

GEOLOGICAL SURVEY OF CANADA.

REPORT OF PROGRESS FOR THE YEAR 1847-48.

To His Excellency the Right Honourable James, Earl of Elgin and Kincardine, K.T., Baron Bruce of Kinross and of Torry, one of Her Majesty's Most Honourable Privy Council, Governor General of British North America, and Captain-General and Governor-in-Chief in and over the Provinces of Canada, Nova Scotia, New Brunswick, and the Island of Prince Edward, and Vice-Admiral of the same.

MONTREAL, 1st May, 1848.

MAY IT PLEASE YOUR EXCELLENCY :

My duty, as Director of the Geological Survey of the Province, requires that I should report to Your Excellency the progress which has been made in the investigation in the course of the past season.

The labours of my Assistant, Mr. Murray, have been devoted to an examination of part of the shores of Lake Huron; those of Mr. Hunt, to the chemical analysis of various minerals and mineral waters collected by himself on two different excursions chiefly, one to the Ottawa and one to the upper extremity of Lake Ontario, as well as of various substances obtained on the explorations both of Mr. Murray and myself. The Reports of Mr. Murray and Mr. Hunt I have now the honour to transmit to Your Excellency.

My own attention has been engaged in an examination of the country on the south side of the St. Lawrence, extending from the vicinity of Montreal and Lake Champlain to the River Chaudière; in which I availed myself of the aid of Mr. Hunt for part of the time it occupied.

Geographical Characteristics.

Between Montreal and Quebec the valley of the St. Lawrence has a general north-east course, and presents a flat surface on each bank of the river. On the north-west side this surface extends in breadth a distance varying from twelve to twenty miles, to the flank of a wide-spread, hilly, but not very elevated country, occupied by syenitic gneiss, interstratified with crystalline limestones, being a continuation of the metamorphic formation described in another Report as existing on the Ottawa. On the south-east side the plains exhibit a width of thirty to forty miles, and, with the intervention of a few moderate undulations in one or two places, reach the foot of a range of mountains, which stand on a breadth of twenty-five to thirty miles. This range is the continuation of the Green Mountains of Vermont, which, after entering Canada, lose much of the bold character they possess farther south, though they still offer, in the district under description, two or three isolated peaks attaining the height of about 4000 feet above the level of the sea. The opposite sides of the mountain belt run very nearly parallel to one another, and a valley, or continuous line of valleys, bounds it on the south-east side, with a gently-rolling surface by no means so even as the plains on the north-west, but presenting few extraordinary swells or abrupt protuberances. The breadth of this valley may be from fifteen to twenty miles; and to the south-east the land gradually rises into a more mountainous tract, extending to the Province line, which runs upon its ridge from the sources of the Connecticut River to those of the Chaudière.

These ranges of mountain and valley are parallel to one another and to the St. Lawrence, and the whole coincide with the strike of the formations constituting the district. The streams conveying the waters of the area to the great river, are first the Richelieu and the Yamaska, the main trunks of which run in a direct continuation of the valley of Lake Champlain, with a distance between them equal to about the greatest breadth of the lake, and go with the strike, while the eastern branches of the Yamaska, (including the most southern of them, bearing the name of the stream,) all of which have their sources west of the Green Mountain range, or among its peaks, run transverse to the stratification. Next are the St. Francis and the Chaudière, about eighty miles asunder, the lower part of each of which makes a straight section across the measures, including the rocks constituting the mountain range, while their upper parts drain the line of valleys beyond. The upper part of the St. Francis and its tributary, the Massawippi, flowing in opposite directions along the foot of the mountain range, occupy about eighty miles of the line in the general strike of the formations, and join at Lennoxville, after being supplied by several transverse tributaries, which take their sources in the southern mountains. The Chaudière, springing in these mountains, overlaps the upper part of the St. Francis, flowing in an opposite course, and more southern but parallel line for some distance below Lake Mégantic. It then turns up northward, and is joined by the Rivière du Loup, which flows across the measures in the same direction as the lower part of the Chaudière, and further on it meets another tributary called the Famine. This tributary is in the same relation to the rocks of the country as the upper part of the St. Francis and the Massawippi. Flowing in the strike, it takes its source to the eastward, in a level tract, which is also the source of the Mitaywaquon and constitutes part of the valley of the St. John River, to which this is tributary; and it appears probable that the valley of the St. John, presenting a continuation of the line of valleys, will be found to display the same relation to the stratification as that portion of the depression to the south-west already mentioned. Between the St. Francis and the Chaudière, are the Bécancour, and the east and west branches of the Nicolet. These take their rise towards the south-east side of the mountainous belt of country. The course of the two Nicolets is in general transverse to the measures, more directly so in those parts which flow among the mountains; that of the Bécancour is more irregular, being sometimes with and sometimes transverse to the strata for long stretches. The main source is about midway between the Chaudière and the St. Francis, but on leaving the hilly tract, the stream approaches to within twenty miles of the former, while its mouth is not much over the same distance below the latter.