THE PROGRESS OF

THE MINERAL INDUSTRY

OF

TASMANIA

FOR THE QUARTER ENDING 31ST MARCH, 1913

COMPILED BY

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BY ORDER OF

THE HONOURABLE EDWARD MULCAHY

MINISTER FOR MINES

Tasmania

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1913

PROGRESS OF THE

MINERAL INDUSTRY OF TASMANIA.

FOR THE QUARTER ENDING 31ST MARCH, 1913.

Hobart, 31st May, 1913.

THE following table shows, as far as can be ascertained, the quantities and values of metals and minerals raised during the quarter ending 31st March, 1913, as compared with the previous quarter ending 31st December, 1912:—

	During the Quarter ending 31st March, 1913.		During the Quarter ending 31st December, 1912.	
	Quantity.	Value.	Quantity.	Value.
		£		£
* Gold won ..... oz.	8829·901	37,507	7,774·746	33,025
Silver-lead Ore produced tons	22,897·098	74,644	22,160·684	71,995
† Blister Copper produced ,,	351	30,440	474	43,698
Copper Ore and Copper produced ..... ,,	423	2109	275	1633
Tin Ore produced ..... ,,	787·48	116,830	1121·26	169,774
‡ Coal raised ..... ,,	11,188	5417	12,763	5832
Wolfram Ore produced ... ,,	7·4	784	23·2	2150
Bismuth ..... ,,	0·75	270	1·5	540
Osmiridium .... oz.	257·45	2143	142·66	1087
Shale ..... tons	10	100	...	...
	...	270,244	...	329,734

* Fine gold, including gold contained in blister copper and silver-lead bullion.
† Value of gold contents deducted.
‡ Value at pit's mouth.

B50240

GOLD.

During the past quarter 3345 oz. gold were obtained from quartz, 74·55 oz. from alluvial, 2856 oz. by means of the cyanide and chlorination processes, 1084 oz. from blister copper from the Mt. Lyell Mining and Railway Company Limited, and 1476 oz. from the silver-lead bullion from the Tasmanian Smelting Company's Works, Zeehan, valued at £37,507.

The following table shows the quantities obtained from the various sources on the different fields during the period under review, together with the ·als for the corresponding period for 1912, and the previous quarter ending 31st December, 1912:—

	Gold obtained during the Quarter ending 31st March, 1913.						Totals corresponding Quarter, 1912.	Totals for Quarter ending 31st Dec., 1912.
	From Quartz	Alluvial.	Cyanide & chlorination.	From Blister Copper.	From Silver-lead Bullion.	TOTAL.		
	oz.	z	oz.	oz.	oz.	oz.	oz.	oz.
Beaconsfield	3345	.	2689	...	...	6034	5490	4825
Mathinna & Mangana.	...	...	167·35	...	...	167·35	159·5	118·35
Mt. Victoria, Warrentinna, Mt. Cameron	...	39·55	...	...	...	39·55	8·5	127·96
Lefroy	...	...	...	...	...	...	...	...
Lisle ....., Lilydale....., Golconda ...	...	12	...	...	...	12	26	96·80
West Coast.	...	23	...	1084	1476	2583	1874	2627·35
TOTALS	3345	74·55	2856·35	1084	1476	8835·9	...	...
Totals corresponding Quarter, 1912.....	2781·5	50·5	2868	1858	...	...	7558	...
Totals for Quarter ending 31st Dec., 1912.....	2535	242·11	2408·35	1177	1433	...	...	7795·46

Value, £37,507; equal to 8829·901 oz. fine gold.

BEACONSFIELD.—The quarter's statistics for the district are as follow:—

	Gold produced.	Men employed.
	oz.	
Tasmania Mine.....	6034	437

Tasmania Mine.—Fifteen thousand two hundred and forty-two tons of quartz crushed, and 6034 oz. of gold obtained (by amalgamation and cyanide process), which makes a total of 999,829 tons quartz crushed, and 814,289 oz. of gold obtained since the mine was first started.

LEFROY.—The quarter's statistics are as follow:—

	Gold produced. oz.	Men employed.
Creek Cyanide	—	15
Gray	—	
Others	—	
Total	—	15

LISLE, GOLCONDA, &C.—Twelve oz. of gold have been won from these fields. Seventeen men have been employed.

RINGAROOMA.—16·95 oz. were obtained from this district by seven men.

Alluvial Gold and Dredging Companies.—Gold has been obtained by the following companies in streaming tin:—

	Standard Gold. oz.
South Mt. Cameron Dredge	...
South Mt. Cameron T.M. Co.	6·55
Briseis Co.	16·05
Total	22·60

MATHINNA AND MANGANA.—The quarter's statistics are as follow:—

Gold produced. oz.	Men
167·35	19

WEST COAST.—Mr. Inspector Curtain reports:—

Alluvial.—Mr. John Ellison, of Linda, reports having purchased from Messrs. Jackson, Adams, and Turner, 3 oz. of gold.

Quartz.—A specimen of some note, in consequence of the quantity of gold attached to it, is on view in one of the business centres. It was found in the vicinity of Woody Hills, but until its source is established it would be premature to make any reference to its value. It certainly is indicative of remarkably rich stone, but where those isolated pieces come from has perplexed ardent seekers to the present.

LONG PLAINS AND SAVAGE RIVER.—Twenty oz. were obtained, by five men.

TIN.

The statistics for this metal for the past quarter are as follow:—

	Ore won. tons.	Value. £	Men employed. Europeans.	Chinese.
Northern and Southern Division	5·40	760	35	...
North-Eastern Division	298·60	45,821	521	59
Eastern Division	55·65	8,001	306	32
North-Western Division	349·47	51,571	612	...
Western Division	78·36	10,677	195	...
Totals	787·48	116,830	1669	91

NORTH-WESTERN DIVISION.

The output has been as under:—

	Ore won. tons.	Men employed.
Mt. Bischoff	300	478
Mt. Bischoff Extended	36·5	85
Weir's Bischoff Surprise	6·6	8
Wombat	—	5
Ringtail	—	—
Waratah Alluvial	5·17	10
Mt. Cleveland	2·2	26
Totals	349·47	612

NORTH-EASTERN DIVISION.

PIONEER AND GLADSTONE DISTRICTS:—

	Tin ore won. tons.	Men employed. Europeans.	Chinese.
Pioneer Tin Mine	70	60	...
Aberroe	2·15	14	...
South Mt. Cameron	12·70	34	...
Garibaldi	1·10	12	1
Clifton Creek	—	16	...
Yee Gee	8·70	9	6
Sheen Brothers	6·20	4	3
Other Claims	15·35	34	20
Totals	116·20	183	30

RINGAROOMA DISTRICT:—

	Tin ore won. tons.	Men employed. Europeans.	Chinese.
Federal	·45	4	...
Bell's Hill	·70	3	...
T. & W. Chorley	·15	2	...
Other Claims	2·20	17	1
Totals	3·50	26	1

DERBY DISTRICT:—

Briseis Tin Mines	135	145	...
Clyde	1·7	4	...
Waverley	·65	4	...
Other Derby Claims	8·15	35	19
Totals	145·50	188	19

BRANXHOLM DISTRICT:—

Arba Tin Mine	16	40	...
New Ruby Flat	—	4	...
Other Claims	3·30	30	9
Totals	19·30	74	9

MOORINA DISTRICT:—

Wilberforce Pump Co.	4·00	7	...
Weld Tin Mine	3·25	7	...
Native Youth	1·50	4	...
New Banca	3·25	14	...
Other Moorina Claims	·90	3	...
Totals	12·90	35	...
Straits Islands	1·20	15	...
Totals for North-Eastern Division	298·60	521	59

Eastern Division.

	Tin ore won. tons.	Men employed. Europeans.	Chinese.
Weldborough Mines.			
Fancy Creek Co.	·15	1	...
Other Claims	16·05	23	30
Totals	16·20	24	30
Lottah and Blue Tier Mines.			
Anchor Mine	22·95	115	...
Others	·25	—	2
Totals	23·20	115	2
St. Helens Mines.			
McAuliff	1·90	6	...
J. C. Macmichael	·25	2	...
C. Miller	·60	3	...
Others	2·55	20	...
Totals	5·30	31	..
Avoca Mines.			
Royal George	5·25	60	...
Gipp's Creek	1·00	6	...
South Esk	1·20	6	...
Foster's	1·10	6	...
New Roy's Hill	...	4	...
Story's Creek	1·50	30	...
Rex Hill	·90	4	...
Others	...	20	...
Totals	10·95	136	...
Totals for Eastern Division	55·65	306	32

Northern and Southern Division.

	Tin ore won. tons.	Men employed. Europeans.
Shepherd and Murphy Mine	5·4	32
Iris	—	3
	5·4	35

Western Division.

Boulder	17	40
Renison Bell	41·25	54
Montana Tin Syndicate	2·25	12
Others	17·86	89
Totals	78·36	195

SILVER.

WEST COAST.—The registered output of silver ore in the Western Division for the quarter ending 31st March, 1913, is given below:—

	Ore.	Tons.	Value.	Men.
Zeehan Mines:				
Zeehan-Montana	gossan	72·95	£170	133
	galena	353·62	7452	
Zeehan-Western	,, ...	71·82	1316	30
Zeehan-Queen	,, ...	8·75	144	8
Mt. Zeehan (Tas.)	,, ...	48	878	19
Ditto	flux and tailings...	1237	371	
Oonah	pyrites	302	190	14
South Comstock	,,	256	256	6
Block 10	galena	26	260	
Tas. Smelting Coy.	,, ...	2·728	51	3
Queen Extended	,, ...	30	418	12
Nubeena	,, ...	...	...	5
Quigley's Tribute	,, ...	30	419	8
Queensberry	,, ...	48	408	5
Dundas Mines:				
Adelaide	galena	636	579	12
Hercules	sulphide.....	7796	23,962	126
Zeehan-Dundas	galena	605	2557	40
Comet	gossan	3361	3057	30
Rosebery Mines:				
Tasmanian Copper	sulphide	1905	7067	10
Primrose	,, ...	2640·43	8214	27
Metals Extraction Co.	... .	...	...	150
Mt. Farrell Mines:				
N. Mt. Farrell	galena	632	6066	97
Sterling Valley	... .	28	252	12
North Pieman:				
Chester Mine	pyrites	1894·25	684	44
Mt. Lyell:				
Tasman & Crown Lyell Extd.	.....	...	...	2
Sundries:				
Dunkley Bros.	.....	...	...	126
Tasmanian Smelting Co.	.....	...	...	320
	Total	21,984·548	£64,771	1239

ZEEHAN DISTRICT.—*Zeehan-Western Mine.*—Mr. John Craze, manager, reports:—The exploratory work now in progress is that of driving the No. 3 tunnel west from No. 1 shaft. This tunnel is in 330 feet. Also at the south boundary shaft a crosscut is being put in west at No. 1 tunnel. This crosscut is out 100 feet. We hope to cut No. 5 lode in about 60 feet further driving. The usual stoping operations are being continued.

Mt. Zeehan (Tasmania).—Mr. T. Vincent, manager, reports:—During the period under review prospecting has been continued by driving, winzing, and rising on the discovery referred to in my report for quarter ending 31st December. While the lode has a promising appearance, results thus far have been disappointing. Tributers have sent small parcels of ore to the local smelters with payable results to themselves.

Mt. Read District.—*Hercules Mine.*—Mr. C. H. Moxon, manager, reports:—For the quarter, ore deliveries to the Tasmanian Smelting Company have been continuous, and an average output of 2600 tons monthly has been maintained. The mine is in fair working order, and large reserves of ore are still apparent. The supply of labour has considerably improved, and in consequence a comprehensive scheme of exploratory and development work is now being attempted, and so far with satisfactory results. It is anticipated that the drilling plant ordered will arrive shortly, when the lower levels of the mine, now lying idle, will be bored and thoroughly tested.

Mt. Farrell District.—*North Mt. Farrell Mine.*—Mr. L. C. H. Woodroffe, manager, reports:—During the quarter ended March 31, 1913, 3807 tons of crude ore were mined and treated, resulting in the production of 632 tons of marketable ore. The greater portion of the output has been furnished by the No. 5 level, the remainder being contributed by the stopes at the No. 3 adit level, and by developmental operations at No. 6 level. Fair progress is being made with the opening of the No. 3 lode at the new level (No. 6); and there is now over 100 feet in length of a good shoot of ore available for stoping. Developments here have been most satisfactory, and have considerably enhanced the future prospects of the mine.

Mt. Lyell District.—*Tasman and Crown Extended.*—Mr. Edward Carter reports:—Beyond repairs to the main No. 3 adit, with two men, no other work has been accomplished.

Tasmanian Smelting Company.—Mr. H. Harris, manager, reports:—Ore bought during the quarter, 12,876 tons, containing 1300 tons lead, 159,577 oz. silver, 1613 oz. gold. Exported 1270 tons bullion, containing 1225 tons lead, 137,906 oz. silver, and 1476 oz gold.

North-Western Division.

	Tons.	Value.	Men.
Magnet Mine.....	866	£9581	14 9

NORTHERN AND SOUTHERN DIVISION.

	Tons.	Value.	Men.
Round Hill Mine	46·55	£292	8

COPPER.

Mt. Lyell Mine.—Mr. Robert Sticht, general manager, reports:—Ores and metal-bearing fluxes treated at Reduction Works:—

	Dry Weight. tons.	cwt.	qr.	lb.
Mt. Lyell Mine ore	26,241	9	2	24
North Lyell Mine ore	2109	11	0	14
Metal-bearing flux from Lyell Tharsis Mine...	8043	8	2	17
Lyell Comstock Mine Ore	3292	3	0	1
	39,686	12	2	0

Number of Men employed:—

At the Company's Mt. Lyell Mine	313		
" " North Lyell Mine.....	137		
" " Crotty Leases	21		
" " Lyell Tharsis Mine	29		
" " Lyell Comstock Mine.....	122		
	—	622	
" " Reduction Works.....	...	696	
Railway Department—Mt. Lyell Railway	157		
" " North Lyell Railway....	17		
	—	174	
Total.....		1492	

Quantity and value of metal produced:—

Blister copper, 351 tons, containing—	£	s.	d.
Copper, 346 tons, valued at.....	£24,974	5	7
Silver, fine, 47,000 oz., valued at.....	5465	14	2
Gold, fine, 1084 oz., valued at	4607	0	0
Total	£35,046	19	9

Mr. Inspector Curtain reports:—

Mt. Lyell Mining and Railway Company's Group.—The general manager's summary of the production and men employed has, I am informed, been forwarded direct to your office.

Mt. Lyell Mine.—Extractions continue both from the surface and underground workings of this mine; in addition to which a connection is being made with the old South Lyell Mine from the No. 8, or lowest, level, for further supplies of pyrites. That will mean the opening of another mine, which has been idle since the amalgamation.

North Lyell Mine.—Apart from the three open-cut workings, including that of the Lyell Tharsis, no production has been made from this mine since last October. It is again cleared below the 1000-feet level, leaving only 50 feet of the 1100-feet level to be unwatered, when all-round operations will be resumed, as the conditions of the workings that have been examined are satisfactory, and will permit of ore-breaking being resumed, when the truck roads and underground ironwork are renewed, as those items suffered from the attacking influences of the water considerably.

Lyell Comstock Mine is having a number of producing stopes opened in the four adit levels, that are situated on the north-east slope of Mt. Lyell, and about 6 miles from the Reduction Works, with which it is connected by the company's 2-feet gauge railway.

Lake Margaret hydro-electric scheme continues to occupy keen attention and its utility will be sufficiently advanced for demonstration by the end of the year.

Reduction Works.—Two furnaces are in blast, and as supplies come forward from North Lyell Mine others will immediately follow. During the stoppage that has generally attended the whole of the works preparations have been made for the erection of commodious storage bins, especially in connection with the expeditious handling of fuel, on the eastern bank of the Queen River and directly below the top loop-line, that will facilitate despatch in this direction.

Mt. Lyell Blocks Copper Mines.—Mr. Robert Ferguson, the mining manager, reports:—Work at the mine is still confined to sinking the main shaft, which has attained a depth of 1112 feet below the surface. Holes have been bored in the north side to construct a chamber, when sufficient depth is reached for a well. When the chamber is completed a double winch will be installed for the purpose of continuing the shaft another 200 feet, or a total of 1300 feet. On the surface it is purposed to put in three new air cylinders, and one high-pressure steam (cylinder), also a 24 feet by 6 feet (high-pressure) boiler, which will assist in providing the power it is anticipated necessary to accomplish this undertaking. Twenty-six men are employed.

Section 6012-M (formerly Jukes Proprietary).—Mr. James Souter reports:—Levels have been taken for an intermediate adit between Nos. 1 and 2 levels, the approach for which has been taken out

and 25 feet of driving done through country carrying a fair amount of copper pyrites. In addition, a site has been excavated for a blacksmith's shop. Three men.

NORTH DUNDAS.—Ring Valley, 61 tons; £600; 12 men. Copper-nickel sections, 12 men.

Ring Valley Mine.—Mr. John Moyle, agent, reports:—Stoping over back of 130-feet level north of shaft. Lode varies from a few inches up to 4 feet. Ninety per cent. iron pyrites; balance mixed antimony and lead; ore of poor grade. Stoping has also been carried out at intermediate level between 130 feet and 50 feet levels. A small vein of rich fahl-ore was operated upon here, 16 feet high by 30 feet long; then it suddenly cut out. Drive south from shaft (130-feet level) is advanced to 46 feet. Lode from 4 to 5 feet wide, and comprises iron pyrites and pyrrhotite (valueless). Development has been retarded owing to scarcity of miners.

NORTH-WESTERN DIVISION.

	Tons.	£	Men employed.
Murray's Reward (Balfour)...	362	1509	32
Others (estimated) (Balfour)	...	...	100
Totals	362	1509	132

NORTHERN AND SOUTHERN DIVISION.

	Tons.	£	Men employed.
Mt. Mueller Mine	...	...	1

COAL.

The output this quarter was 11,188 tons, against 12,763 tons the previous quarter. The output of the respective collieries was as follows:—

Colliery.	Tons raised.	Value at mine. £	Men employed.
Cornwall Colliery	4817	2168	60
Mt. Nicholas ,, ...	5808	2904	62
Enterprise ,, ...	...	...	...
Spreyton ,, ...	343	223	8
York Plains ,, ...	150	87	3
Illamatha ,, ...	...	...	...
Catamaran ,, ...	...	...	...
Mt. Cygnet ,, ...	70	35	2
Totals	11,188	£5417	135

SHALE.

Three men were employed at the Railton-Latrobe shale oil works. Ten tons of shale were obtained, valued at £10.

BISMUTH.

The output of bismuth during the quarter was as follows:—

	Tons.	£	Men.
Shepherd and Murphy Mine	0·75	270	...

WOLFRAM.

The output of wolfram during the quarter was as follows:—

	Tons	£	Men.
Avoca Mines.....	4·40	484	*
Shepherd and Murphy Mine	3·00	300	*
Squib Mine	...	...	9
Lady Barron Mine	...	...	*
Totals	7·40	784	9

* Shown in tin returns.

OSMIRIDIUM.

The output of osmiridium during the quarter was as follows:—

	ozs.	£	Men
Savage River District	257·45	2143	100

The State Mining Engineer (Mr. Hartwell Condor) has submitted a report on an osmiridium discovery to the south of Waratah. He says:—"The property is situated about 20 miles south of Waratah near the road to Corinna. To reach it that road is followed to the 19th mile, where an old hut stands on the east side of the road. Turning off to the west a track leads to the north side of a small creek past some old alluvial workings to what is known as McGinty's Creek. This creek, although only a small trickle in dry weather, has proved rich in osmiridium. It was followed up from the 19-mile creek a distance of about half a mile to where it suddenly rises steeply and ends, the hills gathering in closely around it, and rising up about 200 feet to a broken plateau above. The old workings were followed up to the point where the sudden rise takes place in the creek, and the old prospectors had left it. A little osmiridium was still met with, and work was carried higher still, and by loaming on the west side the values were traced to a point about half a chain from the creek. On crushing and washing the rock here good returns of osmiridium were obtained, and it was realised that this valuable product might be profitably secured from the solid rock itself. At present the property is in a wholly undeveloped state. The only workings consist of two small holes about 50 feet apart.

"The first of these, or No. 1, is 3 feet long and 1 foot wide, and pockets down for about 2 feet 6 inches. The south or down-hill side shows a flat surface, or serpentine dipping, at 64 degrees to the north. On the up-hill side the rock is broken, and it is not certain that the limit of detrital matter has been reached, since there is clay filling in the interstices between the rock. From this small hole the owner states that 9 oz. of osmiridium have been derived by dollying the stone. The country-rock throughout is all serpentine, and it here shows lines of fracture bearing about S. 40° E., but no definite lode-formation is disclosed.

"At the No. 2 hole, about 50 feet S. 30° E. from No. 1, the excavation is about 3 feet long by 4 feet wide, and is more in the nature of a cutting into the hill than of a prospect shaft. It reached a depth of about 3 feet from the surface. A small ridge of solid serpentine is disclosed here with decomposed serpentine rock adjoining it, and clayey material in a small crevice. The serpentine below this hole is bronzitic, and on weathering has a greasy feel, and the clay in this crevice partakes of the same nature. The lines of fracture bear about S. 50° E., and dip steep to the south.

"From these workings fragments of rock have been produced, which on crushing yielded very high values of osmiridium. The rock was certainly not composed of recemented particles, but was solid serpentine softened somewhat by surface action.

"The two holes appear to be on the same line of fracture in the country-rock, but in neither case was there any sign of definite lode-structure, or of any material difference in the composition of the rock here and in the surrounding country. Such a distinction may appear to an eye carefully trained in the local characteristics, but it is not apparent.

"The osmiridium in the rock is dull in colour, and masked by a coating of iron oxide; in one fragment of rock about 2 oz. weight no speck of the metal could be seen, yet on crushing it yielded nearly 2 dwt. of the osmiridium. The difficulties of prospecting for a substance of this nature are obvious, while, with nothing definite known yet as to its mode of occurrence, no rules can be laid down. If any system of regularity can be shown in its distribution then the effects of this discovery may be far-reaching, but with so few data it is dangerous to draw deductions. At present osmiridium is regarded as being an original constituent of the rock from which the serpentine originated. In that case it is not likely to be influenced by the fracturing that now shows through the serpentine, since probably this was produced long after the serpentine solidified. Further, it is difficult to imagine any secondary lode carrying so infusible and insoluble a substance. It would seem more probable that certain areas or zones in this rock may prove more prolific than others, and in that case some such area may have been discovered here.

"Four samples were taken from the two holes. These were crushed and panned off, fire assays being used to confirm these tests. In no case was any osmiridium met with. I see no reason on this account to question the *bona fides* of the discovery. The owner admits freely that the values are most irregular, while even in rich stone they can seldom be discovered with the naked eye. It does, however, show most clearly that the extent and dimensions of the discovery are at present an unknown quantity. Under these circumstances it would seem wise to defer the question of a reward claim until further work has been done. If the granting of this is contingent on the discovery of osmiridium in the solid rock, the discoverer should be in a position to enable the Department to secure samples *in situ*. Until that is done any judgment on the nature of value of the discovery would appear to be premature."

The following return shows the average number of men employed in or about the mines during the quarter ending 31st March, 1913:—

District.	Europeans.	Chinese.	Total.
Northern and Southern	538	...	538
North-Eastern	528	59	587
Eastern	447	32	479
North-Western	998	...	998
Western	2982	...	2982
Total	5493	91	5584

Value of mineral output per man:—£48 7s. 11·07d.

Dividends paid by mining companies during the quarter ending 31st March, 1913:—

	£	s.	d.	£	s.	d.
From Copper Mines:—						
Mt. Lyell Mining & Railway Co. Ltd.	...			Nil		
From Tin Mines:—						
Mt. Bischoff Tin Mining Co.	18,000	0	0			
Pioneer Tin Mining Co. Ltd.	8062	0	0			
Arba Tin Mining Co. N.L.	...					
Briseis Tin and General Mining Co. Ltd.	10,500	0	0			
Aberroe Tin Mining Co. N.L.	...					
South Mt. Cameron Tin Mining Co.	1200	0	0			
New Ruby Flat Tin Mining Co.	...					
Montana Tin Pros. Syndicate	...					
S. & M. Syndicate Ltd.	...					
Renison Bell	1846	0	0			
From Coal Mines—				39,608	0	0
Cornwall Coal Co.	...			Nil		
Total	...			£39,608	0	0

Appendix I.

State Mining Engineer's Office,
Zeehan, 7th February, 1913.

Report 2.

The following is the report for the work done during the month ending January 31, 1913:—

General.—The usual office work has been carried on at Zeehan. Four assays were completed and determinations of 25 specimens.

Zeehan Prospecting.

1. *Florence Property.*—New trenching was completed 427 feet for the month, making a total on this property of 1318 feet. Also 462 feet of old trenching was cleaned out and deepened. The work disclosed nothing of value, and the country exposed (south of the Big Fault) is not very favourable for lode occurrences.

2. *Montana.*—A portion of Section 736, Montana, untried ground, has been trenched across for 1221 feet. Nothing of importance was found.

3. Nubeena.—The western tunnel has been driven 50 feet in slate country towards Llewellyn's lode (distant 125 feet from the beginning of the tunnel extension).

Prospecting is also being carried out in the vicinity of this work.

4. *Barnett's Section.*—A trench has been taken out near the western boundary of this section for a length of 565 feet. Some pyritic formations were met with, and a small lode of pyrites and galena. Ashort tunnel was put in and cut this lode at a depth of 18 feet, where it was found to carry pyrites only. It has been again cut by a parallel trench, where it shows as pyrites intermixed with galena, but is very small.

About 120 feet of trenching has also been done on Crown land in this vicinity.

5. *Oonah.*—Work was commenced on this mine towards the end of the month, and a trench 30 feet long was carried along the line of a cassiterite lode. The lode consists of quartz, pyrites, and a greyish pug, and is about 8 inches in width. At the beginning of the trench a vein of galena about an inch wide was cut, and further work may prove this to be of importance.

6. *General.*—The work around Zeehan is bringing out very clearly the enormous amount of surface prospecting which has been carried out by private enterprise in the past. Trenches, tunnels, and shallow shafts are met with in every direction, and it proves no easy matter to find virgin country on which to locate the present exploration.

Prospecting.

1. *North of Pieman.*—Two parties of two men each started from the new cage over the Pieman River just opposite the X River. They have examined the triangular block of country between the Huskisson and Pieman Rivers westward to the junction of the two streams, but could only find a little gold and osmiridium in the creeks. No tin has been seen. Some ironstone outcrops occur in the serpentine carrying chrome iron, but no mineral of economic value.

2. *South of Mt. Dundas.*—Two men have prospected the country for 2 miles on each side of the Queenstown track from the 5½-mile peg to the 11-mile. A little gold has been found in the creeks, the best results being obtained in the vicinity of the 8-mile.

3. *West from Mt. Zeehan.*—Two men prospecting here have obtained good coarse tin with pieces of galena in the alluvium of some of the flats. So far the lodes which shed these minerals have not been located. The country is rough and thickly scrubbed, making progress slow.

Old Tracks.

The track from Darwin to the Andrew River has been opened up, and two men are engaged extending this track and prospecting in the vicinity.

Point Hibbs Track.

Good progress has been made with the track from Double Cove to the coast. The distance across from water to water in a direct line would be about 5½ miles. On each side the country rises about 400 feet in the first mile, while the intervening 3½ miles are level plateau cut in places by the valleys of the creeks. The track has been well cut out and formation commenced for 2½ miles from Double Cove. An exploratory track was then carried on to the coast, and reached it in a total distance of 6½ miles at a point about west-south-west from Double Cove. This line is fairly good, but further exploration pointed to a better line a little further south, and work is being carried on to prove this. The coastal land is covered for a short distance back by dense low scrub. Efforts are being made to burn this off, since this would greatly facilitate progress here.

Water Conservation.

Two men have been occupied on this work, with promising results.

HARTWELL CONDER, State Mining Engineer.

The Secretary for Mines, Hobart.

State Mining Engineer's Office,
Zeehan, 4th March, 1913.

REPORT 3.

The following is the report for the work done during the month ending 28th February, 1913:—

General.—The usual office work was carried out at Zeehan. Thirty-seven assays were completed and 29 determinations of specimens, and some experimental work was done in respect to the volatilisation of tin. Special reports were forwarded on several matters.

Zeehan Prospecting.

1. *Nubeena.*—The crosscut for the month has been driven 57 feet; total distance 107 feet. From 86 feet to 99 feet a lode-formation was passed through, consisting of quartz, pug, some pyrites, and a little galena. The last 8 feet driven have been through hard sandstone bars and slate country.

On Crown land adjoining the Nubeena section a lode was found and has been tested by 200 feet of trenching without favourable results.

2. *Oonah, Central Zeehan.*—An old tunnel has been extended 30 feet 6 inches on what is probably the southern continuation of the cassiterite lode. At present in the face the lode is 2 feet deep, composed of a siliceous gossan and a little iron pyrites. A bulk sample of 15 tons of lode material gave a result of 0·25 per cent. metallic tin. Also 689 feet of trenching has been done. A pyrite vein 8 inches wide has been cut, but did not prove of value.

3. *North Zeehan.*—On Barnett's section a trench has been cut 30 feet long and 8 feet deep at the head, and then a shaft sunk 4 feet on the pyritic lode. The lode did not prove of value. On Crown land in the vicinity 1125 feet of trenching has been done, and four shallow shafts, averaging in depth 7 feet, have been sunk. Six lode-formations were discovered, but they are all pyritic, and only occasionally carry a little galena.

Prospecting.

1. *North of Pieman.*—Four men have been engaged here in two parties, working north between the Huskisson and Pieman Rivers. One party is taking the western side of the watershed down to the Huskisson, while the other is working on the fall into the Pieman. Some gossan formations have been met with and examined, but so far this belt of country has proved disappointing. It is not clear yet why the mineral zone to the east of the Pieman should not extend across it, and prospecting will be carried as far north here as is possible.

2. *South of Mt. Dundas.*—Work has been carried on here from the Queenstown track in the country north of the 8-mile. A little gold associated with magnetite has been met with, and a belt of serpentine has been found. Arrangements are being made to send out parties in the Waratah district, and in the meantime this party will be withdrawn.

3. *West from Mt. Zeehan.*—Work has been confined to trenching to try and locate the lodes from which the alluvial tin and galena have been shed. Heavy overburden and thick scrub render progress slow.

4. *Point Hibbs.*—Two men have reached the mineral country about 4 miles north of Point Hibbs, and have been engaged establishing a camp and starting prospecting.

5. *Andrew River.*—Two men have been prospecting here, but have made no discoveries of economic value. The Andrew River has cut out its channel from a belt of limestone which forms the river-bed for a distance of over 8 miles. Beds of quartzite occur on each side of the river, and these were carefully examined. The information obtained was of considerable geological value, but the party has been withdrawn and moved to the western slopes of Mt. Darwin.

6. *Stanley River.*—One man has been engaged prospecting here. Good coarse tin was found in a creek flowing through a flat, and this is being followed up to ascertain the source. About 100 lb. of tin ore were obtained in the course of this work.

Old Tracks.

The track down the Andrew River was cleared out to the 8-mile, and at Renison Bell an old track was re-opened from about 2 miles out on the Meredith tram, and connected with the track below the Renison Bell Mine. This shortens the distance and avoids the steep rise over the hill.

Port Davey Track.

This track has been scrubbed out to the coast, a distance of about $6\frac{3}{4}$ miles, and men are now engaged forming the first part. A good line has been secured, and in a few weeks' time access to the sea coast will be easy.

Along the coast, north and south, for a considerable distance track-construction will be easy, and it is hoped that arrangements may be completed for the erection of the telephone line as the track advances.

It is proposed to establish a depot about 10 miles down the coast as soon as the track is completed, and provide supplies at township prices to prospectors desirous of testing this country.

Water-power.

An examination has been made of the Stanley River district for this purpose. It has been found that there are the makings of a promising power scheme here, but that certain difficulties stand in the way. Meantime, the examination of the Lake Rolleston will be proceeded with to see what advantages are offered there.

Stanley River Power Scheme.

Progress Report.

The exploratory work has been carried out on this property during the past month, and the position is that by damming the Stanley River at a certain point and raising the water-level about 12 feet the waters of the Stanley River can be turned in to the Wilson River. The valley of the Wilson is cut down lower than that of the Stanley, so that a fall of about 400 feet, as shown by aneroid readings, could be secured with about 4 miles of race.

The flow of water is being measured in the Stanley River, and so far the minimum flow has been 16 Tasmanian heads of 24 cubic feet per minute. This was in dry weather, and in case of any fall of rain the flow increases very rapidly.

With 16 head falling 400 feet the effective horse-power is over 208. The Stanley River catchment comprises an area of about 18 square miles. With a rainfall of 108 inches this would give a continuous flow of 353 heads of water. Hence, if storage could be provided from 100 to 200 head of regular flow could be relied on.

Compass survey and contour lines show that the water can be held back at the Stanley Reward Mine to cover over 100 acres by a dam 50 feet high. By making the dam 60 feet high a continuous supply of over 100 heads could, I believe, be relied on for the whole year, giving over 1200 effective horse-power.

The difficulty is that the water would flood the property of the Stanley Reward Company. The company has not been very successful, and has now let its property on tribute. It may, however, place a considerable value on in if it were needed for the purpose of this scheme.

Without close investigation I believe the cost of the undertaking would be about £30,000; the annual cost per horse-power on the West Coast is over £30 per annum, so that a very large saving could be effected by a scheme of this nature after every allowance for costs of interest and working.

The work done shows that this scheme is fully deserving of close investigation, and may be a means of supplying cheap power to one of the most promising centres on the West Coast. There is, however, the difficulty with the holders of the leases on the ground,

and I would suggest that an examination be now made of the Lake Rolleston district. If the results here are better or equally good, then it can be placed before the Stanley River scheme; if not, the Stanley River can be more closely examined.

It will be understood that all figures and measurements given above require verification.

HARTWELL CONDER, State Mining Engineer.

The Secretary for Mines, Hobart.

State Mining Engineers' Office,
Zeehan, 9th April, 1913.

REPORT 4.

SIR,

The following is the report for the month ending 31st March, 1913:—

General.—Office work was carried on as usual at Zeehan. Thirty-one assays were completed, and two mineral determinations. Special examinations were made of several properties in the vicinity of Zeehan and in the Waratah district.

Zeehan Prospecting.

1. *South Zeehan.*—As reported already a promising lode was cut in the crosscut on the Nubeena ground at 114 feet. The lessee of the property, as provided under the Act, declared his desire to take over this discovery at a valuation. The terms were agreed upon, and it remains for the lessee to complete the purchase within reasonable time.

On Crown land adjoining the Nubeena and Colonel North leases a pyritic formation was found in one of the old cuttings of the tramway. A tunnel approach of 20 feet was taken up, and a tunnel driven 22 feet. In the approach the lode looked promising, there being 8 inches of mixed pyrites and galena, but as the tunnel was driven this cut out completely. A winze was then sunk on the ore at the tunnel mouth, and after sinking a few feet the galena again cut out.

Two chains of trenching were done on the course of the lode without finding anything of value. This lode does not appear to be connected with the known lodes of the locality, and differs from them in its low silver content—$\frac{1}{4}$ oz. of silver to the unit of lead.

One hundred and fifty feet of trenching have been done on Section 4802-M.

2. *Central Zeehan.*—At the Oonah the drive on the cassiterite lode was extended 33 feet 6 inches; total distance driven, 74 feet; and total length of tunnel, 117 feet. The lode maintained a width of 18 inches, but as driven on into the hill it changed into a siliceous body carrying iron pyrites and only traces of tin. In the tunnel at 11 feet a crosscut was put in south-west for 27 feet, and cut a quartz iron-pyrite formation 12 inches wide, which carried a little tin and minute quantities of sulphide of lead and antimony. As the strike of the formation was north and south the tunnel was extended to 117 feet, the formation intersected and driven on north for 5 feet without any improvement.

Three hundred and seventy-six feet of trenching have been done near the Queen boundary.

3. *North Zeehan.*—Four hundred feet of trenching have been done, and three shallow shafts sunk. Three lode-formations have been opened up; two of them are pyritic and contain specks of galena only. The third is a big siliceous body with a little galena and blende.

One hundred and sixty-five feet of trenching have been done on Section 2906-M.

Prospecting.

1. *North of Pieman.*—In the the Huskisson River District both parties of prospectors are working in promising country and are obtaining traces of gold, osmiridium, and tin. Twelve samples of outcrops were brought in and assayed, but did not contain any values of importance.

2. *South of Mt. Dundas.*—This party was withdrawn on the 8th instant.

3. *West from Zeehan.*—In the Little Henty River District considerable trenching has been done in the endeavour to locate the source of the alluvial tin and galena found in the creek bed, and an approach of 20 feet was cut and a tunnel driven 22 feet. The driving was through pug, which carried pyrites, and as backs were gained in the hill this changed to a decomposed black slate. A very small vein of galena was in the tunnel for 10 feet, but it then cut out. Several holes were put down higher up the hill without any discovery. Some prospecting was also done along the river approaching Mt. Zeehan.

4. *Point Hibbs.*—Two men have been prospecting in the mineral country north of this point. Outcrops of granitic rock have been met with, both on the coast and inland, and low-grade copper ores have been encountered. This district promises well.

5. *Mt. Darwin.*—Two men have been prospecting on the western fall of this mountain. Work has been done on a quartz formation disseminated through a fine sandstone near the conglomerate. A

little gold occurs widely, and assays are being made of the stone here. This party will be pushed farther west towards Mt. Strahan.

6. *Stanley River.*—Two prospectors here have traced some alluvial tin up a wide valley flat, and are now prospecting an iron outcrop on the flank of the valley. In the course of their work 52 lb. of tin ore were saved for the month, and a small parcel of 152 lb. has now been despatched to the smelter.

7. An attempt was made to arrange for two parties to go out from Waratah, but the weather has been so inclement of late that it was decided to defer this.

Port Davey Track.

This track is good now for foot traffic from Double Cove to the coast. The men are engaged cording and forming certain parts to render them safe for horse traffic. A small proportion only of the distance will require this, and it should soon be possible to put pack horses on here.

The Lands Department is co-operating with regard to the examination of the country for agricultural purposes, and the Federal authorities are considering the question of erecting the telephone line, *pari passu*, with the advance of the track. It would be of material advantage for these different works to proceed simultaneously.

Water Power.

The examination of the Lake Rolleston district has been hampered by the rough weather, but the work so far is distinctly encouraging.

HARTWELL CONDER, State Mining Engineer.

The Secretary for Mines, Hobart.

Appendix II.

THE CLARENCE TIN PROSPECTING ASSOCIATION, NO LIABILITY.

Mr. W. H. Twelvetrees, Government Geologist, who was in the Gladstone District recently attending to the annual meeting of the Mt. Cameron Water-race Board, took advantage of the opportunity to make a flying trip to the mineral sections held by the Clarence Tin Prospecting Association, No Liability, and furnished the following short report to the Secretary for Mines:—

Launceston, 17th February, 1913.

SIR,

I beg to submit the following report of the Clarence sections, after an inspection made on the 7th instant:—

These comprise a group of alluvial tin sections drained by the head waters of the eastern branch of the Boobyalla River, situate for the most part on the west side of Hurst's-road to Boobyalla, 4 and 5 miles north of the farm lands on the northern edge of the Derby basaltic plateau.

They are due north of the Tasmanian Mineral Exploration Company's agricultural block, through which many years ago I traced the probable extension of the ancient Ringarooma deep lead, and pending more detailed examination I think it very likely that this alluvial channel is the continuation of the same lead.

A comparatively narrow channel of deep ground seems to exist for a mile south of the Clarence workings, bounded on both sides by high granite country. Further bearings in a southerly direction will throw light on the relation of this channel to the Ringarooma lead, for which an outlet at the west end of Mt. Cameron has long been assumed.

On two occasions I took the opportunity of looking at the Clifton alluvial workings near South Mt. Cameron, and examining them, especially in connection with a suggestion that they might possibly represent a diversion of the Ringarooma lead to the east end of Mt. Cameron. The nature of the wash and the apparent course of the drift are unfavourable to this hypothesis.

On the Clarence ground test bores have been put down along 10 lines, aggregating 4½ miles and 4 chains in length. Of these lines six have been laid out transversely to the trend of the alluvial channel, and four lines in the directions of the channel itself.

The most northerly line is a line of bore-holes and pits south of and parallel with the river, ranging from 10 to 14 feet in depth, through white sand and bands of gravel and wash, yielding from a trace of tin ore up to a quarter and half a pound per cubic yard of material passed through. In all reports of yields the proportional rates of mineral are calculated with reference to the total footage bored, and the manager has used for his calculations a box containing a measured cubic foot of material.

No. 2 Line.—An east and west line in the northern part of the property has been bored for 26 chains to depth up to 33 feet, disclosing about a foot of quartz and sandstone wash with from a trace to 1½ lb. tin ore per cubic yard of material bored.

The lead here abuts on sandstone country to the north, and the ground, contrary to what one would expect, deepens in a southerly direction. The granite country junctions with the sandstone on

the north side of Bonser Creek, where the road crosses the streams. The strike of the sandstone strata is N. 30° W., and the dip steep to south-west.

No. 5 *Line.*—At right angles to the preceding line is a north and south line of bores a chain apart for 7 chains between the Boobyalla River and the road. The holes have been bored to depths of 12 and 14 feet, showing coarse wash for 5 and 6 feet. The bottom is soft granite. The tin yield from each hole was ½ lb. per cubic yard of material, falling off at the northern end of the line. This line appears to be on the course of the channel, and its gravel, as well as that bored through on the preceding line (No. 2), corresponds in character with the modern Boobyalla shingle.

No. 4 *Line.*—Roughly parallel with No. 5 line, but on the western side of the river just inside the eastern boundary of Section 5623-M, is No. 4 line, which has been bored for 11 chains. The holes are a chain apart, and vary in depth from 11 to 20 feet. The wash at each end of the line thins to a foot, but in the centre of the line, and for about half its total length, has a depth of from 4 to 5 feet. The yield in tin ore was from ¼ to ½ a lb. per cubic yard of material.

No. 3 *Line.*—This is a long-boring line east and west across the two Sections 5626-M and 5623-M, comprising 10 bore-holes and pits, from 7 to 14 feet in depth. The ground passed through consisted of sand with bands of waterworn gravel and puggy drift. The tin content varied from a trace to ¼ lb. and ½ lb. per cubic yard. The most westerly bore showed the ground shallowing to 10 feet.

No. 1 *Line.*—There is a long south-easterly line over a mile long crossing Section 8623-M, crossing the river, the road, and Bonser Creek far away to the south-east.

The depth of the ground at the north end was about 31 feet; crossing the river flat it was from 15 to 16 feet, increasing again on the terrace to the east, but shallowing towards the foothills of Mt. Cameron to 7 feet. For 9 or 10 chains the tin content was ¼ to ½ a lb. per cubic yard.

No. 6 *Line.*—This line is further south, being carried in a south-westerly direction across Section 661-M. Nine bores have been put down through ground averaging 16 feet in depth with a foot of wash. Three holes yielded ¼ to ½ lb. tin, the others a trace.

No. 2 *South.*—This is a long line in a south-easterly direction across Section 662-M. Twenty-one bores have been put down a chain apart through ground averaging 12 feet to 14 feet deep, in one hole 22 feet. The wash ranged mostly from 3 to 5 feet. The tin content was ¼ lb., ½ lb., ¾ lb., 1 lb., to 1¼ lb. per cubic yard.

No. 3 *South.*—This line trends north-east-south-west across the east branch flat on Sections 663-M. Nineteen holes have been bored a chain apart. The ground along this line is from 14 to 24 feet deep, with wash averaging 2 to 4 feet, and in two holes 6 and 8 feet. The tin content was ¼ lb., ½ lb., ¾ lb., and 1 lb. per cubic yard.

No. 4 *South.*—This line crosses the southern boundary of Section 663-M in a south-easterly direction, and boring along it is still in progress.

Seven bores have been put down through drift from 16 to 23 feet in depth, with 2 to 3 feet of coarse wash. Most of these yielded only a trace of tin, but the sixth bore gave 1¼ lb., and the last over 2 lb. (estimated) per cubic yard, the wash increasing to 6 feet.

The drift in the central and southern part of the Clarence group of properties loses the local character which it seems to possess in the northern part, and assumes the aspect of ancient lead material. No one can look at the large open faces excavated in the drift by previous owners and doubt the antiquity of the deposit.

Carbonised wood and the remains of a leaf which I took from one of these faces have been microscopically examined, but they appear to belong to the peppermint, and are probably modern. The modern creek deposits in the valley have probably been laid down in ancient drift ground. Mr. H. H. Scott, the Curator of the Victoria Museum, who carried out the microscopical examination, reports as follows:—

"The minute structure of the wood agrees very well with that of the white peppermint of our modern forests, and in a general way the leaf also agrees with the foliage of that tree. If we apply the American key system to the two varieties of Tasmanian peppermint (white and black) we get the following sets of characters:—

(1) White peppermint (*Eucalyptus amygdalina*): wood diffusely porous, pores well marked; medullary rays numerous; grain even.

(2) Black peppermint: medullary rays as a rule larger and less numerous; pores also less numerous; grain less even.

"The fossil wood agrees best with No. 1. If anything it is finer in grain, and with rather more medullary rays than obtain in the modern tree.

"Botanists are not agreed as to the amount of departure from a common standard manifested by the two kinds of peppermint found in this island, some regarding them as a single species, others as two well-marked varieties.

"Apparently the histology of the fossil wood from the Clarence would suggest as much departure from the modern white peppermint as that wood departs from the black peppermint of to-day."

The ferruginous grit on the high bank in the eastern part of Section 5626-M is a decided indication of the antiquity of the drift, and the elevation at which this cemented bed occurs is suggestive of enormous denudations.

The northern outlet of the lead cannot be seen on this property. The alluvial ground at the north boundary terminates against high rock running east and west, and, moreover, is a part of the alluvians which fills the basis of the modern eastern branch of the Boobyalla River. Whether the ancient lead leaves this channel and trends north-west or not, is not known. The difficulty in tracing its course is increased by our ignorance of where the shore-line was in those days. It is not likely, however, that the part of the lead near its outlet to the sea would be very rich in ore. Its tin contents would be dependent for the most part on mineral derived from the ground through which it flowed, while the great accumulations washed out of the tin-bearing granite range at its source near Derby would be deposited not far from the range.

Conclusion.

Future work in a southerly direction will be of considerable importance in defining the ancient lead channel. The present preliminary boring operations have been of value in clearing up doubts and preparing for the interesting and important work of carrying the tests to a final conclusion. If this run of ground proves to be a section of the Ringarooma lead, the tin content may be expected (other things being equal) to improve as the work is carried southward.

NEW BANCA TIN MINE.

Mr. W. H. Twelvetrees, Government Geologist, who was in the Gladstone district recently attending the annual meeting of the Mt. Cameron Water-race Board, took advantage of the opportunity to make a flying trip to the mineral sections held by the New Banca Tin Mining Company, and furnished the following report to the Secretary for Mines:—

"A recent visit to the New Banca group of sections held by the New Banca Tin Mining Company, No Liability, showed a general suspension of work owing to dry weather, though a couple of men were putting in time ground sluicing. Three centres of work exist on the property—(1) the northern and western ground; (2) the Banca Creek workings; (3) Morrisby's lead.

"The northern and western run of drift consists of a body of alluvial 12 to 14 feet deep, with angular quartz wash yielding, it is said, in the best holes a quarter to half ounce stream tin per dish. The tin is fairly fine, and comprises the black and ruby varieties.

"The bed-rock is granite, and granite forms the rim-rock. To the north of the dam, on the western section, the country falls to the coast, so that the northern rim-rock of the lead is here the watershed. The drift appears to have had a local origin, and would be of comparatively modern age. Obsidianites have been found in the wash. West of Banca Creek a large reef of white quartz traverses the granite in a north-west and south-east direction, but no mineral has been noticed in it.

"The Banca Creek workings are in a drift which heads from the granite rather suddenly. The old workings lower down the creek yielded good tin and a little gold. The drift is easy for working by elevator. Four or five tons of tin were recently won from the ground, worth over 3 lb. per cubic yard. The tin in these workings is fairly coarse, and different from that obtained from the northern ground.

"The ground at the Banca abounds in old workings, some of which date back from 30 years. During the last four years tin worth £4243 has been produced; 3500 feet of piping and a long race from the Boobyalla River brings water on to the ground.

"Morrisby's lead is south of the Wilberforce lead in the eastern part of the property. It has a north-easterly direction, and its continuation in either direction has not been traced out. In its western part shafts have been sunk through about 14 feet to bottom, showing fair tin, and in lower part of the lead really good tin is showing in the face of large workings, where 1 to 4 feet of tin-bearing wash rests on the granite bottom. This lead is obviously an ancient one, and in some way, not at present understood, must have been connected with an ancient Boobyalla. A high terrace on the top of the hill to the south of it apparently formed part of the same river basin, though now disconnected and bearing witness to the great changes in elevation brought about by denuding processes.

"Some, however, who have examined the country to the north-west beyond the north-eastern dam believed that the ancient river flowed out in that direction. The western end of the lead certainly seems to trend across the Banca Creek. The property appears to offer considerable scope for work, but the extension of the leads requires to be proved so as to see exactly how much ground is available."

JOHN VAIL,
GOVERNMENT PRINTER, TASMANIA.