

4/11

Red Boy Mine

Gold

NAME	OLD NAMES	PRINCIPAL ORE	MINOR MINERALS
Head of Congo Gulch			

9 S	35 E	10
T	R	S

PUBLISHED REFERENCES

Dogami 14-B, 60  
 Lindgren 01:680  
 Swartley 14:189  
 Fardee & Hewett 14:110  
 Parks & Swartley 16:188, 191  
 Hewett 31:9, 10, 21, 36, 42  
*Lorain 38:15*

MISCELLANEOUS RECORDS

.. Grant ..... COUNTY  
 .. ~~Granite~~ GRANITE ..... AREA  
 .. about 4600 ..... ELEVATION  
 ..... ROAD OR HIGHWAY  
 .. about 1.9 mi. Supter. .... DISTANCE TO SHIPPING POINT

PRESENT LEGAL OWNER (S) .. Hallock, Donald & Banta .....

Address .... Baker, Oregon .....

OPERATOR .....

Name of claims	Area	Pat.	Unpat.

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EQUIPMENT ON PROPERTY

9/30/40 M  
Intermittent milling operations are reported from the 10-stamp mill at the Red Boy mine four miles from Granite, Oregon, in Grant County. Fred C. Smith, Granite, and associates, are operating the mine, concentrating present attention on the Congo claim of the group.

RED BOY MINE (Gold)

Red Boy District

Granite Area

Owner: Law firm of Hallock, Donald and Banta of Baker, Oregon, and Edith F. Nichols.

Location: Located at the head of Congo Gulch, 5 miles west of Granite.

". . . . The total production of this mine is between \$800,000 and \$1,000,000; it is one of the best known mines of Eastern Oregon. Its activity at the present time is confined to prospecting in certain parts of the mine and to re-cyaniding some of the low-grade concentrates".

"The country rock is a slaty siliceous to calcareous black argillite, originally a mud deposit in quiet waters on the floor of an inland sea. . . . The granodiorite intrusion which now makes up the main ridge of the Greenhorn range has a northward spur on which is the Ben Harrison mine, about a mile from the main range. This same spur extends northward on the west side of the Red Boy mine. From this spur, as in practically all the other districts,

dikes ranging from granodiorite porphyry to quartz aplite have filled fissures in the adjoining argillite.

"The dikes in the underground workings of the Red Boy mine are very badly altered, but a microscopic examination of some of the fresher pieces shows that they are felsites of aplitic tendencies. These dikes, which near the veins are quite narrow, were injected into the fissures in a molten condition from below at some time well along in the dike-forming period. The upward flow had no crystals formed in it previous to the somewhat sudden ascension of the molten material, which because it was injected in narrow, sheetlike form between cold walls, congealed so quickly that only small or incipient crystals of quartz and feldspar had time to form.

"A further shifting and movement occurred and the planes in which the dikes were located were fractured again because they were planes of weakness. This fracturing and movement involved both dike and adjoining argillite, but the latter was fractured to a much greater degree. . . . The quartz in the veins fills in and surrounds the sheeted and brecciated argillite. In some places white quartz and dark argillite are in roughly parallel bands when the vein is observed in cross section; at other places the appearance is more that of fragments of argillite of all shapes held in a white quartz matrix.

"The characteristics of the vein itself are well stated by Lindgren: 'In their general character the veins are similar to those of Cracker Creek, though they are not so wide. They consist of a crushed fault zone in argillite, from 3 to 15 feet wide, in which the broken rock is cemented by a great number of quartz seams.

"The footwall of the Monarch is usually smooth and sharply defined, while the hanging is less well marked, a definite wall being often entirely absent. The width between walls varies from 5 to 7 feet. The vein matter is a black, crushed slate, and sometimes, also masses or bunches of soft porphyry, both containing finely divided pyrite. The vein matter is traversed by a number of small quartz seams, rarely over 4 inches wide. Most of the seams are on the footwall side and produce a banded appearance of the vein. The best pay is contained in the 2 feet on the footwall, though the whole width is mined. In a few places on the Monarch vein bunches of 5 to 6 feet of solid quartz were found. The seams usually show clearly defined comb structure, the crystals projecting from both sides of the seams, meeting in a median line. There is no evidence of surface oxidation of the Monarch on this level.

"The Red Boy vein averages from 3 to 6 feet in width and is in general structure similar to the Monarch, though the quartz is apt to form somewhat heavier bodies. It also contains more clay than the Monarch vein'.

"The value of the ore appears to be entirely contained in the quartz seams and consists chiefly in free gold alloyed with much silver, the bullion being from 515 to 525 fine. The quartz contains a small amount of sulphides, pyrite with very little chalcopyrite, and arsenopyrite . . . . Metallic silver and copper have also been found on the Monarch vein, inclosed in white massive quartz, and thus probably primary. The 5 percent sulphurets contained in the ore are low grade, from \$5 to \$20 per ton, and probably are largely contained in the slate mined with the quartz'".

"It is believed that a careful reading of the above will bring out the following facts:

"1. That the best channel was along the foot wall which lessened toward the hanging wall.

"2. That the best pay is contained in 2 feet on the foot wall, although the vein is from 5 to 7 feet wide. The values lessen, generally speaking, from foot toward hanging.

"3. That the quartz seams are banded with free crystal faces in the middle of the bands, indicating that they were formed from ascending hot solutions. Quartz formed in the cold is chalcedonic.

"4. That the value of the ore appears to be largely contained in the quartz seams, chiefly in free gold and silver.

"5. That the sulphides found disseminated in the dike and in the argillite, although taken from near the surface, are undoubtedly primary and are of low grade because of their method of deposition outside of the channel .

"A careful examination of the mine map shows that the N-S Red Boy vein dips steeply west and the Monarch vein, with a medium dip also west, joins the Red Boy vein at a horizontal angle of about 30°. The difference in dip of the two veins would cause their junction to pitch to the N-NE. The map shows this to be the case.

"The value of the ore was said to have been maintained, at least as far as the 200 level, but the development from the 200 to the Chapman level and from that level to a lower one, failed to develop ore. It is said that upon the lower level the Red Boy vein was not recognized. This would eliminate from consideration all development except approximately 300 feet on the Chapman level which, judging from its position, is on the Monarch vein.

"The excessive amount of water made mining so difficult and expensive, which, combined with the low values encountered along this distance, caused further drifting north on the Monarch vein to be abandoned. It will be noted further that crosscutting on those lower levels is practically absent. The development below the stopes is so limited and insufficient that one cannot state that the vertical limit of the stopes is the vertical limit of the ore.

"In any of the above statements it should be remembered that there probably was some mechanical concentration of gold at or near the surface due to the removal of the valueless part of the vein.

"A fault zone appears in the Red Boy mine cutting across the Red Boy and Monarch veins in the position marked on the map and labeled 'dike'. This fault zone is in a great many respects quite similar to the Red Boy and Monarch veins, but differs from them in its greater width between the hanging and foot walls. On the 200-foot level this zone must be more than 100 feet wide. This shearing was along an old line of weakness which contained one of the intrusive dikes. This dike, only a few feet wide, was involved in the shearing and faulting and blocks of this igneous rock are found in the crushed mass showing little or no shattering, doubtless due to its greater ability to resist crushing than the adjoining slate. Whether this particular fracturing occurred at the same time as that which permitted the formation

of the Red Boy and Monarch veins was not determined, but some evidences point to its having been later.

"A large amount of clay along the south wall of this broad zone of crushing is indicative of the amount of movement that occurred, which may or may not have been a compensating one.

"Red Boy hill has many dikes and veins and upon many of the latter considerable development work has been done in the past, the result of which are not available at this time. But considerable ore has been extracted from some of them. Perhaps a detailed and thorough examination of the surface and underground workings made by a thorough-going engineer might disclose evidences of additional ore bodies."

References: Lindgren 01:680  
Swartley 14:189  
Pardee and Hewett 14:110  
Parks and Swartley 16:188-191 (quoted)  
Hewett 31:9, 10, 21, 36, 42  
Lorain 38:15

A small stamp mill is being installed on the  
Red Boy property at the Concord tunnel by Wm. Rakestraw  
and Pat Glenn and Fred Smith. 9/24/39  
Some work is planned to open and extend the Gillam  
tunnel on the MorrisMine this winter.

Granite  
GREENHORN  
MT. REGION  
VEINS in ARG.

RED BOY MINE

1

The Red Boy Mine.—The total production of this mine is between \$800,000 and \$1,000,000; it is one of the best known mines of eastern Oregon. Its activity at the present time is confined to prospecting in certain parts of the mine and to re-cyaniding some of the low-grade concentrates.

The country rock is a slaty siliceous to calcareous black argillite, originally a mud deposit in quiet waters on the floor of an inland sea. Since the time of its deposition this mud, which aggregated hundreds of feet in thickness, became cemented into a rock that was afterwards subjected to pressure, making it somewhat laminated. Since the elevation is 4,600 feet at the mine they have been uplifted since deposition about a mile. The bending, squeezing, slipping or faulting has tilted them to the westward 15° to 20° from the horizontal.

The granodiorite intrusion which now makes up the main ridge of the Greenhorn range, has a northward spur on which is the Ben Harrison mine, about a mile from the main range. This same spur extends northward on the west side of the Red Boy mine. From this spur, as in practically all the other districts, dikes ranging from granodiorite porphyry to "quartz aplite" have filled fissures in the adjoining argillite.

The dikes in the underground workings of the Red Boy mine are very badly altered, but a microscopic examination of some of the fresher pieces shows that they are felsites of aplitic tendencies. These dikes, which near the veins are quite narrow, were injected into the fissures in a molten condition from below at some time well along in the dike-forming period. The upward flow had no crystals formed in it previous to the somewhat sudden ascension of the molten material, which because it was injected in narrow, sheet-like form

RED BOY MINE

2

GREENHORN  
MT. REGION  
VEINS in ARG.

between cold walls, congealed so quickly that only small or incipient crystals of quartz and feldspar had time to form.

A further shifting and movement occurred and the planes in which the dikes were located were fractured again because they were planes of weakness. This fracturing and movement involved both dike and adjoining argillite, but the latter was fractured to a much greater degree. This fracturing from one to several feet wide permitted the ascension of solutions from the concealed intrusion from which were deposited the quartz, the sulphides, and the silver and gold. These ascending solutions must have brought the gold and silver from the igneous intrusion, although it may have secured some quartz by leaching from the walls on its upward journey. The shattered dikes and the adjoining argillite which make up the irregular walls of the veins both contain disseminated pyrite. These are undoubtedly deposits from ascending hot waters, which were especially active in their alteration of the aplitic dikes.

The quartz in the veins fills in and surrounds the sheeted and brecciated argillite. In some places white quartz and dark argillite are in roughly parallel bands when the vein is observed in cross section; at other places the appearance is more that of fragments of argillite of all shapes held in a white quartz matrix.

The characteristics of the vein itself are well stated by Lindgren.\*

"In their general character the veins are similar to those of Cracker creek, though they are not so wide. They consist of a crushed fault zone in argillite, from 3 to 15 feet wide, in which the broken rock is cemented by a great number of quartz seams.

**GREENHORN  
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"The Red Boy vein averages from 3 to 6 feet in width and is in general structure similar to the Monarch, though the quartz is apt to form somewhat heavier bodies. It also contains more clay than the Monarch vein.

"The value of the ore appears to be entirely contained in the quartz seams and consists chiefly in free gold alloyed with much silver, the bullion being from 515 to 525 fine. The quartz contains a small amount of sulphides, pyrite with very little chalcopryrite, and arsenopyrite. . . . Metallic silver and copper have also been found on the Monarch vein, inclosed in white massive quartz, and thus probably primary. The 5 per cent sulphurets contained in the ore are low grade, from \$5 to \$20 per ton, and probably are largely contained in the slate milled with the quartz."

It is believed that a careful reading of the above will bring out the following facts:

\*Lindgren. Gold Belt of Blue Mountains of Oregon. Twenty-second Annual Report U. S. G. S. Part II., pp. 681-683.

## RED BOY MINE

**GREENHORN  
MT. REGION  
VEINS in ARG.**

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4. That the value of the ore appears to be largely contained in the quartz seams, chiefly in free gold and silver.
5. That the sulphides found disseminated in the dike and in the argillite, although taken from near the surface, are undoubtedly primary and are of low grade because of their method of deposition outside of the channel.

All of the facts indicate that the ore in the Red Boy mine is primary, notwithstanding the fact that the vein so far developed below the 200-foot level is too low-grade to mine. The ore shoots of good grade above that level are not the result of downward sulphide enrichment, although a superficial examination of the mine maps might cause one inclined to over-emphasize the effects of secondary enrichment to draw such an inference because the stoped length of 800 feet is so much greater than its 300 feet of pitch length.

Primary ore deposition is a physico-chemical process which involves many variable factors. Lessening temperature and pressure, different wall rocks from horizon to horizon, mingling of different solutions by the joining of ascending flows of water and the great variableness in the velocity of the ascending waters passing through open fissures, filtering through brecciated fragments or stagnating next to impervious layers of gouge, all combine to influence ore deposi-

RED BOY MINE

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GREENHORN  
MT. REGION  
VEINS in ARG.

tion or to prevent it in any given place, to give it with a lavish hand or sparingly or not at all.

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The value of the ore was said to have been maintained, at least as far as the 200 level, but the development from the 200 to the Chapman level and from that level to a lower one, failed to develop ore. It is said that upon the lower level the Red Boy vein was not recognized. This would eliminate from consideration all development except approximately 300 feet on the Chapman level which, judging from its position, is on the Monarch vein.

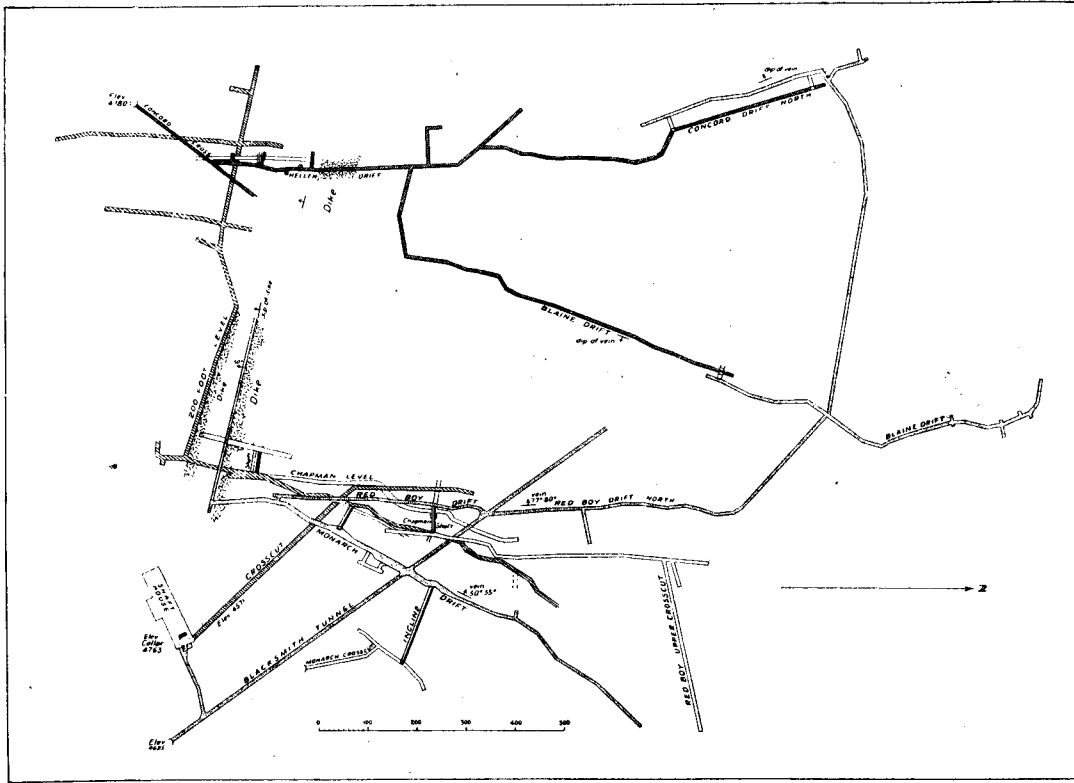
The excessive amount of water made mining so difficult and expensive which, combined with the low values encountered along this distance, caused further drifting north on the Monarch vein to be abandoned. It will be noted further that crosscutting on those lower levels is practically absent. The development below the stopes is so limited and insufficient that one cannot state that the vertical limits of the stopes is the vertical limit of the ore.

Ore might not be found by new development upon the Chapman level. It might be absent upon the Chapman level and be present upon lower ones, or there might be little or no ore outside of that already stoped, due to the effects of one or more of the causes enumerated above, which affect the deposition of ore from ascending solu-

RED BOY MINE

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Fig. 86. Plan of Red Boy mine.



THE GREENHORN MOUNTAIN REGION



GREENHORN  
MT. REGION  
VEINS in ARG.

tions in a great variety of ways. All possible shapes of primary ore shoots are apt to be found.

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ough examination of the surface and underground workings made by a thorough-going engineer might disclose evidences of additional ore bodies.

RED BOY

Murray has option - See Hallock, Donald.

Schlemmer owns part.