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GEOLOGICAL AND GEOCHEMICAL REPORT
ON THE
ACE CLAIM GROUP
HAZELTON AREA, B. C. 55° 127° S. E.
MASTODON-HIGHLAND BELL MINES LTD.

Hazelton, B.C.
September 11, 1967.

W. R. Bacon, P. Eng.

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ILLUSTRATIONS

(in Envelope at back of the Report)

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Ace Claim Group 1" = 400'.

GEOLOGICAL AND GEOCHEMICAL REPORT ON THE ACE CLAIM GROUP
HAZELTON AREA, B. C.

INTRODUCTION

The twelve claims comprising the Ace group are 17 miles northeast of the village of Hazelton. The group is in the Omineca Mining Division and covers the southernmost point of Natlan Peak. Natlan is actually a cluster of steep peaks rising to elevations of more than 6000 feet, i.e. 3500 feet above the surrounding country.

Justification for staking the claims was mainly the discovery of widespread copper mineralization over a substantial area. As a first approach in exploration of the property, the writer decided that geological investigation was essential, and some geochemical sampling might be advisable, prior to any actual physical work.

GEOLOGY
(see Fig.1)

In spite of the fact that the property is largely above timberline, good outcrop is confined to the ridges. This is because the dominant erosional force has been valley glaciation, resulting in the formation of cirques whose steep, upper slopes are covered with talus. The lower slopes and bottoms of the U-shaped valleys are generally covered by small bushes, moss and grass.

The southern peak of Natlan is on the southwest and southeast corners respectively of Ace No.2 and Ace No.3 claims. It is composed of a rusty coloured diorite. Its extent, and knowledge of similar bodies in the same general area suggest that the structural form of this particular rock type may be that of a small stock. This is uncertain, however, because of the talus cover.

The ridge south of camp, on claims Ace No.3 and No.5, consists of easterly dipping argillite intruded by acidic rocks. Downridge, i.e. west of Ace No.5, and on the other ridge of the cirque, i.e. on Ace No.9, greywacke is interbedded with the argillite.

The unaltered argillite is dark grey to black, a massive, aphanitic rock. Adjacent to intrusions, its colour

is altered to reddish or greenish. In places it has a siliceous appearance and tends to fracture conchoidally.

Under the petrographic microscope, the altered argillite is seen to be a very fine-grained, biotite-rich rock containing 0.1 mm. angular chips of quartz and 0.5 mm. round, diffuse patches of very fine-grained chlorite, and white mica. Opaques are sparse, fine-grained and irregular. Some biotite occurs as 0.3 mm. porphyroblasts. The fine-grained minerals are unfoliated.

The unaltered greywacke is a grey, medium- to fine-grained rock, in places containing small argillite fragments. Minor arkose and conglomerate beds may occur in the larger greywacke units. Near the intrusions, the greywacke exhibits a development of sericite and the loss of its granular texture. The altered rock has more of an aphanitic appearance and is generally reddish in colour.

Under the microscope, the altered greywacke is seen to consist of angular quartz fragments, less than 0.3 mm.; euhedral to angular, medium-grained plagioclase fragments; and generally rounded, less than 0.3 mm. fine-grained quartzite, argillite, and chlorite rock fragments occurring in a fine-grained, argillaceous matrix partly altered to

fine-grained biotite and white mica. The fragments are well sorted (as to size) and the fabric is unfoliated. The opaques are fine-grained, interstitial, and generally associated with biotite.

It has been mentioned above that a stock(?) of small proportions occupies the peak with which we are concerned, and that the term 'rusty Diorite' has been applied to the rock type. The rusty diorite also occurs in sill-like masses on the south ridge. In addition to this intrusive, three other igneous types are sufficiently distinct to be separated macroscopically. They, too, occur as sills in the sediments, and are generally not more than 100 feet in thickness.

As might be expected, the rusty diorite is characterized by a rusty appearance on the weathered surface. The rock contains prominent biotite crystals and disseminated pyrite, pyrrhotite and chalcopyrite.

The iron-lean quartz porphyry is light grey on the weathered surface and poor in mafic minerals. Sericite is common, pseudomorphic after biotite; little or no sulphide is present.

The rusty quartz porphyry contains sufficient pyrite to produce a pronounced brown stain on the weathered

surface. Most of the feldspar present is altered to white mica and kaolin.

The granodiorite is a fine-grained rock. It contains disseminated pyrite and minor pyrrhotite and chalcopyrite.

ECONOMIC GEOLOGY

With regard to copper, the geological investigation confirmed the original impression of widespread mineralization, particularly in the rusty diorite and, to a lesser extent, in the granodiorite sills. Chip sampling results, however, were disappointing and this situation now devolves on the hope that better grade material occurs beneath certain of the covered areas; hence, the decision to do geochemical work along the flanks of the ridges.

Molybdenum was noted here and there in both igneous and sedimentary rocks but nowhere in really interesting amounts.

In the course of the geological work, a stibnite occurrence was found on the south ridge; likewise, a galena-sphalerite showing. Neither of these is of economic import but there is sufficient indication in the talus to suspect that narrow, silver-bearing veins are present in the immediate vicinity.

GEOCHEMISTRY
(see Fig. 2)

The geochemical work, as noted in the Introduction, was to be supplementary in nature to the geological investigation. A significant proportion of the soil samples taken required digging through talus with a geological pick and/or shovel. The material thus obtained varied widely in physical characteristics and degree of coarseness.

The samples were placed in Caneco high wet strength kraft 3 1/2" x 6 1/8" envelopes and shipped to the Mastodon-Highland Bell laboratory in North Vancouver. There they were analyzed for copper and molybdenum.

DISCUSSION OF GEOCHEMICAL RESULTS

The brief comment made herein is supported by the results obtained from thousands of silt and soil samples taken by the company in the area between Hazelton and Babine Lake.

The majority of the samples taken (see Fig.2) contain abnormal amounts of copper. A lesser number returned anomalous molybdenum values. On the whole, these results are difficult to reconcile with the mineralization actually seen

in most places and, therefore, one is faced with the following choice of observations:-

1. Copper mineralization and, to a more limited extent, molybdenum mineralization - of a better grade than could be anticipated from the geological work - occurs in the uppermost reaches of the Ace claim group.
2. Copper and molybdenum have become concentrated by natural agencies in the soil on the flanks of the ridges.

FINANCIAL STATEMENT

Analytical work -----	\$ 350.00
Food for crew -----	103.00
Helicopter (on Ace group only-13 hrs. @ \$110.00)	1430.00

Personnel

(Work period - September 20 - Oct. 4)

W. R. Bacon, P. Eng.	2 days @ \$50/day	100.00
E. R. Wozniak, B.A., geologist	5 days @ \$30/day	150.00
M. Cowan, M.Sc., geologist	15 days @ \$25/day	375.00
M. Hurt, assistant	15 days @ \$12/day	<u>180.00</u>
	TOTAL	<u>\$2688.00</u>

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LEGEND

INTRUSIVE ROCKS

- 6 Granodiorite
- 5 Rusty quartz-porphry
- 4 Iron-lean quartz-porphry
- 3 Rusty diorite

SEDIMENTARY ROCKS

- 2 Argillite: 2a, unaltered; 2b altered
- 1 Greywacke: 1a, unaltered; 1b, altered

○ Contours
 - - - Ridge
 / Attitude of bedding, intrusive bodies
 - - - Geological contact
 → Stream
 ⊕ Claim cairn

FIGURE 1
 ACE CLAIM GROUP
 GEOLOGY
 Scale: 1 inch = 100 feet
 Contour Interval: 50'

ACE 7

ACE 9

ACE 11

⊕ Campsite

ACE 5

ACE 3

ACE 2

To accompany "Geological and Structural
 Report on the Ace Claim Group", Nelson Pk, Antioch M.D.,
 dated September 11, 1967 by W.R. Baern, P.Eng.

W.R. Baern, P.Eng.

SOIL SAMPLING RESULTS
ACE CLAIM GROUP

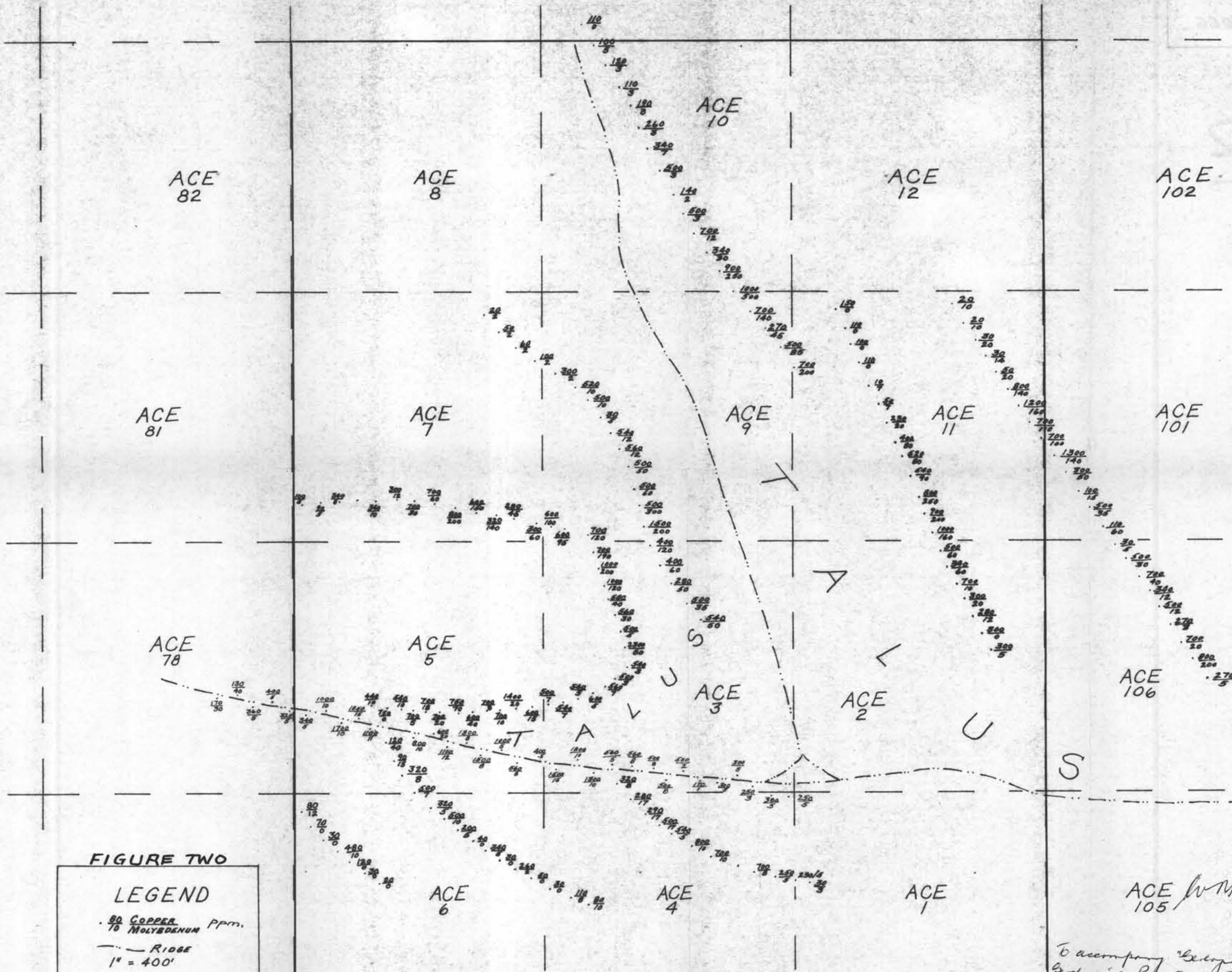


FIGURE TWO
LEGEND
80 COPPER
10 MOLYBDENUM PPM.
--- RIDGE
1" = 400'

ACE 105
W. W. Bacon, P. Eng.

To accompany "Geological and
Geochemical Report on the Ace Claim
Group", Northern Park, Ontario, M.P.,
dated Sept. 11, 1967 by W. W. Bacon, P. Eng.

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