

During the four years mentioned, Mr. Murray's labors were devoted to explorations of the country lying between Lake Huron and the Ottawa River. In 1853 he, in the first place, ascended the Muskoka, discharging into Georgian Bay, and descended the Petewahweh to Lake Allumette, on the Ottawa; he then ascended the Bonne-Chère, and passing from it to the Madawaska, and ascending the York or South-West Branch of the stream, crossed various tributaries of the Ottonabee River, and came out by Balsam Lake; thus making two traverses across the country, and completing a lineal distance of about 500 miles. In 1854 he examined the Meganatawan River, emptying into Lake Huron, south of the French River, and commenced an exploration of Lake Nipissing, the circuit of which he completed in 1855. With the exception of the tributary sources of the Ottonabee, which were only sketched, the rivers mentioned and the shores of Lake Nipissing were measured topographically, by the aid of Rochon's micrometer telescope, and the maps resulting from the measurements of 1853 and 1854, having been engraved on stone, on the scale of an inch to a mile, accompany the Reports. These maps occupy eleven sheets, and others now in hand, representing Lake Nipissing and the work resulting from the last season's investigation in the same general district, requiring as many more sheets, will follow so soon as they are completed.

Although on these maps are marked all the rock masses met with, yet representing mere lines of exploration, they are not sufficient to give the details of the physical structure of the district. They give, however, a general idea of the larger groups to which the formations prevailing belong, and will afford many facts constituting valuable points from which to start in prosecuting further investigation. They, at any rate, present prominent geographical features in a hitherto undelineated and little examined part of the country,—a knowledge of which may become of importance in the progress of its settlement, and they are consequently deemed worthy of publication.

LAURENTIAN FORMATION.

Mr. Murray's lines of exploration traverse for the most part those rocks which, in Canadian geology, have been termed the Laurentian system. They are the most ancient yet known on the continent of America, and are supposed to be equivalent to the iron-bearing series of Scandinavia. Stretching on the north side of the Saint Lawrence from Labrador to Lake Superior, they occupy by far the larger share of Canada, and they have been described in former Reports as sedimentary deposits in an altered condition, consisting of gneiss interstratified with important bands of crystalline limestone. The gneiss proper, when it comes near to the surface, yields but an indifferent soil, while the soil derived from the limestones, which are usually in an easily disintegrating condition, is of a most fruitful description. The farms which have been established upon the Laurentian formation, run almost wholly upon the limestones and their associated strata, and afford a pretty distinct proof that the distribution of these calcareous bands being once known, it would not be difficult to determine in what direction it would be most judicious to push settlement. It is also in contact with these limestones, or near them, that the iron ores are found, which so prominently characterise the Laurentian series, as well as the lead-bearing veins belonging to it; and as the limestones possess external and internal characters, which render them more conspicuously distinct from the gneiss than any of the component members of the gneiss are from one another, they afford the least difficult means of tracing out the physical structure of the Laurentide district.