

O T T A W A

June 25th, 1940.

R E P O R T

of the

ORE DRESSING AND METALLURGICAL LABORATORIES.

Investigation No. 855.

Microscopic Examination of Sample of Gold Ore
from the Getchell Mine, Inc.,
Red House, Nevada.

=====

BUREAU OF MINES
DIVISION OF METALLIC MINERALS
—
ORE DRESSING AND
METALLURGICAL LABORATORIES



CANADA
DEPARTMENT
OF
MINES AND RESOURCES
MINES AND GEOLOGY BRANCH

O T T A W A

June 25th, 1940.

R E P O R T
of the
ORE DRESSING AND METALLURGICAL LABORATORIES.

Investigation No. 855.

Microscopic Examination of Sample of Gold Ore
from the Getchell Mine, Inc.,
Red House, Nevada.

Sample:

=====
The sample of gold ore from the Getchell Mine, Inc., Red House, Nevada, was received by the Division of Metallic Minerals, Bureau of Mines, Ottawa, Canada, on May 4th, 1940. It consisted of several large pieces of ore totalling some fifteen or twenty pounds in weight, and was submitted by Fred Wise, Superintendent of the

Getchell Mine, Inc., at the request of C. S. Parsons, Chief, Division of Metallic Minerals, Bureau of Mines, Ottawa, Canada.

Purpose of Examination:

The purpose of the examination was to study the character of this refractory gold ore, which is being treated successfully in a novel manner. It was thought possible that comparison of this with refractory gold ores in Canada might lead to the application of similar methods in this country.

Preparation of Sample:

The various pieces of ore comprising the sample, when viewed with the naked eye and under the binocular microscope, did not show any significant variations in character. Nevertheless, they were broken up and small pieces were selected from which to prepare twelve representative polished sections.

General Description:

In the hand specimen the ore appears to be very fine-textured and is light bluish-grey to dark grey in colour. It is highly siliceous in character, with only a minor quantity of finely disseminated carbonate. It contains small vugs, on the inner surfaces of which are grown tiny crystals of quartz which can only be seen with a lens. Very little sulphide is apparent to the naked eye, but small grains of pyrite may be seen scattered throughout the gangue.

Description of Polished Sections:

In the polished sections considerably more sulphide is to be seen.

Pyrite is the most abundant sulphide. It occurs as medium to fine disseminated crystals and as tiny disseminated particles. The finely divided pyrite occurs in two ways: (1) as concentrations of tiny grains along narrow sinuous stringers (see Figure 1), and (2) as tiny particles sparingly disseminated throughout the gangue (see Figure 2).

A small quantity of arsenopyrite is present as occasional grains associated with the coarser pyrite and as tiny crystals scattered in the gangue. Very rare small grains of chalcopyrite occur with the pyrite and also in the gangue.

Neither native gold nor gold minerals were detected.

Grain Sizes of the Sulphides:

The grain sizes of the sulphides were determined by traversing the sections under the microscope, using a high-power oil immersion objective. The main portion of the following table shows the distribution down to minus 2300 mesh, or minus 6 microns. The fine pyrite of the minus 6 micron size is further distributed down to 1 micron in the latter portion of the table.

(See Table I on next page)

TABLE I.

Grain Sizes of the Sulphides in Sample
of Gold Ore from the Getchell Mine, Inc.

| M e s h | : Size, : in :microns | WEIGHT, PER CENT | | |
|-------------|-----------------------------|------------------|-----------------------|----------|
| | | : Pyrite | : Arseno- : pyrite | : Totals |
| + 200 | : +74 | : 45.2 | : 1.6 | : 46.8 |
| - 200 + 280 | : -74 +52 | : 7.2 | : - | : 7.2 |
| - 280 + 400 | : -52 +37 | : 3.1 | : - | : 3.1 |
| - 400 + 560 | : -37 +26 | : 3.1 | : - | : 3.1 |
| - 560 + 800 | : -26 +19 | : 4.7 | : 0.7 | : 5.4 |
| - 800 +1100 | : -19 +13 | : 4.4 | : 0.5 | : 4.9 |
| -1100 +1600 | : -13 + 9 | : 4.9 | : 0.6 | : 5.5 |
| -1600 +2300 | : - 9 + 6 | : 3.8 | : 0.1 | : 3.9 |
| -2300 | : - 6 | : 20.1 | : - | : 20.1 |
| | | : 96.5 | : 3.5 | : 100.0 |
| | | : 5 | : 2.4 | : |
| | | : 4 | : 3.3 | : |
| | | : 3 | : 4.9 | : |
| | | : 2 | : 5.1 | : |
| | | : 1 | : 4.4 | : |
| | | : Total - | : 20.1 | : |

oooooooooooo
ooo
o

MHH:PES.

Figure 1.



Photomicrograph of polished section, showing finely divided pyrite along a stringer. Pyrite - white; gangue - grey to black, the variation being due to light reflected from beneath the surface of the section.

Magnification - X2000, oil immersion.
The micron scale is marked at bottom; size of picture is equivalent to one 200-mesh opening.

Figure 2.



Photomicrograph of polished section, showing fine particles of pyrite disseminated throughout the gangue. Pyrite - white; gangue - grey to black, the variation being due to light reflected from beneath the surface of the section.

Magnification - X2000, oil immersion.
The micron scale is marked at bottom; size of picture is equivalent to one 200-mesh opening.

