

MEMORANDUM

THE CLEVELAND MINE

After a preliminary examination of the Cleveland Mine, I have arrived at certain conclusions, which are of course rather tentative and may be modified upon closer examination.

The opencut workings, adits and lode outcrops are located on the south-eastern side of Cleveland Hill, which rises with an average grade of 24° from Deep Creek just above its junction with the Whyte River. The crest of the hill is 400 feet above the creek bed, and the hill is covered by thick scrub and light timber, mostly of secondary regrowth.

The country rocks occupying this hillside are a series of slates, lavas and tuffs of Cambrian age probably referable to the Dundas Series and form the North West leg of an anticline having its crest in the vicinity of Deep Creek. Silicification has altered some slates to cherts and certain lavas and tuffs to quartzites.

The area in which ore deposits have been located and worked is portion of an extremely disturbed zone showing much faulting, shattering and intense local folding. Beyond the limits of this zone which is bounded by Deep Creek to the south-east and the crest of the ridge to the north-west, the rocks although folded do not show these disturbances. This great movement has opened channel ways for the mineralizing solutions to ascend (or perhaps it was to descend) from a source magma of granitic material. (There is no outcrop of this material in the Cleveland Area but large masses of granite occur three miles to the south-east). From these channel ways the solutions have penetrated into smaller joints and fissures in the country rock and in places have replaced much of the rock itself. The lavas and tuffs have yielded to replacement better than the slates.

The most common minerals in the replacement bodies apart from the gangue (which consists of quartz and carbonates) are pyrrhotite and chalcopyrite. Pyrite is more common in the fissures.

Weathering has proceeded, as a rule, only a few inches from the surface.

There seems to be no definite control of the amount of tin oxide, in the sulphide ores, and it is a very variable amount. A. M. Reid states that the fissures contain more tin oxide than the replacement beds.

The replacement zones and their feeder fissures seem to course to the north-east in echelon formation but future prospecting may reveal further continuation of known mineral zones. There does not seem to be

2.

any restriction to the depth of these zones and just as laterally they pinch and make, it is expected that they will do the same vertically.

It is recommended that a base line be cut along the crest of the hill on a bearing of 40°. From this at every hundred feet lines should be cut at right angles as far as Deep Creek to the South-east and to a line parallel to the base line through the mouth of the Khaki Adit to the north-west. In the first instance twenty of these lines, each about 1000 feet long, should be cut extending from the former office building to 300 feet beyond Henry's Cut to the north-east.

The object of these lines is twofold. Primarily they form the grid of the proposed Geophysical Survey but they also will be of great benefit to the geologist examining the area in that many outcrops at present hidden by the thick scrub would be made accessible.

(Sgd.) Terence D. Hughes

GEOLOGIST

The Director of Mines,

HOBART