

Appendix
(G.)

11th April.

These various tributaries of the St. Lawrence and their ramifications, by which the district is very abundantly watered, often spread out into small but beautiful lakes among the highlands, giving, in association with mountain peaks, great picturesqueness to the scenery. This is particularly the case towards the southwestern parts, where these lakes so bespangle the country that in one panoramic view from the summit of Orford Mountain, estimated at 4050 feet above the St. Lawrence, no less than eighteen of them can be counted, emptying into the Yamaska and Richelieu on the one hand, and the St. Francis on the other. The largest of these is Lake Memphramagog, which has a length of about twenty-five miles, by a breadth generally under one mile, but sometimes reaching two; it lies partly among the mountains and partly in the valley beyond, which obliquely crosses the upper extremity, and in one place the lake approaches to within six miles of Stanstead Plains. Each branch of the Nicolet is supplied with its lake among the mountains, the western in the Township of Tingwick, the eastern in the Augmentation of Ham, the position of each having the same relation, the one as the other, to the rocks of the district. The Bécancour displays a very beautiful chain of lakes in the Townships of Inverness, Halifax, and Ireland; while others, of a smaller size, on the north-west line of Wolfestown, appear at the sources of the stream, situated similarly in geological regard as those of the Nicolets. Several of these, with the addition of others, are taken in at one view from the summit of the White Mountain, a lofty peak near the division line between the Townships of Stuart and Neilson; but two of the most conspicuous the view comprehends are Lakes St. Francis and Aylmer, which, being expansions of the upper part of the St. Francis, are not among the mountains.

The plains on the north-west and the vale on the south-east of the mountain belt constitute two valuable tracts of country, of great agricultural capabilities. The soil of the former, though in some places light, is for the most part a strong calcareous clay, supporting, in its wild state, a predominating growth of soft wood, but when cleared, well suited to yield abundant crops of excellent wheat, for which the seigniorial farms along the St. Lawrence were celebrated before the practice of an inferior system of husbandry had caused exhaustion, and the Hessian fly had committed the devastating ravages which have almost wholly deprived the Lower Province of a wheat harvest for the last eight or nine years. The soil of the south-eastern vale is, with many exceptions, generally a gravelly loam, seldom deficient in calcareous quality, and often very ferruginous; its timber is chiefly hardwood. It is well adapted for wheat; but the distance of the district from a market has turned the attention of its cultivators almost exclusively to the rearing of cattle, and its produce in hay and grass is uncommonly abundant. The intermediate mountain country is possessed of many fertile subordinate valleys, some of which are of considerable breadth; many of the mountains are round-topped elevations, of very moderate height, not deficient in soil; hill and dale are in a majority of cases clothed with hardwood, and when cleared have given some excellent farms.

The level surface of the plains on the north-west affords facilities for rail or plank roads in almost any direction, but the usual communications at present existing, though they give easy travelling in summer in the dry weather, become at the melting of the snows in spring, and in the rainy season towards the end of autumn, impracticable strips of deep adhesive mud. Among the hills and south of them, the roads, though more undulating, in general rest upon a good hard bottom, and when properly con-

structed in the first instance, and kept in moderate repair, are passable at all seasons. The number of them however is not great, and some which have perhaps been ill chosen lines have, though originally made at great expense, been suffered to fall so far out of repair, as to become wholly or almost wholly obliterated; many are as yet mere tracks through the bush, and it is only the main channels of communication that are moderately good roads. This renders the examination of the country extremely laborious, and in following the strata, it oftentimes becomes requisite to traverse extensive tracts through the forest, where progress must necessarily be slow.

Although the larger part of the district has been surveyed and divided into Seigniories and Townships, perhaps nine tenths of it yet remain unreclaimed from its original wild condition. The greatest extent of clearing is on the bank of the Saint Lawrence, and the least in the central mountain belt, towards which, improvement proceeds from the Seigniories on the one hand, while on the other, it advances from the State of Vermont; and of this state the whole area under description, in surface, soil, rocks and minerals, appears to be a modified repetition, with a difference chiefly in latitude.

Sequence and distribution of Formations.

The more solid rocks of this region are so covered up on the plains by tertiary and alluvial clays, sands and gravels, and still so much concealed in most parts by primeval forest, that no one section examined across the formations, is sufficient to shew all the details in place. At the same time, the strata over extensive areas, are affected by such numerous and violent undulations, while they have also suffered great metamorphic action, that one season's work is not sufficient to unravel all the complications of the subject. It has been sufficient however to ascertain the general masses to which attention is to be devoted, and many of the subordinate materials holding economic value.

If a straight line be drawn from the city of Montreal to Canaan, on the Connecticut River, in Vermont, it will lie between the Granby and Farnham roads, conducting to Stanstead, until reaching Georgeville, on Memphramagog Lake; in its progress thence, keeping some distance to the north of Stanstead Plains, it will about strike the village of Barnston Corner, and quit the Province near the division between the Townships of Barford and Hereford. Such a line will run as nearly at right angles to the general strike of the formations, as a certain want of parallelism in some places, arising from the effects of undulations in the strata, will permit; and the facts seen on it, with the assistance of others gathered from some miles on each side, may be sufficient to shew, in section, the general character of the rock masses constituting the country on the south side of the St. Lawrence, from Montreal and Missisquoi Bay to the Chaudière. If this line were continued westwardly from Montreal, it would strike the Rivière du Nord, in the Seigniorie of the Lake of Two Mountains, about north of St. Scholastique, and there come upon a formation of gneiss and crystalline limestone, which occupies the right bank of the stream, and is the same as that which has been described in a previous Report, as extensively displayed in the valley of the Ottawa.

Commencing with this formation as a base, the first rock found resting on it is a whitish quartzose sandstone, apparently contemporary with the Potsdam sandstone of the State of New York; it occupies a narrow strip on the Rivière du Nord, and most probably will be found skirting the hills which bound the flat land on the north-east bank of the St. Lawrence; in this position it is mentioned by Mr.

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