

MORMON BASIN DISTRICT

(7)

LOOKOUT -
PEDRO MT. R.

The Mormon Basin mining district is situated a few miles south-southwest of Pedro mountain. It covers an area of about 15 square miles and is partly in Baker and partly in Malheur county. It is a true basin in shape with many small gulches draining towards the central part where they unite with Mormon Basin creek, which makes its exit through a small canyon in the southern rim. The elevation of the floor of the basin is about 4,700 feet and it is probable that the maximum relief is about 1,000 feet.

The steep sloping hills are covered with sage brush and the higher elevations with sparse timber. There is a small precipitation. In winter the snowfall is not heavy enough to be of any great inconvenience. The railroad points are Durkee, 22 miles away, and Huntington, 25 miles distant.

The geologic history of this immediate vicinity is similar to many other regions of eastern Oregon, but with certain phases somewhat accentuated.

The oldest rocks, which are also the predominant ones, are a series consisting chiefly of what were originally mudstones, sandstones, and siliceous and calcareous sediments. Interbedded with these may have been some lava flows or perhaps the basic igneous rock was intrusive into sediments in the form of sheets and sills.

This series was then subjected to severe mountain building forces which folded and faulted the rocks and altered the shales, sandstones, siliceous and calcareous rocks into slates, quartzites, cherts and marbled limestones. By these same forces the basic igneous rocks were altered until they now consist of secondary hornblende, serpentine, and other green-colored minerals, so that they are now called greenstones.

Just at the close of this period of mountain building which contorted, fractured, and changed the series into rocks very much as they are at present, there came a granitic intrusion. The largest batholithic mass now exposed by erosion is that of Pedro mountain to the northeast. A stock of considerable size occurs west-southwest of the basin and can be seen along the road to the town of Malheur. Generally speaking the rock is a granodiorite of medium granular texture and consists of andesine feldspar with quartz, hornblende, and biotite and small amounts of magnetite. There are of course local variations in its composition due to magmatic differentiation. Increase of quartz bringing it nearer a granite, the decrease of quartz making it a quartz-diorite while the absence of quartz makes it a diorite.

Accompanying the intrusion in its closing phases were the characteristic dikes of porphyry and aplite. The first mentioned type are of peculiar interest in this region on account of the well known "spotted" dike of the Rainbow mine. This particular rock is described under the description of that mine.

The heat of the intrusion as well as the emanations from it contributed further to the metamorphism of the overlying rock. During the cooling of the magma the region was under stress and the resulting fissures were filled with molten material which upon solidifying formed the dikes that have just been mentioned. Later when much of the magma had solidified the fissures which were formed at this time were filled with ascending quartz solutions. These solutions deposited their quartz in the veins, and the precious metals and other minerals also. In this particular region movement took place during vein deposition as is shown by cemented vein breccia in many of the veins.

The mineralization of the veins in Mormon Basin varies. In some a large percentage of the gold is free; in others it is contained in sulphides which are chiefly arsenopyrite, and pyrite with minor amounts of sphalerite and galena.

After the veins were formed there was a period of erosion. Then came the outpourings of Tertiary lavas and the formation of lake beds during the same age. Both acid and basic lavas are to be found in this vicinity. The former which were probably earlier are repre-

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sented by rhyolites and trachytes. In the Humbolt mine there is a dike of altered rock that was probably a feeder to one of these later flows.

Lake beds were formed in the lower part of the basin and probably have a thickness of a hundred feet or more. In places they are interbedded with altered trachytic flows. The lake beds vary in character from coarse gravel to clay. It is probable that the placers of today were at least partly formed by the reconcentration of gold bearing Tertiary gravel beds by present day streams.

The basic lavas are represented by basalt as in other parts of the eastern Oregon region. They are probably somewhat later than the lake beds. Basalt is found on many of the ridges.

Since the Tertiary series of lake beds and lava flows were laid down considerable movement has taken place, as is shown by the tilting and faulting of them.

Recent erosion has taken away much of the Tertiary covering. The present day placers have been formed by the wearing away of auriferous veins and the consequent deposition of the gold in the stream channels and also by the reconcentration of gold-bearing gravels of the lake bed formation.

This region is a particularly difficult one to prospect as is evident by the many abandoned tunnels. The cause of this difficulty is the close resemblance in places of the lake beds to the older altered rocks. Fragments of gold-bearing quartz in the coarser deposits of the lake beds entice the prospector to drive underneath ore at the surface which is not in place. The amount of wash or mantle rock is often such as to hide the true character of the bedrock. In some parts of the

Basin faulting and shattering is particularly prevalent and here even when a true vein is found care must be taken to find it beyond the fault.

The foregoing remarks are made not to discourage prospecting in a region so well mineralized that it has the greatest producing mine in the state, but to show the especial need here of very careful geological work.

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OTHER PLACER AND QUARTZ PROPERTIES

Willow creek is one of the largest tributaries of Snake river and enters it a short distance above Huntington. A bare ridge, 1000 to 2000 feet high separates Burnt river and Willow creek. On the slopes of this ridge and from 6 to 12 miles west of Rye valley are a number of well known old placer camps—Clarks creek and Bridgeport on Burnt river and Mormon basin, Amelia, Malheur and Eldorado on the Willow creek side. The operations have largely ceased in most of these camps. Except Mormon basin, they were not visited.

The Rye valley placers were discovered shortly after 1862 and have been worked up to the present time with a total production of more than \$1,000,000. Water is available for only a few months in the year.

Dixie creek has been placered for 3 miles above the town but the high gravel bars have produced by far the most gold. Years ago it was proposed to dredge the stream bed but a depth of 90 feet has discouraged the attempt although borings are said to show an average value of 30 cents a yard.

A number of quartz veins have been found near Malheur but as yet none of them have become steady producers. The Red, White and Blue vein near Malheur has been developed by a shaft and has produced at times. It is said to be a vein 2 feet wide contained in a clay slate which is cut by diorite dikes.

A number of quartz veins containing silver have been found on Pedro mountain and attracted attention 40 years ago. The veins were rich in silver. But little has been done upon them in the last few years.

MORMON BASIN PROSPECTS & PRODUCTION

OTHER PROSPECTS

Besides the Rainbow and Humboldt mines that have been described briefly above, there are several prospects in the Mormon basin district. A failure to correctly gauge the time required for the work, caused even less time to be devoted here than elsewhere although it is one of the newer and most productive camps.

No description of these prospects will be given here because detailed work is especially necessary in this region to insure a proper degree of accuracy.

PRODUCTION

The production of the Mormon basin district from its placer mines is not known although the amount is quite large. The production from quartz mines is almost confined to the last seven years. The total production for the seven years is approximately \$1,400,000.

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Mormon Basin Dist

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Quote Handbook pages 255 (bound volume)

Blue Mud Prospect

Mormon Basin Dist

owners Ralph Gorman James Kidwell and John Kerman Estate, Idale

Quote 846-A - page 47

Borden Claims

Mormon Basin Dist

Quote Prospect Card

Cleveland Development Co

Mormon Basin Dist

Quote 846-A page 47

Fairview Claims

Mormon Basin Dist

Quote Prospect Card

Griffin Mining and Milling Co

Mormon Basin Dist

A O Washerman Pres. J. A. Dore Secy Budget, Ore
Capitalization \$150,000. ~~See quantity claims and map files~~
(1937 report)

Gold Coin Place

Mormon Basin Dist

Quote Handbook page 102

Hice Mine

Mormon Basin Dist

Quote 846-A - page 46

2/ Mormon Basin Sect (cont)

Humboldt Mine
owner John Herman Estate Portland Oregon, Production \$150,000
Quote 846-A page 45

Mormon Basin Sect

Indiana Mine

Mormon Basin Sect

Quote Allen yellow sheet

Intermountain Mine

Quote Present Card

Lucky Strike Mines

Mormon Basin Sect

Quote Present Card

Monarch Gold Dredging Co

Mormon Basin Sect

W A Moon Pres. W J Moon Secy - Treas

Capitalization \$300,000. Discovered by proclamation 12/31/38

Mosters Prospect

Mormon Basin Sect

Quote 846-A page 48

Oregon Dredging Co

Mormon Basin Sect

Quote Present Card

Overshot Group - Quote Allen report

and easy money
Quicksilver, Mines

Mormon Basin Sect

Quote Allen report

7 Mormon Basin Dist (cont)

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Mormon Basin Mines, Inc. Mormon Basin Dist
Capitalization \$500,000; F.W. McDonald Pres. Genl. Mgr.,
Wm. W. Noon Secy, Baker Oregon Sec. Treas.
1937 report to Corporation Commissioners also states
that the company owns:

- The Rainbow Mine of 6 Patented and 18 unpatented claims
 - The Rainbow Extension Mine of 5 unpatented claims
 - The Regal Mine of 5 unpatented claims
 - The Randall group of 4 unpatented claims
- all in Baker and Malheur Counties

• Rainbow Mine; Quote 846 A page 37

Only a little activity since above was written

Rainbow Extension: no information

Regal: no information

Randall Quote 846 A page 41

Quote Allen report (yellow sheet)

Regal Mine Mormon Basin Dist
The Gemeth Gold Mining Co, Roy Chedwell, agent Siskiyou
Oregon operate the Regal Mine

Quote Present

This property was operated all summer of 1938

Summit Mine Mormon Basin Dist

Quote Allen Report

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Mormon Basin Vent (cont)

Sunday Hill Mine Mormon Basin Vent

Quartz - Allen report and report under
geology 846A page 41 as indicated

**Cinnabar Deposit
Found in Baker**

VALE, Nov. 16 (Special)—
One of the largest cinnabar deposits in Oregon is reported to have been located near Bridgeport in Baker county, about half way between Vale and Baker. The deposit covers 1000 acres. Tests made indicate that the deposits runs from 2 to 11.8 per cent.

