



**CURRENT ACTIVITY – HOGEM BATHOLITH  
(93N)**

**By J. A. Garnett**

Three major exploration projects were conducted in the southern Hogem batholith during the 1974 field season. Percussion-drilling programmes were initiated by Pechiney Development Limited on their Kwanika Creek option and by Cominco Ltd. on their Jean Marie Creek property. An extensive diamond-drilling investigation was begun by Union Miniere Explorations and Mining Corporation Limited on a new discovery adjacent to their TAM property in the Duckling Creek area.

The general locations and geological settings of these properties have been documented previously (Garnett, 1974a). A brief property description on each of these occurrences follows.

**KWANIKA – PECHINEY (93N/6W, 11W)**

This property (BOOM, FRANKIE, etc.) is owned by Bow River Resources Ltd., and, since 1964, has had more or less continuous investigation by various major exploration companies. Pechiney Development Limited optioned the ground in 1973, and as a result of detailed geological and IP surveys conducted that year, initiated a follow-up percussion-drilling programme in July, 1974.

A detailed geological investigation of this property has previously been completed by this department (Garnett, 1974b). Briefly, granitic rocks of Lower Cretaceous age intrude Lower Jurassic basic units of the Hogem batholith along the border of the Pinchi fault zone. Within the silicified and potash feldspathized hybrid zone created by this intrusion, pyrite with minor chalcopyrite and molybdenite occur within local highly fractured zones. The best mineralized sections occur along the banks of Kwanika Creek, which has cut through the extensive overburden covering most of the surrounding area. A north and a south mineralized hybrid zone is separated by a wedge of Triassic Takla Group banded argillites. Previous detailed diamond and percussion drilling had concentrated on the north mineralized zone, but no drilling had been conducted on the less well-exposed south zone.

Thirty percussion holes were attempted during the 1974 season. Six failed to reach bedrock after encountering overburden cover in excess of 100 feet (30 metres). Seventeen holes were drilled in the south anomaly while 13 were drilled in the north zone, for a total of 9,800 feet (2,990 metres).

**JEAN, JW – COMINCO (93N/2W)**

This large claim block is located within an intrusive outlier occurring south of Tchentlo Lake, about 6 kilometres due south of Mount Alexander. The area was staked in 1969 by

NBC Syndicate and geochemical and IP surveys and diamond drilling were performed on a central anomalous zone during 1970 and 1971. In 1973, Cominco Ltd., one of the original partners in the syndicate, returned to conduct geological and IP surveys on an anomalous area west of the initial drilling. During the 1974 field season, a 32-kilometre road was built from Chuchi Lake to this location, and 11,000 feet (3,350 metres) of percussion drilling was completed.

Reconnaissance traversing within the fresh intrusive rocks in the vicinity of the anomalous zones indicates that the rock type is mainly a grey, medium-grained granodiorite containing roughly 60 per cent plagioclase, 15 per cent orthoclase, 15 per cent quartz, and 10 per cent hornblende with minor biotite. Textures are mainly granitic with local porphyritic varieties exhibiting euhedral plagioclase. This rock type looks similar to the Hogem granodiorite, a major phase of the main batholith to the north.

The anomalous zones being investigated occur along the contact of this stock with dark grey aphanitic andesites and pyroxene porphyries of the Takla Group. This contact is pyritized and there is local garnet-epidote skarn development.

The main intrusive rocks within these zones are bleached granodiorites and quartz diorites cut by numerous dykes ranging in composition from plagioclase syenite porphyry through aplitic syenite to red granite.

Chalcopyrite, molybdenite, and hematite occur on orange-bleached (potash feldspathized) fractures in otherwise fresh granodiorites and quartz diorites. Chalcopyrite occurs as hornblende replacements in syenite dykes, and also occurs along with pyrite in quartz veins and fractures cutting both granodiorites and syenites. Malachite is common within fault zones along which granite and syenite dykes have cut the main intrusive and the adjacent volcanic rocks. The volcanic rocks exhibit blocky fracturing generally more pervasive than the fracture density of the crosscutting intrusive rocks, and chalcopyrite is locally significant along hairline fractures and smeared along small faults in the andesites within the altered contact zone.

#### **TAM – UMEX (93N/13E, 14W)**

The TAM, HAM, and REM claims straddle Haha Creek, a northeast-flowing tributary of the Osilinka River. During the late 1940's, reconnaissance exploration of the Duckling Creek area by Kennco Explorations, (Western) Limited uncovered mineralization along a north-facing cirque wall overlooking the Haha Valley. The original showing was staked in 1968 by Omineca Explorations Ltd., and again by Union Miniere Explorations and Mining Company Limited in 1969. Intermittent work continued around this showing until late 1973, when geological mapping discovered a new showing in the forested area below an adjacent cirque valley. After completing detailed geochemical and IP surveys, a diamond-drilling project was initiated at the beginning of the 1974 field season. Over 7,000 feet (2,100 metres) of drilling was completed. This new showing represents the most significant new discovery in the Duckling Creek area in over 30 years of intermittent exploration.

The property lies entirely within the Duckling Creek Syenite Complex, near its northeastern boundary with biotite monzonites of the older basic sequence of the Hogem batholith. The new mineral occurrence is within a lenticular lens of foliated fine-grained leucocratic syenite. The foliation trends northwesterly with steep to vertical dips, paralleling the long axis of the foliated syenite body, whose surface dimensions are roughly 125 metres by 800 metres. Foliation is defined by sericite and chlorite alignment and streaky colour banding of K-feldspar. The foliated syenites exhibit sugary textures, and range in colour from grey to pink. Both varieties are predominantly K-feldspar with minor sericite, chlorite, and calcite and locally accessory biotite. Magnetite is an erratically distributed accessory, and some specimens show orange rusted hematite peppered throughout. This lens is surrounded and cut by pink, medium to coarse-grained leucocratic syenite.

Copper occurs mainly as chalcopyrite disseminations erratically distributed throughout the fine-grained syenites. Examination of drill core clearly illustrates the control of disseminations and veinlets of chalcopyrite (and rare bornite) along the foliation planes. However, chalcopyrite also occurs along fractures in both the fine-grained and coarse-grained syenites.

Quartz veins cut both units, and chalcopyrite was noted with quartz veining as well as with calcite-filled fractures in brecciated sections of core. This indicates two stages of mineralization, with the earlier foliated, disseminated type being the more predominant.

The mineralization here is identical to that on the original TAM showing, another smaller lens of the same foliated material. Also, these mineralized lenses are along the same general strike as those of the LORRAINE deposit to the southeast, and the potential for further occurrences of this type within the Duckling Creek Syenite Complex is high.

## REFERENCES

- Garnett, J. A. (1974a): Geology and Copper-molybdenum Mineralization in the Southern Hogem Batholith, North-central British Columbia, *CIM, Bull.*, Vol. 67, No. 749.  
.....(1974b): Kwanika Creek Area, *B.C. Dept. of Mines & Pet. Res.*, GEM, 1972, pp. 438-447.