

The distribution of the limestones therefore becomes a subject both scientifically and economically important, but it is one, the investigation of which will require a great amount of patient labor. To determine the superposition of the component parts of such an ancient series of rocks as the Laurentian, is a task which has never yet been accomplished in geology, and the difficulties attending it arise from the absence of fossils to characterise its different members. Bands of the crystalline limestone are easily distinguished from bands of the gneiss, but it is scarcely possible to know, from mere local inspection, whether any mass of the limestone in one part is equivalent to a certain mass in another. They all resemble one another more or less lithologically, and although masses are met with running for considerable distances rudely parallel to one another, it is not yet certainly known whether the calcareous strata are confined to one group often repeated by sharp undulations, or whether, as is probable, there are several groups separated from one another by heavy masses of gneiss. The dips avail but little in ascertaining this, for in the numerous folds with which the formation is wrinkled, these dips must very frequently be overturned, and the only reliable mode of pursuing the investigation, and of making even the limestones available in working out the physical structure, is patiently and continuously to follow the outcrop of each important mass in all its windings, as far as it can be traced, until it becomes covered up by superior unconformable formations, is cut off by some great dislocation, or disappears by thinning away to nothing. A labor such as this, in a district without roads, and the topography of which is scarcely yet known, with a surface much broken by the unequal wear of its rocks, and still covered by forest, must necessarily require much time.

The occurrence of the crystalline limestones in many distinct localities, ranging from the borders of Lake Huron to the River Saguenay, is well known; but no long continuous outcrop of any individual group of these calcareous strata, that I am acquainted with, has yet been shewn, and with the exception of the connection of the different portions of that incidentally traced by Mr. Murray in its windings through a part of the township of Bedford in 1852, while he was occupied in following out the junction of the fossiliferous and unfossiliferous rocks between Kingston and Lake Simcoe, it had not been with certainty proved that any two nearly parallel ranges of the rock could be traced to a junction.

My attention was devoted in the season of 1853 to the examination of those masses known to exist in the township of Grenville, and the facts then ascertained in that and neighboring townships, with the addition of others which have been determined since my return from Europe, will constitute the subject of the personal explorations I have to report to your Excellency on the present occasion.

Distribution of the Crystalline Limestones.

The limit of the Laurentian formation in the vicinity of Grenville has been given in a former Report, where it has been stated that it comes upon the Ottawa, a short distance above the village. Within four miles above the village, on or near the road running round the bay there presented by the left bank of the river, two important bands of the crystalline limestone emerge from beneath the fossiliferous strata underlying the flat country overlooked by the Laurentide hills. These bands, separated less than two miles from one another, rise into the flank of the hills, which exhibits a section transverse to the general strike of the formation in that part. One of the bands is seen in the third range of the township, on the line between the twelfth and thirteenth lots, and the other on the Calumet River, on the sixteenth and seventeenth lots of the second range.