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GEOGRAPHICAL WORK BY THE GEOLOGICAL SURVEY OF CANADA IN 1894.

By Dr. G. M. DAWSON, C.M.G., F.R.S.

SOME geographical results of importance have again been obtained in connection with the operations of the Geological Survey of Canada during the year 1894, although but two parties have been at work in what may be called the unexplored regions of the Dominion. These were conducted by Mr. J. B. Tyrrell and Mr. A. P. Low.

In the *Geographical Journal* for March, 1894, it was stated that Mr. Low, after having completed the first part of his exploration in the Labrador peninsula, proceeded to Hamilton inlet, on the Atlantic coast of Labrador, for the purpose of passing the winter there, and in preparation for further work in the spring, by carrying inland as far as possible the necessary supply of provisions for the season's operations. With this object several men were sent up the Hamilton river with loaded canoes late in October. They succeeded in ascending the river about 100 miles, when they were stopped by ice. Caching the supplies here, they subsequently returned to the inlet on foot when the ice became strong enough for travel. A second party, under Mr. Low's assistant, Mr. Eaton, ascended the river for some distance, in January, hauling provisions in sleds, and early in March, a sufficient quantity of snow being on the ground to render travel over the rough ice possible, the main party started for the interior. The efforts of the party were then directed to moving forward the provisions from the caches already established, and by dint of much hard work and repeated trips to and fro, the supplies and canoes were carried inland as far as the vicinity of the Great Falls before the ice became unsafe. The Great Falls, it will be remembered, mark the furthest point reached by the Bowdoin College expedition in 1891.

At the end of May it was found practicable to launch the canoes and to proceed with the exploration by water. Sandy lake, into which the two main branches of the river flow, was made a base of operations. The south-west or Ashuanipi branch, with its lakes, was first examined; after which the survey was carried northward to Lake Michikamow, which proved to be some 80 miles long by over 30 miles in greatest width. The waters of this lake reach Hamilton inlet by the north-west river.

Having again retraced his route to Sandy lake, Mr. Low finally left that place on August 1, following up the south-east or Attikonak branch of the Hamilton southward to the height of land separating its waters from those of rivers flowing to the gulf of St. Lawrence. By means of the Romaine and St. John rivers the shores of the gulf were eventually reached near Mingan on August 22.

The explorations and surveys of 1894, taken together with those of the preceding year, give very important information on the geography and physical character of the interior of Labrador, including its geology.

Further particulars relating to this work will be given by Mr. Low in a paper to be presented to the Royal Geographical Society.

To the west of Hudson bay another line of exploration and survey was carried through the region of the Barren Lands by Mr. J. B. Tyrrell, who was accompanied by Mr. R. Munro Ferguson. This lay to the east of that followed by him in 1893, of which an account has already appeared in this *Journal*.* The route chosen was by way of Reindeer lake, situated in the northern part of the drainage basin of the Churchill. The journey from Grand rapids, near the mouth of the Saskatchewan, to the Du Brochet post of the Hudson's Bay Company, at the north end of Reindeer lake, involved a canoe voyage of about 600 miles by rivers and lakes already more or less completely surveyed.†

At Du Brochet post two Chippewyan Indians were secured as guides for the new country lying beyond. A stream named Ice river was first ascended for some distance to a portage route which led by Thanont and Theitaga lakes to Kasba lake, at the head of the Kazan or White Part-ridge river, in latitude $61^{\circ} 10'$, at a distance of 221 miles from Reindeer lake. Thanont and Theitaga lakes discharge their waters by the Thlewiaza river to Hudson bay.

The Kazan river was followed down to Ennaida lake, which lies at the northern edge of the wooded country, and here the Indian guides turned back. Some days later, and further to the north, the first camp of Eskimo was met with, and two of these people were enlisted as guides. Yath-kyed lake was subsequently reached, and the whole length of its west shore was examined. When in latitude $63^{\circ} 7'$, it was definitely ascertained that the Kazan discharged into Baker lake at the head of Chesterfield inlet, and, in consequence of information obtained from the Eskimo, it was determined to make a series of long portages to the eastward, by means of which another river was reached. This, being descended, was found to discharge into Hudson bay about latitude 62° , and the shore of the bay was attained on September 18. Fort Churchill was reached on October 1, and after waiting some time for the complete freezing over of the rivers and lakes, the return journey was begun with dog-sledges, by way of Split lake on the Nelson river, to which a track survey 275 miles in length was made on snow-shoes.

The route followed from Reindeer lake to the shore of the bay was about 815 miles in length, and by means of this survey and that of the previous summer it will now be possible to place most of the large lakes and rivers to the west of Hudson bay upon the map with some accuracy. The rocks met with along the entire route are almost exclusively referable to the Laurentian and Huronian systems, the area of Animikie rocks found in 1893 not extending so far to the east and south as the Kazan river.

* November, 1894. † 'Report of Progress, Geol. Survey of Canada, 1879-80, part C.