UR 1925/53-54

53 14

NOTES ON THE BELL HILL TIN MINE

This mine is situated on Lease No. 8845 of 20 acres near the summit of Bell Hill which lies about six miles to the south east of the township of Branxholm. This hill is about 2500 feet above sea level, and is one of the highest peaks on the elevated country to the south of Derby.

Access to the mine is gained by means of cart roads and tracks from the townships of Ringarooma, Branxholm and Weldborough. The best road is that to Branxholm, and this means of access has the further advantage that this township is situated on the Launceston to Herrick railway.

The country in the vicinity of the mine consists chiefly of granite of Devonian age. Small areas of quartzites also occur and represent altered slates and sandstones of the Mathinna series, and metamorphism having been produced by the intrusive granite.

The granite is traversed by numerous tin-bearing greisen formations. The greisen consists largely of quartz with a smaller amount of mica. Cassiterite occurs irregularly distributed throughout the greisen and forms the mineral of economic importance in these deposits. Sulphide minerals such as arsenopyrite (arsenical pyrite, chalcopyrite, (copper pyrite) and pyrite are also present in small amounts. These sulphides have been removed from the greisen near the surface due to oxidation, their former presence being revealed by small cavities stained brown or red by oxides of iron, or yellow by oxides or arsenic. At shallow depths these sulphides have not been oxidised, and are present in the greisen.

In the Bell Hill area the greisen veins have a general strike of 65 degrees. Both northerly and southerly dips have been observed, but a dip to the south is stated to be the general one. Only a flying visit was paid to this area, and the dimensions of the veins cannot be accurately stated. Several veins outcrop and have been exposed in surface and underground works on the lease No. 8845. Some appear to extend across this lease and to have a length of at least 10 chains. They vary considerably in width when traced along their strike and large veins sometimes split up into a number of smaller ones. Individual veins have widths up to 12 feet and over, but numerous ones with widths of a few feet occur. The veins occassionally have very wide bulges on them and a number of narrow veins are often closely spaced over a considerable width. In these cases the widths are often greater than the 12 feet given above.

These veins should have a considerable extent in depth, though the widths will be found to vary as they do along the strike. The upper surface of the granitic intrusion was formed by the Cambro-Ordovician rocks and the remnants of these which occur indicate that no great depth of granite, and therefore of the contained greisen veins, has been removed by denudation. Practically the full depth of veins as originally formed therefore still exists.

The greisen veins were formed by the action of vapours or solutions given off from the granite magma during its final stages of cooling and consolidation. These traversed definite channels in the granite and altered the granite into greisen, and at the same time

introduced the cassiterite and sulphide minerals.

No estimate of the quantity and quality of ore can be given as only a brief examination was made. From the number of veins and the dimensions thereof it seems probable that a large amount of ore could be developed on the property. The veins outcrop near the summit and on the northern flank of Bell Hill and could be advantageously developed by means of adits. A moderate amount of underground work on these lines would soon prove sufficient ore, if of suitable value, to justify the erection of a treatment plant.

The value of the ore could only be determined by a systematic sampling campaign on the surface and in the old and any new underground workings. Cassiterite occurs very plentifully in some parts of the veins largely distributed throughout the quartz greisen, and also as narrow seams in the veins. As far as can be stated from an inspection of the ore there seems to be sufficient cassiterite to justify underground developmental work and a sampling compaign.

It is stated that the tunnel cut two lodes and that the second lode was driven on for 200 feet to the east. From this lode 300 tons of ore were reported to have been treated and gave a yield corresponding to 3½% tin. It is also stated that at a later period 100 tons of material were gathered from the surface and treated with a recovery of 30 to 35 bags of tin ore, representing a yield of 1½ per cent. These statements cannot, however, be officially verified.

The essential procedure in the development of the property should be:-

(1) The carrying out of surface and underground work to develop the veins.

(2) Concurrently with the above a systematic sampling campaign should be conducted to determine the value of the ore.

(3) If the above prove satisfactory the question of the erection of a treatment plant of a capacity to treat the ore developed and likely to be developed should then be considered.

The site of any proposed treatment plant should be carefully considered. From a short examination it would appear to be more satisfactory to locate it in the valley of Britannia Creek. This would enable the greatest depth of veins to be mined from adits and the ore delivered by gravity to the plant. Further, the plant would then be better situated for bringing water supplies to it, and it might also be possible to make use of the water for power purposes.

The plant when treating ore from shallow to moderate depths will have to be designed to handle the sulphide minerals referred to above in association with the cassiterite.

P. B. Nye
GOVERNMENT GEOLOGIST.

Hobart.
3rd August, 1925.