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920/7E,8W

REPORT ON

THE B.J. #1 TO #6 MINERAL CLAIMS

ON BLACK DOME MOUNTAIN, B.C.

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August 27, 1973

TABLE OF CONTENTS

	Page
INTRODUCTION	1
Location and Access	1
Climate	1
Flora and Fauna	2
Water	2
History	2
Topography and Glaciation	3
GEOLOGY OF THE B.J. #1 - #6 MINERAL CLAIMS	5
Volcanic Rocks	5
Basalt	5
Porphyritic Basalt	6
Ages of the Rocks Composing Black Dome Mountain	6
Structural Geology	7
ORE DEPOSITS	8
Distribution of Veins	8
Vein Structure	8
Wall Rock Alteration	8
Mineralogy of the Ores	9
Gold	9
Pyrite	10
Chrysocolla	10
Goethite	11
Pyrolusite	11
Silver	11
Calcite	11
Quartz	12
Outcrop of the Veins	13
GENESIS OF ORE DEPOSIT	14
Origin of the Ore	14
Classification of the Deposit	15
COMPARISON WITH DISTRICTS HAVING SIMILAR TYPES OF ORE	16
Jarbridge District, Nevada	16
De Lamar District, Idaho	17
Oatman and Katherine Districts, Arizona	17
Other Districts	18
ECONOMIC POSSIBILITIES	19
GEOCHEMICAL SURVEY	20

MAPS

#1 Geological map (August, 1973)
#2 " " (February, 1974)

INTRODUCTION

LOCATION AND ACCESS

Black Dome Mountain is 43 miles north and 75 miles west of Clinton, B.C. It is at latitude 51° 20'N, longitude 122° 30'E. Gold-bearing quart veins lie just below and on all sides of the summit of this mountain.

A fairly good secondary road branches off the Cariboo Highway at a point 11 miles north of Clinton. This road extends westerly 64 miles to Empire Valley Ranch, which is on the west side of the Fraser River. From this ranch, an unimproved road extends westerly along the north side of Lone Cabin Creek to a camp on Black Dome Mountain, a distance of 18 miles. Unimproved roads, suitable for four-wheel drive vehicles only, connect the main veins.

A suspension bridge across the Fraser River, 30 miles from the claims, has a load limit of 15 tons. This could be a problem if heavy equipment were to be transported to the property. A small truss bridge across Churn Creek, about 1 mile from the Fraser River bridge, is also quite light. A temporary crossing during low water could easily be made across this creek.

There are several alternate routes for re-locating the present road which would both reduce the grade and shorten the distance of the present road. These alternate routes should be investigated before any production phase of operating this property is developed.

A 1,700 foot airstrip is 600 yards south of camp, at elevation of 6,700 feet. This airstrip appears suitable for light planes, but only during good weather.

CLIMATE

Black Dome Mountain lies in the "dry belt" of the Interior of British Columbia which is sheltered from rain and snow by the Coast Mountains. Average annual precipitation at Dog Creek Airport (21 miles northeast of Black Dome Mountain) over 10 years was 17 inches, with June, July and August being the months with greatest precipitation. Average yearly snowfall

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at Dog Creek Airport is 72 inches. This figure would be considerably greater at Black Dome Mountain as it is over 4,000 feet higher in elevation. In this area, the summers are cool and the winters quite cold. The temperature extremes recorded at Dog Creek Airport within 13 years are -41 degrees and 94 degrees. Average yearly mean temperature is 38 degrees.

FLORA AND FAUNA

Most of the known veins on Black Dome Mountain are above timberline, which is at an elevation of about 6,600 feet. A few low sprawling clumps of alpine fir grow above timberline, but only in sheltered areas. On the rest of this area above timberline only grass and moss can survive the severe winters. However, B.J. mineral claims #5 and #6, the southern halves of B.J. #3 and #4, and the northern halves of B.J. #1 and #2 all lie below the timberline where fir, pine and spruce grow abundantly and are of sufficient size for mining purposes.

In addition to numerous species of birds, the slopes of Black Dome Mountain abound with deer, moose, porcupines and pikas ("rock rabbits"). Coyotes and cougars sometimes frequent the area. Two wolf cubs were seen on B.J. #5 during the investigation of the property this year.

WATER

Sufficient water for mining, diamond drilling or milling purposes is available from Fairless Creek which starts on B.J. #7 and flows westerly into Churn Creek. This is the nearest source of reliable water and would be an important factor in the production phase.

HISTORY

Gold-quartz veins were discovered on Black Dome Mountain in 1947 by Lawrence Frenier who staked eight claims straddling the summit of the mountain. In that same year, Frenier attempted to recover some gold from higher grade portions of some of these veins by means of a hand-built crusher

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and amalgamator made out of granite boulders. The amount of gold recovered by this method did not justify the large amount of labour expended and this method was soon discarded. In 1949 Frenier set up a Gibson, two ton, elliptic roll mill on his property. The exact amount of gold recovered by this process is not known. In 1952 Empire Valley Gold Mines Ltd. optioned twelve mineral claims and fractions from Frenier. In 1953 a road was constructed to Black Dome Mountain and bulldozer stripping was started on the veins. Also that year Silver Standard Mines Ltd. optioned William Schrader's 14 claims which adjoined Empire Valley Gold Mines' property to the south and east. In 1954, Silver Standard Mines drilled six diamonddrill holes totalling 783 feet on No. 1 vein. In 1955 200 feet of drifting was done by Empire Valley Gold Mines, 150 feet on No. 14 vein and 50 feet on Red Bird vein. Also during 1955 a 1,700 foot airstrip was constructed on the west side of the mountain. In 1958 Silver Standard Mines entered into an agreement with Empire Valley Gold Mines to consolidate the two adjoining properties so that they could be developed as one property. That year 6,200 feet of bulldozer trenches were dug. Since 1958 though, only an insignificant amount of work has been done on the veins.

In 1972 A. Skiber staked B.J. #1 to #6 mineral claims on the west slope of Black Dome Mountain adjacent to the Whiskey Jack, Electrum and Bonanza Crown Granted Mineral Claims. In June 1973 A. Skiber, along with J. Skiber, discovered and trenched several quartz veins on B.J. #5 and #7 that were 2,000 feet south and on strike with the Giant Vein. These showings are 600 feet lower in elevation than any previously known veins on the mountain.

TOPOGRAPHY AND GLACIATION

Black Dome Mountain, which has an elevation of 7,392 feet, slopes smoothly down to the 3,500 foot elevation in Churn Creek Valley, some six miles west, and down to 1,500 feet in the Fraser River Valley, which is about 10 miles east.

Although the area was covered by glaciers, glacial erosion was slight

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and till is very rare. Probably no rapid movements took place in this region, which lies only some 50 miles south of a major glacial divide (Trettin)[1]. The only evidence of glacial activity in the area is a few granitic erratics scattered on the upper slope of Black Dome Mountain.

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1 Trettin, H.P. (1961): Geology of the Fraser River Valley Between Lillooet and Big Bar Creek, Ph.D. Thesis, University of B.C., Bull No. 44, B.C. Dept. of Mines and Petroleum Resources.

GEOLOGY OF THE B.J. #1 - #6 MINERAL CLAIMS

Black Dome Mountain consists of a series of basalt flows that have been intruded by several olivine basalt dykes. These dykes fed an olivine basalt flow that unconformably overlies the other older flows.

The mountain is almost completely covered by shallow overburden so that rock outcrops are scarce.

VOLCANIC ROCKS

Basalt

The oldest rocks on the B.J. #1 - #6 mineral claims are columnar basalts outcropping on the northwestern edge of the B.J. #2. These basalt flows are grey in colour and show distinct flow lineation.

The overlying rocks are basalt flows which outcrop in scattered areas throughout the lower parts of the claims. These flows are greenish-grey in colour and show very distinct flow lineation.

Megascopically, the rock consists of:

subhedral feldspar crystals	- 20%
greenish-grey, fine-grained matrix	- 80%

The feldspar crystals are up to 1/8 inch long and are randomly oriented.

A thin-section of this basalt gave the following composition:

plagioclase feldspar	- 5%
fine-grained matrix	- 90%
iron ore	- 5%

The plagioclase has a composition of labradorite and occurs as randomly oriented euhedral crystals up to 1/8 inch long in a brown, fine-grained, trachytic-textured matrix.

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Porphyritic Basalt

The greenish-grey basalt flows are conformably overlain by porphyritic basalt flows. A megascopic study of the rock gave the following composition:

feldspar crystals	- 30%
fine-grained matrix	- 70%

The rock was light grey in colour and had a porphyritic texture. The feldspar crystals were anhedral to euhedral in shape, averaged ¼ inch long, and were randomly oriented.

The following description is an average of four thin-sections that were made from specimens of different porphyritic basalt flows. The average composition of the rock was as follows:

plagioclase crystals	- 40%
fine-grained matrix	- 40%
iron ore	- 15%
quartz	- 3%
prochlorite	- 2%

The plagioclase has a composition of labradorite and occurs as randomly oriented euhedral crystals up to ¼ inch long in a trachytic textured, fine-grained, brown matrix. The plagioclase crystals exhibit both albite and carlsbad twinning. The quartz and prochlorite occur in the rock as amygdules. The quartz crystallized first on walls of vesicles as a single, thin layer. The prochlorite crystallized later onto the quartz as yellowish-green fibres, often completely filling the vesicles.

AGES OF THE ROCKS COMPOSING BLACK DOME MOUNTAIN

The ages of the rocks composing Black Dome Mountain cannot be determined with certainty. Bacon[1] states, "The bedrock consists of greenish-gray to dark greenish volcanic rock, much of which is highly porphyritic. These rocks bear no resemblance to the Tertiary volcanics that outcrop extensively in the Chilcotin area. The Porcupine Mountain (writer's note: Black Dome Mountain) volcanics are considered to be Mesozoic or older in age."

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1 B.C. Dept. of Mines: Minister of Mines Report for 1954, p. A103

If one extends the strike of the geological contacts on Trettin's map north about fifteen miles, the older volcanic rocks on Black Dome Mountain would be part of what Trettin calls the Ward Creek Assemblage. He gives it an age of somewhere between mid-Lower Cretaceous and Oligocene.

STRUCTURAL GEOLOGY

The basalt and porphyritic basalt have an average dip of about 45° to the southeast. The cause of this dip is not known but the tilting may have been a result of movement along the Fraser River fault zone which occurs close to Black Dome Mountain.

No folding was seen in any of the volcanic rocks on the mountain although Sargeant[1] states that some folding is apparent in volcanic rocks about one mile south of the summit of the mountain.

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[1] B.C. Dept. of Mines: Minister of Mines Report for 1948, pp. 92 - 95

ORE DEPOSITS

DISTRIBUTION OF VEINS

There are numerous quartz veins and shears on the mountain cutting both basalt and porphyritic basalt flows. These veins strike North 30 East and dip almost vertically. They have strike lengths ranging from one hundred to almost two thousand feet. The veins occupy fault fissures or fractures in the enclosing rocks. These faults are not completely filled with vein material. The 18 inch quartz vein discovered on B.J. #5 is 2,000 feet south of and on strike with the Giant Vein. It dips at an angle of 80° east.

VEIN STRUCTURE

The vein discovered this year on B.J. #5 is 18 inches wide and consists of vuggy, incrusted quartz with small ramifying stringers branching from the main vein into the wall rock. Such side stringers are mineralogically similar to the main vein. Many small quartz stringers in the wall rock occupy joints and irregular fractures. These veinlets appear to have filled open fissures rather than to have replaced the wall rock. During the process of ore deposition, open fissures must have existed, otherwise the abundant thin platy calcite crystals found in the veins could not have formed as they did.

WALL ROCK ALTERATION

The wall rock of the veins has a bleached appearance. A thin-section study of this material showed that there were two zones of alteration around the veins. The inner zone extends for about three feet on either side of the veins. The rock within zone has been intensely silicified and sericitized. The outer zone of alteration extends from the inner zone to about 10 feet away from both sides of the vein. The rock in the outer zone has been sericitized but not silicified. The rock outside the outer zone has not been significantly altered. A typical thin-section of the inner zone gave the following composition:

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plagioclase	- 20%
fine-grained matrix	- 25%
sericite	- 20%
quartz	- 25%
iron ore	- 10%
apatite	- trace

The sericite has replaced the areas immediately adjacent to fractures which traverse the plagioclase crystals. Fine-grained quartz has replaced about one-half of the matrix of the rock. The "veining" of the sericite in the plagioclase crystals and the close proximity of the vein indicate that the solutions that caused the alteration came from the vein. As adularia ($KAlSi_3O_8$) does occur in the veins the large amount of potassium needed, to alter plagioclase crystals of basalt rocks to sericite, was probably available at the time of vein formation.

A typical thin-section of the outer zone gave the following composition:

brown, fine-grained matrix	- 50%
plagioclase	- 32%
sericite	- 8%
iron ore	- 10%

About 1/5 of the plagioclase has been replaced by sericite along fractures which traverse the plagioclase crystals.

Some fragments of wall rock contained in the veins have been intensely silicified, others have had their plagioclase crystals altered to a white, near-amorphous, clay mineral. Sericite alteration was noted in some of these fragments but had been almost completely masked by silicification of the rock.

MINERALOGY OF THE ORES

The mineral composition of the veins is comparatively simple. It consists essentially of quartz, abundant platy calcite crystals and small amounts of gold and silver. During the oxidation, goethite and pyrolusite were formed. Pyrite is the only suphide in the vein and is quite rare.

Gold

Gold is the most valuable constituent of the veins on Black Dome

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Mountain and is always alloyed with silver. In most of the veins silver exceeds gold by weight (B.J. #5 vein assayed 0.18 ounces gold, 0.32 silver). High-grade ores almost always show free gold. Such gold is a pale, brassy yellow colour and contains a high percentage of silver. Goethite pseudomorphs after pyrite crystals frequently show visible gold as wires protruding from the crystals.

Visible gold exists on the adjacent Crown Granted claims in No. 1, Ribbon, Red Bird, No. 4, Eldorado, Black Shear and Giant veins. This gold exists chiefly in pyrite crystals which have been weathered to goethite, making the gold detectable with the naked eye. Some free gold in leaf, wire and speck form was found in comb quartz which contained no pyrite. Free gold has also been found as "nests" of specks of gold in jasper. Visible gold has been found over a vertical range of about 1,000 feet - that is, from the north end of Red Bird vein (elev. 7,100 feet) to the vein recently found by A. Skiber in the creekbottom of Upper Fairless Creek (elev. 6,100 feet) on B.J. #5. There has been no great change in the character of vein matter over this distance. The only variation is that the veins found on the B.J. claims contain considerable platy calcite, whereas on the adjacent claims higher up the mountain most of the calcite has been leached out leaving only quartz pseudomorphs after calcite.

Pyrite

In the veins on the mountain there seems to be a definite relationship between the size of the pyrite crystals and the concentration of gold. Pyrite crystals smaller than 1/10 inch diameter contain only small amounts of gold, whereas crystals of ¼ inch diameter may contain up to ten percent by volume of gold. This observations applies particularly to the Giant vein.

Chrysocolla

No copper minerals have been found in any surface exposures on the B.J. claims. However, several specimens of a highly fractured and slightly silicified rock which contained chrysocolla were picked up by the writer from the Red Bird adit dump. An assay of this material gave:

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Copper - 5.11%

Gold - 0.06 oz./ton

Silver - 20.2 oz./ton

Goethite

This black-coloured mineral is present in the oxidized vein material and has been derived mostly from the oxidation of pyrite. The amount of iron-staining present in the vein is a good indication as to the amount of gold present. A strong-iron-stained section may carry high values in gold, whereas a slightly-stained or unstained section usually carries low values.

Pyrolusite

The pulverulent, black oxide of manganese is rather wide-spread on the mountain. It is found as dendritic patterns in joints and fractures in volcanic rocks and in fractures and on surface exposures of vein material. As pyrolusite is found most frequently on the mountain as a coating on volcanic rocks and as volcanic rocks, especially basalts, often contain small amounts of mangansese,the basalt flows on the mountain are probably the source of the manganese.

Silver

Silver, as already stated, always occurs alloyed with gold, and, in most of the veins, silver predominates by weight, but almost never in value. Several polished sections of ore containing high amounts of silver were studied by the writer but no silver minerals were noted.

Calcite

Calcite is a major constituent of the veins and is next to quartz in abundance. The calcite is white to brownish in colour and rather coarse-grained in texture, forming layers up to ½ inch thick in between layers of crystalline quartz. Each calcite grain has been slightly replaced along its grain boundaries by quartz. This quartz exhibits a palisade texture. Pseudomorphic replacement of platy calcite by quartz is particularly common in parts of the No. 1, the Giant vein and the vein on B.J. #5, but was not observed for in any other vein on the mountain.

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Quartz

An interesting feature of some of the quartz is its platy texture. Lausen[1] concluded that "the quartz was first deposited between the thin plates of calcite, and as deposition continued, some calcite was dissolved and carried away by these same solutions. Such calcite as remained was later dissolved, perhaps by surface waters, leaving the thin plates of quartz standing out in relief." Lausen also stated that, "Sometimes the thin plates of calcite grew together at acute angles, and the deposition of quartz took place on these plates. Later, when the calcite was leached out, the platy texture developed."

There are four main textural types of quartz in the veins on the mountain. These are as follows:

1. Solid, massive quartz, chiefly white in colour, but occasionally having smoky quartz and amethyst present in bands.

2. Slightly sheared, banded quartz, which has a ribbon-like appearance.

3. Loose, sugary-textured quartz, which is probably due to solution of platy calcite.

4. Vuggy, crystalline, combe quartz.

The major veins are comprised of several of these textural types of quartz. The veins on B.J. #1 - #8 comprise only 2. and 3. above.

There has been a minimum of two stages of mineral deposition in the veins. The first stage consists of a thin layer of fine-grained, banded quartz, then a thick layer of coarsely crystalline, vuggy quartz, and finally, a ¼ - ½ inch layer of coarse-grained calcite (often lamellar). The second stage consists of a thin layer of fine-grained quartz and then a thick layer of coarsely crystalline, vuggy quartz. This second stage quartz has replaced the grain boundaries of both the calcite and the first stage quartz.

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1 Lausen, C. (1931): Geology and Ore Deposits of the Oatman and KatherineDistricts, Ariz., Ph.D. Thesis, Published by the University of Arizona, Tucson, Arizona.

OUTCROPS OF THE VEINS

Sargent[1] states that when he investigated the gold-quartz veins on Black Dome Mountain, several veins were quite conspicuous and formed a topographic prominence. Shear zones on the mountain with only small amounts of quartz are quite inconspicuous, even though some have widths of ten to fifteen feet. The B.J. #5 vein formed a slight topographic prominence which resulted in its discovery as the area in which it was discovered is covered with overburden.

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[1] B.C. Dept. of Mines: Minister of Mines Report for 1948, pp/ 92 - 95

GENESIS OF ORE DEPOSIT

ORIGIN OF THE ORE

Epithermal deposits have been formed relatively close to the surface, at depths measured in hundreds rather than thousands of feet. They appear also to have formed at relatively low temperatures. In many cases they are closely associated with Tertiary volcanism, and the ores may occur in the lavas or in rocks upon which the lavas rest.

The Black Dome Mountain deposit is located very near to a major fault (Fraser River fault zone)[1], as are practically all of the epithermal silve-gold deposits.[2]. The proximity of the Fraser River fault zone strongly suggests that the ores have been deposited by hot, ascending solutions which originated at considerable depth below the surface. These solutions were channelled up through the fault zone and were deposited in the faults at Black Dome Mountain which may be subsidiary to the Fraser River fault zone. The source of the solutions was a cooling magna. The more volatile constituents, including water vapor, were concentrated by differentiation of the magma. Slow cooling and contraction would force these volatile constituents upward through cracks in the earth's crust. Such heated vapor on rising would reach a cooler environment, and would condense with a decrease in temperature, and, under the pressure existing at that depth, would form aqueous solutions. These aqueous solutions would then give rise to the ores.

There has been a minimum of two stages on mineral deposition in the veins, indicating that the mineralizing solutions rose more than once through the cracks in the earth's crust. The length of time between the deposition of these different stages would not be great.

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1 Trettin, H.P. (1961): Geology of the Fraser River Valley between Lillooet and Big Bar Creek, Ph.D. Thesis, U.B.C. Published by the B.C. Dept. of Mines and Petroleum Resources.

2 American Institute of Mining Engineers (1933); Ore Deposits of the Western States, Lindgren Volume, Rocky Mountain Fund Series, pp. 624-629.

CLASSIFICATION OF THE DEPOSIT

The gold-quartz veins on Black Dome Mountain have certain physical and mineralogical features which characterize them as a part of a group of deposits sometimes referred to as the "bonanza type" and classed as epithermal by Lindgren[1]. One of the most important features is the character of the quartz in the gangue. The peculiar lamellar quartz, resulting from the replacement of previously deposited lamellar calcite, is a characteristic feature of this type of deposit, as is the occurrence of crustification, comb texture and adularia. This type of deposit characteristically is found in volcanic rocks usually of Tertiary age.

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1 Lindgren, W. (1928): Mineral Deposits, 3rd Edition, McGraw-Hill Book Company

COMPARISON WITH DISTRICTS HAVING SIMILAR TYPES OF ORE

Epithermal deposits containing gold and silver as the principal metals are widely distributed. They occur almost invariably in regions where Tertiary volcanoes have been active, but similar types of deposits are known from areas of pre-Tertiary volcanism.

The gold and silver deposits of epithermal origin often bear resemblances to each other, but may diverge widely in mineral composition. A brief description of some of the better known deposits of the western part of the United States is given below for comparison with the ores of Black Dome Mountain.

Jarbridge District, Nevada

The Jarbridge District is in northern Nevada, within fifteen miles of the Idaho state line. The gold veins of this district were described by Schrader[1] in 1912. Here Tertiary rhyolite flows rest upon older sedimentary and granitic rocks. The general trend of these gold-bearing quartz veins is north-south, and they occur chiefly in the older rhyolite flows. They range in width from one to twenty feet, and in length from 1,000 feet to several miles.

The veins are composed essentially of quartz and adularia, and the quartz often has a laminated structure, showing a pseudomorphic replacement of platy calcite. Some of the veins contain as much as 60 percent adularia. Associated with the quartz and adularia, is a small amount of fluorite, and both pyrite and marcasite are listed as occurring in this district. At the surface the veins are stained with the oxides of iron and manganese. The colour of the ore is "milk-white" which is the same as the colour of the ores on Black Dome Mountain.

Most of the gold is finely divided and the particles range in size from that of a pin head to minute specks. Some of gold is coarse along fractures. The specks of gold are commonly associated with argentite and hematite. The

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1 Schrader, F.C. (1912): A Reconnaisance of the Jarbridge Contact, and Elk Mountains Mining Districts, Elko County, Nevada, U.S.G.S. Bull. 497.

range in the value of the ore was from a trace to 50 ounces of gold per ton. The gold occurs both in quartz and adularia.

De Lamar District, Idaho

A description of the district was published by Lindgren[1] in 1898-99. The country rock in which the veins occur in the De Lamar District is rhyolite. The general trend of the veins is to the northwest, and the dip is usually to the southwest, but some veins are vertical. The veins may consist of stringer lodes or narrow fissure fillings. Angular inclusions of the country rock are common, and such fragments, as well as the wall rock, may be kaolinized.

The gold-silver veins, as represented by the De Lamar vein, carry extremely fine gold. Associated with this gold is a little pyrite, marcasite, and silver sulphides. Quartz is the chief gangue mineral and has a platy structure suggesting that it replaced platy calcite. Adularia is abundant in the ores and some of it is well crystallized. Pyrite and marcasite occur in the district, but the former is practically confined to the wall rock adjoining the veins. Lingren states that the ratio of gold to silver by weight is 1 to 20. A small amount of gold occurs in the pyrite and in the silver sulphide.

The ore shoots at the De Lamar Mine were large and rich. They were about 200 feet long and were ordinarily one to six feet thick, although ore bodies thirty feet thick have been found. All the quartz contained some gold and silver, but some of it ran as low as 0.06 ounces of gold per ton.

Oatman and Katherine Districts, Arizona

This area was described by Lausen[2] in 1931. The production from this district had amounted to more than 35 million dollars by 1928. The gold-silver

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1 Lindgren, W. (1898-99): The Gold and Silver Veins of Silver City, De Lamar and Other Mining Districts in Idaho, U.S.G.S. Twentieth Annual Report, Part 3.

2 Lausen, C. (1931): Geology and Ore Deposits of the Oatman and Katherine Districts, Arizona, Ph.D. Thesis, Published by the University of Arizona, Tucson, Arizona.

ratio of the total production is about 2 : 1. The ore shoots are in veins or stringer zones that follow fault fissures in either an old complex of granite, gneiss, and schist or more commonly in a series of Tertiary volcanics. The ore mineral is native gold, containing about 20 percent of alloyed silver, with small quantities of base-metal sulphides in a gangue of quartz (locally lamellar), carbonate, adularia, and fluorite. Manganese oxides are common in places. Lausen has recognized five states of vein filling in which the gold-silver ratio progressively increases from 1 : 6 to 4 : 1.

Other Districts

There are a number of other epithermal deposits containing gold and silver which also possess certain characteristics which are similar to those of the Black Dome Mountain deposit. Several of these other deposits are listed below with their references: Gold Springs District, Utah[1]; Tonopah District, Nevada[2]; Manhattan District, Nevada[3]; Goldfield District, Nevada[4]; Comstock Lode, Nevada[5].

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1 Butler, B.S. (1920): The Ore Deposits of Utah, U.S.G.S. Prof. Paper 111, pp. 563 - 568.

2 Burgess, J.A. (1909): The Geology of the Producing Part of the Tonopah Mining District, Econ. Geology, Vol. 4, pp. 681 - 712.

3 Ferguson, H.G. (1924): Geology and Ore Deposits of the Manhattan District, Nevada, U.S.G.S. Bull. 723.

4 Ransome, F.L. (1909): The Geology and Ore Deposits of Goldfield, Nevada, U.S.G.S. Prof. Paper 66.

5 Becker, G.F. (1882): Geology of the Comstock Lode and Washoe District, Nevada, U.S.G.S. Monograhp 3.

ECONOMIC POSSIBILITIES

One of the main aims of the writer while studying this deposit was to determine the amount of erosion which has taken place since the time of vein emplacement. This would be very important in future development of the area as many profitable mines on these epithermal ores become unprofitable within a depth of 1,500 feet from the present surface although barren veins may persist to greater depths. By projecting the bottom surface of the olivine basalt flow on the adjacent Crown Granted claims outwards the writer was able to determine that there has been less than 100 feet of material eroded away on most veins since the outpouring of olivine basalt, but it was impossible to determine the amount of vein material eroded away prior to this outpouring of lava. Despite the writer's inability to determine the total amount of material eroded from the veins, it is thought that the veins on Black Dome Mountain are only the upper portion of the vein system.

The major veins on the mountain can be expected to contain ore shoots to a depth of at least 1,000 feet below the surface as low-grade gold ore has been found on the surface at about that horizon.

The fact that little, if any, supergene enrichment has occurred in the veins would make it highly probable that the value of the ore at depth will not differ greatly from the value of the ore outcropping at the surface.

If development work is commenced on the veins, the fact that a fault plane or an insignificant stringer may develop into a solid, quartz vein at depth should be taken into consideration. This would apply especially to the northern end of the Giant vein.

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GEOCHEMICAL SURVEY

It was thought that since some copper mineralization had been found in the Red Bird vein adit on the adjacent Crown-granted claims that it might be advantageous to run a Rubeanic Acid test programme over some known veins to see if they would react positively for copper. If this programme was successful it would prove an inexpensive method for prospecting for the gold-quartz veins in areas of little or no outcrops. A limited programme of 12 samples was conducted over the Giant vein and the B.J. #5 vein but with negative results and, therefore, no further work was conducted.

819 Crescent Blvd. S.W.
Calgary, Alberta T2S 1L3

October 9, 1973

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C.G.C.	
G.C.	
D.C.G.C.	
D.M.C.	
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R. T.	
C.P.E.	
FILING CLERK	

Mr. R. Rutherford
Deputy Ghief Gold Commissioner
Department of Mines and
Petroleum Resources
Victoria, B.C.

10978
DEPT. OF MINES
AND PETROLEUM RESOURCES

Dear Sir:

Re: Your File: 166-Clinton
B.J. Mineral Claims
Geological-Geochemical Report

This will acknowledge your letter of September 20 which I have only recently received as it was erroneously addressed to 319 instead of 819 Crescent Blvd.

In accordance with your request please find enclosed one copy of the above report and map.

My qualifications for authoring this report are as follows. In 1962 I graduated from the University of British Columbia with a Bachelor of Science degree in Honours Geology and in 1971 I graduated from Stanford University with a Master of Business Administration degree. I am a member of the Association of Professional Engineers, Geologists and Geophyicists and am registered as a Professional Geologist. My work experience includes approximately two years with such mining companies as Newmont, Newconex and Salmo Prince Mines, eight years of other geological experience with such companies as Hudson's Bay Oil and Gas, Champlin Petroleum, Midwest Oil and my present employer Atkinson Petroleums Ltd. where I am Chief Geologist. I also spent a year and a half as Manager of the Oil and Gas Department of The Mercantile Bank.

I hope the above data is sufficient for your purposes.

Yours very truly,

Alfred J. Skiber

Alfred J. Skiber, P. Geol.

Encls:

BLACK DOME MOUNTAIN, B.C.

B.J. NOS. 7 & 8 MINERAL CLAIMS

This report is intended essentially as an addendum to the geological report submitted as assessment work in August, 1973 on B.J. Nos. 1 - 6 mineral claims. The majority of the August, 1973 report holds true for the B.J. Nos. 7 & 8 mineral claims. Only those sections which do not are rewritten below:

FLORA AND FAUNA

B.J. Mineral Claims 7 & 8 both lie below timberline where fir, pine and spruce grow abundantly and are of sufficient size for mining purposes.

WATER

Sufficient water for mining, diamond drilling or milling purposes is available from Fairless Creek which starts on B.J. No. 7 and flows westerly through B.J. No. 8 towards Churn Creek.

GEOLOGY OF THE B.J. NOS. 7 & 8 MINERAL CLAIMS

Light Grey Porphyritic Basalts

The western third of B.J. No. 7 and the northwestern corner of B.J. No. 8 are composed of light grey, porphyritic basalt flows essentially identical to those covering B.J. Nos. 1 - 6. A megascopic study of the rock gave the following composition:

Feldspar crystals	30%
Fine-grained matrix	70%

The feldspar crystals were anhedral to subhedral in shape, varied between 1/16" - 1/4" long and were randomly oriented.

/Continued

Light Green Porphyritic Basalts

Overlying the light grey porphyritic basalt flows were light green porphyritic basalt flows. A megascopic study of the rock gave the following composition.

Feldspar crystals	20%
Fine-grained matrix	80%

The feldspar crystals were anhedral to euhedral in shape, averaged 1/8" long and had a slight horizontal orientation.

ORE DEPOSITS

On B.J. No. 8 between the northernmost forks of Fairless Creek, several silicified shear zones and one 8" wide quartz vein were discovered and hand-trenched. They lie more or less in between and on strike with the Giant Vein and the B.J. No. 5 Vein. The silicified shear zones consisted primarily of small ramifying stringers branching outward from a highly iron-stained sheared area. Both the number of quartz veinlets and the intensity of iron-staining decrease rapidly away from the main shear, usually decreasing to nil in a matter of 2 - 3 feet.

The 8" vein found in this area is very similar mineralogically to both the B.J. No. 5 vein and the Giant Vein. It contains abundant platy calcite crystals indicating that open fissures must have existed during ore deposition. These shear zones and the 8" vein strike North 25 - 30^{o}E.

CONCLUSIONS AND OBSERVATIONS

The following are conclusions and observations made by the writer as a result of this past summer's work on Black Dome Mountain:

/Continued

1. The deposit is an epithermal silver-gold ore deposit very similar mineralogically and genetically to the type known as "Bonanza Ores" found at such places as the Comstock Lode; Tonapah, Nevada; Goldfield, Nevada; Jarbridge District, Nevada; and many other areas in the Western United States. These deposits are characterized by the occurrence of extremely high grade gold and silver ores.
2. Epithermal silver-gold veins generally become uneconomic below 1,500 feet in depth. Therefore, it is imperative to determine the amount of surface erosion that has occurred since deposition. Since a sample of the B.J. No. 5 vein analyzed ore grade at an elevation 1,000 feet below the uppermost vein exposures on the Mountain it is safe to assume that ore grade mineralization will at least continue to that depth on most of the veins in the area.
3. An investigation of the surface exposures of the various quartz veins on B.J. Nos. 1 - 8 mineral claims as well as on the adjoining Crown Granted claims indicate that surface leaching of the larger veins (No. 1, Giant, Red Bird) has taken place. The veins are very vuggy and downward flow of surface water would be relatively unimpeded. There are also numerous springs on the mountain which must be receiving their water from some porous reservoir and the volcanic bedrock on the mountain which does contain scattered vessicles is not permeable. Therefore, I postulate the quartz veins as being the reservoir and the method of transportation of this water. This would give rise to lower ore grades at the surface exposures, a zone of supergene enrichment below (very high grade) and

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a "normal" zone of ore grade below which would be significantly higher in grade than that found to date on the surface. It should also be noted here that all the platy calcite on the surface exposures of the Giant Vein has been removed by leaching and only quartz pseudomorphs remain.

4. It is the writer's opinion that the Black Dome Mountain epithermal silver-gold ore deposit has an excellent possibility of becoming a profitable mine. Exploratory underground work on the larger veins should begin immediately and the B.J. No. 1 - 8 claims should be merged into common ownership with the adjoining claims in order that the entire deposit could be developed in a more orderly and economic fashion.

A.J. Skiber, P. Geol.

February 13, 1974
Encl:


CAMP
1200 ft
IRON STAINED, SILICIFIED, BRECCIATED BASALT
B.J. #1
B.J. #2
B.J. #3
B.J. #4
B.J. #5
B.J. #6
COLUMNAR BASALTS
GREENISH - GREY BASALTS
LIGHT - GREY PORPHYRITIC BASALTS
18" QUARTZ VEIN
to Fortless Creek
GIANT VEIN
No.4 VEIN
ELDORADO VEIN
RED BIRD VEIN
RIBBON VEIN
BLACK SHEAR VEIN
No.1 VEIN
4549
M1
LEGEND
COLUMNAR BASALTS
GREENISH - GREY BASALTS
LIGHT - GREY PORPHYRITIC BASALTS
OUTCROP AREAS
APPROXIMATE LITHOLOGICAL CONTACT
SIGNIFICANT GOLD QUARTZ VEINS
ROADWAYS
TRAIL
Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 4549 MAP #1
BLACK DOME MOUNTAIN
BRITISH COLUMBIA
GEOLOGICAL MAP OF
B.J. MINERAL CLAIMS
No. 1 to No. 6
REPORT BY A. J. SKIBER, P. Geol.
SCALE : 1" = 300 ft.
DATE: August, 1973

CAMP
B.J. #2
B.J. #1
B.J. #4
B.J. #3
B.J. #7
B.J. #6
B.J. #5
B.J. #8
IRON STAINED, SILICIFIED, BRECCIATED BASALT
COLUMNAR BASALTS
BASALTS
BASALTS
GREENISH - GREY
PORPHYRITIC
LIGHT GREY
BASALTS
PORPHYRITIC
LIGHT GREEN
LIGHT
GIANT VEIN
ELDORADO VEIN
RED BIRD VEIN
BLACK SHEAR VEIN
Cabin
18" QUARTZ VEIN
FAIRLESS CREEK
to Fairless Creek
LEGEND
LIGHT - GREEN PORPHYRITIC BASALTS
COLUMNAR BASALTS
GREENISH - GREY BASALTS
LIGHT - GREY PORPHYRITIC BASALTS
OUTCROP AREAS
APPROXIMATE LITHOLOGICAL CONTACT
SIGNIFICANT GOLD QUARTZ VEINS
ROADWAYS
TRAIL
TRENCHING
4549
M2
NO. 4549 #2
CLINTON
JUN 1974
MINING RECORDER
BLACK DOME MOUNTAIN
BRITISH COLUMBIA
GEOLOGICAL MAP OF
B.J. MINERAL CLAIMS
No. 1 to No. 8
REPORT BY A. J. SKIBER, P. Geol.
SCALE : 1" = 300 ft.
DATE : February, 1974