

£80,000 sterling. Other deposits of considerable size are known in the district north of Montreal, near St. Hypolite and St. Julienne, as well as at several other points in the so-called Morin gabbro area. In these as before, the iron ore occurs as a constituent of the gabbro, but is locally concentrated so as to be very abundant at these points. Another extensive deposit, although less widely known, occurs on the River Saguenay, between Chicoutimi and Lake St. John. Here on the north shore of the river there is a group of hills composed of the titaniferous iron ore which occurs in another great gabbro mass having an area of not less than 5,800 square miles. This iron ore occurs principally in three bands, the most easterly of which is about 75 yards wide.

It is thus evident that we have in these great deposits of titaniferous iron ore, true eruptive or igneous masses which are merely local and extremely basic varieties of the gabbro in which they occur, due to the concentration in certain parts of the mass, from some of the cases before mentioned, of the most basic constituents of the rock. It will also be seen that these peculiar deposits are not confined to one locality, but are found under similar conditions in widely separated parts of the world.

When it is once recognized that these deposits have the origin here described, a solution is afforded to what has hitherto been a puzzling fact, namely, that all the iron ores occurring in the so-called Norian series in the Laurentian, which series is composed exclusively of eruptive anorthosite or gabbro, are rich in titaniferous acid, while in the same district deposits of magnetite free from titaniferous acid will be found in the associated gneisses.

Vogt notices that in the cases which he mentions, these iron ores occur toward the central portions of the igneous masses rather than toward their margins, while in the case of the sulphide ores forming the other class of these deposits the reverse is the case. This does not, however, appear to be by any means invariably the case in the similar deposits of titaniferous iron ore in Canada.

The igneous origin of many of these deposits of titaniferous iron ore has long been recognized, but Prof. Vogt proceeds to show that certain great deposits of sulphide ores have in all probability a similar origin.