

SAMPLING OF LOTTAH TUNNEL

Near the top of the Blue Tier, three adits have been driven on a quartz formation in the granite. This was known as the Lottah Mine and has been described by Montgomery in printed report No. 78, dated 1889. This information is repeated by Reid in Geological Survey Bulletin No. 38. Recently Mr. R.B. Hill has opened up the central adit for inspection and sampling.

Briefly, the workings consist of three adits,

1. a lower one of 90⁺ feet
2. a central one of 55⁺ feet, 153 feet above No. 1, and
3. a short upper one 89 feet above No. 2.

Nos. 1 and 2 are connected by a winze and there is a short intermediate level from this. Most of this development has taken place on No. 1 Lode, a fissure-filled formation of quartz and greisen; but in No. 2 adit level some cross-cutting has exposed a similar parallel formation which has been driven on for 60 feet.

These formations are not uncommon in granite but this one (No. 1 Lode) is important because of its persistence both in length and depth. Unfortunately it has no great regularity in width, varying from $\frac{1}{4}$ feet to zero. Where best seen, as in the face of No. 1 Lode, the formation consists of a central band of quartz $\frac{1}{4}$ to 12 inches wide, with sometimes greisenised granite walls containing small parallel quartz veins, the whole up to $\frac{1}{4}$ feet in width. Cassiterite can be seen in selected places, together with small amounts of copper, usually oxidised to the green carbonate, and molybdenite. The formation strikes at 16° west of north and dips at about 70° to the south west. No. 2 lode, which in No. 2 adit is smaller, dips to the west at a steeper angle and is said to intersect No. 1 just above No. 1 level.

Due to the irregularity of width and tin values in this type of deposit, any normal sampling campaign is almost useless and the only way to get a true idea of the value is to take out a parcel along the entire formation and find the tin recovery. As some system had to be adopted, at this stage, it was decided to sample at a set interval of 50 feet, commencing from the portal, irrespective of what the formation looked like at these points. A sample was also taken at the face of the two lodes. No sample was taken at 450' (it was taken at 460') because a basic dyke crosses the adit here. No sample was taken between 460' and the face because of the dangerous nature of the ground.

The results of the sampling are as follows:-

2.

<u>Sample No.</u>	<u>Distance from Portal</u>	<u>Width</u>	<u>Description</u>	<u>Tin %</u>
1	50'	3'	Soft Granite with Sugary quartz	Nil
2	100'	3'	Hard Greisen and quartz	Trace
3	150'	3'6"	Lode in E. Wall, hard greisen in soft granite	0.14
4	200'	4'	Two quartz seams 4" and 2" in greisen. Well defined walls. Some Copper staining	Trace
5	250'	4'	Very siliceous with Copper staining	0.23
6	300'	4'	Very siliceous - black quartz in soft granite. Copper staining	Trace
7	350'	2'	Hard siliceous greisen - Copper staining - hard granite country	Trace
8	400'	2'	Hard greisen - Lode in west wall and floor. quartz stringers, some molybdenite and pyrite	Trace
9	460'	4'	Hard siliceous greisen	Trace
10	Face (550')	2'6"	9 inches of quartz in black greisen. Two cuts taken at 3' and 5' from floor.	0.27
11	Face (No.2 Vein)	1'9"	quartz with some greisen	0.06
12	First Crosscut (No.2 Vein)	1'	Granite with many small greisen veins	Trace

The results of this sampling will doubtless be very disappointing, but, as has already been pointed out, in this type of deposit only bulk sampling will give the true answer. It may be that the points selected do not give an average grade of the formation. Rich patches of ore do exist and at 120 feet and 175 feet from the portal, cassiterite may be seen in the quartz. However, the number of samples taken which show but a trace of tin is significant and does indicate that for much of its length the formation is probably unpayable. It must be remembered, too, that in the early days, for all the development on the formation, there does not seem to have been any stoping.

Further details concerning the tunnel that may be interesting are:

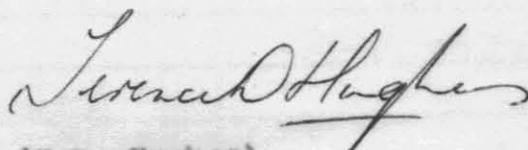
At 230 feet, is a fault, with a south west strike and a steep dip to the north west, which has not displaced the formation. The country is very soft here and the levels have been connected by a winze. It was this part of the adit (220' to 245') which had to be picked up and retimbered.

At 450 feet is a basic dyke also striking north west. Again the formation continues undisturbed beyond this.

3.

Crosscuts have been put out to No. 2 Lode at 365 feet and 470 feet and from the latter the formation has been driven on for 60 feet.

From 470 feet nearly to the face (554 feet) the granite is soft and "heady" and the ground is very unsafe.



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geologist, a flight was made by helicopter to
in connection with the geological survey of

a visit was made to the Rio Pinto Iron Area,
the Savage River, in connection with track access.