

IMPERIAL GEOPHYSICAL SURVEY  
REPORT ON TRENCHING WORK AT ZEEHAN AND NORTH DUNDAS  
20th January - 1st February, 1930.

The recommendations of the officers of the Imperial Geophysical Survey for testing the indications obtained by them by trenching were completed last week. The results obtained are herewith outlined.

Copper-Nickel lode, near Zeehan. Indication west of old Cuni shaft -

Peg No. 1 A trench bisecting the line of Pegs Nos. 1 and 2 was cut into the slate country rock to a maximum depth of 6 ft. over a length of 10 ft. with peg at centre. The slate here is covered to a depth of 1 ft. of surface soil.

The outcrop of slate immediately below the Peg contained a little iron pyrite disseminated through it over a width of about a foot, with depth the quantity of pyrite increased and at 6 ft. from surface it occurred in the form of a vein about one inch in thickness, developed on the footwall of a definite mineralised formation two feet wide. The pyrite vein referred to is directly below the indicator peg which is left standing on the edge of the excavation.

For several months prior to the time this trenching work was carried out it would have been a very difficult matter to have accomplished the work owing to the quantity of surface water lying about. Drainage to carry off the water is not possible in the vicinity owing to the swampy nature of the country.

Peg No. 2 The trench at this peg is cut parallel to No. 1 Depth 6 ft., about 12 ft. long with peg at centre. The country rock at this point is covered with surface soil to a depth of 2 ft. The slate is considerably stained with oxide of iron, the staining increasing with depth.

A well-defined wall occurs below the peg striking line parallel with that of Pegs Nos. 1 and 2. The wall dips easterly at an angle of 1 in 4 and forms the footwall of a definite oxidised formation 4 ft. wide.

To further test these indications other than by drilling work, it would be necessary to sink shafts on them.

Peg No. 3 A trench bearing magnetic east and west centred at Peg was cut over a length of 18 ft. to a depth of 5 ft. The country rock is stained with iron oxide. The gossan formation referred to in my previous report is dipping at a rather low angle easterly, it is from two to three feet wide. This bench being on a bank it would probably require deepening more than is practicable by trenching to reach sulphide ore.

Peg No. 4 A trench bearing north west 8 ft. long centred by peg was cut to a depth of 6 ft. The country rock which is stained with oxide of iron is covered with 1 ft. of surface soil. A definite lode formation 3 ft. wide was exposed at a depth of 6 ft. from the surface; this consists of gossan with small pockets of sulphidic ore in irregular distribution through it, the latter showing a marked increase in quantity as

depth from the surface is attained.

Peg No. 5 This peg is placed in the swamp level, the inflow of water making it difficult to effectively expose the lode outcrop, which was located two feet below the surface at a point 4 ft. north of the peg.

Directly under the peg is country rock, which at that point probably overlies the ore. The trench was cut in the direction stated on the northern side of Peg, the latter being left standing on the edge of it. The trench is 3 ft. wide. The sulphide ore was located on the opposite side of trench to peg and could be traced along the bottom edge of trench parallel with its direction, indicating a width of about 18 inches at 5 ft. from the surface. The wet condition of the workings would not allow a thorough examination of this occurrence to be made.

The country rocks in the vicinity of this peg are soft and easily excavated.

At the other trenches cut, with the exception of that at No. 4 Peg, it was found necessary to use explosives to facilitate the work.

#### Zeehan Area - King Silver Bell Lode.

The position of peg was located as described in the report and the trench bearing 300 degrees, which was commenced under the direction of the officers of the Geological Survey, was deepened to 6 ft. over a length of 8 ft. with Peg at centre. At the depth reached no mineralization was observed, but the country rock is of a kind very favourable for the occurrence of ore on the Zeehan field. On either side of the trench which was cut to a width of 3 ft. a well defined wall occurs striking parallel to direction of trench, dipping at an angle of 45 degrees north easterly.

An inflow of water through the strata commenced at the bottom of trench; this would prevent further work of testing at depth without provision for draining. A shaft would be necessary for further exploratory work.

The result obtained here cannot be regarded altogether as a negative one so far as the location of mineral is concerned. The indications are certainly favourable for its occurrence with increased depth.

The above particulars, which are necessarily brief, are sufficient to show that the experimental work carried out by the officers of the Imperial Geophysical Survey in the various places referred to has given definite results in locating hidden outcrops of lodes. At each of the points located by them there were no indications at the surface that would lead one to suspect that a lode outcrop existed a few feet below. Pegs Nos. 3, 4 and 5 were placed at intervals along a known ore channel, which varies considerably out of line with the general strike and therefore to locate it exactly at points beyond any hitherto known extension is sufficient proof of the efficacy of the survey under the conditions prevailing at the particular locality referred to.

The work carried out by the officers of the Survey,

although only of an experimental character, is sufficient to justify confidence that ultimately a Geophysical Survey of all our mineral areas will be an indispensable adjunct to the Geological Survey and mining operations generally.

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