



WEST-CENTRAL AND NORTHWEST BRITISH COLUMBIA

By T. G. Schroeter

SAM GOOSLY (93L/1E)

The Sam Goosly silver-copper-gold-antimony property is located approximately 40 kilometres southeast of Houston. Several short visits to the property were made during 1977. In January and February, Placer Development Limited entered into a preliminary agreement with Equity Mining Capital Limited regarding development of the property and conducted a diamond-drill program; however, the program was cut short and Placer withdrew from the agreement. Granby Mining Corporation and Boliden of Sweden then came to a preliminary agreement with Equity and have become participating partners pending formal agreement.

Under the Placer-Equity agreement, 25 short (at most 45 metres) NQ diamond-drill holes totalling approximately 1 295.4 metres were completed on the Southern Tail zone. This brings the number of drill holes completed on the property to 207. The 1977 core was logged, photographed, and crushed for metallurgical testing. Some interesting textures were exhibited in the core including rounded 'fragments' of nearly massive tetrahedrite enclosing small angular fragments of host-rock dust tuff and disseminated pyrite. Fragments of dust tuff contained in the breccia are crackled and healed and rimmed by tetrahedrite. Brecciation and veining are conspicuous throughout.

The four test pits from the Southern Tail zone used to supply ore for the pilot mill in 1976 were used again this year to supply approximately 59 tonnes of ore for metallurgical testing to be carried out by Boliden. The pits (Nos. A, B, C, and D) are located basically along the north-south line for a distance of approximately 275 metres. Another pit was dug immediately south of the northernmost pit, pit C. A highly fractured and sulphide-healed dust tuff is the host rock in all five pits, cut by postmineral dykes of quartz feldspar porphyry with apparent widths up to 10 metres (pit B) and andesite with widths up to 1.8 metres (pit C). Shearing attitudes in pits A and D strike 010 degrees and dip 55 degrees southwest which happens to parallel the assumed general attitude of the orebodies on the property.

A small program of backhoe trenching in the northeast section of the cleared millsite was tested for massive galena-sphalerite float that was found last year. Although no direct source was discovered, more pieces of float were encountered. Bedrock, in this area 2 metres and 3 metres deep, consisted of a dust tuff similar to that of the Southern Tail zone with varying amounts of chalcopyrite, pyrite, tetrahedrite, and tourmaline-filled fractures.

References: *B.C. Ministry of Mines & Pet. Res.*, GEM, 1969, pp. 142-148; 1970, pp. 126-129; 1973, pp. 333-338; 1974, p. 255; 1975, p. 138; *B.C. Ministry of Mines & Pet. Res.*, Geological Fieldwork, 1974, p. 79; 1976, pp. 55, 56; Assessment Report 5346; Mineral Inventory 93L-1.

POPLAR (93L/2W; 93E/15W)

The POPLAR copper-molybdenum prospect is situated on the north side of Tagetochlain Lake approximately 50 kilometres southwest of Houston.

During 1977 Utah Mines Ltd. tested the Main zone with four diamond-drill holes and the Eastern zone with two diamond-drill holes. Drilling on the Main zone confirmed the presence of previously known copper-molybdenum mineralization in a highly altered biotite feldspar porphyry. The outline of mineralization appears to have been delineated on the Main zone.

The Eastern zone is situated approximately 3 kilometres east of the Main zone and consists of pyrite and chalcopyrite in a biotite granodiorite to quartz monzonite host. Chloritic alteration is locally very strong. Host andesitic volcanic rocks contain only pyrite as does a younger intrusive quartz-eye porphyry.

References: *B.C. Ministry of Mines & Pet. Res.*, GEM, 1972, p. 373; 1974, pp. 256, 257; 1975, pp. 138, 139; *B.C. Ministry of Mines & Pet. Res.*, Geological Fieldwork, 1976, pp. 56, 57; Assessment Reports 5360, 5586, 5679, 6065, 6136.

SILVER QUEEN (93L/2E)

The SILVER QUEEN gold-silver-copper-lead-zinc mine is located 45 kilometres south of Houston. New Frontier Exploration Inc. acquired an option on the property and during 1977 carried out exploration work aimed at increasing known reserves which have been estimated to be in the order of 362 800 tonnes, grading gold, 34.28 ppm; silver, 342.8 ppm; copper, 0.76 per cent; lead, 2.1 per cent; and zinc, 6 per cent. The ore occurs in eight subparallel veins which occupy fracture zones in gently dipping acid volcanic rocks. To date all the veins have been exposed on the surface, but only one, the Main vein, has been developed by underground workings.

During 1977 a trailer camp was set up and two wedge holes were diamond drilled to test for an extension of the main mine vein from a point 396.2 metres southeast of the furthest drift face (old NG-3 set-up). Two deep holes were drilled from Bralorne 74-3 set-up at angles of -60 degrees and -75 degrees to test for ore at depth. These holes intersected a structural zone with gouge but nothing which could be considered as a definite continuation of the Main vein. Weak vein mineralization only was encountered.

Most of the previous core had been laid out and was very briefly examined. Two points of interest were the abundance of gypsum veining and the presence of purple fluorite. The rocks have some similar appearances to rocks at the Sam Goosly silver prospect located 30 kilometres to the east (especially the abundance of pyrite), but they lack significant fracturing and sulphide healing.

References: *B.C. Ministry of Mines & Pet. Res.*, GEM, 1969, pp. 126-139; 1970, pp. 134-137; 1973, pp. 338, 339; 1974, p. 256; *B.C. Ministry of Mines & Pet. Res.*, Geological Fieldwork, 1974, p. 79.

GROUSE (93L/7E)

The GROUSE claims are located 5 kilometres north of Houston on Mount Harry Davis. Recent road building to a new VOR communications tower on a knob immediately north of the microwave tower has exposed a sequence of rhyolite breccia which hosts some galena-sphalerite-chalcopyrite mineralization. Two showings exist: a 'main' showing and a 'southwest' showing located 45 metres to the southwest. The main showing consists of galena, sphalerite, and chalcopyrite in veins, in interstices, and as disseminations within a 'bleached' pale green to dark grey-coloured acid pyroclastic over a length of 18 metres. Purple fluorite veining also occurs. Unmineralized and unaltered acid pyroclastic rocks are massive black to dark green colour. The southwest showing consists of sphalerite, galena, and chalcopyrite in the matrix and in fractures within altered green and maroon (hematitic) acid pyroclastic rocks.

LAKEVIEW (93L/7E)

The LAKEVIEW copper prospect is located 10 kilometres north of Houston. During 1977 John Bot of *Smithers restaked the old property which was examined by numerous mining companies. A mineralized vein system containing chalcopyrite, pyrite, hematite, and sphalerite accompanied by chloritization, epidotization, and silicification occurs within a 'bedded' volcanic sequence of Hazelton Group acid pyroclastic rocks with intercalated limestone-specular hematite beds. The length of the mineralized zone is greater than 400 metres and appears to follow the contact between footwall pink acid pyroclastic rocks and hangingwall green acid pyroclastic rocks. Beds are up to 3 metres in width including 1.8 metres of solid specular hematite, chalcopyrite, and pyrite trending 040 degrees with a nearly vertical dip. Unmineralized basic volcanic dykes averaging 1.3 metres in width cut the volcanic sequence and the mineralization.*

Approximately 180 tonnes of copper ore remains on the property in old dumps.

References: *Minister of Mines, B.C., Ann. Rept., 1926, p. 122; 1966, p. 102; 1967, p. 108; 1968, p. 138; B.C. Ministry of Mines & Pet. Res., GEM, 1969, p. 121; 1970, p. 151; 1971, p. 173; Assessment Report 2145.*

ASCOT (93L/10E)

The ASCOT zinc-lead property is located 20 kilometres east of Smithers. Geological mapping and a geochemical survey were conducted by Petra Gem Exploration Limited on the ex-Texasgulf (1966-68) property. Several small stratigraphically controlled lead-zinc-barite showings have been discovered in a sequence of complexly folded volcanic and sedimentary rocks of probable Hazelton Group. Galena, sphalerite, and occasionally pyrite occur as disseminations in acid tuffs, and along bedding planes in impure limestone. Irregular veins or lenses of coarsely crystalline barite and calcite containing sphalerite and some galena are also present. Two grab samples of mineralized impure limestone assayed: lead, 6.50 per cent and zinc, 7.50 per cent.

References: *Minister of Mines, B.C., Ann. Rept., 1968, p. 121; B.C. Ministry of Mines & Pet. Res., GEM, 1969, p. 100; Assessment Reports 1702, 2139, 2140, 2141.*

SUMMIT (93L/10W)

The SUMMIT copper prospect is located near Burbridge Lake approximately 30 kilometres east-southeast of Smithers. Asarco, under an option agreement with M. H. Chapman of Smithers, diamond drilled six holes totalling approximately 344.5 metres. Pyrite, chalcopyrite, and minor molybdenite occur within an altered 180-metre sill (?) of diorite composition intrusive into a volcanic package of Hazelton Group acid and basic pyroclastic rocks on the south and mainly highly epidotized and chloritized andesite to the north. Rocks have a general strike of 310 degrees with relatively flat dips to the southwest (for example, 35 degrees). Mineralization appears to exist in the upper part of the diorite sill which is highly altered (saussurite + chlorite + quartz stockwork) very fine-grained pyrite and chalcopyrite with minor molybdenite. The lower part of the sill is much less altered (mainly chloritization) and contains only traces of mineralization.

References: *B.C. Ministry of Mines & Pet. Res.*, GEM, 1973, p. 345; *B.C. Ministry of Mines & Pet. Res.*, Geological Fieldwork, 1974, p. 82; Assessment Report 5422; Mineral Inventory 93L-223.

SNOWSHOE (93L/14W)

The Snowshoe (Empire) vein prospect is located on the east flank of Hudson Bay Mountain approximately 5 kilometres west of Smithers. During December 1976 and January 1977, a 76.2-metre crosscut adit was driven to intersect sulphide ore which is exposed on surface as replacement vein(s) varying in width from 15 centimetres to 60 centimetres. The ore consists of galena, sphalerite, tetrahedrite, arsenopyrite, chalcopyrite, and pyrite in shear zones within hydrothermally altered rhyolitic and andesitic rocks of the Hazelton Group which strike north to north 16 degrees west and dip east to northeast at steep angles.

During the past winter three men worked on the driving of a tunnel. At a point approximately 64 metres in from the portal, a 10-centimetre vein dipping at 60 degrees to the east was encountered and drifted on to the southeast for approximately 4 metres where much of the vein had been crushed into a gouge material. The massive vein consisted of banded tetrahedrite, galena, pyrite, and arsenopyrite in a quartz gangue. Assays of a grab specimen yielded: gold, 21 ppm; silver, 3 064 ppm; copper, 0.3 per cent; lead, 9.85 per cent; and zinc, 3.38 per cent.

At the face of the crosscut a bleached 'pink' rhyolite is highly fractured and veined with chalcopyrite, bornite, and pyrite. Disseminations of this mineralization also occur. The principal rock type encountered in the adit is a 'grey' rhyolite and the 'pink' rhyolite is probably an altered variety. Alteration is primarily weak sericitization, chloritization (after biotite when present), and carbonatization. Late calcite veining is prominent in the mineralized 'pink' rhyolite. An assay of a grab sample of typical chalcopyrite-bornite mineralization in the 'pink' rhyolite yielded 0.274 per cent copper.

No further work was carried out during 1977.

References: *Minister of Mines, B.C.*, Ann. Rept., 1937, pp. 19, 20; 1966, pp. 90, 91; 1968, pp. 120, 121.

MOLLY BLUE (93M/13E)

The MOLLY BLUE molybdenum prospect is located on the west flank of Kisgegas Peak, 56 kilometres north of Hazelton. The ex-Amex Exploration, Inc. property (1963-66) was restaked by John Bot of Smithers who has prospected and sampled the prospect this summer.

A granodiorite to quartz monzonite stock of probable Eocene age intrudes interbedded argillites and greywackes with minor conglomerate and limestone belonging to the Bowser Assemblage. The rocks have been only slightly regionally metamorphosed but adjacent to the stock a good hornfels zone has been developed with some secondary biotite in pelitic sedimentary rocks and skarn with epidote and red garnet in limy sedimentary rocks. In the vicinity of the stock the sedimentary rocks are warped so that they conform roughly to the attitude of the contact.

The pear-shaped granodiorite stock, trending east-west with a length of 1 524 metres and a width of 610 metres, is cut by a quartz vein stockwork of varying intensity. An aureole of pyrite and pyrrhotite extends outward for about 60 metres into the sedimentary rocks. The stock is cut by four types of dykes: aplite, mafic granodiorite, granodiorite, and basalt.

Alteration includes potash feldspathization associated with an early random quartz vein stockwork containing minor amounts of disseminated molybdenite and sericitization and argillization up to 10 metres in width associated with shear zones and quartz vein stockwork within the core of the stock.

Veining appears to be the most important control for both mineralization and alteration. All dyke rocks except the basalt contain different stages and types of veins.

Mineralization consists of molybdenite, chalcopyrite, pyrite, and minor sphalerite and stibnite in mainly quartz veins varying in width from 1 centimetre to 60 centimetres. Gypsum and fluorite have been observed. The most regular set of veins trends 055 degrees with a dip of 70 degrees northwest. Mineralized veins also extend into the hornfels.

References: *Minister of Mines, B.C., Ann. Rept., 1966, p. 81; Mineral Inventory 93M-82.*

SPUR (94D/2W)

The SPUR prospect belonging to Canadian Nickel Company Limited is located approximately 145 kilometres north of Smithers on Tsaytut Spur at the southwest end of Bear Lake. The property is underlain by a sequence of easterly dipping Takla Group (?) volcanic units (intercalated basalt-andesite and volcanoclastic rocks). Mineralization occurs mainly within or near a contact zone between basic lava flows and a volcanoclastic series and consists of chalcocite, bornite, chalcopyrite, and malachite-azurite in fracture fillings, irregular vein systems, and possibly along bedding planes. Pyrite is conspicuously absent. Mineralization appears to be controlled by a major north-northeast-trending fault and a series of numerous crosscutting faults. High-grade pods of massive sulphide occur locally. Canadian Nickel diamond drilled four holes during the summer.

References: *Assessment Report 5681; Mineral Inventory 94D-103.*

IN (94D/3W, 6W)

The IN porphyry copper prospect, under option by Cities Service Minerals Corporation from Canadian Superior Exploration Limited, is located 30 kilometres west-northwest from the north end of Bear Lake, approximately 320 kilometres north of Smithers.

Cities Service diamond drilled two holes totalling approximately 440 metres in a previously untested zone. Typical altered biotite feldspar porphyry and quartz feldspar porphyry with varying amounts of, chalcopyrite, molybdenite, and pyrite on fractures, in quartz veins, and as disseminations were encountered. A large area of the prominent rust-stained mountain underlain by the complex of apparent dyke-like intrusions remains to be tested.

References: *Minister of Mines, B.C.*, Ann. Rept., 1966, p. 81; *B.C. Ministry of Mines & Pet. Res.*, GEM, 1972, p. 479; 1973, p. 405; *B.C. Ministry of Mines & Pet. Res.*, Geological Fieldwork, 1976, pp. 65, 66; Assessment Report 3868, 4563.

BELL MOLYBDENUM (103P/6W)

The Bell Molybdenum property is located 10 kilometres southeast of Alice Arm. During 1977 Climax Molybdenum Corporation of British Columbia Limited drilled nine vertical holes totalling approximately 2 678 metres to test for more molybdenum ore outside the main known mineralized zone, and in the Southwest zone. Three holes, that were drilled on the Southwest zone, intersected mineralization at depth; three holes were drilled north-northwest of the Main zone; one hole was drilled to the northwest; and two holes were drilled between the Main zone and the Southwest zone. A sequence of Quaternary basalt capping unconsolidated gravels, hornfelsed sedimentary rocks, and intrusive quartz monzonite was encountered on the Southwest zone. The remaining holes intersected weakly mineralized hornfels. The geometry of the intrusive rocks is not known, but may be in the form of apophyses from a deeply buried stock. A medium to dark grey-coloured diorite feldspar porphyry was intersected at depth (500 metres) in the one hole located approximately 675 metres northwest of the Main zone. Minor amounts of molybdenite mineralization in the form of selvages in quartz veinlets occur in both the quartz monzonite and biotite hornfels. Significant amounts of pyrite and pyrrhotite occur as disseminations and as fracture fillings.

References: *Minister of Mines, B.C.*, Ann. Rept., 1967, pp. 44-47; *B.C. Ministry of Mines & Pet. Res.*, Geological Fieldwork, 1976, p. 58.

STAR (104J/4E)

The STAR porphyry copper prospect owned by United Cambridge Mines Limited is located 55 kilometres northwest of Telegraph Creek. Road building and trenching during 1977 on the east and west sides of Dick Creek (first creek west of Copper Creek on the north side of Hackett River) have exposed disseminated and fracture-filled chalcopyrite, pyrite, malachite, azurite, and minor bornite mineralization in an altered hornblende diorite to granodiorite near the contact with Upper Triassic tuffs and andesite. Magnetite is also

a prominent constituent in areas of mineralization and chalcopyrite replaces mafic minerals. Major lineaments appear to trend northwesterly, consistent with regional trends. A skarn zone containing fine-grained magnetite and chalcopyrite is situated on the east side of Dick Creek.

Grab samples of typical mineralized intrusive rock from trenches on the west side of Dick Creek returned values of 0.33 to 0.87 per cent copper. One grab sample of fine-grained skarn from outcrop on the east side of Dick Creek assayed 0.72 per cent copper.

An access road was constructed from the base camp near the head of Dick Creek eastward to Copper Creek.

References: *B.C. Ministry of Mines & Pet. Res., GEM, 1971, pp. 48, 49; 1972, pp. 547-549; Assessment Reports 3514, 3515, 3516.*

LOGTUNG (1040/13E)

The Logtung tungsten-molybdenum prospect is located on the British Columbia-Yukon border 66 kilometres southeast of Teslin (turnoff Kilometre 1213, Alaska Highway). It was discovered by Cordilleran Engineering Ltd. (managers of the program for the 1976 Bath Uranium Partnership Limited, now Logtung Resources, Ltd.) while prospecting for the source of a prominent tungsten geochemical anomaly in the Logjam Creek—Two Ladder Creek area in late 1976. Six claims (100 units) were staked in British Columbia and 138 claims in the Yukon. The property was optioned to Amax Potash Limited in 1977.

Late Paleozoic (?) metasedimentary rocks flanked to the east and west by northerly elongate diorite bodies underlie the headwaters of West Logjam Creek. A younger quartz monzonite stock forms the southeastern boundary of the showings; several quartz monzonite porphyry dykes occur as off-shoots. The metasedimentary rocks are variously altered to brown hornfels or light to dark green garnet-diopside skarn in the vicinity of the mineralized zones.

Three mineralized zones are recognized: the southernmost, the B.C. zone; the Central zone, and the Yukon zone. The latter two are probably a single continuous zone.

Scheelite and molybdenite occur mainly in a well-developed quartz vein stockwork in and near the quartz monzonite porphyry dykes and in the quartz monzonite stock near its contact. Disseminated scheelite is locally associated with bands or pods of dark green skarn.

Fluorite, beryl, sphalerite, galena, rarely chalcopyrite, wolframite, and cosalite occur as accessory vein minerals in all rock types.

During 1977, Amax reconstructed a 13-kilometre road to the property from the Alaska Highway, set up a trailer camp, and completed over 2 840 metres of diamond drilling in 14 holes.

HUM BIRD (114P/10W)

The HUM BIRD silver prospect, owned by Yukanda Mines Ltd., is located approximately 32 kilometres southwest of Milepost 87 on the Haines Road near Bear Camp. The property is underlain by a sequence of sedimentary rocks including limestone, shale, and sandstone, and volcanic rocks which strike generally north-south and dip 40 degrees to the west.

Replacement and vein-type occurrences of tetrahedrite, galena, sphalerite, chalcopyrite, and pyrite mineralization are contained in silicified and carbonatized limestone and sericite schist. These rocks have been folded, faulted, and locally intruded by diorite.

Six mineralized zones basically along a strike length of 3 500 metres are known: the Creek showing, Camp showing, Discovery showing, Cliff showing, Ridge showing, and Southeast showing. The showings were explored by Ronex Explorations Ltd. in 1968 who completed a good deal of bulldozer trenching, established a grid, and conducted geophysical and geochemical surveys. In 1975 Asarco Ltd. conducted geological mapping.

No systematic sampling or diamond drilling has been done on the property. This summer a 32-kilometre access road to the property was upgraded but remained virtually impassable. A permanent camp was erected and mill equipment and a diamond drill were brought to the property but were not used.

References: *B.C. Ministry of Mines & Pet. Res.*, GEM, 1975, p. G 196; Mineral Inventory 114P-18, 24, 25, 26.