



# British Columbia Geological Survey Geological Fieldwork 1976

## SOUTHEAST BRITISH COLUMBIA

### GEOLOGICAL INVESTIGATIONS IN THE GREENWOOD AREA (82E/2E)

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Detailed geological mapping in the Greenwood area during July, September, and October was carried out over a 50-square kilometre area. The study was concentrated on the Phoenix mine and adjacent Summit area several kilometres northeast of Greenwood and on the Skomac mine to the southwest. The purpose of the study was to update regional stratigraphic and structural interpretations and to gather new data from currently accessible workings.

#### PHOENIX MINE

The closing of the Phoenix mine pit in October marked the end of an era in the Province's mining history. The Phoenix operation of Granby Mining Corporation was one of the oldest and most important mines in British Columbia. The original mineral discovery at Phoenix was made in 1891. Development work began in 1896 and with the completion of a spurline of the Canadian Pacific Railway in 1900, the Granby smelter at Grand Forks received ore shipments of 700 tons per day. On completion of a second rail connection in 1904, by the Great Northern Railway, shipments approached 4,500 tons per day. By 1910 the Granby smelter achieved the status of the largest non-ferrous smelter in the British Empire and the second largest in the world. Depletion of the ore reserves combined with an extended strike in the Kootenay coalfields led to the suspension of smelter and mine operations in 1919.

In 1956 there was a re-appraisal of the old mine in the light of new open-pit mining technology and production began in 1959. Excavation of the old underground workings led to the discovery of additional ore resulting in an increase in mill capacity from 900 tons per day in 1957 to 1,900 tons per day in 1964, and finally to 2,750 tons per day in 1972.

Milling at the Phoenix mine site is continuing utilizing the remainder of a stockpile of low-grade ore supplemented by a small reserve transported from the Oro Denoro mine. It is planned to continue milling ore from Granby's new Lone Star development located nearby in Washington State. A 16-kilometre-long road is presently under construction.

Mineralization at Phoenix consists essentially of irregular pockets and disseminations of chalcopryite in a chlorite-epidote skarn. The skarn is presumably the result of

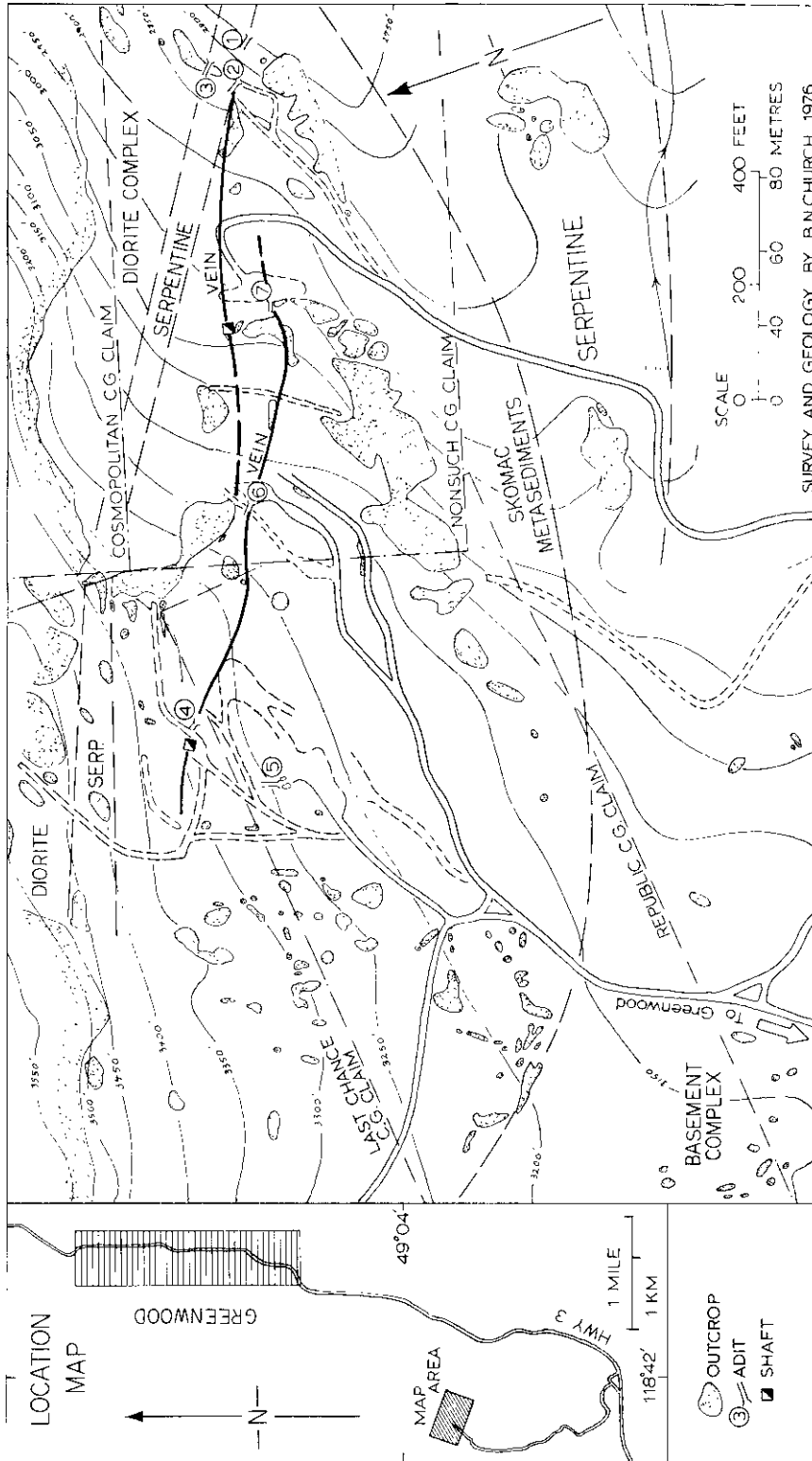


Figure 1. Geology of the Skomac Mine, Greenwood Area.

hydrothermal transformation of Triassic sharpstone conglomerate, argillite, and limestone. The main ore zone varied in thickness from about a metre to as much as 60 metres. The zone is geologically well defined, having an argillite footwall. It dips easterly under a thick wedge of Tertiary sedimentary and volcanic rocks.

Structurally, the entire Phoenix pit and the area to the north extending beyond Providence Lake is a tilted graben. In the immediate vicinity of the mine a combination of north-south and east-west-striking gravity faults mark the walls of the graben. These faults have severed the Snowshoe orebody on the east and the Monarch and War Eagle orebodies on the south from the main zone. The graben is known to be of Tertiary age and is superimposed on older faults and fold structures.

### **SKOMAC MINE**

The Skomac mine is a recently revived small gold and silver operation located 5.5 kilometres southwest of Greenwood. The workings consist of several adits on a quartz vein system traceable on three Crown-granted claims, the Nonsuch, Republic, and Last Chance.

The first mine development began in the period 1894 to 1896 when two small adits (Nos. 1 and 2, Fig. 1) were driven on the Nonsuch claim and an inclined shaft was sunk on the Last Chance claim. The only noted production from this era, amounting to a few carloads of crude ore, was recorded by Republic Gold Mines Ltd. in 1904. Although the mine appears to have been thoroughly examined and sampled in 1922, no additional work was undertaken in the area for the next 40 years. The property was then acquired by Skomac Mines Ltd. who re-opened the old workings on the Last Chance claim. From 1962 to 1964 a total of 670 tonnes of ore grading: gold, 1.49 ppm; silver, 185.4 ppm; lead, 2.16 per cent; and zinc, 0.98 per cent, was mined from adits numbers 4 and 5 and shipped to the Trail smelter. Except for a small production by leasers in 1969, the mine remained closed for 10 years.

The current period of mining activity began in 1974 when Roberts Mines Ltd. gained control of the property. Adit number 6 on the Nonsuch claim was collared at this time. Operations during the spring and summer months of 1975 yielded a total of 434 tonnes of ore grading: gold, 4.94 ppm; silver, 694.9 ppm; lead, 3.01 per cent; and zinc, 1.94 per cent. In October 1976, number 7 adit was started to investigate the downward extension of the vein system.

The geology in the immediate vicinity of the workings is relatively straightforward. The vein system, contained mainly in black argillite, trends southeasterly subparallel to the sheared contact between Paleozoic (?) metasedimentary rocks (Skomac Formation) and a metamorphosed granodiorite-diorite intrusive complex. Numerous dykes and tongues emanating from the intrusive complex cut the metasedimentary rocks.

The age of the vein system is bracketed by concordant serpentine bodies and crosscutting pulaskite and andesite dykes. The serpentine has been injected along the contact between the Skomac argillites and older metamorphosed basement rocks, mainly quartzites and siliceous gneisses, and at the boundary of the granodiorite-diorite complex where serpentine schist is locally the host rock to the veins. Fresh andesite and pulaskite dykes, evidently feeders for nearby Tertiary lava flows, are found in several places crosscutting many of the main structures, including the veins.

For the most part the vein system dips about 55 degrees northeast, although local variations in attitude are common and dips as low as 35 degrees have been recorded. While major fault dislocations are not common, movement on minor fractures trending subparallel to the crosscutting Tertiary dykes has resulted in a number of sinistral offsets on the veins of 1.5 to 4.5 metres. Also, reactivation of larger shears trending subparallel to the vein system has resulted in significant dextral strike slip movement offsetting some of the Tertiary dykes.

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