MacDougal Group | Copper

| NAME | OLD NAMES | PRINCIPAL ORE | MINOR MINERALS |
|---|---|---|---|
| MacDougal Group | | Copper | |

| T | R | S |
|---|---|---|
| 6 S | 48 E | 5 mi. no. of Homestead |

COUNTY: Baker

AREA: Homestead

ELEVATION:

ROAD OR HIGHWAY:

DISTANCE TO SHIPPING POINT:

PUBLISHED REFERENCES

Swartley 14:109
Parks and Swartley 16:146
Dogami 14-A

MISCELLANEOUS RECORDS

PRESENT LEGAL OWNER (S) H. H. Newell

Address Homestead, Oregon----Toledo, Ohio

OPERATOR None

| Name of claims | Area | Pat. | Unpat. |
|---|---|---|---|
| 19 | | x | |
| 21 | | | x |
| Pat 7 of above----survey underway | | | |

| Name of claims | Area | Pat. | Unpat. |
|---|---|---|---|

EQUIPMENT ON PROPERTY

MacDOUGALL GROUP
(copper)

Homestead District | Baker & Wallowa Counties

Nineteen of the 40 claims owned by W. B. MacDougall are patented claims. They are located about 5 miles north of Homestead, ½ mile to a mile from the river and up to 2500 feet above it. The region consists of a greenstone series, which is made up of altered dense porphyritic and amygdaloidal flows with interbedded breccias and tuffs and possibly some intercallated sheets and sills. Considerable shattering has taken place; in fact, the principal mineralization is in brecciation zones. The observed porphyritic and amygdaloidal flows are andesite, while the breccia is made up of the angular fragments of various types of lavas held in a dense groundmass of ferruginous material, in which there has been quite a development of secondary calcite.

The different types under the microscope show that these greenstones have been extensively shattered with the subsequent development of calcite, epidote and quartz in gash veins. Some of these veins contain small amounts of pyrite and chalcopyrite. Occurring in this way, it indicates that these materials are the result of lateral secretion processes.

The principal mineralization is in brecciated steep dipping N.-S. shear zones. Three of these zones were observed and there is said to be four others beyond. Although no surface crosscuts have been made to determine the width, they are said to be from 30 to 200 or more feet wide.

In these shear zones occur various sized stringers of quartz, calcite and chalcopyrite. In some places stringers of chalcocite more than an inch wide are found. These stringers of chalcocite are intimately mixed with a lesser amount of quartz. In some places the country rock on each side of the stringers is impregnated with chalcocite for several inches. At the immediate surface the chalcocite is partially altered to malachite with some azurite, but even there the alteration is quite incomplete and three or four feet below the green and blue colorings of the copper carbonates are nearly absent.

A very important undetermined question is the primary or secondary nature of the chalcocite. If it is primary the same type and degree of mineralization mightwell be expected to continue far downward in the sheared zones. If it is secondary the chalcocite at shallow depths would cease and much smaller percentages of copper in chalcopyrite mingled with pyrite would be found as the primary ore below the shallow secondary chalcocite.

Some of the chalcocite, as before stated, is intimately mixed with quartz and is apparently a primary mineral. On the other hand, on the surface of one of the upper zones a boulder was broken open, which contained crystals of chalcopyrite, which are being replaced by chalcocite. This boulder has been shattered somewhat and contains chalcopyrite as scattered grains and also associated with quartz and epidote. Some of these grains have been altered to malachite.

In from the portal of the lowest crosscut tunnel 500 feet, but said to be 300 feet away from the first shear zone, is found a rock with a few amygdules filled with calcite and a small amount of chlorite along their borders. This rock is cut by numerous calcite veinlets, some of these containing chlorite and a small amount of chalcopyrite. The calcite in the amygdules is pink, while that in the gash is white.

The fracturing came later than the filling of the amygdules, since these veins cut the latter without faulting. In this rock the small amount of chalcopyrite is primary. The chalcopyrite in the boulder mentioned above is primary, but the sooty chalcocite there replacing it is secondary.

When the lower tunnel reaches the shear zones several hundred feet below their outcrops, will it find primary chalcopyrite or primary chalcocite? The evidence would lead one to hope that chalcocite will be found.

The shear zones were probably created at about the same time as the vein forming period elsewhere in eastern Oregon. This was probably after the lateral secretion processes had largely completed their widespread alteration and deposition, as evidenced in the lower 500-foot tunnel. The quartz and chalcocite in these shear zones are apt to be the product of ascending thermal solutions. If this be the case, the chalcocite, inconformity with its appearance and its intimate association with quartz, is probably primary and, therefore, will be the copper mineral to be found at depth within the shear zones.

These claims cover steep to gently rolling hills in which at various points there are many open cuts and pits, numerous short tunnels and three long ones, approximately 200, 300 and 500 feet, respectively. The open cuts have in nearly every case disclosed copper in stringers which have been followed. No open cuts cross the shear zones at points most favorable to expose possible wide disseminations. These could have been made quite cheaply and would have exhibited the width of the shearing, whether the fractures are closely spaced or too widely separated, and whether there might be at some points ore sufficiently rich to ship. After the open crosscuts have been made conclusions could be drawn as to whether the chalcocite is sufficiently disseminated to make low grade ore throughout, or whether there is higher grade but more limited bodies of ore.

If favorable results were secured by the crosscuts, keystone or diamond drilling could be first done at the most favorable points which, if promising, could be followed by systematic arrangement of the drill holes so as to determine the limits of the ore bodies. Should wide zones of low grade primary chalcocite be disclosed, its proximity to the railroad, to water and water power, the favorable climate, and absence of overburden or leached zone requiring stripping, would permit as low grade of ore to be profitably mined as at any of the porphyry coppers now successfully operated.

In 1916 several engineers visited this property to determine whether they should recommend it to their principals for development, but up to late in the year none of them have had the courage to make such recommendations without the nature and value of the deposit having been proven at depth.

In addition to the deposits of copper glance upon this property, there are native copper-bearing outcrops. All of these native copper outcrops are in a certain type of Triassic lavas by the general name greenstone, which in the nature of the rock and in the occurrence of the copper in the rock, are essentially like that of the amygdaloid copper ores of northern Michigan. It is almost impossible to sample the croppings which involve a few acres, so that a statement can be made as to its assay value, but after examining several hundred pieces broken with sledges on the surface, followed by an assay of many representative pieces and sacks of samples, it is thought that it will exceed 1 percent of copper in value. This outcrop has no underground development.

MacDOUGAL GROUP

(1)

WALLOWA RANGE HOMESTEAD (S.R) DIST

*The MacDougal Group.*—These twenty claims owned by W. B.

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their borders. This rock is cut by numerous calcite gash veins, some of these containing chlorite and a small amount of chalcopyrite. The calcite in the amygdules is pink, while that in the gash veins is white.

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MacDOUGAL CLAIMS

(2)

WALLOWA R. HOMESTEAD (S.R.) DIST.

widespread alteration and deposition as evidenced in the lower 500-foot tunnel. The quartz and chalcocite in these shear zones are apt to be the product of ascending thermal solutions. If this be the case the chalcocite in conformity with its appearance and its intimate association with quartz is probably primary and, therefore, will be the copper mineral to be found at depth within the shear zones.

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(Near MacDougal Claim)
NATIVE CU DEPOSITS, LS &

WALLOWA R.
HOMESTEAD
(S.R.) DIST.

*Native Copper Deposits.*—Just north of MacDougal's a dense greenstone contains native copper in small quartz veinlets. In thin section the rock is seen to be made up of alteration minerals. These deposits were not visited. Judging from the specimens, its location, and the description given of it the resemblance to Lake Superior deposits is rather striking.

*Limestone Contact.*—Between MacDougal's and Carnahan's close to the river a bed of andesitic breccia is in contact with limestone. A large portion of the steep-dipping limestone has been eroded so that the underlying breccia which is impregnated with pyrite and chalcopyrite is exposed for inspection.

This very low grade copper deposit probably does not extend more than a few feet from the contact. It is not a contact-metamorphic deposit because the limestone was deposited upon greenstone, while in contact-metamorphic deposits the igneous rock is intruded into limestone. One would naturally expect that there would be more or less of a channel for percolating waters between two rocks of a different nature, and that these waters would have some mineralizing effect. In this particular case, for instance, the waters percolating through the limestone coming in contact with a rock such as greenstone is apt to develop some iron and copper minerals. It is only exceptionally that a contact of this type makes ore.