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REPORT ON THE GREISEN LODS OF RATTLER HILL  
WELDBOROUGH

Location and Access

Rattler Hill is situated about three and a quarter miles to the south, south-west of the township of Weldborough in the north-eastern portion of Tasmania.

Access is gained from Weldborough. The road from Weldborough to Ringarooma passes along the foothills of the range of hills upon which the lodes are situated. The road is suitable for motor traffic, but there are a number of unmetalled parts. From a point three miles from the township a foot-track, one and a half miles in length ascends the hills to the lodes. A graded road could be obtained to the lodes by leaving the Weldborough Ringarooma road some distance to the west and following up the valley of the Cascade River and McIntyre Creek.

Leases and Water Rights

The following applications for leases have been made in the names of Messrs. Hodgman and Gough:- 10067/M of 10 acres, 10068/M of 10 acres, 10069/M of 10 acres, 10146/M of 40 acres, 10147/M of 40 acres, and 10227/M of 10 acres, and 10228/M of 10 acres. These applications cover 130 acres, but the leases have not yet been surveyed and cannot be shown on the accompanying plan. They, however, cover practically the same ground as the former leases which are shown on the plan, viz:- 2018/M, 2019/M, 6525/M 6526/M and 6755/M, with a total area of 140 acres.

Two water rights (2575/W and 2576/W), each of 6 sluiceheads, and a machinery site (10229/M) of 5 acres are held in the same names. The machinery site is situated at the junction of the two branches of the Cascade River about  $1\frac{1}{2}$  miles to the north north-west of the leases. The water rights have their respective intakes on the two branches of the Cascade River and would deliver the water at a point directly above the machinery site.

Topography

The lodes occur on the summit of part of an elevated range of hills at an altitude of approximately 2000 feet above sea level. The range of hills is a western extension of the Blue Tier and it continues further west towards Ringarooma.

In the vicinity of Rattler Hill there is a steep slope on the north fall to the eastern branch of the Cascade River. The drainage on the northern and western parts enters the Cascade River while that to the south and east enters the North George.

Geology

Practically the whole of the leases and indeed the greater part of the range of hills is occupied by granitic rocks of Devonian age. The normal granite of the north-eastern districts is a coarse grained type with large porphyritic felspar crystals. This type is not generally present in the vicinity of the greisen lodes, where a more medium and even grained type occurs. The latter type generally appears to have undergone slight alteration judging by the appearance of the mica and felspar in hand specimens. Aplitic and pegmatitic types occur to a limited extent.

Veins or dykes of a white clayey material occur at a few localities. In many cases these can be seen to be more or less completely decomposed basalt dykes. In others, however, they appear to be decomposed feldspathic material.

At the south-eastern corner of lease 2018/M Cambro-Ordovician quartzites appear in contact with the granite.

### Economic Geology

The Devonian granitic rocks are in Tasmania, the ones with which the primary tin deposits are associated. During the final phase the intrusions and consolidation of these magmas, the tin bearing solutions and vapours were concentrated and ascended through the already partly crystallised granite and in some cases into the overlying rocks.

During this ascension they gave rise to the various types of primary tin-bearing deposits. In north-eastern Tasmania the types of deposits are interesting and numerous, including quartz veins, quartz greisen, mica greisen, greisenised granite, soft altered granite and many intermediate types.

In the Rattler Hill area, quartz greisen is the dominant type of deposit. In fact, this type is the predominating one in a long belt of granite country extending from Mount George on the west through Bell Hill to Rattler Hill and probably further east. The belt follows the highest part of the granite hills and has been the source of the greater portion of the alluvial tin ore of the Ringarooma Valley.

The quartz greisen is composed principally of glassy quartz of medium grain size. Mica, with a composition corresponding to muscovite generally accompanies the quartz and with increase in amount produce the quartz mica and mica greisen types. When the alteration of the granite to greisen is not complete, decomposed feldspathic materials is abundant.

The most important economic mineral in the greisen lodes is cassiterite (tin oxide). It is generally distributed throughout the greisen and often occurs in narrow veins in it in association with crystalline and reef quartz. Chalcopyrite (copper pyrites), pyrite, and molybdenite are also present in this order of relative abundance.

### Mining Development

The surface of the ground and the material along small gullies have been sluiced in several parts of the area. This applies especially to the lead of McIntyre Creek and on the northern side of the Rattler Lode. Mr. A. B. Robertson is at present engaged in working the eastern half of section 9168/M.

The only development of the lodes consists of three trenches, two shaft and an adit. Of these two trenches, one shaft and the adit were excavated to test the rattler lode. The second or Rattler shaft was sunk on a narrow lode junctioning with the Rattler Lode and would also have been used to test the latter at depth. The third trench is a recent one cut in the greisen on the eastern part of the property.

## The Greisen Lodes

### 1. Rattler Lode

This lode occurs on the northern part of the property and has had the most development work carried out on it. The strike is a few degrees north of east and the lode traverses part at least of section 6525/M, section 6526/M and enters 6755/M. No. 1 trench is 30 feet long and crosses the lode obliquely without exposing either wall. The adit was commenced in granite and entered the greisen below the trench, but could not be entered for inspection. The lode appears to be 50 to 60 feet wide. Tin ore is visible in the greisen in the trench.

No. 2 trench is 5 or 7 chains further west. It is 60 feet in length and exposes greisen and altered granite for its full length. The width of the lode is somewhat greater than 60 feet at this place. Cassiterite is visible in the greisen.

Further west and near the centre of section 6525/M a shallow shaft 6 feet deep has been sunk in the lode. The greisen on the dump shows cassiterite and chalcopyrite.

The Rattler shaft is  $1\frac{1}{2}$  chains to the south-west. It could have been used to develop the Rattler lode at depth but was apparently not made use of for this purpose.

The Rattler lode has therefore a length of at least 25 chains and possibly a short extension to the west. The average width is 50 to 70 feet over this length.

A small representative sample taken across 30 feet in No. 1 trench and a similar one across 60 feet in No. 2 trench gave results of 0.32% and 0.7% metallic tin on assay in the Mines Department Laboratory, Launceston.

### 2. Rattler Shaft lode

The Rattler shaft has been sunk on a lode with a strike of  $150^{\circ}$ . This lode should junction with the Rattler lode immediately to the north. On the surface near the junction the greisen contains veins of coarsely crystalline quartz with cassiterite.

The width of the lode cannot be definitely determined but it appears to be several feet.

### 3. Lode along western boundary of section 2019/M.

Except near the north-western corner, greisen occurs in the form of loose boulders along the western boundary of 2019/M. They are extremely numerous and appear to indicate a large lode in this vicinity. This lode is shown on the plan as more or less following the boundary, but this cannot be considered to be established.

### 4. Lode near south boundary of 2019/M

Large blocks of greisen cover the surface along the central portion of the above boundary line. This part of the lease is covered with virgin forest and it is impossible to determine the strike and width of the lode which, however, appears to be a large one.

5. Lode on eastern part of 2019/M

A belt of large greisen boulders in this locality appears to indicate a lode with a general strike of  $30^{\circ}$ , but this cannot be assumed to have been satisfactorily determined. It may be possible that this and the previous described lode may represent a large equidimensional one in the south eastern part of 2019/M.

6. Lode in south-eastern part of 6755/M

Large boulders of greisen with also greisen in situ cover the south-eastern part of 6758/M and the northern part of 9168/M. These indicate a very wide lode or series of lodges of greisen. The outcrop is 5 chains wide and 10 chains long at least. It is difficult to determine the general strike of this more or less equi-dimensional body, but its general trend appears to be west-north-west and east-south-east. The greisen decreases in width to the west and small outcrops of greisen and reef quartz further west may represent its extension in that direction.

7. A narrow greisen lode appears to traverse the eastern part of lease 6755/M with a strike of  $345^{\circ}$ . Its apparent width is 5 to 10 feet.

Conclusions

From the above descriptions it is evident that the property contains a number of quartz greisen lodges. These are all composed of similar material, viz, quartz greisen, but vary considerably in size, form, strike, etc.

Of these only one viz. the Rattler lode, has had any prospecting work carried out on it. The length of 25 chains with width of 50 to 70 feet make this an important ore-body. Values of representative samples were 0.32 and 0.7% of metallic tin. These add to the importance and indicate that the lode is well worthy of further prospecting as a preliminary to possible future mining operations.

The greisen outcrops in the south-eastern part of 6755/M indicate another large lode or series of lodges. In the eastern, southern and western parts of section 2019/M similar large outcrops occur and indicate one or more large lodges. All these occurrences are well worthy of prospecting to prove their extent and value.

It is obvious therefore that the property is well worthy of being systematically prospected and developed as a preliminary procedure to any mining operations.

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