

On the islands of Montreal and Jésus the thick grey beds of the middle limestone run in a circle from the vicinity of Lachine and Caughnawaga to that of Terrebonne, keeping close behind the Montreal mountain, and perhaps running under it in their range; and they are displayed in various quarries extensively worked in the rear of this city, some of which display a number of trap dykes of various thicknesses up to three feet, which run in several directions, and intersect one another as well as the limestone; and in some instances, the limestone having been removed from among them, the dykes, left standing up several feet above the bottom of the quarries, represent in a marked manner the various details of the cracks they once filled. This volcanic area extends over about 700 acres, and consists of several varieties of trap; that of the mountain summit, overlooking St. Catherine's, being light grey in colour, from being composed of a preponderating quantity of white feldspar, with disseminated black hornblende, and that towards the town of a darker hue, from the hornblende becoming more abundant, while in the vicinity of the Cote des Neiges road it is augitic, forming black masses which, under the influence of the weather, disintegrate into a coarse, granular, but fruitful soil. A very important band of stratified trap also crosses the Papineau road about a mile and a half from the St. Lawrence, and has been followed on the strike of the limestone for five miles to the northward, but southwardly is lost beneath the tertiary sands and clay in less than half a mile.

The calcareous formation described is highly fossiliferous, and it corresponds in the lower part with the calciferous sandstone, in the upper with the Trenton limestone of New York; it is there succeeded by a fossiliferous

deposit of black bituminous shale, with the title of the Utica slates, and a similar deposit follows the Montreal limestone on the line of section. This shale occupies a narrow strip on the east side of Montreal Island, and is exposed at Sault St. Louis, and several spots along the margin of the St. Lawrence to Point St. Charles, reaching back to the third lock of the Lachine Canal; further down the island it is concealed by tertiary and alluvial deposits, but it is seen at Longueuil on the opposite side of the river; it forms St. Paul Island, and it seems probable that the bed of the St. Lawrence is worn out of the formation for a considerable distance below Montreal.—From Sault St. Louis it follows the subjacent limestone round to St. Johns, and running up the east side of the Richelieu, with a width extending beyond Henrysville, it constitutes all that point on Lake Champlain lying between the exit of the lake and the M'ssisquoi Bay. Like the previous formation, it is cut by trap dykes, and interstratified with trap floors; instances of the former are seen on the Longueuil shore, opposite and below St. Helen's Island; and of the latter about a quarter of a mile forward from the Longueuil termination of the St. Lawrence and Atlantic Railroad, as well as at Point St. Charles, on St. Paul Island, and higher up the stream.

The country between the St. Lawrence and the Yamaska presents an even surface so covered by tertiary deposits that there are but few exposures of the older strata; but there appears some evidence of higher strata than those holding the fossils, in the space between the Yamaska, the Huron, and the Richelieu, round the mountains of Rougemont and Belœil,—which isolated mountains, as well as those of Montarville and Mount Johnson, appear to be composed of trap at the summit, resting on stratified rock at the base. Near Chambly there is an interstratified bed of trap of a trachytic character, being composed of a slightly reddish feldspar with dingy spots of crystals of feldspar disseminated in it. A somewhat simi-