

They follow no regular order, but it is frequently observed that the gypsum rests in the beds of marl, in other cases it rests on beds of dark limestone, alternating with beds of gypsum and anhydrite.

The limestones and shales are characterised chiefly by numerous brachiopods, especially *Productus corn*, *Athyris subtilita*, and *Terebratula sufflata*, with other marine invertebrates.\*

The limestones present every shade of composition, varying from arenaceous and argillaceous to the almost chemically pure mineral, according to the varied modes and conditions of its deposition. The thickness of the beds varies from 6 inches to 50 feet; the greatest continuous section being about 300 feet. These limestones are very free from magnesia as a general rule. Out of twenty limestones from this formation in Pictou county, that the writer has analysed, but two contained notable percentages of this mineral, viz., 10 and 10.5 per cent. as carbonate of magnesia, the average percentage being 2.5. Dr. How, of King's College, Windsor, mentioned finding considerable traces of magnesia in a gypsum deposit of that locality, and in one instance a large percentage in a limestone contiguous to gypsum, but other limestones in this district are very free from magnesia. The writer finds no mention of magnesian limestones occurring in any other Nova Scotia district, except a memorandum, perhaps not altogether reliable, of a bed one foot thick met in a chisel borehole made in Antigonish county some years ago. Three limestones associated with gypsum, near Mabou, in Cape Breton, gave but traces of magnesia on qualitative examination. Two limestones, however, presented by Mr. Fletcher, of the Canadian Geological Survey, from the vicinity of the gypsum beds of Judique, Cape Breton, gave 15 and 21 per cent. of magnesia carbonate. In other parts of the island, according to Mr. Fletcher, the limestones are non-magnesian.

The marls are, so far as the writer has had opportunities of observing them, made up of a siliceous or argillaceous base with limestone, gypsum, bituminous and carbonaceous matter in various proportions. They are frequently penetrated by veins and nodules of gypsum and limestone and in some cases hold the fossils characterising the formation.

The sandstones are of the usual gray and reddish colours, generally much broken by slaty cleavage. The conglomerates are composed largely of the older rocks, and in some cases hold pebbles of the preceding beds of the same formation. In many places they show marks of metamorphism, and occasionally are united by ferruginous cements, which, through weathering, have formed deposits of bog ore.

\* Dawson's "Acadian Geology."