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A MINERALOGRAPHIC STUDY
of a Suite of Ores from the BLACK PANTHER MINES.

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BLACK PANTHER

LOCATION:

Mine is situated in the Alberni Mining Division on Vancouver Island, at the head of the North Fork of the Nit-Not River on the divide between Nit-Not River and the China Creek drainage areas.

ACCESSIBILITY:

Access to the mine is from Alberni Canal up Franklin Creek by truck road for 17 miles, then by pack horse trail for another 3 miles. The camp is at an elevation of 1400 feet.

HISTORY:

The property has been known as the Black Panther group of claims since 1905 to the present.

The properties are owned at present by The Black Panther Mining Syndicate of Port Alberni, Vancouver Island.

A small amount of prospecting, stripping and drifting had been done on the property up to the fall of 1940 when Pioneer Gold Mines took the property under option. This Company's development work; principal drifting, crosscutting and diamond drilling until December 1941, when they relinquished their option, stating as the reason that the ore chute, although of excellent width and grade near the surface, did not appear to

go down to any depth.

GEOLOGY:

The ore deposit consists of quartz lens in a wide, intensely altered shear zone. This zone is a regional feature and may be traced for at least 8 miles. This zone strikes about due North and South and occurs at the contact between dioritic rocks to the East and Volcanic rocks to the West. The intrusions are considered as Jurassic and Cretaceous in age, and the volcanics are Triassic.

ORE DEPOSIT:

Quartz lenses of variable width and length occur approximately parallel to each other. The quartz is mineralized with galena, pyrite, chalcopyrite and sphalerite.

These lenses are displaced slightly transversely and along the lengths by minor post mineral faulting.

Their variable size and faulted condition makes development work difficult. Nevertheless, the first 500 feet of drifting in the ore zone indicated a total ore length of 250 feet averaging $4\frac{1}{2}$ feet and a grade of 0.6 oz. gold. The vertical extension of this ore was tested with a 70 foot raise to the surface, of which only the lower 30 feet was in ore. The chutes were tested below the drifts by diamond drill to a depth of 300 feet, at which horizon the grade was only marginal.

EXAMINATION OF THE ORE

Specimens of ore from the Black Panther Mines were polished and studied for the following purposes;

- (1) To determine the minerals present
- (2) To discover their relationships with one another
- (3) To determine the paragenesis.

MEGASCOPIC EXAMINATIONS:

The quartz varies from crystalline to vuggy in certain parts of the vein and in some places is highly fractured. Crystalline sulphides fill these vugs and fractures. Of these sulphides, pyrite is by far the most abundant.

The pyrite appears to have been the first mineral formed in the vein, and is highly fractured, suggesting post mineral movement. These fractures in the pyrite are filled with galena, showing the galena to have been formed later. Besides this galena in the fractures in the pyrite, some specimens show major fractures running right through the specimen and these fractures being filled with fine grained galena.

Judging from hand specimens, the pyrite constitutes about 70 per cent of the sulphide content of the ore; galena constitutes about 20 per cent.

MICROSCOPIC EXAMINATION:

Quartz:

The quartz is the main constituent of the vein, it also occurs in the fractures in the pyrite, probably suggesting two generations of

quartz. The quartz is crystalline, varying from the fine crystalline to the coarser crystalline vuggy type.

Pyrite:

The pyrite is, or has been originally, coarsely crystalline. The boundaries between the pyrite and the quartz are very irregular, indicating different mineralogical ages. In most places the pyrite is highly fractured and in some places veined by quartz. In figure one the pyrite is shown cutting the quartz.

Galena:

The galena is not as common as the pyrite. It is in contact with and replaces the pyrite. This is shown in figure two.

Chalcopyrite:

The chalcopyrite is later than the galena, as it is seen replacing it in several sections. There are no definite boundaries. Figure 3.

Gold:

The gold occurs in the galena being most common where the galena is in contact with the pyrite. The gold was very fine grained, being from 2 to 10 microns in size, shown in figure 4.

Some gold was associated with the pyrite but this was not common.

PARAGENESIS:

Quartz was the first mineral introduced in the formation of the ore body. The next mineral to be deposited was pyrite. There was then a period of post mineral movement during which the pyrite was

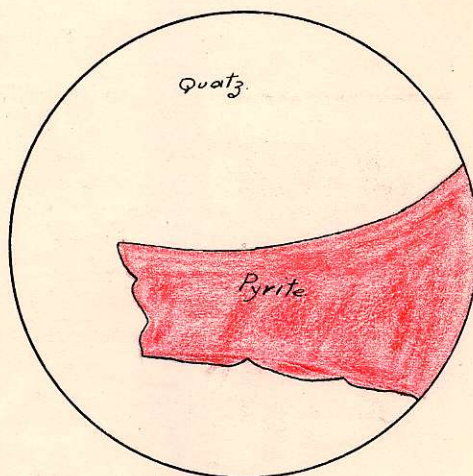
shattered. Then followed a period of deposition of quartz, which filled most of the fractures in the pyrite. A period of deposition of galena then took place. Gold occurs in the galena and was probably precipitated about the same time.

CONCLUSION:

The only mill tests on the ore were amalgamation and these were not very satisfactory.

It is believed that the fineness of the gold might be the cause of these unsatisfactory results. In this connection it might be mentioned that gold has never been seen in the ore with the naked eye nor with the aid of a hand lens, neither have colours been panned from the material after it was crushed, ground and roasted, although this same material assayed several ounces per ton.

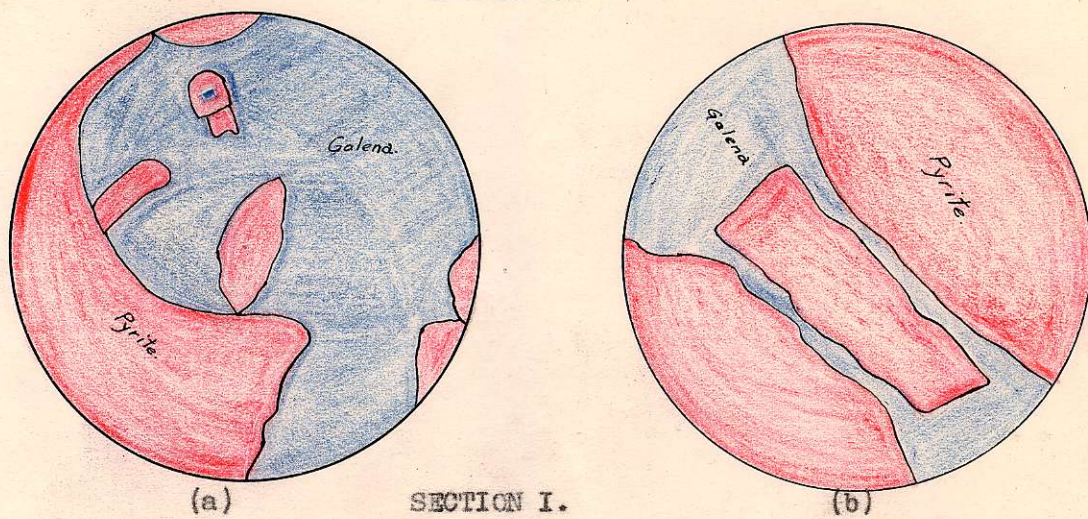
FIGURE I.



Section 2.

Pyrite cutting the quartz.

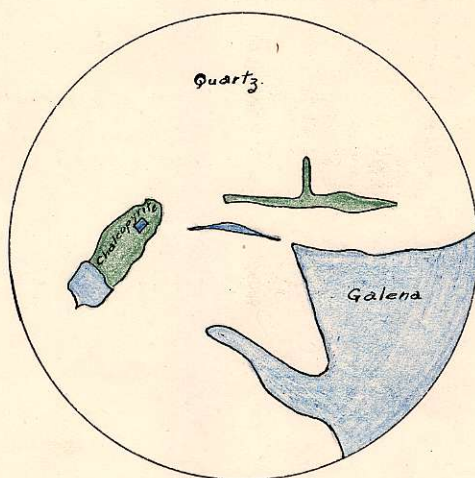
FIGURE II.



(a) Galena replacing the pyrite - actually tearing off pieces of the pyrite.

(b) Replacement veinlets of galena cutting the pyrite.

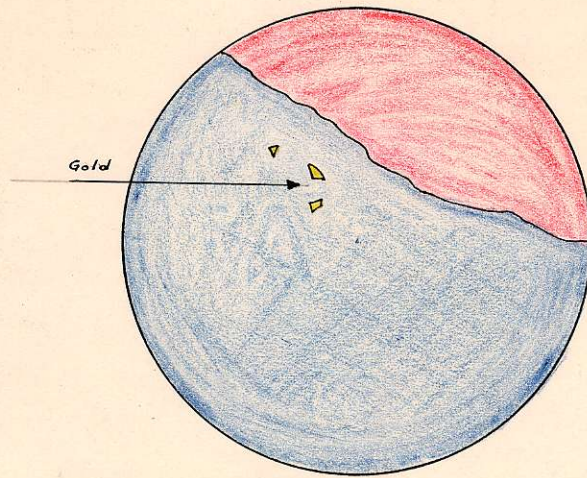
FIGURE III.



Section I.

Chalcopyrite replacing the galena.

FIGURE IV.



Showing gold in the galena, near the contact of the galena with the pyrite.