

nearly parallel calcite veins averaging four inches wide. One vein can be traced on the surface for about twelve chains. Only small amounts of sulphides were observed in either. In numerous other smaller veins nearby, the calcite carries abundant hematite, apparently derived from the oxidation of chalcopyrite. Openings have been made on a very large number of small veins and cracks in various parts of the property.

On lot 5, just east of this last property, and also in the Keewatin, prospecting has been carried on by the Pontiac Mining and Milling Co., but operations have been suspended for some time. The dump showed the vein to have carried hematite, magnetite, chalcopyrite, pyrite and galena, but according to the report of Wilson, there does not appear to have been any important or workable concentration of these minerals in the veins. A vein having a similar relation of minerals is also found on lot 3 of V. S., in a pit a short distance south of the main shaft of the Terra Nova property.

CONCLUSIONS.

The fundamental requirement for the successful working of an ore deposit is that there should be a sufficient amount of ore recoverable to pay for the direct and indirect cost of its removal, and yet still leave a margin for profit. The cost of mining the ore is governed by a number of principles, of which we will only discuss the more important.

In working underground it is necessary to have all openings wide enough to give sufficient elbow room to work to advantage, but the width is independent of the width of vein. To illustrate the effect of this, if the minimum working width is fifty inches, and the vein is one inch wide, then the proportion of ore to barren rock will be as one to forty-nine. Supposing, however, the vein is ten inches wide, this proportion will be reduced to ten to forty, or as one to four. Since the work done must be paid for by the value of the ore obtained, it thus follows that a narrow vein is worked under a very heavy handicap. If the veins are short, or pinch and swell suddenly, so that a lot of unprofitable work has to be done in finding or in following the ore bodies, this gives a similar and even additional handicap to that of narrow veins.

The ore, whether produced from wide or narrow veins, must, moreover, contain a sufficient proportion of the desirable mineral to give a certain average value, depending on working costs. A narrow vein of high grade ore may be quite as profitable, or even more so, than a wide vein of low grade ore.

The workability of a deposit is also closely dependent on general conditions, such as transportation facilities, availability of supplies of timber, water, fuel, power, etc.