UR 1928B/151-154

Report on Mineral Lease No. 9899/m 5ac.
Charted in the names of Brown & Lucas,
by J.B. Scott

Location and Access

This lease is situated in the South Heemskirk district on the West Coast, the western boundary line being practically on the sea shore two miles north west of Trial Harbour.

The main road from Zeehan to the Federation Tin Mine - which has recently been made suitable for heavy motor traffic - passes within half a mile of the section a branch now disused connects the latter with the main road. The branch road would require some attention to render it suitable as a cart road. The intervening country is open button grass, the grade is fairly level.

Topography

The topographical features of the land embraced in the area are very favourable for conducting cheap methods of mining, the greater portion of it being on the edge of a wide undulating plateau which at the sea shore rises abruptly to a height of several hundred feet and extending therefrom along the coastline and inland to the foot of the mountain ranges lying a few miles to the east.

A short distance of the northern boundary of the lease the land surface falls rapidly to a gap or narrow indentation in the coastline. The bottom of this gap is some 50 feet or more above sea level.

Being situated well above the influence of the waves of the sea, it affords a good opportunity for developing the section by tunnel workings, also a site for a concentrating plant to which ore could be delivered by gravitation to a considerable depth below the outcrop of the lode formation which traverses the lease in a direction roughly parallel to the sea shore. Possessing such a site at a comparatively low elevation relatively to the general of the surrounding land surface gives it an added value from the point of view for the generation of power by water.

Geological Features

The country rock consists of white granite in which occurs a tin bearing quartz tourmaline formation. This lode can be traced along its outcrop from a point near the north western corner peg of the section for several hundred feet in a south easterly direction. On the higher ground about 70 feet to the east of the lode an aplite dyke some 15 to 20 feet in width is exposed, its apparent course being parallel to the lode. Aplite rock was also observed outcropping to the west of the lode.

These dykes assume a bearing which on their N trend would intersect the coast line at the point the small indentation refferred to is made in the seashore, and the softening of the aplite is no doubt responsible for it.

Towards the southern boundary of the lease a very strong outcrop of quartzitic rock some eight to ten feet in width traverses the granite at right angles to the lode formation.

This occurrence will no doubt have a marked influence on the southerly extension of the tin bearing zone. The lode has not been traced to the point of intersection or beyond it, consequently, what effect will have has yet to be determined. Excepting for a little tunnelling work near the northern boundary, a small shaft on the hillside above, and some shallow surface workings carried out in the early days of the field, no developmental work has been undertaken to prove the full extent and value of the lode.

The tin occurs as cassiterite in fairly coarse dark brown crystal form in close association with black tourmaline.

The latter occurs in bunches, sometimes in regular vein form, also as nodules, as a rule it is well disseminated through the stone in the form of small crystals. A specimen piece of massive black tourmaline broken from the lode in the upper tunnel assayed 39.5 per cent tin.

On the northerly extension of the lode outcrop where the land surface falls steeply to the boundary line of the section some tunnelling work has been carried out. At the tunnel approach the tin appears to be confined to a vein of quartz-tourmaline - the latter predominating - a few inches in thickness. This tunnel has been extended a distance of 51 feet southerly on the course of the lode. At the end of tunnel it shows considerable widening. Its full width at this point is not known as it extends laterally beyond the tunnel walls.

At the surface above the tunnel rich vein stone occurs, at a point above the end of the latter a small shaft has been sunk to a depth of 14 feet; very rich stone is said to have been taken out in sinking. A sample broken from the bottom over a width of two feet - full width of shaft - under the supervision of the writer assayed 3.18 per cent tin.

Higher up the hillside south easterly on the course of the lode the outcrop shows considerable widening; a chipped sample taken over a width of 12 feet assayed 5.5 per cent tin.

As far as driven on in the tunnel the lode shows a slight dip to the west.

Old Workings

In the early days of the field, dating back fifty years, a ten head stamp battery and concentrating appliances were erected on this area at a point about 200 feet south easterly of the small shaft referred to. Judging from the size of the excavation along a lode outcrop from which supplies of milling ore were drawn a very limited quantity of stone was crushed. The apparent failure of the operators in those days to make a success of the venture would have no bearing on present day methods. Including the short tunnel and small shaft above reffered

to more recent work consists of another short drive from a point a short distance of the north west corner peg of the section. From the approach this tunnel is driven a distance of 25 feet on a bearing S 70° E, it then takes a turn nearly due east and continues on that bearing 45 feet along a well defined granite wall. The country rock is micro-granite. Although only about 40 feet below the upper tunnel no indication of the ore body was met with. In taking an easterly turn it seems obvious that the lode would be missed. The approach of the tunnel appears to be too far east to cut the downward extension of the lode above.

Assay Value

The comparatively small amount of work carried out on the lode is not sufficient to enable samples to be taken for assay that would give sufficient data on which to base an estimate of the average value of the lode.

A few samples taken by the writer and assayed at the Geological Laboratory, Launceston gave uniformly encouraging results indicating a general high average tin content of the stone exposed. Particulars are herewith appended:-

No.	Location	Percent Tin	Width taken over.
1	Upper Tunnel entrance,	3.18	1 foot
2	Do 31 ft from do,	5.60	10 inches
3	End of upper tunnel,	3.80	4 feet
4	Bottom of shaft,	3.18	2 feet
5	Surface outcrop 50 ft SE of shaft,	5.50	10 feet
6	Surface outcrop 40 ft SE of No. 5.	4.90	12 feet

The foregoing results were obtained from samples taken indiscriminately from the lode exposures.

Mining Economics

The topographical features of the area in relation to cheap mining methods have already been referred to in this report. An excellent site for a milling plant could be obtained on the low lying ground immediately north of the section. Assuming that sufficient ore of the requisite grade is developed, one or more tunnel levels could be driven along the lode channel from the northern fall of the hill and a series of rises put through on the orebody to the surface to serve as passes for the delivery of the stone to the mill. These is every facility for mining the ore by open face methods at a minimum cost in handling.

Prospecting and Development

Before anything in the way of providing a crushing and dressing plant is considered; it is recommended by the writer that a scheme of developmental work be undertaken in order to prove a quantity of stone sufficient to warrant the expenditure necessary to provide a suitable plant. By extending the upper tunnel level 100 feet from the present face and rising to the surface, an extensive block of ground would be opened up. Prospecting on the surface with the object of tracing the lode towards the southern boundary of the lease could with

advantage be undertaken and the outcrop carefully sampled at frequent intervals.

Power.

The section is very advantageously situated with regard to a water power scheme. In addition to the ordinary natural flow of water from the higher ground lying to the east of the mine there will shortly be an augmented supply available from the Federation Mine hydro-electric power scheme. It would not be a difficult or costly matter to convey the discharged water to the section by race channel at a sufficient elevation for the generation of power for ore concentrating purposes.

The distance of the site of the Federation Mine power station to the section is probably not more than a mile.

In conclusion the writer considers that the area well justifies a vigorous policy of developmental work on the lines suggested. Driving a crosscutting to the lateral extremities of the orebody is necessary in order to ascertain in a general way the quantity and value of stone available.

J.B. Scott,
State Mining Engineer,
14th February, 1928.