

TASMANIA

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REPORT

OF THE

DIRECTOR OF MINES

FOR

YEAR ENDED 31ST DECEMBER

1957

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

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TASMANIA:

L. G. SHEA, GOVERNMENT PRINTER, HOBART.



Helicopter at Base Camp, Savage River Iron Ore Deposits.

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## REPORT OF THE DIRECTOR OF MINES

Department of Mines,

Hobart, 1st May, 1958.

SIR,

I HAVE the honour to present my report on the mining industry for the year ended 31st December, 1957.

The total value of the mineral output was £A12,588,719 as compared with £A14,364,337 for the previous year. The fall in value has been due to the decline in the market price of copper, lead, zinc, tin, silver and tungsten which has lowered the income of producers.

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

The average number of men employed in the industry was 8,137, as compared with 7,692 for the previous year. The increase has resulted from employment of additional labour at metallurgical works. There was a decrease in employment in coal mining and in the labour force of the producers of tungsten and tin.

### MINES.

Moina Tungsten Tin Mining Co. N.L., operating on a wolfram-tin-bismuth lode series at Moina, were obliged to cease production as a result of falling metal prices. A liquidator was appointed and the assets of the company were sold at auction.

No new metal mines were opened but one coal mine transferred operations to a new area and prospecting operations at another mine are reaching a stage when productive mining will be commenced.

### METAL PRICES.

In the first half of 1957 world production and consumption of all metals increased but production exceeded consumption and prices declined. Since the beginning of 1957 copper prices have decreased by nearly 50%, lead and zinc by about 25% and, but for the International Tin Agreement, tin also would have declined substantially.

Production increased on a world basis as a result of more settled industrial conditions in certain countries. Reduced buying demand for strategic stockpiling purposes and in some cases selling of stocks depressed prices, particularly of lead and zinc and resulted in a generally uncertain

price position which caused consumers to restrict buying. During the latter part of the year steps were taken by producers to restrict production and some producers of low grade ore ceased operations. It is being recognised by producers that the market has been artificially influenced for an excessive period by overseas government stockpiling and steps have been taken, notably in U.S.A. for some action through customs duties and import quotas to stabilise market conditions. Australian producers have approached the Commonwealth Government for assistance and the matter is receiving the consideration of the Tariff Board.

The most significant price decline has been in tungsten and this decline affects wolfram and scheelite producers. The sterling price fell from 190/- per unit at the beginning of the year to 125/8 per unit in December, while at the same time the quoted Australian price fell from 275/- per unit to 120/- per unit.

The price of tin payable to producers remained at a reasonably constant level ranging between 164/2 and 167/6 during the first half of the year, but then declined to between 158/2 and 147/4 per unit for the remainder of the year.

A tabulation of average annual prices of the principal minerals has been included in this report.

### IRON ORE.

Following the airborne magnetometer survey undertaken by the Bureau of Mineral Resources on behalf of this Department which was referred to in my last report, tracks were opened to enable access by field parties to the deposits at Savage River. A ground magnetometer survey was made and sites for diamond drilling were selected. Rio Tinto Australian Exploration Pty. Ltd. are interested in other deposits in the area and by arrangement have undertaken the organisation and drilling of two bore holes at the cost of the Department. Drilling was commenced in October, 1956, and the existence of large magnetite deposits has been disclosed by the first bore. Drilling is in progress in the second hole. The future of the deposit is dependent on the quantity and grade of ore to be determined by boring operations and the suitability of such ore for the purposes of a steel industry. The proposed two bores should provide sufficient data to assess possible worth of the deposit but considerably more drilling will be necessary to establish reserves sufficient for commercial exploitation of the deposit.

The first bore hole completed has indicated that the ore body is of sufficient width and grade for commercial interest.

The known small deposit of magnetite at the Tenth Legion, near Zeehan, was tested by diamond drilling by the Department to investigate the deposit at depth. The first drill hole revealed, apart from minor lenses, a width of ore of 70 feet assaying—42% iron. The second hole was in progress at the end of the year. The deposit could prove of value as an adjunct to the large reserves of magnetite expected to be proved at the Savage River.

The known deposits at Natone, Blythe River, Highclere and Hampshire on the North-West Coast were further examined by geophysical parties from the Bureau of Mineral Resources in association with geological work undertaken by the Department. The deposits at Highclere and Natone have been shown to be worthy of further investigations and it is planned to undertake diamond drilling when a Departmental diamond drill is available.

**EXPLORATION.**

Large areas of the West, North-West, North-East, East and South-Western portions of the State continue to be held as Special Prospectors' Licences, and a comprehensive programme of investigational work using latest airborne and ground techniques has been continued. The work has not yet progressed to a stage when definite discoveries can be reported but the vigorous prosecution of planned programmes of work by Rio Tinto Australian Explorations Pty. Ltd., Mt. Lyell Mining and Railway Co. Ltd., and Electrolytic Zinc Co. of Australasia Ltd., besides activities by small parties and organisations provide a note of optimism for the future of the mining industry of Tasmania.

The search for deposits of beach sands containing rutile and ilmenite has been undertaken by several parties, but beyond a small deposit near Strahan, there have been no reported discoveries of commercial value. A fall in the price of rutile has been a deterrent to a more extensive search.

The Ben Lomond Mining Co. was engaged in prospecting nickel deposits near Beaconsfield and geological work and shallow drilling was carried out by Consolidated Zinc Corporation under option agreement. The option was not exercised and further investigations are being made by the Ben Lomond Co.

**LEGISLATION.**

An amendment made to the Regulations to add to the types of stone in respect of which a Warden of Mines may issue a permit to enter and search on private land was disallowed by the Legislative Council on 27th November, 1957. Several Statutory Rules were proclaimed to make areas subject to the Act which were previously reserved from occupation.

*The Mining Act 1929.*

One amendment was made to the Mining Act, 1929. The maximum period for which a Special Prospector's Licence could be held was twelve months, but as this period was inadequate to enable planned programmes of exploration to be advanced it has been provided that licences may

be extended from time to time but so that the tenure of the licence does not exceed an aggregate of five years.

*Mines and Works Regulation Act, 1915.*

Two major amendments were made to this Act. Previously the Act did not apply to quarries unless made subject to the Act by proclamation. An amendment has now been made to apply the Act to all quarries by definition. In future all operations will be subject to inspection by Inspectors of Mines.

An amendment has also been inserted to require the owner or manager of every mine, dredge or quarry to notify the Department of any proposed drilling operations and to preserve core or samples obtained as a result of such drilling and to make such available for examination by technical officers of the Department who may take specimens for assay and other testing. The object of the amendment is to preserve valuable geological data which otherwise would be lost. All results remain confidential to the Department unless released with authority.

Amendments made to the General Rules for all mines and works provide for the Department to issue permits to those engaged in shot-firing, for the use of internal combustion engines underground subject to the approval of the Chief Inspector of Mines and prescribed a new code of signals for use in shafts where men are raised or lowered.

The provisions relating to shotfirers follow the application of the Act to quarries and are designed as a safety measure for persons working in quarries or in the vicinity thereof.

The use of internal combustion engines underground subject to the approval of the Chief Inspector of Mines is in accord with legislation in other parts of the world. The new Codes of Signals conform to the standard proposed for use throughout Australia.

**OPERATIONS AND PRODUCTION.**

**1.—METALLICS.**

**CADIUM.**

Quantity produced:—

1924-53	813.4557 tons of Value	£A 653,212
1954	49	84,473
1955	46	69,039
1956	53	84,302
1957	50	78,682
Total	1,012	£969,708

This is a by-product obtained by the Electrolytic Zinc Company of Australasia Limited at its Risdon Works from zinc concentrates produced from the Rosebery and Williamsford mines.

**COBALT OXIDE.**

The source of the 0.56 tons of cobalt oxide of value £A623 was the same as that of cadmium above.

## COPPER.

## Quantity and value of production:—

Year	From Tin Ores		From Lead-Zinc Ores		In Blister Copper		In Copper Ores		Total	
	Tons	£A	Tons	£A	Tons	£A	Tons	£A	Tons	£A
1919-53			4,084	674,001	395,839	28,853,637	404	10,581	310,327	29,538,219
1954			536	169,190	8,920	2,816,111			9,456	2,985,301
1955			503	224,945	7,582	3,388,713			8,085	3,613,658
1956	183	73,531	545	225,552	7,571	3,132,391			8,299	3,433,474
1957	89	30,263	627	212,320	9,763	3,309,749			10,479	3,552,332
<b>TOTAL</b>	<b>272</b>	<b>£103,794</b>	<b>6,295</b>	<b>£1,506,008</b>	<b>339,675</b>	<b>£41,500,601</b>	<b>404</b>	<b>£10,531</b>	<b>346,616</b>	<b>£43,122,984</b>

*The Mount Lyell Mining and Railway Company, Limited, Queenstown.—Return for 1957.*

<b>Mining—</b>	Tons
Overburden removed	2,171,819
Ore mined (West Lyell)	1,907,902
Limestone delivered to works	5,196
Silica	6,539
<b>Reduction—</b>	
Concentrates smelted	44,520
Precipitate smelted (North Lyell and Comstock)	132
Blister copper produced	9,835
Containing Copper	9,763 tons
Gold	6,171 oz.
Silver	36,647 oz.
(of value £A3,420,804).	
Pyrite concentrate shipped (of value £A228,993)	76,331
<b>Average Number of Men Employed—</b>	
Mining—Surface	694
Underground	44
Reduction Department	767
Railway	102
<b>Total</b>	<b>1,607</b>

Production from the Inception to 31st December, 1957—

Copper	498,268 tons
Gold	551,811 oz.
Silver	15,729,062 oz.

Inspector Morris reports that construction was continued on the new crusher station at West Lyell and the ore pass rises and haulage and drainage tunnel leading therefrom were completed. A new primary ball mill was put into service on 1st July.

Diamond drilling consisted of three holes to test extension of the West Lyell ore bodies, and nine holes west of the North Lyell Mine to test low-grade ore bodies, and a possible higher grade beneath. The total footage drilled was 9,734.

*Electrolytic Zinc Company of Australasia Limited, Rosebery.*

This Company, reviewed under Zinc, produced 7,366 tons of copper concentrate containing 627 tons of copper valued at £A211,938.

*Aberfoyle Tin. N.L., Rossarden.*

This company, reviewed under Tin, sold accumulated copper-silver residues containing 89.3 tons of copper, valued at £A30,263.

## GOLD.

## Quantity produced—

Prior to 1954	2,380,235 oz. of Value	£A11,846,007
1954	18,731 "	591,891
1955	16,113 "	251,759
1956	16,532 "	258,320
1957	19,442 "	303,788
<b>Total</b>	<b>2,451,053 "</b>	<b>£12,951,765</b>

*The Mount Lyell Mining and Railway Company Limited, Queenstown.*

This Company recovered 6,171 oz., valued at £A96,422, from sludge in the electrolytic copper refinery.

*Electrolytic Zinc Company of Australasia Limited, Rosebery.*

Concentrates produced by this Company contained 13,075 oz., valued at £A204,291.

*Dorset Dredge, South Mount Cameron.*

From the tin concentrate of this dredge (reviewed under Tin), 187 oz., valued at £A2,924, were recovered by amalgamation.

*Miscellaneous.*

Intermittent mining in the Gladstone, Branhholm, and Lisle districts produced 10 oz., valued at £A151.

## IRON OXIDE.

## Quantity produced—

Prior to 1955	66,262 tons of Value	£A58,521
1956	6,684 "	6,374
1957	5,775 "	7,056
<b>Total</b>	<b>77,721 "</b>	<b>£71,951</b>

*A. Pearson, Penguin.*

Operations at the Iron Cliffs Mine produced 289 tons, valued at £A978, for gas purification, and 825 tons, valued at £A1,184, for use in cement manufacture.

*Goliath Portland Cement Co. Ltd., Railton.*

This Company, reviewed under Limestone, mined 4,661 tons, valued at £A4,894, for use in its process.

## LEAD.

## Quantity produced—

1919-53	224,943 tons of Value	£A7,865,562
1954	10,779 "	1,225,156
1955	10,559 "	1,358,716
1956	11,422 "	1,601,430
1957	11,595 "	1,315,429
<b>Total</b>	<b>269,298 "</b>	<b>£13,366,293</b>

*Zeehan Mines Pty. Ltd., Zeehan.*

Early in the year a 16-in. Pomona pump was installed in a winze from the surface and the Oceana Mine dewatered below the 300-ft. level to which it was flooded last October. Thereafter the make of water was about 80,000 gallons per hour.

During the year 17,916 tons of ore were treated to produce 2,073 tons of concentrate containing 1,958 tons of lead, valued at £A219,128, and 76,818 oz. of silver, valued at £A31,391.

In development the shaft was sunk 56 feet to 570 feet and the ventilation winze connected to the 540-ft. level. This bottom level appeared from 83 feet of cross-cutting and 96 feet of driving to be opening out well. Diamond drilling was continued underground, 477 feet having been drilled in four holes.

The average number of men employed was 70 (30 surface, 40 underground).

*Montana Silver-Lead N.L., Zeehan.*

A small extension of the ore body was developed by connecting the 200-ft. level to the shaft. The 270-ft. level was then cleaned out and extended to the projected position of the ore, but none was found.

Production for the year was 338 tons of concentrate containing 202 tons of lead, valued at £A21,828, and silver as given under that metal. An average of 12 men was employed.

*Electrolytic Zinc Company of Australasia Limited, Rosebery.*

This Company, reviewed under Zinc, produced 9,090 tons of lead concentrates containing 8,844 tons of lead, valued at £A1,007,423.

*Farrell Mining Company Ltd., Tullah.*

A geophysical survey carried out on this Company's tenements showed two anomalies, one north of the line of lode. Preparations are in hand to follow up with diamond drilling. Development in the mine consisted of driving and rising on No. 9 Level, which opened up three new stopes.

Production was much improved as compared to the previous year, 4,175 tons of ore being treated for the production of 927 tons of concentrate containing 589 tons of lead, valued at £A66,734, and silver as given under that heading. The average number of men employed was 44, of whom 18 were underground.

*A. R. Smith, Dundas.*

This miner produced concentrates combining 2.7 tons of lead, valued at £A316, from the Adelaide mine, as well as crocoite specimens worth £A219.

**MANGANESE DIOXIDE.**

This is recovered as a sludge in the electrolysis of zinc sulphate at the Risdon works of the Electrolytic Zinc Company of Australasia Limited, the original source being the ore in its West Coast Mines. The production of 154 tons was valued at £A1,308.

**NICKEL.**

*Heazlewood Prospecting Syndicate, N.L., Heazlewood River.*

This Syndicate was formed to work the Lord Brassey Mine, closed down since 1900. A bulldozer was used to form an access track from the Corinna road 3-mile to the mine. The main adit was cleaned out, 300 feet of wooden rails laid, and 15 feet of driving accomplished. There was no production but a 10-ton parcel was selected and bagged, and smaller lots forwarded for milling research.

**OSMIRIDIUM.**

Quantity produced—

1910-53	30,914 oz. of Value	£A694,347
1954	16 "	1,166
1955	22 "	1,504
1956	25 "	2,085
1957	66 "	5,945
<b>Total</b>	<b>31,043 "</b>	<b>£705,047</b>

*Miscellaneous, Adamsfield.*

Production was more than doubled for the year, three parties working on alluvial deposits and another underground. One of the parties re-opening mines about 1½ miles east of the town disbanded, and the other did a little spasmodic work.

**PYRITE.**

Quantity produced—

1915-53	881,032 tons of Value	£A1,379,427
1954	51,162 "	153,486
1955	67,420 "	202,260
1956	58,469 "	175,407
1957	76,340 "	228,993
<b>Total</b>	<b>1,134,424 "</b>	<b>£2,139,573</b>

This is produced and exported by the Mount Lyell Mining and Railway Company Limited for sulphuric acid manufacture.

**SILVER.**

Quantity and value of production—

Year	From Tin Ore		From Silver-Lead Ore		In Blister Copper		From Copper Ore		From Gold Ore		From Lead-Zinc Ore		Total	
	Oz.	£A	Oz.	£A	Oz.	£A	Oz.	£A	Oz.	£A	Oz.	£A	Oz.	£A
1919-53	...	...	16,313,329	2,298,675	3,215,852	493,935	31	5	10,183,505	2,561,003	29,715,962	5,853,649	34,708,910	7,816,205
1954	...	...	178,081	66,174	32,301	12,003	...	...	1,087,787	386,783	1,278,169	474,960	...	...
1955	...	...	154,802	58,515	31,875	11,860	...	...	941,614	355,939	1,127,791	426,814	...	...
1956	...	...	134,156	55,205	29,343	12,075	...	...	1,105,110	454,763	1,328,115	546,620	...	...
1957	...	...	159,313	65,992	36,647	14,964	...	...	1,094,315	423,009	1,258,873	514,762	...	...
<b>TOTAL</b>	<b>88,104</b>	<b>—</b>	<b>16,935,681</b>	<b>—</b>	<b>3,345,518</b>	<b>—</b>	<b>31</b>	<b>5</b>	<b>14,385,331</b>	<b>—</b>	<b>34,708,910</b>	<b>7,816,205</b>		

Silver is nowhere mined for itself but is a valuable by-product from copper, lead and tin ores. The current producers are shown below:—

Producer	Source	Quantity oz.	Value £A
E.Z. Co. of A/asia Ltd. ....	Copper & Lead Concentrate	1,034,315	423,009
Zeehan Mines Pty Ltd. ....	Lead Concentrate	76,818	31,391
Farrell Mining Co Ltd. ....	Lead Concentrate	61,197	25,026
Mt. Lyell M. & R. Co Ltd. ....	Refinery Sludge	36,647	14,964
Aberfoyle Tin N.L.	Copper Concen- trate	28,598	11,697
Montana Silver-Lead N.L. ....	Lead Concentrate	20,937	8,527
A. R. Smith ....	Lead Concentrate	361	148

### SULPHUR.

This is produced as sulphuric acid in the roasting at Risdon of the zinc concentrates from the Rosebery and Hercules mines of the Electrolytic Zinc Company of Australasia Limited.

Production of sulphuric acid was 23,155 mono-tons, valued at £A102,675.

### TIN.

#### Quantity produced—

1873-1953 .....	138,733 tons of	Value £A	24,714,591
1954 .....	947 "	"	863,708
1955 .....	853 "	"	814,651
1956 .....	938 "	"	948,045
1957 .....	777 "	"	764,171
Total .....	142,248 "	"	£29,526,388

#### Aberfoyle Tin N.L., Rossarden.

Inspector Muir reports that normal production was carried on at this mine throughout the year, there being no installations of new plant or buildings, and very little work below No. 9 Level. Development comprised 4,240 feet of headings and 5,036 feet of diamond drilling, driven on Nos. 4 to 8 Levels. Extensive research was made into the economics of introducing heavy media separation into the concentrating section of the mill but no conclusion has been reached. Ore mined and treated was 65,571 tons to produce tin concentrates containing 422 tons of tin, valued at £A414,644. Wolfram concentrates and a copper-silver concentrate were also produced and are shown under those headings. The average number of men employed was 215, of whom 116 were underground.

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

This mine is reviewed under Wolfram, but tin concentrates containing 21 tons of tin, valued at £A21,038, were produced.

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

In this mine the winze ore body was further developed with good results. This was the source of the 10,538 tons of ore mined and treated, the extraction being obtained by silling out at a sub-level. A rise was completed for ventilation which is now satisfactory.

In the mill, the new ball mill circuit was brought into operation, and concentrates were produced containing 75.3 tons of tin valued at £A74,800. Average employment was 31 (eight underground, 23 surface).

#### Dorset Dredge, South Mount Cameron.

Dredging proceeded without major mishap during the year and 37 acres of the Dorset Flats were dug to an average depth of 26 feet. From a throughput of 1,590,000 cu. yds. concentrates were recovered containing 70.8 tons of tin, valued at £A70,102, and gold as reported elsewhere. An average of 50 men was employed.

In preparation for the removal of the dredge to another area, a channel was sluiced leading through a ridge. Very good progress was made using nine cusecs of water at 150 feet head supplied by a 275 h.p., 16-in. pump installed for the purpose. It is probable that little, if any, ground will be dug by the dredge in her passage. The H.T. transformer station was moved to a site more suitable for future operations.

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

Open cast mining with monitors and gravel pumps was continued in the north-eastern end of the Clifton workings. An additional 10-in. gravel pump was used to stack tailings with good results. The throughput of 333,667 cu. yds. gave an output of 61.0 tons of tin, valued at £A60,754. No new installations were made, and an average number of 47 men was employed on mining, maintenance and power house and pump station operation.

#### Briseis Tin N.L., Derby.

Sluicing was abandoned in the "A" Face upstream from the Cascade workings owing to unsatisfactory recoveries, and operations were recommenced in the latter, where new riffle boxes were constructed. Here again results were not good, due to excessive boulders. Tailings sand retreatment near the tin shed was continued. From the 304,932 cu. yds. sluiced, concentrates containing 25 tons of tin, valued at £A24,320, were obtained. The average employment was 28 men.

#### Weldborough Tin Mines, Weldborough.

This syndicate operated an alluvial mine in the Weld River near the township. Excessive stone and shingle hampered throughput and the three men employed sluiced 5,220 cu. yds. of gravel for a return of 0.6 ton of tin, valued at £A571.

#### W.X.X. Mine, Moorina.

On this mine the Weldborough Tin Syndicate employed six men to sluice 22,000 cu. yds. of gravel. The concentrates produced contained four tons of tin of value £A3,904. A diversion of the Weld River was made to allow mining of the reserves lying in its course.

#### Gosken Tin Mines, St. Helens.

This Company operates two plants in an area of largely worked-out ground and frequent shifts are necessary. One plant was operated in Fern Tree Creek and prospecting and preparatory work was carried out at the Groom River Mine. An average of 10 men was employed on sluicing, prospecting and race maintenance. From the 45,900 cu. yds. of gravel sluiced concentrates containing nine tons of tin, valued at £A8,846, were recovered.

#### Bell Creek Mine, St. Helens.

Mr. W. Colin Kirwan worked this mine alone when water was available to produce concentrates containing 0.6 ton of tin, valued at £A551.

#### Walsh & Co., Branxholm.

Sluicing was continued in Black Creek and although 20,000 cu. yds. of gravel were removed, much of this was tailings deposited by old miners. An average of four men was engaged and concentrates containing 11 tons of tin, valued at £A11,510, were obtained.

#### Ormuz Mine, Branxholm.

In this mine, Edwards Bros. were able to open out on bedrock, but the large number of boulders fallen in from the basalt cover impeded their work. Five men were employed for a return of four tons of tin, valued at £A3,951.

#### C. T. Hyde, Derby.

Messrs. Hyde & Sons worked the original face of the Sarah Ann Mine near Main Creek, but later shifted to 20-ft. ground in the creek. Concentrates produced contained 2.4 tons of tin of value £A2,338.

#### Banca Mine, Winnaleah.

To augment the water supply in dry periods a 35 h.p. diesel engine and 5-in. pump were installed on this mine. The two cusecs of water delivered at 100 feet head are sufficient for sluicing to be carried on during emergencies. Three men were employed to produce concentrates containing 2.1 tons of tin valued at £A2,153.

#### Star Hill Syndicate, Gladstone.

Operating in the vicinity of the Garfield Mine, this syndicate, using electrically-driven pumps, sluiced 117,000 cu. yds. of gravel. Output was 23.9 tons of tin in concentrates, valued at £A23,600, and five men were employed.

#### Elizabeth Mine, Gladstone.

This Syndicate commenced hydraulicking on flats near the Mussel Roe River and Eddystone Road late in 1956, but recoveries were insufficient for the costs, and the plant was shifted on to gravel near the Star Hill Mine. Two electrically-driven pumps (100 and 130 h.p.) were used, one for the monitor supply and the other for the hydraulic elevator.

Production of 2.3 tons of tin in concentrates was valued at £A2,280, and three men were employed.

*Razorback Mine, Dundas.*

Mr. Hodge and partner mined and treated oxidised ore at the Razorback Mine to produce concentrates containing three tons of tin of value £A2,857. In the stopes, softer ore was extracted leaving the hard ore as pillars. Treatment plant consisted of a small crusher, tube mill and table.

*Dunkley and Partner, Zeehan.*

This party worked part-time on a pyritic lode one mile from Zeehan on the Trial Harbour Road. A small mill comprising crusher, tube mill and tables produced 0.7 ton of tin in concentrates, valued at £A714.

*Allen and Party, Waratah.*

This three-man party drove a cross-cut from E Glory Hole in the greisen ore body to intersect a vein located by diamond drilling. From this section 380 tons of ore were extracted. Attention was then turned on a hanging wall prospect at the end of the main adit level drive which gave 100 tons of ore. Finally, a cross-cut was commenced to another drill hole-vein intersection.

Concentrates produced contained 4.1 tons of tin of value £A4,113.

*Colgan, Kenworthy and Party, Waratah.*

This three-man party extracted 135 tons of ore from a dyke formation in Pig Flat by underhand stoping. Thereafter they were engaged on pillar extraction on the Happy Valley side of the eastern lode.

Concentrates produced contained 1.9 tons of tin of value £A1,870.

*V. Campton, Waratah.*

This tributer obtained concentrates containing 0.7 ton of tin, valued at £A736, from retreatment of Mt. Bischoff mill tailings in Happy Valley.

*J. Housego, Waratah.*

This miner developed a reserve of higher grade tailings by installing additional fluming in Waratah Creek. He produced 1.7 tons of tin in concentrates, valued at £A1,061.

*Prouse and Party, Waratah.*

This two-man party retreated tailings on the "60 Mill" site (the original mill of the Mt. Bischoff Company) and later in Waratah Creek below the mill and roaster.

*W. & C. Housego, Waratah.*

These tributers prospected spasmodically in the Wheel Section and discovered several high-grade pockets of ore.

*G. Kelly, Waratah.*

This miner worked small 4-in to 6-in veins of cassiterite in the Shovel ledge section on a very small scale.

*Crane and Party, Upper Natone.*

Prospecting on 496 M, this three-man party exposed in places high-grade wash under a 60-ft. basalt cover. Two shafts were sunk through basalt but were abandoned owing to excessive water before reaching gravel. Construction of a dam in Falls Creek and a water race is in progress to supply monitor water at 150 feet head.

*Standage & King, Upper Natone.*

These miners installed a petrol engine, pump and elevator on Trial Flats to work gravel only 18 inches deep but of high grade. The prime mover proved inadequate and a recovery of 0.1 ton of tin in concentrates, valued at £A136, was made.

*Miscellaneous.*

The miners listed hereunder produced very small quantities of concentrates, by reason of either small-scale or part-time working.

*Coa's Bight.*

Sluicing on leases held by Messrs. Archer, Burrell and Penny produced one ton of tin, valued at £A989.

*Melaleuca Lagoon.*

Two miners, Messrs. King and Dicker, worked alluvial deposits to produce 0.8 ton of tin, valued at £A779.

*Weldborough.*

Activity was slight and the production from four one-man mines was 0.3 ton of tin, valued at £A303. Natural water courses were used in wet weather and without plant.

*Blue Tier.*

This field was visited by a number of parties for visual examination, little actual prospecting being done.

Concentrates produced contained 0.2 ton of tin of value £A235.

*St. Helens—Scamander.*

The combined production of four men was one ton of tin in concentrates, valued at £A972.

*Gipps Creek.*

There was some prospecting on this field giving an output of 0.03 ton of tin in concentrates, valued at £A26.

*Mt. Stronach.*

Consideration was given to mining tin-bearing gravel near Mt. Stronach, but the cost of reconditioning seven miles of water race was prohibitive. Two lots of concentrates were sold, containing 0.1 ton of tin, valued at £A88.

*Branchholm.*

Six men working in Black Creek and Ruby Flat produced concentrates containing 2.4 tons of tin, valued at £A2,396.

*Derby.*

Beach deposits formed in the Ringarooma River by floods provided work for 10 men when and where they appeared.

Recovery of 4.8 tons of tin in concentrates of value £4,751 was made.

*Herrick-Winnaleah.*

An average of four men was employed to produce 0.5 ton of tin, valued at £A479. Clarke Bros. ceased operations at the Monarch Mine and removed their plant.

*Moorina.*

There were four miners engaged on this field, their combined production being 1.8 tons of tin, valued at £A1,799. Mr. W. L. Boon, on the bank of the Weld River upstream from the Frome River junction, was the largest producer.

*Pioneer-South Mount Cameron.*

An average of seven men found employment in this district, mostly on the Wynifred River, and produced concentrates containing 3.8 tons of tin, valued at £A3,707.

*Gladstone.*

Scattered in this district are a number of small mines which were worked by eight men altogether when water was available. Their production was 4.6 tons of tin in concentrates, valued at £A4,541.

The Mount Cameron Water Race continued to supply water to mines in the district, mostly on a contract basis. However, one miner, supplied on a Royalty basis, produced 0.1 ton of tin, valued at £A90.

*Strait Islands.*

Mining was stagnant on these islands, one parcel only being shipped for a return of 0.06 ton of tin, valued at £A54.

**TUNGSTEN (SCHEELITE).**

## Quantity produced—

1917-53	8,897 tons of Value	£A7,439,327
1954	1,317 "	2,127,682
1955	1,432 "	2,370,007
1956	1,488 "	2,288,356
1957	1,445 "	1,880,539
Total	14,579 "	£16,105,911

*King Island Scheelite (1947) Ltd., Grassy.*

Inspector Egan reports that late in the year most of the planned construction work had been completed and overburden removal had reached a satisfactorily advanced stage. Following a severe drop in the price of tungsten (scheelite), employment was drastically curtailed to 192 men in the last quarter, as compared to an average of 330 in 1956. The average for the year was 270.

Construction included a new warehouse, welding shop and change house, increase of fine ore bin capacity to 2,400 tons and re-arrangement of the crushing and screening sections. A 525 k.w. diesel-alternator set was installed in the power house and a pneumatic-tyred bulldozer added to the open cut equipment. Development comprised 3,418 feet of diamond drilling.

From the open cut 795,309 tons of overburden were removed and 264,094 tons of ore were milled. Production was 1,445 tons of concentrate containing 949.6 tons of WO<sub>3</sub> and valued at £A1,880,539.

**TUNGSTEN (WOLFRAM).**

**Quantity produced—**

Year	Quantity Tons	Value £A
1899-1953 (inclusive)	7,595	3,842,700
1954	581	816,181
1955	579	758,404
1956	647	809,980
1957	549	384,984
<b>Total</b>	<b>9,951</b>	<b>£6,612,249</b>

**Aberfoyle Tin N.L., Rossarden.**

Wolfram concentrates produced contained 188.4 tons of WO<sub>3</sub>, valued at £A196,557.

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

The construction programme was continued, the new mill building being completed and much of the plant installed. Buildings at the brace were also completed, such as change house, crib room, blacksmith and drill sharpening shop, offices and lamp room.

The mine is developed to No. 8 Level, 34 feet of shaft sinking, 901 feet of rising and 1,476 feet of driving and cross-cutting having been driven. As the price of tungsten has fallen extra work has been undertaken to develop lodes of higher grade in tin. Two small magazines were excavated off the main adit, as this entrance is being superseded by the vertical shaft.

In addition to tin reported under that heading, wolfram concentrates containing 201.6 tons of WO<sub>3</sub>, valued at £A188,420, were produced from 17,395 tons of ore milled. An average of 94 men was employed, of whom 48 were underground.

**Gipps Creek Field.**

There was some prospecting in this field, but the product contained only 0.2 ton of WO<sub>3</sub>, valued at £A8.

**ZINC.**

**Quantity produced—**

1919-53	420,315 tons of Value	£A14,785,820
1954	26,080 "	2,513,706
1955	24,036 "	2,778,078
1956	28,138 "	3,432,764
1957	26,118 "	2,635,476
<b>Total</b>	<b>524,687 "</b>	<b>£26,145,844</b>

**ELECTROLYTIC ZINC COMPANY OF AUSTRALASIA LIMITED.**

**RETURN FOR 1957.**

**EXTRACTION FROM CONCENTRATES: RISDON.**

**From other than Tasmanian Ores—**

Zinc	83,763	tons
Cadmium	260,956	tons
Cobalt oxide	19,261	tons
Superphosphate	70,491	tons

**From Tasmanian Ores—**

Zinc	26,586	tons
Cadmium	48	tons
Cobalt oxide	0.56	tons

**Manufactured product—**

Ammonium Sulphate	44,809	tons
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**Men Employed—**  
The average number of men employed was 2,822.

**WEST COAST DIVISION.**

**Ore Mined—**

	Tons
From Hercules Mine	27,311
From Rosebery Mine	172,124
<b>Total</b>	<b>199,435</b>

**Concentrates Produced—**

Zinc Concentrates	55,749
Lead Concentrates	9,090
Copper Concentrates	7,366
<b>Total</b>	<b>72,205</b>

**Recoverable Quantity in Ores Mined—**

Zinc	26,178.40	tons
Lead	8,843.41	tons
Copper	626.38	tons
Cadmium	50.18	tons
Silver	1,034,314.57	oz.
Gold	13,074.68	oz. (fine)
Cobalt Oxide	0.56	tons
Manganese Dioxide	154	tons
Zinc Sulphate	158	tons
Sulphur as Sulphuric Acid	23,155	mono-tons
of value £A102,675.		

**Average Number of Men Employed—**

Hercules Mine	46
Rosebery Mine	630
<b>Total</b>	<b>676</b>

**Rosebery Mine.**

The new winder was installed on the main (internal) shaft at No. 8 Level and shaft work is proceeding preparatory to its use. The fill problem has been approached by setting up a pump, nozzle and screen to sluice gravel into a waste pass. This scheme operates satisfactorily whilst water is available. Other construction work included magazines on No. 8 Level and new fine ore bins to enlarge capacity.

In development the main shaft was sunk 35½ feet and 3,486 feet of drives and cross-cuts and 2,852 feet of rises were driven. From the surface four diamond drill holes totalling 5,685 feet were put down, in addition to 20,672 feet drilled from underground locations. On a prospect 550 feet were drilled. An average of 240 men was employed underground.

**Hercules Mine.**

Development comprised 307 feet of driving and cross-cutting, 571 feet of rising, and 3,963 feet of diamond drilling. An average of 38 men was employed underground.

**Risdon Works.**

Inspector Olds reports that all plant operated satisfactorily. The fourth flash roaster was started up early in the year, and construction of a third contact acid plant is well advanced. A large office block was occupied during the year.

Calcine from Tasmanian and imported concentrates was processed, in all, 220,728 tons. Apart from the direct products of the processes, some by-products were utilized in the manufacture of products such as superphosphate and ammonium nitrate, and others were further treated to produce such manufactured products as zinc dust, cadmium electrodes and dye-casting alloys. The total value of production was £A15,919,615.

**ZINC SULPHATE**

This is a by-product from the treatment of zinc concentrates by the Electrolytic Zinc Company of Australasia Limited. The quantity produced was 158 tons and the value £A5,846.

**URANIUM.**

**Tasmanian United Uranium Syndicate N.L., Rossarden.**

This syndicate, having failed to find by diamond drilling extensions to the ore body outcropping in the granite, proceeded to follow the lode with an adit. Picked ore was bagged but none shipped, the only market being at Rum Jungle. The adit was driven 102 feet and four men were employed. No stoping was done on the lode exposed in portion of the adit, and operations were suspended.

**2.—NON-METALLIC MINERALS.**

**CLAY**

Midway through the year production statistics were collected from producers of clay for brick, pipe and tile manufacture.

Necessarily incomplete returns were obtained showing a production of 55,827 cu. yds. of clay.

## LIMESTONE.

## Quantity produced and usage—

Years	Manufacture of Cement		Manufacture of Carbide		Chemical and Metallurgical		Agriculture and Other		Totals	
	Tons	Value £	Tons	Value £	Tons	Value £	Tons	Value £	Tons	Value £
1919-53	2,419,668	1,239,833	405,999	394,530	3,884,466	1,982,175	363,529	366,138	7,073,362	3,992,876
1954	151,884	75,942	19,884	31,896	11,634	15,267	13,083	23,585	196,485	146,890
1955	157,135	78,568	17,946	32,679	7,834	10,280	23,223	39,331	206,138	154,858
1956	127,307	63,653	18,335	36,715	11,519	12,727	21,934	31,035	179,095	144,130
1957	153,018	126,557	20,264	44,542	15,309	22,643	15,928	27,133	205,119	220,875
Totals	3,009,612	1,584,553	482,428	540,362	3,930,462	2,053,092	437,697	481,222	7,860,199	4,659,229

## DOLOMITE.

## Quantity produced—

Prior to 1953	3,578 tons of Value	£A10,967
1954	2,846 "	8,579
1955	2,266 "	6,798
1956	788 "	2,320
1957	1,176 "	3,359
Total	10,654 "	32,043

*Duck River Dolomite Co., Circular Head Dolomite Co., Smithton.*

The sole producers were the former company, which went into liquidation during the year, and the latter, a new company which carried on the operations.

## KAOLIN.

## Quantity produced—

1940-53	73,749 tons of Value	£A234,383
1954	7,948 "	36,139
1955	9,740 "	54,034
1956	6,267 "	37,798
1957	6,038 "	39,226
Total	103,787 "	400,580

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

This Company, reviewed under Tin, produced 1,989 tons of kaolin, valued at £7,020, from deposits on its leases. Two men were employed.

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

The kaolin produced at this mine, like that above, was used in paper manufacture. Production was 4,049 tons, valued at £32,206, and an average of 11 men was employed.

## LIMESTONE.

*Australian Commonwealth Carbide Company Limited, Ida Bay and Electrona.*

From the Ida Bay quarry 20,264 tons of limestone, valued at £44,542, were shipped to the works at Electrona, the average number of employees being 29. At the works, production was increased to 10,744 tons of carbide by continuous operation of the new furnace after initial difficulties in 1956. In addition, waste and reject carbide was utilised to produce 184 tons of acetylene black (carbon). An average of 171 persons was employed, an increase of 14.

*Goliath Portland Cement Co. Ltd., Railton.*

With new plant in operation, production of cement was increased to 124,588 tons, short of the rated capacity of 150,000 tons. To achieve this 153,618 tons of limestone, valued at £126,557, were quarried and 4,661 tons of iron oxide consumed. The average number of employees was 287, including those in the asbestos-cement manufacturing section.

*Mount Lyell Mining and Railway Company Ltd., Halls Creek.*

This Company, reviewed under Copper, quarried 5,196 tons of limestone, valued at £7,722, for use as a flux in smelting.

*Australian Newsprint Mills Ltd., Junee.*

For use in papermaking, this Company produced 4,525 tons of limestone, valued at £8030, from its Junee quarry. An average of five men was employed.

*A. Pearson, Pulbeena.*

Employing two men, Mr. Pearson produced 2,630 tons of lime sands of value £3,349. Agriculture absorbed 2,418 tons of this and 212 tons were used for chemical purposes.

*A. R. Beams, Flowery Gully.*

This quarry produced 6,609 tons of limestone, valued at £8,131, and employed an average of 19 men. The distribution was 5,376 tons for use in aluminium production and 533 tons for agriculture.

*Melrose Agricultural Lime Quarries, Eugenana.*

Reserves of limestone on the main floor were nearly exhausted owing to the incidence of clay and lower-grade stone, and a new 20-ft. bench was opened up in the floor. The output of ground limestone for use in agriculture was 8,082 tons, and, in addition, 5,463 tons were crushed for constructional purposes. The total production was 13,545 tons, valued at £22,794, and an average of 17 men was employed.

*Railton Lime Works, Railton.*

Mr. A. R. Blenkhorn produced 3,928 tons of ground and burnt limestone of value £2,454 for the agricultural industry. An average of three men was engaged in this work.

*Beaconsfield Lime Products, Flowery Gully.*

In producing ground limestone and lime for agriculture, the two men employed quarried and treated 967 tons of limestone, valued at £2,178.

**OCHRE.**

Quantity produced—

1918-53	1,847 tons of Value	£A4,157
1954	47 "	141
1955	6 "	18
1956	21 "	141
1957	22 "	148
Total	1,943 "	£4,605

*A. Pearson, Spalford.*

Production of ochre from this pit was 10 tons, valued at £70.

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

This Company, reviewed under Kaolin, produced 12 tons of ochre, valued at £78.

**PEBBLES.**

*A. Pearson, Ulverstone.*

The collection of pebbles for grinding was continued on the beaches around Ulverstone. The output was 607 tons, valued at £5,292.

**SILICA.**

Quantity produced—

1936-53	118,122 tons of Value	£A62,254
1954	6,556 "	5,220
1955	6,200 "	6,240
1956	5,392 "	7,479
1957	6,552 "	4,622
Total	142,833 "	£85,815

*A. Pearson, Mawbanna.*

A parcel of 13 tons, of value, £153, was sold as a moulding flux.

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

This Company, reviewed under Copper, quarried 6,539 tons of silica, valued at £4,469, for use in the smelter.

**3.—CONSTRUCTION MATERIALS.**

Midway through the year production statistics were collected from all quarries and pits. Necessarily incomplete returns were obtained showing the following production:—

*Building Stone.*

Granite	43 cu. yds.
Freestone	25 cu. yds.

*Crushed and Broken Stone.*

Basalt	2,589 cu. yds.
Dolerite	233,786 cu. yds.
Limestone	26,882 cu. yds.
Other	12,439 cu. yds.

Total 275,696 cu. yds.

Gravel.—301,708 cu. yds.

Sand.—6,266 cu. yds.

The largest producers were Government and Local Government authorities, accounting for 149,917 cu. yds. of crushed and broken stone and 277,239 cu. yds. of gravel.

*Hobart Quarries Pty. Ltd., and E. J. Grubb and Sons, New Town.*

These companies supplied 30,000 and 19,500 cu. yds. respectively of crushed dolerite for road making and concrete.

*Hillier Regan Construction Pty. Ltd., Glenorchy.*

This Company quarried 12,000 cu. yds. of dolerite for rock-fill dam construction.

*G. C. Weily, Glenorchy.*

This organization supplied 23,800 cu. yds. of crushed limestone for road and concrete making.

*Granite, Coles Bay.*

Two men were employed in the production of 43 cu. yds. of red granite dimension-stone, valued at £1,444.

*Freestone, Austins Ferry.*

This quarry was worked intermittently during the year, 25 cu. yds. of dimension-freestone of value £187 being produced.

**4.—FUEL MATERIALS.**

**COAL.**

Quantity produced—

Prior to 1954	6,334,502 tons of Value	£A5,649,172
1954	264,202 "	511,040
1955	299,221 "	604,803
1956	298,713 "	594,090
1957	268,140 "	534,111
Total	7,464,778 "	£7,893,216

Inspector Besford reports that the average number of employees in coal mining was 292, of whom 203 were underground. The number of employees was 17 per cent less than last year, but the production per man-year increased to 1,320 tons per underground employee and 918 tons for all employees. The total production of coal was 30,000 tons less.

*Fingal-Mount Nicholas-Dalmayne Coalfield.*

Production from this field declined to 215,663 tons, valued at £421,764, and it was on this field that the 30,000 tons reduction in overall output occurred.

*Cornwall Colliery.*

This mine employed an average of 113 men and produced 100,676 tons of coal, valued at £190,265 at the mine bins, 7,739 tons more than in the previous year. The resumption of single-shift operations towards the end of last year was responsible for the reduction in employees on the surface.

The continuous miner operated in the section beyond the downthrow fault and miners were transferred into the newly-developed section where the seam is of normal thickness. Production was maintained from the same sections as last year but difficulty has been experienced with floor heave in the righthand section. Pillars were split in the left hand section underneath abandoned workings. The two development adits commenced last year about one mile east of the main adit were continued in comparatively thin seam under an indifferent roof, conditions unsatisfactory for machine work. The adits have been connected.

*Mount Nicholas Colliery.*

Production of coal declined to 6,908 tons, valued at £13,125, from 37,262 tons in the previous year. The mine closed down at the end of the first quarter and resumed with only seven employees in the third quarter, working the No. 2 Seam. Work in the 6-ft. seam was abandoned and all the equipment salvaged because the prevalence of dirt bands produces a very dirty coal. This closure was responsible for the reduction in output on the field as a whole. Attempts are being made to develop a new section in the No. 2 Seam but so far roof conditions have been bad.

*Jubilee Colliery.*

The output from this mine was 19,793 tons of value £44,534, and an average of 22 men was employed. Retrenchment of 40 per cent of the employees resulted in a decrease in production of 15 per cent, production per man-year increasing 45 per cent. Operations were on the same pattern as last year and seam conditions were normal. Work is progressing very slowly on the return airway to increase the flow of air and improve the ventilation which has deteriorated during the year.

*Duncan Colliery.*

This colliery produced 57,232 tons of coal, valued at £108,742, and employed an average of 46 men. Production for the previous year was 58,442 tons. The fault in the main heading was negotiated and some hand-mining places developed, but the machines have continued in the section to the left.

*Fingal Colliery.*

The average number of men employed at this mine was increased to 30, and the production to 29,572 tons of value £62,101. The acquisition of a certificated manager enabled the owner to absorb the miners from the adjoining Tasmania Colliery when it was abandoned. No new developments were carried out during the year, but in an effort to supply cleaner coal the upper section of the seam was left in place, reducing the height of the roads.

*Tasmania Colliery.*

This mine was worked during part of the first quarter, producing 869 tons of coal valued at £1,825. The seam was interrupted by a fault, the mine abandoned, and the miners removed to the Fingal Colliery.

*Barbers Colliery.*

This new mine was opened a few miles to the east of Fingal, the construction of a logging road enabling the owner to gain access to the somewhat isolated area. A heading was put in from the outcrop and advanced a few hundred feet without meeting any major faulting. The seam measures 66 inches, is of good quality, and reasonably level. The main heading was stopped, due to poor ventilation and a second heading commenced to provide a return airway and second means of egress. Production was 613 tons of coal, valued at £1,172, and three men were engaged for the half-year.

**AVOCA COALFIELD.**

*Stanhope Collieries.*

Operations ceased at the old Stanhope Mine in June and the miners transferred to the new mine where additional working places were developed in a seam under good conditions. A drive was put back to the surface to the left of the main heading to provide a return airway and second exit. The combined production from the two mines was 5,640 tons of coal, valued at £14,105 at the mine bins. An average of 12 men was employed. At the end of the year construction of loading bins at the new mine was almost complete.

*Merrywood Colliery.*

This colliery produced 37,592 tons of coal, valued at £67,471 at the mine bins. An average of 24 men was employed and the output per man-year underground was the highest for all the coal mines. Operations continued as in the previous year and no serious faulting was encountered. In the open cut overburden is becoming thicker and more difficult to remove, but stripping is kept well in advance of production.

The installation of the coal washing plant was completed and trial runs showed that some alterations and additions were necessary to overcome excessive carry-over of fine coal in the waste. These modifications have been designed and will be made without delay with anticipated good results.

**UPPER DERWENT COALFIELD.**

*Langloh Colliery.*

Production at this colliery increased to 6,662 tons of value £22,641 at the mine bins, an average of 17 men being employed. The previous year's output was 5,241 tons by the same number of men. Work was interrupted on several occasions by large falls of roof, and roof conditions are deteriorating as the headings advance into the area between the old workings. A development heading was advanced a short distance into an area to the right of the main wheeling road to test the possibilities and also to provide alternative production places.

**SANDFLY COALFIELD.**

The Sandfly Coal Mine produced 1,847 tons of coal of value £4,833, and employed an average of four men. The coal was won from solid places on the same lines as previously. Most of this sub-anthracite coal was used at the carbide works for lime-burning, some at a paper mill for the same purpose, a little for hop-drying. For the last-named purpose this smokeless fuel is most suitable.

**MERSEY COALFIELD.**

Production from the mine at Spreyton was 736 tons, valued at £3,297, and three men were engaged. Work was suspended on the east side of the shaft towards the end of the year and resumed on the west side. There it is expected that the seam will be more constant, but much faulting has so far been encountered and production has

been hampered. The seam has remained at 24 inches and is worked by the longwall method, but faulting often precludes total extraction.

**STATISTICS OF MINING COMPANIES.**

*RETURN showing the Amounts Paid in Dividends by Mining Companies during the Year ending 31st December, 1957.*

Mines	Dividends £
Coal .....	14,000
Copper .....	155,000
Scheelite .....	500,000
Tin .....	11,285
Wolfram-Tin .....	140,500
*Zinc .....	1,950,785
<b>Total .....</b>	<b>£2,770,785</b>

\* NOTE.—Represents total dividends from Tasmanian and ex-Tasmanian profits.

*RETURN showing the Mining Companies Registered during the Year ended 31st December, 1957.*

Number of Companies	Capital
Nil.	—

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

**REVENUE.**

*Return showing the Revenue Collected during the Year ending 31st December, 1957.*

Head of Revenue	Amount £ s. d.
Public Works and Services—Mines Department .....	7,928 12 10
Rent of Auriferous and Mineral Lands .....	7,050 14 11
Fees, Auriferous and Mineral Lands .....	1,391 3 9
Survey Fees .....	1,293 10 2
Fees under the Explosives and Inflammable Liquids Act .....	5,762 19 11
Rent and Sale of Government Property .....	400 4 0
<b>Total .....</b>	<b>£23,827 5 7</b>

*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 1957.*

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
1957 .....	22,533	15	5

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

**LEASES.**

*RETURN showing the Total Number of Leases and Licences in Force on 31st December, 1957.*

Leases and Licences	Number	Number of Sluiceways	Area Acres
Barytes .....	1	.....	10
Bauxite .....	1	.....	130
Clay .....	9	.....	221
Coal .....	45	.....	9,865
Copper .....	1	.....	33
Easement Licences .....	61	.....	704
Granite .....	3	.....	25
Gold .....	24	.....	658
Iron .....	1	.....	50
Limestone .....	11	.....	491
Minerals .....	51	.....	14,091
Nickel .....	8	.....	369
Osmiridium .....	1	.....	10
Ochre .....	1	.....	24
Scheelite .....	3	.....	281
Silica .....	3	.....	35
Silver Lead .....	14	.....	465
Stone .....	23	.....	2,030
Sand .....	1	.....	5
Tin .....	174	.....	6,590
Tin-Wolfram .....	4	.....	370
Wolfram .....	3	.....	25
Wolfram-Gold .....	3	.....	120
Water Licences .....	173	866	1,023
<b>Total .....</b>	<b>619</b>	<b>866</b>	<b>36,625</b>

*RETURN showing Total Number and Area of Leases and Licences Issued during the Year ended 31st December, 1957.*

Leases and Licences	Leases	Area Acres	Sluiceways
Copper-Nickel .....	3	120	.....
Coal .....	7	1,838	.....
Gold .....	1	50	.....
Minerals .....	10	4,159	.....
Stone .....	1	18	.....
Tin .....	21	535	.....
Water and Easement Licences .....	23	47	85
<b>Total .....</b>	<b>66</b>	<b>6,767</b>	<b>85</b>

Leases and Licences	Number	Area Acres	Sluiceways
Scheelite .....	2	51	.....
Silver Lead .....	1	10	.....
Stone .....	7	1,115	.....
Tin .....	32	560	.....
Tin-Wolfram .....	4	85	.....
Water Licences .....	9	7	18
<b>Total .....</b>	<b>93</b>	<b>9,246</b>	<b>18</b>

*RETURN showing the Total Number and Areas of Authorities to Prospect Issued during the Year ended 31st December, 1957.*

*RETURN showing Total Number and Area of Leases and Licences Applied for during the Year ended 31st December, 1957.*

Leases and Licences	Number	Area Acres.	Sluiceways
Clay .....	2	272	.....
Coal .....	5	2,154	.....
Copper .....	4	3,757	.....
Easements .....	1	3	.....
Gold .....	7	208	.....
Kaolin .....	3	52	.....
Minerals .....	10	563	.....
Rutile .....	6	409	.....

Type of Authority.	No.	Area available for Occupation. Acres.
Permits to enter on leased Crown Land .....	15	20,285
Permits to enter and owners' consents on private land .....	23	25,015
Special prospectors' licences .....	24	850,376
Prospectors' Licences .....	9	450
Miners' Rights .....	27	13
<b>Total .....</b>	<b>98</b>	<b>896,139</b>

**MINERAL PRICES.**

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

Mineral.	1955.		1956.		1957							
	Sterling.		Australian.		Sterling.		Australian.					
	£	s. d.	£	s. d.	£	s. d.	£	s. d.				
Copper .....	354	16 1	448	7 3	345	7 6	421	16 0	217	6 5	340	4 9
Lead .....	106	15 8	128	10 5	115	15 4	140	7 2	95	16 7	115	4 3
Zinc .....	91	7 10	115	5 3	97	8 0	122	2 6	18	14 1	102	7 7
Tin .....	746	6 8	956	4 2	784	0 8	1,014	5 8	755	3 6	990	19 8
Silver .....	0	6 5	0	7 7	0	6 7	0	8 3	0	6 7	0	8 2
Osmiridium .....	40	0 0	70	0 0	55	0 0	90	0 0	70	0 0	90	0 0
Gold .....	12	15 10	15	12 6	12	8 9	15	12 6	12	8 0	15	12 6
Wolfram .....	238/-		253/4		250/-		305/-		136/4		148/5	
Scheelite .....	238/-		253/4		250/-		305/-		136/4		148/5	

**MINERAL PRODUCTION SINCE 1880.**

*QUANTITY and VALUE of Mineral Production as at 31st December, 1957.*

Quantity	Value with Australian Metal Prices £
<b>Metallic Minerals—</b>	
Aluminium .....	.....
Antimony .....	3 1,107
Bismuth .....	84 29,644
Cadmium .....	1,012 969,708
Cobalt Oxide .....	8 5,857
Copper (Blister) to 1918 (now shown under Silver and Copper) .....	166,600 13,788,527
Copper Matte .....	6,277 133,736
Copper Ore to 1918 (now shown under Copper) .....	41,769 577,873
Copper from 1918 .....	346,646 43,122,984
Gold .....	2,451,053 12,951,765
Ilmenite .....	550 1,256
Iron Oxide (including Hematite, Limonite and Magnetite) .....	7,772 71,952
Pyrites .....	1,134,424 2,139,573
Lead (from 1919) .....	269,298 13,366,293
Manganese .....	1 3
Monazite .....	33 607

*Metallic Minerals—*

Quantity	Value with Australian Metal Prices £
Nickel .....	223 40,518
Osmiridium .....	31,043 705,047
Rutile .....	1 18
Scheelite .....	14,579 16,105,911
Silver Lead Ore to 1918 (now under Silver & Lead) .....	1,083,898 6,429,219
Silver, from 1919 .....	34,708,910 7,316,205
Tin .....	142,248 29,526,388
Wolfram .....	9,951 6,612,249
Zinc .....	524,687 26,145,844

*Non-Metallic Minerals—*

Quantity	Value with Australian Metal Prices £
Asbestos .....	3,980 17,142
Barytes .....	2,196 8,138
Dolomite .....	10,654 32,043
Graphite .....	40 107
Kaolin .....	103,787 400,580
Limestone, 1919-1953 .....	7,073,362 3,992,676
<b>Limestone from 1954—</b>	
Agricultural .....	74,168 15,084
Metallurgical .....	46,296 60,917
Carbide .....	76,429 155,832
Cement .....	589,944 344,720
Ochre .....	1,943 4,065
Silica .....	143,440 91,107
Talc .....	333 1,077

	Quantity	Value with Australian Metal Prices £	Manufactured Products—	Total Quantity	Value
<i>Fuel Minerals—</i>			Carbide ..... (tons)	231,968	Not available
Coal ..... (tons)	7,464,778	7,893,216	Cement ..... (tons)	2,365,844	Not available
Shale ..... (tons)	41,572	31,231	Ammonium S'phate, 1957 (tons)	48,809	£1,712,560
			Acetylene Black, 1957 .... (tons)	184	Not available
<i>Building Stones—</i>			<i>Production from Other than Tasmanian Ores—</i>		
Granite (Red) ..... (tons)	3,808	31,242	Aluminium from inception (1955) .....	21,105	Not available
Total .....		£193,211,983	Cadmium from 1956 .....	443	698,861
			Cobalt Oxide from 1956 .....	39	43,126
			Zinc from 1956 .....	161,321	16,768,674
			Titanium Dioxide from 1956 .....	12,568	3,174,181

### QUANTITY AND VALUE OF MINERALS PRODUCED IN 1957.

RETURN showing Quantity and Value of Mineral Production in Tasmania for the year ended 31st December, 1957.

Mineral	Total Quantity	Sterling £	Australian £
<i>Metallic Minerals:</i>			
Cadmium ..... (tons)	50	65,864	78,682
Cobalt Oxide ..... (tons)	0.56	.....	623
Copper ..... (tons)	10,479	2,234,706	3,552,332
Gold ..... (fine ozs.)	19,442	241,086	303,788
Iron Oxide ..... (tons)	5,775	.....	7,057
Lead ..... (tons)	11,595	1,091,277	1,315,429
Osmiridium ..... (ozs.)	66.55	4,624	5,945
Pyrite ..... (tons)	76,340	.....	228,993
Scheelite ..... (tons)	1,445	636,768	1,880,539
Silver ..... (fine ozs.)	1,258,873	412,059	514,762
Sulphur as Sulphuric Acid ..... (Mono tons)	23,155	.....	102,675
Tin ..... (tons)	777	582,485	764,171
Wolfram ..... (tons)	549	266,432	384,984
Zinc ..... (tons)	26,118	2,075,141	2,635,476
Manganese Dioxide ..... (tons)	154	.....	1,308
Zinc Sulphate ..... (tons)	158	.....	5,846
<i>Non-Metallic Minerals:</i>			
Dolomite ..... (tons)	1,176	.....	3,359
Kaolin ..... (tons)	6,038	.....	39,226
<i>Limestone:</i>			
Agricultural ..... (tons)	15,928	.....	27,133
Metallurgical ..... (tons)	15,309	.....	22,643
Carbide ..... (tons)	20,264	.....	44,542
Cement ..... (tons)	153,618	.....	126,557
Ochre ..... (tons)	22	.....	148
Pebbles ..... (tons)	607	.....	5,292
Silica ..... (tons)	6,552	.....	4,622
<i>Fuel Minerals:</i>			
Coal ..... (tons)	268,140	.....	534,111
<i>Building Stones:</i>			
Granite (Red) ..... (tons)	77	.....	1,444

Total Value with Sterling Metal Prices ..... £ 8,766,021  
 Total Value with Australian Metal Prices ..... 12,591,687  
 Average number of men employed—8137.

#### Manufactured Products:

Product	Total Quantity (tons)	Value
Carbide .....	10,744	Not available
Cement .....	124,588	Not available
Ammonium Sulphate .....	48,809	£A1,712,560
Acetylene Black .....	184	Not available

#### Production from other than Tasmanian Ores:

Product	Total Quantity (tons)	Value £A
Aluminium .....	10,625	Not available
Cadmium .....	260	£409,178
Cobalt Oxide .....	19	£22,196
Superphosphate .....	70,491	£791,689
Titanium Dioxide .....	6,400	£1,655,964
Zinc .....	83,763	£8,427,684

### AID TO MINING.

The policy of providing financial assistance was continued under the provisions of the Aid to Mining Act 1927. Loans were made available following reports by technical officers for purchase of bins at a coal mine, for testing uranium prospects, for provision of a treatment plant at a small tin mine, for sinking a shaft on a tin deposit, for reconditioning

old workings and for sinking and driving on an osmiridium lode and for driving on an area under tribute for mining purposes. The total amount advanced was £2,704.

Tribute parties remained in operation at the old Mt. Bischoff Mine at Waratah and under the terms of their tribute agreements royalty of 2½ per cent of the proceeds of tin produced was payable. Receipts totalled £222.

#### DETAILS OF EXPENDITURE ON DRILLING DURING THE YEAR ENDED 31st DECEMBER, 1957.

Plant	Location	Amount		
		£	s.	d.
G33 Percussion Drill	Southern districts and foundation testing, Devonport	3,003	13	2
G33 Percussion Drill	Smithton district	2,667	8	1
E1000 Diamond Drill	Mt. Nicholas	1,486	4	0
Junior Straitline Diamond Drill	Whirlpool Reach	674	16	6
Junior Straitline Diamond Drill	Rossarden	692	14	10
Goldfields No. 10 Diamond Drill	Zeehan	1,698	13	8
Goldfields No. 10 Diamond Drill	Tenth Legion-Zeehan	646	16	9
Miscellaneous		416	16	10
		£11,287	3	10

#### STATEMENT OF RECEIPTS AND PAYMENTS OF THE MINING TRUST FUND AS AT 31st DECEMBER, 1957.

RECEIPTS.		PAYMENTS.	
	£ s. d.		£ s. d.
Balance at 31st December, 1956	10,639 13 7	Assistance	2,074 13 8
Repayment of Loans	313 11 7	Insurance	0 8 11
Interest on Loans	36 17 10	Total Payments	2,705 2 7
Tribute Royalty	221 16 1	Balance (excess Receipts over Payments)	8,506 16 6
	£11,211 19 1		£11,211 19 1

### DRILLING.

During the year six drilling plants were in operation, consisting of three diamond drills and three percussion drills. Boring was carried out for uranium, coal, copper-nickel, iron ore, bridge foundations, supplies of underground water and building foundations.

#### Diamond Drilling.

One diamond drill at United Uranium lease near Rossarden completed Hole No. 1 to 150 feet, Hole No. 2 to 101 feet, and Hole No. 3 to 106 feet.

Diamond drilling was then resumed in the St. Marys district to coal drilling on top of the Mt. Nicholas Range. Vertical bore No. 2 was completed at 570 feet.

Diamond drilling was commenced at Whirlpool Reach on the west bank of the Tamar testing for bridge foundations.

- Hole No. 1 was completed at 100 feet.
- Hole No. 2 was completed at 78 feet.
- Hole No. 3 was completed at 71 feet.
- Hole No. 4 was completed at 41 feet.

The drill was then transferred to the east bank and Hole No. 5 advanced to 60 feet at the end of the year. Continuing diamond drilling for copper-nickel at Zeehan, Hole No. 9 was completed at 160 feet.

- Hole No. 10 completed at 130 feet.
- Hole No. 11 completed at 38 feet.
- Hole No. 12 completed at 95 feet.
- Hole No. 13 completed at 86 feet.
- Hole No. 14 completed at 88 feet.
- Hole No. 15 completed at 84 feet.
- Hole No. 17 completed at 33 feet.
- Hole No. 18 completed at 170 feet.

The diamond drill was then shifted to the iron ore deposits at Tenth Legion. Hole No. 1 was completed at 290 feet and Hole No. 2 was advanced to 140 feet at the end of the year.

#### Percussion Drilling.

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

For determination of structural building foundations, 13 bores totalling 543 feet 6 inches were completed at Devonport for Tasmanian Grain Elevators.

Boring for underground water supplies was carried out at Smithton, Woolnorth, Redpa, Marawah, Montagu, Christmas Hills, Wiltshire, Irishtown, Spring Bay, and Grindstone Bay areas.

In the Smithton area, 27 bores were completed varying in depth from 28 feet to 165 feet 6 inches, of which 21 bores were wet with output ranging from 20 to 50 gallons per hour. The total footage bored was 2,000 feet.

In the remaining districts, 22 holes were bored, of which 17 holes were wet. The output ranged from 100 to 300 gallons per hour. The depths varied from 19 feet to 175 feet and the total footage bored was 1,308 feet 7 inches.

### PUBLICATIONS.

The proposal to continue with the issue of geological bulletins, publications on the mineral resources, volumes of technical reports and further maps towards a geological atlas of the State, was advanced. During the year Mineral Resources No. 10, entitled "Limestones in Tasmania," was published and the first of the proposed annual editions of Technical Reports covering geological investigations made in 1956 was issued.

## DEPARTMENTAL ACTIVITIES.

*Geological—*

The geological services of the Department have been fully engaged in investigating and reporting upon geology and economics of mineral deposits, the investigation of rock structures for engineering purposes, location of sources of underground water, preparation of regional geological maps, examination of projects for drilling, logging of diamond drill cores and generally in providing geological information and advice for mining and engineering work.

The Regional Geological Establishments at Port Davey and Lorinna continued to function in geological surveys and mineral investigations in these districts. The Port Davey establishment is hampered in its operation by shortage of suitable staff, but investigations are being continued on a limited scale.

The Lorinna establishment completed geological surveys and mapping of areas accessible from the base headquarters at Lorinna. As further work could not be continued economically from that centre the base for future operations was moved to Sheffield.

The Mineralogist and Petrologist continued to identify and report on mineral and other specimens submitted by prospectors. Examinations were also made and reports prepared on specimens collected by geologists and on several samples being submitted to ore dressing investigation.

Drilling has been continued by the Department and plants were engaged in boring for water, proving coal seams, testing anomalies on a copper-nickel deposit, testing a silver-lead lode and test boring foundations.

*Chemical and Metallurgical—*

Assays were made of ores, minerals, rocks, coal, clays, water and mill and research products associated with ore dressing investigations. A total of 4,507 assays was completed.

Ore dressing research and advice to producers on mill operations continued as a major function of this section of the Department. Sixteen investigations were completed. These included testing of the washed product from a coal mine where a washing plant had been installed, determination of recoveries under certain conditions of treatment of an ore sample of pitch blende, treatment of mill tailings to determine nature and extent of losses of lead, grindability tests of tin ores, extraction of nickel from a sample of nickeliferous serpentine, methods of recovery of a high-grade monazite from by-product from dressing of alluvial tin concentrates, methods of improving recoveries in mill practice on tin-wolfram ores, and investigations into treatment of copper-nickel and silver-lead ores.

*New Laboratory.*

At the close of the year tenders were accepted for the construction of new chemical and ore-dressing laboratories at Wellington Street, Launceston. The tender price is £51,900.

The building is of modern design and when completed the Department will be able to expand and improve its service to the mining industry.

## STATISTICS

The various tabulations contained in all annual reports published to date have been compiled on the basis of sterling metal prices. It is felt that a better appreciation of the value of the mining industry is conveyed by expressing values in Australian currency. Tabulations included in this report have been converted to Australian currency and this will be continued in future issues.

Production statistics related to construction materials are incomplete but available information has been recorded in a separate table. Quarries producing such materials were made subject to the Mines and Works Regulation Act 1915 during the year, but it was not possible to obtain complete returns of production until all such quarries had been inspected and arrangements made for all the requirements of the Act to be complied with. Complete statistical information will be available for next year.

## DECISIONS OF THE WARDEN'S COURT.

*Objection to application 77M/56 at Adamsfield:*

*T. M. Lipscombe v. J. Bibby.*

*Determination of compensation application for lease 539P/M Collinsvale: Hobart Brick Co., applicant; N. Pearce, owner.*

These cases were for hearing by the Warden of Mines for the Central Mining District at Hobart, but the actions were withdrawn and no decision was reached.

## MINE MANAGERS BOARD OF EXAMINERS.

An examination for Certificates of Competency as Mine Managers was held in Hobart on 26th, 27th and 28th March, 1957, at which two candidates attended. Neither candidate was successful.

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

*Colliery Manager's Certificate—*

James Owen.  
John Tapp.

*Metalliferous Mine Certificate—*

Winton Gray Lee.

## STAFF.

The following were the staff movements during the year:—

Officer	Position	Remarks
Blissett, A. H.	Geologist	Appointed
Dowl, G. J.	Junior Draughtsman	Appointed
Haig, N. G.	Senior Field Assistant	Resigned
James, Miss S. M.	Typist	Appointed
Middleton, H. J.	Clerk	Appointed
McFadzean, A.	Field Assistant	Resigned
Shirley, C. A.	Clerk	Transferred Dept. of Agriculture
Sear, K. D. G.	Inspector of Explosives and Inflammable Liquids	Appointed

**MINES DRAUGHTING SECTION.**

*Year 1957.*

Number of working plans in use and kept up to date .....	238
Working plans renewed and additional plans brought into use .....	16
Manuscripts brought up to date for reproduction .....	6
Lithographs printed .....	415
Lithographs entered to date for sale .....	160
Miscellaneous plans and tracings prepared .....	45
Mineral leases applied for .....	84
Water rights applied for .....	10
Mineral diagrams and plans drawn .....	49
Special prospectors' licences current for total of 4,803,505 ac. ....	44
Permits to enter on leased Crown land for total of 20,285 ac. ....	15
Permits to enter and owners' consent for total of 25,015 ac. ....	23
Mineral leases drawn .....	126
Underground mining plans examined and checked .....	3
Launceston office working plans examined and brought up to date .....	24
Photostats of diagrams forwarded to Launceston office .....	34

**GEOLOGICAL AND ENGINEERING DRAUGHTING 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 publication including requirements for colour separation in printing, and engineering drawing for drilling and other Departmental requirements.

**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.

**APPRECIATION OF SERVICES.**

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

J. G. SYMONS, Director of Mines.

**APPENDIX I.**

**ANNUAL REPORT OF THE GEOLOGICAL SURVEY OF TASMANIA, YEAR 1957.**

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

As in previous years the work of the Geological Survey has been carried out from the three centres of Hobart, Lorinna and Port Davey. There has been no appointment to the Regional Establishment at Zeehan.

Publications for the Department for the year 1957 are:—

- (1) Mineral Resources No. 10, "Limestones in Tasmania."
- (2) Pamphlet on the Mineral Resources and Mining Industry of Tasmania.
- (3) Technical Reports No. 1.

The last is a selection of the more important reports written by officers of the Department during the year.

Investigations have been carried out and reports written on the following subjects by Departmental officers:—

*Iron.*

The Senior Geologist, T. D. Hughes, has visited the Savage River deposits and has prepared reports on his findings. He was accompanied by geologist A. B. Gulline.

Geologist F. Blake has examined and reported on the deposits at Blythe River, Natone and Highclere.

Both the Senior Geologist and Geologist F. Blake have visited the deposits of the Tenth Legion.

*Tin.*

Members of the staff have visited the more important tin fields of the State.

The Chief Geologist has visited the Gladstone field and the Endurance Mine and, with Geologist A. B. Gulline, has check sampled the Great Pyramid Mine.

The Senior Geologist has visited Lottah and the Rossarden area, near Avoca, whilst Geologist F. Blake examined the Upper Natone area.

Geologists H. Blissett and A. B. Gulline have investigated the possibilities of the Rossarden district.

Geologist R. G. Robinson has investigated the Moina tin-tungsten field and has prospected some parts of the Rossarden field.

Regional Geologist M. Z. Stefanski has reported on the tin fields of South Western Tasmania.

*Nickel.*

Senior Geologist T. D. Hughes has examined most of the nickel deposits. These are situated at Beaconsfield, Heazlewood and Zeehan.

Geologist R. G. Robinson visited the Cuni Mine to locate the drill sites and to log the bore core.

*Uranium.*

Interest in uranium decreased during the year but some development in the Castle Carey Creek area has taken place and has been recorded by the Senior Geologist.

*Clay.*

In furthering the investigations on clay deposits the Senior Geologist reported on areas near Hobart and Beaconsfield, and Geologist F. Blake reported on areas at Tunnel Hill, Glenorchy, Claremont, and Collinsvale. Geologist R. G. Robinson investigated clay for brick-making purposes. Geologist K. L. Burns reported on an extensive deposit near Moina in the Sheffield district.

*Coal.*

The Senior Geologist and Geologist F. Blake examined and reported on coal-bearing areas near Fingal, and Geologist K. L. Burns investigated an area near Mt. Lloyd.

*Limestone.*

Following the publication of Mineral Resources No. 10, "Limestones in Tasmania," Geologist F. Blake made a detailed examination of a limited area in the vicinity of Coles Bay.

*Engineering Geology.*

Advice on geological structure has been tendered by the Senior Geologist to Government Departments preparatory to bridge and silo construction and both the Senior Geologist and Geologist F. Blake have advised in connection with landslides.

*Mine Sampling.*

Mine sampling by the Chief Geologist and Geologist A. B. Gulline checked previous sampling, as a guide to grade of ore, for the present holders of the leases.

*Mineralogy and Petrology.*

The Departmental Mineralogist and Petrologist has been called on to examine specimens both from Departmental officers and from members of the public.

*Drilling.*

Percussion drilling was confined chiefly to boring for water, although some drilling was done to determine the nature of foundations.

Diamond drilling was used for sampling of iron, nickel, and coal prospects and for determining the nature of bridge foundations.

*Regional Mapping.*

The Regional Establishments have continued mapping in their respective areas.

Officers from the Hobart Centre have mapped some of the areas in the Buckland and Orford quadrangles.

Reports by the individual officers are appended hereto.

**HOBART CENTRE.**

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

The year's work has been more of a supervisory nature which has necessitated visits to the following places:—

To Gladstone, in connection with alleged uranium prospects, examination of many tin prospects, and proposed boring campaigns intended to prove grades of tin-bearing sediments;

To Triabunna, for the selection of bore site in the campaign of boring for water on farming properties;

To Smithton, to tender advice in connection with boring for chromite, in selection of sites for and advice on boring for underground water supplies and in the boring and sampling of lime deposits at Pulbeena; and

To St. Marys, in connection with diamond drilling for coal and the check sampling of the Great Pyramid Mine at Scamander.

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

Interest increased during 1957 in the iron ore resources of the State. Several visits were paid to the iron deposits in the north-west with geophysicists of the Bureau of Mineral Resources. A report was prepared on the Savage River iron deposits and since drilling operations commenced there a further visit was made to the area.

Uranium prospecting was quieter but, as a result of some development, a second report was prepared on the uranium occurrence at Castle Carey Creek in the Avoca district.

A report was prepared on the Lottah Tin Mine and recommendations were made for future prospecting at the Aberfoyle Tin Mine.

A nickel prospect, containing the rare nickel mineral Heazlewoodite, Ni<sub>3</sub>S<sub>2</sub>, situated near the Heazlewood River, was examined and a further sampling carried out on the nickeliferous serpentine near Beaconsfield.

Several reports on the geological factors influencing various engineering projects were prepared. These included bridge sites at Whirlpool Reach on the Tamar and at the Forth and Mersey Rivers, the proposed silo site at Devonport and a water storage site for the A.N.M. at Burnie.

Clay deposits at Beaconsfield and brick-making materials near Hobart were reported on.

Underground water supplies at Lisdillon, Triabunna, Dysart, Hagley, Freshwater Point and King's Meadows were investigated and several visits were paid to Departmental and other drilling operations at Zeehan, Rossarden, Royal George, Triabunna, Devonport and Whirlpool Reach.

A conference of Government Geologists of the various States was attended at Sydney in May.

Some regional mapping of the Buckland Quadrangle was done during different periods.

Advice was again given to various tributers at Waratah.

A pamphlet on the mineral resources and the mining industry of Tasmania was prepared for publication.

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

The major work carried out during the year consisted of a regional geological survey between Sorell and Orford relating to the preparation of the Buckland National Map Sheet for publication.

In conjunction with geophysical surveys by the Mineral Resources Bureau, geological surveys were undertaken at Blythe River, Natone, and Highclere iron deposits and plans and reports were prepared for each area. A visit was made to the Tenth Legion iron deposits near Zeehan to investigate possible access for a diamond drilling plant and to fix drill sites in that area.

The possibilities of obtaining underground water supplies near Orford, Grindstone Bay, Little Swanport, Buckland, South Arm and Sandford were investigated and bore sites recommended for the first four of these.

Other investigations related to coal in the Fingal district, tin at Upper Natone, landslip near Bream Creek, limestone at Salt Water Lagoon near Coles Bay, brick shales at Tunnel Hill near Cambridge and in Glenorchy, Claremont and Collinsvale areas.

Geologist A. H. BLISSETT, B.Sc., F.G.S., A.M.I.M.M., reports:—

Service with the Department started on April 17, 1957, on arrival from England.

In April and May short visits were made with Mr. Keid, Mr. Hughes, and Mr. Blake, who were investigating various problems in different parts of the State.

In June and July most of the mines in the West Coast and north-eastern areas were visited. At Zeehan a copper prospect near Kapi Creek was examined, and a report submitted.

The period from July 30 to September 12 was spent with Mr. Blake in mapping the geology of the southern part of the Buckland Quadrangle.

The rest of the year from September 16 was devoted to the geological mapping of the country around Rossarden and Storeys Creek with emphasis on the tin and tungsten mineralisation associated with the Ben Lomond granite complex.

Mineralogist and Petrologist G. EVERARD, B.A., A.M. (Aust.) I.M.M., reports:—

Specimens submitted for microscopic examination during the year comprised a wide variety of materials, including mineral sands, clays, radioactive materials, D.D.H. core, mine tailings and concentrates, as well as rock and mineral specimens collected by geologists and the general public.

Petrographic examinations were made of suites of rock specimens from the following localities:—

Five-Mile Copper Nickel deposits north of Zeehan.  
Proposed Tamar Bridge site.  
Rio Tinto Iron Ore Deposits.  
Lord Brassey Mine.  
Irishtown D.D.H. core, Smithton area.

Suites of rock specimens were received from regional establishments at Lorinna and Port Davey, and make the subjects of special reports. These included rock collections from:—

Forth Valley and along Lorinna Road.  
Cox Bight.  
Port Davey.

Specimens were received from the Chief Chemist and Metallurgist for mineralogical and other determinations.

In addition, continuing public interest in prospecting for minerals resulted in the bringing forward of over one hundred rock and mineral specimens from all parts of the State for determination.

During November, investigations were made in the field in collaboration with geologists of the Sheffield establishment, and rock specimens were collected for subsequent petrological investigation.

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

During the early part of 1957 about two months were spent in the Smithton district on field mapping and selection of sites for water bores. Other short visits were paid to the area to sample chromite, to conduct the Mines Department section of the Smithton Industrial Exhibition, and to sample limestone deposits at Pulbeena.

Other activities included two visits to the Savage River Iron Deposits. From April 29 to May 5, in company with the Senior Geologist, a geological survey was made of these.

Some time was spent at the Great Pyramid Tin Mine check sampling the old workings.

The last three months of the year were spent working in conjunction with Geologist A. H. Blissett in the regional mapping of the area in the vicinity of Rossarden.

**LORINNA CENTRE.**

Regional Geologist I. B. JENNINGS, B.Sc., A.M. (Aust.) I.M.M., reports:—

**Staff—**

Regional Geologist: I. B. Jennings.  
Geologist: R. G. Robinson, 26.2.57 - 31.12.57.  
Geologist: K. L. Burns, part-time throughout the year.  
Senior Field Assistant: A. V. Jackson.  
Senior Field Assistant: N. G. Haig, 1.1.57 - 12.4.57.  
Field Assistant: A. McFadzean, 26.2.57 - 7.10.57.  
Field Assistant: G. C. Fowles, 10.7.57 - 7.10.57.

The early portion of the year was occupied in mapping the extensive areas of Precambrian rocks which occur along the southern reaches of the Forth and Mersey Rivers. The broad stratigraphy and structure of three major groups of these rocks were outlined and a number of mineral deposits associated with them examined. This work, together with the field mapping carried out earlier, completed the initial mapping of the Middlesex Quadrangle. However, a great number of small geological problems remained and these were investigated so that compilation of the map sheet could be commenced. In addition to this geological mapping, surveys of all the mineral occurrences in the Middlesex area were carried out.

During the winter months this work of examining the mineral occurrences, together with the compilation of the geological data was pushed forward. However, during the compilation detailed surveys of several critical areas became necessary and these were carried out. The final compilation of the map sheet was completed by the end of the winter and forwarded for draughting.

Upon completion of this sheet, field work was devoted towards completing the Sheffield Quadrangle, the Sprent, Preston, Barrington and Nietta map squares being completed. It is anticipated that this quadrangle will be completed during the coming year.

In addition to this, a commencement was made on mapping the Du Cane Quadrangle. The air photos of the western portion of this sheet have been studied and traverse lines and obvious geological features outlined as a basis for future mapping.

The report on the Round Hill Mine was revised and the text and maps made suitable for publication.

Of the many mineral occurrences examined during the year the most important were the Moina Tin Tungsten Mine, the Five Mile Rise Goldfield, and the Tin Spur area.

With the completion of the Middlesex Quadrangle the base at Lorinna became somewhat remote from the areas of immediate interest. During the latter portion of the year the equipment and personnel were therefore removed to Sheffield.

Geologist R. G. ROBINSON, B.App.Sc. (Geol.), reports:—

From the beginning of the year till February 26, several minor investigations, including some for water and one for clay for brickmaking, were undertaken from the Hobart Centre.

I was transferred to the Lorinna base on February 26 and from then until the final removal of the base to Sheffield the following field work was carried out:—

- Examination of the Tin Spur workings.
- Mapping of the Moina Tungsten Tin Mine.
- Some prospecting near the Aberfoyle Tin Mine.
- Some regional mapping in the Middlesex Quadrangle.
- Examination of several mines in the Lorinna district.

On October 1 the final removal of the base to Sheffield was completed. Till the end of the year regional mapping in the Nietta district was undertaken and approximately a fortnight was spent in compiling and assessing the diamond drilling results from the Cuni Mine, Zeehan.

Geologist K. L. BURNS, B.Sc., reports:—

The period from January to August was spent completing mapping of the Middlesex Quadrangle, particularly the Western Tiers, Gog Range, Liena Gorge, and Mole Creek area.

Cambrian rocks in the Forth River, near Lorinna, and the Iris River, near Mt. Stormont, were mapped during September and October.

November was spent investigating clay deposits in the Sheffield and Moina areas, and double folding in the Cambrian rocks at Preston.

December and brief periods during the year were spent in detailed mapping and logging core in connection with the coal exploration at Mt. Lloyd.

PORT DAVEY CENTRE.

Regional Geologist M. Z. STEFANSKI, M.Sc., A.M., (Aust.) I.M.M., reports:—

The summer season was occupied mainly in mapping an area extending in a general north-easterly direction from Cox Bight to the vicinity of the junction of the Watts and Solley Rivers.

Further mapping has been carried out east of Bathurst Harbour along the northern and southern sides of the Old River up to its confluence with the Solley River. Investigations have been made to correlate the stratigraphy of W. Baker's mapped area north of Bathurst and the Channel.

In addition, surveys of the wolfram prospect at Buoy Creek have been carried out and the antimony prospect at Long Bay has also been examined. A progress report has been prepared and also a report, "Tin deposits in the South-West of Tasmania," has been written.

MAPPING AND ENGINEERING DRAUGHTING SECTION, HOBART.

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

Staff: Mr. G. J. Dowl was appointed as a Junior Mapping and Engineering Draughtsman on March 14, 1957.

Operations: Output from the Drawing Office for the year has increased and has alleviated the accumulation of draughting resulting from the increase of field staff. Cartographic work was also undertaken on behalf of the Regional Establishments at Lorinna and Port Davey.

During the year 1957, four coloured and thirty-nine black and white geological maps were prepared and printed for inclusion in the publication Mineral Resources No. 10, "Limestones in Tasmania."

Fifteen black and white geological maps and diagrams were prepared and printed as line blocks for inclusion in the publication Technical Reports No. 1 (1956).

One coloured and fourteen black and white geological maps and diagrams were prepared for printing in the Geological Survey Bulletin No. 45, "The Round Mount District".

Preparation of the Middlesex Sheet No. 45 on a scale of one inch to a mile for the Geological Atlas began during 1956. This work is still in progress. Further work was also done on compiling the new geological map of the State to be published on a scale of eight miles to an inch.

In addition, geological and engineering plans related to normal field services were prepared. The Mines Department exhibition at the Royal Show was also arranged by this section.

## APPENDIX II.

## ANNUAL REPORT FOR 1957—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 1957:—

Aluminium	18
Antimony	71
Arsenic	3
Bismuth	32
Calcium	40
Carbon in Steel	68
Chromium	43
Coal Analyses	60
Copper	293
Gold	67
Iron	577
Lead	217
Magnesium	26
Manganese	181
Molybdenum	28
Nickel	448
Phosphorus	81
Potassium	17
Qualitative Tests	490
Radio-activity Tests	17
Silicon	76
Silver	110
Sodium	17
Sulphur	106
Tin	660
Titanium	263
Tungstic Oxide	72
Uranium	22
Zinc	31
Water Analyses	10
Osmiridium	25
Clay Tests	22
Miscellaneous	316
Total	4,507

## ORE DRESSING INVESTIGATIONS.

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

Tin-Tungsten	4
Tin	3
Wolfram	1
Bismuth	1
Uranium	1
Copper-Nickel	1
Nickel	1
Lead	1
Monazite	2
Coal	1
	16

*Moina Tungsten-Tin Mining Co. N.L., Moina.*

R 307.

Retreatment on a rapid magnetic separator of this magnetic mill product containing mostly magnetite with 2.35 per cent of tin and 2.05 per cent of tungstic oxide, present as wolfram, resulted in removal of over 90 per cent of the mill product as a highly magnetic product leaving the relatively lesser and non-magnetic material containing 17.4 per cent of tin and 22.2 per cent of tungstic oxide, with recoveries of 65 and 95 per cent respectively. The object of the investigation was to determine recoverable values by careful magnetic separation. Separation of the cassiterite and wolfram was not attempted.

R 308.

A sample weighing 700 lbs. was obtained from the coarse tailing dump for investigation of assay value and recoveries obtainable by re-concentration on jigs and tables without crushing. Sizing analysis showed 38.5 per cent plus 4 mesh, 36.6 per cent plus 8 mesh, and 18.2 per cent plus 22 mesh B.S.

A sample was cut out and assayed with the following results:—Tin 0.1 per cent and  $WO_3$  0.02 per cent.

Jig and table concentration resulted in a recovery of 0.0475 tin- $WO_3$  units per ton which at a nominal value of 200s. per mixed unit, is equivalent to 9s. 6d. per ton of tailings. Portion of the values existed as composite grains with gangue.

R 309.

A sample of non-magnetic concentrate produced by table concentration and magnetic separation containing cassiterite, bismuthinite, pyrite, scheelite, &c., and assaying 55.2 per cent of tin, 1.6 per cent of bismuth, and 12.4 per cent of tungstic oxide, was submitted to tests to produce a bismuth concentrate by flotation. Bulk flotation with copper sulphate and mixed xanthates gave a 100 per cent recovery of bismuth in a low-grade concentrate containing 11 per cent of bismuth and 6 per cent of tin. Lime and cyanide to depress pyrite and flotation of bismuthinite with mixed xanthates resulted in a concentrate assaying 39.4 per cent of bismuth and 7.2 per cent of tin. Recovery of the bismuth and tin amounted to 62.4 and 0.3 per cent respectively. Flotation of pyrite followed (Test 10) using sodium silicate, copper sulphate and mixed xanthates, and the resultant flotation sink contained 54.4 per cent of tin and 0.5 per cent of bismuth.

*Aberfoyle Tin Mining Co. N.L., Rossarden.*

R 310.

In 1955 research showed (R 286) that digestion of siderite cassiterite wolfram residues with hot dilute sulphuric acid, washing and magnetic separation improved separation of the valuable minerals. The finest slime is removed by hydraulic classification, as a necessary pretreatment by magnetic separation. In this investigation slime produced in the mill by this process contained 29.6 per cent of tungstic oxide, and 7.4 per cent of tin. Gravity concentration of the sample resulted in a concentrate containing 57.5 per cent of tungstic oxide and 11.1 per cent of tin with recoveries of 53.8 and 41.7 per cent respectively.

*Tasmanian United Uranium Co., Hobart.*

R 311.

The ore sample contained pitch blende with a  $U_3O_8$  content of 0.44 per cent. The mineral was amorphous with individual grains, generally very small. The sample was stated to be indicative of total ore mined, and the company desired to know whether the ore was amenable to jig or table concentration. Only 9.7 per cent was recovered by jig and table concentration of minus 10 mesh ore with a concentrate containing 1.71 per cent of  $U_3O_8$ .

*Montana Silver Lead N.L., Zeehan.*

R 312.

The sample of copper-nickel ore was obtained from the "5 Mile" district near Zeehan. The minerals of economic interest are chalcopyrite and millerite. Assay values were copper 5.6 per cent, nickel 7.9 per cent, iron 34.5 per cent and sulphur 44.6 per cent. Over 90 per cent of the ore was sulphides with pyrite as the major gangue mineral. The majority of the minerals were fairly intimately associated with grain sizes observed down to 10 microns. The investigation was primarily directed to the selective flotation of the millerite and chalcopyrite as separate concentrates, and secondly to produce a copper-nickel concentrate whilst depressing the pyrite. Lime and cyanide were used as depressants with variants in grinding. Selectivity between the three major minerals in lime cyanide pulps at grinds approaching minus 300 mesh was relatively minor. Typical copper-nickel floats showed recoveries of 80 and 70 per cent respectively with concentrate grade of 11.4 per cent of copper and 16.5 per cent of nickel. Maximum grade of copper concentrate was 16.6 Cu with a recovery of 62 per cent. This concentrate contained 10.3 per cent of nickel with a recovery of 25 per cent. The Montana Co. was interested in selective flotation as practised at the Sherritt Gordon Lynn Lake project in Canada where 30 per cent copper and 0.5 per cent nickel concentrates are produced in a similar manner to this investigation.

Zeehan Mines Pty. Ltd., Zeehan.

R 313.

A sample of mill tailings from treatment of a silver-lead ore by flotation was submitted for a preliminary examination to determine the nature and extent of losses of lead. The sample assayed 0.21 per cent of lead of which 0.2 per cent existed as oxide lead. A sizing analysis showed approximately half the lead to be in the slime (minus 6 microns). Lead loss was too small to justify concentration tests.

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

R 314 and R 316.

The samples of ore were obtained from the mill conveyor belt to undertake grindability tests to determine the capacity of a 5 feet by 4 feet Marcy grate discharge mill recently put into commission at the company's mill. In 1945 a special sample of hard unweathered ore was obtained from the King Island Scheelite Mine and this has been used as a standard for grindability tests. The data obtained from the first sample (R 314) indicated that the capacity of the mill ranged from 1.5 tons at 150 mesh to 4.5 tons/hour at 52 mesh. The second sample (R 316) shows a higher grindability indicating a mill capacity range from 1.9 tons per hour at 150 mesh to 5.7 tons at 52 mesh size.

Ben Lomond Mining Co. Ltd., Launceston.

R 315.

A sample of nickeliferous serpentine containing 0.82 per cent of nickel present as a silicate, probably garnierite, was submitted to extractions with hot dilute sulphuric acid. The quantities of concentrated sulphuric acid added ranged from 352 to 1210 lbs. per ton of ore, and nickel extractions ranged from 46 to 89 per cent. High acid consumptions are caused by attack on the serpentine. Oxidation of the iron with chloride of lime followed by addition of caustic soda to a pH value of 3 to remove ferric hydrate, followed by additional caustic soda to a pH value of 8.5 to precipitate the nickel from magnesium sulphate was effective. Ninety-five per cent of the nickel in solution was recovered in the nickel precipitate. Reagents used for treatment of the solution were chloride of lime 10 lbs., caustic soda 75 lbs. per short ton of ore.

Dorset Tin Dredging, South Mount Cameron.

R 317.

Two samples of concentrates were submitted by the Dorset Dredge, Department of Supply. The concentrate is a by-product from the production of sale grade tin concentrates and contained 13.3 and 3.6 per cent of tin, 61 and 45 per cent of monazite together with zircon, ilmenite and magnetite. Production of high-grade monazite was desired.

Electro-magnetic separation resulted in high grade monazite concentrates containing 93 and 95 per cent of monazite with recoveries of 98 per cent. The non-magnetic fractions contained 58 and 23 per cent of tin which could be upgraded by hydraulic means.

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

R 318.

A sample of concentrate containing wolfram, siderite and cassiterite with minor quantities of quartz and pyrite was subjected to digestion with hot dilute sulphuric acid to remove siderite which reports together with the wolfram as a product from the company's magnetic separator. Acid treatment followed by magnetic separation increased the tungstic oxide from 42 per cent to 63 per cent with a recovery of the wolfram of over 97 per cent.

Dorset Tin Dredging, South Mount Cameron.

R 319.

A sample of monazite and cassiterite with ilmenite, zircon and magnetite was submitted to flotation tests in an attempt to produce a high-grade concentrate comparable to the high grade obtainable by electro-magnetic separation. The majority of the reagents used showed practically no selectivity, and best results showed a monazite content of 7 per cent. The sample contained 53 per cent of monazite. The reagents used, together with various modifying reagents, were sulphonated castor oil, oleic acid, palmitic acid, sodium oleate, armac 12 D amine, Reagents AC 708, 710, 712 and 801.

Merrywood Coal Co., Launceston.

R 320.

A sample of washed coal was examined by sink-float tests to determine the nature of the washed product. Ninety-eight per cent floated at a density of 1.8, and the sink at 1.8 contained 70 per cent of ash. The washery is a recent installation which consists of spiked roll crushing, closed circuit screening, and washing on special coal cleaning Deister tables. The washed sample contained 20.5 per cent of ash and showed a heating value of 11,190 B.Th. units.

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

R 321.

A sample of mill jig middlings containing 10 per cent of tungstic oxide as wolfram and the remainder, mainly pyrite, was submitted to jig concentration with a recovery of 60 per cent in a concentrate containing 63 per cent of tungstic oxide. Grinding of the jig tailings to 85 mesh resulted in a further recovery of 31 per cent of similar grade.

Aberfoyle Tin Mining Co. N.L., Rossarden.

R 323.

A sample of minus 10 mesh ore was submitted for tests on primary concentration to a low grade concentrate. The sample contained 1.9 per cent of tin, and concentration in a Denver jig resulted in a recovery of 85 per cent with a concentrate containing 6.5 per cent of tin.

Table with multiple columns and rows, containing numerical data and some text. The table is oriented vertically on the page. The columns include various numerical values and some descriptive text. The rows are numbered or labeled. The text is difficult to read due to the orientation and some faint markings.

APPENDIX III.

REPORT OF THE CHIEF INSPECTOR OF MINES.

(Compiled by the Assistant Chief Inspector of Mines, Mr. P. M. Johnstone, B.E., M.I.M.M., M. (Aust.) I.M.M.)

The Chief Inspector of Mines, Mr. J. G. Symons, B.E., M. (Aust.) 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 8,137, an increase of 445 as compared with the previous year. To this may be added 98 men employed in quarries brought under the Act during the year. The increase in employment occurred in the western, northern, and southern districts, where a general increase in activity was evident in the larger works.

Accidents.

The number of accidents to persons registered under the Act was 80, compared with 130 last year, and these are dissected in the appended tables. In calculating the rates per thousand for the year, 720 employees of a works which does not report accidents were discarded. There were marked decreases in the incidence of accidents in all branches of the industry except above ground in metalliferous mines. For the first year since 1948 no fatalities occurred, and the rate of 10.786 injured per thousand persons exposed is the best result in recent years.

Inspection.

No staff changes occurred during the year.

Inspections were made to promote safe practice and good housekeeping, with particular regard to the safety and hygiene of personnel, to give operators technical advice upon request, to report on applications for financial assistance, and to assemble statistical and general knowledge of the industry. The inspectors' reports on generalities are given in Appendix V. and their notes on production and development of various mines are quoted in the main report.

DESCRIPTION OF FATAL AND SERIOUS ACCIDENTS.

Fatal—Nil.

Serious—

T. Whittle, E.Z. Co., Risdon	Slipped on stairs: broken arm
G. A. Rayner, Briseis Tin, Derby	Struck by falling stone in open cast: broken head
K. C. Oliver, Goliath Portland Cement, Railton	Fell from roof when purlin failed: broken foot
C. V. Joseph, Mt. Lyell Co., Queenstown	Struck by churn drill bailer when swung aside: broken foot
J. Lonergan, Mt. Lyell Co., Queenstown	Struck a switch box whilst travelling on u/g loco: broken pelvis
H. H. Roper, Storeys Creek Tin Mine, Storeys Ck.	Fell through opening in floor of mill under construction: displacement of spine
S. L. McKay, E.Z. Co., Risdon	Arm caught between conveyor belt and pulley: completely detached arm

R. Williams, Bain's Quarry, Dynnyrne	Clothing and leg caught between gear pinions: severe internal injuries
T. E. Nicholson, Crisp & Gunn's Quarry, Knocklofty	Struck by stone whilst barring down in quarry: broken leg
A. Toth, E.Z. Co., Rosebery	Fall of ground whilst standing timber: broken ribs and injured legs
H. Mulloy, E.Z. Co., Rosebery	Arm jammed against chute leg by truck: broken arm
F. A. Reubens, Renison Tin Mine, Renison Bell	Fell 20 feet when new plank on which he was working failed: broken thigh
J. G. O'Shea, Mt. Lyell Co., Queenstown	Whilst barring a stone struck the end of the bar: broken head
W. T. Harris, Mt. Lyell Co., Queenstown	Slipped and fell in shower room: broken collar-bone
F. J. McGowan, Mt. Lyell Co., Queenstown	Fell from platform of shovel under repairs after rail had been removed: broken arm

INCIDENCE OF ACCIDENTS.

Place and Cause of Accident.	Number of Persons Killed.	Number of Persons Injured (incapacitated for over 14 days).
<i>Section A.—Metalliferous Mines—</i>		
1. Below Ground:		
(a) Explosions		5
(b) Falls of Ground		1
(c) Falling down Shafts, &c.		18
(d) Other Causes		
2. Above Ground:		
(a) Machinery in Motion		3
(b) Other Causes		22
3. Accidents in Batteries, Ore-dressing, Smelting and other Metallurgical Works, &c.		28
Total Metalliferous Mines (A)		77
<i>Section B.—Coal Mines—</i>		
4. Below Ground:		
(a) Mine Explosions (fire, damp, &c.)		1
(b) Explosives (dynamite, &c.)		1
(c) Falls of Earth		
(d) Other Causes		
5. Above Ground:		
(a) Machinery in Motion		1
(b) Other Causes		
Total Coal Mines (B)		3
Total All Mines (A and B)		80

COMPARATIVE TABLE SHOWING RATES PER THOUSAND KILLED OR INJURED.

Period	Number of Persons		Number of Persons			Number per Thousand		
	Employed	Accidents	Killed	Injured	Total	Killed	Injured	Total
1892 - 1930*								
1931 - 1940†								
1941	5856	85	5	85	90	0.853	14.515	15.368
1942	5572	89	4	86	90	0.718	15.434	16.152
1943	5535	73	6	67	73	1.084	12.104	13.188
1944	5439	73	4	71	75	0.735	13.054	13.789
1945	5178	46	2	44	46	0.386	8.497	8.883
1946	5255	63	1	62	63	0.19	11.798	11.989
1947	5316	74		74	74		13.920	13.920
1948	5399	67	3	64	67	0.555	11.854	12.409
1949	5659	65	1	64	65	0.176	11.308	11.484
1950	5892	62	2	62	64	0.339	10.524	10.862
1951	5928	49	2	50	52	0.337	8.335	8.772
1952	6820	62	1	61	62	0.147	8.944	9.091
1953	7370	73	6	67	73	0.801	0.091	9.892
1954	7289	75	3	72	75	0.411	9.877	10.289
1955	7095	98	4	96	100	0.563	13.531	14.094
1956	7692	130	4	126	130	0.520	16.381	16.901
1957	8137	79		80	80		10.786	10.786

\* See Report of Director of Mines—1954.

† See Report of Director of Mines—1956.

APPENDIX IV.

REPORT OF THE CHIEF INSPECTOR OF EXPLOSIVES.

(Compiled by the Assistant Chief Inspector of Explosives, Mr. P. M. Johnstone, B.E., M.I.M.M., M. (Aust.) I.M.M.)

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.)		161,250				161,000
Gelignite (lb.)	873,550	453,250	320,650	113,650	104,250	1,865,350
Hydrogel (lb.)	750					750
Ligdyn (lb.)	8,750					8,750
Plastergel (lb.)		50,000				50,000
Quarrigel (lb.)	5,500			1,132,750	84,950	1,223,200
Quarry Monobel (lb.)	4,500	5,000	5,300		8,750	23,550
Semigel (lb.)						
Blasting Powder (lb.)	4,500	10,000	1,500			16,000
Cordtex (ft.)	117,000	87,000	42,000	408,000	18,000	672,000
Detonators		700,000			25,000	725,000
Detonators (Electric)		321,200				321,200
Detonating Relays		2,000		2,000		4,000

All nitro-compounds were of Polar manufacture.

All of the 32 shipments landed were inspected and found to be in good condition. The wrappings on some gelignite plugs were found faulty in that the crimping machine had failed to close one end properly, leaving gelignite exposed. The maker was advised and the matter attended to. Few cases were damaged in transit.

The unloading period at Hobart was shortened by allowing the vessel to moor alongside the powder jetty. Previously the vessel had been required to anchor off and land the explosives by whale-boat.

Considerable quantities of Australian, British and Chinese fireworks were imported and samples representing each shipment were examined. The clay plug in one particular firework was found to be either missing or of strength inadequate to contain the composition, and the maker was required to remedy the defect.

*Accidents.*

There were four accidents in connection with the use of explosives, of which two were serious. One man was killed and another seriously injured in a tunnel whilst charging holes, attempts to remove a stuck plug causing the charge to explode. In the other case a youth suffered severe damage to his hand when a home-made bomb exploded.

An unprimed bulling charge in a quarry hole exploded whilst the tamping stick was being withdrawn, causing minor injuries to the powder monkey's hands. In the fourth accident a box of fireworks was ignited in a shop, causing much smoke but little damage.

*Inspection.*

One appointment was made during the year to fill a vacancy caused at Hobart by a resignation.

The ninety licensed magazines throughout the State were examined during the year to check on the maintenance of licensing conditions, as well as many exempt storage places. One firm was prosecuted for illegal storage, the case being adjourned sine die. In several instances shopkeepers were found to be displaying fireworks in a dangerous manner, that is to say in windows or in open boxes. On their being advised of the dangers involved these breaches of the Act were stopped.

The conference of the Chief Inspectors of the Australian States and New Zealand met in Perth during the year to exchange and review technical information and to move towards standardisation of safety requirements.

*Inflammable Liquids Act 1929.*

The following quantities in tons of inflammable liquids were imported in bulk during the year through the ports shown:—

Liquid	Hobart	Dev'port	Bell Bay	Total
Aviation Gasoline	2,600		2,164	4,764
Benzol	400			400
Jet Fuel	1,060			1,060
Kerosene, Lighting	1,354	597		1,951
Kerosene, Power	1,241	2,961		4,202
Motor Spirit, Premium	13,010	8,712	8,452	30,174
Motor Spirit, Regular	22,328	15,144	15,702	53,174
<b>Total</b>	<b>41,993</b>	<b>27,414</b>	<b>26,318</b>	<b>95,725</b>

Tank Ships (No.)	13	8	9	30
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The unloading of these vessels was supervised in the interests of good practice and to prevent untoward incidents.

*Accidents.*

Only one accident was reported, and the suspected cause was an electrical fault in a motor vehicle. The vehicle caught fire immediately after refuelling at a bowser, and both it and the bowser were badly damaged.

*Inspection.*

Burnie entered the list of ports of discharge for tankers during the year, a fuel line and storage tank having been installed there.

At Devonport two other shore installations were made. The inflow of applications for new storage licences continued apace, and the number of licensed premises at 30th June, 1957, was 1486, an increase of 177 in 12 months. A commendable innovation by oil companies was the provision at some service stations of underground tanks for lighting kerosene. These stations being specially constructed for storing and dispensing inflammable liquid, the practice is much safer than that of dispensing from drums in shops.

Aside from general inspection of storage conditions, particular attention was paid to fire-fighting equipment available at major depots. In several cases in built-up areas the equipment was inadequate and improvements were required. Two prosecutions were made for illegal storage, fines being imposed in each case.

A Conference of all States and interested bodies was held in Sydney to consider a scheme from U.N.O. for uniform classification and labelling of inflammable liquids and other dangerous commodities throughout the world.

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:—

EMPLOYMENT.

The average number of persons employed in the industry was 2,400, an increase of 112 compared to the previous year. Of these 378 were engaged underground, and in addition, there were 44 men engaged in large-scale exploratory work on special prospecting licences.

ACCIDENTS.

There were 32 accidents registered under the Mines and Works Regulation Act as causing 14 days' or longer lost time. No fatal accident occurred.

Of the thirteen underground accidents, four were serious. A fall of ground in a stope caused broken ribs, shock and severe abrasions to two men, and another man dislocated a disc by slipping on a slope, although using a rope. The fourth man suffered a broken arm when it was caught between a truck and a chute leg.

Nineteen accidents occurred on the surface, five being serious. Three men fell to the ground breaking an arm, a collar-bone and a thigh respectively. One man received a broken head from his bar whilst clearing ore from a truck, and the fifth lost a finger when it was caught in a belt.

HEALTH AND SANITATION.

Regular inspections have shown that ventilation and other working conditions throughout the district were satisfactory.

AID TO MINING.

Applications for assistance under the Aid to Mining Act were investigated and reports prepared. There are three parties working in the district with financial assistance.

EXPLOSIVES AND INFLAMMABLE LIQUIDS.

Storage places for explosives and inflammable liquids were periodically checked with an eye to the fulfilment of the conditions required by the respective Acts governing the same. Landings of explosives at Strahan were supervised, and their carriage thence to Queenstown, and all carriage generally. Shipments arrived in uniform good condition.

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

EMPLOYMENT.

The average number of persons employed in the industry was 1041, as compared with 1063 for the previous year. Reduction was brought about mainly by the closure of Moina Tungsten Tin Mine at the end of 1956 and some restriction in scheelite mining during the latter portion of the year. The number was increased by the inclusion of certain quarrying operations.

HEALTH AND SANITATION.

In general, compliance of the various managements with provisions of the Mines and Works Regulation Act relating to health and hygiene was satisfactory.

On one crushing plant, an examination of the stone crushed revealed a high percentage of silica, the rock being defined as a quartz schist, and the management of this quarry has been required to improve dust control.

As the result of the medical examination of 260 employees of a metallurgical works, exemption from the Workers' (Occupational Diseases) Relief Fund Act was given.

There were two applications for compensation but both were diagnosed as free from disease, within the meaning of the Act. Records were kept of initial and biennial examinations.

ACCIDENTS.

A total of five accidents involving absence from work of 14 days or more occurred during the year. Of these one occurred underground, when a miner was engaged

barring down. A piece of hanging wall rock rolled on his ankle. The only other serious accident occurred when a carpenter dismantling a roof 18 feet above the ground put his weight on a rotten purlin which broke, causing him to fall. He sustained a fractured bone in the foot, a guy rope breaking his fall and preventing more serious injury.

VENTILATION.

Underground, atmospheric conditions were maintained satisfactory by the provision of adequate rises, and where necessary by the installation of auxiliary fans in development drives. On the surface, particularly in the crushing sections of the larger ore-dressing plants and metallurgical works, dust control was a matter of importance, and good progress was made during the year. One company whose product has a particle size of 5 microns, is at present investigating a system of bag filling which, it is hoped, will replace the somewhat unsatisfactory method at present in use. This powdered material, while known to be harmless, is at the same time a source of discomfort to the bag fillers.

EXPLOSIVES.

Control was exercised over the landing, carriage, and storage of explosives. Due to encroachment by new buildings, &c., in the vicinity of explosives magazines at Burnie, their licence is not to be renewed in the coming year. No explosive accidents were recorded during the year.

INFLAMMABLE LIQUIDS.

Routine examinations of storage sites, &c., as well as inspections of new installations, were made throughout the year to ensure safe storage and compliance with the Inflammable Liquids Act.

In one instance continued disregard of warnings resulted in the prosecution of a person for illegal storage and a fine of £5 with costs was imposed.

AID TO MINING.

Two applications for monetary assistance under the Act were received and granted. In addition, prospectors and miners were advised on the acquisition of disused plant which had reverted to the Crown, for use on active mining projects. In cases where application was made to purchase such equipment, inspections were made to assess the condition and value, and recommendations made accordingly.

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

EMPLOYMENT.

The average number of men employed in mining and allied industries, other than coal mining, was 1293. This is an increase of 239 over last year.

ACCIDENTS.

Of the accidents reported, seventeen were registered, each involving a loss of not less than fourteen days' employment. It is with pleasure that I am able to report nil fatalities. Ten of the accidents occurred underground and seven on the surface.

The underground accidents were varied, four were caused whilst trucking, resulting in lacerations to the hands in three cases, and a fractured rib in the fourth case. In another case a hand was lacerated by being caught on a projecting nail. Another employee received a fractured ankle when a board in a staging broke. A somewhat similar accident was a fall from a staging causing back injury. A man was injured in the eye by a scat whilst spalling stones, and another suffered a broken toe by striking it with a pick. The last accident was a strained back caused by jerking a chute door.

Of the surface accidents the most serious was a fall through an opening in a floor of a building under construction on to the concrete floor below, causing displacement of the joints of the spine.

The other serious accident was a fracture of the skull when a stone fell from the face in an alluvial mine.

One man had his hands lacerated when a bulling charge in a quarry exploded prematurely. Another man had his hand lacerated between a pipe and a tree stump. Two of the surface accidents were also caused during trucking operations, and in the last accident a man strained his back when picking up equipment.

#### SAFETY.

Considerable effort was expended in having operations carried out in a safe manner, and in educating those engaged in the principles of safe practice. Regular inspections were made of the various mines to implement this policy.

#### HEALTH AND SANITATION.

Inspections were carried out to ensure that a reasonable standard of cleanliness was maintained around the mines generally, and in particular in change houses, crib rooms, latrines, &c., in order to preserve the health of the employees.

Ventilation and dust suppression were kept under constant surveillance, so that working conditions were satisfactory.

In co-operating with the Workers' (Occupational Diseases) Relief Fund Board in arranging examinations, &c., a medical check was kept on mining employees, with particular reference to those ills which may arise from their work.

#### EXPLOSIVES.

One accident occurred in the use of explosives. Some gelignite had been placed in a hole in a quarry for the purpose of bulling a hole, and as the tamping stick was being removed prior to inserting the primer the incomplete charge exploded. The powder monkey received lacerations to the hands, and the cause of the explosion has not been satisfactorily explained.

Importation of explosives at Launceston was supervised and all shipments were in good condition apart from a few packing cases having been slightly damaged.

During the year a number of small parcels of explosives were destroyed on behalf of various owners, the explosives having deteriorated due to age or improper storage. Samples of some faulty fuse lighters were obtained and forwarded to Hobart for further testing.

One firm was prosecuted for the sale of explosives without a permit and for improper storage of explosives, but the case was dismissed on the first part and adjourned sine die on the second part.

Inspection of magazine storage was carried out, and shipments of fireworks were sampled for testing and inspection.

#### MACHINERY.

Two pumping units were installed for alluvial mining, one a 275 h.p. electric motor coupled to a 16-in. centrifugal pump, and the other a 35 h.p. diesel engine coupled to a 5-in. centrifugal pump. Both units operated satisfactorily. At an underground mine a considerable amount of machinery was installed in a new milling plant. Machinery in general was maintained in good order and condition and when requested additional guards were installed around moving parts. An overwind occurred at a vertical shaft due to a human error, but the rope was detached and the various safety equipment operated to good effect.

#### INFLAMMABLE LIQUIDS.

Much time was expended in the administration of the Inflammable Liquids Act, and with the enormous expansion in sale and distribution of these liquids it is considered assistance is needed to obtain fuller compliance with the Act.

Unloading in bulk of inflammable liquid at Bell Bay was supervised and numerous inspections made in connection with pump installations and storage depots.

A storekeeper was prosecuted for unlicensed storage, found guilty, and fined £5 with 9s. costs.

A fire in an open tin of petrol in a motor car came under notice, but it was only of a minor nature and there was no contravention of the Act.

#### AID TO MINING.

Reports were compiled in connection with applications for assistance under the Aid to Mining Act, and wherever possible, advice and assistance was given to promote efficiency and encourage miners generally.

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

#### EMPLOYMENT.

The average number of persons employed in Mines and Works operating under the Mines and Works Regulation Act was 466, a decrease of 44 compared with the previous year.

#### ACCIDENTS.

Only three accidents were registered under the provisions of the Act, and none of these was of a serious character. Two accidents occurred underground and one on the surface. Of the former one was caused by falls of coal and stone at the face, and the other occurred on the haulage road.

#### SAFETY.

Attention was directed to the safe working of the undertakings, additional precautions being ordered where deemed necessary. Regular inspections were carried out including testing of the mine atmosphere for inflammable and noxious gases, no gas being encountered.

Pillar extraction was completed at one small colliery without mishap.

Electrical apparatus and machinery were kept under observation and one accident was reported. Derailed tubs pulled down several props supporting an electric cable, partially severing the insulation. A very small earth leakage occurred and killed a pit pony some distance away.

#### VENTILATION.

Regular measurements were made to ascertain the quantity, temperature and humidity of air circulating through the underground workings. In some cases the flow of air was not regarded as adequate and additional work was required to effect improvements. The highest recorded temperature was 69°F. saturated. This is lower than the prescribed maximum, but, in general, temperatures were around 62° with one or two degrees between the wet and dry bulbs, which is most satisfactory.

Unsatisfactory ventilation exists at one colliery where the return airway has collapsed, moderate progress having been made in re-opening to restore full circulation.

#### EXPLOSIVES.

Storage magazines were generally found to comply with the requirements of the Explosives Act, and new magazines were examined prior to licensing.

Some misfires occurred in short delay detonators. Examination of the detonators recovered revealed the delay action powder intact although the fuse head had ignited. Therefore the delay compound had either failed to ignite or become extinguished after ignition, but it is understood that this defect has been overcome by the makers.

#### INFLAMMABLE LIQUIDS.

Routine inspections located but minor infringements of the Inflammable Liquids Act. A corrective advice was acted upon, and further consultations and inspections on new licensed storage sites were held.

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 under the Mines and Works Regulation Act was 2937. To this number may be added 98, being the employees at quarries brought under the Act during the year.

#### ACCIDENTS.

Twenty-three accidents of 14 days' or longer lost time were registered. Of the three serious accidents, two were caused by men being caught in moving machinery, in one case a gear train and the other a conveyor belt. The third was severely burnt by molten metal from an explosion in a furnace. There were no underground accidents, and 21 occurred in works.

#### EXPLOSIVES.

Landings at Hobart were supervised and cases opened at intervals for examination. Magazines were inspected and new sites and structures were considered for licensing.

Two accidents were reported and a special investigation was made into one, a premature blast in a tunnel, in which a man lost his life and another was badly injured.

REPORT OF THE RINGAROOMA AND CASCADE WATER BOARD FOR THE YEAR ENDED 31st DECEMBER, 1957.

SIR,

WE HAVE the honour to submit the report of the Ringarooma and Cascade Water Board for the year ended 31st December, 1957.

The Cascade section remained in use by Briseis Tin N.L. at a rental of £211 per annum, the Company being responsible for maintenance of this section to the satisfaction of the Board. The section has been maintained in good order.

By arrangement, Briseis Tin N.L. has continued with the maintenance of the Ringarooma system on a cost plus supervision basis and conditions have been improved considerably by the elimination of Lades fluming and its replacement by Lades syphon. Sections of the Ringarooma Race have also been concreted and some sections of the Ruby Flat fluming have been replaced with pipes from the dismantled Valley syphon. Considerable maintenance work is constantly required to preserve the system and expenditure during the year amounted to £6,674.

The townships using the race system as a source for their domestic water supply are now contributing to the Board on the basis of the number of users connected to the reticulation system.

The Board is constantly concerned with the high maintenance cost of the Ringarooma race system. With the replacement of sections of fluming by steel pipeline it is anticipated that maintenance costs will continue to decrease, but the Board cannot see the possibility of bridging the gap between expenditure and revenue. Consideration is being given to a proposal for an alternative supply of water for the two major mining projects in operation.

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, 1957.

Table with two columns: Receipts and Payments. Receipts include Rent of Cascade Race and Dams, Revenue from sale of water from Ringarooma Race, Mining purposes, Domestic use, Town supplies, and Miscellaneous. Payments include Ringarooma Race (Wages-Caretakers, Wages-Maintenance, Holiday pay, Pay Roll Tax, Workers' Compensation Insurance, Stores, Transport expenses, Supervision, Telephone, Compensation for damage to property and legal expenses, Rent of private land, Interest on capital cost of Ringarooma and Cascade Water System). Total Receipts: £6,673 3 1. Total Payments: £6,673 3 1.

REPORT OF THE MOUNT CAMERON WATER-RACE BOARD FOR THE YEAR ENDED 31st DECEMBER, 1957.

SIR,

WE HAVE the honour to submit the report of the Mount Cameron Water Race Board for the year ended 31st December, 1957.

Production of tin oxide from water supplied was 31.784 tons as compared with 33 tons for last year.

All water was supplied under the Fixed or Cash Scale with the exception of one operator who contracted for four sluiceways of water under the Royalty Scale towards the end of the year.

The operational loss was £1,453 12s. as compared with £1,578 18s. for 1956. Revenue from the supply of water under the Fixed Scale increased by £125 as a result of activities of the Elizabeth Tin Syndicate, and expenditure declined slightly.

The race system has been maintained in reasonable condition. The supports of the syphon over the Little Mussel Roe River were renewed. It is necessary to keep races free of weed growth to ensure maximum flow of water, and experiments in the use of weedicides and a

rotary hoe have been carried out with satisfactory results. The matter is still under investigation.

The Board was hopeful that the activities of the Elizabeth Tin Syndicate would result in sufficient revenue to meet operational expenditure. Unfortunately, operations by the Syndicate were not profitable and it became necessary to cease operations and transfer to another area. Productive mining was recommenced in October last after a lapse of four months and water is being supplied under the Fixed Scale.

Expenditure during 1957 contains non-recurring items amounting to over £400 and this, together with anticipated additional revenue from the sale of water, should reduce the loss in 1958.

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.

STATISTICS FOR THE YEAR ENDED 31st DECEMBER, 1957.

*Registered Rainfall:*

Great Mussel Roe .....	30 inches 10 points
Little Mussel Roe .....	29 inches 59 points

*Water Services:*

Average number of claims supplied per week .....	3
Greatest number of claims supplied in any one week .....	4
Total number of sluiceways supplied .....	1740
Fixed or Cash Scale .....	1716
Royalty Scale .....	24

*Production and Employment:*

Tin oxide produced:—

	tons	cwt.	qrs.	lbs.
Fixed Scale .....	31	13	0	6
Royalty Scale .....	.....	2	2	14
<b>Total .....</b>	<b>31</b>	<b>15</b>	<b>2</b>	<b>20</b>

Average number of men employed per week: 5.

*Statement of Receipts and Payments of the Mt. Cameron Water Race Suspense Account for the Year Ended 31st December, 1957.*

<i>Receipts.</i>			<i>Payments.</i>		
	£	s. d.		£	s. d.
Sale of Water—Fixed Scale .....	1,585	5 0	Salary and wages .....	2,314	1 3
			Pay Roll Tax .....	57	17 5
			Car allowance .....	66	13 4
			Insurance .....	29	1 9
			Tools and general requisites .....	28	12 0
			Contribution to widening race to Star Hill and Elizabeth Mines .....	240	0 0
			Repairs Little Mussel Roe Syphon .....	200	0 0
			Cleaning Main Race .....	52	10 0
			Repairs and maintenance to cottages and manager's residence .....	33	6 6
			Freight and cartage .....	12	4 0
Balance (Loss, 1957) .....	1,453	12 0	Miscellaneous .....	4	10 9
	<u>£3,038</u>	<u>17 0</u>		<u>£3,038</u>	<u>17 0</u>