

Johns and Chambly, covered now and then by a conglomerate, and one of the elder limestones. It appears above the soil in the Common of Laprairie, at Longueil, and in many places along the River Richelieu. Its fragments are frequent throughout the above district, and extend twenty miles above the foot of Lake Champlain, to the Genesee Country, in a south west direction and nearly to Prescott on the St. Lawrence, in Upper-Canada.—The limestone of the plain invests the Trap Rock of Montreal Hill, to within a variable distance from the summit of one or two hundred feet. It is in horizontal layers, and usually quite undisturbed, as if it had remained in tranquility from the hour of its deposition. But it is a most singular circumstance that from the Hill, as from a centre, there strike into the limestone in all directions, and with tolerably straight courses, a great number of perpendicular walls, dykes or veins of the Trap, which have been traced for a  $1\frac{1}{2}$  mile easterly, and to Lachine a distance of five or six miles. They frequently divide and again unite inclosing masses of the limestone. Sometimes they seem to meet with obstacles in their progress, when they collect into a large knot, and again project a number of tortuous ramifications. They are from one to three feet in breadth, and do not taper rapidly; still however now and then enlarging and contracting in size for short spaces. Fourteen have been counted in the Race-course only.—Sometimes the fluid mass, escaping from the perpendicular dykes, has insinuated itself in their sheets between the layers of limestone, which it is to be particularly remarked, preserves a nearly perfect horizontality—a fact only to be explained, (and not in a very satisfactory manner,) by the supposition that at the time of the eruption, the limestone had not yet consolidated, and of course had not then received the lamellar structure: It is generally allowed that all strata have remained some time in this condition; to which indeed are ascribed the fantastic contortions observed in gneis and mica slate, and of which the north shores of Lake Huron furnish extreme cases, while the limestone of the River Jacques Cartier, contemporary with that of Montreal, and the grey wacke of La Riviere St. Anne la Grande, afford excellent examples of strata disposed in regular arches. These appearances are still rare, and are regarded with curiosity in Europe.

To return to the Dykes, they are of compact or fine granular trap, of a dull brown or black colour, and contain more or fewer crystals of hornblende and augite;—both well defined. The limestone adheres firmly to them; and near the line of junction, imparts to them some of its calcareous matter. It is full of shells, when in close contact with the dyke:—and in one case a cluster of *terebatulæ* is imbedded in the dyke itself. The occurrence of shells in trap scarcely meets with credit even at the present day.

The rock of the hill varies greatly in its mineralogical characters. It is usually highly crystalline, and is almost altogether hornblende: but augite is also often present in great quantity, and is distin-