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THE WJ CLAIMS
HIGHLAND VALLEY
BRITISH COLUMBIA

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Mr. J. S. Christie
827 Claybrook Road
Richmond, B. C.
Home Phone 277-4872

Mr. K. W. Livingstone
819 Anderson Road
Richmond, B. C.
Home Phone 273-4791

INTRODUCTION

LOCATION

The WJ Claim Group is situate in the Highland Valley Area north of Witches Brook. The Group consists of 60 claims, some of which are fractional, adjoining ground held by Valley Copper Mines Ltd., North Pacific Mines Ltd., New Indian Mines Ltd., and Bethlehem Copper Corp. Trenches expose Cu-Mo mineralization on a showing previously known as the BX, located in the south-central part of the WJ Group, some 12,000 feet from Bethlehem's East Jersey Pit.

ACCESS

Easy four-wheel drive access to the claim group is shown in Fig: 1.

PREVIOUS WORK

Early significant exploration in the area by Noranda Mines Ltd., in 1958, consisted of geological mapping, sampling and a Junior EM survey. (Certificate of Work No. 14664 - Mining Recorder - Kamloops). Noranda's mapping included 8 original BX claims, and peripheral claims east and northeast of Bose Lake, but did not cover much of the area now occupied by WJ Claims.

The showing has been shallow trenched exposing altered bedrock and copper mineralization in all trenches over a total length of 510 feet. This is the limit of exposure within the area of interest, and there are no signs of attempted drilling on the ground.

An IP Survey by Cominco on adjoining Dave and Cow claims appears to have extended as far east as the west boundaries of WJ 6-16 (Certificate of Work No. 32810 - see Claim Map).



East-West trench in northern part of mineralized area. Dark green is intensely altered quartz diorite containing disseminated chalcopyrite and local breccia.

DESCRIPTION OF PROPERTY

WJ Claims were acquired by re-staking lapsed BX, Cow and Dave claims, and by staking additional claims on unoccupied ground to the north, east and west.

Moderate relief is characteristic of the upland area occupied by the WJ property, but the nature of the jack-pine forest makes travel afoot arduous particularly

in areas of windfall. Much of the area is covered by a thin veneer of glacial ground-morraine such that little outcrop is seen in topographic depressions, while rounded outcrops are found on most ridges. Surface water is found in several depressions which appear to bottom on bedrock, and a small creek drains eastward through the northern part of the property.

THE SHOWING

Intensely altered granitic rocks are exposed in 5 trenches over a total length of 510 feet in a north-south direction, and 100 feet east-west. The most intense alteration and highest copper concentrations appear to be localized in the northern part of the trenched area where zones of altered gouge-like rock trend about N55°E. Noranda, 1958, (Certificate of Work No. 14664) reported the following grades

| | | |
|----------|---|---------|
| 0.8 % Cu | - | 11 feet |
| 2.6 % Cu | - | 3 feet. |

The exact location from which these samples were taken is not known.

MINERALIZATION

Copper mineralization at the showing is of both disseminated and fracture controlled types, with chalcopyrite greatly in excess of bornite. Within zones of intense chlorite-epidote alteration both types of mineralization are present, and the rock approaches ore-grade (visual). In less altered rock mineralization tends to be fracture controlled, and is definitely of sub-ore grade. Malachite and azurite films are widespread within the entire altered zone, particularly along oxidized fractures.

LITHOLOGY and ALTERATION

Lithologies in the showing area are variable and consist of Guichon quartz diorite, dacite porphyry, brecciated

quartz diorite, and altered equivalents of these. Most intense alteration is predominately of the epidote-chlorite type with local silicification. This type of alteration results in the transfiguration of leucocratic granitic rocks to shades of dark greenish grey. Outwards from the intensely altered zone the rocks become bleached, especially along epidote filled fractures, passing into a more regional type of alteration which has resulted mainly in the breakdown of feldspar.

STRUCTURE

The showing is located on the eastern flank of a persistent northerly trending linear depressed area which may be traced over the entire length of the WJ Group, near the location line of claims WJ 1-19. It is surmised from consideration of fault trends at Bethlehem and Trojan that this linear depression may well represent a fault line. Concerning faults at Bethlehem White, Thompson and McTaggart (1957) write:

"On the Bethlehem Copper property the prominent faults strike within 20° of north and dip steeply These are complicated branching or braided structures of sheared, thoroughly comminuted, altered rock and gouge, ranging in width from a few feet to a few hundred feet".

Referring to the Jersey Fault, Coveney (1962) writes:

"This is a strong northerly trending gouge filled structure with steep westerly dip. Strong mineralization occurs on both sides of the fault for a distance of 200 feet."

Mineralized fractures measured at the showing vary excessively in orientation and are complex. Most common are a set which strike $N10^{\circ}-20^{\circ}E$ and dip steeply. Other prominent sets strike $N40^{\circ}-60^{\circ}E$ and $N80^{\circ}E - S85^{\circ}E$.



Breccia with quartz diorite fragments
and intensely altered matrix.



North-South trend in southern part of
mineralized area exposes altered bedrock
over 300 feet.

GEOLOGIC RELATIONS

The above section describes the property. This section outlines literature research on existing copper porphyry deposits in the Guichon batholith.

The Guichon batholith is a polyphase quartz-monzonite quartz-diorite intrusive of early Mesozoic age. It is the host rock for several large copper porphyry deposits. Features believed related to ore mineralization in one of these deposits is outlined below.

FEATURES OF BETHLEHEM MINE AREA

(1) alteration:

"Alteration is pervasive and the rock is generally greenish in color due to abundant chlorite." Coveney, 1962, p. 43.

"Rocks along fault zones in the Jersey sections are commonly reduced to a green chlorite mass." White et al., 1957, p. 281.

"The main zones of mineralization occur within the areas of moderate to strong alteration with the stronger mineralization associated with the more intense alteration." Coveney, 1963, p. 34.

(2) breccia:

"Breccia is the least commonly exposed rock in the area. It is also one of the most important host rocks for copper mineralization ..." White et al., 1957, p. 278.

"Locally breccia is strong, but the whole zone appears to have a weakly shattered or mottled effect, and there does not appear to be any appreciable differences in copper values between brecciated and unbrecciated rock." Coveney, 1962, p.

(3) mineralization:

"... pyrite occurs in only minor amounts ..." Coveney, 1962, p.

"... copper sulphides occur both as disseminations and fracture fillings, the former appear to be the dominant mode of occurrence." Coveney, 1962, p. 43.

(4) structure:

referring to the Jersey fault: "This is a strong northerly trending gouge-filled structure with a steep westerly dip. Strong mineralization occurs on both sides of the fault for a distance of 200 feet." Coveney, 1963, p. 35.

"... bulk of mineralization to occur as irregular northeasterly trending bodies." Coveney, 1963, p. 34.

"The northerly-trending topographic 'grain' prominent in outcrop areas north and east of the Bethlehem salient and also on the Trojan and Jackson Basin properties is due to erosion controlled by this joint set." White et al., 1957, p. 275.

(5) summary:

"The subsequent mineralization chiefly occurred in places previously subject to repeated fracturing, intrusion, and brecciation. It was preceded and partly controlled by, faulting." Carr, 1960, p. 73.

"Structural elements such as intrusives, breccia, pervasive alteration as well as mineral distribution shows a similar north to northeasterly trend suggesting that all were controlled or influenced by the same deep-seated zone of weakness." Coveney, 1962, p. 42.

FEATURES OF WJ CLAIMS

This summarizes previous description.

- (1) alteration: Intensive chlorite alteration exposed in all trenches is present. Shearing and slickensides suggest alteration in proximity to a fault. Local silicification is present.
- (2) breccia: Breccia is locally present and is highly altered. Most breccia contains disseminated chalcopyrite.

- (3) mineralization: The sulphide is mainly chalcopyrite. Minor pyrite and bornite is present. Molybdenite is reported (Carr, 1966, preliminary map). Assays of 0.8 % Cu over 11 feet and 2.8 % Cu over 3 feet are reported by Noranda.
- (4) structure: The altered zone appears to trend north-south although some uncertainty exists due to insufficient exposure. A strong topographic linear in the claim area immediately west of the alteration zone appears to persist throughout the length of the claim area. It is thought this may be a fault zone.
- (5) summary: The limited exposure in the showing area of the WJ claims displays many geologic phenomena which are related to known copper porphyry-type mineralization elsewhere.

POSSIBLE REGIONAL ORE CONTROL

From literature description it appears that deep-seated faults partly control ore mineralization in the Highland Valley. North-south faults appear to be common in the Bethlehem mine area and the East Jersey is localized by one of them. A recent discovery, the Valley Copper deposit, Bethlehem's Jersey zone, and Alwin's O.K. Mine appear to define a northeast trending line. It is believed that this line could be a major structural zone in the Guichon. At the O.K. Mine mineralization is along a northeast trending fault. At Bethlehem the contact between the Guichon quartz-diorite and the Bethlehem intrusive phases is off-set and further defines this north-east line. If this line is a deep-seated structure then ore mineralization may be related to it. A good prospecting area based on this hypothesis would be the intersection of north-south structure with the northeast structure. Such an area exists in the WJ claims and it precisely defines the area of alteration and mineralization.

CITED REFERENCES

- (1) White, W. H., Thompson, R. M., and McTaggart, K. C., (1957), The Geology and Mineral Deposits of the Highland Valley, B. C., Trans. C.I.M.M., vol. LX, p. 273-289.
- (2) Carr, J. M., (1960), Porphyries, Breccias, and Copper Mineralization, in Highland Valley, B. C., Can. Mining Jour., vol. 81, No. 11, p. 71-73.
- (3) Coveney, C. J., (1962), The Bethlehem Copper Property, Western Miner and Oil Rev., vol. 35, No. 2, p. 42-43.
- (4) Coveney, C. J., (1963), Bethlehem Copper Corporation, Geology, Western Miner and Oil Rev., vol. 36, No. 1, p. 33-35.

Gentlemen;

It is intended that the WJ claims be available for option or some suitable agreement. To effect this, it was decided that as many people as possible be contacted. Interested parties would require time to visit the claim area in order to examine the mineralized altered zone, and determine feasibility of ore-exploration potential. After a suitable interval, interested parties would be asked to submit a bid in writing. The enclosed option (below), is a suggested arrangement. Others are possible.

The WJ claims are the property of two Ph.D. candidates with combined 16 years geological field experience, mostly in the Cordillera. Exploration in B.C. is active, to say the least, and the "syndicate" approach appears to be effective and popular. In this respect, we would be very interested in an independant prospecting budget for the summer of 1969. A programme of reconnaissance geochemical exploration (drainage, soils and bio-geochemistry), property examinations, and research projects in southern B.C. is suggested. Details would be arranged at a later date with interested parties. An arrangement involving more than one company is possible. A party or group interested in providing a prospecting budget would receive consideration in the payments required for the WJ claims.

To summarize, the WJ claims contain structure, alteration and mineralization which has copper porphyry potential. To date, work in the claim area has been minimal.

Settlement of the property option will not be attempted until December 15, 1968.

SUGGESTED OPTION AGREEMENT

| | |
|-----------------|------------|
| Ist payment | \$ 25,000 |
| after 6 months | \$ 10,000 |
| after 6 months | \$ 30,000 |
| after 6 months | \$ 20,000 |
| after 3 months | \$ 100,000 |
| after 6 months | \$ 150,000 |
| after 12 months | \$ 250,000 |
| after 12 months | \$ 500,000 |

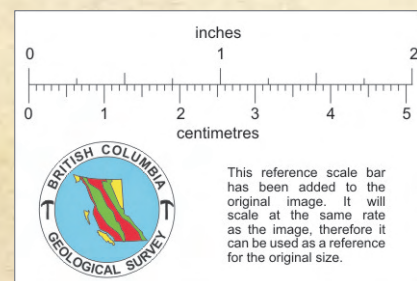
royalty on production

25 ¢ / ton on the first 4×10^6 tons

10 ¢ / ton on the remainder

maximum $\$2 \times 10^6$

or some equivalent shares agreement.



**GEOLOGICAL MAP
OF THE
HIGHLAND VALLEY AREA
BRITISH COLUMBIA**

Geology by J.M. Carr, 1957-62 and R. Lee, 1958

Scale 1000 0 1000 2000 3000 4000 5000 Feet

PRELIMINARY MAP, May, 1966

B.C. Department of Mines and Petroleum Resources

POST-GUICHON INTRUSIONS AND STRATIFIED ROCKS

8 Kamloops Group (early Tertiary): flows and breccias, mainly andesite and local underlying tuffaceous sedimentary rocks; light-coloured andesite intrusions of unknown age; dacite tuff north of O.K. Road of unknown age.

ROCKS OF THE GUICHON BATHOLITH

- 7 Porphyries, mainly dacite, variously of pre- and post-breccia ages.
- 6 Mainly breccia
- 5 Quartz porphyry, dacite and rhyolite, known or assumed to produce breccia.
- 4 Bethesda granodiorite
- 3 Bethlehem (younger) quartz diorite, quartz monzonite and granite.
- 2 Beaver quartz diorite
- Guichon (older) quartz diorite

- Outline of mineralized zones and orebodies
- Road, bulldozer trench
- +++ Disused tramway
- Drill-hole
- Claim boundary (not shown)
- Property boundary in 1958 (not shown)
- Swamp or marsh
- Creek or gully
- cu Native copper
- bn Bornite
- cp Chalcopyrite
- mal Malachite
- py Pyrite
- mo Molybdenite
- sp Specular hematite
- tm Tourmaline

CONTACT BETWEEN
GUICHON (1) AND BETHLEHEM (3)
REFER TO NORTHCOLE 1967
AND THIS MAP.

LORNE
OVER 300,000 TONS
0.44% Cu
0.03% MoS₂

HIGHMONT
+ 50,000 TONS
0.3% Cu
0.02% MoS₂

LEGEND

