REPORT ON
PROPERTY OF PINNACLE MINES
Kamloops Area

By: G.D.Delane
W.R. Bacon

REPORT

on

THE PROPERTY OF

PINNACLE MINES LTD.

Kamloops Mining Division

British Columbia

for

KERNAGHAN & CO. LIMITED

365 Bay Street

Toronto, Ontario

by

G.D. DELANE, B.Sc.

and

W.R. BACON, PhD, P.Eng.

Vancouver, B.C. February 20th, 1969.

BACON AND CROWHURST

February 20th, 1969.

Mr. Edward J. Kernaghan,
Kernaghan & Co. Limited,
365 Bay Street,
Toronto, 1, Ontario.

Dear Sir:

With regard to your letter of February 12th, please find enclosed two copies of our report on the property of Pinnacle Mines Ltd., the report of Velocity Surveys Limited supplied by you, and our invoice to cover professional services.

Yours very truly,

BACON & CROWHURST LTD.

W.R. Bacon

WRB/ic
Encl's.

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ILLUSTRATION

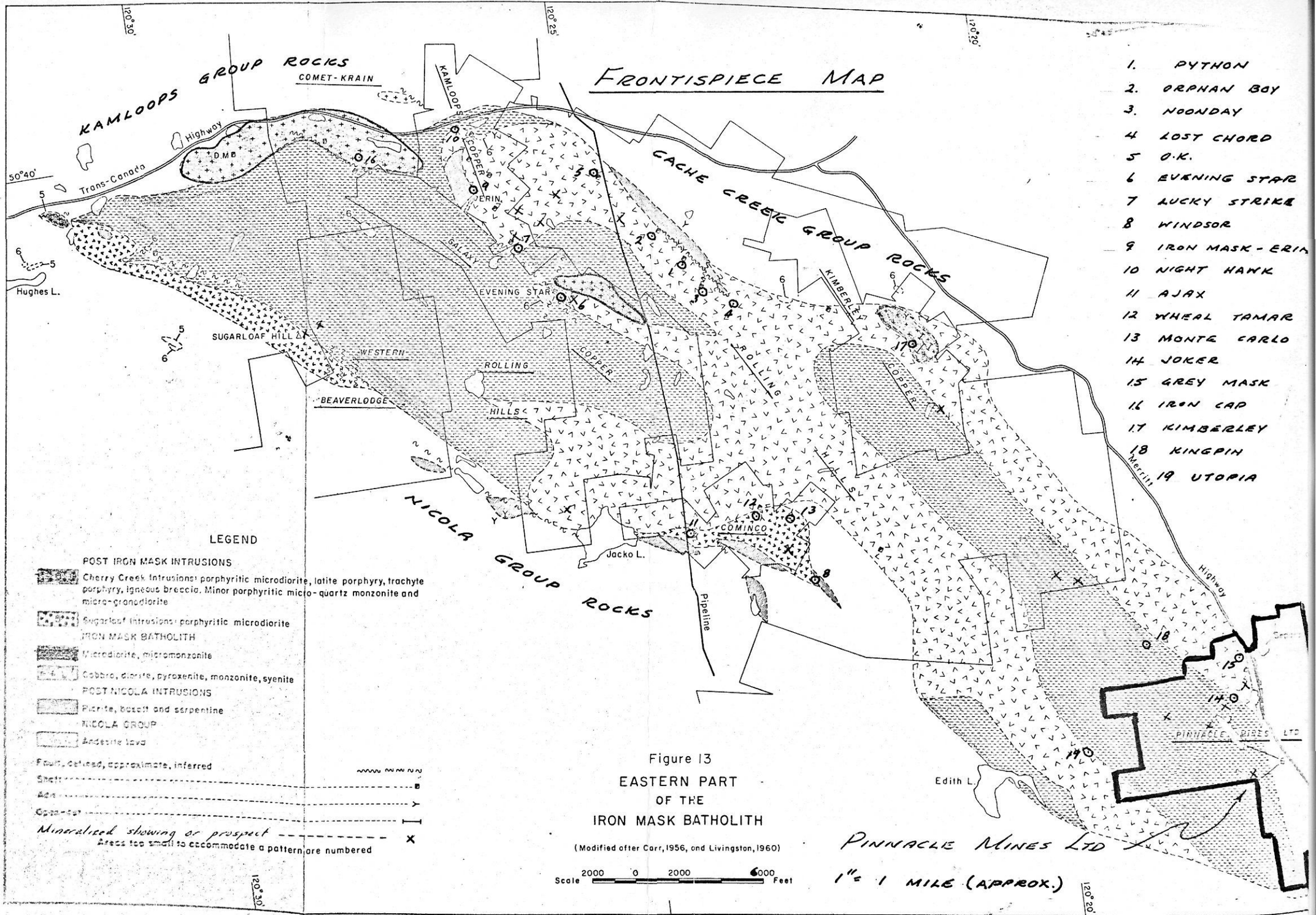

Figure 13

EASTERN PART
OF THE
IRON MASK BATHOLITH

(Modified after Carr, 1956, and Livingston, 1960)

PINNACLE MINES LTD

1" = 1 MILE (APPROX.)

SUMMARY

Pinnacle Mines Ltd. of Vancouver, B.C., owns 56 mineral claims, including fractions, at the southeastern extremity of the Iron Mask batholith.

Since the early 1900's a considerable amount of exploration and development work has been carried out on several of the properties in the region of the batholith. Only one of them, however, the Iron Mask mine, was a substantial producer. This mine yielded 189,230 tons of 1.47% Cu ore between the years 1901 and 1928.

In recent years, several exploration companies have been active in the area. It is reported that Cominco Ltd. has outlined by diamond drilling 10 million tons of mineralized material grading 0.5% Cu, and Galaxy Copper Ltd. 5 million tons of similar grade.

Exploration work on the property held by Pinnacle Mines Ltd. has consisted of geologic mapping, geochemical soil sampling, geophysical (magnetometer and induced polarization) surveys, trenching and diamond drilling. This work has not disclosed a commercial deposit of copper mineralization. The results to date, however, are perhaps more inconclusive than negative in view of the shallowness of the diamond drilling. In addition to this, the lack of favourable results from the induced polarization survey may be attributable in part to the fact that this work was undertaken in the dead of winter, probably over frozen ground.

LOCATION AND ACCESS

The property of Pinnacle Mines Ltd. is located eight miles south of Kamloops in the Kamloops Mining Division of British Columbia. The claim group straddles the Kamloops-Merritt highway. Most parts of the claim group are accessible by ranch roads.

PROPERTY (see frontispiece map)

The property of Pinnacle Mines Ltd. consists of 56 contiguous mineral claims and includes the groups formerly known as the Joker and the Grey (or Grey Mask). Forty-four of the 56 claims were acquired on November 21, 1966, by the principals of Pinnacle Mines Ltd. from G.F. Sanft of 1524 Argyle St., West Vancouver, B.C.

To the northwest of the property of Pinnacle Mines Ltd. are situated the mineral claim holdings of Kimberley Copper Ltd., Rolling Hills Ltd., Cominco Ltd., Galaxy Copper Ltd., Kamloops Copper Ltd., and Western Beaverlodge Mines Ltd.

HISTORY AND PRODUCTION

The region of the Iron Mask batholith was first prospected in the late 1800's for gold and silver, and in the early 1900's for copper which occurs in many places throughout the area.

Considerable underground development work had been done on some of the properties in earlier days, and in the middle 1950's on the holdings of Makaoo Development Co. Ltd. (Python, Noonday and Copper Head claims) and of the Kamloops Copper Co. Ltd. (includes the Iron Mask, Erin, Copper Queen, Lucky Strike, Ben Hur, claims). However, mineral

production has been very small. A tabulation of the production of some of the properties of the Iron Mask batholith appears below:

Property	Period	Tons Produced	Pounds Cu	Ounces Au	Ounces Ag
Iron Mask	1901-1928	189,230	5,194,871	3,630	41,292
Copper King	1906-1940	7,491	391,381	1,183	2,180
Iron Cap	1937-1940	263	9,462	209	414
Evening Star			5,628		29
Python		30	4,800		

There is no recorded production from any of the mineral claims currently held by Pinnacle Mines Ltd. In 1955 or 1956 some trenching and 5500 feet of diamond drilling was carried out in the vicinity of the Joker adit by the previous owners of the ground, Commerical Minerals Ltd.

More recently, in 1967 and 1968, Pinnacle Mines Ltd. carried out exploration work on its claim group and it is reported locally that more work is planned for 1969.

TOPOGRAPHY

The topography of the area consists mainly of gently rolling, grassy rangelands which are typical of most of the Interior Plateau "dry belt". Glaciation has covered the countryside with an extensive mantle of till which may reach depths of several tens of feet on the uplands and up to several hundred feet in the valley bottoms. The percentage of bedrock exposed is generally less than 3%. Vegetation consists of widely-spaced spruce and pine trees surrounded by open park-like

areas. Elevations in the vicinity of the Iron Mask batholith range from 2000' to about 3800'.

GENERAL GEOLOGY

The Iron Mask batholith is about 2½ miles wide and extends for about 18 miles in a northwesterly direction. It is situated about 3 miles southwest of Kamloops and about 40 miles northeast of the Highland Valley copper belt which is in the Guichon batholith. The Iron Mask and Guichon batholiths are two of several on the eastern margin of the main Coast Intrusions.

The rocks of the Iron Mask batholith are considered to be of Jurassic age and consist mainly of syenites, monzonites, diorites and gabbros. These rocks are intrusive into the Upper Triassic Nicola rocks (andesites, argillites, limestones, basalts) which occur on the eastern and western margins of the batholith. In the vicinity of Sugarloaf Hill, in the north part of the batholith, is a promontory of microdiorite porphyry, one of several porphyry stocks which intrude the batholith.

Outcroppings of dyke-like masses of greenish black, dense, picrite-basalt rock have been reported near the east margin of the batholith.

The Cherry Creek intrusions are found along the east and northerly margins of the batholith. These rocks range from finer grained phases of trachyte or latite porphyries to a breccia consisting of sub-rounded and angular fragments of plutonic and volcanic rocks set in a highly altered matrix. The Cherry Creek intrusions have been observed cutting the picrite-basalt and also the rocks of the Iron Mask batholith.

Locally, in the vicinity of the Pinnacle claims, the east margin of the property is reported to be underlain by Paleozoic rocks of the Cache Creek group which consists of argillites, limestones, quartzites, conglomerates and greenstones. To the south lie extensive thicknesses of mixed sedimentary and volcanic rocks of the Kamloops Series of Miocene age.

MINERAL DEPOSITS

Copper deposits are found mainly at the periphery of the Iron Mask batholith. A few deposits, however, do occur near the central part. Most are in the batholithic rocks, some in the intruded rocks.

There are impregnations, veins, stockworks, and mineralized shear zones in the country rock and many of the impregnation deposits appear to have no solution channels. The principal minerals are chalcopyrite and bornite with some chalcocite, cuprite, azurite and malachite. Chrysocolla and galena have also been reported. Magnetite and pyrite are both common and occur as lenses, veins or as fine disseminations. Hematite is less common. Quartz is generally present but in minor amounts. Gold and silver values are generally low but a few deposits carry good gold values.

Alteration in the wall rock is generally intense in the immediate vicinity of the mineral deposits but some altered rocks have been found at considerable distances away from known mineralization. Wall rock alteration in this area usually involves albitization of the plagioclase feldspar with the development of carbonate, chlorite and epidote.

In the coarse-grained rocks, the pink replacement breccia appears to represent structural conditions conducive to mineralization. Stockworks in the Python locality are considered to be mineralized zones of replacement breccia of feldspathized diorite or gabbro. Veins, on the other hand, are mineralized faults and are present on the Ajax claims of the Iron Mask mine.

The Iron Mask and nearby Erin orebodies are similar in shape, size and attitude. Each is lens-shaped in plan and about 175 feet in length. The maximum width of the ore zone is about 30 feet but averages 10 feet. Both deposits strike N 65° E and dip 75° SE. Chalcopyrite occurs as disseminations and stringers with minor bornite in fissure-controlled veins in mineralized diorite in contact with picrite-basalt.

In 1951, the Kamloops Copper Co. was formed to take over the Iron Mask, Erin and adjacent properties. Some new development work and rehabilitation of old workings was carried out in addition to underground diamond drilling. However, production was never resumed and the properties have remained inactive since.

Since 1950 several properties lying within the Iron Mask batholith have reported tonnages of mineralized material as follows:

Cominco Ltd. (Ajax, Wheal Tamar, Monte Carlo properties)	-	10,000,000 tons 0.5% Cu.[1]
Galaxy Copper Ltd. (Evening Star, Golden Star properties)	-	5,000,000 tons 0.5% Cu.[1]
Pinnacle Mines Ltd.	-	65,000 tons 0.66% Cu.[1]

1. Prendergast, J.B., Summary Report of Pinnacle Mines Ltd. for Velocity Surveys Ltd., Jan. 30, 1969.

Afton Mines Ltd. (Afton, Add groups) - 600,000 tons 0.63% Cu.[2]

Rolling Hills Mining Co.
(Makaoo, Python properties) - 311,450 tons 1.12% Cu.[3]

PINNACLE MINES LTD.

The property of Pinnacle Mines Ltd. was formerly held by Commercial Minerals Ltd. which company conducted sampling, stripping and diamond drilling in 1956.

About 5500 feet of surface diamond drilling, consisting of 22 vertical holes spaced 50 to 100 feet apart, was completed by Commercial Minerals Ltd. in the area west of the Joker adit. According to the Western Miner & Oil Review, April 1956, p.151, only partial drill assays are available, and these are listed below.

Hole No.	Depth Ft.	Footage	% Cu
2B	17-40	23	0.80
3	17-40	23	0.80
4	40-45	15	1.05
5	25-40	15	0.78
7	50-70	20	0.99
8	43-63	20	0.30
9	53-73	20	0.25
10	52-71	19	0.71
10	101-110	9	1.73
14	65-155	90	1.09

The principal mineral is native copper disseminated in microdiorite and in micromonzonite. Other minerals present in minor amounts are chalcopyrite, chalcocite, magnetite and hematite.

2. George Cross News Letter, Afton Mines Ltd., Nov. 30, 1968.
3. Fawley, A.P., Report of Rolling Hills Copper Mines Ltd., April 1964.

In 1967, Pinnacle Mines Ltd. carried out a magnetometer survey over the claim group, the results of which are unknown. In the same year, one drill hole, 150 feet long, was completed with apparently no core recovery.

During 1968 an extensive program of geological mapping, geochemical soil sampling and induced polarization work was conducted over the property with the object of locating diamond drill targets.

The soil sampling was carried out at intervals of 200 feet along lines spaced 400 feet apart. The results of the survey indicate that background for the area is about 60 ppm Cu. The maximum value from the soil sampling was 530 ppm or about nine times background. In fourteen localities "highs" of moderate intensity were obtained and five of these correlated well with the positions of known mineralization on the property. Considering the nature of the terrain and characteristics of the soil, there is a distinct possibility that anomalies may be "masked" or suppressed due to the depths of drift cover which would inhibit the upward migration of copper ions through the soil. The results of the soil survey, however, cannot be described as very satisfactory because no sizeable, well defined anomalies resulted.

Also hard pan and alkali zones in soil.

The induced polarization survey was not carried to completion due to instrument breakdown. Although the results do not indicate any strongly anomalous areas, the entire survey must be considered suspect in view of the ground conditions over which it was undertaken.

Diamond drilling has been to relatively shallow depths. Old reports of the Iron Mask and Ajax Mines indicate that good zones

of mineralization were found at depths of almost 700 feet below the surface. This should be borne in mind in any future drilling program.

CONCLUSIONS

The property of Pinnacle Mines Ltd. appears to be favourably situated from a geological standpoint. The problem, however, is to determine if any likely drill targets are present and, if so, where they occur.

In this regard, nothing more can be done geologically and there is no reason to suspect the geochemical survey of any shortcomings. On the other hand, there is reason to suspect the induced polarization survey because it was done in December, 1968, in extreme temperatures and heavy snow.

If targets are to be outlined, they will be outlined by the induced polarization method. It behooves the company, therefore, to redo the entire property by this method, using a spacing and configuration that will ensure maximum penetration. As the grid lines are already cut, this survey could probably be done for a cost of $25,000.

Any drilling should definitely depend on the results of the induced polarization survey which should only be undertaken when the ground conditions are suitable, i.e. any time except the dead of winter.

Respectfully submitted,

BACON & CROWHURST LTD.

G.D. Delane, B.Sc.

W.R. Bacon, PhD, P.Eng.

REFERENCES

1. Report on the Property of Pinnacle Mines Ltd.
Velocity Surveys Ltd. - J.B. Prendergast, M.A.
October 29, 1968.

2. Summary Report on the Property of Pinnacle Mines Ltd.
Velocity Surveys Ltd. - J.B. Prendergast, M.A.
January 30, 1969.

3. Geology & Mineral Deposits of Nicola Map Area, B.C.
G.S.C. Memoir 249 - W.E. Cockfield.

4. The Iron Mask Area
Western Miner & Oil Review
April 1956, pp.150-2

5. Geology of the Princeton, Merritt, Kamloops Area of Southern B.C. - J.M. Carr
Western Miner & Oil Review - Feb. 1962, pp.46-49

6. B.C. Minister of Mines Annual Reports
1908, 1909, 1910, 1911, 1913, 1915, 1916, 1918, 1922, 1923, 1924, 1925, 1926, 1956, 1967