



THE BLACK DOME MOUNTAIN GOLD-SILVER PROSPECT
(920/7E, 8W)

By B.N. Church

This report is an update of an earlier review of exploration for gold and silver in the Black Dome Mountain area, 70 kilometres northwest of Clinton (Geological Fieldwork, 1979, Paper 1980-1, pp. 52-54).

Recent geological studies shed light on the age relationships of the main lithological units. A remnant volcanic vent deposit considered to be younger than the vein mineralization forms the summit of Black Dome Mountain. This consists of basalt lava and agglomerate (No. 1, Table 1)

TABLE 1. CHEMICAL ANALYSES OF VOLCANIC ROCKS FROM THE BLACK DOME MOUNTAIN AREA

	1	2	3	4	5	6
Oxides recalculated to 100-						
SiO ₂	50.96	53.92	62.77	64.43	75.46	72.72
TiO ₂	3.26	1.79	1.29	1.11	0.38	0.43
Al ₂ O ₃	14.97	18.43	17.09	16.90	14.83	15.12
Fe ₂ O ₃	4.65	4.11	5.46	2.37	1.08	1.65
FeO	5.88	3.15	1.05	2.72	0.51	0.33
MnO	0.14	0.11	0.11	0.08	0.01	0.02
MgO	7.41	4.86	2.33	1.78	0.14	0.18
CaO	8.60	7.65	3.96	3.90	0.16	1.38
Na ₂ O	3.25	4.03	3.56	4.10	2.96	4.18
K ₂ O	0.88	1.95	2.37	2.61	4.52	3.99
	100.00	100.00	100.00	100.00	100.00	100.00
Oxides and elements as determined-						
H ₂ O+	0.13	0.13	1.69	1.63	1.02	0.27
H ₂ O-	0.27	0.53	0.77	0.25	0.40	0.67
CO ₂	0.07	0.07	0.26	0.48	0.07	0.07
S	0.01	0.01	0.01	0.01	0.01	0.01
P ₂ O ₅	0.87	0.97	0.50	0.57	0.08	0.32
SrO	0.13	0.11	0.04	0.02	0.02	0.02
BaO	0.04	0.13	0.13	0.13	0.14	0.16
R.I.	1.590	1.570	1.534	1.534	1.490	1.498

Key to Analyses

- 1 - Basalt lava, Black Dome Mountain (peak) (BKM-16).
- 2 - Basaltic andesite lava, Flapjack Peak (summit) (BKM-287).
- 3 - Hornblende dacitic andesite, west shoulder of Black Dome Mountain.
- 4 - Dacitic lava 'dome,' on main ridge south of Black Dome Mountain.
- 5 - Porcupine Creek rhyolite, south of Black Dome Mountain.
- 6 - Churn Creek rhyolite, above Churn Creek to the east.

having an apparent K/Ar age of 20.5 Ma similar to rocks on Flapjack Peak, 9 kilometres to the southwest, 24 Ma (Table 2).

TABLE 2. RADIOMETRIC AGE DETERMINATIONS

No.	Location	Material	K per cent	Ar	Apparent Age Ma
BKM-16	Black Dome Mountain (summit)	whole rock	0.697	0.6552×10^{-6} cc/gm	24.0±0.8
BKM-287	Flapjack Peak (summit)	whole rock	1.49	1.91×10^{-6} cc/gm	20.5±0.8

(Argon determination and age calculation by J.E. Harakai, University of British Columbia).

The principal units hosting the gold-silver veins are hornblende dacitic andesite and rhyolite which are exposed on the lower slopes and the south ridge of Black Dome Mountain. A series of dacitic 'domes' disconformably overlying the rhyolite on the south ridge are now correlated with the hornblende dacitic andesite on the basis of petrographic and chemical similarities (Nos. 3 and 4, Table 1).

In the past year an intensive diamond-drill program has been completed by Blackdome Exploration Ltd. totalling 8 700 metres in 106 holes. The resulting reserve estimate for the No. 1 vein system (MDI No. 0920/053) is 284 000 tonnes averaging 12 ppm gold and 110 ppm silver. Also, a crosscut tunnel has been driven intersecting the 'Ridge Zone' of No. 1 vein 143 metres westerly from a portal at the 1 960-metre level on the east flank of the main ridge south of Black Dome Mountain (Figure 1). Examination of the crosscut shows that the mineralization continues below the rhyolite. The rhyolite dips 15 degrees easterly and has been traversed by the tunnel through to underlying fine-grained dacite at a point about 50 metres west of the portal.

Current plans by Blackdome Exploration Ltd. require 600 metres of drifting and raising to confirm and further delineate an estimated 103 000 tonnes of ore in the 'Ridge Zone' averaging 17.5 ppm gold and 114.5 ppm silver according to the diamond-drill results.

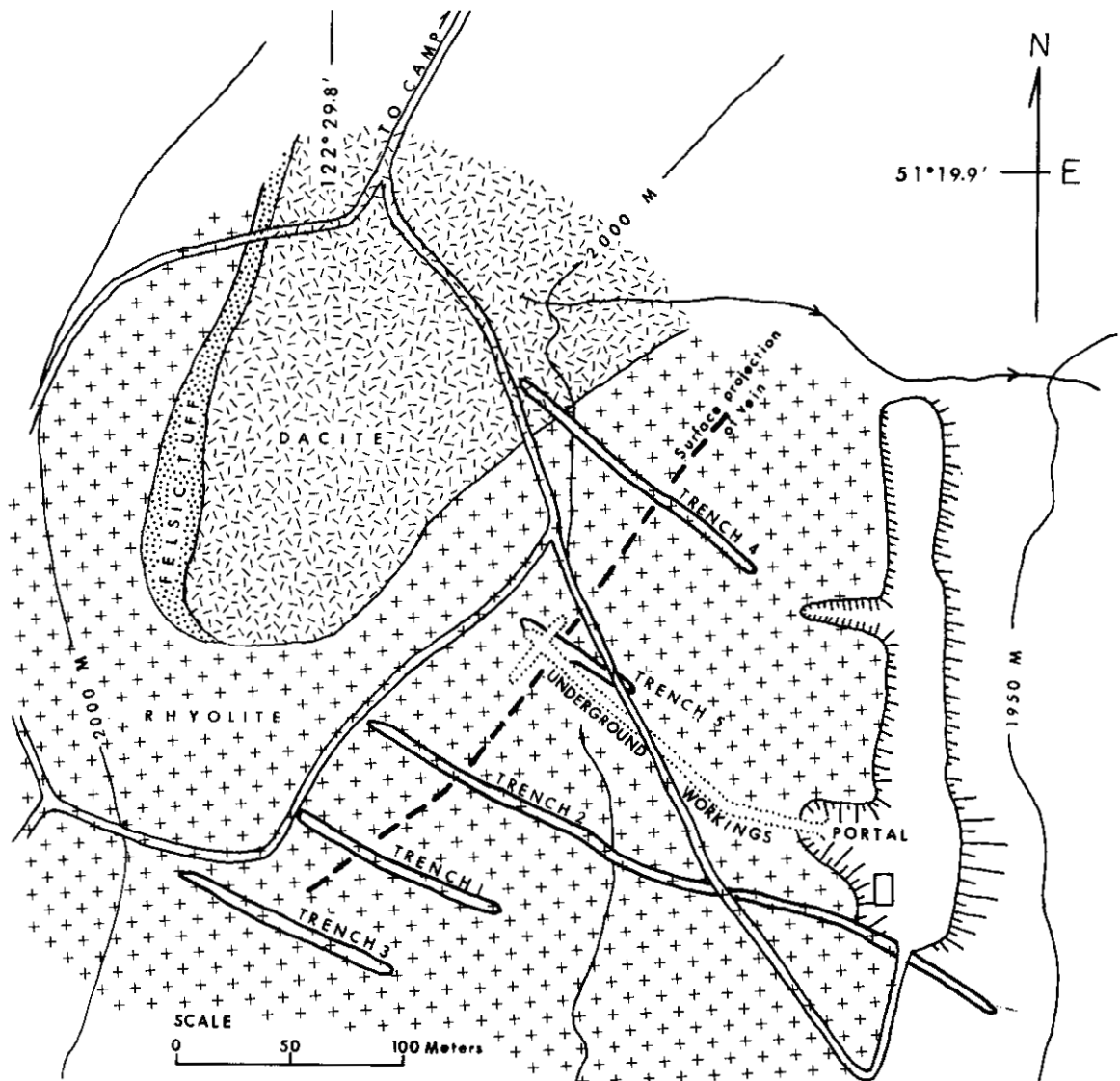


Figure 1. Geology in the vicinity of the Ridge zone of No. 1 vein, Black Dome Mountain prospect.

GEOLOGY AND LITHOGEOCHEMISTRY OF THE CAPOOSE SILVER PROSPECT

(93F/3, 6)

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This description is based on recent investigations of the Capoose silver prospect of Granges Exploration (AB) in the Fawnie Range 110 kilometres southeast of Burns Lake. The property is centred on a geochemical anomaly discovered by Rio Tinto Canadian Exploration Ltd. Rio worked on the property from 1969 until 1971.

GEOLOGICAL SETTING AND MINERALOGY

The area is underlain mainly by Jurassic lavas of rhyolite to dacite composition with minor amounts of interlayered argillite. Mineralized areas form conspicuous gossans throughout the Fawnie Range. Recent trenching and drilling has focused on garnetiferous rhyolite lava and breccia on the ridge immediately north and northwest of the Granges camp-site (Figure 1). Highest silver values coincide with the occurrence of galena and sphalerite.

LITHOGEOCHEMISTRY

In the course of a geological survey of the Fawnie Range, hand specimens were collected randomly from bedrock exposures. These were subsequently analysed, courtesy of Granges Exploration, for a selection of path-finding elements. The results on 45 samples are as follows:

	Geometric Mean* ppm	Deviation ppm
Ag	0.6	0.2-5.5
Cu	16	4-90
Pb	16	7-200
Zn	134	40-500
As	9.6	2-75
S	0.16%	0.3-1.30%

*Owing to a range in values through several magnitudes it is necessary to use log transforms to calculate means and standard deviations.

The behaviour of element pairs is demonstrated as follows:

	Ag	Cu	Pb	Zn	As
Cu	0.41				
Pb	0.69	0.46			
Zn	0.65	0.51	0.93		
As	0.02	0.14	-0.01	0.07	
S	0.05	0.01	0.12	0.11	-0.04