

ENTERPRISE MINE

Notes of Geological reconnaissance over the surface of  
the property and adjoining claims.

The veins occur within the porphyritic granite of the Nelson batholith; this is normally a true granite with very large feldspar phenocrysts.

It is intruded by many small or medium sized dikes of basic character and granitic texture which appear to consist chiefly of biotite, hornblende, augite (?) feldspar and quartz in medium to fine grains. There are also a few dikes of lamprophyre type. In the vicinity of the Enterprise No. 1 vein there are numerous "white dikes" which appear to be chiefly feldspar and quartz with a quite small amount of biotite. The basic dikes, called "black granite" on the maps, and the "white dikes" are older than, and cut by, the veins. The age of the lamprophyre is indeterminate.

The contacts of the "black granite" with the porphyry dikes ~~is~~ are generally sharp and clean cut and tightly frozen, but in places they apparently inter-penetrate each other and where this occurs the porphyritic granite shows ~~fine~~ flow-lines with ~~feldspar~~ feldspar and other minerals segregated along the lines.

There is a strong suggestion that the "black granite" was intruded while the porphyritic granite was in a semi-plastic condition.

The walls of all the veins seen, except the Neepawa and Mt. Royal, are of similar appearing rock to the "black granite", but they grade gradually from the normal porphyritic granite at a distance of from three to twenty feet from the veins into the "black granite" at, and close to, where they contact the veins, and appear to be an alteration of the porphyritic granite. This alteration also sometimes occurs in places where no veins are known, but appears to be strictly local. Probably all the rocks are derived from the batholithic magma at different stages of cooling and differentiation.

No analysis or microscopic study of the above rocks was made.

There is strong shearing along No. 2 vein, along the creek crossing the Rainbow claim, and especially along the Neepawa Creek, and the Mt. Royal claims. At these two latter shears there is no tendency for the porphyritic granite to become basic close to the veins. These shears would converge in the flat pass leading to the Speculator, Arlington, etc., and they are believed to extend from north of Enterprise Creek to Springer Creek. The amount and direction of movement along these shears is not indicated, but they have apparently influenced the locations of the veins and the topography.

Three cross-faults are exposed in the Enterprise mine, of these only No. 2 fault is large enough to be expected to show on the surface. It has a throw of 60 to 70 feet to the left and a steep dip northward. At the surface it is close to the portal of No. 3½ tunnel (between #3 and #4 tunnels) but was not definitely traced either east or west from there. It could pass through the caved open cut where a strong gouge shows at the edge of the road near the northeast corner of the Enterprise claim, and thence to the old bunk-house near the southwest corner of the Rainbow, where there is a wide, decomposed, lamprophyre dike, shearing along the creek below it, and at various angles to the southeast as far down the creek as the next lower switchback in the road.

## ENTERPRISE NO. 1 VEIN

The outcrop is well exposed at frequent intervals over approximately the length of the underground workings, and presumably is exposed in a few workings or outcrops at a considerable distance from the main workings, on the Mabou and United Empire claims. It occurs within the porphyritic granite but the immediate walls in contact with the vein are much finer grain and more basic, with much biotite. The change is mostly gradual and occurs

between three and twenty feet outward from the vein in both walls. Whether this alteration of the normal granite is due to the mineralizing solutions which formed the vein or to some pre-mineral change which formed a locus for the vein is not evident. The vein is a narrow fissure of unusual persistence striking N 57° E and dipping about 70° southeast. There has been little movement along it, and no shearing of the walls. The exposures of the vein in the Mabou tunnels agree well in position and strike with the Enterprise vein, and resemble it in character, and it is probable that it is the Enterprise vein. An outcrop of two inches of quartz with some zinc in the bottom of the gulch on the United Empier claim is well placed to be the extension of the Enterprise, and strongly resembles the leaner parts of the Enterprise vein in the main mine; however there is too great a distance between ~~expos~~ exposures to be certain. If the Mabou and United Empire exposures are the Enterprise vein, it extends for a distance of one and a third miles, - something of a record for a narrow vein.

#### ENTERPRISE No. 2 VEIN

There is now very little of this vein exposed at the surface, and the 350 foot tunnel is entirely caved. It occurs in the porphyritic granite which becomes finer and more basic at the vein, the same as adjacent to the No. 1 vein. Shearing appears to be fairly strong along the vein and the rock is considerably decomposed and gougy, and the ore is spotty. The strike is N 50° E and the dip steeply southeast at an not definitely known angle. The vein cut in the long No. 4 level crosscut in, and west of, the No. 2 fault, shows a couple of inches of quartz and spar and small spots of sphalerite, and is probably the No. 2 vein. The quartz and strong gouge at a caved open cut along the road near the northwest corner of the Enterprise claim may be the continuation of this vein.

#### NEEPAWA VEIN

This vein outcrops at rare intervals along the southeast bank of Neepawa creek and has been explored by four tunnels. The two upper tunnels are caved at the portal, but the two lower ones are accessible for about half their lengths. The vein strikes S 35° W and dips southeast at variable angles which perhaps average 60°. So far as seen the vein is a narrow quartz stringer accompanied by strong shearing from ten to twenty feet in width. The walls are the coarse porphyritic granite without any change in texture or proportion of basic minerals such as occurs at the Enterprise veins.

#### ROYALITE VEIN

This vein, which I have reported on before, was only visited very briefly to see what the recent work had exposed. A very strong gougy shear zone with spotty quartz, often occurring in boulders, has been exposed by ground sluicing which shows the shear to be some 15 feet in width. The quartz boulders usually show some galena and sphalerite.

#### RECOMMENDATIONS

Recommendations have already been made for development in the mine. I would not recommend any outside work on the No. 1 vein at present.

On No. 2 vein I would recommend bulldozing to pick up the vein at about 150 feet above the bridge on the road from camp to No. 7 tunnel. If a reasonably good showing is found there it should be tried at about 200 feet further up the course of the vein toward the tunnel.

I would also recommend drilling one or two holes from the surface with a diamond drill about 75 feet south of the portal of the No. 2 tunnel, underneath the point where a little stoping has been done between the tunnel and the surface. These holes should be drilled from the hanging wall side

of the vein, and designed to cut the vein at a depth of about 100 feet.

It would also be advisable to clean out the cut 150 feet southeast of the northeast corner of the Enterprise claim, or bulldoze off the surface. This is the cut previously mentioned as showing an inch or two of quartz and 3 feet of gouge at the edge of the road, and as being possibly on either the No. 2 vein or the No. 2 fault.

I would also suggest putting in a shot or two in the "3 by 4 foot" exposure of quartz at the edge of the road 450 feet east of the northwest corner of the Enterprise claim.

It is doubtful if any work is justified on the Rainbow vein, which is presumed to be the one on which a short tunnel, now caved, was driven on Montezuma ground near the southeast corner of the Boisevan claim.

Points referred to in the above are shown on one of the prints of McDougall's map of the claims.

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