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TIN DEPOSITS, BRANXHOLM

by R. Jack.

INTRODUCTION

An examination was made of several occurrences of tin bearing greisen lodes in the Branxholm district to determine if more detailed investigation by diamond drilling is warranted. In the past large quantities of tin have been recovered by the sluicing of alluvial and detrital material originating from the weathering of greisen and tin bearing granite. However, only two attempts were made

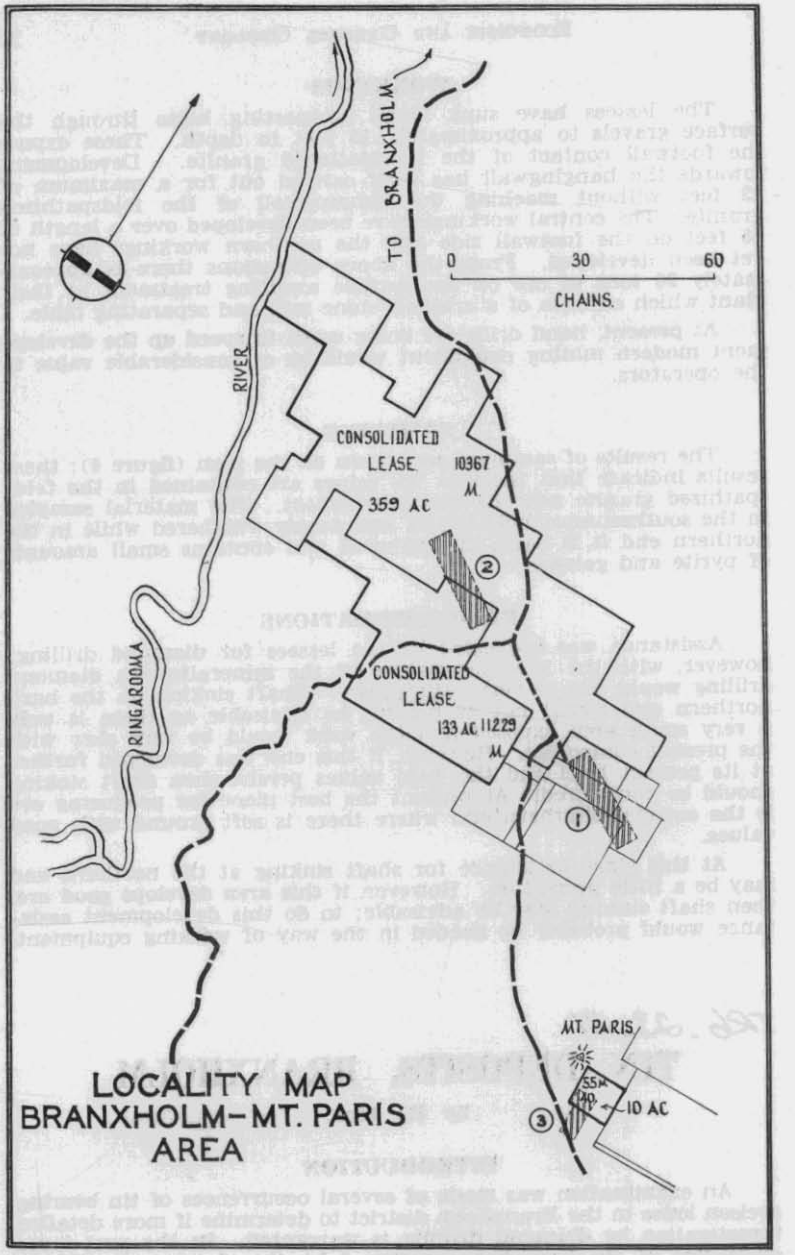

TO BRANXHOLM
0 30 60
CHAINS.
RIVER
CONSOLIDATED
LEASE 10367
359 AC
M.
2
RINGAROOMA
CONSOLIDATED
LEASE
133 AC 11229
M.
1
MT. PARIS
3
10 AC
LOCALITY MAP
BRANXHOLM–MT. PARIS
AREA

FIGURE 5.

5 cm

to recover tin by crushing the greisen, both of which ceased operating with the working out of the alluvial and detrital material. There is a fairly high rainfall, most of which occurs in the winter months, but owing to the lack of large creeks and suitable storage only a very limited amount of water is available during the summer for mining operations.

LOCATION AND ACCESS

The area is situated to the south of Branxholm in north-eastern Tasmania (see figure 5). It is bounded by the Ringarooma River on its western side, Greys Hill on its eastern side and Mt Paris to the south. The old Branxholm-Ringarooma road runs in a north-south direction through the area and there are several branch roads, mostly overgrown, from this to the old mining properties. Old foot tracks between the mines are generally impossible to follow and many of the old prospects are difficult to locate in the dense regrowth scrub.

GEOLOGY

The rocks in the area represent several periods of geological activity, but only the two oldest are connected with the tin mineralization, i.e., the Mathinna Group of sediments and the granite.

Mathinna Group

In this area the rocks of this group are slaty sandstone, sandstone and quartzite. Their general strike is northerly and they dip steeply west. Near the boundary with the intruded granite the sediments show slight disturbance, and locally the effects of low grade contact metamorphism is seen in the development of hornfels. The age is considered to be Silurian.

Granite

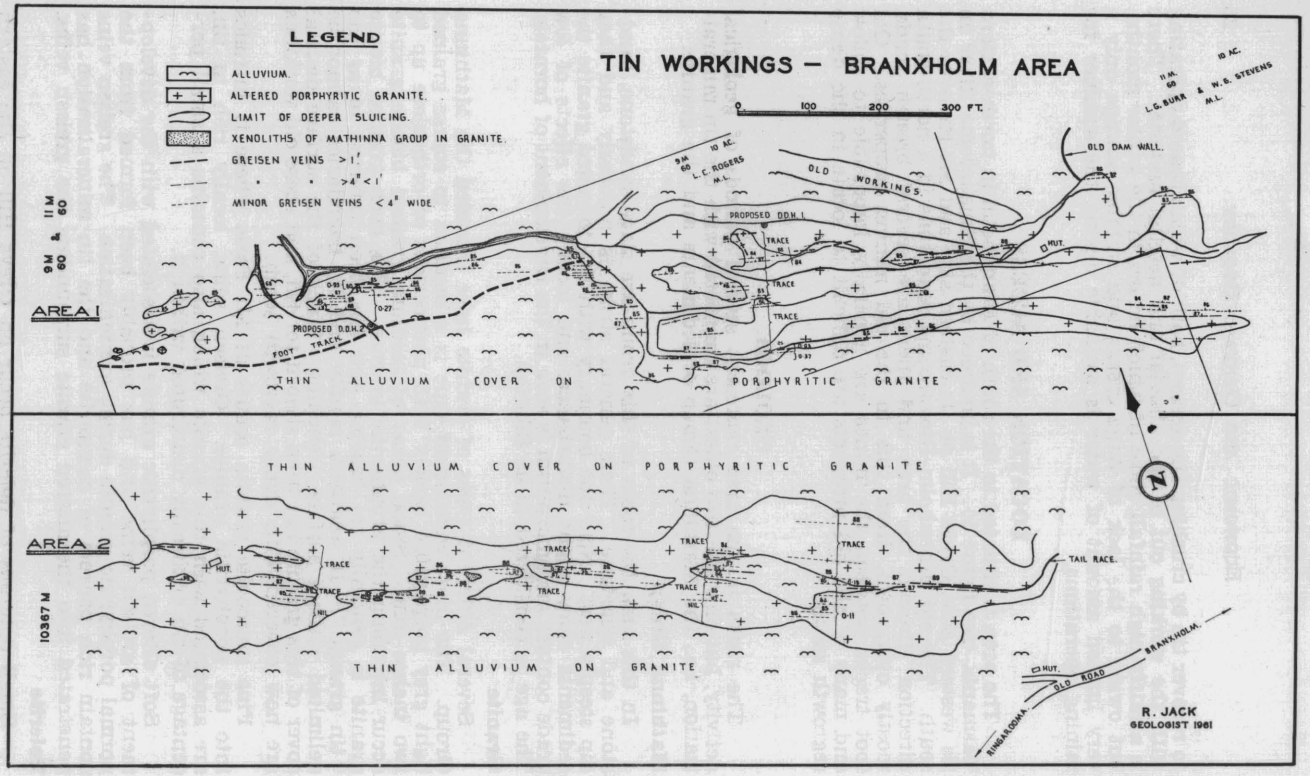
Several different types of granite have intruded the Mathinna Group. The most widespread type is a medium to coarse grained light grey porphyritic variety with phenocrysts of orthoclase up to two inches long. Small areas of medium grained biotite granite occur intruding the prophyritic granite. This even grained biotite granite is generally tin bearing and has been referred to as the "tin granite". It weathers readily and its boundaries cannot be delimited without surface trenching. Much of the surface detrital cover of this granite has been sluiced for tin, and these old workings are now covered with dense regrowth scrub.

Fine muscovite granite occurs at Mt Paris where it intrudes into the porphyritic granite. Greisen veins, locally rich in tin, are associated with this granite which also contains a small percentage of tin erratically distributed within it.

Soft altered porphyritic granite is associated with the development of greisen veins and has probably been formed from the normal porphyritic granite during greisenization. The greisen veins contain rich pockets of cassiterite and the tin mineralization has penetrated into the altered granite surrounding the greisen veins.

Dolerite

Small outcrops of dolerite occur on Greys Hill on the eastern side of the area examined. This is probably the remnant of a larger sill intrusive into the Mathinna Group.


LEGEND
ALLUVIUM.
ALTERED PORPHYRITIC GRANITE.
LIMIT OF DEEPER SLUICING.
XENOLITHS OF MATHINNA GROUP IN GRANITE.
GREISEN VEINS >1'
>4"<1'
MINOR GREISEN VEINS <4" WIDE.
TIN WORKINGS — BRANXHOLM AREA
0 100 200 300 FT.
AREA 1
AREA 2
OLD WORKINGS
OLD DAM WALL.
PROPOSED D.D.H.1
PROPOSED D.D.H.2
FOOT TRACK
HUT.
TAIL Rrace.
THIN ALLUVIUM COVER ON PORPHYRITIC GRANITE
THIN ALLUVIUM ON GRANITE
TRACE
OLD ROAD
BRANXHOLM.
R. JACK
GEOLOGIST 1981

5 cm

FIGURE 6.

Basalt

Basalt forms the capping on Greys Hill, and rests on the irregularly weathered surface of the dolerite. This basalt shows strong flow structure and is most likely the remnant of a much larger flow that once covered the surrounding country.

Quaternary Deposits

Alluvial deposits along the creeks vary in depth from a few feet to over 15 feet. The deposits locally contain numerous pebbles of granite and sedimentary rocks. Detrital soils are developed to a maximum depth of 10 to 12 feet.

LEASES

9M/60 held by L. C. Rogers and 11M/60 held by W. G. Stevens, and L. G. Birr.

GEOLOGY

The area in which the greisen veins occur on the two leases was mapped (see figure 6). The general strike of the veins is 105° to 110° and they dip from vertical to 80° to the east. These greisen veins were formed by the alteration of the granite along nearly parallel joint planes and they vary in composition from highly siliceous to almost wholly micaceous. They also vary rapidly in width from ¼ inch to over five feet along the strike. There is more tin in the micaceous and quartz-mica greisen than in the quartz greisen, though large crystals of cassiterite are sometimes found coating fractures in the hard quartz greisen. Locally, small amounts of pyrite, arsenopyrite and wolfram were seen in the veins. These primary minerals should be more abundant in depth, as they have been removed by oxidization near the surface.

WORKINGS

The area surrounding the greisen veins has been sluiced to a maximum depth of approximately 20 feet. Areas of hard greisen remain and no attempt has been made to work this material. Boulders of hard greisen were encountered during working and these have been stacked on the sluiced ground thus obscuring any detail present in the altered granite between the greisen veins.

SAMPLING

Samples were taken across the strike of the mineralization where there was a good development of greisen veins. The best sample (0.93% tin over nine feet) was obtained where tin was visible in the greisen. Where no tin was visible in the greisen or the altered granite the values ranged from trace to nil. The samples reflect slightly better values than the average that would be obtained by detailed sampling over the whole area. As the samples of the altered granite were low in value (less than 0.1% tin) it appears that the ground worked over this material must have been enriched by weathering in situ and may also have contained some cassiterite shed from the greisen veins.

RECOMMENDATIONS

The discontinuous nature and lenticular shape of the greisen veins make it difficult to give an accurate estimation of the grade of tin present. To prove the mineralization in depth either shaft sinking or diamond drilling would be necessary. Shaft sinking to even a moderate depth and the necessary driving would be a very costly yet more accurate method of assessing the prospect. Diamond drilling, unless spaced at close intervals could give unreliable results. By a preliminary drilling of two holes an indication of the probable grade of mineralization should be obtained. If these holes show encouraging values then more drill holes would be needed before an accurate estimate of the grade of tin present could be formed.

As no single vein seen on the surface is consistant enough to be mined alone, any mining operation would necessitate the bulk treatment of the whole mineralized zone. The two diamond drill holes should be drilled from the positions indicated on the plan; this would give an intersection of the whole mineralized zone at approximately 100 feet below surface level.

Hole A.—This should be approximately 230 feet at a declination of 35° to the south-west to intersect the zone of highest mineralization at approximately 100 feet below the surface and give more information about the greisen veins to the east at shallower depth.

Hole B.—This hole is sited approximately 560 feet north-west of hole A and should be approximately 170 feet at a declination of 45° to the north-east. This should also intersect the mineralized zone at approximately 100 feet below the surface.

If the values encountered in these holes are not encouraging, it is recommended that no further drilling be done on this or any of the other geologically similar deposits in the district.

OLD CONSOLIDATED LEASE 10367M

This old lease was taken up on the area to the north-west of the junction of the Ringarooma-Branxholm road and the Guiding Star-Mt Paris road (figures 5 and 6). It is approximately half a mile north-west of the area held by Rogers, Stevens and Birr and is a continuation of the greisen veins occurring on these leases.

GEOLOGY

The greisen veins mapped here (figure 6) are similar in strike (105°-110°) and dip as on leases 9M/60 and 11M/60, except that they occur over a narrow zone (80 feet wide) and form distinctive resistant outcrops in the granite. The veins are discontinuous over a length of 1,200 feet and in the northern part several xenoliths of altered sediment were seen.

SAMPLING

Samples were taken across the strike of the veins and the results show the veins have a very low tin content. The highest assay (0.81% tin over 25 feet) was obtained where tin was visible in the mica greisen. All other samples from the greisen or the altered granite gave values of less than 0.2% tin.

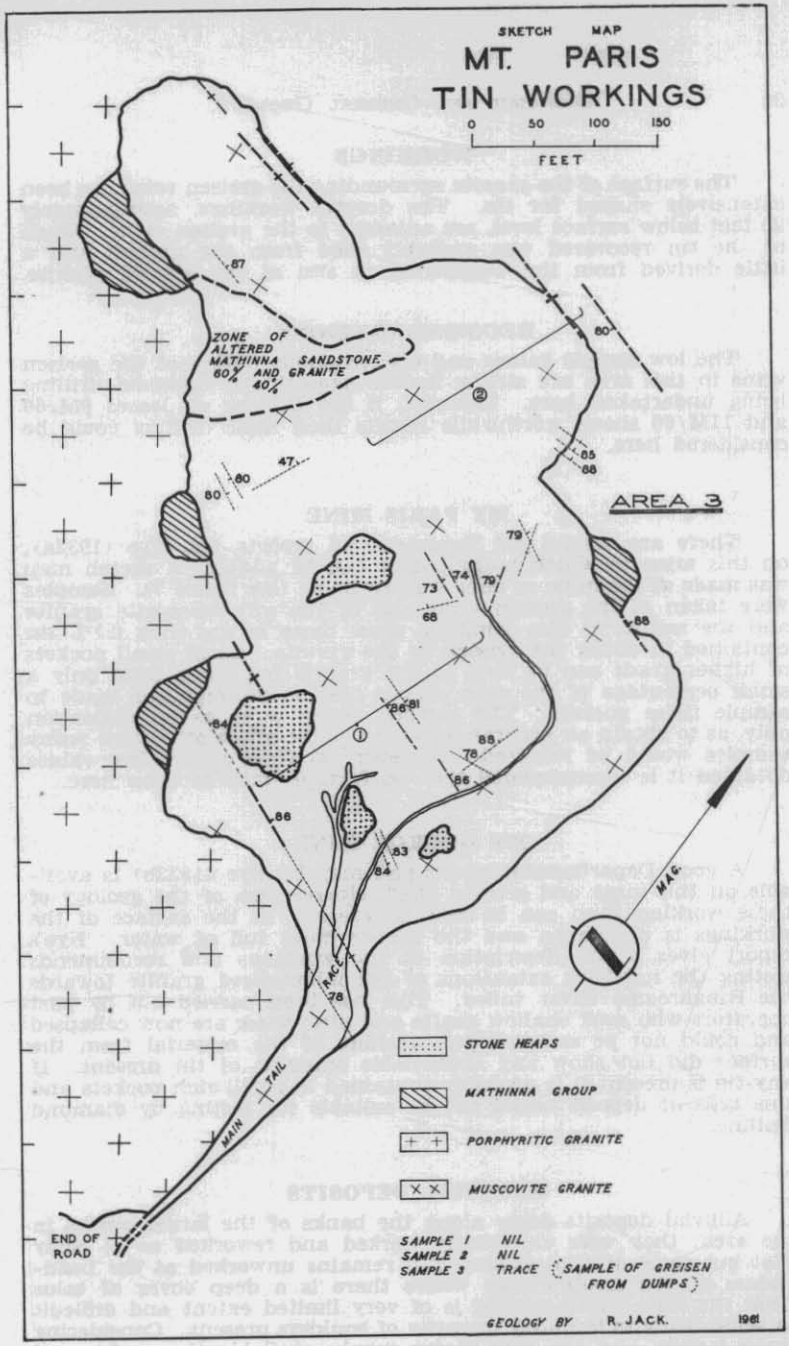

SKETCH MAP
MT. PARIS
TIN WORKINGS
0 50 100 150
FEET
ZONE OF ALTERED MATHINNA SANDSTONE. 60% AND GRANITE 40%
AREA 3
MAG.
STONE HEAPS
MATHINNA GROUP
PORPHYRITIC GRANITE
MUSCOVITE GRANITE
SAMPLE 1 NIL
SAMPLE 2 NIL
SAMPLE 3 TRACE (SAMPLE OF GREISEN FROM DUMPS)
GEOLOGY BY R. JACK. 1961
END OF ROAD
MAIN TAIL
RACE

FIGURE 7.

5 cm

WORKINGS

The surface of the granite surrounding the greisen veins has been extensively sluiced for tin. The deepest workings, approximately 25 feet below surface level, are adjacent to the greisen veins. Much of the tin recovered was probably shed from the greisen and a little derived from the weathering in situ of the altered granite.

RECOMMENDATIONS

The low sample values and discontinuous nature of the greisen veins in this area are strong factors against any diamond drilling being undertaken here. However, if the drilling on leases 9M/60 and 11M/60 shows worthwhile results then some drilling could be considered here.

MT PARIS MINE

There are several old Departmental reports, e.g. Nye (1933a), on this mine to which nothing new can be added. A sketch map was made of the mine as none was available (see figure 7). Samples were taken of the greisen veins and of the soft muscovite granite and the results of this sampling show there is less than 0.1% tin contained in either the greisen or the granite. Local small pockets of higher grade can be seen in the granite but these form only a small percentage of the area sluiced and no attempt was made to sample these pockets. The samples taken serve as an indication only, as to obtain an accurate estimate of the grade at surface many samples would be required. However, in view of the low values obtained it is recommended that no further work be done here.

MT GEORGE MINE

A good Departmental report and map by Nye (1933b) is available on this mine and gives a much clearer idea of the geology of these working than can be seen at present, as the surface of the workings is overgrown and the deeper parts full of water. Nye's report gives a full description of the workings and recommends testing the northern extensions of the mineralized granite towards the Ringarooma River valley. This has been carried out by past operators who sank shallow shafts and pits; these are now collapsed and could not be sampled but washing of the material from the surface did not show any appreciable amounts of tin present. If any tin is present it is probably contained in small rich pockets and this type of deposit would not be suitable for testing by diamond drilling.

ALLUVIAL DEPOSITS

Alluvial deposits occur along the banks of the larger creeks in the area; they were extensively worked and reworked as at Ruby Flat but some alluvial ground still remains unworked at the headwaters of the small creeks where there is a deep cover of talus from the hills. This ground is of very limited extent and difficult to work owing to the large quantity of boulders present. Considering these factors and the poor water supply available the working of this ground would be an uneconomic proposition.

CONCLUSIONS

Lease 9M/60 and 11M/60 contain the only targets worth drilling and the two holes suggested previously should indicate if any more drilling is warranted. No other prospects were seen in the locality that are worthy of further investigation under present economic conditions.

REFERENCES.

NYE, P. B., 1933a.—The Mt Paris Mine. *Tas. Dep. Mines Rep.* (*unpublished*).

————, 1933b.—Royal Gordon Workings, Mt George, Branxholm. *Tas. Dep. Mines Rep.* (*unpublished*).