

XII.—*Notes on the Limestones of East River, Pictou, N.S.*

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The following analyses of limestones, from the Lower Carboniferous Marine Limestone series of Pictou County were made some years ago by the writer, when engaged in an investigation into the subject of fluxes for the extensive deposits of iron ore which characterize this district, and they may be appropriately prefaced by a few remarks on the extent and distribution of the Lower Carboniferous measures of East River.

The general arrangement of the subdivisions of the Carboniferous system in this county can be readily recognized, and is given in sufficient detail in Sir W. Dawson's "Acadian Geology." It may be remarked that, in the district more particularly referred to in these notes, viz., that extending from Glengarry, on the Intercolonial Railway, to McLellan's Mountain, the Lower Coal formation does not appear, and may be represented on the eastern edge of the district by the conglomerate beds of Irish Mountain and McLellan's Brook.

On Big Brook, a tributary of West Branch, about four miles above Hopewell, are met limestones and gypsum with red shale and flaggy sandstones, resting on Siluro-Cambrian measures, and dipping to the north. These limestones are exposed on the West Branch and can be traced south of Grant's Lake to the valley of East River. They are associated with red shales, and red and gray sandstones, and the measures are broken through by several masses of the dioritic trap, probably contemporaneous. Exposures of gypsum are not met until near the mouth of Archibald's Brook. Here a compact, blue limestone, about thirty feet thick, is overlaid by marl, and by an immense mass of gypsum, about 100 feet in thickness.

It is impure in quality, and contains layers of marl and siliceous matter. In the upper part, are layers of granular and fibrous, red gypsum. Above this come beds of hard, red, shale, having a general dip to the west. The course of the gypsum, as marked by funnel-shaped pits, is southerly or parallel to that of the river. Its final exposure in this direction is distant about three miles, at the Black Rock, where a small outcrop is visible on the east bank of the river, on the farm of Mr. J. McDonald. At this point, it is associated with a pyritous, greenish, compact marble, and a compact, blue limestone, carrying limonite, and the section rests on a great mass of an indurated breccia, connected with the Cambro-Silurian measures of the opposite bank of the river.

Underlying the strike of the gypsum, on the west side of the river, are frequent exposures of hard, shaly, red sandstone, of soft marl, and of red and green argillaceous shales, interrupted at several points by dykes of black and dark-green dioritic trap. These measures rest on the Cambro-Silurian slates, carrying specular and limonite iron ores, and