FILE

92J13W

BISHOP RIVER PROSPECT
COAST RANGE
Lat. 50° 55' N., Long. 123° 53' W.
FALCONBRIDGE NICKEL MINES LIMITED
September 21-28, 1971

October 1971
Vancouver, B.C.

W. A. Howell
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INTRODUCTION

The following report follows a short examination of a copper-moly showing high in the Coast Range northwest of Lillooet. The writer with TRH outlined the general area several years ago, but attempts to return at our convenience were thwarted by weather. During the last two years Silver Standard have concentrated on the area and have staked and still hold several groups of claims, two of which cover deposits originally discovered by us. All are sub-commercial but the geology is interesting and it is hoped that a few more localities similarly recorded in the general area will be checked out in 1972.

J. J. McDougall

October 1971

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I LOCATION

The Bishop River Prospect lies within two northerly trending valleys located four and one-half miles north-east of the Bishop River - Stanley Smith Glacier junction. The map area is centered approximately on Lat. 50° 55' N., Long. 123° 53' W., and is part of NTS Map Area 92-J/13W.

The area examined totals approximately three square miles and lies above elevation 5500 feet on the north side of the Stanley Smith Glacier.

II HISTORY

Helicopter reconnaissance by Falconbridge Nickel Mines Limited in 1968 resulted in the discovery of chalcopyrite and molybdenite in place. It was subsequently suggested that a one-week examination be carried out in the area to determine the salient geological features and to gain an appreciation of the possible degree and/or extent of the mineralization present.

A combination of maximum annual recession of the snow line with somewhat unseasonally good weather late in September and the availability of the Falconbridge helicopter made the conditions for an examination at this time particularly favourable.

Silver Standard Mines Ltd. were found to have staked the area in September 1970 as the "Autumn" claim group. They apparently completed a program of mapping, rock trenching, sampling and some packsack diamond drilling during July and August of 1971. Their camp was located at the 7300' elevation at the north end of the eastern valley. Information received during the course of later conversations with a Silver Standard employee who had been on the site during July and August, left the authors with the impression that 600 feet of rock trenching and sampling had been completed, but it was not certain that all of this had been completed on the "Autumn" claim group.

The same employee "guessed" that enough assessment work had been completed to hold the claims until September 1972. Rock cairns for Autumn 11-16 inclusive were found by the authors and are shown on the included map. Nothing further about the claim status or extent is known.

III GENERALIZED GEOLOGY (see sketch map 103-11-71 accompanying)

The area contains a diverse suite of rock types which include:

(1) Biotite gneiss - amphibolitic metamorphic rocks.
(Map Unit 1)

(2) Foliated biotite quartz diorite.
(Map Unit 2)

(3) Granoblastic quartz diorite.
(Map Unit 3)

(4) Unfoliated biotite granodiorite.
(Map Unit 4)

(5) Macro-Breccia
(Map Unit 5)

(6) Breccia (Map Unit 6)

(7) Pegmatite (Map Unit 7)

(8) Aplitic Dike Zone (Map Unit 8)

A more detailed description follows.

(1) Biotite gneiss - amphibolite metamorphic rocks are found adjacent to the foliated biotite quartz diorite (Map Unit 2) intrusives in the southwest corner of the map area. The foliated biotite quartz diorite and the biotite gneiss - amphibolites display a close spatial relationship and are found to be intricately sheared and foliated together. In some places the biotite quartz diorite is mylonitized and gradational into the amphibolitic rocks. The amphibolitic rocks and the foliated biotite quartz diorite are found to occur as a tight contact against the unfoliated biotite granodiorite in the western portion of the map area. The amphibolites, along with the foliated biotite quartz diorite, are also found in a breccia zone at the southern end of the ridge separating the two valleys. (Map Unit 6)

(2) The foliated biotite quartz diorite is found as a coarse-grained intrusive with aligned biotites. It is quite often found to be mylonitized and with gneissic gradations. As previously mentioned, it is commonly found associated with the amphibolitic rocks. In the southern portion of the eastern valley the foliated biotite quartz diorite is extensively cut by aplite dikes. At the head of the eastern valley the intrusive is noted as clasts within a macro-breccia. (Map Unit 5)

The biotite quartz diorite and amphibolitic rocks are older than the unfoliated biotite granodiorite; this relationship is well displayed by crosscutting sills of the unfoliated biotite granodiorite in the southern portion of the map area. This unit may be the regionally predominant intrusive rock type.

(3) A granoblastic biotite quartz diorite was found as xenoliths within map unit 4 and also as an extensive outcrop in the upper reaches of the easterly valley. It was also noted as a minor constituent in the macro-breccia zone. The texture of this rock unit suggests it is a contact rock that has undergone metamorphism. It appears to have a close spatial relationship with rock unit (4).

(4) An intrusive biotite granodiorite which shows no foliation was found to be the most commonly occurring intrusive type within the area. Some of the most apparent features associated with this rock type include:

(i) Variation in grain size of the quartz and biotite.

(ii) "Flow" banding as localized alignment of biotite grains in breccia zones.

(iii) Xenoliths, generally of rock type (3), are frequently found, particularly in the northern portion of the map area.

This unfoliated biotite granodiorite is found to intrude the amphibolitic and foliated biotite quartz diorite rocks as a sill-like mass in the southern portion of the map area. It is also found in sharp contact with rocks of map units 1 and 2 in the western valley. Associated with this intrusive are

small bodies of pegmatite and quartz segregations. Joint planes and fractures are often found to be sericitized and subjected to potassic alteration; this is particularly evident in the northeastern portion of the easterly valley. Pegmatite and quartz veinlets and also aplite dikes are found as fracture and joint fillings. It is probable that both the pegmatite veins and quartz veins are genetically related to this intrusive.

(5) A macro-breccia found in the upper reaches of the eastern valley. It is crudely circular in plan and contains fragments of essentially the amphibolitic rocks and the foliated intrusive rocks (Map Unit 2) which in the western portion are cemented by aplitic and felsitic rock. The matrix in the eastern portion appears less felsitic and may possibly be a variation of map unit 4. Aplitic and felsitic rocks appear in the eastern portion of the macro-breccia as clasts rather than matrix. In the southwesterly portion of the macro-breccia there is diking by rocks of an intermediate volcanic composition. The entire unit is cut by small pegmatitic and granitic veins.

(6) A breccia zone composed of clasts of biotite gneiss (Map Area 1) in a matrix of foliated biotite quartz diorite (Map Unit 2). Outcropping of this zone appears restricted to an exposure adjacent to the Stanley Smith Glacier and on the extension of the ridge separating the eastern and western valleys.

(7) Small bodies of pegmatitic quartz or quartz and orthoclase. Terminated quartz crystals up to eight inches in diameter and euhedral orthoclase crystals up to six inches long were observed, although the pegmatites generally displayed a well fractured and sheared appearance. Several small clots of pegmatitic quartz were observed in the northwest portion of the map area on the ridge crest separating the eastern and western valleys.

(8) A prominent zone of aplitic dikes in foliated biotite quartz diorite can be found outcropping in the lower reaches of the eastern valley. This unit perhaps could be considered a variation of unit (2).

IV MINERALIZATION

The most intensive areas of mineralization are contained within the unfoliated biotite granodiorite. These areas are primarily fracture quartz vein fillings, although in some areas "dry" fracture mineralization was noted. The mineralized veins and veinlets range in width from 1/16" to 6". The larger veins are quite often vuggy and contain pyrite, chalcopyrite, and magnetite.

The most extensively mineralized fracture zone lies to the east of the Silver Standard camp. Here the vein fillings (½" wide) attain a density of 3 per foot and contain up to 5% (visual estimate) chalcopyrite in any single vein. The area involved with this fracturing is approximately 100' x 200' and has been trenched and drilled.

The trenches are aligned in a north-westerly direction cutting N. 20° E. trending veins.

Copper mineralization as chalcopyrite occurs with pyrite and minor molybdenite in small veinlets (width 1/8") restricted to several small areas bordering the macrobreccia. The veinlets attained a maximum spatial density of 7 per foot. Chalcopyrite was also noted as being occasionally associated with the pyrite disseminated throughout the macro-breccia zone and as a minor constituent in the eastern pegmatite body.

Molybdenite was found as disseminations within a biotite gneiss in a gossan zone to the west of the macro-breccia. Molybdenite occurs in only minor quantities and appears restricted to small areas surrounding the macro-breccia; it is not developed over nearly as large an area as the copper mineralization.

Massive pyrrhotite, chalcopyrite and magnetite occur as a small segregation in a quartz pod located 500 feet to the north of the macro-breccia. Pyrite is the most regionally abundant iron sulphide, occurring as fracture fillings, disseminations in aplitic rocks and as a constituent in the quartz veins. The occurrence of pyrite was widespread throughout the area examined.

Magnetite as an interstitial component of small (one foot to four feet) pegmatitic quartz pods was noted in the northwest portion of the map area on the ridge separating the eastern and western valleys.

V CONCLUSIONS AND RECOMMENDATIONS

The writers were enthusiastic about the area and would have recommended staking the ground had it not been found already claimed.

It would appear that multiphase or multiple intrusive activity has taken place accompanied by late stage evolution of sulphide mineralization, largely as fracture fillings associated with quartz and potassic feldspar. Alteration along fractures and stringers is predominantly potassic. Pyrite accompanying quartz veining with well-developed sericitic borders in argillic altered unfoliated granodiorite was observed as float.

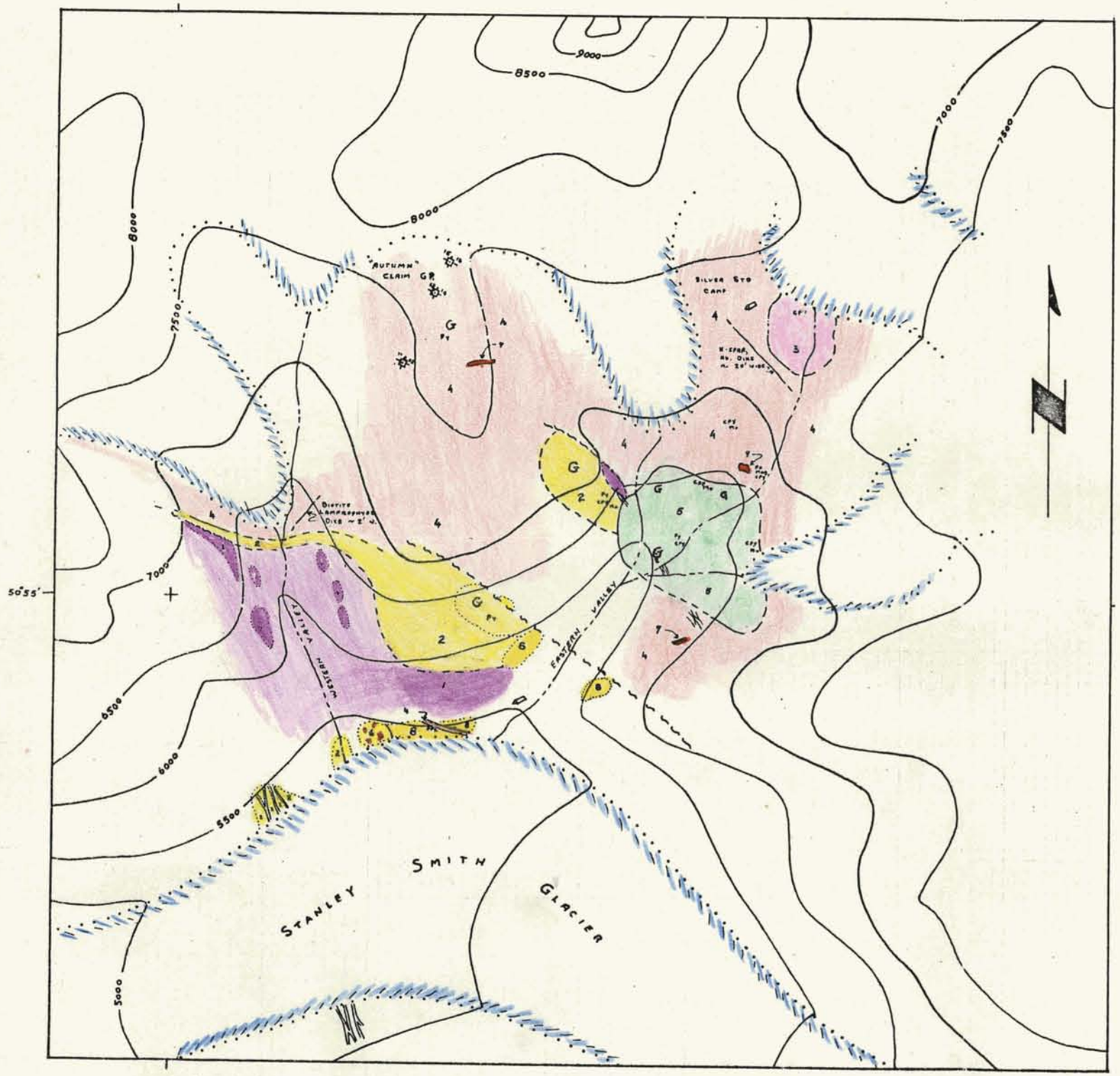
Further prospecting of the areas to the north and the east of the eastern valley, the ridge between valleys, and the head of the western valley may serve to clarify some of the rock unit relationships and the extent of the sulphide mineralization.

From the air and from a distance, a slightly gossanous area was noted south of the terminus of the Stanley Smith Glacier. It was felt that the appearance was similar to the macro-breccia zone within the examination map area. Should further prospecting be carried out in the Bishop River Area, a closer examination of this zone and the previously mentioned areas would be warranted.

W. A. Howell

J. M. McPhail

Vancouver, B.C.
October 25, 1971



① BIOTITE GNEISS - AMPHIBOLITE, MAY BE LOCALLY MYLONITIZED

② FOLIATED BIOTITE QUARTZ DIORITE

③ GRANOBLASTIC QUARTZ DIORITE

④ UNFOLIATED BIOTITE GRANODIORITE

⑤ MACRO-BRECCIA, CLASTS OF ① & ② IN THE WESTERN PORTION, OF APLITE & ② IN THE EASTERN PORTION. MATRIX VARIES FROM APLITE IN WEST TO QUESTIONABLE ④ IN EAST.

⑥ BRECCIA, CLASTS OF 1 IN MATRIX OF 2

⑦ PEGMATITIC QUARTZ AND ORTHOCLASE

⑧ PROMINENT APLITIC DIKE ZONE WITHIN ②

DIKES - SHEARED, ? DIABASE - INT. VOLC.

ICE FIELD OR GLACIER BOUNDARY

OBSERVED CONTACT

ASSUMED OR INFERRED CONTACT

FAULT OR SHEAR ZONE

PROMINENT OUTCROP LIMITS (NOT ALL SHOWN)

CLAIM POST (ROCK CAIRN)

CAMP SITE

G GOSSANOUS AREA

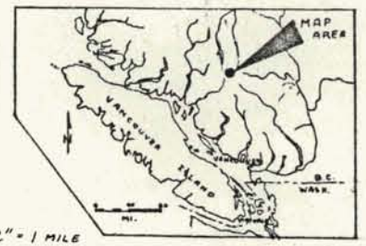
cPy CHALCOPYRITE

Po PYRRHOTITE

Mag MAGNETITE

Mo MOLYBDENITE

Py PYRITE



SCALE :- APPROX 2" = 1 MILE

0 .1 .2 .3 .4 .5 1.0 MILES

0 1000 2000 3000 4000 5000 FEET

SKETCH MAP - 103-11-71
BISHOP RIVER PROSPECT
NTS 92 J/13 W

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SEPT 21-28 1971