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Prompt Pay Mine
Gilpin Co., Colo.

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A R E P O R T
on the
P R O M P T P A Y M I N E , G I L P I N C O U N T Y , C O L O R A D O .
BY
G E O R G E J . B A N C R O F T , M . E .
Denver, January 10, 1917.



LOCATION

The accompanying maps show the location of the Prompt Pay Mine both with regard to its immediate surroundings and with regard to the State of Colorado.

The altitude is 9250 feet above sea level.

As will be noticed upon map No. 2 the claim is in the heart of the Central City district which district has produced upwards of one hundred and fifty millions of dollars worth of metal, the same being mostly gold and silver with small amounts of lead, copper, zinc and radium. *It is about 1/2 mile from Russell Gulch P.O.*
The location is favorable for economical mining.

The Prompt Pay Mine

GENERAL CONDITIONS.

The district is well supplied with railroads, power lines, stores, hotels custom mills and all other conveniences and equipment of a modern mining camp. It is also favored with a very efficient mining population. It is noted as the camp where there has never been a serious labor strike.

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There are two long tunnels which have been driven from near Idaho Springs under the Central City district, namely the Argo Tunnel and the Lucania Tunnel. Both of these tunnels are shown on map number two.

The Lucania Tunnel is about 1400 feet and the Argo about 1700 feet below the surface at the Prompt Pay Mine.

The nearest working on either of the deep tunnel levels is the Old Town lateral of the Argo Tunnel. This is about 2300 feet distant from the downward projection of the Prompt Pay shaft. It is not desirable at the present time to make a connection with the Argo Tunnel but it may be advantageous sometime later.

THE PROPERTY.

The property consists of one patented lode mining claim (Pat. No. 780), covering about _____ acres of ground and 400 feet of the westerly end of the Jefferson claim (Pat. No. 768), covering 0.46 acres.

Under our laws the owner of the apex of a vein may follow the vein beyond the side lines of the claim, in case the vein is not a vertical one. Also in case two veins join at depth then the older patent takes the ore at and below the junction.

The Prompt Pay vein is nearly vertical but there are a number of inclined veins which come into the Prompt Pay at depth and (^{important} often make local) (^{are anticipated} enrichments at the junctions. The Prompt Pay is the oldest patent amongst its neighbors so all such ore bodies belong to the Prompt Pay claim.

The apex of the Prompt Pay vein is covered for a distance of 1900 feet.

THE VEIN.

The Prompt Pay vein is probably the south-westerly extension of the famous Jefferson-Calhoun Vein, which has yielded a very large amount of wealth. In fact, there are a series of open cuts along the apex of the vein all the way from the Jefferson-Calhoun to the Prompt Pay shaft.

The vein trends about north sixty degrees east. It stands nearly vertical.

of the property A consideration of the data *obtained by a thorough examination* set forth on map *already* No. 3, shows that there is a considerable amount of ore exposed

which averages 1.1 ft. in thickness and \$30.00 in value. It must be understood that at the time of my examination the mine was just as the leasers had left it. Naturally, they had taken out all the ore in sight so far as possible.

My sampling shows considerable distances in the drifts that are barren. ~~ff~~ The stopes, however, show that

large and continuous bodies of ore near the surface have been worked out. This apparent discrepancy is probably to be

accounted for by the fact that a good part of the values are contained in small high grade streaks of lead ore and, of course, the leasers dug out these little streaks wherever they were exposed. In other words, I think that a fresh drift that has not been robbed of its high grade streaks would show much more continuous values. *Note*

The old stopes in the mine *These stopes* are in many places

6 feet wide

Furthermore, there is hardly any dump at the collar of the shaft showing very conclusively that a large tonnage of ore has been mined and milled. I think it is fair to assume

that it was worked at a profit.

The history of the mine tells us that it has produced \$50000⁰⁰ EQUIPMENT. and paid dividends from the grass roots down.

The mine has lately been equipped with a good boiler and hoist capable of hoisting from a depth of 500 ft. It also has a good shaft house, blacksmith shop, buckets, tools etc.

character of ore

The ore is for the most part a heavy iron sulphide carrying gold and silver. In addition there is a streak of lead ore (galena) which comes and goes. This lead is very high grade in gold and silver, averaging about \$125.00 per ton in addition to the lead values. There are also occasional shoots of radium ore (pitch blende). These radium shoots are erratic but the value of the ore is so great that a small body is quite an important factor. There ^{is} ~~was~~ no radium ore exposed in the workings at the time ^{present} of my visit ^{but there are} but I have seen nice shoots of pitch blende in the Jefferson-Calhoun Mine.

DEVELOPMENTS.

As previously mentioned there is practically a continuous string of shallow workings extending from the Prompt Pay shaft north easterly to the end line of this ^{and the Jefferson-Calhoun} property, a distance of about 400 feet.

It is evident that there was almost continuous ore for that distance.

Near the surface the ore was oxidized and the gold could be recovered by the cheap and simple process of stamp milling and amalgamation. Under these circumstances many veins in Gilpin County were worked down to the horizon where the oxidized ore was replaced with the unaltered sulphide ore. This ore is more difficult to treat (as will be discussed later) and the operations were suspended.

Only the richer shoots were followed downward. One of these richer shoots was followed downward in the Prompt Pay shaft. *This shaft is 188 ft. deep and there are short levels at 60 ft, 120 and 170 ft.*

Map No. 3 is a rough sketch map of the shaft and workings. It will be noticed that a very considerable amount of work has already been done that the vein shows up very well.

MILLING.

omit all after this

This ore is very heavy in iron pyrites, so much so that it will concentrate only about three tons into one. A few years ago this kind of ore would be difficult to handle. In the first place concentration methods, before the advent of the flotation process, were capable of saving only about 70% of the values in an ore of this class. In the second place there was no market for such concentrates except at the smelters. Nowadays we have the advantage of the flotation process to aid in concentration and the chemical industry at Denver has grown to such proportions that pyrite concentrates are salable under very favorable terms.

I have made two tests on the ore, one by concentration methods and one by fine grinding and amalgamation. Both tests were successful.

The ore was first ground to 30 mesh. It was then concentrated on a Wilfley type table. The lead ^(galena) separates out easily, making a concentrate that runs 53.3% lead, 13.3 ozs. silver and 4.62 ozs. gold. Having a total value of \$180.32 per ton. Any pitch blende that might be encountered would also be easily separated from the ore.

The ^{auriferous pyrites} iron will then be saved partly on tables and partly by the flotation process.

My test was on only 20 kilos of ore and this is too small a unit to be reliable. However, the Argo mill at Idaho Springs is making average recoveries month in and month out of over 90% on similar ores and the same process so I think it is safe to figure on a high recovery by this process.

In my test the crude ore ran \$10.24, the lead concentrates \$180.32 and the iron concentrates \$18.58. } note

A clean iron pyrites concentrate will analyse 7% silica, 49.5% sulphur, 43.4% iron. Such concentrates will command a freight and treatment rate, F. O. B. Black Hawk of 50 cents per ton. In other words, the sulphur and excess iron bring in \$5.50 which deducted from at \$6.00 rate leaves 50 cents to pay. It will cost probably \$1.00 per ton to deliver the concentrates in Black Hawk, so the entire freight and treatment would be \$1.50 per ton. On account of this low rate the milling of this ore by concentration processes presents many attractive features.

In the other test I simply ground the crude ore in a tube mill till it was about 150 mesh. I then amalgamated it and recovered 75.7% of the gold and silver values.

The lead should have been taken out first. Had this been done the extraction would have been over 80%.

The beauty of this method is its cheapness and simplicity. I have not done enough work on either process to reach final conclusions but the work I have done shows that the ore is easy to mill.

SUMMARY.

This mine is on a strong vein that has yielded great wealth. What work has been done has disclosed attractive bodies of ore. There are no apparent difficulties in milling the ore. Under the circumstances I think that the property merits further development.