

on the present occasion described by Mr. Murray. It is not necessary, therefore, that I should give all their features in detail, or do more than offer to your attention such peculiarities as may be additional to those heretofore mentioned; and these may be related in describing the geographical distribution of the formations.

The Potsdam sandstone formation, resting unconformably on the Metamorphic series (the latter consisting of gneiss and interstratified limestone) occupies a narrow strip on the north side of the St. Lawrence, below Montreal, at a variable distance of ten to twenty miles from the north bank, and sweeps round the valley of this river to that of the Ottawa, the turn forming an obtuse angle on the *Rivière du Nord*. The same formation, in the same relation, proceeding from Keeseville in the State of New York, turns from the valley of Lake Champlain to that of the St. Lawrence, and, forming a sharper angle, is projected out across the county of Beauharnois towards the previously mentioned bend, in a long tongue of sandstone pierced near the extremity by Mont Calvaire, a protruding mass of the subjacent gneiss. From Beauharnois a broad belt of the sandstone has been traced in New York, by the geologists of that State, in a pretty straight line, at a variable distance from the bank of the St. Lawrence to Hammond, near which it reaches the river. It here crosses the river, and it will be perceived by Mr. Murray's Report, that he has traced it through the townships of Elizabethtown, Youngs, Lansdowne, Bastard, and South and North Crosby. I am indebted to Dr. Wilson, of Perth, for pointing out to me, in the course of a previous season, its distribution through Burgess, Elmsley, Drummond and Beckwith, and to Mr. Dickson for facilitating the examination of its direction through Ramsay and Pakenham. It is subsequently seen in March and Nepean, and though the investigation of its course on the Ottawa is not yet complete, it has been met with in one spot tending to a junction by Grenville with the exposure on the *Rivière du Nord*.

The perimeter formed by the sandstone, or the gneiss beneath it, when the sandstone is wanting, gives the area within it the shape of a peninsula, the isthmus to to which, between the *Rivière du Nord* and the border around Mont Calvaire, is about five miles across. Around the whole of this peninsular form the sandstone rests upon the gneissoid rocks, and it is followed by an interior zone of calcareo-arenaceous beds, bearing the fossils which characterise the Calciferous sandrock formation. Within this there is another zone consisting of limestone, corresponding in a considerable degree in its organic remains to the Chazy limestone, while the fossil contents of a large area in the centre correspond with those of the Birdseye, Black River and Trenton limestones; and surrounded by these, an area of Utica slate with its characteristic trilobites and graptolites, extends from Bytown some distance eastward. This concentric geographic arrangement of the rocks, even without the dips, leaves little doubt that the organic rocks rest on one another in the form of a trough, reaching from North Crosby to Mont Calvaire in length, and from the Ottawa to the St. Lawrence or rather to the borders of the State of New York beyond it, in breadth, the whole superficies of which comprises about 10,000 square miles. Where the dips are appreciable they give a general confirmation of this structure, but they are for the most part small, and the strata over large areas have often to the eye the appearance of being quite flat.

This trough is divided longitudinally into two subordinate troughs, the anticlinal axis between which, striking in from the Lac des Chats, runs south of east, and parallel with Lake Chaudière, to the east corner of March, and thence turning more eastwardly keeps a course parallel with the Ottawa and comes upon Mont Calvaire. The anticlinal, in its effects, brings the Potsdam sandstone to the surface, through the succeeding formation, at Stony Swamp in Nepean, in the south part of West Gloucester and East Hawkesbury, and it brings up an exposure of the still lower gneiss, south of the trap Mountain of Rigaud. It carries also from the main line of outcrop, at the extremities of the general trough, two projecting fingers of the Calciferous sandrock, which point at one another, the succeeding formations