

Labrador Is Reported Scene Of Rich Iron Ore Discovery

Dr. J. A. Retty, Geologist, Claims Vast Formation Found in North Country — Billion Tons Said Potentially Available

By F. F. FIELD.

Striking to the very roots of Great Britain's national defence problems and placing British North America in a strategic position as the Empire's No. 1 potential source of iron for possible use in the major rearmament programmes currently being undertaken, is the discovery in the remote fastnesses of Labrador by Dr. J. A. Retty, chief geologist for the Labrador Mining and Exploration Company, of what is claimed may prove one of the world's most important highgrade iron ore deposits. Over a billion tons are believed potentially to be available, according to the discoverer.

Should the operation be commercially possible disclosure of this new mineralized region within the Empire is doubly significant at this time, for international complications are such that a new supply of iron ore is very desirable for Great Britain. Spanish ore is now cut off due to the protracted internal strife in that country, while Germany is gradually monopolizing Sweden's production, hitherto Britain's major source of supply.

Another feature that favors the development of a new field is the gradual depletion of ore reserves in the Lake Superior districts. A recent estimate of the tax commissions of Wisconsin, Minnesota and Michigan shows the reserves to be 1,404,051,766 tons. In 1937, 61,972,823 tons of ore were shipped. At this rate of consumption the present ore reserve would be depleted in about 23 years.

The Labrador and Exploration Company was organized in 1936 to explore and geologize a concession obtained from the Newfoundland Government with an approximate area of 20,000 square miles. The managing director of the company is A. H. McKay, of Montreal who, with a few associates, has privately financed operations during the past three years.

Three iron deposits have been encountered. One at Sawyer Lake is of exceptionally highgrade character, the second at Attikamagen is of lower grade but, it is stated, has tremendous tonnage possibilities, while the third at Ruth Lake, northwest of the others, is also highgrade. The Ruth Lake showings were found in 1929 by Drs. W. F. James and J. E. Gill.

It was Dr. Retty, however, who discovered the highgrade Sawyer Lake deposit. With important geological experience that included the duties of field assistant and, later, geologist to the Geological Survey of Canada, geologist to the Quebec Bureau of Mines and a brilliant academic background at Princeton University to his credit, Dr. Retty found little difficulty in recognizing immediately the potential significance of a piece of ore brought to him one day by a puzzled Indian.

Sawyer Lake, scene of the principal discovery, is located some 284 miles north of Seven Islands, Quebec, on the Gulf of St. Lawrence, and 245 miles northwest of a settlement called Northwest River on an arm of the Atlantic Ocean. Attikamagen lies about thirty-five miles northwest again of Sawyer Lake.

What is the significance of these finds in the barren wastes of Labrador? Is this geologist's dream to end here? Or is it merely the prelude to the establishment of an iron industry possibly second to none in the world?

SAWYER LAKE DEPOSIT.

In the first place, with regard to the Sawyer Lake deposit, the ore is said to be a hard hematite that contains no moisture. Technically, this is a paramount consideration since it precludes any waste of thermal energy in processing the ore. In addition, the iron content is exceptionally high. The following tabulation indicates the percentage of iron ore in some of the other principal world deposits:

	% Iron.
Alabama	25-37
England	29-30
Lorraine	31-40
Newfoundland	35-40
Cuba	40-50
Spain	40-57
Lake Superior	51x
Sweden	35z

x—Average.

z—Magnetic, concentrated to 65.

Consideration of the grade of the Labrador ores, as reported by Dr. Retty, shows their importance:

	% Iron.
Sawyer Lake	60-70
Attikamagen	40-45
Ruth Lake	57-64

From these statistics, it is apparent that even the comparatively low grade ore from the Attikamagen area rates well with the average, while that from Sawyer Lake and Ruth Lake would seem to exceed by a substantial margin the world's best.

Next, the ore is claimed to be of Bessemer grade. That is, it rates low in phosphorous and sulphur, another important consideration in processing. Equally interesting is the fact that located as it is on a high hill, a large tonnage could be mined by cheap open-cut and steam shovel methods. Dr. Retty and his staff already have indicated an appreciable tonnage by surface work, limited at its best by overburden, but the discoverer states that in all probability additional ore will be located by diamond drilling both along the strike and down the dip of the deposit.

This deposit is exposed across widths of from 200 to 300 feet and is truncated by erosion. The true width is approximately 125 feet, while it extends some 1,200 feet laterally. Tonnage on this basis is conservatively estimated by Dr. Retty at 32,000 long tons to one foot of depth or some 4,000,000 tons for the 125 feet.

This estimate, however, is by no means final since the ore is open and wide at both ends where it dips under the overburden. In this regard, Dr. Retty claims that it is highly improbable that a bedded deposit will suddenly decrease from a width of 125 feet to zero nor will the grade change rapidly. Bedded deposits, he adds, are always characterized by great lateral extent.

The Attikamagen deposit is apparently of a somewhat lower grade, but the tremendous area said to be occupied by the iron formation indicates the high tonnage of ore potentially available. It is fully five miles long and outcrops intermittently across as great a width as 4,000 feet. The thickness of the formation is 250 feet. While the exact proportions of this that will make ore is not yet known, Dr. Retty estimates that it contains conservatively 4,487,500 long tons per foot depth, that is, probably well over a billion tons for the 250 feet of thickness.

Its hard hematite character and Bessemer grade are similar to the Sawyer Lake deposit and while Dr. Retty emphasizes that the iron content has not yet been determined except by isolated analyses, he concludes that no difficulty will be experienced in securing a large tonnage grading between 40 and 45 per cent, which is higher than the grade of some iron ore mined. Apart from cutting a few samples, no further work was done during the past field season, operations having been concentrated at Sawyer Lake.

GENERAL ECONOMIC FACTORS.

As for the other general economic factors to be considered in the event of an iron industry being established in Labrador there is, first of all, an abundance of cheap waterpower. Grand Falls, one of the largest waterfalls in the world, is situated within the company's concession. It is estimated that the Falls has a descent of 760 feet in twelve miles and a single drop of 302 feet, with a flow of 50,000 cubic feet per second. The potential energy is obviously great and is variously estimated up to 5,000,000 horsepower.

With this source at hand, power could in time be generated for the operation of a railroad to the Gulf of St. Lawrence where year-round port facilities are available and where low ocean freight rates could probably be negotiated since colliers coming from Europe to Canada generally return empty and would welcome the opportunity of transporting ore on the return trip.

Possibility of the production of pig iron by electrical methods is another matter to be considered in view of the available cheap waterpower. The development of a tim-

ber industry along a railroad is also a probability, the timber to be used for pit props (northern pine is exceptionally good for the purpose) and the manufacture of paper. In an area as vast as that of Labrador, it has been possible to make only a rapid reconnaissance of part of the ground. More than half has not yet been geologized. The major portion remains to be prospected in detail and Dr. Retty believes that not only further occurrences of iron but base metals, gold and other economic minerals might possibly be found for the looking.