

Seattle Mining and Exploration Co. Mapped.

Office, 332-333 New York Block, Seattle, Wash.

Officers: Milo M. Shier, President and Manager, Burt Goelcher, Vice-president, Frank A. Kane, Treasurer, John Arthur, General Counsel, E. E. Harold, Trustee.

Incorporated June 7, 1918, under the laws of the State of Washington.

Capital \$100,000.00, shares \$1.00 par value, all issued and paid up.

Property.

10 full unpatented claims near the head of Galena Creek, Quartzville District, Linn Co., Oregon. There is in addition one adjoining claim located by Mrs. Milo Shier.

Development.

The development consists of two cross cuts. The upper, No. 1, is 65 feet in length with two drifts totaling 60 feet, and the lower cross cut, No. 2, 515 feet in length with an 85 foot drift. In addition there is a small open cut above No. 1 tunnel and a second open cut between the upper and lower tunnels.

The Waldon claim owned by Mrs. Shier has an old 30 foot drift on a vein showing ore.

(See attached map of property and development, also map of Quartzville District).

General Features.

The camp lies at an elevation of 3170 feet by aneroid, while the tunnels and open cuts are between 3300 and 3700 feet in elevation. Timber is abundant for all purposes but Galena Creek, while furnishing water for camp use, could not be depended upon for milling operations of any magnitude.

At the time of the writer's examination, Aug. 14th and 15th, 1921, the camp consisted only of tent sleeping and cooking quarters, but plans were under way for the building of permanent log structures.

A pack trail in good condition is the only means of approach to the property.

Ore Deposit.

The type of ore deposit is typical of Quartzville District, being irregular and poorly defined brecciated shear zones in which the filling and replacement is quartz, together with sulphides of copper, lead, zinc, and iron, with minor amounts of lime carbonate.

The country rocks are andesites and fragmental volcanics of coarse agglomerate or breccia types.

The face of the lower crosscut, now being driven, is in extremely hard fine-grained andesite of greenish black color. The portal of the upper crosscut shows a coarse grained porphyritic andesite, while still farther up the slope at the upper cut and to the north the volcanic breccia is seen.

In the lower tunnel ore is found in narrow "tight" veins of irregular habit. It seems that the hard dense character of the country rock confined the mineral bearing solutions to restricted channels, for the mineralization is found only in narrow planes of shearing with the country rocks but little altered.

At higher elevations the condition is just opposite. Here, due either to rocks of less hardness and to rocks of fragmental porous nature, the mineralized zone may show a width of 20 to 30 feet with ore minerals widely disseminated and replacing the crushed rock fragments.

It is the writer's opinion that it is an effect due to character of rocks rather than one of depth, as might be supposed.

The outcrops show sulphide ore directly on the surface with very little oxidation to be seen. The hill slope varies from 30° to more than 45° and erosion is very rapid, thus giving little opportunity for oxidation and leaching effects.

Upper Cut.

This cut is at an elevation of 3700 feet or 60 feet above the upper cross-cut (No. 1). The cut is 10x5 feet and shows a vein that swells and pinches from 6 inches to 2 inches. Coarse crystalline galena (lead sulphide) predominates with smaller amounts of sphalerite (zinc sulphide), pyrite, and chalcopyrite (copper iron sulphide). Comb quartz is common and was apparently the last mineral to be deposited.

Three feet east of this vein a second narrow stringer shows, and further work would probably show up further paralleling or branching small veins.

Upper Crosscut (No. 1).

See map.

Elevation 3640 feet.

Thirty feet in from the portal a vein has been drifted on in both north and south directions. In the face of the south drift the vein is 2 inches to 3 inches wide and poorly mineralized, but in the north drift it widens to $1\frac{1}{2}$ feet of quartz material showing sulphides.

A sample taken here across $1\frac{1}{2}$ feet gave following assay:

Gold .56 oz., silver 2.44 oz., copper .65%,
lead .20%, zinc 4.25%.

The sample was made up of quartz and kaolin with the sulphide minerals as shown by above assays. The vein here strikes N. 25° W. and dips 75° W. The country rock is rather fine grained andesite and shows the effect of close proximity to a mineralized fissure in that it is somewhat altered and contains scattered grains of pyrite.

Fifteen feet farther in a second 6 foot drift to the south has been driven on a similar zone that shows sulphide minerals. A sample across 12 inches gave the following assay:

Gold .02 oz., silver 3.68 oz., copper .15%,
lead 8.85%, zinc 2.4%.

Predominance of lead and lower gold value will be noted. This vein strikes N. 30° W. and dips 85° W.

Middle Cut.

Elevation 3500 feet.

Little work has been done at this point but the ledge croppings show a width of approximately 30 feet. Not all of this width shows ore but it is made of roughly paralleling and branching ore bearing veins interspersed with widths of barren country rock or "horses". The following sketch illustrates roughly the conditions:

Some oxidation may be seen but primary sulphides appear practically on the surface.

The ore is coarsely crystalline in texture showing cubes of galena, isometric modifications of sphalerite, together with some chalcopyrite and pyrite.

Comb quartz with characteristic open structure is common. The ore has the appearance of replacement and filling in of open spaces in the brecciated shear zone.

The ledge is not cut across or faced up to allow for taking a good sample, but one sample was taken across a width of 4 feet of average quartz and sulphide material. The assay gave the following results:

Gold .10 oz., silver .40 oz., copper .35%, lead 4.65,
zinc 1.6%

Lower Crosscut (No. 2)

Elevation 3360 ft. (see maps)

The cross cut is in hard rock of dense fine grained texture. Study of thin section from face now being driven showed it to be an altered basic andesite.

Silicification is apparent and pyrite is common. In the vicinity of ore bearing zones the country rock shows considerable alteration. Feldspars are partly changed to kaolin and sericite and dark colored ferromagnesian silicates are chloritized to large extent. Within the ore filled shear zones the crushed rock fragments have been completely altered, with the result that a good portion of the vein filling is soft gougy kaolin.

For a distance of about 50 feet outward from the drift this alteration of country rock is quite marked. Mr. Shier believes that a good portion of this width may be classed as good ore, but a sample by the writer showed only 11 oz. gold and .10 oz. silver.

The vein drifted on for 90 feet shows an irregular occurrence of quartz with gougy kaolin, the quartz carrying base metal sulphides of and zinc. The quartz is from 4 in. to 6 in. wide with an average of about 1 foot of kaolin and brecciated rock. A sample across the face of the south drift including 4 in. of good quartz ore and 12" of softer gougy material gave the following assay:

Gold .03 oz., silver .31, copper .45%, lead .20%, zinc 2.0%.

The vein strikes N. 30°W. and dips 80°W.

Beyond the drift three prominent shear planes striking between N.30°W. and N. 50° W. and dipping 60° to 80°W. are cut by the cross cut. These planes are narrow and show bunches of quartz and gougy material with base metal sulphides with a maximum width of about 4 in. These planes may be considered as belonging to the same zone of shearing as the vein in the drift.

Due to lack of an accurate survey of underground workings and outcrops, it is impossible to co-ordinate the various individual veins seen in the lower and upper workings. To the writer it seems highly import that a survey be made before much more development work is attempted.

Mr. Shier stated that the lower cross cut was being continued to cut a ledge whose outcrop showed at an elevation of 3850 ft. and which carried high gold values. Examination of this supposed outcrop proved it to be merely an altered outcrop of volcanic breccia (?) and a sample taken showed no values upon assaying.

North Cropping.

North of the upper cut at an estimated distance of 600 to 700 feet and elevation of 3750 ft. an outcrop of ore occurs upon which no development work has been done and which in the writer's opinion may be of greater importance than any other showing on the property.

The hill slope is more than 45° and rapid erosion has planed the surface free from soil exposing unaltered sulphide ore, which occurs disseminated throughout a comparatively soft open-textured volcanic flow breccia or agglomerate. The exposure is for fully 100 feet in a north-south direction and 50 feet thick. Sulphides of zinc, lead, copper and iron are visible over the whole surface exposed. The sulphides are well crystallized generally and show many perfect crystals formed in open cavities. Some comb quartz and calcite are intergrown with the sulphides.

Andesite of more dense hard nature occurs both above and below the fragmental flow rock carrying the ore. The attitude of the flows is indefinite but they probably lie nearly horizontal or dip gently.

The history of this ore deposit may be this:- mineral-bearing solutions

ascending through restricted channels in the hard andesite below found passage of free circulation in the porous agglomerate. Dissolving action of the waters removed portions of the ground mass of the rock, forming open cavities which were subsequently filled with base metal sulphides together with calcite and quartz. The material on the surface is soft enough to be readily picked away.

A 4-foot section was thus exposed and sampled, the assays giving as follows:

Gold .10 oz., silver .40 oz., zinc 3.7%,
lead 2.6%, copper .05%.

The ore is not high grade but it is probable that a large tonnage could be developed at low cost.

Waldon Claim

This claim lies on the west side of Galena Creek. An old drift 30 feet in length has been run on a narrow shear zone which strikes N. 30° W. and dips 70° W. Base metal sulphides occur with quartz, with a maximum width of 6 inches. A sample gave the following assay:

Gold .02 oz., silver 14.4 oz., copper 1.15%,
lead 9%, zinc 9.1%.

CONCLUSIONS ON PROPERTY.

The ores found on the property of the Seattle Mining & Exploration Company are of very complex and refractory nature, and without pre-treatment could not be mined and sold direct to available smelters at a profit. A pre-treatment process would involve the separation of the copper, the lead, and the zinc into products of a fair degree of purity before the marketing. Such a treatment would be costly and difficult.

A method for local treatment might be worked out whereby the ores might be reduced to metals by the electrolytic process, but it would be necessary to have a very large tonnage of ore proven to warrant the capital investment necessary to build such a reduction plant.

The writer believes that a moderately large tonnage of ore could be proven with further development work, and with better transportation and improved methods of reducing such complex ores the property might at some future time be worked at a profit.