

December 7, 1955

Mr. J. Redpath
Dome Exploration of Canada Limited
50 King St. West
TORONTO, Ont.

Dear Jim:

At your request, in company with Mr. Stronach and Dr. Richardson of your staff, I looked over the Trojan Explorations' property at Highland Valley near Ashcroft, B. C. Mr. Don McLean, looking after the Trojan development, showed us round.

On this property, on the nearby Transvaal property of Jackson Basin Mines, and on the Snowstorm property of Bethlehem Copper Mines, I spent the better part of two days. This will summarize briefly what I saw and point out some aspects of the economics of ore grade and production.

Highland Valley lies southeast of Ashcroft on the C.P.R. 18 miles in a direct line but nearly 30 miles by road. Active development is underway on several old copper prospects. In a rude way the principal properties under development are in a north-north-westerly alignment. Starting at the south end the properties are:

1. The SNOWSTORM property of Bethlehem Copper Company. About 90 claims. Under active development by A. S. & R. Several large showings of oxidized low grade copper mineralization. The host rocks are a complex of igneous granitic rocks which at places have been severely brecciated and propylitized (chlorite-epidote-sericite alteration) apparently in zones. The zones from Bethlehem maps appear to have a rude N N W to N N E alignment. The largest is an area of 1500 x 900 feet with very sparse but quite uniform/distributed malachite stains. Three large trenches have been bulldozed and blasted across this zone. In the centre trench bulk samples indicate a grade of 0.52 oz. copper across 900 feet. Chalcopyrite in rare specks was the only primary mineral seen. In this and other zones some bornite is reported. In one other zone at the 'Moly' shaft, molybdenite and tourmaline, as well as bornite, are reported. There is no doubt that extremely large bodies of rock lightly mineralized with copper are present. A. S. & R. are said to be committed to an expenditure of \$250,000 to determine average grade of the primary ore. Their target is, I think, 0.7% copper or better.

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2. The next property N.N.W. is a large group of claims held by Beaverlodge Uranium Mines. These were not seen. I know of no showings on them.

3. The second property N.W. is that of TROJAN. It will be described more fully later.

4. The last property to be mentioned is the TRANSVAAL and IMPERIAL, old Crown-granted claims under development by Jackson Basin Mines. These properties adjoin and lie north and west of the Trojan ground. The TRANSVAAL is about three miles from the Snowstorm (Bethlehem). The Trojan workings are about one mile toward the Snowstorm from the Transvaal.

On the Transvaal claim, an old adit with many branches exposes crushed zones up to 6 feet wide trending N N W in granitic rock. At 70 foot depth below surface these zones show malachite stains and a little chalcopyrite. In one working, lenses of black rock, several feet long and inches wide, are reported to be largely schorl, a black variety of tourmaline.

On the Imperial claim, six hundred feet south of the adit on the Transvaal, at the bottom of a 200 ft. shaft, similar mineralized zones are in apparent alignment NNW with the Transvaal zones. At the shaft though, mineralization is reported as sparse. Underground drilling is being done on a 200 ft. level. It is said nothing much has been found yet.

TROJAN SHOWINGS:

When visited the Trojan property was knee-deep in snow. Only trenches cleared of snow and a few natural outcrops could be seen. The showings seen are along both edges of a winding valley about 75 ft. deep, cut in the prevailing rolling wooded plateau terrain. Natural outcrops are scant, though trenches 10 ft. deep would mostly go to bedrock. Old pits and two short adits expose rock. Recent work has been bulldozer trenching and cleaning out and sampling both old pits and the new trenches. Sampling results are on a 50 scale assay map furnished by the owners. Mr. Stronach has a copy. From what I saw, I thought the sampling was being done properly under the direction of an engineer.

Geology:

The rock in the trenches is granitoid but has undergone a peculiar brecciation. The rock is commonly highly propylitized (chlorite-epidote-sericite alteration). The feldspars are entirely clouded with vague outlines and much chlorite is developed in masses

that appear interstitial to fragments of otherwise highly altered granite. Referring to the 50 scale plan of the trenches furnished us, at a point 50 ft. left (S.W.) of the base line at section 29+00 in a natural outcrop, is the only clue seen to the breccia origin. Here a swarm of rounded inclusions, some clearly foreign, occur in the granitic rock. Crushing and rock alteration in a belt of such inclusions in the granite could produce the peculiar breccia in which the mineralization occurs.

At the N.E. corner of the map referred to, are outcrops of a basic andesite along the east side of a second shallow valley shown on the map. It is entirely probable these outcrops are at the edge of a scarp of Tertiary extrusive lavas well represented elsewhere in the area. Where seen this rock was fresh and unaltered.

Copper mineralization is present in most of the trenches, principally as malachite. The higher copper values in sample in some of the trenches are from this secondary malachite, some of which has undergone local transportation and concentration. Elsewhere transportation is not obvious and may be negligible. Appreciable primary mineralization, in the form of chalcopryite, was seen only in the upper end of a trench at cross section 25+75. It is chalcopryite and samples from it average 1.15% copper. Occasional specks of chalcopryite were seen in other trenches.

The trenches expose showings which clearly extend over an area at least 1,000 feet by 100 feet. At only a few places are the boundaries in any direction delimited. The values found are very largely from oxidized material, and in my opinion convey little about the underlying primary mineralization other than that copper mineralization is widespread. The depth of oxidation is unknown. On the nearby properties available evidence is that it ranges from 100 to 300 feet. The grade of the underlying primary mineralization is obviously not known. No zone of supergene enrichment is known on the neighbouring properties.

The Economic Factors to be considered are:-

- 1) Likely grade of concentrate and recovery;
- 2) Freight to smelter and charges;
- 3) Price of copper.

For the time I am discarding values in the oxidized zone. I assume the primary values are in chalcopryite (33% Cu.) and that a 25% concentrate can be made with 90% recovery.

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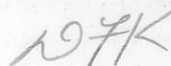
The Tacoma smelter of A. S. & R., the obvious outlet for copper concentrates from Highland Valley, publishes no schedule. Information received from Mr. Somerville, their ore buyer, in November 1954, is given in Supplement "A" to this letter. Railway freight - Ashcroft to Vancouver - is in the C.P.R. Tariff W 110 B. Table I attached gives possible net values of mine run ore. I leave anticipated price of copper to you, and mining and milling costs to Mr. Stronach. The tonnage implications of the visible showings are ample for a considerable operation. They are not nearly delimited by the present work. The primary grade is entirely unknown. The higher values than ~~found~~ in the Bethlehem showings found here vaguely suggest a better primary grade.

Based on:-

- 1) Extent of showings;
- 2) Indications of widespread copper mineralization;
- 3) Presence in the Interior of a camp where other large copper showings occur;
- 4) General similarity of geology - both structure and mineralogy to the other showings

it is my considered judgment that the expenditures necessary to delimit extent and determine primary grade of this occurrence are fully warranted. It would be desirable to determine both concurrently, but particularly the latter.

Yours sincerely,



Desmond F. Kidd. P. E. 79

P. S. Mr. Stronach has my only copy of Somerville data on the Tacoma smelter charges referred to above as Supplement "A". He will attach this to this letter.

DFK:c
encl.