

NTS 92 J / 16? BLACKDOME

FIELD TRIP, OCTOBER 17-19

OKANAGAN-GREENWOOD 820741

This two and a half day field trip will focus on the Okanagan Fault Zone and the "sharpstone breccias" near Greenwood. Leaders are Dirk Tempelman-Kluit, Geological Survey of Canada, Neil Church, B.C. Ministry of Mines and Jim Fyles, Kettle River Resources.

We will examine evidence that the Okanagan Fault is a gently west dipping, Eocene extended zone. The hangingwall or upper, brittle deformed block, slid 90 km westward above the lower, ductile deformed footwall slab. The detachment channeled hydrothermal fluid and precious metals are concentrated along it.

Next we will look critically at the breccias that hosted the Phoenix orebody to test the idea that they are Upper Triassic volcanic explosion products preserved in a diatreme or breccia pipe. This implies that Phoenix is a chlorite pipe in the tuff neck, not a skarn.

We will depart Vancouver by minibus at 4 pm, Wednesday October 17 and return about 10 pm, Friday October 19. The cost, including transportation, lodging and meals is \$165. The limit is 18 participants on a first come basis. Phone Kirk Tempelman-Kluit, Geological Survey of Canada at 666-3955 to register. Cutoff date for registration is Oct. 10th and payment in full must be made before departure. Send your cheque, made out to "Cordilleran Section GAC" to Kirk Tempelman-Kluit, GSC, 7th Floor, 100 West Pender St., Vancouver, B.C. V6B 1R8.

THURSDAY, OCTOBER 25

3:30 P.M. ENGINEERS' CLUB

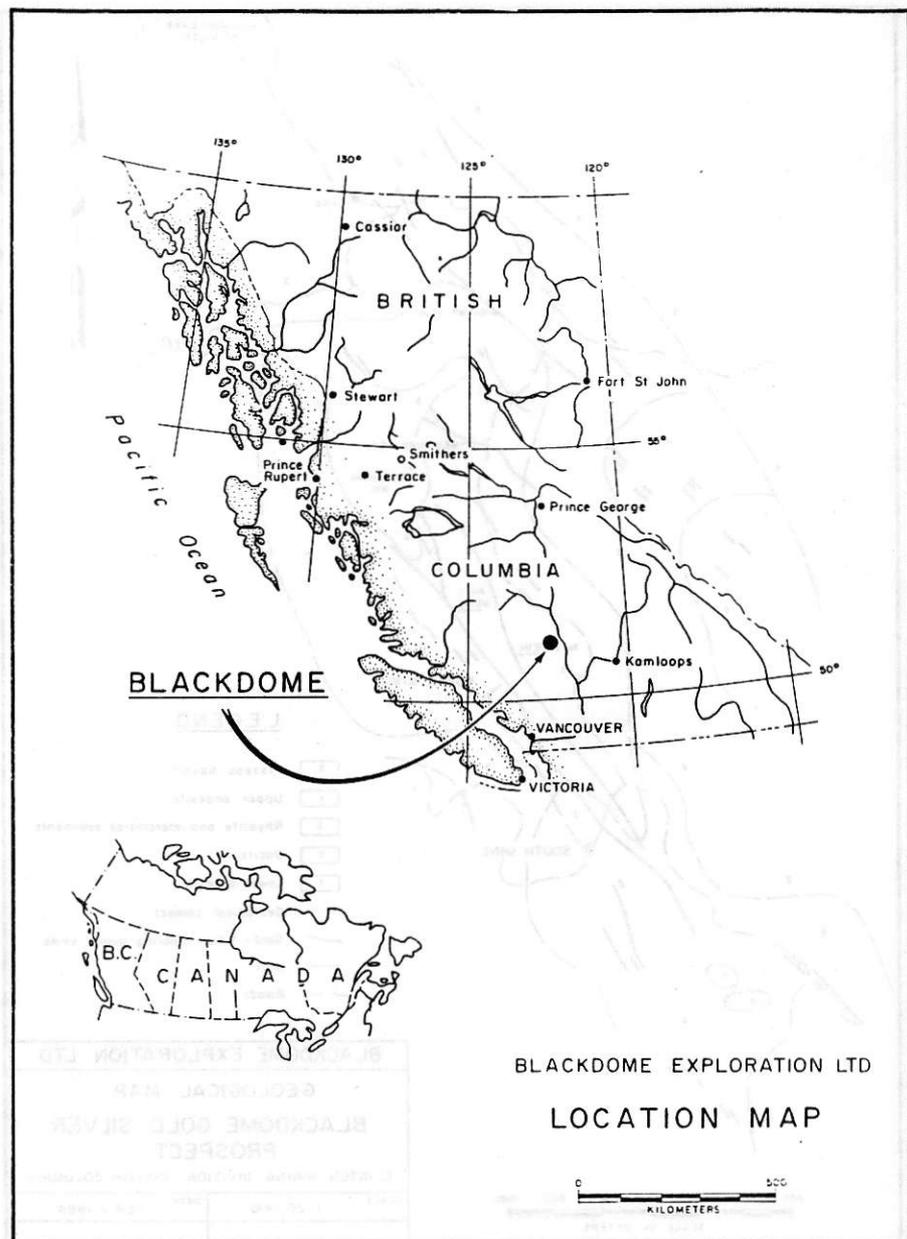
SPEAKER: A.F. Reeve

SUBJECT: The Blackdome Gold-Silver Deposits.

Gold and silver mineralization occurs in South Central British Columbia on the flanks of Blackdome Mountain which is located on the east margin of Chilcotin Plateau between 6,300 feet and 7,000 feet ASL. The City of Vancouver lies 140 miles to the south and the Fraser River 10 miles eastward. The rounded and gently sloping terrain is covered by open pine forest up to an elevation of 6,000 feet.

Gold-bearing quartz veins were found at Blackdome Mountain in 1947. More recently, since 1978, 45,000 feet of diamond drilling and 6,000 feet of underground development have been completed at a cost of approximately six million dollars. There has been no production to date, however, in 1980, reserves indicated by diamond drilling approached an economic threshold and production is anticipated by 1985.

As of August 1984 ore reserves indicated by drifting raising and diamond drilling were 176,000 tons averaging .72 oz/ton gold and 3.6 oz/ton silver. This estimate provides a minimum mining width of five feet, but does not allow for further dilution or metallurgical losses.



The region surrounding Blackdome Mountain is a rolling plateau occupied by Tertiary volcanic rocks which have a total thickness greater than 2,000 feet. These rocks are underlain by Cretaceous Jackass Mountain sediments and Kingsvale volcanics. In the near vicinity of the gold-silver veins about 1,500 feet of gently arched volcanic strata occur from top to bottom as follows: post-ore plateau basalt, massive andesite flows, rhyolitic volcanics, and massive dacite flows. The rhyolite has a restricted lateral extent and may represent the edge of a caldera basin. Excepting the basalt, all of the volcanic units occur as ore zone wall rocks. A group of NE trending, pre-ore andesite feeder dikes cut the lower 2 members of the volcanic sequence.

The metal bearing veins form a discrete oval-shaped area approximately 1 mile by 3 miles. a series of NE trending normal faults with dips of 55 degrees NW to 90 degrees define the long axis of this area and localize the occurrence of mineralized quartz "bonanza" lodes. The faults are continuous clay seams that vary from 6 inches to 18 inches in thickness and are enveloped by zones of argillic alteration from a few feet to several tens of feet wide.

The quartz lodes occur in the form of; stringer zones, vuggy cockscomb veins, wall rock breccias, silicification and crushed quartz in fault gouge. Metal values are in the form of disseminated native gold and native silver. The silver to gold ratio is variable and averages about 5. to 1. Other metallic minerals present in total amounts averaging not more than 2% are; pyrite, tetrahedrite, minor amounts of various other sulfosalts, galena and chalcopyrite.

Four shoots of high grade ore which have been outlined in some detail by drifting and raising have an average horizontal length of 160 feet, a maximum plunge axis length of 300 feet and an average thickness of about 7 feet. The localization of this material appears to be controlled by subsidiary fractures which cross the main structure at very oblique angles as well as flexures in the principal fault. The four zones contain 61,200 tons averaging 1.5 oz./ton Au and 5.32 oz./ton Ag.

Four fault structures containing material potential ore grade have been identified to date. One of these is No. 1 vein system which contains all of the reserves included in the estimates. It has been extensively explored by 138 diamond drill holes and 6,000 feet of underground workings over a strike length of 6,200 feet and a vertical range of 1,000 feet. Approximately 30% of the drill holes have encountered mineralized material averaging more than .1 oz./ton Au. equivalent over true widths of 5 feet or greater. The No. 1 vein fault structure displays a distinct mineralized horizon or interval that is about 650 feet in height with a plunge along its "keel" of approximately 200 feet per mile to the southwest. In general this vertical mineral zonation lends itself to a deposition model related to the boiling point of ore forming fluids as cited by L. J. Buchanan and others.

The Blackdome Mountain area contains a number of gold-silver deposits classically formed by post-volcanic epithermal activity. It is typical of many ore-fields found in the American and Mexican Cordillera. Most of these produced very high grade ore in the early part of this century and prior to it. Blackdome is relatively unique because it is one of a very few such fields, in Canada, that has been identified and developed in recent times.

