and general appearance to that series of beds at the summit of the Gypsiferous formation of New York, which is known there as the Water-lime group, except that the beds do not contain organic remains, the total absence or very great scarcity of which is a feature that belongs, both in New York and the bordering part of Canada in the Niagara district, to the remainder of the formation. This analogy is farther supported by the fossiliferous portion of the Huron sections, in which several of the fossils seem to correspond with those figured by Hall and Vanuxem, as characteristic of the Corniferous limestone and the Onondaga limestone, which constitutes a passage to the Corniferous, and is in the western part of New York and its continuation into Canada, the formation overlying the Gypsiferous. These fossils are *Paracyclas elliptica*, *Delthyris undulata*, *Atrypa affinis*, with a *Cyathophillum* and a *Syringopora* belonging to the Onondaga limestone, neither of which have been specifically named, accompanying *Favosites gothlandica*; other species of *Delthyris* and *Atrypa* occur, with *Strophomena* and *Cypricardia*, and univalves resembling the genus *Platiceras* of Conrad. In addition to the corals mentioned, others are present, and there are also several species of Trilobites.

The Corniferous limestone extends over the greater proportion of all the western parts of the peninsula between Lakes Huron and Erie, but thick deposits of drift cover it up throughout the chief portion of the area it occupies. The only exposure of it met with in our excursion, in addition to those already mentioned, near the Sauguine, at Little Pine Brook, and on the Ashfield and Maitland Rivers, were at the Malden quarries, near Amherstburgh, at the very western extremity of the western district, where it displays thick beds of a pale yellowish limestone of a bituminous quality, abounding in fossils, and where, in addition to those kinds of remains already mentioned, it holds the bones of fishes.

As it appears probable from what has been said, that the fossiliferous rocks south of the Sauguine belong to the base of the Corniferous limestone, it may be inferred that the whole of the sand and clay covered space between them and the Rivière au Sable (north) is occupied by the Gypsiferous group, the upper members alone of which are brought into view on the shore of Lake Huron, and by a series of gentle undulations carried to Point Douglas and the other parts of the coast to Goderich. When the flatness of the strata, and the thick coating of the superficial arenaceous and argillaceous deposits in those parts of the country, are considered, it is not surprising that the mineral which in other parts renders the formation of economic importance should not have been met with. But as the district becomes settled and cleared, there is little doubt many fortunate exposures of it will be found between the mouth of the Sauguine and those spots where it is already turned to use on the Grand River. The position there occupied by the available masses of gypsum is in the middle of the formation, and wherever they have been observed in Canada, they are associated with green calcareo-argillaceous shales and thin beds of limestone. Below these shales and limestones, red marls are known to exist in Canada, not far from the Falls of Niagara, and also in New York, where that part of the formation becomes of importance as the salt-bearing rock of Onondaga. That the red marls are probably continued, in front of the Niagara limestones, to the coast of Lake Huron between the mouths of the Sauguine and Au Sable, appears to be indicated by the fact that Captain Bayfield on his map of the lake has represented a bottom of red clay to exist in soundings of 354 feet, at a spot bearing about W. by S. seventeen or eighteen miles from the mouth of the Sauguine, or about twenty-five miles in the same direction, from a point where the level of the lake would intersect the supposed probable outcrop of the marl on the land, and though it would require a slope of no more than fourteen feet in a mile to reach the red clay in the submerged locality, while the general inclination of the exposed strata is estimated at thirty feet in a mile, the difference is too small, and such a change in the dip as would be required to compensate it, too common an occurrence to make it any difficulty. With a slope of thirty feet in a mile, the total thickness of the formation, where it attains the mouth of the Sauguine, would be 300 feet.

The opinion that the economic masses of gypsum will be found to accompany the formation to which they belong to the coast of Lake Huron, is supported by the fact that such are known to exist in its farther extension on Burnt Island, not far northward of Michillimakinac, the rocks constituting the group of islands in the vicinity of which have been ascertained to belong to the gypsiferous series; and the value of gypsum in its applications to the soil renders it little doubtful that its presence will have a material effect upon the prosperity of such settlements as may be found to posses available quantities in their vicinity, but as the mineral is distributed in detatched and isolated masses, varying greatly in size and extent, and not in continuous sheets among the strata, the discovery of workable parts can only be expected as the result of careful and persevering research, continued for some time.

In addition to gypsum, hydraulic lime is a material of economic value likely to result from this formation; a bed of it at Point Douglas has already been alluded to, which in the experiments tried with it, hardened rapidly under water, after having been burnt and pulverized, and the statements of a previous report show that considerable quantities of it exist in the formation, near Paris on the Grand River. Good common material for building purposes and limestone for burning are met with in both the Gypsiferous and Corniferous formation. At Goderich, about half a mile above the bridge across the Maitland River, a dark brown sandstone, soft in the bed, but hardening on exposure, has been used for coarse building purposes, and found useful in the construction of limekilns. At the same place there are limestones in the upper part of the bank, which make a good substantial building stone, but are unfit for any ornamental part of an edifice, in consequence of a tendency to become iron-stained. The body of the gaol and court-house at Goderich is built of such a stone, but the facings of the structure, I was informed, were brought from Malden. Rocks of a similar character to those above mentioned occur at the rapids on the same river near Papp's farm, about five miles from Goderich on the London road: the strata being nearly flat, are capable of being easily quarried. At Malden, near Amherstburgh, a limestone of a whitish gray, and sometimes of a buff colour, is extensively quarried for building stone; the beds, which lie nearly flat, are from one to two feet thick, in no case require more than two or three feet of soil to be stripped from them, and in some parts are attainable at the very surface. They give a very handsome building stone, and at the base of some of the sections exposed there is a compact layer of a buff colour, somewhat resembling lithographic stone in its appearance; but for lithographic purposes it seems to be too brittle. All the beds burn to a good white lime. When the beds of the Corniferous formation hold too much of the hornstone, (from the large disseminated quantities of which it