



## NORTH-CENTRAL BRITISH COLUMBIA

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A number of visits were made to current exploration projects throughout northern British Columbia. Following are brief descriptions of the more important exploration properties visited during 1975.

### DECEPTION LAKE (93L/10E)

During March of 1975, Sumac Mines Ltd. diamond drilled four holes totalling 582 metres on the north side of Deception Lake located approximately 32 kilometres east-southeast of Smithers. There is very little outcrop in the area. An airborne geophysical survey and a subsequent follow-up ground induced polarization survey delineated an east-west anomalous zone across Deception Lake. Drilling indicated that the induced polarization response was due to graphitic and pyritic rocks of the Hazelton Group which also consist of well-bedded greywacke, fossiliferous argillite, and fragmental maroon and green volcanic rocks.

### CRONIN MINE (93L/15W)

The Cronin silver-lead-zinc-gold-cadmium property is located in the Babine Range approximately 30 kilometres northeast of Smithers. Coca Metals Ltd., under an option agreement with Hallmark Resources Ltd., completed surface and underground geological mapping and surveying prior to surface diamond drilling of 10 holes totalling 1 530.5 metres. The holes were planned to test the open-pit potential of the 'Upper Showing' as well as to give some information on the vein system. A complex sequence of rhyolitic and sedimentary rocks was encountered in the drilling. There appears to be at least two main phases of rhyolite including a rhyolite porphyry with distinct quartz eyes and an aphanitic rhyolite. Mineralized sections consisting of galena and sphalerite in the rhyolitic rocks appears to be associated with quartz veining rather than occurring as disseminations, although pyrite does occur disseminated throughout the rhyolites. Sedimentary rocks include argillite pebble conglomerate and possibly silicified dust tuffs.

Metamorphism has affected both the rhyolites and the sedimentary rocks. The rhyolites have been saussuritized and pebbles in conglomerate have been strewn out.

## REFERENCES

*B.C. Dept. of Mines & Pet. Res.*, Geological Fieldwork, 1974, p. 81; GEM, 1973, pp. 347, 348.

*Minister of Mines, B.C.*, Ann. Rept., 1949, pp. 94-98.

### **BIG ONION (93L/15W)**

The Big Onion porphyry copper prospect is located 20 kilometres east of Smithers on Astlais Mountain. Under a continuing option agreement with Twin Peak Resources Ltd., Canadian Superior Exploration Limited completed 57 vertical percussion drill holes totalling 3 023 metres as well as three diamond-drill holes.

Old roads and access trails were cleaned up to permit access for the drills. Detailed geological mapping and rock geochemistry were carried out. An elongate, highly altered and pyritized zone along Astlais Creek exists in and around two dyke-like masses of quartz feldspar porphyry and quartz diorite. The quartz diorite is largely enveloped by leucocratic quartz feldspar porphyry and both masses cut Hazelton Group andesitic rocks.

Copper and molybdenum mineralization appears to be intimately associated with the quartz diorite and is best developed along its sheared southeastern contact with andesite.

Leaching is locally so intense that mineralized zones may have little or no surface expression.

## REFERENCES

*B.C. Dept. of Mines & Pet Res.*, Geological Fieldwork, 1974, p. 80.

*Minister of Mines, B.C.*, Ann. Rept., 1966, pp. 83-86.

### **DEN (93M/6E)**

The Denison Creek porphyry copper-molybdenum prospect is located on the western flank of Mount Thoen in the Babine Range approximately 64 kilometres north of Smithers. Cities Service Minerals Corporation conducted a small diamond-drill program consisting of five holes totalling approximately 823 metres. Previous work on the property was carried out by Falconbridge Nickel Mines Limited in 1965 (including five diamond-drill holes), Highland Bell Mines in 1968, and reconnaissance by Cities Service Minerals Corporation in 1974.

The host rock is part of the large Mount Thoen stock (approximately 9 kilometres by 3 kilometres) which is composed of both biotite-hornblende granodiorite and porphyritic quartz monzonite. The stock has intruded and hornfelsed greywacke and shales which dip gently outward from the contact.

Diamond drilling was carried out to test an east-west linear zone of fracturing containing chalcopyrite mineralization. The entire area is geochemically anomalous in copper. Chalcopyrite, molybdenite, and pyrite occur in quartz veinlets while pyrite and chalcopyrite also occur as disseminations within intrusive and hornfelsed rocks.

Alteration of the host quartz monzonite includes chloritization of mafic minerals, clay alteration of feldspars, and minor sericitization and weak silicification.

## REFERENCE

Assessment Report 793.

## TOODOGGONE RIVER AREA

A five-day visit was made to the Chappelle and Lawyers properties in the Toodoggone River area approximately 30 kilometres northwest of the north end of Thutade Lake. Access is by fixed-wing aircraft to the Black Lake airstrip which is capable of accommodating DC-3's, and thence by helicopter from the airstrip.

### Chappelle (94E/6E)

At the Chappelle gold-silver property Dupont of Canada Exploration Limited, under a continuing option agreement with Kennco Explorations, (Western) Limited, carried out extensive surface diamond drilling to further test the main vein (Vein 'A') prior to a proposed underground exploration programme.

The 1974 diamond-drill programme, consisting of 2 267 metres in 20 holes, further delineated the known quartz vein(s). Vein 'A' has been traced on surface for a length of 200 metres and has an average width of 3 metres. Surface diamond drilling during 1974 and 1975 has outlined a vein length of 330 metres with an average width of 3 metres.

During 1975, 14 diamond-drill holes (NQ and BQ size) totalling approximately 1 830 metres were drilled on Vein 'A' to test its southwestern extension as well as its character at depth.

Extensive block faulting has occurred within the vein system. Mineralization consists of pyrite, electrum, argentite, and chalcopyrite in a vuggy quartz host.

Six short (60 metres each) diamond-drill holes were put into the North Quartz vein located approximately 1.2 kilometres northeast of Vein 'A.' Mineralization consists of sphalerite, galena, chalcopyrite, and argentite in a quartz host.

Two short holes were drilled on the West Chappelle vein.

#### **References**

Assessment Reports 2581, 2819, 3171, 3198, 3343, 3367, 3417, 3418, 3419, 4066, 5268.

*B.C. Dept. of Mines & Pet. Res.*, GEM, 1970, p. 188; 1971, pp. 65-70; 1972, p. 484; 1973, pp. 458-460; 1974, 312.

#### **Lawyers (94D/6E)**

The Lawyers gold-silver property is located approximately 7 kilometres northwest of the Chappelle property. During 1974, Kennco Explorations, (Western) Limited diamond drilled four holes totalling 610 metres to test an area containing low-grade silver-gold geochemical anomalies. Three trenches exposed a mineralized zone 180 metres by 15 metres (the Amethyst Gold Breccia Zone). Drilling confirmed the existence of fine-grained argentite, native silver, and electrum in quartz-amethyst veins within a trachyte porphyry, part of the Toodoggone volcanic rocks. During 1975, Kennco diamond drilled five holes totalling 540 metres to further test geochemical anomalies. Mercury soil analyses in the field helped define anomalies and drill targets.

The host trachyte porphyry has a reddish brown to chocolate brown fine-grained groundmass with 2 to 3-millimetre phenocrysts of orange to pink euhedral orthoclase (10 per cent by volume). Hornblende (2 per cent by volume) and biotite (trace) comprise the mafic minerals in the rock. Specularite is ubiquitous in the 'orange' variety of trachyte porphyry while magnetite is more prominent in the 'green' variety. Pyrite is almost entirely absent. Numerous narrow (2-millimetre) quartz seamlets spaced at 15 to 30-millimetre intervals traverse the porphyry. Intense silicification is seen as older cloudy quartz-amethyst open space filling in seamlets and as infilling along narrow brecciated fractures. Younger quartz-carbonate veins cut quartz-amethyst veins. Limonite is prevalent in fracture zones. A complex sequence of acid volcanic rocks was also encountered in drilling. Zeolite alteration (laumontite) is common.

One diamond-drill hole with a length of 60 metres was drilled on Kennco's Cliff Creek Breccia Zone located approximately 2 kilometres southwest of the Amethyst Gold Breccia Zone. Six trenches had previously uncovered a mineralized zone over 915 metres in length, similar to that of the Amethyst Gold Breccia Zone. In contrast, this zone contains a much greater percentage of pyrite.

## References

Assessment Reports 2822, 3314, 3315, 3362, 3366, 3416, 3837, 3841, 4065, 5106, 5167.

*B.C. Dept. of Mines & Pet. Res.*, GEM, 1970, p. 187; 1971, p. 70; 1972, p. 481; 1973, pp. 460, 461; 1974, p. 312.