

GREAT PYRAMID TIN MINES.

Progress Report for period ended December 1st 1909.

By E. W. Bonwick

ORE - BODY.

Enclosed herewith is a plan showing position of workings, their extension to date and the samples taken together with their width and assay-value.

ADIT C. During the last inspection samples were taken from the Mouth of Adit to the face, a distance of 161 feet of which 130 feet was payable quartzite. From 161 feet to 185 feet barren slate was intersected. The material from 185 feet to 196 feet consisted of alternating bands of slate and quartzite, and a sample from this eleven feet assayed .1%. Following this, the red slate, referred to in former reports, was passed through, the thickness of the bed being 12 feet. This band then commenced to roll over a bed of quartzite shewing in the floor of the drive, the working apparently striking these strata at the extreme top of the fold. The appearance in the side and face of the level is shown on Sketch No 1. The quartzite band was sampled for a distance of 10 feet along the bottom of the drive and assayed .1%. This bed in value and appearance closely coincides with the material adjoining the red slate in North Adit.

The band of red slate referred to above and in former reports deserves attention. It has now been intersected in Adit A, the North Adit and Adits B & C, and its position is shewn on the Sampling plan herewith. Its persistency and the uniformity of its strike in the various workings may be taken as evidence of regularity in the method of occurrence of the strata comprised in the fold, but a disconcerting feature is the fact that the strike of the red band is N 68 W while the average strike of all other strata (with exceptions to be hereafter noted) is about N 42° W.

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Only additional work will permit of a satisfactory explanation of this being made.

NO 1 SOUTH LOW LEVEL ADIT. This working has been extended 83 feet, its total length being 196 feet. It was sampled in lengths of 10 feet with results as follows:-

113 feet	W	123 feet	Assay value	.1%.
123 "	"	133 "	" "	.1%.
133 "	"	143 "	" "	.1%.
143 "	"	153 "	" "	.1%.
153 "	"	163 "	" "	.1%.
163 "	"	173 "	" "	.1%.
173 "	"	196 "	" "	.3%.

The last sample being taken over 13 feet.

The material traversed is very irregularly bedded quartzite and the stone is much broken and disturbed. The abnormal strike noted in last report has persisted and in the present face the bearing of the beds is N. 82° E. or almost at right angles to the quartzite cut in Adit C. In view of the disturbed nature of the material being traversed and its low value, it seems advisable to head directly towards the supposed extension in depth of the quartzite band shewing in Adit C. and instructions have, therefore, been given to turn the Adit. Attention is drawn to the fact that this Adit is now coming under No 3 trench where average values were .27% and .38%.

The last sample in the Adit assays .3%, a figure remarkably close to that obtained in the No 3 Trench. Looking at trenches No 2 Trench average .27% & .45% while No 1 Trench averages .75% & .41% so that an expectation that values will improve as the Adit progresses is justified.

NO 2 SOUTH LOW LEVEL ADIT. This working was laid out during last inspection and has been driven a distance of 103 feet. Its object is to intersect the band of quartzite in Adit C.; vertically below, at a depth of 156 feet. The material traversed to date has been barren slate, The bands have a strike of N 12° W, sufficiently near to the N 40° W bearing in Adit C to justify an assumption,

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that the deposits at this point are fairly regular as depth is attained. The dip also corresponds, both as regards direction and amount of inclination, in the two workings.

NO 3 SOUTH LOW LEVEL ADIT. In last progress report it was stated that work in Adits A & B, together with an inspection of the plan, shewed that the quartzite of Adit C has been eroded from the South side of the Hill East of the Crosscourse and a corresponding reduction in the first-made estimate of "possible ore" to the 100 feet Level had to be made. Subsequent investigation has shewn that this erosion has not taken place much below the mouths of Adits A & B. and this new Adit has, therefore, been commenced during the present inspection. Very little work has yet been done but the Adit-approach is already in solid quartzite shewing a little tin and I am hopeful that results will permit of large additions being made to "presumable ore- reserves."

Generally as to work on the South Side of the Hill:-

In Adit C there are evidences of the existence of a well-defined second quartzite band inside the bed of red slate but further work is required to determine its thickness and value No 2 Low Level has to be driven a further 180 feet and No 1 Low Level a further 120 feet before Adit C quartzite can be expected.

E. Adit. This is one of the new workings laid out during last inspection. It has been driven a distance of 80 feet, the length of the approach being 16 feet.

Samples were taken as follows:-

Location	From	To	Assay value
In the approach	1 foot	8 feet	.1%
	8 feet	16 "	.2%
In the Level	Mouth	10 "	.1%
	10 feet	20 "	.1%
	20 "	30 "	.1%
	30 "	40 "	.1%
	40 "	50 "	.2%
	50 "	60 "	.1%
	60 "	70 "	.1%
	70 "	80 "	.1%

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This Adit was driven on the same Level as Adit C and from the opposite side of the Hill with a view of ascertaining:-

(1st) whether any portion or the whole of the quartzite band intersected in C had a representative on the North side of the Hill and (2nd) to investigate the width and value of the 30 feet quartzite bed shewing in the Crosscut off the North Adit. It can be fairly safely said that C quartzite ceases at some point towards the crest of the hill and does not occur on the North side and as regards the North Adit band, sufficient work has not yet been done to prove its existence or otherwise at the point of which Adit E is driven. The strike, however, shewing in the North Adit does not permit of much hope as to its existence, the bearing, if normal, carrying the bed outside the Mouth of the Adit.

If this bed has, as appears highly probable, been eroded from this end of the spur, mixed material of unpayable grade similar to that traversed in the North Adit can be expected. The material in E Adit has several puzzling characteristics, the chief of which is the difficulty of determining the difference between strike and cleavage. At the mouth of the Adit the strata appears to have a strike of  $N 59 W$ , in which case the working is following the strike instead of crosscutting. In order to determine this, a crosscut in a South westerly direction has been commenced at the face but sufficient work has not yet been done to permit of a definite opinion being formed.

No. 3 North Low Level. This is one of the workings laid out during last inspection and is situated 233 feet below the crest of the hill. It has been extended a distance of 100 feet and was sampled as follows:-

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From Mouth to	10 feet	Average Value	.1%
" 10 ft to	20 "	" "	.2%
" 20 " "	30 "	" "	.2%
" 30 " "	40 "	" "	.2%
" 40 " "	50 "	" "	.2%
" 50 " "	60 "	" "	.1%
" 60 " "	70 "	" "	.1%
" 70 " "	80 "	" "	.1%
" 80 " "	90 "	" "	.2%
" 90 " "	100 "	" "	.1%

Here as in the case of Adit E, the strata are not following the normal bearing shewing elsewhere in the line, the strike apparently being the same as in E. A Crosscut is being put in to the South Westward to obtain some definition on the point and results will be duly reported. In this level several small veins of stone have been passed through shewing streaks of tin and a sample from one of these of a width of about 2 inches assayed 3.4%.

No 1 North Low Level. Total length 149 feet. The adit has been laid out to cut the North Adit quartzite at a depth of 178 feet below the crest of the hill and has 110 feet yet to be driven before attaining this object. The strike of the beds here is normal, averaging N. 50° W and the bulk of the material passed through has been slate. Three samples taken close to the face from mixed slate and quartzite assayed as follows:-

From 125 feet to	133 feet	.2%
" 133 " "	141 "	.1%
" 141 " "	149 "	.3%

Generally, everything here is satisfactory, both strike and dip being normal and within four weeks the width and value of the easily-payable quartzite band cut in the North Adit should be determined at this point, and, if satisfactory, will permit of a very large addition being made to "possible ore".

No 2 North Low Level. Total length 111 feet. The material passed through has consisted of intermixed quartzite and slate and at only two points had a sufficiently favourable appearance to warrant sampling.

These samples were:-

From 39 feet to	44 feet	Assay value	.1%
" 92 " "	102 "	" "	.2%
" 102 " "	111 "	" "	.3%

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This Level is 265 feet below the crest of the hill and has only 60 feet to be extended before the North Adit Quartzite can be expected to be met with.

Here, again, everything is satisfactory, strike and dip being regular and normal and it is justifiable to hope in the case of both this and No 1 Level that within the next four to six weeks very important developments will result from the driving of these Adits. It should also be noted that values are improving as the Level progresses.

Pinnacles Adit. Total length 179 feet from 76 feet to 126 feet mixed material was drawn through and was sampled as follows:-

From 76 feet to 86 feet	Assay value	.1%.
" 86 " " 96 "	" "	.3%.
" 96 " " 106 "	" "	.4%.
" 106 " " 116 "	" "	.1%.
" 116 " " 126 "	" "	.1%.

and a sample taken from 169 feet to the face assayed .1%.

Generally as to work on the North side of the Hill:-

Adit E and the No 3 Low Level are following an abnormal course and there is an element of doubt as to whether they will intersect the North Adit Quartzite. In No 1 & 2 Low Levels everything is satisfactory as regards regularity of the strata and it is only a matter of from four to six weeks when very valuable developments may be expected.

The average strike of the beds passed through is N. 42° W or the same as the normal strike of the Pyramid strata. It is evident that the working is too far Northward up the gully to intersect the large quartzite bed shewing on the Southern slope of the Pinnacle Line and the work has, therefore, been stopped as the material forming the centre of the hill does not appear to promise sufficient values to warrant further driving being done.

Generally, development work during the past month has been of a preparatory nature and nothing of importance can be expected, within from four to six weeks when payable quartzite should be exposed in six Adits and something like a close estimate can be made as to ore reserves.

GENERAL.

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Water-Race. A preliminary survey of this has been made. Its length is 13.6 miles and its estimated cost £2176. It intakes from the River at a point 182 feet higher than Creek level at the Battery site and comes on to the Battery Site 100 feet above the same point. Plan herewith.

Tram Lines. A preliminary survey of tramway from Mine to Battery Site has been made. Its length is 2 miles, and 2240 feet will be necessary to connect the various openings at the Mine. The whole cost of ground-work will be in the neighborhood of £2000. An estimate of the cost of haulage engine, rope, trucks and rails has already been sent you.

Plant-Design. The adaptation of original design (plans of which were sent you) to the contours of the proposed Battery Site is in hand but cannot be completed until further experimental work has determined various details that may be required.

Experimental Treatment of Ore. The half-ton of ore taken from North Adit during last inspection has not yet been put through, the coal-strike in New South Wales having interfered with obtaining the necessary electrical-power for operating the experimental-plant.

Coal. The Cornwall Coal-seam has been located at 5 points along the North side of the hill between the South Esk and Scamander valleys but at none of the points is it so good a seam as that shewing in Aulich's Mine; the difference being the development Westward of bands of clay up to 9 inches in thickness. Aulich has now reduced his price to £125 and as it would cost considerably more than this sum to open up a tunnel and entry at any of the places where coal has been located it would be better business to acquire the area. An option deed for six months has been left with Mr. Gulleok with instructions to obtain Aulich's signature.

A large sample of the coal is being taken to Sydney and will be sent to England for final tests as to suitability for producer-gas purposes.

A survey from the Mine to the Coal-seam has been made (plan herewith). The whole distance is  $7\frac{1}{2}$  miles of which the first 6 miles from the coal has a grade of 1 in 9, the remaining  $1\frac{1}{2}$  miles to the Mine being flat.

This would permit of a gravity-tramway for the greater part of the distance but it is doubtful whether conveyance of coal to the Mine for steam purposes would compare favourably with electrical power generated at the coal Mine with gas engines. Further work is necessary to accurately determine this point and further reports on the subject will be forwarded in due course.

Costs. Reductions are slowly being effected in the cost of work and I enclose a statement showing Costs of Work to date. It should be noted that the new Low Level Adits are costing from 15/ to 18/ per foot, a very material reduction on the figures ruling three months since.

Quartzite covering surface of Hill. Examination of this material points to it being a distinct bed from those cut in Adit C and the North Adit and as the only work done on it has been shallow trenching investigation of thickness and value by means of shallow shafts is highly desirable, and the authority of Directors to carry out the work - which will cost in the neighbourhood of £200 is requested.

Water Supply. A gauge-box has been erected on the Scamander River and the lowest reading yet obtained is 15 sluice-heads or 2250 gallons per minute a quantity amply sufficient for Battery purposes.

Timber has been ordered for a similar but larger box to be erected on the St. George's River and readings will be duly reported.

Holidays. In view of the importance of rapid development, instructions have been given the Mine-Manager to work in the more important Adits on Sunday and also to carry the work on during the Christmas Holidays.

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ADDENDUM.

No 2 South Low Level. At 103 feet a break in the country running East to West came across the level, the faulted material having a width of 3 feet, a sample from which assayed 7.1%. Inside the break solid quartzite is making of a favourable appearance with veins of tin shewing.

No 3 North Low Level. The Crosscut mentioned in report as having been started Westward from the face of the drive has been driven 25 feet and has satisfactorily proved that the drive was following the strike of the strata and was not crosscutting.

No 2 North Low Level. Solid quartzite is shewing in the face with small bands of tin and indications here are promising.

(Note:- The sample from No 2 Low Level was taken by Mr. Gullock and brought into Launceston and is probably not representative.)

(Sgd) E.W. Bonwick.

Launceston.

December 7th 1910.