

TASMANIA

REPORT

OF THE

DIRECTOR OF MINES

FOR THE

YEAR ENDED 31ST DECEMBER

1959



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

1960

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REPORT OF THE DIRECTOR OF MINES

Department of Mines,
Hobart, 1st August, 1960.

THE HONOURABLE THE MINISTER FOR MINES.

I HAVE the honour to present my report on the mining industry for the year ended 31st December, 1959.

The total value of the output of the mineral industry was £A12,766,261 as compared with £A11,838,054 for the previous year. The increase may be accounted for by increases in metal prices which in some cases were sufficient to return a greater income despite a fall in actual quantities produced. There were increases in the value of the production based on average metal prices of copper, lead, silver, tin, wolfram and zinc. Production of copper, lead, tin and wolfram increased but there was a fall in the quantities of gold, silver and zinc produced. Non-metallic minerals and construction materials have generally increased both in production and value. There has also been a substantial increase in the quantity of coal produced and the yield of 299,368 tons reached a record level. This was mainly due to continued increase in efficiency of production, the output per man year showing a progressively upward trend. There was also an increase in the number of employees engaged.

The average number of men employed in the industry declined from 8,309 last year to 8,236 in the current year. This was principally due to the reduction in staff at the King Island Scheelite Mine which was forced to cease operations in August 1958 because of a loss of suitable markets.

MINES

No new metal mines were opened during the year. King Island Scheelite (1947) Ltd. was continued on a care and maintenance basis pending recovery of the price of tungsten. There was an upward trend in average metal prices from 91s. 11d. in 1958 to an average of 128s. 2d. per unit in 1959. It is expected that operations will be recommenced if prices are maintained and future prospects indicate that economic working is possible.

A small coal mine on the East Coast which was equipped last year commenced productive mining and has secured suitable markets.

METAL PRICES

The general trend of metal prices has been upward and this has resulted in better prospects for the mining industry in Tasmania.

Copper.—The stabilization scheme for the price of copper in Australia which has operated in the form of a bounty and subsidy since October 1958 continued to operate and was of substantial benefit to the Mt. Lyell Company. The price ranged between £295 to £342 per ton with an overall average of £314 per ton. Australia's requirements of copper are met from local production except for small quantities for special uses and producers have not been required to compete on world markets. Industrial disputes in the main producing countries resulted in increased demands on the London Metal Exchange and prices increased to a maximum of £E265 per ton. This level of prices is a reflection of strike conditions but under normal conditions of production there are ample supplies of copper and prices trend downwards. The position of Australian producers where the price is fixed in relation to that on the London Metal Exchange is protected under the Commonwealth Copper Bounty Act.

Lead and Zinc.—The quota system imposed by the U.S.A. in September, 1958, continued to operate but fortunately the principal Tasmanian producer has substantial contracts in India which have prevented any reduction in output. The Australian price for lead remained static at £100 per ton and zinc varied very slightly the average price being £106 per ton. There was an improvement in the price of zinc on the London Metal Exchange due to efforts by several conferences during the year under the auspices of the United Nations to regulate production and sales designed to bring supply and demand more into balance. International discussions are still in progress.

Tungsten.—The market for tungsten has remained relatively stable and reflected an upward trend as compared with last year. Prices ranged from 96s. per unit in the early months of 1959 to 178s. per unit at the end of the year and averaged 128s. 2d. over the whole period. Producers of tin and wolfram who remained in production despite the fall in the price of tungsten have benefited from the increase and production expanded. With stabilised price and prospects for economic mining, King Island Scheelite (1947) Ltd. which was obliged to cease operations in August, 1958, is expected to recommence operations.

Tin.—The average Australian price of tin remained fairly steady during 1959 and ranged between £1,042 to £1,083 per ton. The Australian price is based on the Singapore price with adjustments for freight and other charges.

The world tin production potential is greater than consumer requirements and the price is controlled by export quotas from producing countries being adjusted by the International Tin Council and by the operations of the Buffer Stock Pool which by open market operations of buying and selling holds the price at around a pre-determined level. The average price on the London Metal Exchange was not permitted to rise above £E800 per ton and remained at an average of £785. Export quotas were varied during the year because of changing conditions of demand resulting from the steel strike in U.S.A. and recovery of industrial activity in Europe and the United States. At the end of the year quotas were at a higher level than for the remainder of 1959, being about 95% of present productive capacity of producer countries. The market was not disturbed during the year by selling of Russian tin which caused the suspension of Buffer Stock operations in 1958.

The Tasmanian Tin Producers Association which is represented on the Australian Tin Producers Association has been active in endeavours to increase the price of tin payable to producers. During the year the Association has made representations to the Commonwealth Government for tariff concessions or a bounty as a means of stimulating and assisting the tin mining industry but no definite progress was made. Consideration is being given to further representations on a State level. Actually the price payable to producers is based on a unit rate depending on the assay value of concentrates offered for sale. The unit rate is related to the Australian price but contains deductions for freight, smelting and other charges. During 1959 the unit rate ranged within limits up to approximately 177s. per unit, which for a 100% concentrate would return £885 per ton to the producer when the average market price of metallic tin was up to £A1,083 per ton. It seems that the possibility of assisting producers lies within this margin and an examination on an Australia-wide basis may be considered. Another avenue which would provide a stimulus for the industry would be in the form of taxation concessions and this aspect is under attention in addition to others to be formulated through producers, based on an appreciation of production costs. However, it appears that the high smelter charges are a severe disability suffered by tin producers.

EXPLORATION

The pattern of exploration of the mineral resources of the State, both by private concerns and the Department, which was established several years ago continued to be developed. The Mt. Lyell Company, the Electrolytic Zinc Company and Rio Tinto Australian Exploration Pty. Ltd. continued to hold large areas as Exploration licences although there were reductions in previous holdings and efforts were more concentrated in specific areas. The results of aerial geophysical investigations over large areas have now been critically examined and most of the work in the year under review has been ground investigation. Specialised equipment designed in the last two years to search for ore deposits under overburden was brought from Canada and used on the West Coast. Success was achieved at one point in south-west Tasmania where an interesting anomaly was located. A road has been constructed to the site and drilling is now in progress.

As a result of the recently completed geological and geophysical work eighteen drill holes were bored in various localities. One series of holes has indicated the existence of a comparatively large copper orebody and exploration is being undertaken. A preliminary test bore was put down adjacent to the old Mt. Bischoff Mine at Waratah but the hole was abandoned.

Three separate investigations were made for alluvial tin deposits but although tin bearing wash was intersected the material was not of economic grade.

The Department maintained the three regional geological establishments at Zeehan, Port Davey and Sheffield and mapping by field parties was continued. Helicopters and small aircraft were used to transport personnel and to provision the parties when working in inaccessible areas.

Further exploration and investigation of the mineral resources of the State is planned and this policy will continue to remain a feature of the mining industry in this State.

IRON ORE

Following the satisfactory results of the first two drill holes at Savage River the Department constructed an access route to the area from the Waratah-Corinna Road to enable further drilling to be undertaken without expensive transport to the area by helicopter. Two further holes were drilled during the year, bore No. 3 being completed at 940 feet and bore No. 4 at 950 feet. Bore No. 3 indicated a width of 500 feet averaging 40% iron and Bore No. 4 indicated three ore zones—(1) 110ft. averaging 46.5% iron, (2) 115ft. averaging 34% iron and (3) 55 ft. averaging 48.5% iron. Drilling is being continued and estimates of reserves of ore are increasing as drilling progresses.

An iron ore body which was located by the Bureau of Mineral Resources magnetometer survey on the area held by Rio Tinto Australian Exploration Pty. Ltd. occurs some six miles south of the deposit being investigated by the Department. The orebodies are geologically similar and occur on the same strike line. Drilling has been undertaken by the Company and a large orebody was intersected similar in grade to that of the Savage River deposits.

It appears that the iron ore reserves of the Savage River are very large.

LEGISLATION

THE MINING ACT 1929

The intention of modernising the mining legislation which was commenced last year with extensive amendments to the Act was advanced to the final stage by the Mining Act, 1959.

This Act contains certain amendments consequential upon the legislation passed last year and particular provision has been made to overcome practical difficulties which existed in obtaining mining rights on land occupied under a lease or licence issued under other Acts relating to Crown lands. The new legislation provides that such leases or licences may be marked out for mining purposes as in the case of unoccupied Crown land but the mining lessee or licensee is responsible for any damage to improvements which may exist on such land at the date possession is taken for mining purposes. By a comple-

mentary amendment of the Crown Lands Act leases and licences may be granted over mining tenements after considering any representations of the holder of the mining tenement, but the rights of the holder of the mining tenement are in no way affected by the granting of any such lease or licence. Regulations under the Mining Act have been amended in accordance with the new provisions of the Act. It is hoped to have the Act and Regulations reprinted in consolidated form during the coming year.

THE MT. READ AND ROSEBERY MINES LIMITED LEASES ACT, 1916

This is the principal Act under which leases are held by the Electrolytic Zinc Co. of Australasia Ltd. at Rosebery. The amendments made to this Act were designed to bring it into conformity with the altered provisions of the Mining Act. The rental payable by the Company has been increased and a labour covenant substituted for an expenditure covenant in its leases.

THE COMPANIES ACT, 1959

This Act repealed Part III of the Mining Companies Act, 1884, relating to No Liability Companies. Such Companies are now subject to special provisions contained in the Companies Act, 1959, and it has also been provided that such provisions shall apply to existing No Liability

Companies which were registered under the Mining Companies Act, 1884. This Department is also required to hand over to the Registrar of Companies all documents filed under the repealed legislation. Mining Companies legislation enacted in 1884 is now out of date and it is fitting that such companies should be covered by more modern legislation. The application of the provisions of the new Companies Act and the proposed uniform Company legislation throughout Australia should facilitate operations by mining companies in this State.

REGULATIONS

A regulation was gazetted to apply the increased rents fixed under the Mining Act, 1958, as from 1st February, 1959. Amendments were also made to existing Regulations relating to marking out of mining tenements and it was also provided that a prospecting claim may remain unworked for a period of five days without losing possession of the land. This provision enables prospecting to be undertaken at week-ends without the possibility of loss of an area because of non-occupation.

New schedules of fees were also provided under the Regulations under the Explosives Act, 1916, and the Inflammable Liquids Act, 1929. A statutory rule fixed the date for commencement of the Inflammable Liquids Act, 1958, at 1st February, 1959.

OPERATIONS AND PRODUCTION

1.—METALLICS

CADMIUM

Quantity produced:—

	Tons	Value £
1924-55	908	806,724
1956	53	84,302
1957	50	78,682
1958	56	84,663
1959	53	85,077
Total	1,120	£1,139,448

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 0.99 tons of cobalt oxide of value £1,106 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	£	Tons	£	Tons	£	Tons	£	Tons	£
1919-55	..	..	5,123	1,068,136	322,341	35,058,461	404	10,581	327,868	36,137,178
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
1958	..	..	669	205,465	10,187	3,124,569	..	..	10,855	3,330,034
1959	..	..	508	159,873	10,585	3,341,261	..	..	11,093	3,501,134
Total	..	£103,794	7,472	£1,871,346	360,447	£47,966,431	404	£10,581	368,594	£48,954,152

COPPER

THE MOUNT LYELL MINING AND RAILWAY COMPANY, LIMITED, QUEENSTOWN
RETURN FOR 1959.

	Tons
Mining—	
Overburden removed	2,053,426
Ore mined (West Lyell)	1,965,440
Limestone delivered to works	5,110
Silica	6,519
Reduction—	
Concentrates smelted	47,646
Precipitate smelted (North Lyell and Comstock)	25
Blister copper produced	10,665
Containing Copper 10,585 tons	
Gold .. 6,571 ozs.	
Silver 31,318 ozs.	
Pyrite concentrate shipped	73,000
Total Value of Production	£3,675,880
Average Number of Men Employed—	
Mining—Surface	693
Underground	50
Reduction Department	767
Railway	99
Total	1,609

Production from the inception to 31st December, 1959—

Copper	519,040 tons
Gold	564,319 ozs.
Silver	15,794,787 ozs.

Inspector Morris reports that installation of the 84" x 60" jaw crusher was completed and that the crusher and ore pass system is operating satisfactorily. A Quarry-Master drill was purchased for drop-cutting in the open-cut and otherwise for ordinary bench drilling. A drop-cut below the 1,320' R.L. Bench was opened out at 1,275' R.L. and a 9½" churn drill hole was sunk to the haulage level below for drainage.

In development the dam was removed from the North Lyell tunnel and the haulage track to the Crown Lyell shaft reconditioned. The shaft, ore passes and Nos. 4 and 6 levels were also reconditioned, and the drives extended. Diamond drilling was as follows:—

Area	Holes	Footage	Description
Glen Lyell	2	1,234	From the Highway—abandoned before reaching target.
North Lyell ..	2	289	No. 6 level, Crown Lyell, to guide development.
North Lyell ..	1	1,580	To test western end of Corridor.
North Crown Lyell	3	2,236	Testing for downward continuation of ore.
West Lyell ..	2	3,936	From West Lyell tunnel to test downward extension of ore bodies—intersected 2,500 feet below outcrop.

ELECTROLYTIC ZINC COMPANY OF AUSTRALASIA LIMITED, ROSEBERY

This company, reviewed under Zinc, produced 6,010 tons of copper concentrate containing 508 tons of copper valued at £159,873.

GOLD

Quantity produced—

	oz.	Value £
Prior to 1956	2,415,079	12,689,657
1956	16,532	258,320
1957	19,442	303,788
1958	20,976	327,749
1959	20,260	316,567
Total	2,492,289	£13,596,081

THE MOUNT LYELL MINING AND RAILWAY COMPANY LIMITED, QUEENSTOWN

This Company recovered 6,571 oz., valued at £102,672, from sludge in the electrolytic copper refinery.

ELECTROLYTIC ZINC COMPANY OF AUSTRALASIA LIMITED, ROSEBERY

Concentrates produced by this Company contained 13,577 oz., valued at £212,147.

DORSET DREDGE, SOUTH MOUNT CAMERON

From the tin concentrate of this dredge (reviewed under Tin), 105 oz., valued at £1,646, were recovered by amalgamation.

MISCELLANEOUS

Intermittent mining in the Mangana, Gipps Creek and Lisle districts produced 7 oz., valued at £102.

IRON OXIDE

Quantity produced—

	Tons	Value £
Prior to 1955	66,262	58,521
1956	6,684	6,374
1957	5,775	7,056
1958	4,266	5,418
1959	5,062	7,395
Total	87,049	£84,764

A. PEARSON, PENGUIN

Operations at the Iron Cliffs Mine, the sole producer, were carried out by one man with a front-end loader. The haematite produced (4,881 tons of value £6,579) was used in cement manufacture and the limonite (181 tons of value £816) in coal gas generation.

LEAD

Quantity produced—

	Tons	Value £
1919-55	246,281	10,449,434
1956	11,422	1,601,430
1957	11,595	1,315,429
1958	12,902	1,124,977
1959	13,223	1,322,305
Total	295,423	£15,813,575

ZEEHAN MINES PTY. LTD., ZEEHAN

During the year this Company treated 30,336 tons of ore from the Oceana Mine to produce 4,282 tons of concentrate containing 3,142 tons of lead, valued at £314,166, and 134,013 oz. of silver, valued at £55,445. The average number of men employed was 54 (19 surface and 35 underground).

Little development has been done during the year. Driving North on 3 Level and cross-cutting on 6 Level were suspended because heavy water and mud was encountered. The drive North on 3 Level was advanced 26 feet and stopped against a wide cross-fault zone. At 640 feet, eight feet above the bottom, the No. 6 Plat was completed in the Main Shaft and a cross-cut advanced to 45 feet. Probe holes tapped mud and water at 200 p.s.i. and grouting was attempted. However further advancement discovered areas of mud in which the grouting would not take. Eight diamond drill holes of total footage 622 were drilled, and this and previous drilling outline an ore shoot 6 ft. wide and 50 ft. long on 6 Level horizon.

FARRELL MINING CO. LTD., TULLAH.

Development work was in known ore shoots and was responsible for almost half the ore production. Driving South on 8 Level developed a high grade stope, and North on 9 Level encountered a shoot the upward extension of which is being sought by driving North on 8 Level. Below the South end of 6 Level a sub-level was driven into an ore shoot which was then stoped out to 7 Level. The ore continues underfoot.

Production from the Farrell Mine was once again improved, this year by 12 per cent, although the average number of employees was two less, namely 42, of whom 17 were underground. The ore milled was 4,895 tons, production being 971 tons of concentrates containing 653 tons of lead, valued at £65,300, and silver as given below.

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 167 tons was valued at £1,418.

NICKEL

HEAZLEWOOD PROSPECTING SYNDICATE N.L., HEAZLEWOOD RIVER

Following a geological survey a geophysical examination was made of the Lord Brassy Mine, and the results are awaited.

OSMIRIDIUM

Quantity produced—

	oz.	Value £
1910-55	30,952	697,017
1956	25	2,085
1957	66	5,945
1958	42	3,424
1959	3	60
Total	31,088	£708,531

Cessation of work followed a fall in price from £82 to £20 per oz. and further activity cannot be envisaged.

PYRITE

Quantity produced—

	Tons	Value £
1915-55	999,614	1,735,173
1956	58,469	175,407
1957	76,340	228,993
1958	68,110	204,330
1959	73,000	219,000
Total	1,275,534	£2,562,903

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

SILVER

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 £
E.Z. Co. of A/asia Ltd.	Copper & Lead Concentrate	1,079,389	445,096
Zeehan Mines Pty. Ltd.	Lead Concentrate	134,013	55,445
Farrell Mining Co. Ltd.	Lead Concentrate	72,442	29,758
Mt. Lyell M. & R. Co. Ltd.	Refinery Sludge	31,318	12,947

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 27,247 mono tons, valued at £122,611.

TIN

Quantity produced—

	Tons	Value £
1873-1955	140,533	26,392,950
1956	938	948,045
1957	777	764,171
1958	883	883,111
1959	890	942,698
Total	144,021	£31,352,197

SILVER

QUANTITY AND VALUE OF PRODUCTION

Year	From Tin and other Ores		From Silver-Lead Ore		From Copper Ore		From Lead-Zinc Ore		Total	
	Oz.	£	Oz.	£	Oz.	£	Oz.	£	Oz.	£
1919-55	44	5	16,646,212	2,423,364	3,279,760	517,829	12,195,906	3,313,725	32,121,922	6,254,923
1956	59,506	24,487	134,156	55,205	29,343	12,075	1,105,110	454,753	1,328,115	546,520
1957	28,598	11,697	159,313	65,092	36,647	14,964	1,034,315	423,009	1,258,873	514,762
1958	..	..	157,225	62,223	34,407	13,616	1,156,824	457,779	1,348,456	533,618
1959	..	..	206,455	85,203	31,318	12,947	1,079,389	445,096	1,317,162	543,246
Total	88,148	£36,189	17,303,361	£2,691,087	3,411,475	£571,431	16,571,544	£5,094,362	37,374,528	£8,393,069

ABERFOYLE TIN N.L., ROSSARDEN

Production was considerably increased during the year, 79,225 tons of ore being mined compared to 69,952 in the previous year. Tin concentrates contained 550 tons of tin valued at £582,630 and the wolfram concentrates are given under Tungsten. The average number of employees was 250 (79 surface, 171 underground).

In development no diamond drilling was done but 4,085 feet of headings were driven. No significant features were disclosed except the intersection of the western lode on 9 level.

**RENISON ASSOCIATED TIN MINES N.L.,
RENISON BELL**

This company mined 9,846 tons of ore from development for the production of 139 tons of concentrate containing 87 tons of tin valued at £92,124. The average number of employees was 47 (31 surface, 16 underground).

Development comprised 250 feet of driving and 32 feet of rising in the Black Face section, and the balance of the respective totals of 1,392 ft. and 555 feet in the Winze workings. The total footage diamond drilled was 4,619 feet in 18 holes completed and three in progress. Of these 12 holes were on geophysical anomalies, seven in the Winze workings and two in the Black Face. In the mill a vanner was installed and the clean-up flow sheet modified. An office building and several houses were built.

**DORSET TIN DREDGING, SOUTH MOUNT
CAMERON**

The Department of National Development obtained concentrates containing 43 tons of tin valued at £45,578 and 105 oz. of gold from the 1,227,000 cu yd. of gravel dug by this dredge. The yardage was less than in the previous year due mainly to time lost in removing the dredge from the Dorset Flats to a new area through a channel cut for the purpose through a ridge. The operation was successfully completed despite a very steep grade down from the channel into the new dredging ground. The number of men employed was 47.

**ENDURANCE TIN MINING CO. N.L., SOUTH
MOUNT CAMERON**

A routine removal of the gravel pump pontoon and the riffle LAUNDERS ahead to site No. 10 was effected. Production was 58 tons of tin, valued at £61,184, in concentrates obtained from the sluicing of 406,520 cu. yd. of gravel. A total of 42 men was employed, including power house and pump station. The company also produced kaolin of grade suitable for paper-making.

**STOREYS CREEK TIN MINING CO. N.L.,
STOREYS CREEK**

This Company, reviewed under Tungsten, produced tin concentrates containing 42 tons of tin valued at £44,703.

BRISEIS TIN N.L., DERBY

Sluicing was continued in an old face at the eastern end of the main Ringarooma workings. Work was made difficult by an excess of large basalt boulders in the overburden and various swing cranes, winches and haulages were constructed for their removal. An average of 20 persons was employed, and in all they handled 109,154 cu. yd. of gravel to recover concentrates containing 13 tons of tin valued at £13,961.

STAR HILL SYNDICATE, GLADSTONE

This Syndicate employed an average of five men on alluvial and detrital gravels in the vicinity of the Garfield Mine, operating two faces with race-water boosted by electric pumps. From 98,000 cu. yd. sluiced concentrates containing 19 tons of tin valued at £19,710 were recovered.

GOSHEN TIN MINES, ST. HELENS

The mine in Launceston Creek was closed down and sluicing continued solely in the Groom River flats. An average of eight men was employed in sluicing and race maintenance. The total production was 12 tons of tin in concentrates of value £12,675 from 52,600 cu. yd. of gravel. At Groom River the tailings were progressively discharged into the paddock as the hydraulic elevator and riffle boxes were moved ahead in keeping with the face. In this way a very small proportion of the tailings, viz. part of the slimes, escaped.

SMALLER PRODUCERS

Many miners and prospectors throughout the State produced small quantities of concentrates by reason of either small-scale or part-time working. The list hereunder gives the number of men engaged (either full or part time) at each place, the quantities of tin in concentrates sold, and the values.

<i>Name</i>	<i>Locality and Description</i>	<i>Men</i>	<i>Tons</i>	<i>Value £</i>
BRANXHOLM				
Barnett and Smith	Ruby Flat	1	0.64	671
Edwards, A. S.	Ormuz Mine	2	2.66	2,823
Holmes, J	Ruby Flat	1	0.13	142
Newman, L. T.	Black Creek near syphon	1	0.20	211
Russell, P. E.	Branxholm	1	0.04	43
Walsh, L.	Black Creek near mouth	1	2.08	2,194

SMALLER PRODUCERS—Continued.

Name	Locality and Description	Men	Tons	Value £
DERBY				
Banks, K.	Main Creek	1	0.02	20
Cotton, G. A.	Cascade River, above Cascade Dam	1	0.06	63
Flakemore, L.	Ringarooma River	1	0.16	167
Gibbons, C.	Derby	1	0.13	139
Hyde, C. T.	Main Creek, Sarah Ann Mine	2	1.06	1,119
Kerrison, K.	Ringarooma River beaches	1	0.10	111
Kerrison, R.	Ringarooma River beaches	1	1.18	1,246
Machen, A. G.	Main Creek	1	0.14	151
Melville Party	Ringarooma River beaches	2	0.02	25
Merritt, L.	Ringarooma River beaches	1	0.14	153
Merritt, T.	Ringarooma River beaches	1	0.57	605
Millar, C. R.	Derby	1	0.01	11
Rainbow, R. L.	Banca Mine; diesel pumping plant	2	2.79	2,952
Richardson, P. A.	Ringarooma River beaches	1	0.24	259
GLADSTONE				
Bartles, J. A.	Terraces on Mussel Roe River	1	7.79	8,176
Elizabeth Syndicate	N.E. of Gladstone near Garfield Mine 46,000 cu. yd.	2	8.09	8,552
Fletcher, S.	Edina Mine near Lark Creek	1	0.88	930
Groves, E. A. T.	Vicinity of Gladstone	1	0.04	41
King, E. K.	Head of Amber Creek; in winter only	1	0.21	222
Kirton, K. S.	North of Mt Cameron	1	0.05	53
Langmaid, N.	Vicinity of Gladstone	1	0.04	47
Moore, V. A.	Vicinity of Gladstone	1	0.10	107
Ponting, J.	Vicinity of Gladstone	1	0.03	30
Richardson, D.	Vicinity of Gladstone	1	1.18	1,233
MISCELLANEOUS				
Archer, W.	Cox's Bight	1	0.01	13
Bessell, R.	—	1	0.03	31
Brodie, O.	Flinders Island	1	0.02	20
Crane, A.	Falls Creek	1	0.05	43
Jones, W.	Mt. Stronach	1	0.02	19
King, C. D.	Melaleuca Lagoon	1	1.50	1,584
Maynard, L.	Flinders Island	1	0.06	63
Mundy, W.	Coles Bay	1	0.04	37
Ogilvie, B. M.	Herrick	1	0.05	53
Ponting, H. C.	—	1	0.02	21
Sajben, J.	Gipps Creek	1	0.03	28
MOORINA—WELDBOROUGH				
Bishop, J.	Weldborough	1	0.02	20
Boon, W. L.	Junction of Weld and Frome R.	2	3.41	3,609
Lathey, D. C.	Bells Hill Mine	1	0.19	198
Richards, A.	Weldborough	1	0.06	66
Russell, V.	Weldborough	1	0.43	450
Weldborough Tin Mines	Moorina, W.X.X. Mine 33,000 cu.yd.	5	7.35	7,794
MT. CAMERON				
Cox, G.	Boobyalla R. West of Mt. Cameron	1	0.36	385
Swain, R.	Near Endurance Pump Station	1	0.20	211
PIONEER				
Kerrison, E.	Vicinity of Pioneer	1	0.14	148
Kerrison, J.	Vicinity of Pioneer	2	4.39	4,654
Slatter, G. H.	Wyniford, R.	1	0.40	424

Name	Locality and Description	Men	Tons	Value £
ST. HELENS				
Berwick, W.	Rosebud Mine on tribute from Goshen Tin Mines	1	0.26	277
Gillies, S.	St. Helens	1	0.03	32
Kirwan, W. C.	Bell Creek Mine	1	0.29	311
Moses, H.	Rosebud Mine on tribute from Goshen Tin Mines	1	0.79	834
Reynolds, J. P.	St. Helens	1	0.36	377
Semmens, F.	St. Helens	1	0.03	33
WARATAH				
Allen Party	Greisen orebody and Big Stope	2	2.28	1,906
Glozier, M. G.	North Valley—battery tailings redressing	1	0.31	264
Housego, C.	Kayser Lode	1	0.25	212
Housego, J.	Waratah Creek—tailings redressing	1	0.94	786
Housego Party	Thompson's Lode	2	0.29	238
Housego, W.	North Valley	1	0.07	51
Kelly, E.	The Pound	1	0.24	208
Kelly, G.	Shovel Ledge—quartz veins in oxidised zone	2	0.40	333
Kenworthy Party	Pig Flat Dyke orebody	2	0.40	344
Neighbour, C.	Happy Valley	2	0.04	31
Prouse, J.	40 Mill. Dressing spillage	2	0.83	676
Prouse Party	Eastern Lode (Black Tank)	2	0.45	377
	North Valley—tailings retreatment with battery tables and roaster	2	0.90	756
Prouse, T. J.	Detritus near bins	1	0.11	94
Wills, G. H. and L. W.	Wheel Section	2	0.18	146
WEST COAST				
Clarke Party	Grand Prize, Dundas. Oxidised ore (6 tons) stoped and treated with tube mill and tables	2	4.05	4,293
Coleman, E.	Trial Harbour, Wakefield Lease	1	0.04	40
Dunkley Party	Zeehan, open cut. Crusher, tube mill and tables	1	0.27	279
Hodge, W. J.	Razorback, Dundas. Oxidised ore (426 tons) stoped and treated with tube mill and tables	2	2.75	2,895
Towndrow Party	Exe River	2	0.19	196

TUNGSTEN (SCHEELITE)

Quantity produced—	Tons	Value £
1917-55	11,646	11,937,016
1956	1,488	2,288,356
1957	1,445	1,880,539
1958	731	438,365
1959	Nil	Nil
Total	15,310	£16,544,276

KING ISLAND SCHEELITE (1947) LTD.,
GRASSY

Inspector Egan reports that the mine remained on a care and maintenance basis, employing 23 men, throughout the year but that preparations were in hand to resume production on a limited scale early in 1960, the price of tungsten having improved.

TUNGSTEN (WOLFRAM)

Quantity produced—	Tons	Value £
1899-1955	8,755	5,417,285
1956	647	809,980
1957	549	384,984
1958	495	188,639
1959	891	426,179
Total	11,337	£7,227,067

ABERFOYLE TIN N.L., ROSSARDEN

Wolfram concentrates produced contained 259 tons of WO₃ valued at £167,590. This Company is reviewed under Tin.

STOREYS CREEK TIN MINING CO. N.L.,
STOREYS CREEK

There was a very large progressive increase in throughput at this mine throughout the year, the 31,040 tons of ore mined being more than double the 1959 figure. The wolfram concentrates produced contained 386 tons of WO_3 valued at £258,589, and the average number of employees was 96 (36 surface, 60 underground), an increase of 21. In addition tin concentrates to the value of £44,703 were produced.

Construction of offices, workshops and store-rooms continued at the shaft. Underground, 2,790 feet of development was driven, particular attention being given to the new footwall veins on 7 and 8 Levels. Six diamond drill holes were put out for exploration below the bottom level and preparations were made to sink the shaft 100 ft. to 9 Level.

ZINC

Quantity produced—

	Tons	Value £
1919-55	470,431	20,077,604
1956	28,138	3,432,764
1957	26,118	2,635,476
1958	29,023	2,650,370
1959	27,928	2,980,598
Total	581,638	£31,776,812

ELECTROLYTIC ZINC COMPANY OF
AUSTRALASIA LIMITED
RETURN FOR 1959

EXTRACTION FROM CONCENTRATES: RISDON

From other than Tasmanian Ores—

Zinc	86,716	tons
Cadmium	209	tons
Cobalt Oxide	22	tons
Superphosphate	74,922	tons

From Tasmanian Ore—

Zinc	29,837	tons
Cadmium	57	tons
Cobalt Oxide	0.99	tons

Manufactured product—

Ammonium Sulphate	42,420	tons
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Men employed—

The average number of men employed: 2,869.

WEST COAST DIVISION

Ore Mined—

	Tons
From Hercules Mine	25,899
From Rosebery Mine	173,141
Total	199,040

Concentrates Produced—

	Tons
Zinc Concentrates	59,205
Lead Concentrates	10,175
Copper Concentrates	6,010
Total	75,390

Recoverable Quantity in Ore Mined—

Zinc	27,928	tons
Lead	9,428	tons
Copper	508	tons
Cadmium	53	tons
Silver	1,079,389	oz.
Gold	13,577	oz. (fine)
Cobalt Oxide	0.99	tons
Manganese Dioxide	167	tons
Zinc Sulphate	217	tons
Sulphur as Sulphuric Acid	27,247	mono-tons

Total Value of Production—£4,958,745.

Average Number of Men Employed—

Hercules Mine	44
Rosebery Mine	624
Total	668

ROSEBERY MINE

The new main shaft winder and ore pockets were brought into commission and are operating satisfactorily. The new 4,000 tons concrete fine ore bin in the mill was completed and the timber structure dismantled. Development comprised 1,530 ft. of driving and cross-cutting and 1,651 ft. of rising. In addition the 14 Level plat and pump-sump were cut. Three diamond drill holes of total footage 3,308 were put down from the surface, the remainder of the 9,301 ft. drilled being underground. On outside prospects three holes totalling 1,743 feet were drilled.

HERCULES MINE

Development consisted of 204 feet of driving and cross-cutting, 205 ft. of rising and 1,360 ft. of diamond drilling. The ore loading bins on the haulage were re-built.

RISDON WORKS

Inspector Olds reports that the large overhead conveyor system for the transfer of concentrates from the wharf to the roasting section was completed. A new anode casting plant was erected and production tests conducted, and preliminary steps were taken for the installation of a fifth electrolysis unit comprising four banks of cells.

Tasmanian and imported concentrates were roasted and the calcine, 228,660 tons in sum, processed. Many by-products were produced following the basic process, such as zinc dust, die-casting alloys, superphosphate and ammonium sulphate fertilizers, zinc sulphate and sulphuric acid. The total value of production was £14,441,062.

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 217 tons and the value £7,980.

2.—NON-METALLIC MINERALS

CLAY

Quantity Produced—

	Cubic Yards	Value, £
1958	121,531	74,176
1959	125,595	100,620
Total	247,026	£174,796

Company	Clay, cu. yd.	Value £	No. of Men	Product
Agrippe Pottery Pty. Ltd., Relbia	470	307	5	Pipes
Burnie Brick Co., Cooe	8,050	3,165	13	Bricks
John Campbell Pty. Ltd., Launceston	390	181	11	Pipes
Clays Pty Ltd., and McHugh Bros. Pty. Ltd., Launceston	2,100	2,100	21	Pipes
Crisp & Gunn Co-op Ltd., West Hobart	25,546	31,932	44	Bricks
Goliath P. C. Co. Ltd., Railton	12,979	4,494	3	Cement
Granton Brick Ltd., Granton	16,150	9,187	22	Pipes & Bricks
Hobart Brick Co., New Town	18,350	14,417	20	Bricks
Huttons Bricks Pty. Ltd., Prospect	13,905	13,905	17	Bricks
Luck Bros., Dulverton	6,188	6,188	14	Bricks
Machens Bricks, Kings Meadows	14,008	14,008	24	Bricks
Wunderlich Pty Ltd., Loira & Launceston	7,359	736	17	Tiles

DOLOMITE

Quantity produced—	Tons	Value £
Prior to 1955	8,690	26,344
1956	788	2,320
1957	1,176	3,359
1958	2,585	7,437
1959	2,907	8,119
Total	16,146	£47,599

CIRCULAR HEAD DOLOMITE AND TRADING CO. PTY. LTD., SMITHTON

This Company, the sole producer, opened up a new pit and installed a 4 in. drainage pump. An average of two men was employed.

KAOLIN

Quantity produced—	Tons	Value £
1940 to 1955	91,437	324,556
1956	6,267	37,798
1957	6,038	39,226
1958	3,302	20,469
1959	1,195	5,733
Total	108,284	£426,782

ENDURANCE TIN MINING CO. N.L., SOUTH MOUNT CAMERON

This Company, reviewed under Tin, produced 1,048 tons of kaolin, valued at £4,526, 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, but the quality of the clay deteriorated and the pit was closed down. Production was 147 tons valued at £1,207 and an average of four men was employed.

LIMESTONE

QUANTITY AND VALUE OF PRODUCTION, AND USAGE.

Years	Manufacture of Cement		Manufacture of Carbide		Chemical and Metallurgical		Agriculture and Other		Totals	
	Tons	£	Tons	£	Tons	£	Tons	£	Tons	£
1919-55	2,728,687	1,394,343	443,829	459,105	3,903,934	2,017,722	399,835	423,054	7,475,985	4,294,224
1956	127,307	63,653	18,335	36,715	11,519	12,727	21,934	31,035	179,095	144,130
1957	153,618	126,557	20,264	44,542	15,309	22,643	15,928	27,133	205,119	220,875
1958	179,171	161,254	21,104	42,237	23,458	30,777	11,295	23,905	235,028	258,173
1959	170,930	136,872	22,074	41,881	24,121	39,556	13,095	22,551	230,220	240,860
Totals	3,359,713	1,882,679	525,606	624,480	3,978,041	2,123,425	462,087	527,678	8,325,447	5,158,262

**AUSTRALIAN COMMONWEALTH CARBIDE
CO. LTD., IDA BAY AND ELECTRONA**

From the Ida Bay quarry 22,074 tons of limestone valued at £41,881 were shipped to the works at Electrona, the average number of employees being 25. New equipment consisted of a 1 cu. yd. loader.

At the works 160 persons were employed in the production of 10,836 tons of calcium carbide and 165 tons of acetylene black. The concrete work on the new lime kiln was completed and it awaits lining with fire-brick and installation of charging and discharging equipment. The work is being done by the Company and the total cost is estimated at £25,000. The operation of the kiln will allow an increase in production by the operation of an additional furnace.

**AUSTRALIAN NEWSPRINT MILLS LTD.,
JUNEE**

This Company employed four men to produce 4,782 tons valued at £10,190 for use in their paper making and at the Electrolytic Zinc Company's works at Risdon.

**GOLIATH PORTLAND CEMENT CO. LTD.,
RAILTON**

In the production of 136,873 tons of cement 170,930 tons of limestone valued at £136,872 were used, an average of 30 men being employed in the quarry. Total employment (including asbestos-cement manufacture) was 256. A small amount of diamond drilling was carried out to test for limestone reserves but the programme was not completed.

**WRIGHT STEPHENSON PTY. LTD.,
PULBEENA**

This Company employing two men mined 3,483 tons of lime sands valued at £4,364 for use in agriculture.

**MELROSE AGRICULTURAL LIME
QUARRIES, EUGENANA**

A new bench developed on the southern side of the old B.H.P. quarry disclosed good quality stone although clay overburden posed a minor problem. Production was 18,559 tons valued at £17,454 and an average of 20 men was employed. Of this 4,309 tons were finely ground for agriculture and the remainder crushed for use in construction.

RAILTON LIME WORKS, RAILTON

Mr. A. R. Blenkhorn produced 4,784 tons of ground and burnt limestone of value £7,881 for the agricultural industry, employing three men.

**THE MOUNT LYELL MINING & RAILWAY
CO. LTD., HALLS CREEK**

This Company, reviewed under Copper, quarried 5,110 tons, valued at £7,048, for use as a flux in smelting.

A. R. BEAMS, FLOWERY GULLY

Mr. Beams operated one kiln for burning limestone for building purposes and also produced limestone for agriculture and for the extraction metallurgy of aluminium. The average number of employees was four, and total production was 3,860 tons valued at £4,716.

R. K. SULZBERGER, FLOWERY GULLY

Six men were employed in the production of 10,886 tons of limestone, valued at £18,306, for chemical purposes.

OCHRE

Quantity produced—	Tons	Value £
1918 to 1955	1,900	4,316
1956	21	141
1957	22	148
1958	66	645
1959	59	436
Total	<u>2,068</u>	<u>5,686</u>

A. PEARSON, SPALFORD

Production of ochre from this pit was 51 tons, valued at £304.

**NON-METALLIC MINERALS PTY. LTD.,
CARLTON**

This company, reviewed under Kaolin, produced eight tons of ochre, valued at £132.

PEBBLES

A. PEARSON & OTHERS, ULVERSTONE

The collection of pebbles for grinding was continued on the beaches around Ulverstone. The output was 634 tons, valued at £4,156.

SILICA

Quantity produced—	Tons	Value £
1936 to 1955	130,878	73,714
1956	5,392	7,479
1957	6,552	4,622
1958	6,639	6,068
1959	6,519	7,657
Total	<u>155,991</u>	<u>99,540</u>

**THE MOUNT LYELL MINING & RAILWAY
CO. LTD., QUEENSTOWN**

This company, reviewed under Copper, quarried 6,519 tons of silica, valued at £7,657, for use in the smelter.

3.— CONSTRUCTION MATERIALS

Quantities produced—	Cubic Yards	Value £	Quarry	Men	Cu. yd.	Value £
Building stone:						
Granite	11	412	Bain's Dynnyrne	8	4,557	5,896
Freestone	241	1,482	Grubb's, Moonah	8	21,027	24,953
			Hillier Regan's			
	252	£1,894	Orielton	14	19,489	24,500
			Hobart, New Town	31	100,728	125,917
Crushed and Broken Stone:			Launceston, Mowbray	17	24,541	31,950
Basalt	19,896	21,565	Nelson's, Dynnyrne	10	10,935	15,587
Dolerite	448,954	838,762	Rouse's, St. Leonards	5	15,086	20,140
Limestone	18,131	22,155	Queenborough,			
Other	103,415	70,697	Dynnyrne	1	350	437
			Worbey's, Dynnyrne	6	2,040	2,040
	590,396	£953,179				
Gravel	717,448	326,187				
Sand	20,671	17,191				
Other Road Materials	1,000	1,200				

The largest producers were Government and Local Government authorities, accounting for 290,776 cubic yards of crushed and broken stone valued at £603,097, and 596,909 cubic yards of gravel, valued at £255,884.

GRANITE, COLES BAY

Mr. B. T. Cuthbertson operated this red granite building stone quarry for one quarter, one man being employed, as demand required. Output was 11 cubic yards.

FREESTONE, AUSTINS FERRY

This quarry was worked intermittently by Mr. Pollard and Mr. Finlayson, the total output being 111 cubic yards.

BASALT

This was quarried by Associated Forest Holdings Pty. Ltd., for its roads in the Hampshire district.

DOLERITE

This rock, being both suitable and widespread, was quarried most extensively for road and concrete making by governmental authorities and commercial firms.

LIMESTONE

Mr. G. C. Weily quarried 11,006 cubic yards of limestone, of value £14,289, at Glenorchy for construction purposes. Twelve men were engaged. From the Melrose Agricultural Lime Quarries, Eugenana, 7,125 cu. yd., valued at £7,866, were produced in addition to that for agriculture.

OTHER CRUSHED AND BROKEN STONE

Devon Metal Supplies crushed £5,271 cu. yd. of quartz schist, valued at £6,325, at the Wivenhoe quarry and collected 2,169 cu. yd. of quartz pebbles from East Devonport beaches for crushing. The other major source was Whitton's quarry at Dynnyrne whence 10,100 cu. yd. valued at £7,100 were obtained. Small quantities only were produced in other places.

GRAVEL AND SAND

Clean sand and gravel were obtained from many small pits, principally in the Flowerdale and Beaconsfield districts. From the latter 15,308 cu. yd. were obtained on royalty payment. Associated Forest Holdings Pty. Ltd. mined 19,996 cu. yd. of road-making gravel, valued at £4,999, from various pits in the Hampshire district, and the Mt. Lyell Company obtained 47,997 cu. yd. valued at £39,212, from the King River deposit.

4.— FUEL MATERIALS

COAL

Quantity produced—	Tons.	Value £
Prior to 1956	6,897,925	6,765,015
1956	298,713	594,090
1957	268,140	534,111
1958	276,268	550,859
1959	299,368	621,494
Total	8,040,414	£9,065,569

Inspector Besford reports that mining has been revived to the level of 1955-56, the production being by a small margin the highest ever

attained. The average number of employees increased from 284 to 307, of whom 221 were underground. The production per man-year was 1,355 tons for underground employees and 975 overall, the upward trend in efficiency continuing. This is further exemplified by the average value in the mine bins of 41s. 7d. per ton, only 1s. 1d. more than in 1955.

CORNWALL COLLIERY, ST. MARYS

This colliery increased production to 117,905 tons, valued at £238,600 at the mine, and employed an average of 130 persons. The output was a record and 9 per cent higher than last year for a 10 per cent increase in the number of employees.

Operations continued on the same pattern as last year, the output being obtained mainly from solid places with a small proportion from pillar extraction. An additional loading machine was introduced into the Eastern Section and increased production was obtained under good conditions.

Difficult conditions prevailed during the year in the Right Hand Section of the Main Tunnel Workings due to excessive floor heave and some roof weighting. Efforts are being continued in an attempt to remove the coal from this section as it is considered that by doing so the pressure on other parts of the workings might be relieved.

JUBILEE COLLIERY, ST. MARYS

This colliery produced 19,032 tons valued at £42,822 and employed an average of 24 men. The output was 395 tons less than last year's from 22 employees.

Operations were on the same lines as in the previous year and seam conditions remained normal. No serious effort was made to re-open the return airway as was anticipated in my last annual report, and in addition, further falls occurred along other sections of the airway causing a serious deterioration in the ventilation of the workings. In an effort to drive out to the surface, work was concentrated in the Main Heading but the advance was slow.

DUNCAN COLLIERY, FINGAL

The Cornwall Coal Company, which operates this colliery, produced 58,368 tons, valued at £118,279, and employed an average of 58 men. The output was 452 tons higher than in the previous year and eight more men were employed. Most of the extra men were engaged in straightening and grading the Main Heading preparatory to the installation of an endless rope haulage to replace the existing direct rope haulage and main and tail haulage systems at present operating in the two adits. A new ventilating fan has been ordered for installation in the portal of the return airway, and it is expected that improved conditions will result from the reorganization.

The coal-washing plant was completed and given a trial run just before the end of the year. The plant which has cost £150,000 to instal, will wash the coal from the Duncan and Cornwall mines. Initial tests were promising and a product having about eighteen per cent ash seems assured.

FINGAL COLLIERY, FINGAL

This colliery produced 33,539 tons valued at £73,785 and employed an average of 30 persons. The production was 7,267 tons greater than the previous year, an increase of 28 per cent for an average of six more men.

Work continued in the newly opened section nearer the outlet but a fault was encountered which cut off the seam and, after withdrawing a few of the pillars, the miners had to be diverted to the Main Heading Section where the seam conditions are lower and more water is encountered, as the seam is dipping in this direction.

BARBER'S COLLIERY, FINGAL

Mr. E. Barber increased production to 3,978 tons valued at £7,557 and employed five men, the same number as last year.

Work was abandoned in the old tunnel workings and a new tunnel was opened up to the East. The seam maintained normal thickness and quality and the roof appeared to be of a firmer nature. A second entrance is to be opened up in order to provide a return airway and second means of egress.

SEYMOUR COLLIERY

This coal mine lies in the Seymour-Douglas River-Denison-Mt. Paul Coal Field on the East Coast. The mine was abandoned in 1931 and was allowed to fill up with water. Messrs. A. W. Yates and F. C. Haas installed pumping plant and when the workings were unwatered it was found that the places were still standing in good condition. Some repairs had to be carried out to the Main Dip Tunnel but otherwise none were required. Production of coal commenced during the June quarter and a total of 1,986 tons valued at £4,795 at the mine bins was produced for the year and an average of four men was employed for the three quarters.

The mine is situated eighteen miles from the railhead at St. Marys and the coal is being hauled there by means of a lorry. In order to increase the number of trips per day it is proposed to install suitable storage and loading bins at the mine to replace the existing method of loading the lorry by means of a front-end loader.

NEW STANHOPE COLLIERY, AVOCA

Production from this colliery increased to 12,314 tons valued at £30,785 and an average of 15 persons was employed. The corresponding figures for the previous year were 9,613 tons valued at £21,850 and 14 persons. Operations continued on the same pattern as during the previous year in a seam which maintained good conditions. Another entrance was made to the surface on the right hand side of the Main Heading so that three entrances are now provided, making the ventilation very good. Work is being carried out on the construction of a small coal-washing plant to wash out the dirt bands which occur in the seam. These are very difficult to remove by hand-picking. It is expected that the plant will be operating towards the middle of 1960.

MOUNT CHRISTIE COLLIERY, AVOCA

Mr. R. C. Fenton produced 1,778 tons valued at £3,941 and two men are engaged at the mine. A new tunnel was put into the seam a short distance to the West and it is proposed to work from here when the present area becomes too difficult.

MERRYWOOD COLLIERY, AVOCA

This colliery produced 41,792 tons valued at £72,786 at the mine, and employed an average of 22 persons. Of this 18,000 tons were produced from open-cut operations. The corresponding figures for the previous year were 35,584 tons valued at £63,901 and 23 persons. In 1958, 16,505 tons were produced from the Open Cut. The twenty-five per cent increase in production from underground operations was chiefly due to the installation of scraper-chain conveyors in a new section near the open cut. The cost of installation

was £10,000 and the system works successfully. The coal is blasted out in the normal manner and the miners load directly onto the conveyor which operates right up to the coal face; short lengths of conveyor being added as the face advances.

LANGLOH COLLIERY, HAMILTON

The Hamilton Coal Company produced 6,035 tons valued at £20,166 and employed an average of 12 persons. Production was obtained by means of a coal-cutting machine which operated in a section opened up at the commencement of the year. The middle band of stone became very thick making operations difficult, as the timber which had to be used was very long and awkward to handle. In addition the thick band of stone fretted away considerably along the sides of the roadways causing bad conditions. The section became dangerous towards the end of the year and efforts are being made to open up a new section

nearer the entrance to the mine from which production will be obtained until a more permanent programme can be adopted. It is felt that the area could best be worked from a new opening at the other side of the hill.

SANDFLY COLLIERY, KAOOTA

Mr. O. L. Roberts produced 2,217 tons valued at £6,087 and employed an average of four men. The output was 200 tons higher than last year for the same number of men. A downthrow fault was encountered in the Main Heading and production has been obtained from the places to the right, where the seam has remained normal.

ILLAMATHA COLLIERY, SPREYTON

Messrs. Bound Bros. operated under conditions made difficult by much faulting and as a result the production dropped to 424 tons valued at £1,891.

5.— FOREIGN ORES

The total value of the products of three large works treating foreign ores imported into Tasmania was approximately £16,000,000.

ALUMINIUM

The Australian Aluminium Production Commission treated imported bauxite at Bell Bay to produce 12,850 tons of aluminium, an increase of 1,961 tons. Preliminary steps were taken to increase production and trial shipments of bauxite from Western Australia and India were received. An average of 751 persons was employed and local products such as coal and limestone were consumed in the processes.

FERRO ALLOYS

The Broken Hill Proprietary Co. Ltd. commenced construction of a plant at Bell Bay for the production of ferro alloys.

ZINC, CADMIUM, COBALT OXIDE AND SUPERPHOSPHATE

The Electrolytic Zinc Co. of Australasia Ltd., Risdon, described under Zinc, produced zinc from Broken Hill concentrates together with small

quantities of cadmium and cobalt oxide as by-products. The sulphuric acid derived from roasting the concentrates was used in making superphosphate fertilizers from phosphate rock imported from Nauru, Ocean and Christmas Islands.

TITANIUM DIOXIDE

Australian Titan Products Pty. Ltd. at Heybridge produced 10,160 tons of titanium dioxide from 21,071 tons of Western Australian ilmenite concentrates, an average of 344 people being employed. The output was 2,259 tons greater than in 1958 and plant extensions comprising new pigment drying, conveying, milling and packing equipment were installed. A new personnel block was completed together with enlargement of the office building. Further work in hand includes the installation of a 35,000 lb. per hour boiler and water treatment plant, and the erection of change-rooms, pigment store and process buildings.

MINING COMPANIES REGISTERED

Return showing the Mining Companies Registered during the Year ended 31st December, 1959.

Number of Companies

Nil.

Capital

....

No agents for foreign companies under the Mining Companies (Foreign) Act, 1884, were registered. No syndicates under Part V of the Mining Companies Act, 1884, were registered.

REVENUE

Return showing the Revenue Collected during the Year ending 31st December, 1959.

Head of Revenue	Amount £
Public Works and Services—Mines Department	8,021
Rent of Auriferous and Mineral Lands	13,804
Fees, Auriferous and Mineral Lands	1,531
Survey Fees	434
Fees under the Explosives and Inflammable Liquids Act	8,494
Rent and Sale of Government Property	4
Total	£32,288

Comparative Statement of Revenue from Mines, being Rents, Fees, Storage of Explosives, &c., Paid to the Treasury during the Years 1953 to 1958.

Year	Amount £
1953	13,291
1954	11,757
1955	22,858
1956	24,260
1957	23,827
1958	32,288

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

LEASES AND LICENCES

Return showing the Total Number of Leases and Licences in Force on 31st December, 1959.

Leases and Licences	Number	Number of Sluiceways	Area (Acres)
Barytes	1	....	10
Bauxite	1	....	130
Clay	15	....	807
Coal	46	....	9,965
Copper	1	....	33
Copper-Nickel	1	....	30
Dolomite	2	....	72
Easement Licences	61	....	704
Granite	3	....	25
Gold	27	....	690
Iron	1	....	50
Limestone	12	....	451
Minerals	70	....	15,639
Nickel	8	....	369
Osmiridium	5	....	85
Ochre	2	....	28
Scheelite	10	....	663
Silica	3	....	35
Silver-Lead	14	....	529
Stone	29	....	4,590
Sand	3	....	317
Sand and Gravel	2	....	1,427
Tin	199	....	7,353
Tin-Wolfram	4	....	370
Wolfram	2	....	15
Wolfram-Gold	3	....	120
Water Licences	180	915	1,108
Total	705	980	45,519

Return showing Number and Area of New Leases and Licences Issued during the year ended 31st December, 1959.

Leases and Licences	Number	Area (Acres)	Sluiceways of Water
Tin	33	826	....
Minerals	19	1,782	....
Gold	5	52	....
Osmiridium	4	75	....
Scheelite	2	77	....
Silver-Lead	1	39	....
Copper-Nickel	1	30	....
Coal	1	100	....
Stone	6	2,560	....
Clay	6	585	....
Sand and Gravel	2	1,427	....
Sand	2	312	....
Dolomite	2	72	....
Limestone	1	53	....
Ochre	1	4	....
Water licences	13	31	96
Total	99	8,025	96

Return showing Number and area of Leases and Licences Applied for during the Year ended 31st December, 1959.

Leases and Licences	Number	Area (Acres)	Sluiceways
Clay	1	10	....
Coal	3	870	....
Felspar	2	15	....
Gold	4	90	....
Gravel	1	10	....
Minerals	2	10	....
Quartz	1	10	....
Serpentine Rock	2	80	....
Tin	16	152	....
Water Licences	8	16	22
Total	40	1,263	22

Return showing the Total Number and Areas of Authorities to Prospect Issued during the Year ended 31st December, 1959.

Type of Authority	Number	Area (Acres)
Permits to enter on private land including owners' consents	17	18,472
Exploration licences	7	7,742,720
Special prospectors' licences	7	34,196
Prospectors' licences	72	3,600
Miners' rights	75	33
Licences to search for coal and Oil .....	....	....
Total	178	7,799,021

MINERAL PRICES

Table showing the Average Australian Annual Prices for Minerals During Recent Years.

Mineral	1956			1957			1958			1959			
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	
Copper	per ton	421	16	0	340	4	9	307	13	5	314	10	0
Lead	per ton	140	7	2	115	4	3	87	5	8	100	0	0
Zinc	per ton	122	2	6	102	7	7	91	7	11	106	6	5
Tin	per ton	1,014	5	8	990	19	8	997	6	7	1,058	1	5
Silver	per oz.	0	8	3	0	8	2	0	7	11	0	8	3
Osmiridium	per oz.	90	0	0	90	0	0	80	0	0	20	0	0
Gold	per fine oz.	15	12	6	15	12	6	15	12	6	15	12	6
Wolfram	per unit (WO ₃)	305/-			148/5			91/11			128/2		
Scheelite	per unit (WO ₃)	305/-			148/5			91/11			128/2		

MINERAL PRODUCTION SINCE 1880

Quantity and Value of Mineral Production as at 31st December, 1959

<i>Mineral</i>	<i>Total Quantity</i>	<i>Value £A</i>
METALLIC MINERALS—		
Antimony (tons)	3	1,017
Bismuth (tons)	84	29,644
Cadmium (tons)	1,120	1,139,448
Cobalt Oxide (tons)	10	7,705
Copper (Blister) to 1918 (now shown under Silver and Copper)		
Copper (tons)	166,600	13,788,527
Copper Matte (tons)	6,277	133,736
Copper Ore to 1918—(now shown under Copper) .. (tons)	41,769	577,873
Copper from 1919 (tons)	368,594	49,955,590
Crocoite (specimens only)	..	533
Gold (fine oz.)	2,492,289	13,596,081
Ilmenite (tons)	550	1,256
Iron Oxide (including Hematite, Limonite and Magnetite) (tons)	87,050	84,764
Lead (from 1919) (tons)	295,423	15,813,575
Manganese (tons)	1	3
Manganese Dioxide (from 1957) (tons)	420	3,566
Monazite (tons)	33	607
Nickel (tons)	223	40,518
Osmiridium (oz.)	31,088	708,531
Pyrites (tons)	1,275,534	2,562,903
Rutile (tons)	1	18
Scheelite (tons)	15,310	16,544,276
Silver Lead Ore to 1918 (now under Silver and Lead) .. (tons)	1,083,898	6,429,219
Silver from 1919 (fine oz.)	37,374,528	8,393,069
Sulphur as Sulphuric Acid (from 1957) (mono tons)	71,008	318,012
Tin (tons)	144,021	31,352,197
Wolfram (tons)	11,337	7,227,067
Zinc (tons)	581,638	31,776,812
Zinc Sulphate (from 1957).. .. . (tons)	532	19,635
NON-METALLIC MINERALS—		
Asbestos (tons)	3,980	17,142
Barytes (tons)	2,205	8,239
Clay—(from 1958)		
Brick (cubic yds.)	199,132	160,577
Tile (cubic yds.)	11,426	1,143
Other (cubic yds.)	36,468	13,076
Dolomite (tons)	16,146	47,599
Graphite (tons)	40	107
Kaolin (tons)	108,284	426,782
Limestone—		
Agricultural and other (tons)	462,087	527,678
Chemical and Metallurgical (tons)	3,978,041	2,123,425
Carbide (tons)	525,606	624,480
Cement (tons)	3,359,713	1,882,679
Ochre (tons)	2,068	5,686
Pebbles (from 1957) (tons)	1,987	15,154
Silica (tons)	155,991	99,540
Talc (tons)	333	1,077
FUEL MINERALS—		
Coal (tons)	8,040,414	9,065,569
Shale (tons)	41,572	31,231
CONSTRUCTION MATERIALS		
Building Stones—		
Granite (Red) (cubic yds.)	1,966	33,474
Freestone (cubic yds.)	418	2,809
Gravel (from 1958).. .. . (cubic yds.)	1,317,300	604,066
Sand (from 1958) (cubic yds.)	34,942	28,328
Crushed and Broken Stone—(from 1958)		
Basalt (cubic yds.)	37,722	40,237
Dolerite (cubic yds.)	801,801	1,477,962
Limestone (cubic yds.)	44,429	57,572
Sandstone (cubic yds.)	4,286	1,511
Other (cubic yds.)	137,330	122,967
Other Road Materials (cubic yds.)	1,000	1,200
		£217,927,492

**MINERAL PRODUCTION FOR THE YEAR ENDED 31st DECEMBER,
1959**

<i>Mineral</i>	<i>Total Quantity</i>	<i>Value £A</i>
METALLIC MINERALS —		
Cadmium (tons)	53	85,077
Cobalt Oxide (tons)	0.99	1,106
Copper (tons)	11,093	3,501,134
Crocoite (specimens only)	..	60
Gold (fine oz.)	20,260	316,567
Iron Oxide (tons)	5,062	7,395
Lead (tons)	13,223	1,322,305
Manganese Dioxide (tons)	167	1,418
Osmiridium (oz.)	3	60
Pyrites (tons)	73,000	219,000
Scheelite (tons)	..	..
Silver (fine oz.)	1,317,162	543,246
Sulphur as Sulphuric Acid (mono tons)	27,247	122,611
Tin (tons)	890	942,698
Wolfram (tons)	891	426,179
Zinc (tons)	27,928	2,980,598
Zinc Sulphate (tons)	217	7,980
NON-METALLIC MINERALS—		
Barytes (tons)	9	101
Dolomite (tons)	2,907	8,119
Kaolin (tons)	1,195	5,733
Limestone—		
Agricultural (tons)	12,580	21,356
Chemical and Metallurgical (tons)	24,121	39,556
Carbide (tons)	22,074	41,881
Cement (tons)	170,930	136,872
Other (tons)	515	1,195
Ochre (tons)	59	436
Pebbles (tons)	634	4,156
Silica (tons)	6,519	7,657
Clay—		
Brick (cubic yds.)	102,587	92,983
Tile (cubic yds.)	7,359	736
Other (cubic yds.)	15,549	6,901
FUEL MINERALS—		
Coal (tons)	299,368	621,494
CONSTRUCTION MATERIALS—		
Crushed and Broken Stone—		
Basalt (cubic yds.)	19,896	21,565
Dolerite (cubic yds.)	448,954	838,762
Limestone (cubic yds.)	18,131	22,155
Sandstone (cubic yds.)	4,286	1,511
Other (cubic yds.)	99,129	69,186
Building Stone—		
Granite (cubic yds.)	11	412
Freestone (cubic yds.)	241	1,482
Other (cubic yds.)	..	..
Gravel (cubic yds.)	717,448	326,187
Sand (cubic yds.)	20,671	17,191
Other Road Materials (cubic yds.)	1,000	1,200
Total Value with Australian Metal Prices		£12,766,261
MANUFACTURED PRODUCTS—		
<i>Product</i>	<i>Total Quantity (tons)</i>	<i>Value £A</i>
Acetylene Black	165	
Ammonium Sulphate	42,420	
Carbide	10,836	
Cement	136,873	
Superphosphate	74,922	
PRODUCTION FROM OTHER THAN TASMANIAN ORES—		
Aluminium	12,850	3,482,350
Cadmium	209	293,270
Cobalt Oxide	22	24,295
Titanium Dioxide	10,160	2,643,169
Zinc	86,716	8,490,757
		£14,933,841

Average number of men employed 8,236

DEPARTMENTAL ACTIVITIES

AID TO MINING

Assistance.—Under the expanded provisions of the Aid to Mining Act passed last year it was possible to increase the extent of the financial assistance provided. One party was assisted to purchase an engine to enable productive operations to be undertaken on an alluvial tin deposit on the East Coast; the Department undertook drilling operations to test a tin deposit on the West Coast for another lessee, and an advance was also made to a prospector to test a gold reef. The major grant of assistance, however, was a loan of £10,000 to a colliery on the East Coast to purchase and erect a coal washing plant. After careful investigation, in the Department's research laboratory, of all aspects as to type and efficiency of plant, the nature and extent of the coal seam being mined and available marketing

prospects, it was felt that a loan of £10,000 was warranted and that this would in addition be of indirect assistance to the coal mining industry generally in ensuring the marketing of a higher quality product able to compete with oil which is now used extensively by industry as a fuel.

Mining Plant.—During the year a portable compressor, rock drills, air winch and a pump were purchased and these are available on a hire basis to small operators who are unable to finance the purchase of mining plant to test and develop various mineral occurrences. Hire charges are low but in certain circumstances the plant is hired as a form of assistance and the hirer is required to pay such charges by royalty based on minerals produced. The plant is currently on hire to small operators at the old Mt. Bischoff Mine, Waratah.

STATEMENT OF RECEIPTS AND PAYMENTS OF THE MINING TRUST FUND FOR THE YEAR ENDED 31st DECEMBER, 1959.

<i>Receipts.</i>			<i>Payments.</i>		
	£	s. d.		£	s. d.
Balance at 31st December, 1958	14,895	13 8	Assistance	4,595	10 0
Repayment of loans	1,271	12 8	Purchase of mining equipment	2,207	10 7
Interest on loans	82	7 1	Maintenance tribute plant, Mt. Bischoff		
Tribute royalty	165	0 7	Mine, Waratah	55	2 1
Transfer of amount provided by Appropriation Act 1959-60	4,000	0 0	Miscellaneous	2	6 0
			Total	6,860	8 8
			Balance to next Account	13,554	4 11
	£20,414	13 7		£20,414	13 7

DRILLING

DIAMOND DRILLING.

Two crews were engaged continuously by the Department in drilling for Departmental projects and for hirers and drilling was also undertaken for the Department by a firm of contractors. Particulars of the boring are as follows:—

JUNIOR STRAITLINE DIAMOND DRILL.

This plant was used to bore test holes at the site of a major landslip at Talbot Road, Launceston, with the object of obtaining data which may be used in alleviating the position. Bore No. 1 which was commenced last year was advanced from 115 feet to 276 feet and Bore No. 2 was completed at 115 feet. The cost was £460.

Towards the end of the year boring was commenced at Fingal to test the coal measures in the Fingal Valley and at the close of the period under review the first hole had been advanced to 141 feet. The cost was £680 including clearing of an access route to the drill site.

MINDRILL E1000 DIAMOND DRILL.

This machine continued to be used in conjunction with a percussion drilling plant on foundation testing for the new Tasman Bridge over the River Derwent and completed the programme of work at the end of March, 1959.

Boring was then undertaken to test a clay deposit at Surges Bay where difficulties were being experienced in producing a clay suitable for use in the paper making industry at Burnie. Six bores were put down, the depths being 74 feet, 39 feet, 66 feet, 66 feet, 29 feet, and 51 feet, but suitable material was not located and subsequently all operations were suspended at the pit. The cost of the boring was £472.

GOLDFIELDS NO. 10 DIAMOND DRILL.

In continuing its survey of the iron ore deposits of the State, the Department undertook testing of a deposit at Ferndene near Penguin and Bore No. was advanced to 136 feet. Difficult boring conditions were encountered and the cost was high, the expenditure being £929.

Further testing of limestone deposits was also undertaken for a hirer, detailed footages being as under:

Bore No.	Depth (feet)
1	200
2	12
3	2
4	7
5	1
6	2
7	110
8	100
9	125
10	101
11	175

The short holes were for testing boulders in the quarry face. The cost of this drilling was £951.

DRILLING AT SAVAGE RIVER.

The Department's programme of testing the iron ore deposits at Savage River was continued and the contractors, Associated Diamond Drillers Pty. Ltd., completed Bore No. 3 at 940 feet and No. 4 at 950 feet.

CHURN DRILLING.

Two plants were in constant operation in boring alluvial tin deposits, testing foundations and in obtaining supplies of underground water.

Details are as under:—

Number of Bores	Total footage	Object
3	48	Testing bridge foundations at Avoca for Tasmanian Government Railways.
6	105	Foundation testing, Huonville Post Office.
1	113	Testing a tin deposit at the Mt. Bischoff Mine, Waratah for Rio Tinto Australian Explorations Ltd.
1	56	Testing of an alluvial tin deposit at Natone for A. Crane.
1	85	
1	95	
1	101	
1	118	Testing an alluvial tin deposit at St. Helens for Clutha Development Co. Ltd.
1	100	
13	784	Boring for supplies of underground water in the Smithton district.
11	926	Boring for supplies of underground water in the Triabunna district.
8	489	Boring for supplies of underground water in the Little Swanport district.
2	55	Boring for supplies of underground water in the Scamander district.

In the Smithton district twelve of the thirteen holes drilled produced water ranging from 200 to 500 gallons per hour and bores ranged from 17 to 120 feet in depth.

Boring in the Triabunna district was successful in eight cases and the water supply obtained was between 200 and 300 gallons per hour and bores ranged from 20 to 150 feet in depth.

Geological conditions in the Little Swanport district are not favourable for locating supplies of underground water and only one bore produced a small flow estimated at 40 gallons per hour. Depth of bores ranged from 17 to 133 feet.

Although both bores in the Scamander district produced water the flow of 150 to 200 gallons per day was sufficient only for domestic use.

The total cost of operation of the Churn drills was £5,084.

NEW PLANT.

The Department has purchased a Mindrill F20C diamond drill which is a modern machine fitted with hydraulic feed and capable of boring 1,000 feet "A" size.

This is the first modern machine with hydraulic feed operated by the Department and it is expected to prove more efficient under certain conditions than plants at present in use.

GEOLOGICAL

The geological survey has continued in the fields of regional mapping and general geological advice on mineral deposits, engineering geology and underground water supplies.

Regional establishments have been operating at Sheffield, Zeehan and Port Davey and together with the regional mapping carried out from the Hobart Centre have resulted in the publication of two one inch map sheets, Longford and Sheffield, and the gathering of much information for the proposed eight inch geological map of the State.

The testing of the Iron Ore Deposits of the Savage River was continued and bores put down on the deposits to the south of the Savage River revealed good widths of iron ore with a lower titanium content than in the northern deposits.

The percussion drilling plants operated by the Department in boring for water continued to function in the Smithton and Triabunna districts. Drilling to test tin deposits was undertaken by these plants at Waratah, Upper Natone and St. Helens, while foundation tests were made for a railway bridge at Avoca and Post Office at Huonville. Three diamond drills also operated in testing mineral deposits at Penguin, clay deposits at Surges Bay, limestone deposits at Railton and coal measures at Fingal. Test holes were continued at the Lawrence Vale unstable housing area. Diamond and Percussion Drills were used in conjunction for testing pier sites for the new Hobart Bridge.

PUBLICATIONS

Publications printed for issue in the year 1959 included:—

1. Geological Survey Bulletin No. 46, "The Geology of the Rossarden-Storeys Creek District", by A. H. Blissett, B.Sc.
2. Technical Reports No. 3, covering geological and ore-dressing investigations made in 1958.
3. Longford Sheet No. 47 of Geological Atlas, one mile series.
4. Sheffield Sheet No. 37 of Geological Atlas, one mile series.

NEW LABORATORY

The new laboratories at Wellington Street, Launceston constructed at a cost of over £50,000 were occupied during the year and have provided the Department with better facilities for research into problems concerning the mining industry. Coal washing plants have been installed at two collieries as a result of research work carried out in the laboratories and programmes of research were undertaken into problems of improving recoveries in existing mine plants, iron ore concentration, extraction of nickel from low grade ores, recovery of monazite and higher tin recoveries together with various investigations into the use of local materials in industry with ceramics as raw materials.

The staff of the laboratories was re-organised and a Research Metallurgist and a Ceramic Technologist were appointed. Considerable equipment has been imported to enable ceramic research to be undertaken and existing metallurgical research units are being added to as required.

This aspect of the Department's activities has proved of great benefit to the mining industry and the services available are in constant demand.

WARDEN'S COURT

Boisdale Pty. Ltd. v. Cubit

OBJECTION TO APPLICATION FOR LEASE
560P/M — 10 ACRES

This case related to an application for a lease to mine quartz on the objector's property and was heard by the Warden of Mines at Devonport.

The question in dispute was whether or not the material to be mined was quartz within the meaning of Regulation 56 (6) which prescribes the classes of stone in respect of which a permit to enter and search may be granted under Section 70 of the Mining Act, 1929.

The Warden after considering submissions of Counsel and after consulting certain references was of the opinion that mineralogically the material was quartz but when speaking of its physical condition it was sand. (Sand is not one of the classes of stone prescribed by Regulation 56 (6)). The word "quartz" must be construed as "quartz other than quartz in the physical condition of sand and gravel."

The Warden found that the material to be mined is sand and not quartz within the meaning of the Act and Regulation 56 (6) and upheld the objection with costs against the applicant.

E. L. Clapp v. F. H. Graham and T. L. Bean
APPLICATION FOR FORFEITURE OF LEASE
39M/48

This case was heard by the Warden of Mines at Launceston who found that the applicant had not proved his case. The application was dismissed with costs.

MINE MANAGER'S CERTIFICATE

During the year the Board of Examiners granted, on the results of an examination, a certificate of competency as Mine Manager (Colliery) to Mr. James Francis Brennan.

Certificates were issued by the Board without examination to the following applicants who presented Mine Managers' Certificates issued by recognised authorities in other states or countries:—

Metalliferous Mine Certificate—James Dawson Copley and William Wallace Key.

Colliery Certificate—Adam McLean.

STAFF

The following were the staff movements during the year:—

Officer & Position	Remarks
Walter, J. H., Clerk	—Appointed.
Fitzgerald, J., Clerical Assistant	—Appointed.
Johnstone, T. W., Clerical Assistant	—Appointed.
Muir, R. J., Inspector of Mines and Explosives	—Resigned.
Robinson, R. G., Geologist	—Resigned.
Tetlow, P., Geologist	—Appointed.
Baird, J., Geologist	—Appointed.
Johnstone, T. W., Field Assistant	—Transferred.
Kingshott, B., Field Assistant	—Resigned.
Cox, B., Field Assistant	—Appointed.
Cannell, R. E. J., Draughtsman	—Transferred.

Hinks, J. L., Draughtsman—Appointed.
Liddy, J., Research Metallurgist—Appointed.
Gillespie, F., Ceramic Technologist—Appointed.

MINES DRAUGHTING SECTION

Year 1959.

Number of working plans in use and kept up-to-date	238
Working plans renewed and additional plans brought into use	8
Manuscripts brought up-to-date for reproduction	3
Lithographs printed	100
Lithographs entered to date for sale	106
Miscellaneous plans and tracings prepared	36
Mineral diagrams drawn	58
Mineral plans drawn	2
Mineral leases drawn in duplicate	64
Mineral leases drawn and described subject to survey	37
Underground mining plans examined and checked	2
Photostats of diagrams forwarded to Launceston Office	95

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

Displays of indigenous minerals featuring radio-active materials and detection apparatus were arranged by the Department for the exhibition held by The Institute of Engineers, Australia, and the scientific and industrial exhibition held at Ulverstone.

APPRECIATION OF SERVICES

Appreciation is recorded of the services rendered by officers of the Department, including officers of the Mines Draughting Section, 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, 1959.

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

For the year 1959, the work of the Geological Survey was carried out from the four centres of Hobart, Zeehan, Sheffield and Port Davey.

Material published by the Department during the year included:—

- (1) Geological Survey Bulletin No. 46, "The Geology of the Rossarden—Storeys Creek District", by A. H. Blissett, B.Sc.
- (2) Technical Reports No. 3, 1958.

Two sheets of the Geological Atlas, one-mile series, were printed for issue:—

- (1) Longford Sheet No. 47.
- (2) Sheffield Sheet No. 37.

The following subjects were investigated and reports written by officers of the Department:—

Iron

The Senior Geologist, T. D. Hughes, has made several visits to the iron ore deposits at the Savage River where drilling is in progress. Promising results continued to be obtained from the southern ore-bodies.

Geologist P. Tetlow spent most of the year supervising drilling operations at the Savage River and investigating the deposits in that area. He also examined magnetic anomalies at Long Plains South.

Tin

The Chief Geologist, H. G. W. Keid, visited St. Helens in connection with the boring for alluvial tin for Clutha Development.

An examination of a prospect at Upper Natone was made by the Senior Geologist, who from time to time also gave advice to tributors at Waratah.

Several days were spent by Regional Geologist I. B. Jennings at the Upper Natone prospect where three bore holes were drilled.

Geologists of the Zeehan Establishment carried out detailed mapping on tin sulphide ore-bodies in the vicinity of Mt. Razorback.

Geologist J. Baird advised on the placement of diamond drill holes to intersect possible extensions of known tin-tungsten deposits in the vicinity of the Aberfoyle and Storeys Creek mines.

Molybdenum

Further interest has been shown during the year in the molybdenum deposits of Mt. Stronach and Mt. Horror but no additional geological investigations have been carried out.

Gold

The Chief Geologist inspected a gold prospect at Lefroy, whilst Geologist J. Baird carried out surveys of prospects in the Fingal and Mathinna districts.

Nickel

There was continued interest in the nickeliferous clay deposits at Beaconsfield, some sampling undertaken by Regional Geologist M. Z. Stefenski.

The Senior Geologist visited a prospect southwest of Waratah.

Copper

Several copper prospects were examined by Regional Geologist M. Z. Stefenski in the Davey River—Bond Bay area.

Tungsten

The prospects of further cassiterite-wolfram mineralization in the mining districts of Aberfoyle and Storeys Creek were studied by Geologist J. Baird.

Coal

Geologist F. Blake investigated the possibility of extensions of known seams in the Fingal area and, on the basis of these examinations, he selected two drill sites.

Clay and Brickmaking Materials

An inspection was made by the Chief Geologist of a clay deposit at Gladstone.

The Senior Geologist examined brickmaking materials at Granton and clays at Surges Bay.

Geologist F. Blake selected drill sites at the Surges Bay clay deposits and sampled the overburden for possible use in the brick-making industry. He also reported on brick-making materials at Claremont.

The clays of the Railton area were examined by Regional Geologist I. B. Jennings and Geologist W. L. Matthews during their investigations for the Goliath Portland Cement Company.

Tertiary clays at Parkers Ford were investigated in detail by Geologist K. L. Burns.

Limestone

In preparation for the geophysical investigations by the Bureau of Mineral Resources, Regional Geologist I. B. Jennings and Geologist W. L. Matthews made a thorough survey of the limestone deposits in the vicinity of the Goliath Portland Cement Company's works at Railton.

Other Non-Metallic Minerals

The Senior Geologist reported on deposits of gravel at East Risdon and silica at Hastings.

A sand deposit at Woodstock was examined by Geologist F. Blake, whilst the Chief Geologist visited the ochre deposit at Smithton.

General and Regional Geology

From the Hobart centre general and regional geological investigations were carried out as follows:—

The Senior Geologist mapped several areas in connection with the eight mile map of the State now being prepared for publication.

Geologist F. Blake completed the regional mapping of the Longford area in March and commenced work in the Brighton Quadrangle in May.

The Cambrian lithostratigraphy of the Nook-Preston-Penguin area was investigated by Geologist K. L. Burns.

Regional geological mapping by the officers of the Regional Establishments continued and is outlined in separate reports.

Underground Water

The Chief Geologist made supervisory trips to Smithton, Triabunna, Little Swanport, Risdon, South Arm and Scamander in connection with the programme of boring for underground water.

The possibility of obtaining supplies at Rokeby, Roches' Beach and Ulverstone was examined by the Senior Geologist, whilst Geologist F. Blake carried out similar investigations at Lymington, Longley, Evandale, Old Beach, Orielson and Campania.

Regional Geologist I. B. Jennings made several surveys in the Sheffield—Middlesex district in connection with underground water supply and Geologist W. L. Matthews investigated prospects in the Tunnack area.

Mineralogy and Petrology

The Mineralogist and Petrologist, G. Everard, continued his investigations for and tendered advice to officers of the Department of Mines, other Government Departments, mining companies and the general public.

Drilling

During the year the Departmental drilling plants were occupied in diamond drilling for iron, coal, limestone and clay resources, for testing bridge foundations and for investigating the Lawrence Vale landslip area, whilst the percussion drills continued operations for foundations, underground water supplies and tin resources.

Engineering Geology

The Chief Geologist on several occasions gave advice on foundation testing at Launceston.

Geologist F. Blake reported on the suitability of the Longreach area, River Tamar, as a site for bridge foundations. He also investigated proposed dam sites for the irrigation scheme in the Coal River valley.

Regional Geologist I. B. Jennings studied the performance of, and suggested improvements to, the filter beds of the Sheffield water supply.

Geologist K. L. Burns carried out a geological investigation in the vicinity of the Devonport Medical Centre, preparatory to soil testing and other engineering investigations at the site of the proposed additions.

Geophysical Surveys

Geologist W. L. Matthews completed the scintillometer survey of the Rossarden district and prepared a report on the results obtained.

Following detailed geological investigations by officers of the Sheffield Establishment, the Bureau of Mineral Resources commenced a geophysical survey to examine further reserves of limestone at Railton.

Reports of the individual officers are appended.

HOBART CENTRE

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

Most of the year has been occupied in work of a supervisory nature but visits to the field have been made in connection with the programme of boring for underground water. In this capacity trips to Smithton, Triabunna, Little Swanport, Risdon, South Arm and Scamander were made.

Boring for foundations necessitated visits to Launceston, Huonville and Risdon whilst a visit in connection with boring for alluvial tin

was made to St. Helens. In January a demonstration of a portable power drill was witnessed at Launceston, the results being disappointing. A clay deposit at Gladstone and gold prospects at Myrtle Bank were inspected and sampled and gold prospect at Lefroy was inspected.

The Savage River iron deposits was visited as also was the ochre deposit at Smithton.

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

The principal interest still continued to be the testing of iron ore deposits at the Savage River. Following the completion of a road to the southern deposits, drilling commenced here and by the end of the year two bores had been completed. Results were even more encouraging than at the northern deposits, as good ore intersections obtained at depth showed a reduction in TiO₂ content. In the first hole (No. 3) three principal lenses of magnetite were intersected with a total width of 460 feet as well as minor ones. The following table shows the relevant detail.

Footage	True Width	HCl Sol	Iron	TiO ₂	S
0—355'	300'		52.8	0.32	3.6
355—525'	140'		15.8	0.68	5.6
525—588'	50'		41.0	1.1	4.6
588—645'	45'		15.5	1.0	1.6
645—785'	115'		15.5	1.0	1.6
645—785'	115'	....		
785—918'	110'	40		Country Rock 0.95	4.5

The second bore (No. 4) was located 600 feet south of No. 3 and again good intersections of ore were found. The iron content of three lenses of total width of 260 feet averaged 42%. Titanium content of this bore was less than in No. 3 and averaged 0.7% for the sections assayed.

Drilling is continuing.

Examinations were made and reports prepared on brick-making materials at Granton, gravel deposits at East Risdon, silica deposits at Hastings, clay deposits at Surges Bay and a tin prospect at Upper Natone.

Advice was given at various times to tributors at Waratah.

A visit was paid to the Regional Establishment at Port Davey and field parties were contacted in this area. Mapping was carried out in various parts of Tasmania in connection with the eight mile map to be published shortly.

Departmental diamond drills were visited from time to time. Advice on underground water supplies was given at Rokeby, Roches' Beach and Ulverstone.

Towards the end of the year, three months long service leave was taken.

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

The regional geological mapping of the Longford area was completed in March and the map sheet was later published. Field surveys relating to the Brighton map sheet commenced in May and continued at intervals until December.

Underground water possibilities were investigated at Lymington, Longley, Evandale, Old Beach, Orielson and Campania. In the two latter areas boring for water was recommended.

Drill sites were selected and several visits paid to Surges Bay clay deposits.

An investigation was made and a report prepared on brick-making materials at Claremont.

Permian siltstones overlying the Surges Bay clay deposits were sampled for possible use in the brick industry.

A sand deposit was examined at Woodstock.

Following an examination at Longreach, River Tamar, a report was submitted on the suitability of the site for bridge foundations.

A survey and report were made on geological conditions at proposed dam sites in connection with irrigation in the Coal River valley.

Subsequent to an examination and report on a potential coal bearing area adjacent to the Fingal Colliery, two drill sites were selected with the object of testing the extension of the coal seams.

As a member of the Nomenclature Board of Tasmania and the Stratigraphic Nomenclature Sub-Committee, meetings were attended throughout the year.

In the absence of Senior Geologist T. D. Hughes on three months long service leave the duties of this position were delegated to me.

Geologist K. L. BURNS, reports:—

The year 1959 has been spent on regional mapping in the Devonport Quadrangle. In January and February the south-eastern part of the Dial Range and the North Motton area were mapped. Foundation investigations were completed for the Mersey Group of Hospitals new building at the Devonport Medical Centre.

May and June were spent in completing mapping of the northern part of the Mersey Coal Basin, a detailed study of Devonian spelean deposits at Melrose, and in mapping of Cambrian stratigraphy west of Ulverstone. In July and August a comprehensive survey of the records of the Department was made in respect to the collieries of the Mersey district.

September was spent mapping in the Wesley Vale-Sassafras-Port Sorell area, including an investigation of Tertiary sand deposits at Parkers Ford. Regional mapping of the Cambrian rocks in the Lobster and Myrtle Creek area and the north-eastern part of the Dial Range was completed.

December was spent in mapping the north-western part of the Dial Range, including Mts. Montgomery and Dial Peak, and Penguin Creek. Particular attention was paid to the iron ore deposits of Penguin and McBrides Creeks, in co-operation with geologists of B.H.P.

Mineralogist and Petrologist G. EVERARD, B.A., A.M.Aus.I.M.M., reports:—

The decrease in the number of specimens received for identification from the general public continued in a more marked manner, less than half the number received last year being sent in for examination this year. They included clays, concentrates and various rock and mineral specimens.

Several specimens were examined for other Government Departments and for mining companies.

Various suites of rocks were examined for regional establishments at Sheffield and Zeehan and over fifty individual specimens collected in the Port Davey area.

Other investigations included—

Savage River, rock specimens and diamond drill core in thin and polished sections.

Tenth Legion, thin and polished sections of rock specimens and iron ores.

Hampshire, calc-silicate rocks.

Heazlewood, nickel ores in polished section.

Rossarden and Aberfoyle Mine, rock and mineral specimens.

SHEFFIELD CENTRE

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

Staff—

Regional Geologist: I. B. Jennings.

Geologist: R. G. Robinson, 1.1.59-24.4.59.

Geologist: W. L. Matthews, 28.5.59-31.12.59.

Field Assistants: A. V. Jackson; B. E. Cox.

Work carried out during the year was related to the following:—

(1) *Sheffield Quadrangle*.—Geological mapping of the remaining areas was completed; correlations with areas previously mapped were finalised and a final compilation of the whole sheet was made. A draft copy of the final map was forwarded for drafting and publication. During the compilation of this sheet the opportunity was taken to prepare a tentative geological map covering the Quamby, Sheffield, Middlesex, Valentine's Peak and Mackintosh quadrangles. The resulting map indicates an interesting structural pattern connecting the Sheffield area with structures previously mapped on the West Coast.

(2) *Du Cane Quadrangle*.—Mapping was carried out in the vicinity of Pine Valley, Du Cane Hut and the Narcissus Valley together with part of the Upper Forth and Mersey Valleys. This sheet is now about 60% complete but much of the remaining area is difficult of access.

(3) *Railton*.—A good deal of work was performed in the vicinity of the Goliath Portland Cement Company in connection with the future developments in this area. Detailed and regional geological mapping was carried out; a drilling programme set out and the resulting cores logged; and a geophysical programme, with its associated soil and rock testing, initiated. A full report on all the geological aspects of this work was prepared.

General.—Toward the end of the year a few weeks were spent in the Bathurst area investigating the broad structural and stratigraphic problems there.

The performance of the filter beds at the Sheffield water supply was investigated and a report prepared.

A few days were spent at Upper Natone in connection with a drilling programme being carried out for alluvial tin deposits in the area.

Numerous visits were made to various prospects in the Sheffield—Middlesex district and several local investigations made in connection with underground water supplies.

Geologist W. L. MATTHEWS reports:—

The first part of the year was spent in completing a survey of the Tunnack area for the purpose of determining the underground water potentialities.

Two months were spent in the Port Davey area. The main areas in which work was performed were: Solly River Valley, Old River East Valley and the lower parts of the North and Spring Rivers.

On 28th May, 1959, transfer to the Sheffield Area Base took place.

Areas visited in the Sheffield Quadrangle included the Mt. Roland and Lower Wilmot areas. A detailed structural survey of the Goliath Cement Quarry at Railton was made and cores from the recent drilling operations were logged.

In the Du Cane Quadrangle about a fortnight was spent in the Upper Mersey area (Howell's Plains) and about four weeks in the Upper Forth (Mt. Oakleigh area).

ZEEHAN CENTRE

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

To continue the summer programme, camps were installed near Moore's Pimple (north-east of Mt. Dundas), Duck Creek, Granville Harbour and north of the Pieman River. The Moore's Pimple and Pieman camps were established by helicopter. By May 9th, much of the more inaccessible portions of the Zeehan Quadrangle had been mapped, including previously unknown Ordovician and Silurian formations from Duck Creek across the old Granville-Corinna track.

From May 10th to December 13th, an unusually fine winter and spring allowed almost continuous fieldwork on the Ordovician, Silurian and Devonian rocks in the Zeehan Syncline, and also on the mapping of Cambrian foundations near Zeehan and in the Dundas area. A. B. Gulline discovered three new Cambrian fossiliferous localities near Dundas, while A. H. Blissett found fossils in the Ordovician near Mt. Zeehan and Mt. Misery. The fossils will be an aid to the working out of the complicated structures common in the Zeehan district. Detailed mapping was carried out on the tin-sulphide orebodies near Mt. Razorback, prior to the proposed geophysical survey.

In bad weather, members of the staff were employed in office duties in cleaning the Museum of Minerals in the old Zeehan School of Mines. By late May, a complete set of dyelines on aerial photograph scale (1" : 20 chains) had been received from the Department of Lands and Surveys, covering the Zeehan Quadrangle. During wet weather, A. H. Blissett and A. B. Gulline were therefore able to start drawing formation boundaries on the maps, which will be the basis of the final 1" : 1 mile sheet. Occasional visitors were guided round the mineral collection in the School of Mines, and much time was spent on routine photo-interpretation as well as stratigraphical correlation.

A. H. Blissett was absent on leave from July 25th to August 23rd, and A. B. Gulline between September 4th and September 27th.

Assistance was given to the survey party from the Department of the Interior, and to a geophysical assistant from the Bureau of Mineral Resources, who arrived in early December to prepare for the geophysical survey over the tin-sulphide deposits in the Mt. Razorback—Grand Prize area. The first camp of the new season was set up on December 14th near the alluvial tin deposits of North Heemskirk.

Zeehan Staff.

A. H. Blissett, Regional Geologist.

A. B. Gulline, Geologist.

R. Pitt, Geological Assistant. (Student of Geology, University of Tasmania) from 1.12.1959.

Several field assistants.

PORT DAVEY CENTRE

Regional Geologist M. Z. STEFANSKI, M.Sc., A.M.Aus.I.M.M., reports:—

Regional mapping of the area including the Solley and Old Rivers, the south-western portion

of the Arthur Range and the southern part of the Norold Mountains was carried out during the summer months—January, February and March. Food supplies and camping gear were dropped by planes from the Aero Club of Southern Tasmania.

In April and May mapping was continued in the regions of the Spring River, Breaksea Islands and Bramble Cove.

In July and August work in the Hobart office included the compilation of geological maps and a progress report on the regional geology of Louisa River, Iron Bound Range, Solley, Watts, and Old Rivers and East Bathurst Harbour.

During the latter part of October and in November and December mapping of the Davey River—Bond Bay area was commenced and a few copper prospects in this area were examined.

Staff engaged during the summer mapping season included:—

M. Z. Stefanski, Regional Geologist.

A. Taylor, New Zealand, Geologist.

D. Gee, Cadet Geologist.

Several field assistants.

MAPPING AND ENGINEERING DRAUGHTING SECTION, HOBART

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

Staff.—Movements during the year were as follows:—

Mr. R. E. J. Cannel, Mapping and Engineering Draughtsman, transferred to the Public Works Department.

Mr. L. J. Hinks was appointed as a Mapping and Engineering Draughtsman.

Operations.—The preparation and printing of two sheets of the Geological Atlas one mile series, the Longford Sheet No. 47 and the Sheffield Sheet No. 37, highlighted a year on intense cartographic activity.

Preparation of the Structure Map of Tasmania began toward the end of 1959. Further progress is also reported on the new 8 mile Geological Map of Tasmania.

One coloured and twenty black and white geological maps, sections, and diagrams were prepared and published in Geological Survey Bulletin No. 46, "The Geology of the Rossarden—Storeys Creek District".

Thirty-one black and white geological maps, diagrams and graphs were prepared as line blocks for inclusion in the publication, Technical Reports No. 3 (1958) which was printed during the year.

Cartographic work was undertaken on behalf of the regional establishments at Sheffield, Zeehan and Port Davey. A feature of this activity was the topographical base maps produced from controlled airphoto laydowns of the Bathurst and Maatsuyker map sheets, comprising twenty field sheets on a scale of twenty chains to one inch and two compilation sheets at one mile to one inch.

Also arranged and supervised by this section were the Mines Department Exhibits at the Engineering Exhibition held by the Institution of Engineers, Australia at Hobart (16th-21st March) and the Industrial and Scientific Exhibition held at the High School, Ulverstone (24-29th August).

The balance of time was used in preparing topographical, geological and engineering plans related to normal field services.

APPENDIX II

ANNUAL REPORT FOR 1959—CHIEF CHEMIST AND METALLURGIST

**The Chief Chemist and Metallurgist, Mr. W. St. C. Manson,
M. Aus. 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 continue to be a major activity. The ceramic testing section has been active, and 65 samples of clay were processed during the year.

New laboratories were completed during the year and occupied in July. The equipment, stores, apparatus and records from the old premises were packed and placed in the new premises by the members of the staff.

Number of determinations made during the year 1959:—

Types	Number
Aluminium	127
Antimony	5
Arsenic	22
Barium	3
Beryllium	1
Bismuth	6
Cadmium	Nil
Calcium	54
Carbon	60
Chlorine	8
Chromium	50
Coal Analyses	15
Copper	63
Clay Examinations	65
Cobalt	8
Gold	86
Iron	959
Lead	143
Magnesium	61
Manganese	172
Molydenite	132
Monazite	Nil
Nickel	72
Phosphorus	274
Potassium	32
Qualitative Tests	170
Radio-Activity Tests	1
Silicon	152
Silver	32
Sulphur	373
Sodium	31
Tin	231
Titanium	144
Tungsten	67
Uranium	Nil
Water Analyses	22
Zinc	7
Miscellaneous	185
Vanadium	7
Platinum	1
Oxygen	22
Carbon Dioxide	34
Ash	8
Total	3,875

ORE DRESSING INVESTIGATIONS

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

Types	Number
Molybdenum-copper	1
Nickel	1
Gold	1
Tin	2
Iron	5
Total	10

Mt. Stronach, Scottsdale—Molybdenite.

R.351.

A bulk sample of biotite granite from Mt. Stronach was submitted by Mr. B. A. Farquhar for analysis and concentration tests by flotation. The sample contained molybdenite, chalcopryrite and pyrite, and was assayed with the following results. Molybdenite 0.39%, copper 0.07%, sulphur 0.24% and a trace of bismuth.

Ball mill grinding to minus 60 mesh was found to be satisfactory, and preliminary tests by bulk flotation showed high recoveries of the sulphides, but the molybdenite content was less than 60% with a copper content of 10%. First quality molybdenite concentrates should contain over 90% of molybdenite, and penalties are payable for impurities such as copper and bismuth of over 0.2%. The majority of the test work was directed to selective flotation to reject slimes, chalcopryrite and pyrite, and best and satisfactory results were obtained using the following reagents.

Figures in parentheses lbs. per ton of ore: Sodium metasilicate (1.12), sodium cyanide (0.52), potassium ferrocyanide (0.52), Syntex M (0.02) and frother A.C. 52 (0.22).

Rougher concentrate was cleaned four times with the following results.

Product	Wght.	MoS ₂	Per Cent		Dist. MoS ₂
			Cu.	Bi.	
MoS ₂ Conc.	0.35	93.7	0.2	0.06	87.1
Cleaner Tailing	2.57	0.8	....	....	5.1
Rougher Tailing	97.08	0.03	....	....	7.8

Nickel Ore—Beaconsfield.

R.352.

A sample of ore from the Ben Lomond Mining Company was submitted to tests requested by the company to assess the use of sulphurous acid at atmospheric temperatures and pressures for extraction of the nickel. The sample is oxidised surface material with a high iron content, and analysis showed: nickel 1.14%, cobalt 0.36%, silica 5.3%, iron oxide 70%, manganese oxide 3%, chromium oxide 3%. The ore was treated with quantities of sulphurous acid ranging from 100 to 2,000 lbs. per ton, and extractions of nickel ranged from 31 to 51%. Agitation periods beyond 48 hours did not show higher extractions. Extractions of nickel and cobalt were similar.

In all tests high quantities of manganese were extracted, and using over 200 lbs per ton of acid the extraction of iron was appreciable.

Separation of the iron and manganese from the nickel in the leach solution by removal of sulphur dioxide by boiling, oxidation of iron and manganese with chloride of lime, and precipitation of iron and manganese with caustic soda at a pH value of 4.7 resulted in a loss of 34% of the nickel in the iron-manganese hydrates. Treatment of the leach solution with ammonia in excess resulted in separation of 92% of the nickel, or a maximum overall extraction of 45%.

The nickel silicate mineral is not attacked by ammonia, but after treatment by the "Nicaro" process consisting of a reduction roast, followed by leaching with ammonia and ammonium carbonate, good extractions were obtained on preliminary tests, and this process appears to have more useful application than the described acid method.

Gold Ore—Alberton.

R.353.

Oxidized table concentrates from the Ringarooma United Gold Mine Plant was sampled for tests for extraction of the gold. Assays showed a gold content of 3.7 ozs., and arsenic 4.5%. Sizing showed 34% plus 85 mesh, and 24% minus 200 mesh size.

The concentrates have been stored for many years and showed considerable oxidation.

Cyanidation tests by agitation for 24 hours showed only 30% extraction which was increased to approximately 60% with a pregrind to minus 200 mesh size. Roasting followed by cyanidation using high lime and cyanide resulted in an extraction of 95% of the gold.

Number	Footage	Fe	S
R.355	0-355	52.8	3.80
R.356	355-525	16.1	5.57
R.357	525-588	39.8	4.98
R.358	588-645	16.2	1.66
R.359	785-918	42.0	4.47

Beneficiation was tested at sizings varying from $\frac{1}{8}$ inch to minus 150 mesh size (B.S.) containing 73% of minus 200 mesh material. Generally a 60 mesh grind was necessary for good beneficiation and beyond this sizing little improvement in grade was obtained.

The low grade section from 355 to 525 feet did not respond as well to beneficiation as other sections. The magnetic concentrate from the finest grinding contained 0.88% of iron. At minus 18, 60 and 100 mesh B.S. sizings the sulphur content of concentrates amounted to 4.8, 2.5 and 1.5%.

Alluvial Pyritic Cassiterite Concentrates.

R.354.

The Endurance Tin Mining Co. of South Mount Cameron submitted a sample of pyritic concentrates for tests for removal of the secondary pyrite by flotation. The sample contained 25% of tin and 28% of sulphur equivalent to 52% of pyrite.

The sample was all plus 200 mesh size and 67% was plus 52 mesh. This sizing is somewhat course for froth flotation, and complete removal of sulphides was not anticipated. Sixty-two per cent of the sulphides was rejected using sulphuric acid, amyl xanthate and cresylic acid at the rates of 4, 1 and 1 lbs. per ton.

The quantity floated amounted to 35% by weight and contained 2% of the tin. The flotation sink product amounted to 65%, with a tin content of 37%, and a recovery of 98% of the tin.

Sulphides coarser than 52 mesh were floated in minor degree only.

The use of fuel oil at the rate of 2 lbs. per ton was tested to obtain better removal of the coarse sulphides, and the quantity floated increased to 45% but with a higher tin content representing a loss of 12% of the tin. Seventy-five per cent of the sulphides were floated. Other reagents used were sulphuric acid, copper sulphate, amyl xanthate and cresylic acid at the rates of 8, 1, 1 and 1 lbs. per ton respectively.

Magnetite—Savage River.

R.355—R.359.

Diamond drill cores from No. 3 hole were submitted to beneficiation tests by wet magnetic separation using a Dings belt separator.

The analysis of the five sections tested are shown in the following table.

Per Cent					
	P ₂ O ₅	Al ₂ O ₃	SiO ₂	Mn	TiO ₂
R.355	0.28	1.65	7.56	0.12	0.38
R.356	0.48	3.94	28.7	0.1	0.56
R.357	0.59	3.96	14.5	0.16	1.18
R.358	0.19	10.46	25.5	0.15	1.11
R.359	0.06	3.83	15.2	0.06	1.38

All other samples responded well to beneficiation with high recoveries of magnetite, and assay values of iron, sulphur and phosphorus of approximately 68, 0.2 and 0.06% respectively. The composite concentrate from the total footage showed the following analysis.

	%
Iron	67.6
Sulphur	0.28
Phosphorus	0.02
Alumina	0.64
Silica	2.21
Manganese	0.09
Titanium Oxide	0.30

APPENDIX III

REPORT OF THE CHIEF INSPECTOR OF MINES

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

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

THE MINES AND WORKS REGULATION ACT, 1915 EMPLOYMENT

The average number of persons employed in the mining, metallurgical and quarrying industry during the year was 8,236. This represents a decline of 73 men brought about by the closure of a large mine towards the end of the previous year. Otherwise the number remains unchanged, although relatively significant increases occurred at underground mines.

ACCIDENTS

The number of registered accidents was 92, in which 91 persons were injured and two killed. In calculating the rates per thousand, 811 employees of the total of 8,236 were disregarded because their employers do not submit accident reports. Generally speaking the incidence of accidents followed the tenor of previous years, and the locations and incidence are shown in the accompanying tables. The dissection of accidents according to the class of mining shows a high percentage of employees injured in copper and tin and tungsten mining, the rates being almost double the average for the whole industry, both underground and on the surface.

DESCRIPTION OF FATAL AND SERIOUS ACCIDENTS

Fatal

- A. Griffiths, E.Z. Co., Rosebery: Killed by an explosion in a rise whilst boring.
T. Mc.K. Dunn, Branxholm: Burried under a fall of earth from the face of his alluvial mine.

Serious

- M. J. Bean, Fingal Colliery, Fingal: Struck by a fall of ground; broken leg.
C. A. Bonney, Oatlands M. C., Fonhill: Buried under slide of dirt; broken pelvis.
Z. Wagner, E.Z. Co., Risdon: Fell from staging; broken collar bone and injured head.
C. B. Champion, Calder Gravel Pit: Crushed against loader bucket by his lorry rolling backwards; broken pelvis.
W. Pfaff, E. Z. Co., Risdon, Struck by fall of slag in furnace; broken leg.
L. St.C. Heelan, Aberfoyle Tin, Rossarden: Caught in tumbler whilst tipping truck; broken leg.
A. Fykas, Aberfoyle Tin, Rossarden: Jammed between truck and chute; broken arm.
H. W. Jacobson, Hutton's Brickworks, Launceston: Clothing caught in machinery; broken ribs.
D. Bellini, Aberfoyle Tin, Rossarden: Fell down rill; broken arm.
L. V. Groombridge, Carbide Co., Electrona: Struck by fragment of stone whilst knapping; lost eye.
H. R. Targett, Mt. Lyell Co., Queenstown: Struck by steel plate on a mobile crane operated by him; injured fingers and concussion.
P. J. Thompson, Mt. Lyell Co., Queenstown: Buried in ore and timber when chute collapsed; injured back and broken collar bone.
A. J. Callander, Mt. Lyell Co., Queenstown: Allowed piece of steel to roll on foot; broken.
V. Allesandrim, Zeehan Mines, Zeehan: Struck by fall of ground; Broken foot and abrasions.
T. J. Hayes, Mt. Lyell Co., Queenstown: Tripped over chains; broken arm.
R. V. McGrath, E.Z. Co., Rosebery: Jammed against wall by trolley on branch line struck by mainline locomotive; broken leg.
G. J. Bosworth, E.Z. Co., Rosebery: Struck by fall of ground; broken leg.
J. Scanlon, E.Z. Co., Rosebery: Slipped whilst moving scraper; broken ankle.
R. D. Franklin, Storey's Creek Tin Mining Co., Storey's Creek: Struck by fall of ground; broken leg.
J. Burns, E.Z. Co., Risdon: Crushed hand between pipe and a tank; broken.
L. C. Dillon and J. R. Maywood, Mt. Lyell Co., Queenstown: Spilt molten zinc; burnt feet.
C. V. Jones, Mt. Lyell Co., Queenstown: Stepped on moving cable and fell; broken arm.

LOCATION OF ACCIDENTS

Type of Mining	Underground Number of Persons—				Surface Number of Persons—				Total Number of Persons—			
	Employed	Killed	Injured	Per Cent Injured	Employed	Killed	Injured	Per Cent Injured	Employed	Killed	Injured	Per Cent Injured
Coal	221	...	6	2.7	86	...	...	...	307	...	6	1.9
Copper	50	...	4	8.0	1,559	...	22	1.4	1,609	...	26	1.6
Lead-zinc	264	1	7	2.6	404	...	2	0.5	668	1	9	1.3
Silver-lead	52	...	1	1.9	44	...	...	...	96	...	1	1.0
Tin and Tungsten	254	...	22	8.7	338	1	5	1.5	592	1	27	4.6
Quarries, Works, &c.	...	...	...	...	4,153	...	22	0.5	4,153	...	22	0.5
Total	841	1	40	4.8	6,584	1	51	0.8	7,425	2	91	1.2
Not reported	...	...	...	...	811	...	...	...	811	...	...	...
					7,395				8,236			

COMPARATIVE TABLE SHOWING RATES PER THOUSAND KILLED OR INJURED

Period	Number of Persons Employed	Number of Accidents	Number of Persons			Number per Thousand		
			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
1958	8309	103	3	100	103	0.399	13.303	13.702
1959	8236	92	2	91	93	0.269	12.256	12.525

* See Report of Director of Mines—1954.

† See Report of Director of Mines—1956.

INCIDENCE OF ACCIDENTS

Place and Cause of Accident	Number of Persons Killed	Number of Per- sons Injured (in- capacitated for over 14 days).
<i>Section A.—Metalliferous Mines—</i>		
1. Below Ground:		
(a) Explosions	1	....
(b) Falls of Ground	....	3
(c) Falling down Shafts, &c.	....	....
(d) Other Causes	....	29
2. Above Ground:		
(a) Machinery in Motion	1	8
(b) Other Causes	....	18
3. Accidents in Batteries, Ore-dressing, Smelting and other Metallurgical Works, &c.		
	....	27
Total Metalliferous Mines (A)	2	85

Section B—Coal Mines—

4. Below Ground:		
(a) Mine Explosions (fire, damp, &c.)	....	....
(b) Explosives (dyna- mite, &c.)	....	....
(c) Falls of Earth	....	1
(d) Other Causes	....	5
5. Above Ground:		
(a) Machinery in Motion	....	....
(b) Other Causes	....	....
Total Coal Mines (B)	....	6
Total All Mines (A and B)	2	91

INSPECTION

Mr. R. J. Muir, Inspector of Mines and Explosives stationed at Launceston, resigned during the year, and Mr. A. E. Hemsley was appointed Inspector of Mines and Explosives as a temporary relief inspector on the coalfields. The inspectors' descriptions of development and production at the various mines are delivered in the main report, and their district reports comprise Appendix V.

APPENDIX IV

REPORT OF THE CHIEF INSPECTOR OF EXPLOSIVES

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

The Chief Inspector of Explosives, Mr. J. G. SYMONS, B.E., M. Aus. I.M.M. reports:—

EXPLOSIVES ACT, 1916

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

Explosive	Currie	Hobart	Launceston	Burnie	Strahan	Ulverstone	Total
Ajax (lb.)	.....	.....	164,950	.....	.....	.....	164,950
Gelignite (lb.)	1,000	236,700	559,950	313,100	153,900	.....	1,264,650
Ligdyn (lb.)	.....	13,050	.....	.....	.....	.....	13,050
Plastergel (lb.)	.....	500	2,500	.....	.....	.....	3,000
Quarigel (lb.)	8,000	750	.....	.....	1,193,350	.....	1,202,100
Quarry Monobel (lb.)	.....	8,950	9,200	3,000	.....	.....	21,150
Semigel (lb.)	.....	.....	10,500	.....	.....	.....	10,500
Blasting Powder (lb.)	.....	5,000	4,000	2,000	.....	.....	11,000
Cordtex (ft.)	6,000	60,000	96,000	60,000	558,000	.....	780,000
Detonators	6,000	.....	400,000	450,000	.....	.....	856,000
Detonators (electric)	.....	.....	61,200	163,900	.....	78,550	303,650
Detonating relays	.....	.....	1,000	1,000	.....	.....	2,000

There were 37 shipments in all, an increase of six, and each was inspected on arrival. All nitro-compounds were of Polar type and subjected to chemical test before despatch from the mainland. Considerable quantities of fireworks were imported and examined, particularly with regard to their usage by children.

The composition of three types was analyzed but no prohibited ingredients were found. In the case of another brand the clay plugs were found to be inadequate for containing the composition, and the maker was required to remedy the defect.

ACCIDENTS

One accident occurred when a miner was killed by an explosion. He had bored into a remnant of gelignite from a previous blast, the percussion of the drill causing it to explode.

INSPECTION

All licensed magazines were inspected during the year and particular attention given to the effectiveness of end waxing of gelignite plugs. To further the investigation permission was given for the landing of a limited quantity without end-waxing for observation during storage.

Steps were taken by an open-cut mine to carry out large scale tests of a recently developed explosive, and a restricted licence to manufacture was issued. The explosive is a mixture of ammonium nitrate and mineral oil, or other approved carbonaceous material, which is made as a slurry at the point of usage, and poured into the blast hole.

Several children narrowly escaped disaster on one occasion when they crushed some detonators which they had removed from an unlocked shed. It speaks well for the composition of present day detonators that no detonation occurred.

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	D'port	Bell Bay	Narracoopa	Total
Aviation Gasolene	1,695	.....	1,589	.....	3,284
Benzol	500	.....	.....	.....	500
Kerosene, Aviation	2,748	.....	.....	.....	2,748
Kerosene, Lighting	2,002	253	.....	.....	2,255
Kerosene, Power	723	3,010	.....	.....	3,733
Motor Spirit, Premium	25,829	16,731	14,091	.....	56,651
Motor Spirit, Regular	22,025	15,716	16,003	1,130	53,874
Total	55,522	34,710	31,683	1,130	123,045
Tank Ships (No.)	19	11	9	1	40

There was one more tank ship than in the previous year and the quantity landed was 9,905 tons less.

ACCIDENTS

Five accidents were reported during the year and are described below.

1. A lorry and kerbside pump were badly damaged, and one person was burnt on the hands, when the lorry caught fire after refuelling. The cause of the fire was ignition of petrol spilled near the exhaust outlet.
2. An electrical fault resulted in the petrol engine of a tank wagon igniting. The fire was quickly put out and little damage was done.
3. A lighted match carelessly discarded set fire to petrol spillage from an overfilled tank. Prompt fire brigade action prevented serious damage.
4. A skid-tank and portable compressor were badly damaged whilst the tank was being filled with distillate. The vapours displaced from the tank contacted the compressor engine exhaust and were ignited.
5. A service station was completely burnt out and an adjoining building damaged by a fire in the former. An inspection lamp was dropped and broken causing an electric spark in the midst of petrol vapour, which promptly ignited.

INSPECTIONS

At the 30th June the number of licensed premises was 1,666, an increase of 109 in 12 months.

In addition to routine inspection of storage conditions particular attention was given to the arrangements for fighting fires in bulk depots. In several instances the arrangements were inadequate and improvements were required. The construction of service stations and small bulk depots increased considerably, as did the installation of lighting kerosene pumps at service stations.

One person was prosecuted for illegal storage and a fine of £5 was imposed.

APPENDIX V

REPORTS OF THE INSPECTORS OF MINES AND EXPLOSIVES

**Inspector L. W. MORRIS, A.W.A.S.M.,
M. Aus. I.M.M., Queenstown,
reports:—**

EMPLOYMENT

The average number of persons employed in the industry was 2,382, of whom 344 were engaged underground. In addition an average of 19 men was engaged in exploration under the various Special Prospecting Licences.

ACCIDENTS

There were 37 accidents which caused 14 days, or longer, loss of time. Of these one was subsequently fatal. The miner died some days after being involved in an explosion in a rise in the Rosebery Mine. He was boring in the face at the time and apparently the drill exploded a remnant of gelignite.

Two men received burns when a pot of molten metal tipped, whilst being shifted to pour a bearing, and splashed onto their feet. Another man was struck on the head by a steel plate which was dislodged by a mobile crane. Underground a man was caught in wet ore and broken timber when an ore chute collapsed without warning. It was several hours before this man was released, his arm and shoulder being caught between two large timbers. Another man had his leg broken when pinned against the wall of an underground haulage way by a trolley on a branch line when it was struck by a mainline locomotive. The other accidents were minor.

HEALTH AND SANITATION

Working conditions and amenities were maintained at a satisfactory standard.

AID TO MINING

Applications for aid have been investigated and recommendations made, as each case appeared to warrant. There are now four parties operating with aid, or for whom aid has been approved, in the district.

EXPLOSIVES AND INFLAMMABLE LIQUIDS

Landing of explosive shipments at Regatta Point, Strahan, was supervised and magazines were periodically inspected and distribution methods checked. New inflammable liquid storage sites were checked to ensure that they complied with approved plans.

**Inspector D. BESFORD, M. Aus. I.M.M.,
Hobart reports:—**

EMPLOYMENT

The average number of persons employed at Mines and Works operating under the Mines and Works Regulation Act was 469, an increase of five compared with the previous year.

ACCIDENTS

No fatal accidents occurred during the year, and the six recorded accidents all occurred underground. One coal miner received a fractured leg when a fall of roof coal occurred at the face and a quarry worker received a fractured pelvis when working on some loose gravel. All other accidents were of a minor character and were due to simple causes.

SAFETY

Attention was directed to the maintenance of safe working conditions in mines, works and quarries and every working place was thoroughly inspected at each of my periodical visits. Underground working places in coal mines were regularly tested for inflammable and noxious gases. No inflammable gas was found but a small leakage of blackdamp occurred at one mine. The leakage was small and was diluted and rendered harmless by means of the natural air circulation. I made an examination of the old workings at one mine to ascertain whether it was safe for entering. Underground electrical equipment and machinery were regularly examined and tested to ensure safe operation.

VENTILATION

Main air currents were regularly checked in all coal mines and in most cases were found to be adequate, but the ventilation of one mine was found deficient. This caused some concern as the main airways became blocked by falls so that it was not possible to circulate sufficient air through them, and the men had to be withdrawn when the quality became too poor. Wet and Dry Bulb temperatures were regularly recorded in all the underground working places and these were generally well below the required maxima.

INFLAMMABLE LIQUIDS AND EXPLOSIVES

Magazines were inspected and where any deficiencies were observed they were rectified without delay. Inspections of inflammable liquid installations were carried out during my routine visits and they were generally found to comply with the requirements of the Act.

**Inspector H. L. OLDS, A.S.T.C., A.M.
Aus. I.M.M., Hobart, reports:—**

EMPLOYMENT

In the northern and southern divisions the average number of persons employed in mining and allied industries, other than coal mining, was 4,522, comprising 231 underground, 279 in quarries and alluvial workings and 4,012 in works,

ACCIDENTS

A total of 43 accidents was recorded during the year, one of which was fatal. The fatality occurred on a one-man alluvial mine when the 12 foot bank collapsed and buried him. Of the other accidents 22 occurred underground and five on the surface at the Aberfoyle and Storey's Creek tin mines (328 employees) and 13 at the Risdon works of the Electrolytic Zinc Company (2,869 employees). No accidents were reported from quarries. Half the underground accidents were associated with transport, injuries being sustained through derailments and filling of trucks and by jamming of fingers between trucks and chutes. Of the remainder four arose from slipping or stumbling in stopes. In the two serious surface accidents a man's leg was broken when slag fell away from the inside of a furnace, and a man fell off a staging to break his shoulder.

Although no personnel were involved a serious winding accident occurred at one mine, a cage falling from the brace to the bottom of the shaft. It was lifted off the chains when the driver was disengaging the clutch without any brakes on the drum.

HEALTH AND SAFETY

Regular visits were made to mines, quarries and works to ensure the maintenance of safe working conditions and suitable amenities. A sewerage tunnel, to which the Mines and Works Regulation was applied by order, was also inspected. Konimeter readings were taken underground and where the dust counts were in excess of those permitted steps were taken to rectify the position.

The Workers' (Occupational Diseases) Relief Fund Board was assisted by arrangement of medical examinations and checking of registers.

EXPLOSIVES AND INFLAMMABLE LIQUIDS

Routine inspections of storage sites were made and unauthorized storages investigated. One prosecution was made for illegally keeping inflammable liquid and a fine of £5 was imposed.

**Inspector L. F. EGAN, A.M. Aus. I.M.M.,
Burnie, reports:—**
EMPLOYMENT

The average number of persons employed was 821, a decrease of 16 men on the previous year.

REPORT OF THE RINGAROOMA AND CASCADE WATER BOARD FOR THE YEAR ENDED 31st DECEMBER, 1959

SIR,

We have the honour to submit the report of the Ringarooma and Cascade Water Board for the year ended 31st December, 1959.

The Cascade section of the race continued to be used and maintained by Briseis Tin N.L. at a rental of £211 per year. The section has been maintained in good order.

The Ringarooma section has been maintained by Briseis Tin N.L. on a cost plus supervision basis. There were no serious breaks in the race

ACCIDENTS

Accidents involving absence from work for periods of 14 days or longer totalled three. Of these the most serious occurred in a Calder gravel pit. The lorry driver climbed into the tray to retrieve his coat, but the lorry ran back slightly and jammed him between the cab and the bucket of the loader. He suffered a fractured pelvis and was off work for three months. The other two accidents were minor and no fatal accidents occurred.

HEALTH AND SAFETY

Inspections throughout the year were made with continual insistence on dust free and otherwise hygienic working conditions and suitable shower rooms and crib places. At one brick-works a hot and cold shower was installed and the crib room provided with a food heater. The larger quarries are required to maintain a stretcher as well as the usual first-aid kit. Regular inspections were made of surface and underground workings and recommendations were made from time to time where rectification or improvements were considered necessary.

EXPLOSIVES AND INFLAMMABLE LIQUIDS

Storage of explosives was kept under surveillance, inspections of magazines being carried out to decide their eligibility for relicensing. A major development was the construction of two new large brick magazines at Heybridge for the storage of nitro-compounds and detonators, replacing the old magazines at Wivenhoe which were demolished.

Control was exercised over the landing of explosives at Burnie, Devonport, and Ulverstone, while at King Island the landing of explosives at Currie was under the supervision of the Harbour-master.

On one occasion advice was given to a firm on demolition of a large concrete foundation set in a bank of machinery and near a glassed-in office. The lay out, charging, and firing of the holes was supervised and no damage was done.

Increased activity by the oil companies in the erection of new installations formed the major proportion of work involved in the administration of the Inflammable Liquids Act.

system but constant attention to maintenance was necessary to preserve races and fluming in a reasonably satisfactory condition.

The use of water is limited to two consumers for mining purposes, three for domestic purposes, two for irrigation purposes and township supplies to Branxholm, Legerwood and Derby. Revenue is small and is insufficient to meet maintenance costs. Revenue from the use of water for mining increased by £200 and the amount received from town supplies increased to £418 principally as a result of supplies to Derby.

Maintenance costs at £4,869 were £910 less than the previous year and reflected the benefits which accrued from repairs to the system during 1958. The operational loss was £3,777 as compared with £5,192 for the previous year.

The Board is concerned at the annual losses which now aggregate £57,000, and whilst the Race is of some community service and assists in the production of a quantity of tin the continuing losses are such that maintenance of the Ringarooma Race as part of the System cannot be continued indefinitely.

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, 1959.

<i>Receipts.</i>			<i>Payments.</i>		
	£	s. d.		£	s. d.
Rent of Cascade Race and Dams	211	0 0	Ringarooma Race—		
Revenue from sale of water from Ringarooma Race—			Wages—Caretakers	2,136	14 7
Mining purposes	£462	7 11	Wages—Maintenance	1,143	6 2
Town supplies	418	10 0	Stores	521	8 2
			Transport expenses	291	1 6
			Supervision	180	0 0
			Pay Roll Tax	85	11 6
			Workers Compensation Insurance	68	7 7
			Rent of private land	19	19 0
			Telephone	13	0 9
			Interest on capital cost of Ringarooma and Cascade Water System	409	12 0
Total revenue	1,091	17 11			
Balance (Loss)	3,777	3 4			
	£4,869	1 3		£4,869	1 3

REPORT OF THE MT. CAMERON WATER RACE BOARD FOR THE YEAR ENDED 31st DECEMBER, 1959

SIR,

We have the honour to submit the report of the Mount Cameron Water Race Board for the year ended 31st December, 1959.

Production of tin oxide from water supplied was 44.072 tons as compared with 38.830 tons for last year.

The operational loss was £279 which is £25 less than for 1958. Revenue from sale of water increased by £178 but the effect was offset by a rise of £211 in expenditure. The main increase was in wages resulting from basic wage adjustments.

As stated in our last report the finances of the Board are largely governed by the level of activities by the Star Hill Syndicate and the Elizabeth Syndicate. Operations of the Elizabeth Syndicate were suspended for a time and activities moved to another area where productive mining was continued until towards the close of the year. The loss in revenue over the period entailed in the transfer of plant was off-set by increased activities by another producer. Water was also supplied on the royalty scale to one producer who was responsible for payment of £176 from the proceeds of tin sold. If productive operations could be continued for a year with present producers working full time the operations of the Race could be maintained with little or no loss. However, it cannot be anticipated

that revenue will be sufficient to meet expenditure and the Board expects that a small annual loss will continue.

The race system has been maintained in good order and damage to a section on the upper Mussel Roe River was repaired by means of a bulldozer.

The use of weedicides in clearing the growth of weeds in the race, in addition to effecting a saving in maintenance charges has considerably improved the flow of water and the carrying capacity of the races. This is illustrated by the fact that despite a lesser rainfall of between 8 and 10 inches in the catchment it was possible to supply a greater number of sluiceheads of water to producers. This was an important factor in raising the production of tin by over five (5) tons.

It is desired to record appreciation of the services of the Manager and the Channel Keepers.

We have the honour to be, Sir,

Your obedient servants,

J. G. SYMONS, Chairman.

H. K. TURNER, Member.

B. DUNN, Member.

The Hon. the Minister for Mines,
Hobart.

STATISTICS FOR THE YEAR ENDED 31st DECEMBER, 1959

<i>Registered Rainfall</i>	<i>Production and Employment</i>			
Great Mussel Roe	40 inches	23 points	Tin oxide produced—	
Little Mussel Roe	41 inches		tons	cwt.
			qrs.	lbs.
<i>Water Services</i>			Royalty Scale	1
Average number of claims supplied per week		3	Fixed Scale	42
Greatest number of claims supplied in any one week		4	Total	44
Number of sluiceheads supplied:—				1
Royalty Scale		116		9
Fixed Scale		2,140		12
Total		<u>2,256</u>		1
				22
			Average number of men employed per week: 8.	

Statement of Receipts and Payments of the Mt. Cameron Water Race Suspense Account for the year ended 31st December, 1959.

<i>Receipts.</i>	£	s.	d.	<i>Payments.</i>	£	s.	d.
Sale of Water—				Salary and Wages	2,406	2	10
Royalty Scale	176	0	1	Hire of bulldozer	70	0	0
Fixed Scale	2,047	10	0	Car allowance	68	4	2
Domestic use	94	10	0	Pay Roll Tax	57	15	3
				Tools and general requisites	28	5	11
Hire of pipes		2,318	0	Insurance	24	11	0
Balance (Loss)		60	0	Freight	2	2	6
		279	1				
		<u>£2,657</u>	1		<u>£2,657</u>	1	8
			8				