

On the summit of Cascade mountain there are several open-cuts farther to the north-west that expose lenses of magnetite distributed over an area between 2 or 3 acres. The ore exposed in these is apparently about the same grade as the last-mentioned sample.

A rough estimate of the tonnage of magnetite that is classed as *actual* ore exposed on this property is made by the writer at 15,000 tons, with an additional 15,000 tons of *possible* ore that may be made available by further development-work.

Timber for miling and fuel is plentiful in the vicinity of the outcroppings of magnetite. The opportunity for installing transportation facilities is exceptionally good, as an aerial tramway about 6,500 feet long would connect the mine with a wharf at deep water, where ocean-going vessels could load.

This property is on Cascade creek at 900 feet elevation, where **Sunshine Group.** deposits of magnetite occur of the contact-metamorphic type, lying between crystalline limestone and igneous rock, but those examined appear to carry too much copper to be of value for iron-making. The claims have been prospected to some extent to determine their value as producers of copper ore, and during 1916 a small shipment of ore was made to a copper-smelter by the Woodworth Bros., who held a bond on the group, but the returns were not made public, and as work was not continued it appeared as though conditions were not satisfactory.

The writer examined two adits on the *Fern* mineral claim, one of the *Sunshine* group. These adits are driven into the steep creek-bank near Cascade falls; each is about 60 feet long, driven across lenses of magnetite, one about 12 feet wide; the other could not be closely examined because of its caved condition, but the dump contains magnetite with the small content in copper.

The workings from which the small shipment of copper-bearing ore was made were not examined. They are some distance from the creek, and the time at the writer's disposal was not sufficient to permit an examination.

#### ALBERNI CANAL.

This group contains the *Defiance* and the *Defiance No. 1* **Defiance Group.** Crown-granted mineral claims, situated at the headwaters of a tributary of Handy creek, which flows into the Alberni canal on the west side about seventeen miles below Port Alberni, and is owned by Michael Comford, of Alberni. The distance from the shore to the claims is about two miles by trail, but only about 4,000 feet in an air-line. The elevation is about 1,000 feet above sea-level.

Magnetite-deposits with lenticular structure occur on a comparatively flat bench; two of these occurrences are cut by a small creek, while the third covers a flat about 50 feet square. The deposits belong to the contact-metamorphic type, the ore lying between crystalline limestone and an igneous rock of the Vancouver series.

The last-mentioned occurrence has been exposed by stripping, but no attempt has been made to determine the conditions at depth by sinking in the ore, but an adit has been driven from a bench about 20 feet lower elevation, evidently with the expectation of intersecting the magnetite on that level, which the dump would indicate had been done at or near the face, as there is a small quantity of magnetite mixed with chalcopyrite on the dump that apparently was the last material taken from the adit. A sample of this ore assayed:

Gold .....	Trace.
Silver .....	1.2 oz.
Copper .....	3.3 per cent.
Iron .....	52.6 ..
Sulphur .....	1.2 ..
Phosphorus .....	Nil.
Silica .....	12.1 per cent.