10·773
Western	2,314	68	1	67	68	29·386	·432	28·954
TOTAL	7,692	130	4	126	130	16·901	·520	16·381

COMPARATIVE TABLE OF STATISTICS OF ACCIDENTS IN AND ABOUT THE MINES OF TASMANIA FROM 1st JULY, 1892, TO 31st DECEMBER, 1956.

Period	Number of Miners Employed	Number of Accidents	Number of Persons Killed	Number of Persons Injured	Total Killed and Injured	Average per 1,000 Killed and Injured	Average per 1,000 Killed	Average per 1,000 Injured
1 July, 1892, to 31 Dec., 1930 *								
1 Jan., 1931 to 31 „ 1931	4391	38	8	35	43	9·792	1·821	7·970
„ 1932 „ 1932	4605	71	4	67	71	15·418	0·868	14·549
„ 1933 „ 1933	4510	77	7	71	78	17·295	1·552	15·742
„ 1934 „ 1934	4843	108	4	105	109	22·506	0·826	21·680
„ 1935 „ 1935	5409	142	1	141	142	26·252	0·184	26·067
„ 1936 „ 1936	5432	97	4	96	100	18·409	0·736	17·673
„ 1937 „ 1937	5876	107	5	103	108	18·379	0·850	17·529
„ 1938 „ 1938	5891	103	2	102	104	17·654	0·339	17·315
„ 1939 „ 1939	5928	87	2	87	89	15·013	0·337	14·676
„ 1940 „ 1940	6000	103	2	102	104	17·333	0·333	17·000
„ 1941 „ 1941	5856	85	5	85	90	15·368	0·853	14·515
„ 1942 „ 1942	5572	89	4	86	90	16·152	0·718	15·434
„ 1943 „ 1943	5535	73	6	67	73	13·188	1·084	12·104
„ 1944 „ 1944	5439	73	4	71	75	13·789	0·735	13·054
„ 1945 „ 1945	5178	46	2	44	46	8·883	0·386	8·497
„ 1946 „ 1946	5255	63	1	62	63	11·989	0·19	11·798
„ 1947 „ 1947	5316	74	....	74	74	13·920	....	13·920
„ 1948 „ 1948	5399	67	3	64	67	12·409	0·555	11·854
„ 1949 „ 1949	5659	65	1	64	65	11·484	0·176	11·308
„ 1950 „ 1950	5892	62	2	62	64	10·862	0·339	10·524
„ 1951 „ 1951	5928	49	2	50	52	8·772	0·337	8·335
„ 1952 „ 1952	6820	62	1	61	62	9·091	0·147	8·944
„ 1953 „ 1953	7370	73	6	67	73	9·892	0·801	9·091
„ 1954 „ 1954	7289	75	3	72	75	10·289	0·411	9·877
„ 1955 „ 1955	7095	98	4	96	100	14·094	0·563	13·531
„ 1956 „ 1956	7692	130	4	126	130	16·901	0·520	16·381

* See Report of Director of Mines—1954.

APPENDIX IV.

REPORT OF THE CHIEF INSPECTOR OF EXPLOSIVES.

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

Explosives Act, 1916.

The following quantities of explosives were imported during the year through the ports shown:—

Explosive	Hobart	L'ceston	Burnie	Strahan	Currie	Total
Ajax (lb.)	....	169,000	....	....	....	169,000
Gelignite (lb.)	529,200	353,600	306,700	244,850	85,350	1,519,700
Hydrogel (lb.)	500	....	....	....	....	500
Ligdyn (lb.)	10,550	....	....	....	....	10,550
Plastergel (lb.)	....	23,300	....	....	7,750	31,050
Quarigel (lb.)	18,700	....	....	1,058,400	312,350	1,389,450
Quarry Monobel (lb.)	9,650	10,000	2,500	....	....	22,150
Semigel (lb.)	....	2,000	....	76,850	....	78,850
Blasting Powder (lb.)	7,500	....	1,500	....	....	9,000
Cordtex (ft.)	66,000	90,000	....	390,000	225,000	771,000
Detonators	....	750,000	....	....	50,000	800,000
Detonators Electric	362,600	618,000	....	....	....	980,600
Detonating Relays	....	1,000	....	....	....	1,000

All nitro compounds were of Polar manufacture. All explosives shipments were inspected on landing, and while the contents were always in good condition, several instances occurred where the cases were badly damaged. One shipment reached Hobart with many cases split or crushed and with loose lids and protruding nails on practically every case.

Fireworks.

Considerable quantities of fireworks of Australian, British, Chinese and Japanese manufacture were imported into the State. Most of the fireworks belonged to the Shop Goods type (Div. 3, Class VII) but small quantities of Display fireworks (Div. 2, Class VII) were also imported.

The public is not always aware that all fireworks must be approved by the Chief Inspector before being imported into the State, and on several occasions the Department became aware of fireworks having been imported only through advertisements in the press about firework displays or about fireworks for sale. Firms generally handling fireworks, and shipping agents, were advised of the conditions pertaining to the import of fireworks.

Accidents.

There were three accidents in connection with the use of explosives.

Two men were severely injured underground while drilling a rise face which had previously been fired leaving butts 2 feet 6 inches deep. One of these butts had been deepened to about 5 feet. Pieces of a 5 foot drill steel were found at the bottom of the rise, and it was evident that an explosion had occurred midway along the length of steel. The explosion was caused by the drill striking explosive remaining in the butt.

Another accident resulted in a man having his left leg broken and the other severely lacerated while engaged in exploding charges under a wharf for the purpose of destroying teredo worms. Charges of gelignite (one 8 oz. plug in each charge) were lowered through holes in the wharf decking on a wire and sinker and then exploded electrically. Owing to a misunderstood signal one charge was fired whilst about a foot above the wharf decking close to the injured man's legs.

The shot-firer at a quarry was struck by flying stones while walking away from two holes he had just lit. The man contended that the fuse used was faulty, but subsequent tests of the rest of the coil of fuse showed a normal burning rate, and it seems apparent that the man had used fuses of insufficient length.

Inflammable Liquids Act, 1929.

There was, towards the end of the year, a marked decline in the number of applications for permission to install petrol pumps and construct drum compounds, but this was compensated by the very lively activity in this field earlier in the year, and several hundred applications for new installations and for alterations and additions to existing stations were dealt with. The type of service station now generally being built, with its modern design and airy and spacious layout, contributes greatly to the safe retailing of petrol. The number of licensed premises at 30th June, 1956, was 1736.

The practice of storing illuminating kerosene in 44-gallon drums at service stations is spreading and inspections were carried out and oil companies and service station proprietors informed of the conditions under which such storage is permitted.

Tank vessels inspected during the year while unloading at Hobart, Bell Bay and Devonport numbered 34.

Two new wharf lines, one 10 inch and one 8 inch, were taken into use at Devonport, and the pumping rate for a vessel with reasonably good pumps has now been increased from 80 tons per hour to over 200 tons per hour.

The handling and storage of inflammable liquids in bulk depots was kept under surveillance, and inspections were carried out to ensure that the installations conformed with the requirements of the Act and Regulations.

There were no accidents in connection with the conveyance and storage of inflammable liquids.

APPENDIX V.

REPORTS OF THE INSPECTORS OF MINES AND EXPLOSIVES.

Inspector L. W. Morris, A.W.A.S.M., M. Aust. I.M.M., Queenstown, reports:—

During the year the Queenstown-Zeehan Inspectorate was enlarged to include the Rosebery Area.

Employment.

The average number of persons employed in the industry was 2288. Of this number 364 were employed in underground mining.

Safety.

Conditions for safety and health of employees, as required by regulations, were well maintained. An additional exit from the Rosebery Mine was completed during the year.

Health and Sanitation.

First Aid provision on all Mines was satisfactory. On the larger Mines employees are encouraged to learn and practice First Aid, and a high degree of efficiency has been attained. Ventilation in underground working is satisfactory, but the lower levels of one mine can be improved by additional ventilation rises to levels above. This work is being done. Dust control and sanitary conditions are generally good.

Accidents.

Accidents involving 14 or more days' loss of employment numbered 67. Of these accidents 34 occurred on the surface and 33 underground. The one fatal accident occurred when a man fell through the fibro cement roof of the Mt. Lyell Mining and Railway Company's Smelting Works. No reason for his being on the roof could be found.

Inflammable Liquids Act.

Routine inspections have been made of storage premises and installations. Three new storage compounds at Zeehan have been completed, or are in course of erection. These installations were considered necessary to bring local storage up to regulation standard.

Aid to Mining.

Applications for assistance under the Aid to Mining Act were investigated and reports submitted.

Operations and Productions.

Copper.

Mount Lyell Mining and Railway Co. Ltd., Queenstown.

During the year 1,600,411 tons of ore were mined in the West Lyell open cut and 2,555,246 tons of waste removed. No underground ore was produced but 62 tons of copper precipitates were recovered from North Lyell and Comstock mine waters.

The mill operated for 350 days treating 1,600,411 tons of ore for an output of 34,230 tons of copper concentrate and 56,293 tons of pyrite concentrate.

The smelter operated for 225 days and treated 33,698 tons of copper concentrate to produce 7627 tons of blister copper.

The refinery was operated continuously in producing 7571 tons of electrolytic copper valued at £S2,577,340·47, 4390 oz. of gold valued at £S54,567·406 and 29,343 oz. of silver valued at £S9669·9. The gold and silver are recovered from the residue sludge which is shipped to Port Kembla for treatment.

Pyrite shipped from current production and accumulated stock was 58,469 tons valued at £A175,407. In addition 4249 tons of limestone valued at £A6472 and 5843 tons of silica valued at £A3096 were mined for use as fluxes in the smelter.

The average number of persons employed was 1512 of whom 48 were underground.

Major development work carried out included the advance to 2443 feet of the 11 ft. x 10 ft. haulage and drainage tunnel to below the West Lyell open-cut. The loading station of 19 ft. x 10 ft. section in the tunnel was partly excavated. A 5000 tons circular reinforced concrete fine ore bin was constructed and foundations laid for a new primary ball mill. Excavation work is in progress for the installation of a new primary jaw crusher in the open-cut.

A heliport and servicing installation were completed to facilitate the prospecting work of the joint venture undertaken by the Company and the Electrolytic Zinc Company.

Copper-Nickel.

Montana Silver-Lead N.L. Zeehan.

Up to the close of the year 10 diamond drill holes had been drilled, five on the Cuni North, three on the Deveraux and two on the Nickel Reward prospects. Results have been sufficiently promising for the Company to install a timber headframe, 65 H.P. engine, winder, pump and buildings at the Cuni North shaft. However the track into the area became impassable and work had to be suspended. Diamond drilling was continued on the areas which could be reached from the old tramlines.

Lead-Zinc.

Electrolytic Zinc Company of Australasia Ltd., Rosebery.

This company operated the Rosebery and Hercules Mines from which 179,440 and 23,232 tons of ore were mined respectively, a total of 202,672 tons. In treating the ore the mill produced 59,239 tons of zinc concentrate, 10,041 tons of lead concentrate and 6315 tons of copper concentrate. The metallic contents were as follows:—

		Valued at £S
Zinc	28,138·34 tons	2,738,025·427
Lead	9,076·49 tons	1,050,159·530
Copper	545·16 tons	189,028·623
Silver	1,105,109·65 oz.	363,880·196
Gold	11,919·44 oz.	148,237·760
Cadmium	53·32 tons	71,662·080

The average number of persons employed was 644, of whom 264 were underground.

Rosebery Mine.

The hoist chamber on No. 8 level was completed and installation of the winding machinery taken to an advanced stage. The main shaft was deepened 110 feet.

Ventilation was progressively improved during the year on the No. 12 level by further ventilating rises nearer development extremities, and another exit from the mine was completed.

The hanging wall, generally throughout the mine, is not stable and it is, therefore, necessary to fill. Many stopes are lying idle waiting for some means of getting filling material to them. Arrangements are being made in the open-cut near the opening to No. 4 level to supply hydraulic fill to underground workings. Should this means of filling be successful it should soon become possible to increase tonnage to the mill, as at present the mill can handle more than the mines can supply.

Future prospects of the mine were enhanced by diamond drill intersections of at least two ore bodies east of the main ore channel on the No. 12 level horizon.

Development consisted of 3096 feet of driving and cross-cutting and 1963 feet of rising, principally on Nos. 10 to 12 levels.

Hercules Mine.

This mine, on which 46 of the employees are engaged, continues to produce 2000 tons of high grade ore per month, under good conditions. Drives and cross-cuts were advanced 645 feet and rises 428 feet on Nos. 4-6B levels, and diamond drilling consisted of 2020 feet of surface and 3050 feet of underground holes.

Silver-Lead.

Zeehan Mines Pty. Ltd., Zeehan.

During the first nine months of the year the Oceana Mine operated profitably and carried out a considerable amount of development. Early in October, while driving north on 420 foot level, a flow of water was encountered which flooded the mine to the 300 foot level. The water rose at a rate which indicated the new inflow to be 140,000 gallons per hour. The water was held at the 300 foot level for the remainder of the year, pending installation of a new Pomona Pump, capable of pumping 60,000 gallons per hour from 400 feet, in a winze from the surface. Limited production was possible from above the 300 foot level while pumping was in progress.

During the year 15,442 tons of ore were treated to produce 2355·88 tons of concentrate containing 1731·75 tons of lead valued at £S200,740·81 and 71,334·27 oz. of silver valued at £S23,433·47.

In development the main shaft was sunk 18 feet to a total of 504 feet, and driving, cross-cutting and winzing carried out on both eastern and western ore bodies. Total footage driven was 272 feet.

Average employment figures were 33 men on the surface and 33 underground.

Montana Silver Lead N.L., Zeehan.

At the Montana Mine this company carried out salvage operations. No development was attempted and manpower was solely directed to mining known ore and cleaning out old stopes. Production for the year was 407·56 tons of concentrate containing 198·219 tons of lead valued at £S22,866·86 and 18,717 oz. of silver valued at £S6136·06. An average of 12 was employed.

W. J. Hodge, Dundas.

This operator obtained concentrates containing 5·249 tons of lead valued at £S604·222 and 261 oz. of silver valued at £S86·67 from dumps on the Maistries Lease.

A. S. Clarke, Zeehan.

Picking 3·9 tons of ore from the dumps on the Crown Lease this miner realized £S452·888 for lead and £S49·99 for silver.

Tin.

Renison Associated Tin Mines N.L., Renison Bell.

This company had a satisfactory year mining and treating 10,207 tons of ore to produce 127·485 tons of concentrate, containing 84·643 tons of tin valued at £S66,889·702.

Development off the main winze continued well, indicating a considerable tonnage of ore, but sufficient has not yet been done to define the body and establish reserves. Remnants of ore have been worked around the open-cuts but this source is almost exhausted. Work on the new ore bins at South Montana was spasmodic and is far from complete. Rio Tinto Explorations have held an option over the leases and have been active in prospecting on them. An average of 31 men was employed.

W. J. Hodge and J. C. Smith, Dundas.

This party mined and treated oxidised ore on the Razor Back Mine for a production of concentrates containing 1·679 tons of tin valued at £S1359·134.

E. W. Coleman, West Agnew.

This miner produced 0·0478 tons of concentrate containing 0·025 tons of tin valued at £S18·421 from the Wakefield Lease. There is no defined ore body and the easily accessible ore of higher value appears to be exhausted.

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

The boundaries of the region were altered during the year, the southern being retracted to north of Rosebery and the eastern extended to the River Mersey.

EMPLOYMENT.

Of the average of 1063 men employed, 441 were engaged in the production of tin, tungsten, and silver-lead and the remainder in metallurgical and non-metallic works.

ACCIDENTS.

Accidents registered under the Mines and Works Regulation Act numbered eight, and no fatalities occurred. In metallurgical works six minor accidents happened, but the remaining two, in open-cut mining, were more serious. In each case a dump truck was overturned, severely injuring the driver.

Efforts have been constantly made to prevent accidents and on the larger mines safety committees representing all sections of the employees have contributed greatly to this cause.

VENTILATION.

Underground temperatures were good, averaging 62°F wet and 68° dry bulb, and adequate circulation of air was maintained, on occasion by mechanical means.

Investigation of conditions in an ore-dressing plant was made by taking dust counts with a konimeter and showed that dust collecting appliances were needed. Steps were taken to rectify the conditions.

HEALTH AND SANITATION.

There were no applications for compensation under the Workers' (Occupational Diseases) Relief Fund Act during the year, and arrangements were made for medical examinations as required. One large works petitioned the Board for exemption from the Act on the basis of examinations to be made of every employee. These are in progress.

EXPLOSIVES.

Supervision of the landing, carriage and storage of explosives was continued. The Harbourmaster, Currie, exercised control over landings at that port.

INFLAMMABLE LIQUIDS.

Routine inspection of storage premises and installations were made to ensure compliance with the Inflammable Liquids Act. In one instance, after warnings, it was found necessary to institute proceedings for illegal storage, and the prosecution succeeded.

AID TO MINING.

No applications for monetary assistance were received, but advice on methods and prospects was freely sought, and samples were taken for assay.

OPERATIONS AND PRODUCTION.

Scheelite.

King Island Scheelite (1947) Ltd., Grassy.

This company employed an average of 330 men in the mining and milling of 265,606 tons of ore. Production of 1488 tons of scheelite valued at £S1,228,639·486 was at the same level as last year, and overburden removal was advanced by 1,660,800 tons.

Considerable development work was carried out, including 1685 feet of diamond drilling and construction of a fuel oil tank at the port of Naracoopa, a 60 million gallons reservoir and a 15 tons explosives magazine. Additional equipment consisted of a "quarry-master" drill, two 2½ yard shovels and four 15 tons dump trucks. Ore reserves are calculated to bottom at 110 feet below sea level.

Prospecting included a boring campaign on beach sands near the Fraser River.

Silver-Lead.

Mt. Farrell Mining Company Ltd., Tullah.

A further decline in output occurred for the year, but mainly in the first quarter. Operations during the remainder of the year were more satisfactory and the outlook is encouraging. The treatment of 3605 tons of ore produced 676 tons of concentrates containing 43,691 fine oz. of silver valued at £S14,418·6 and 406 tons of lead valued at £S46,842·593. The average number of employees was 44, of whom 20 were underground.

A south-pitching ore-shoot was opened up for stoping on No. 9 level. The north drive on the same level was in ore for a distance of 45 feet with good values in the face.

Tin.

Tin production suffered severely from the cessation of operations by Moina Tungsten Tin N.L. and the Harrington-Kenworthy Tribute Party. The latter cessation was partially offset by members grouping into small tribute parties.

Moina Tungsten-Tin N.L., Moina.

This company produced 31·525 tons of concentrates containing 20·056 tons of tin valued at £S15,819·286, and employed an average of 40 men.

The company having erected a mill on the old Shepherd and Murphy Mine, came into production in 1955 and ceased active mining at the end of this year. Cleaning-up operations continue. The closure was brought about by a combination of factors, both economic, such as a falling market, and physical, including excessive overbreak on narrow lodes and failings in ore dressing.

Harrington-Kenworthy Party, Waratah.

This party employed an average of 10 men on a tribute at the Mt. Bischoff Mine. Production was 10·851 tons of concentrate containing 7·316 tons of tin valued at £S5652·089. Having failed to discover further ore in the greisen workings and found the Pig Flat ore to be too low grade, the party disbanded.

Colgan and Party, Waratah.

This two-man party was formed to work on tribute in the Pig Flat area of Mt. Bischoff and 50 feet beyond the previous working face came upon high grade ore. Production was 4·991 tons of concentrate containing 3·430 tons of tin valued at £S2664·05.

V. Campton, Waratah.

In North Valley this miner retreated Mt. Bischoff mill tailings to obtain 1·147 tons of concentrates containing 0·785 tons of tin valued at £S625·892.

J. Housego, Waratah.

This miner extended his fluming to reach a deposit 100 yards further down Waratah Creek. His production was concentrates 1·225 tons, tin 0·779 tons, value £S602·073.

Brooke and Party, Waratah.

Retreating tailings at West Bischoff this two-man party recovered 0·607 tons of concentrates containing 0·408 tons of tin valued at £S342·493.

Miscellaneous, Waratah.

Dissolution of the large Harrington-Kenworthy Party resulted in a greater number (10) of small or lone operators taking up tribute areas. Their combined production was 7·465 tons of concentrates containing 4·707 tons of tin valued at £S3730·756.

A. Crane, Mt. Housetop.

Prospecting was successful in locating a tin-bearing lode on this lease, but more work remains to be done before an assessment of its value can be made. Treatment of a small quantity of gravel produced 0·091 tons of concentrates containing 0·047 tons of tin valued at £S36·427.

Wolfram.

Moina Tunsten-Tin N.L., Moina.

This company reviewed under tin, produced 8·996 tons of wolfram valued at £S8204·934.

Limestone.

Melrose Agricultural Lime Quarries, Euganana.

Failing demand reduced limestone production from these quarries from 13,785 tons in 1955 to 10,260 tons. An average of 21 men was employed. Of that total production 3688 tons valued at £A9217 were crushed fine for agricultural use. A diesel-driven compressor was installed during the year, together with jack-legs and tungsten carbide bits for the rock drills, resulting in much improved practice.

Railton Lime Works, Railton.

Production consisting of ground and burnt lime for agriculture, was 3189 tons and employment was provided for three men.

Cement.

Goliath Portland Cement Co. Ltd., Railton.

In the manufacture of 115,398 tons of cement this company quarried 127,307 tons of limestone and 5051 tons of iron ore. The manufacture of asbestos cement sheeting and shapes was continued using imported chrysotile asbestos. An average of 285 men was employed.

A large new kiln equipped with calcinator, coal firing plant and dust collectors was installed during the year, bringing total kiln capacity to 190,000 tons per year. However the output is limited to 150,000 tons by milling capacity and this will not be increased until the demand for cement increases. The effective increase is 25 per cent.

Dolomite.

Duck River Dolomite Co. Ltd., Smithton.

This company which produces ground dolomite for agriculture, was closed down for the greater part of the year, during which period a railway siding was constructed to facilitate loading. Production was 788 tons valued at £2320 and three men were employed.

Titanium Dioxide.

Titan Products Pty. Ltd., Heybridge.

This company treated 12,283 tons of imported ilmenite during the year to produce 6168 tons of titanium dioxide valued at £1,518,217. The average number of employees was 266.

In development a new substation and a coal-fired boiler were installed and plant capacity was increased to 10,000 tons per year. Other work included extensions to amenities and process buildings.

Miscellaneous Non-Metallics.

A. Pearson, Ulverstone.

This organization employed an average of six men and was responsible for the mining of a variety of products as described hereunder.

Red Ochre to the value of £140·5 was mined from the Spalford pit. The quantity was 20·5 tons.

Quartz for moulding flux was produced at Mawbanna, the output being 11·8 tons valued at £103·25.

Beach Pebbles productions again increased, to 538·25 tons valued at £4279·5. These are collected from beaches near Ulverstone for use as a grinding medium.

Limonite from Iron Cliffs at Penguin amounted to 651·5 tons valued at £1395·75. This was used in the manufacture of coal gas.

Lime Sands occurring at Pulbeena were mined for agriculture mainly, but one quarter was used in the metallurgical industry. Production was 5503 tons valued at £6873·75.

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

EMPLOYMENT.

Owing to the re-organization of the Inspection Divisions of the State, the Launceston Division was reduced by eliminating activities West of the Mersey River, and as a result of this employment figures cannot be compared with previous years. The average number of men employed in mining and allied industries, other than coal mining, was 1054. Apart from skilled miners there was no difficulty in satisfying all labour requirements.

ACCIDENTS.

Thirteen mining accidents were registered, each involving more than 14 days loss of employment. Of these, three occurred underground and 10 on the surface, of which two were fatal.

In the underground accidents a man broke the bones in his hand when he slipped carrying a rock drill up a rill of dirt, another had a stone roll on his ankle whilst shovelling, and the third had his leg lacerated by a scat which flew off a stone whilst spalling.

The two fatal accidents were simply caused. At a limestone quarry, a man attempted to board a moving motor truck and fell under the wheels, and in the second case a man fell 25 feet from the gantry of a dredge. Of the other accidents, one was caused with machinery in that a man had his arm caught by a conveyor belt. The others were of a miscellaneous nature, the most serious being a broken bone of a thumb hit with the back of an axe.

SAFETY.

The numerous details connected with surface and underground mining practice were continuously checked during the regular inspection visits to the mines in order to maintain the high standard of safety prevailing.

HEALTH AND SANITATION.

During the regular inspections attention was given to ensure that working conditions were such as to not have a detrimental effect on the health of the employees, and that a high standard of cleanliness was maintained around the mines, particularly in change-houses, cribrooms, latrines, &c.

The ventilation of the underground mines was satisfactory, and no alterations were made or required.

Assistance was again rendered to the Workers' (Occupational Diseases) Relief Fund Board in various ways, particularly in arranging the medical examinations of employees.

EXPLOSIVES.

Personal supervision was given to the importation of explosives at Launceston, and in no case were the explosives found defective. Some of the cases were slightly damaged, but not to an extent to affect the contents.

Samples of imported fireworks were obtained for testing, and licensed magazines were inspected.

MACHINERY.

There were no major installations of new machinery and existing plants were maintained in satisfactory condition.

Inspections were made to ensure the safe operation of machinery, and guards were installed over moving machine parts where required.

INFLAMMABLE LIQUIDS.

Compliance with the Inflammable Liquids Act was maintained, but owing to the expansion of the use of petroleum fuel, comprehensive inspection of all phases covered by the Act was not possible.

Supervision was carried out of the unloading of all bulk importations of inflammable liquid at Bell Bay, and much time was given to the supervision of the various kerbside pump installations. No untoward incidents came under notice during the year.

AID TO MINING.

As far as was possible assistance was given to promote the mining industry in the State by encouragement to prospectors, and by advice to operators on means to improve the efficiency of their operations. Where applications were made for assistance under the Aid to Mining Act, reports were compiled in connection with the relative merits of the application.

OPERATIONS AND PRODUCTION.

Tin.

The price fluctuated during the year slightly, but at the end of the year was the same as at the beginning, slightly above £800 sterling per ton of metallic tin. The production 810·592 tons metallic tin was an improvement on previous figures, the larger mines being responsible for the increase.

Weldborough Tin Mines, Weldborough.

The main activity of this syndicate is at the W.X.X. Mine, Moorina, but a mine was commenced on the bank of the Weld River, about one mile north of Weldborough township. By the close of the year production had commenced, but there had been no sale of concentrates. Four men were employed at this mine.

Miscellaneous, Weldborough.

An average of four men operated the miscellaneous mines which are well scattered, and their combined production amounted to ·975 tons metallic tin valued at £S747·381.

Miscellaneous, Lottah and Blue Tier.

There was a little activity in this area, one party re-opening the adits of the old Lottah Mine for investigational purposes. No decision was reached as to their future activities. The production was tin concentrates containing ·156 tons of metallic tin valued at £S116·415 and four men were employed.

Goshen Tin Mines, St. Helens.

Owing to the poor value of the ground worked it was necessary to move to new sites both the operating plants in the vicinity of the Golden Fleece Rivulet. This and other causes were the reason for the lower throughput (47,100 cubic yards), and the consequent lower production of tin concentrates. The production contained 5·798 tons of metallic tin and was valued at £S4667·738. Average employment was nine men.

Bell Creek Mine, St. Helens.

Mr. W. Colin Kirwan continued to operate this mine with the assistance of one man, and from sluicing operations he produced concentrates containing 2·471 tons f metallic tin valued at £S1946·453.

Miscellaneous, St. Helens and Scamander.

There was some prospecting activity in the Upper Scamander area, but the production was confined to St. Helens, and the four part-time operators produced concentrates containing 1·246 tons of metallic tin valued at £S978·922.

Aberfoyle Tin N.L., Rossarden.

Production was maintained at a similar level at this mine, 60,042 tons of ore being mined and treated. Tin concentrates containing 559·480 tons of metallic tin valued at £S431,501·405 were produced, and accumulated copper-silver residue was sold overseas. Values of this and wolfram are shown separately. Development work was maintained, particularly on the upped levels, and sufficient ore was proved to maintain the ore reserves. In all 5179 feet of rising, cross-cutting, winzing, and driving was carried out, together with 6630 feet of diamond drilling.

No new plant of magnitude was installed during the year, the present plant being maintained. The average number of men employed was 231.

Storeys Creek Tin Mining Co. N.L., Storeys Creek.

This mine is reviewed under wolfram but tin concentrates containing 12·873 tons of metallic tin valued at £S10,128·16 were produced.

Miscellaneous Gipps Creek and Avoca.

The two miscellaneous producers sold concentrates containing ·450 tons of metallic tin valued at £S365·891.

Miscellaneous Ringarooma and Alberton.

In all ·397 tons of metallic tin valued at £S298·37 was produced in concentrate form by the three men operating the small mines of this area.

Walsh and Co., Branxholm.

Working in the vicinity of Black Creek this syndicate sluiced 16,000 cubic yards of alluvial ground for a recovery of concentrates containing 7·975 tons of metallic tin valued at £S6221·168.

The four men operating encountered an unexpected rock bar across the creek. The plant had to be shifted further down stream which caused a curtailment of the yardage treated.

Ormuz Mine, Branxholm.

In endeavouring to get down to the granite below their alluvial ground Edwards Bros. met many difficulties during the wet season, and although they handled 9700 cubic yards of ground a large proportion of this was overburden. However, ·939 tons of metallic tin as concentrates valued at £S729·37 was produced by the four men employed.

Miscellaneous, Branxholm.

An average of four men found employment at the smaller mines. The greater proportion of the production of concentrates containing 1·479 tons of metallic tin valued at £S1203·985 was from the vicinity of Black Creek.

Briseis Tin N.L., Derby.

The old "A" Face upstream from the Cascade Workings was re-opened, but values were not up to expectations, and although operating at the end of the year, it was not expected that operations would be continued much longer. The small face opened near the old Briseis Consolidated Tin Shed continued to give worthwhile returns for the number of men operating it. From the treatment of a total of 253,724 cubic yards of alluvial ground, concentrates containing 16·155 tons of metallic tin valued at £S12,677·982 were obtained.

An average of 33 men were employed on all works, including those part-time employed on management and maintenance of the Ringarooma-Cascade Water Scheme under arrangement with the Board.

Miscellaneous Derby.

After each flooding in the Ringarooma River small beach deposits are formed in the river bed below Derby township, and an average of 10 men worked these for a recovery of concentrates containing 4·055 tons of metallic tin valued at £S3244·899.

Miscellaneous Herrick and Winnaleah.

At the smaller mines three men were afforded employment, and the total production was 1·00 tons of metallic tin in concentrate form valued at £S781·228.

Banca Mine, Winnaleah.

Mr. R. L. Rainbow, owner, assisted by one man conducting sluicing operations, treated 8600 cubic yards of alluvial ground for a recovery of concentrates containing 1·653 tons of metallic tin valued at £S1314·124. In order to conserve his high level water supply some sluicing water was pumped from the lower level dam by a small diesel-driven centrifugal pumping unit.

W.X.X. Mine, Moorina.

Operated by the Weldborough Tin Mines productive work was carried on continuously for the greater part of the year, and concentrates containing 4·179 tons of metallic tin valued at £S3288·525 were obtained by the usual sluicing methods. Employment averaged seven men.

Miscellaneous, Moorina.

The production of the smaller mines, which gave employment to four men, came largely from the river flats of the Weld River. From their sluicing activities they obtained concentrates containing 1·217 tons of metallic tin valued at £S973·623.

Miscellaneous, Pioneer and South Mount Cameron.

The majority of the production was from the vicinity of the Wynifred River, and flooding during the winter months affected production. Although the number (7) of men employed at the smaller mines was the same the production (concentrates containing 5·865 tons of metallic tin valued at £S4684·757) was only half that of the previous year.

Dorset Dredge, South Mount Cameron.

Apart from 10 days when repairs were being carried out to the ladder, which failed due to fatigue in the steel frame, the dredge operated continuously. It handled 1,638,500 cubic yards of ground in the Dorset Flats, and recovered concentrates containing 82·773 tons of metallic tin valued at £S65,211·023, together with the alluvial gold shown separately.

Total employment was 51 men, including those operating the prospecting drill. Considerable work was also done in obtaining data in connection with the shifting of the dredge to a new site down-stream, about a mile from the Dorset Flats, which will be necessary when gravel reserves have been exhausted on these flats.

Endurance Tin Mining Co. Ltd., South Mount Cameron.

Operating on the north-eastern end of the Clifton workings, production was uninterrupted during the year, and 369,300 cubic yards of ground was sluiced and elevated to sluice boxes for treatment. A recovery of concentrates containing 75·792 tons of metallic tin valued at £S59,400·708 was made. Owing to the difficulty in finding room for the tailings a 10-inch gravel pump was installed at the tail end of the sluice boxes to elevate the majority of the sluiced ground approximately 15 feet and thus considerably increase the capacity of the tailings area. The Bureau of Mineral Resources completed a programme of geophysical prospecting on an area to the west of the Clifton workings, and preparations are in hand for a boring programme to test the results obtained. The mine employed an average of 48 men.

Mount Cameron Water Race, Gladstone.

This Race, an important adjunct to mining in the Gladstone Area, continued to function well, but as all the water was sold on a contract basis, the production is shown under the mines concerned.

Star Hill Syndicate, Gladstone.

This syndicate obtained water from the Mount Cameron Water Race which it pumps to the site of its operations, and then again pumps it to give the necessary nozzle pressure. Operating without interruption during the year they treated 104,000 cubic yards of alluvial ground by sluicing for a recovery of concentrates containing 17·321 tons of metallic tin valued at £S13,524·755. The simplicity and ease of operation of the electric pumping units, which draw a considerable amount of power from the Hydro-Electric Commission, contribute in no small measure to the success of this venture.

Miscellaneous Gladstone.

From the small mines and prospecting activities 10 men produced concentrates amounting to 6·300 tons of metallic tin valued at £S4969·426.

Elizabeth Syndicate, Gladstone.

This syndicate equipped an hydraulic mine and commenced operating during the latter part of the year. No clean-up was made.

Strait Islands.

Activity was not great on either Cape Barren or Flinders Island, and two men were engaged in a part-time capacity only. However, two small parcels of concentrates were sold from Flinders Island and they contained ·049 tons of metallic tin valued at £S38·76.

Wolfram.

Wolfram production was a little greater, but was confined to the two major producers and a small output from the Gipps Creek area. Total wolfram concentrate produced was 638·166 tons.

Aberfoyle Tin N.L., Rossarden.

Wolfram production was 398·361 tons of concentrates with a tungstic trioxide content of 263·825 tons valued at £S330,333·950.

Storeys Creek Tin Mining Co. N.L., Storeys Creek.

Of the 15,358 tons of ore mined the majority was obtained from the Nos. 6 and 7 levels. Ore reserves were maintained, and 1512 feet of driving and cross-cutting, and 637 feet of rising and winzing, were carried out in the development programme. Of this, 1437 and 574 feet respectively were in ore on Nos. 6-7A levels. From the treatment of this ore 239·5 tons of wolfram concentrates were obtained, with a tungstic trioxide content of 172·440 tons valued at £S213,432·624, which together with the tin production shown separately was considered very satisfactory.

Work continued with the equipping of the new vertical shaft, and in addition to other facilities the new ore bin was completed. Excavations for the foundations at the new mill site were completed. The construction of five houses was carried out in the employees' housing programme in order to improve conditions for the 81 men employed.

Miscellaneous, Gipps Creek.

Two small parcels of concentrates with a tungstic trioxide content of ·158 tons valued at £S199·295 were produced from this area.

Copper.

The Aberfoyle Mine sold two parcels of accumulated copper-silver residues. The copper content was 182·559 tons of net value £S31,112.

Silver.

The silver content of the Aberfoyle residues was 59,506·139 ounces of net value £S9053.

Gold.

Practically all the gold produced was a by-product obtained from alluvial tin mining operations, and the total production amounted to 223·013 fine ounces.

Dorset Dredge, South Mount Cameron.

The tin concentrates from the dredging operations are run over amalgamation plates for the extraction of alluvial gold, which amounted to 214·675 fine ounces valued at £S2669·425.

Miscellaneous.

Two small amount of gold were sold, one each from Gladstone and Branxholm districts and together they totalled 8·338 fine ounces valued at £S103·677.

Limestone.

The production of 7672 tons of limestone was the result of the activities of the two quarries gazetted under the Mines and Works Regulation Act in the division.

Beaconsfield Lime Products, Flowery Gully.

In producing ground limestone and burnt lime the three men employed quarried and treated 1233 tons of limestone.

A. R. Beams, Flowery Gully.

The contract to supply limestone to the Australian Aluminium Production Commission at Bell Bay having been obtained, production was increased, and an average of five men were employed.

Some limestone was also quarried for burning to manufacture builders lime.

The year's production was 6439 tons of limestone.

Clay.

At the Endurance Mine white kaolin was mined, and 1562 tons were despatched to the Australian Pulp and Paper Mills, Burnie, for use in the manufacture of glazed white paper.

Clay of a similar nature was also mined at St. Helens by Kirwan Bros. for the same purpose. Production from St. Helens was 970 tons, and gave employment to five men.

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

EMPLOYMENT.

The average number of persons directly employed in Mines and Works operating under the Mines and Works Regulation Act was 510.

ACCIDENTS.

Seventeen accidents resulting in non-fatal injuries to a like number of persons were recorded under the provision of the Act. Eleven accidents occurred underground and six occurred at the surface. Of the 11 underground accidents, three miners received injuries as a result of falls of coal, and one miner was injured due to a fall of stone at the face. All the accidents were of a minor character.

SAFETY.

Attention has again been directed to the safe working of the undertakings. Regular inspections have been made of working places, and all coal mines were regularly tested for the presence of gas by means of the safety lamp, no gas being found. Generally roof conditions were safe, but there were instances when it was thought necessary to order additional supports or the removal of bad roof. The second means of egress at one mine has deteriorated to such an extent that it is extremely difficult to traverse, and instructions were issued for this defect to be remedied if the mine is to continue working.

Pillar extraction continued at one small coal mine and difficult conditions were experienced, but no accidents occurred.

Electrical apparatus which is in use at every coal mine was kept under observation and there were no electrical accidents reported during the year.

VENTILATION.

All coal mines are ventilated by means of fans and regular tests have been carried out by means of anemometer to ascertain that adequate quantities are constantly produced to ventilate the underground working places, and also the old areas remaining open. The effective distribution of air has been constantly checked and hygrometer readings have been regularly recorded in each working place. These temperatures have been well below the prescribed limits, and in no case did the wet bulb reading exceed 68 degrees Fahrenheit with a corresponding dry bulb temperature of 69 degrees. Difficulty was experienced in some cases in conducting the air into the working places by means of brattice as the brattice cloth soon deteriorates and allows leakages. The maintenance of this conducting medium demands constant attention in order to prevent leakages.

HEALTH AND SANITATION.

Sanitary accommodation was generally found to be adequate but in some cases deficiencies were observed and additional facilities were deemed necessary, and these were provided as suggested. Better change-room accommodation was also provided in one case following an investigation of complaints regarding the existing facilities.

EXPLOSIVES.

Storage facilities for explosives were generally found to comply with the requirements but in some cases adjustments were ordered to be carried out.

Some misfired shots were reported and an investigation failed to isolate the cause, but after the investigation was carried out no further misfires were recorded. Most mines now employ the electrical method of shot-firing using hand-operated exploders and fire up to five shots in a series. It has been found that the results are more satisfactory than the fuse-firing method and it is much safer.

INFLAMMABLE LIQUIDS.

Installations have been inspected and any irregularities have been rectified without recourse to legal action, but one incident involving illegal storage was reported and legal action is pending.

MACHINERY.

Machinery was regularly examined and found in safe condition. The only accident in connection with machinery occurred when the machine was stationary. The electrician was attending to the faulty machine and he placed his hand on the belt, this caused the belt to move forward and his thumb passed between the belt and the pulley causing it to be badly crushed.

OPERATIONS AND PRODUCTION.

The output of coal was 298,713 tons valued at £594,090 at the mine bins. An average of 351 persons was employed at the mines, made up of 244 underground and 107 surface workers.

The output was only 508 tons less than last year and the production from underground activities per person employed increased to 812 tons based upon quarterly averages, compared with a production of 794 tons per employee for the previous year. The output per underground employee increased to 1153 tons compared with 1054 tons for the previous year.

The production of carbide increased to 279 tons with a slight increase in the number of employees. There was also an increase in the production of granite and tin from Coles Bay.

FINGAL-MOUNT NICHOLAS-DALMAYNE COALFIELD.

Total production from this coalfield increased to 245,741 tons valued at £482,122. The production was 3179 tons greater than the previous year. All the mines at St. Marys showed a reduced output while the three mines at Fingal recorded an increase in production, so that the overall result was a slight increase of 1·3 per cent.

CORNWALL COLLIERY.

The Cornwall Colliery employed an average of 125 men and produced 92,937 tons valued at £176,881 at the mine bins. The production was 9214 tons less than the previous year. Owing to a shortage in underground working places the mine continued to operate on two shifts. The working of this additional shift caused an average increase of 10 surface workers and a reduction of 12 underground. This reduction in productive miners and increase in the non-productive surface hands resulted in an overall reduction in output. The mine resumed the single shift operation towards the end of the year dispensing with the services of the surplus surface employees.

The large downthrow fault met in the Main Heading was negotiated by dip headings, and when the seam returned to normal the Continuous Miner was transferred into the section. It is expected that the Continuous Miner should be able to operate successfully and speedily develop the area beyond the fault so that working places will be available for miners as the existing sections become worked out.

Difficulty has been experienced in maintaining the wheeling roads in the right hand section due to excessive floor heave, and these places will soon have to be abandoned on that account. This feature of excessive floor heave has been common in areas to the right of the main tunnel while sections to the left are comparatively unaffected.

A new section is being developed to the east of the old workings which were affected by the fire, and two tunnels have been started about one mile to the east of the old tunnel. It is proposed to work this section by means of coal-cutting and loading machines similar to those in use at the Duncan Colliery at Fingal, and the machines have been ordered by the company.

Mt. Nicholas Colliery.

Production from this colliery was 37,262 tons valued at £70,797 at the mine bins and an average of 56 persons was employed, compared with 40,750 tons valued at £77,426 and 57 persons for the previous year. The output was nearly 3500 tons less than the previous year for the same number of employees.

Operations continued on the same pattern. Efforts were made to exclude the many dirt bands from the 6 foot section by working underneath the top section, which was considered to be the worst offender. The attempt was not generally successful and the production of a dirty product from this section in particular caused some concern. The grunching method of working such a dirty seam causes the coal and stone to become mixed together. The only effective way of separating the two would be by washing plant.

Jubilee Colliery.

The output from this colliery was 23,281 tons valued at £52,383 and an average of 37 persons was employed at the mine. The corresponding figures for the previous year were 24,642 tons valued at £55,446 and 44 persons.

The output was 1361 tons less than the previous year but the average number of persons employed was reduced by seven so that the yearly production per employee increased by 19 per cent. Operations continued in the

section to the right of the Main Haulage Road where the seam conditions became quite good. Water difficulties caused some concern when an abnormally high rainfall in the area caused an excessive inflow of water into the mine. The conditions improved upon the return to dry weather conditions.

The return airway has become in very bad shape and efforts are to be made to reopen the road, which should result in improved ventilation. The main ventilating fan blades became in such a bad state that the fan was removed and replaced by a propellor type of fan. The fan may be inadequate to produce a sufficient quantity of air as the workings advance.

The company which was formed to operate the section to the west of the mine by open-cut methods, suspended operations without success. This failure points to the necessity of obtaining adequate information before undertaking such a project, as the only indications appeared to be a shallow outcrop and apparently no preliminary work was carried out to prove the area. The Jubilee Company intended to put in a tunnel to test the seam in this area but nothing has yet been done, other than the erection of some bins.

Duncan Colliery.

This colliery produced 58,442 tons valued at £111,041 at the mine bins and employed an average of 47 persons, compared with 42,285 tons valued at £80,341 and 46 persons for the previous year. The increase of 16,157 tons was the highest for the State and represented 38 per cent, for the same number of employees. The large increase was due to machine mining, which was introduced during the latter part of last year. Conditions remained the same as the previous year and no new developments were undertaken. Places to the right are reaching the boundary while those to the left are approaching the dolerite boundary so that it has become necessary to negotiate the fault which was struck in the main heading in order to accommodate the miners and maintain production.

Fingal Colliery.

This colliery continued to operate in solid places on the same lines as previously and produced 21,936 tons valued at £46,066 and employed an average of 17 persons. The production was only 108 tons more than last year but the production per employee was the highest for any mine in the State and was 1272 tons based upon quarterly averages. The output per underground employee was also the largest and was 1828 tons per man underground.

No new developments were carried out at this mine during the year and the mine was comparatively free from faulting. The faults which were encountered were small and did not seriously interfere with normal operations.

Tasmanian Colliery.

This mine produced 11,883 tons valued at £24,954 and employed an average of 13 persons. The production was 1000 tons greater than last year for an average of two more employees. A large fault was encountered and it was decided not to negotiate this fault as the dolerite intrusion is thought to be not very far in front. The production was obtained from working places to the left and right of the main heading, and when these working places have worked out the coal to the faulted area, operations will be suspended.

Avoca Coalfield.

Stanhope Colliery.

This colliery which is working on the extraction of pillars close to the entrance produced 5290 tons valued at £13,240 and employed an average of 10 men. The output was 1736 tons less than the previous year when 15 persons were employed. Boring was carried out in an area about one mile from the present workings and proved a seam of coal. A drive was started to open up this new area which will be developed as a new mine before the present workings cease production.

Merrywood Colliery.

This colliery produced 40,027 tons valued at £71,089 and employed an average of 23 persons. Total production was only 338 tons less than last year when 22 persons were employed. Open-cut operations accounted for an increase of 2903 tons while underground production dropped by 3241 tons.

Operations continued as previously, both underground and on the surface. Overburden removal was kept well in advance of the working face so that it is possible to increase production from this source at any time should the necessity arise.

Installation of the Coal Washing Plant which was commenced during the latter part of last year has continued during the year. The installation is not expected to be completed for some months but it should be capable of being put into service during the first half of 1957. The plant itself has been bought from overseas firms but the installation has been carried out under the supervision of a local contractor. The plant was originally quoted to cost £25,000 but it is expected that by erecting the buildings and installing the plant themselves the cost should not exceed £20,000. This plant will be watched with interest both by producers and consumers, for it is felt that the local product could be greatly improved by adopting some form of washing.

Upper Derwent Coalfield.

Langloh Colliery.

Production from this colliery again declined, to 5241 tons valued at £20,330. An average of 17 men were employed.

Difficult roof conditions caused the abandonment of one section and a new road was put into an area between old workings. There were many hold-ups before the working places became stable and this section can only be regarded as a temporary development. An investigation was carried out by a Departmental Geologist and a site chosen to open up the seam from another position, but so far no attempt has been made to drive the new tunnels.

Sandfly Coalfield.

Sandfly Colliery.

Production from this colliery increased to 1827 tons valued at £4604, and an average of four men was employed.

Production was obtained from solid places working on the same lines as previously, there being no major upsets due to faulting. Water caused some difficulties as the abnormal rainfall at one period penetrated into the workings and caused minor flooding.

Mersey Coalfield.

Illamatha Colliery.

The production from this small mine in which two men were engaged declined to 587 tons valued at £2705. The seam remained at two feet and there were many faults which caused extreme difficulty in such a thickness. The coal is of good quality and is used at the factory of Wanders Limited at Quoiba.

CARBIDE.

The Australian Commonwealth Carbide Company.

This company produced 8406 tons of calcium carbide valued at £457,250 and employed an average of 157 persons. The number of employees increased by 13 and the output of carbide was 279 tons greater than the previous year. In addition, the Carbon Black factory continued production for about nine months of the year. Additional electric power was made available in July when the new electric furnace which was completed in 1953 was given a try-out.

Breakages of the large electrodes caused many delays and a great deal of investigation had to be carried out before a satisfactory mixture could be found. It was late in the year before the operation could be regarded as satisfactory. It is expected that the operation of this furnace will result in a greater production of calcium carbide.

GRANITE.

The production of red granite from the quarry at Coles Bay increased to 59·5 tons valued at £1041 and two men were employed in production. The previous year's figures were 41 tons valued at £690 and the same number of men.

TIN.

Coles Bay.

The production of metallic tin from surface operations at Coles Bay increased to 0·696 tons valued at £714, two men being engaged in production.

Inspector H. L. Olds, A.S.T.C., A.M. (Aust.) I.M.M., Hobart, reports:—

EMPLOYMENT.

The average number of persons employed in mines, works, and quarries operating under the Mines and Works Regulation Act was 2795.

ACCIDENTS.

Twenty-three accidents were registered, each involving more than 14 working days. In addition, one fatality occurred at Risdon on the construction of a new flash roaster, the jib of a large crane falling on to a workman.

Two other accidents were investigated in places not supervised by the Department. One man was seriously injured by a premature explosion in the face of a local quarry, and another was killed in the Wayatinah "A" Tunnel; a rule requiring registration of shot-firers is to be inserted in the regulations and will assist materially in obviating the former.

ZINC.

The Electrolytic Zinc Company.

The company processed 201,608 tons of calcine at the Risdon works and produced 104,993 tons of zinc valued at £11,316,390; 226·2 tons of cadmium valued at £359,543; and 19·19 tons of cobalt oxide valued at £21,495.

The average number of employees increased to 2671 compared with 2441 for the previous year.

In July, the new fertilizer plant commenced operations with a capacity of 55,000 tons per annum of ammonium sulphate. The nitrogen, hydrogen and ammonia feeder sections were tested and operated shortly beforehand. Construction of a fourth flash roaster should be completed very early in 1957; this will permit progressive transfer of roasting from the mainland. In conjunction with these expansions, plans are well advanced for the provision of an additional sulphuric acid plant and an increase in electrolytic cells.

OSMIRIDIUM.

Miscellaneous, Adamsfield.

The production of osmiridium from Adamsfield increased to 25·36 oz. valued at £2085, three alluvial workings operating throughout the year. Production has been curtailed because of abnormally low rainfall upon which the area is dependent. Two small syndicates were employed on old underground workings about 1½ miles east of the town site, but due mainly to obsolete machinery continually breaking down, the output of metal has been considerably lower than anticipated.

KAOLIN.

Non-Metallic Minerals Pty. Ltd., Surges Bay.

Production of kaolin from these open-cut operations was 3735 tons valued at £28,975, and an average of seven men was employed. The output was forwarded for use in the paper industry at Burnie.

LIMESTONE.

Australian Commonwealth Carbide Co., Ida Bay.

This quarry produced approximately the same amount of limestone as in the previous year, 18,335 tons valued at £36,715 being shipped to the carbide works. An average of 28 men was employed in production and transport to the loading wharf.

Australian Newsprint Mills Ltd., Junee.

The output from this quarry declined to 2285 tons valued at £3275, and an average of three men was employed.

G. Debnam, Maria Island.

Operations were temporarily discontinued early in the year, only 294 tons valued at £859 being produced.

BRICKWORKS AND QUARRIES.

An average of 73 men was employed in two brickworks and five quarries under the Mines and Works Regulation Act in the Hobart area, although four other quarries have been visited to watch for any infringement of the Explosives Act.

TIN.

C. D. King, Cox Bight.

Working a shallow alluvial deposit this operator, employing one man in addition to himself, produced 1·898 tons of tin valued at £1946. An airstrip was partly built by bulldozer.

Miscellaneous, Cox Bight.

Sluicing was carried out on leases held by T. Burrell, D. Dicker and W. Archer in the Melaleuca Lagoon and Cox Bight area, 0·232 tons of tin valued at £234 being produced.

REPORT OF THE MOUNT CAMERON WATER-RACE BOARD FOR THE YEAR ENDED 31st DECEMBER, 1956.

SIR,

WE HAVE the honour to submit the report of the Mount Cameron Water Race Board for the year ended 31st December, 1956.

Production of tin oxide from water supplied was 33 tons as compared with 39·4066 tons for last year.

All water was supplied under the Fixed or Cash Scale.

Revenue amounted to £1531 9s. 10d. as compared with £886 2s. 6d. for the previous year, and expenditure was £3110 7s. 10d. as against £2325 11s. 11d. in 1955.

The operational loss was £1578 18s. as compared with £1439 9s. 5d. for the previous year.

Races, flumes, culverts and dams were maintained in good order but some sections of the race require cleaning. The supports of the syphon over the Mussel Roe River must be renewed and the bye wash at Chum Creek has to be replaced. All these matters are receiving attention.

The Board has been concerned at the continued loss and arrangements have been made to supply water to the Elizabeth Tin Syndicate. An expenditure of £328 was incurred in the construction of dams and races and pipes from No. 6 Syphon and the Amber Creek Syphon were tarred and used to convey water from the dams to the pumping station of the Syndicate. The Syndicate commenced using water during December, 1956, and the Board is hopeful that when full productive operations are established sufficient revenue will be received from the sale of water to meet operational expenditure on the race system.

Expenditure was incurred in painting and other work at the manager's residence and the channel-keepers' cottages.

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

J. G. SYMONS, Chairman.
H. KEITH TURNER, Member.
B. DUNN, Member.

The Hon. the Minister for Mines,
Hobart.

Statement of Receipts and Payments of the Mt. Cameron Water Race Suspense Account for the Year Ended 31st December, 1956.

Receipts.	£	s.	d.
Sale of Water—			
Fixed scale	1,460	5	0
Royalty	4	14	10
Domestic purposes	60	0	0
Hire of pipes	6	10	0
	£1,531	9	10
Balance (excess of payments over receipts)	1,578	18	0
	£3,110	7	10

Payments.	£	s.	d.
Salary and wages	2,371	19	0
Pay-roll tax	59	6	7
Car allowance	37	10	0
Insurance	30	10	10
Tools and general requisites	63	14	3
Repairs and maintenance to Channel-keepers' cottages	159	15	5
Freight and cartage	51	8	9
Advertising	5	10	7
Construction race and dams—Bulldozer	328	0	0
Miscellaneous	2	12	5
	£3,110	7	10

STATISTICS FOR THE YEAR ENDED 31ST DECEMBER, 1956.

Registered Rainfall:

Great Mussel Roe .... 59 inches 36 points.
Little Mussel Roe .. .. 61 inches 91 points.

Water Services:

Average number of claims supplied per week 1
Greatest number of claims supplied in any week 3
Total number of sluiceheads supplied:—
Fixed or cash scale, 1,550.
Royalty scale, nil.

Production and Employment.

Tin-oxide produced:—

	tons.	cwts.	qrs.	lbs.
Fixed scale	32	19	3	21
Royalty scale	....	....	....	....
Total	32	19	3	21

Average number of men employed per week, 7.

REPORT OF THE RINGAROOMA AND CASCADE WATER BOARD FOR THE YEAR ENDED 31st DECEMBER, 1956.

SIR,

WE HAVE the honour to submit the report of the Ringarooma and Cascade Water Board for the year ended 31st December, 1956.

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

Briseis Tin N.L. maintained the Ringarooma Race on a cost plus supervision basis, but small revenue from users of water and righ costs of maintaining the system resulted in a deficit of £6317 13s. for the year.

The Cascade section of the system has been maintained in good order by Briseis Tin N.L. but the Ringarooma section continues to deteriorate and the Board has no available sources from which sufficient revenue can be derived from the sale of water to make more than a token payment towards maintenance costs. The Valley and Black Creek Syphons were discarded but considerable maintenance work was necessary on Lades fluming and the intake on the Ringarooma River in order to enable the race system to continue to function.

Work was commenced in replacing Lades fluming with steel pipes salvaged from the Valley Syphon and this should result in a reduction of overall maintenance costs.

Since the system was purchased from Briseis Consolidated No Liability under the provisions of the Ringarooma and Cascade Water System (Agreement) Act, 1947, there has been an annual operation loss, which totalled £41,622 10s. 3d. up to 30th June, 1956. The Board has exhausted all possible avenues for increasing revenue and as losses must continue to mount consideration is being given to other propoals whereby the water requirements of mining consumers may be satisfied without the necessity of continuing to maintain the Ringarooma section of the system.

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

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

The Hon. the Minister for Mines,
Hobart.

Statement of Receipts and Payments of the Ringarooma and Cascade (Water) Suspense Account for the Year ended 31st December, 1956.

Receipts.

	£	s.	d.
Revenue from sale of water	717	13	3
Rent of Cascade Race and Dams	211	0	0
Charge for pipeline	14	2	0
	£942	15	3
Balance (excess of payments over receipts) Loss, 1956	6,317	13	0
	£7,260	8	3

Payments.

	£	s.	d.
Ringarooma Race—			
Wages—Caretakers	2,099	5	0
Wages—Maintenance	2,254	6	5
Holiday pay	213	17	11
Pay-roll tax	115	18	7
Workers' Compensation Insurance	91	18	4
Stores	908	4	4
Hire of motor truck	423	15	3
Supervision	180	0	0
Hire of horses	21	0	0
Compensation for damages to property and legal expenses	521	0	0
Rent of private land	46	19	0
Interest on capital cost of Ringarooma and Cascade Water System	374	18	2
Miscellaneous	9	5	3
	£7,260	8	3

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