

INTERIM REPORT ON AN AREA OF
176,000 ACRES - SPECIAL PROSPECTORS

LICENCE NO. 252.

NELSON BAY AREA

TASMANIA

for

DIRECTOR OF MINES TASMANIA

by

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Melbourne.

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SUMMARY

The discovery of a radioactive horizon in the late Proterozoic Carbine group while not in itself of commercial significance warrants detailed investigation of these beds as potential producers. Resolution of the geology of the area which is in progress will enable the most favourable localities to be selected for mineralisation while the area is being checked for anomalies with the airborne scintillometer. Using these methods it should be possible to rapidly assess the radioactive potential.

Several of the older prospects warrant re-investigation and economic re-appraisal although the approach should be conservative since the prospects are small and subject to the disability of extreme isolation. Murray Bros. Reward mine offers some merit and the occurrence of cassiterite permeating the county rock should be fully investigated.

NATURE OF INVESTIGATION

Detailed work on the aerial photographs and perusal of information relating to the area did not bring forward any particularly attractive prospects for detailed examination. It was decided to inspect briefly all those mining properties about which any favourable comment had been recorded, and to cover as much of the area as practicable with the scintillometer by way of a reconnaissance radiation survey.

Detailed geological and survey work is in progress with respect to some of the mines which have now been taken up as lease applications, but the purpose of this report is to summarise the findings and progress pending the completion of the current programme.

GENERAL GEOLOGY.

Considering the Nelson Bay area on a broad regional basis, the rocks get successively older to the west being divisible into three main groups - the Cambrian Dundas Group, the late Proterozoic Carbine Group, and the older schists of the Davey Group which are not widely represented since much of the coastal strip is occupied by granite. The Carbine rocks occupy most of the area and extend inland to the edge of the Cambrian eugeosynclinal basin just east of the Balfour Mining Field and the Frankland River. They are mainly quartzites but contain many dark green-grey and black shale members. It is in these beds that the radioactivity was observed.

Some horizons of the Carbine Group are calcareous. The exposures on the Coast and in the bed of the Nelson River resemble impure limestone and show solution weathering. However no straight forward dolomite comparable with that at Smithton has been observed.

The rocks are heavily injected with quartz and are hosts to the many small copper and tin-tungsten veins. Some

granitic rocks are included and later gabbro dykes ramify through some localities. The Cambrian volcanic rocks occur to the eastward and do not occupy any of the old mining fields.

INDIVIDUAL PROSPECTS EXAMINED.

Radio Active Prospects.

In the course of traversing the Balfour copper area with the scintillometer two low order anomalies were recorded. The rock type, a green-grey argillaceous member of the Carbine Group appears to have some radio-activity over a fairly widespread area. The highest counts were obtained from the dump and from an adit from the Balfour road into the northwest side of Specimen hill. However the counts only attained about three times background and appeared to be not localised in any particular part of the beds exposed in the adit. Some veins and other signs of mineralisation can be seen in the adit but these did not give any particular reaction.

At several points along the Balfour road where Carbine Group shales are exposed in the cuttings slight radioactivity was recorded and this again was observed from several outcrops along the creek and in the exposures at the floor of alluvial workings.

Counts recorded so far are of such a low order that they imply no commercial significance. However the recorded occurrence of even slight radioactivity in a bed of this nature is of considerable importance. It should now be possible to work out the geological structure and select areas in the most favourable geological environment for mineralisation.

Meanwhile further aerial and ground reconnaissance work with the scintillometer is justified.

Murray Bros. Reward - Balfour.

This mine has opened a well defined lode and has produced a small tonnage (1286) of high grade (25 to 30 percent) copper ore from a mineralised north south fracture. The lode is 9 to 12 feet wide extending over several thousand feet, the oreshoot apparently being about 300 feet long.

However it is felt that the approach to re-opening this mine should be conservative. It is small and every phase of future investigation is subject to the severe disability of extreme isolation.

The better grade of ore in the workings to their present depth of about 80 feet has been selectively mined from the hanging-wall side of the lode to a width of only 3 to 5 feet. It seems that because of transport difficulties and inefficient milling only the best ore could be handled during previous operations.

Re-opening would have to consider larger tonnages of lower grade materials making a stope of about 9 or 10 feet.

The problems are to be resolved in this order:-

1. The length and pitch of the ore shoot. From the workings so far it appears to be pitching southwards and to have been stoped over a length of about 200 feet.
2. The grade can only be assessed inadequately from records and will have to be supplemented by sampling. Why the mine previously failed needs analytical assessment.
3. The possibility of other shoots of ore making on the same lode and if possible a determination of the structural control.
4. Exploration of the primary zone by drilling to determine widths and confirm the extent of the ore.

Specimen Hill - Balfour

An attempt has been made to extend alluvial workings down into the vein and stock-works on Specimen Hill in several places. The alluvial workings around the base of the hill are extensive but places where the veins themselves are worked amount to a few gougings in the richer veins.

Near the crest of the hill the stock-works are most unpromising. The veins are about two inches wide separated by about 4 feet in weathered fine banded Carbine slates. These veins rarely contain more than a little cassiterite and even less wolfram.

On the west side of the hill a larger vein carries rather more of both minerals. It is 9 to 10 inches wide, flat dipping to the north and heavily studded with cassiterite. Being probably small in extent it is doubtful if it could ever be mined, but numerous other veins and veinlets occur in the immediate vicinity. It was from this locality that the richest pocket of alluvium on the field was worked so that forty acres have been pegged to enable a further investigation which would seem to be warranted in conjunction with other exploratory work in the area.

Tin area South of Murray Bros. Reward - Balfour.

Alluvial tin has been worked in the area of low relief south of the reward mine. Some of the alluvial workings extend down to take in part of the mineralised bed rock in which there are many veins and veinlets of quartz carrying cassiterite. Also the tin does seem to permeate through the country rock itself. Samples of these stanniferous slates and indurated shales

were crushed and panned giving a little very fine tin. The extent and grade of these rocks as a possible source of tin ore is not yet determined.

Toner River Area

About 20 miles south of Balfour there are at least three places in the valley of the Toner River where really large masses of country rock are mineralised with quartz and pyrites. The mineralisation is on quite an extensive scale but appears on superficial examination to be only pyritic and not very dense. However it is just possible that copper mineralisation could be found in this type of environment.

The zone which has been pegged contains some copper. The amount of copper seems small but both it and the pyrite extend through adjoining country rock for some distance on either side of a small fault.

Minor fractures in the micaceous carbine phyllites near the vein indicate the fault is overthrust.

North Hazelton Area.

The larger adit which is about 350 feet long opens a vein in the ridge. Trenches etc., expose this lode on the ridge crest but throughout it appears to be merely a wide quartz vein, very heavily pyritic and otherwise barren.

Waratah Creek Area.

The old mine on Waratah Creek has little but heavily pyritic quartz vein material apparently about 18 inches wide. However the adit and the underlay shaft on the creek nearby contain a narrow sulphide-quartz lode with secondary copper minerals and sulphides extending slightly into the hanging wall.

This is the only lode material, of all the veins examined in the district, which gives a reaction on the scintillometer. However only about 2 to 3 times background

is recorded over about an 18 inch width.

Doherty's Pimple.

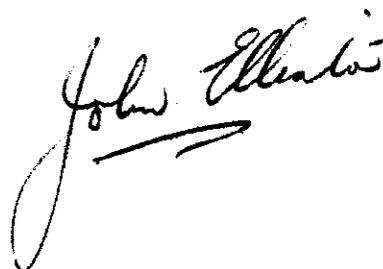
The southernmost workings comprise two costeans and one adit-cum-costean pit from which a fair volume of ore has been taken. The lode is a wide massive heavily pyritic quartz vein with little or no copper. It is obviously abandoned through lack of copper but is otherwise a lode of favourable dimensions.

The northernmost adit develops a similar vein and has extracted massive pyritic ore, but again contains no copper. It is merely a body of massive pyrite although some sections are rather leached.

Lindsay River.

On the end of the ridge overlooking the Lindsay River are several more trenches with the same sort of formation. These have 12 to 15 foot lode widths with quartz and very heavy pyrites. The lodes are semi-leached, extensive in length, but contain no copper.

They were not tested for gold as none was recorded from the field during its active period.



Melbourne.

8th March, 1955.