

# The Canadian Engineer

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## CONDITIONS ALONG THE PROPOSED ROUTE OF THE HUDSON BAY RAILWAY.

Quite recently, an expedition under Mr. J. R. Dickson, was sent out by the Dominion Government along the above referred to route. The central object of the party was to make a rapid reconnaissance survey of the country adjacent to the proposed route of the Hudson Bay railway between The Pas and Split lake; the work of such a survey being in this case to locate, estimate, and map in the areas of commercially valuable timber that could be made use of in the work of constructing the railway. Any such timber within eight miles of the line was classed as available, and beyond this distance wherever waterways gave access. Timber under 8 inches in diameter at breast-height was considered not merchantable—as being too small for industrial use. All areas not timbered commercially—i.e., carrying only young growth of no marketable value—were passed over with a general description of the existing growth as to species, size, and quality. Areas of greater or less agricultural value were mapped in when possible and a study made of their local flora, natural products and probable cropping possibilities.

The surface of the country is undulating to nearly level, and almost monotonous in its sameness. However away from the railway line in places, as for instance round Wekusko lake, there are areas of rough rolling granite. Wherever exposed, the bed rock has been rounded, polished, worn down nearly to a general level by the tremendous and prolonged glacial corrosion of the Ice Age.

The divides between water courses are low and poorly defined, streams frequently starting from two sides of the same muskeg. The general exposure north of Moose lake is toward the northeast, but this slope is very slight. The absolute elevation of Moose lake divide, according to the railway engineers, is 836 feet, while Split lake, 200 miles to the northeast, is 496 feet above the sea. This gives a fall of only 20 inches per running mile, or a slope of .003 per cent. over that distance. Furthermore this fall is not uniform, almost exactly one-half occurs in the form of three rocky escarpments, each of which produces cataracts on rivers flowing into Hudson Bay.

The most important of these declivities crosses the Grass river some twenty miles above Paint lake, where Lynx and Sandy falls occur, each with a 43 foot drop or a total of 86 feet. The above facts clearly explain the presence of the vast muskegs and sluggish drainage which obtain in that country.

It is interesting to note that the fall from Split lake to Hudson bay is exactly twice the above—500 feet in 150 miles; a slope of .006 per cent over all, or 40 inches per running mile. The whole region is intersected by a net work of lakes and streams large and small, at least 10 per cent. of the gross surface of the country being water.

The bedrock for 100 miles northeast of The Pas is limestone—probably largely dolomite—and it frequently obtrudes through the muskegs or shallow soils which blanket it. These outcrops form low, narrow, flattened ridges, rising just above the general level of the muskeg, and nearly always running northeast and southwest.

The line of contact between this limestone area and the Laurentian granite (upon which it rests comfortably) runs northwest and southeast from a point ten miles east of Limestone bay on Lake Winnipeg across the southwest end of Hill lake on Minago river to Cameron falls on the Mitishto, thence passing in a westerly direction along the south shores of Reed, Wekusko and Cranberry lakes. Along this line, especially in the vicinity of Hill lake, there is a zone of deep clays of very promising agricultural value.

In the area of granite farther north, the whole future, so far as agriculture or forestry is concerned, depends upon the general depth of the boulder clay. From the mere fact that it is a drift deposit this depth constantly varies, but only a detailed soil survey of each township could show where and how much. There are large areas of almost pure rock outcrop and muskeg of little or no value even for timber production. But in general, over the great clay belt the soil, which is almost uniformly a very tenacious boulder clay (nearly free of boulders, however), averages between 4 and 12 feet in depth; quite deep enough therefore for cultivation.

It must be understood that no hard and fast boundary line can be laid down as showing the confines of the clay belt. The change is often so gradual, and so many as yet unknown factors enter—as for instance, soil, depth, and possibilities of drainage—that any estimate of the bounds, area and average arable content of this belt can, with our present very limited knowledge, be given only in general terms. I estimate the area of that portion included from north to south between Wintering and Cross lakes, and from east to west between Setting and Sipiwesk lakes at 2,000 square miles. An analysis of its soil types appears later in this report.

Judging by such necessarily superficial observations as the members of the party were able to make, the region we covered is not well supplied with economic minerals. Traces of copper were found at Wekusko lake, and samples of iron ore at Sipiwesk lake, and careful prospecting might perhaps disclose deposits of commercial value, but everywhere else so far as observed, the obtruding bedrock was either pure granite or limestone. The latter, however, is mostly dolomite, the variety used as a flux in the reducing of iron ores, and future ore discoveries may give rise to such demand. This dolomite also will prove a valuable building stone for prairie towns, when made available by the Hudson Bay railway.

The deeper lakes all abound in whitefish of the finest size and quality. In Paint lake during the mayfly season (July up there) their dorsal fins could be seen cutting the water everywhere. Pickerel, and of course jackfish and suckers are likewise very abundant. We had no sturgeon net but saw quite a number jumping in Sipiwesk lake.

Altogether the fishing industry should be a decidedly profitable one after the railway goes through.

Much of that region is suited only and admirably to producing a permanent revenue from game and furs.

The beaver have been almost exterminated but mink, fisher, muskrat and other fur-bearers are still fairly numerous.