600201

REPORT ON ORE

from

BAYONNE MINE

as supplied by

BAYONNE CONSOLIDATED MINES LTD (N.P.L.)

By

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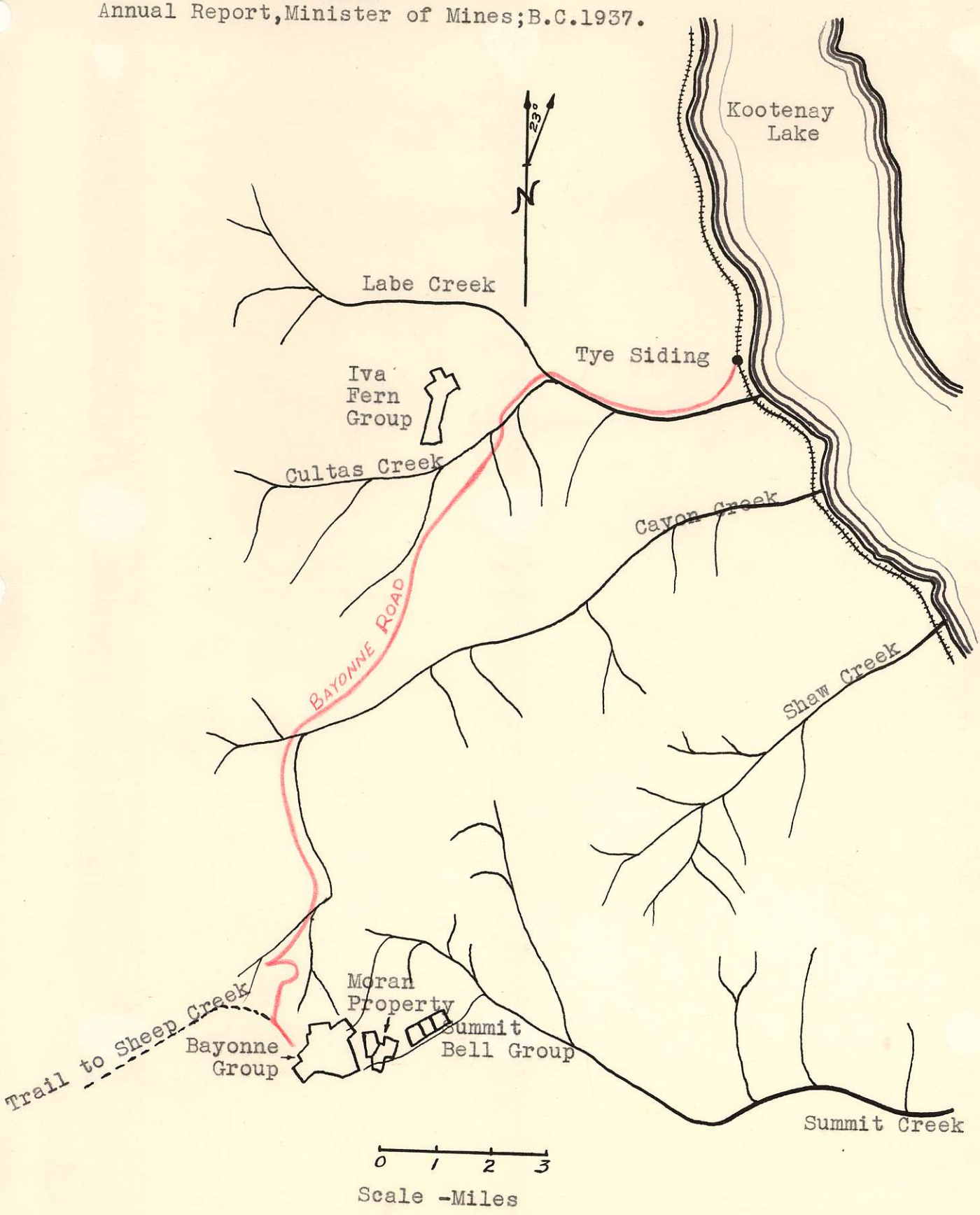
INDEX.

Map of
BAYONNE MINE AND VICINTY
from
Annual Report, Minister of Mines; B.C. 1937.



INTRODUCTION.

(A) Location and Description.

Bayonne mine is situated on Summit Creek, 23 miles by road from Tye Siding. (See map, page 1). The road is very winding and hazardous, and in winter, because of the heavy snowfall, only passable with tractors. The property consists of 17 crown granted claims and fractions and is owned by the Bayonne Consolidated Mines Limited (N.P.L.), 744 - W. Hastings Street, Vancouver, B.C.

(B) General Geology.

The property covers ground near the S.W. corner of a considerable area of intrusive rocks which have been called the Bayonne Batholith. Rocks outcropping and found underground on the Bayonne property may be called Granodiorite.

Vein system is a zone of fracturing, trending from N.60 E. to N. 80 E. and generally dipping steeply to the south although there are steep northerly dips.

(C) Purpose of Investigation.

The primary investigation to be undertaken was a microscopic study from polished sections of the vein material from Bayonne Mine: with the following points to be noted:

(1) Various minerals present.

(2) Relative quantities present.

(3) Paragenesis.

(4) Amenability to metallurgical treatments.

(5) How and where gold appears.

For this work two different samples were used. One, which shall be referred to as No.1, was a sample of selected sulphides from No.5 level, and the other, which shall be referred to as No.2, selected sulphides from No.8 level.

When no gold could be seen in any of the polished sections it was deemed advisable to superpan some of the ore and assay the various products in order to find out where the gold was. For this work a sample of run-of-mine ore from No.8 level was used.

PREPARATION PROCEDURES.

The polished sections that were used were prepared as follows. Sections were cut with a diamond saw from samples No.1 and No.2 and were mounted in brass boxes with dammar gum. These sections were then ground on a horizontal steel lap with No.303½ emery powder, hand rubbed on glass with 303½ emery powder, finally polished on a felt covered lap with chromic oxide.

The sample for superpanning was prepared as follows. Approximately 10 pounds of ore was crushed to ¼ mesh, and was quartered in a Jones Splitter. The smallest portion was finely ground in a pulverizer, and after a sample for assaying was removed, was screen-sized to give a suitable product (-150 mesh - 200 mesh) for super-panning. From the remaining ¼mesh ore there was hand picked, a sample of sulphide-free quartz, which was finely ground and assayed.

From polished sections of sample No.1 the following minerals, with the exceptions of Tetrahedrite and Cerussite were readily identified. In order of their abundance they are:

Quartz - Identified by hardness, color and internal reflections.

Occurs as the principal vein material through which the sulphides are disseminated. It is honey-combed with vugs and rust stained.

Pyrite -Identified by color and hardness. Occurs as disseminated crystals, usually veined by galena, quartz and sphalerite.

Galena -Identified by color, hardness and triangular pits. Occurs in irregular masses throughout the quartz guangue oftening veining pyrite. It contains blebs of Tetrahedrite (?)

Sphalerite.-Identified by color, streak, irregular pits and internal reflection. Occurs as irregular masses, commonly associated with Galena.

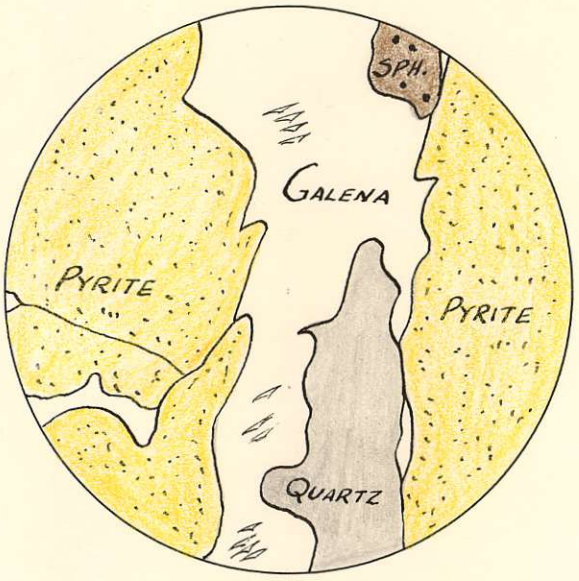
Chalcopyrite-Identified by color, habit and etch tests. Occurs as small irregular masses and blebs in sphalerite.

Tetrahedrite(?) Color- gray, darker than galena, hardness- similiar to glaena. Etch Tests - Negative to $FeCl_3$ and $HgCl_2$- some blebs light brown with Kcn. Very weakly anisotropic. Microchemical tests on galena containing small blebs gave positive tests for copper but negative tests for antimony. Occurs as small irregular blebs

in galena.

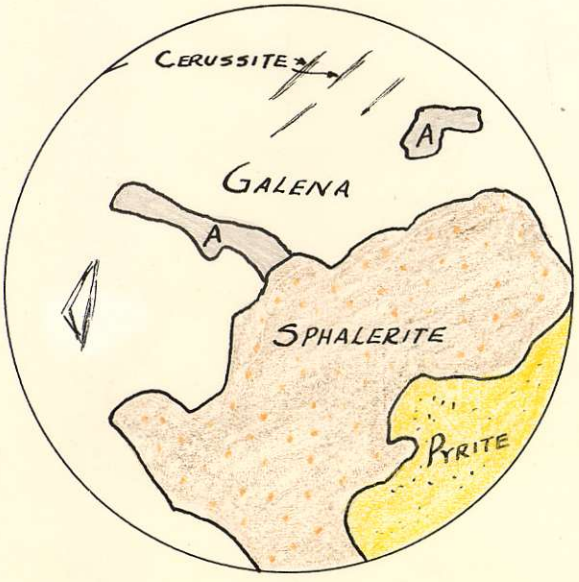
Cerussite. Identified by habit. Occurs replacing galena along grain boundaries: see drawings.

The following sketches will serve as an aid to the foregoing explanations.



X 60

Typical view showing galena quartz and sphalerite veining pyrite.



X -320

Typical view showing blebs ("A") of tetrahedrite in galena. Note spots of chalcopyrite in the sphalerite, (Do not darken when etched with KCN.) and cerussite replacing galena.

Now from polished sections of sample No.2 the following minerals were identified. They are given in order of abundance.

Quartz - same as before.

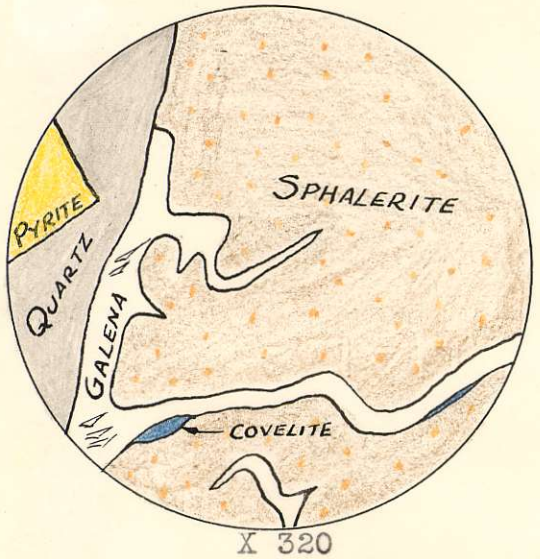
Pyrite - same as before.

Sphalerite - same as before.

Galena - same as before except no blebs of tetrahedrite.
Chalcopyrite - same as before.

Covelite - Identified by color - occurs as minute scales associated with sphalerite and galena.

The following sketch will serve as an illustration.

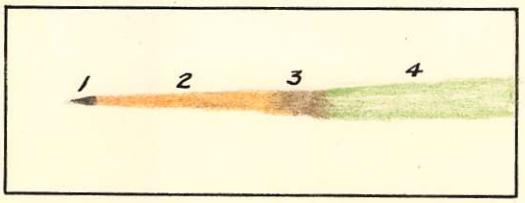


X 320

Note the pyrite exhibiting its crystal system, and again the chalcopyrite specks in the sphalerite. This was the only section that showed galena or covelite. Typical sections are similar to that already displayed on page 5, except galena is replaced by sphalerite.

The product prepared for superpanning was treated on a Haultain Super-Panner. There were four distinct separations, namely: small galena tip, large pyrite concentrate, a smaller sphalerite concentrate and a large quartz concentrate. See sketch below.

Plan of Super-Panner



(1)Galena Tip (2)Pyrite Conc. (3) Sphalerite Conc. (4) Quartz Conc.

The sulphides were taken off as a bulk concentrate, and assayed. The quartz concentrate was sampled and assayed. Weights and assays as per following table.

SAMPLE	WEIGHT	ASSAY(oz/ton)	DISTRIBUTION
Head	1 A.T.	0.95	
Panned Sulphides	14.5 gm	10.90	90.6 %
" Quartz	163.5 gm	0.10	9.4 %
Hand Picked Quartz	1 A.T.	0.04	

CONCLUSIONS.

An examination of the foregoing observations brings out the following points.

(1) Principal sulphide minerals are pyrite, galena sphalerite.

(2) Galena has become very scarce and sphalerite abundant on No.8 level, just the reverse of the ratio found on No.5 level. This fading out of galena is natural and to be expected with depth. Pyrite is the most abundant of the sulphides on both No.8 and No.5 level, and showed no noticeable change with depth.

(3) It is impossible to draw a complete and definite conclusion on the paragenesis of this ore. However it may be said that pyrite was the first mineral to crystallize. This is evidenced by the pyrite not only exhibiting its own crystal form in many places but also by its being badly fractured and having these fractures filled with all of the other minerals.

Quartz was probably next because it is also found veined by all the other minerals except pyrite. It is thought that sphalerite and galena were of a later period. That sphalerite was the first to crystallize of these two minerals is evidenced by the higher ratio of galena to sphalerite in the upper portion of the vein.

(4) As no gold could be seen it is impossible to draw a definite conclusion as to how it occurs. However metallurgical treatment for gold recovery presents no difficulty. The gold is easily freed and good recoveries made by cyanidation. Therefore the gold cannot be locked up as tiny inclusions in the mineral grains. That the gold is associated with the sulphide minerals is evidenced by the fact that the super-panned sulphides carried the bulk of the gold (90 %). To make sure, these sulphides did not contain gold that may have been freed from the quartz when preparing this sample, a quantity of large-sized, hand-picked, sulphide-free quartz was ground and assayed. This assay ran very low in gold (0.04 Oz/ton) which further proved that the gold was not associated with the quartz. Therefore it is concluded that the gold is definitely associated with the sulphides, and probably occurs as tiny blebs in the interstices of of the sulphide grain boundaries.

REFERENCES.

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ACKNOWLEDGEMENTS.

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