

HOBART, 31st May, 1923.

Sir,

In compliance with your instruction for a report on the Tasmania Gold Mine, I beg to submit the following:-

The Tasmania Gold Mine is situated at Beaconsfield, twenty six miles from Launceston. It is two miles distant from Beauty Point and connected to it by a light Railway owned by the Company. The reef consists of quartz which trends Easterly to Westerly. It is a true fissure vein traversing almost at right angles to their bedding a series of sandstone and conglomerates. The reef terminates at the West on a fault, and at the East it dies out in the Limestone. The fault appears to have the same dip as the Eastern Limestone, the reef varying very slightly in length at the various levels. The length of the reef may be taken as about 1300', but thins out easterly. The average width may be taken as 7'.

The mine was discovered in the year 1877 by Mr. Dally. In that year the Mine was floated into a Company known as "The Tasmania Gold Mining and Quartz Crushing Company". From 1877 to 1896 this Company treated 299,000 tons of ore for a return of 371,408 ounces of gold by amalgamation. From 1896 to 1903 this Company treated 198,850 tons for a yield of 152,803 ounces of gold by amalgamation, and by chlorination obtained 46,622 ozs. of gold, equal to 4.68 dwts. per ton, being a total of 199,435 ozs. of gold equal to 20.05 dwts. per ton. The total value of Gold was £2,094,833 of which £772,072 was distributed as dividends.

The Tasmania Gold Mining Company Limited acquired the Mine in 1903 and worked it until operations ceased in 1914 except for the few months the mine was worked on tribute by a co-operative party under arrangement with the Tasmanian Government.

From 1903 this Company crushed and treated 524,842 tons for a yield of 242,143 ounces, and no dividends were declared. The following is a summary of ore treated and gold recovered. The residues are stated to have contained from 4 to 5 dwts. of gold.

<u>PERIOD</u>	<u>TONS</u>	<u>OUNCES</u>	<u>YIELD PER TON</u>	
			dwts.	grs.
1903-4	24,238	19,600	16	4
1904-5	43,742	30,648	14	0
1905-6	48,676	32,914	13	16
1906-7	58,339	30,354	10	8
1907-8	70,272	30,302	8	12
1908-9	53,787	21,854	8	2
1909-10	67,113	20,718	6	4
1910-11	58,564	23,143	8	14
1911-12	67,113	21,409	8	6
1912-13	53,812	21,005	7	21

The original company obtained their yield above the 815 ft. level and the latter company below that level to the 1500' level, which was the lowest level worked.

It would appear that a poorer zone was entered at 1100' level and that at 1500' the values were improving and it is to be regretted that an additional level was not opened up to demonstrate if the values continued to improve. The history of quartz mines throughout the world has been that poor and rich zones have been encountered. If mines had been stopped when values became poor some of the best mines of the world would have terminated their existence at shallow depths. I had the opportunity of several visits to this mine during the last year it operated, and I was of the opinion that there was every possibility of a better zone of enrichment. To test this I advised that a winze should be sunk below the 1500' level. This was done about 400' east of Grubb's shaft, and reached a depth of about 20'. The values were very encouraging at the last sampling and gave an assay of 1 oz. per ton for a width of 5'. The values in the block immediately above this winze were very low, being less than 10 dwts. per ton. The future of the mine with regard to the reef which the Company worked depends largely on the improvement of values below the 1500' level, and the indications certainly lead one to expect that an improvement is very probable below that level.

The Company gives the following values over a distance of 296' East of Grubb's Xcut at the 1500' level.

<u>BLOCK</u>	<u>LENGTH IN FT.</u>	<u>WIDTH</u>	<u>AVERAGE VALUE</u>
551	94	5	21 $\frac{3}{4}$ dwts.
552	23 $\frac{1}{2}$	7	45 $\frac{1}{2}$ "
552	81 $\frac{1}{2}$	2 $\frac{1}{2}$	13 $\frac{1}{4}$ "
553	94	4	13 $\frac{1}{4}$ "

The drive east of the Xcut at the 1370' level for a distance of 292' gave the following values:-

<u>BLOCK</u>	<u>LENGTH IN FT.</u>	<u>WIDTH</u>	<u>AVERAGE VALUE</u>
355	76	5 $\frac{1}{2}$	5 $\frac{1}{2}$ dwts.
355	39	2 $\frac{1}{4}$	trace
356	83	3 $\frac{3}{4}$	3 $\frac{1}{2}$
357	72	4	1 $\frac{1}{2}$
357	28	3 $\frac{1}{2}$	33

The average values at the 1500' level are given as 13 dwts. over an average width of 7' for a length of 940'. In the 1370' level the same 940' had an average value of 8.73 dwts. over a width of 5', which shows a very marked improvement of values at the 1500' level. This and the improvement in the winze east must be considered most encouraging. The reef averages about 7' in width, and the management estimated an output of 100,000 tons for each 100' of depth. On Page 27 of the Company's 1912 report the Superintendent's report states that to date the total distance driven on the 1500' level is 359' including the hanging wall stone, the average width of quartz is 5 $\frac{1}{2}$ ', average assay 22 $\frac{1}{4}$  dwts, the stoping width being 7'. The values of the hanging wall branch have been as follows:-

<u>BLOCK</u>	<u>LENGTH IN FT.</u>	<u>AVERAGE WIDTH</u>	<u>VALUE DWTS</u>
552	40	1 $\frac{1}{2}$	72 $\frac{1}{2}$
553	100	2	24 $\frac{3}{4}$
554	42 $\frac{1}{2}$	4	12 $\frac{1}{2}$

The working expenses for the years 1911, 1912, 1913 and 1913 were as follows:-

HEADS OF EXPENDITURE	1911	1912	1913
	COST PER TON	COST PER TON	COST PER TON
	£	£	£
Administration & Survey	0- 1- 1.60	0- 1- 2.74	0- 1- 2.13
Development Work	0- 4- 4.74	0- 3-10.09	0- 2-10.07
Mining & Stopping	0-10- 5.64	0-10- 5.28	0-10-11.88
Pumping	0- 7- 4.98	0- 6-11.14	0- 5- 6.13
Ventilation	0- 0- 5.50	0- 0- 3.12	0- 0- 1.86
Crushing & Trammings	0- 0- 9.26	0- 0- 9.58	0- 0- 9.72
Drilling & Cyaniding	0- 9- 6.89	0- 9- 0.25	0- 8- 8.75
Surface Costs	0- 1- 0.88	0- 0-11.70	0- 1- 1.67
Repairs	0- 0- 9.90	0- 1- 2.50	0- 1- 2.35
Railway	0- 0-10.66	0- 0- 9.00	0- 0- 8.53
General Expenses	0- 1- 3.26	0- 1- 2.49	0- 1- 9.39
	£1-18- 3.31	£1-16- 7.89	£1-15- 0.48
Credits Freights etc.	£0- 1- 2.25	£0- 0-11.87	£0- 1- 4.62
	£1-17- 1.06	£1-15- 8.02	£1-13- 7.86

The loss on working for 1911 is not available, but for 1912 the report shows a loss of £4,165, and for the year 1913 - £3,030. The accumulated residues are stated to contain 4 to 5 dwts. of Gold per ton and a heap of concentrates to contain 10,000 ozs. of Gold. It would appear that with a good milling recovery a profit would have been made in lieu of a loss. The output of ore per man per shift worked is recorded by the Company as follows:

	1911	1912	1913
Tons crushed	53,564	51,809	53,812
Tons per shift underground	.813	.875	.979
Tons per shift underground	.388	.405	.453
Surface and Reduction Works)			

In June 1914 the Company decided to close the Mine, and an arrangement was made by the Tasmanian Government to take over the mine on tribute. Arrangement was made to work the mine co-operatively by the miners, and this method operated until November 1914. The tributors treated 16,556 tons for a yield of £24,739/6/1, being a value of 29/10.627 per ton treated. The Automatic Mine Bin Sample Assays for 16,556 tons returned an average of 12,789 dwts. per ton. The tributors obtained nearly the whole of the ore from blocks developed by the Company, and which were considered unpayable. The last crushing was 2,542 tons for £4,175- 3- 9. The tribute party extended the West drive at the 1500' level, a distance of 49'. The value at the commencement was 34 dwts. the values decreased as the drive advanced, and when stopped was in values of 4½ dwts. There is no record of the value of the residues as no allowance was made to the tributors for them, and they were not

allowed to take samples. This was very unsatisfactory as the bin samples each week indicated that the mill returns should have been considerably higher. Apparently one sample was taken as an assay return dated 14th December shows Battery Sands (Pit) 10.9 dwts. per ton. The large amount of water which had to be pumped from the mine was a very large factor in the cost of production, being about 5/- per ton of ore raised. There have been many theories as to the origin of the water supply, most asserted that it was accumulated in the surrounding limestone country while others were of the opinion that the water was a seepage from the Tamar River or other inland sources. The Company made a very thorough investigation into the matter and appear to have reached the conclusion that the large influx was from Blyth's Creek. In 1906 the deviation channel at Blyth's Creek overflowed before repairs could be affected. The effect of the water was felt in the mine twenty four hours after the occurrence, and several days later flooded the mine from the 1000' level to the 846' level. The pumps and bailing tanks were removing 5,700,000 gallons per day. The pumping unit at Grubb's Shaft was started and 8,600,000 gallons per day were raised. A geological survey of the district disclosed that no places had been located where precautionary work would be any advantage to overcome the water difficulty other than at Blyth's Creek where the water had been deviated by fluming. It was shown that nearly the whole of the flow from this creek entered the mine by the sandstone beds at the west end of the mine. The pumping records kept by the Company are very complete and are available for many years, and as they are of such importance I am attaching a weekly record from January 1911 to May 1914. These are of interest as they show a gradual decrease in the quantity as depth is obtained. It appears very probable that the western crosscourse may be a drainage channel from the surrounding country.

The following table shows the quantity of water raised for the years 1911, 1912, and 1913:-

<u>YEAR</u>	<u>TOTAL GALLONS</u>	<u>WEEKLY AVERAGE</u>
1911		
Jan. 1st to Dec. 31st.	1,171,883,700	22,536,225
1912		
Jan. 1st to Dec. 31st.	983,905,520	18,921,260
1913		
Jan. 1st to Dec. 31st.	741,961,016	14,268,481
1914		
Jan. 1st to May 11th	246,203,100	12,958,058

The pumping cost for the four financial years from October 1910 to May 1914 were as follows:-

October 1910 to September 1911	-	£19,898/17/9
October 1911 to September 1912	-	£17,985/17/10
October 1912 to September 1913	-	£14,819/1/5
October 1913 to May 1914		£ 7,849/5/7

The water in Hart's shaft on April 3rd 1923 was 704' from the surface.

There are several shafts on the Mine, but the two principal ones are known as Grubb's and Hart's - both shafts are connected with the 1500' level. Hart's shaft is 17' x 7'4" - when the mine stopped this shaft was in good condition. Grubb's shaft is 32' x 8'. The first 400' of this shaft were in a pug deposit, the swelling nature caused considerable trouble owing to crushing and distorting the timbers.

This shaft is in good order below 500', but above the 400' level is in very bad order and not workable.

5111

During my recent visit to Beaconsfield my attention was drawn to a development which may have a very great influence on the re-opening of the mine. It is stated that in 1887 a crosscut was driven south, at the 500' level a branch lode was located which yielded 10,000 ozs. gold.. The Xcut was continued for a total distance of about 400' where a pyritic lode was cut, having a width of 6 to 8 ft. The lode was trending parallel to the main reef, but it was not driven on owing to gas emanating from it. The drive was clayed up to stop the gas. It is stated that the Bonanza Mine cut a similar reef at 1600'. I made enquiries from several persons who stated that they had seen the reef and each one agreed with regard to its position. Mr. O'Keefe M.H.A. who was employed on the mine at the time, informed me that he personally saw the reef and that he knew that one of the men had an assay made which gave a return of 14 dwts. per ton, others varied with regard to the value from 10 to 15 dwts. per ton. It was stated that the reef where cut in the Bonanza Mine assayed 11 dwts. per ton and it was asserted that the Bonanza did not develop the reef owing to its being at a corner of the section, and that they had a very limited amount of ground where it was discovered. If these statements are correct it would not be a costly matter to develop it as the water is at 704' from surface. It would only require the installation of a small winding and ventilation plant. My attention was drawn to another discovery at the 1500' level by the tributors in 1914. At about 500' east of Grubb's shaft a hanging wall crosscut cut a reef at 9' which was 6' in width. It was stated that no assay was taken from the reef, it was cut as the tributors were abandoning the mine. Possibly this is the reef mentioned in Mr. Heathcote's 1914 report, which states that at 897½' a crosscut into the hanging wall at 22' cut a branch lode 42' in width which was driven on 5½', the average assay value being 4 dwts. per ton.

In conclusion it can be asserted that the values in the 1500' level show a marked improvement. That a good body of stone for at least a length of 400' carries payable value. That cross-cutting in the hanging wall above water is likely to develop a payable ore body. That with cheap power, up to date mining and milling methods there is every possibility of the mine again becoming payable below the 1500' level.

I desire to express my thanks to Mr. Nightingale, Agent for the Liquidators for making available the records of the Company and rendering every possible assistance, also to the members of the Tourist and Progress Association for supplying information, and to Mr. O'Keefe M.H.A. for data as to the mine's workings in its early stages.

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

(Sgd) J.O. HUDSON,  
Chief Inspector of Mines,

The Honourable,  
Minister for Mines, Hobart.



THE TASMANIA GOLD MINE

TOTAL GALLONS OF WATER PUMPED PER WEEK - 1912

<u>1912</u>			<u>1912</u>		
Week Ending:			Week Ending:		
Jan.	8	• 22,086,220	• July	29	• 19,174,220
	15	• 23,704,720	• August	5	• 18,801,900
	22	• 23,891,400		12	• 17,900,480
	29	• 22,991,540		19	• 17,614,480
Feb.	5	• 22,230,780		26	• 17,598,880
	12	• 21,464,300	• Sept.	2	• 17,588,740
	19	• 19,705,920		9	• 17,481,620
	26	• 21,854,560		16	• 17,435,340
March	4	• 20,789,600		23	• 17,334,720
	11	• 17,522,180		30	• 17,304,180
	18	• 20,724,600	• Oct.	7	• 17,421,820
	25	• 21,008,780		14	• 17,530,500
April	1	• 20,243,600		21	• 17,262,440
	8	• 16,095,560		28	• 17,121,000
	15	• 21,064,940	• Nov.	4	• 17,207,060
	22	• 20,102,420		11	• 17,087,460
	29	• 19,486,220		18	• 17,223,700
May	6	• 15,614,820		25	• 17,316,520
	13	• 19,894,420	• Dec.	2	• 17,372,940
	20	• 19,739,460		9	• 17,363,320
	27	• 18,723,380		16	• 17,149,860
June	3	• 18,601,440		23	• 16,869,060
	10	• 14,410,500		30	• 16,663,920
	17	• 16,824,080			•
	24	• 21,611,460			•
July	1	• 21,263,320			•
	8	• 20,857,460			•
	15	• 20,161,182			•
	22	• 19,402,500			•
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Forward:		582,071,360	TOTAL:		983,905,520
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Average for 52 Weeks: 18,921,260

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THE TASMANIA GOLD MINE

## TOTAL GALLONS OF WATER PUMPED PER WEEK - 1913

<u>1913</u>		<u>1913</u>	
Week Ending:		Week Ending:	
Jan.	6 . 16,766,360 .	July	7 . 13,933,400 .
	13 . 16,939,780 .		14 . 13,847,080 .
	20 . 16,990,220 .		21 . 13,592,020 .
	27 . 17,225,520 .		28 . 13,623,480 .
Feb.	3 . 16,964,480 .	August	4 . 13,515,320 .
	10 . 17,062,760 .		11 . 13,420,420 .
	17 . 16,569,956 .		18 . 13,429,000 .
	24 . 16,336,060 .		25 . 13,252,460 .
March	3 . 16,305,640 .	Sept.	1 . 13,111,540 .
	10 . 16,545,100 .		8 . 13,224,120 .
	17 . 16,248,180 .		15 . 13,295,880 .
	24 . 15,149,160 .		22 . 13,015,860 .
	31 . 15,050,620 .		29 . 12,914,720 .
April	7 . 14,369,680 .	Oct.	6 . 12,952,940 .
	14 . 14,417,260 .		13 . 13,019,760 .
	21 . 14,368,380 .		20 . 13,264,840 .
	28 . 14,499,680 .		27 . 13,034,320 .
May	5 . 14,450,020 .	Nov.	3 . 13,057,720 .
	12 . 14,275,040 .		10 . 12,948,780 .
	19 . 14,168,180 .		17 . 12,949,040 .
	26 . 14,139,580 .		24 . 13,138,840 .
June	2 . 14,277,120 .	Dec.	1 . 12,787,840 .
	9 . 14,556,360 .		8 . 12,634,440 .
	16 . 14,443,520 .		15 . 12,744,680 .
	23 . 13,839,280 .		22 . 12,623,780 .
	30 . 13,679,380 .		
Forward:	399,637,316		741,961,016
Average of 26 weeks:-	15,370,666	Average of 26 Weeks:-	13,166,296

THE TASMANIA GOLD MINE

## TOTAL GALLONS OF WATER PUMPED PER WEEK - 1914

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<u>1914</u>	Week Ending:		
January	5	.	12,840,620
	12	.	12,912,640
	19	.	12,650,820
	26	.	12,687,740
February	2	.	13,031,460
	9	.	13,174,720
	16	.	12,927,720
	23	.	13,166,660
March	2	.	13,328,640
	9	.	13,449,020
	16	.	13,359,320
	23	.	13,380,120
	30	.	13,053,040
April	6	.	13,046,540
	13	.	12,910,820
	20	.	12,527,580
	27	.	12,788,100
May	4	.	12,606,360
	11	.	12,361,180
	17	.	9,543,820 (For 5½ days)
TOTAL:			<u>246,203,100</u>

Average for nineteen weeks - 12,958,058

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