

## NATURAL RESOURCES OF THE DOMINION OF CANADA.

millions of tons of iron magnetite sands, containing a high percentage of iron, along the north shore of the St. Lawrence, in the county of Saguenay. These sands could be briquetted easily for use in blast furnaces, but unfortunately they contain a high percentage of titanium. Titanium, while not injurious to iron as sulphur and phosphorus are, causes trouble in the blast furnaces when present in quantity, and will not combine easily with either the iron or the slag. A very small percentage may be handled without much trouble, and it improves the quality of the iron.

Experiments under direction of the Dominion Mines Department have demonstrated that by means of magnetic separators and briquetting machines the sand can be freed almost entirely from its titanium content and made into briquettes suitable for use in the blast furnace, and that pig iron of superior quality can be manufactured from these briquettes. There are a number of deposits of bog iron ore in the St. Lawrence valley remarkably free from sulphur and phosphorus, and containing so small a percentage of titanium that it may be regarded as advantageous rather than injurious. These bog iron ores have been successfully used in charcoal blast furnaces at Radnor Forges and Drummondville for many years. Iron has never been made in Quebec province with coke as fuel. The province has many advantages for the manufacture of charcoal iron, but, while a very superior iron can be made with charcoal, the cost of manufacture is so much higher than when coke is used as fuel that it cannot be produced at a cost to compete with the coke-made product, except when required for special purposes for which iron of superior quality is essential. If the melting of iron by electricity should ever become an economic success in competition with the blast furnace using coke as fuel, Quebec province, with its numerous water-powers generating electricity, might become an important centre of iron manufacture. There are believed to be important deposits of iron in Ungava, both on the mainland and along the coast, and geologists think coal may also be found, but as the country is almost unexplored nothing definite can be stated about its mineral resources.

Iron ore is found over wide areas in Frontenac, Lanark, Renfrew, Leeds, Hastings, Peterborough and Haliburton counties, in the eastern part of Old Ontario, but most of the deposits are now believed to be merely pockets. Prospectors have been too ready to assume that when several deposits of ore are found in line with each other they must be outcrops of the same ore bed. There appear to be a great number of separate deposits, many of them containing considerable quantities of ore, but as yet no very extensive body of good ore has been proved to exist in that part of Ontario. However, the country has never been thoroughly prospected, and very little development work has been done. Magnetites are more common than hematites. Bog ore is reported to exist in Lanark county.

Considerable quantities of both magnetite and hematite iron ores were shipped to the United States a number of years ago, and very favourable reports of the quality of some of the ores were received from the smelting companies, but when the great iron ore beds on the Michigan shore of lake Superior were discovered these eastern Ontario