

forbid my entering upon the subject at present. The same reason forbids my indicating more particularly the terrestrial forces which seem to me adequate to produce the zones of parallel lines of elevation, and to have broken up each successively into subzones.

ART VI. ON PRE-CARBONIFEROUS ROCKS OF THE PICTOU COAL FIELD. BY THE REV. D. HONEYMAN, D. C. L., F. G. S., MEMBER OF THE GEOLOGICAL SOCIETY OF FRANCE, &c., *Director of the Provincial Museum.*

(Read Feb. 12, 1872.)

ABSTRACT.

IN my last paper I showed that Sir W. E. Logan's opinion relative to the Devonian age of certain rocks in the northern part of McLellan's Mountain, and the district of Sutherland's River, was contrary to the evidence of palæontology and stratigraphy. I shall proceed further to examine the character of the evidence upon which the opinion is based.

The supposed Devonian Rocks on the west side of East River which are considered by Sir W. Logan to be "somewhat similar" to those of McLellan's Mountain, are indicated on Sir W. Logan's map, by a Devonian coloured area on the north-west. These pre-carboniferous rocks of Waters' Hill are regarded by Dr. Dawson as "probably of Devonian age"—vid. page 319 of *Acadian Geology*, 2nd Ed. It will be observed that this cautious expression hardly warrants the positive conclusion which Sir W. Logan derives from it.

At the time when I read the report I had not seen the rocks of this locality, Waters' Hill, in the north-west corner of the Pictou Coal Field. I therefore examined the map already referred to in order to get some idea of the relative position of the rocks in question. I was astonished to see Devonian rocks having insulated patches of millstone grit, and to find a limestone quarry in Devonian rocks, as all the limestone quarries with which I am acquainted in Nova Scotia, and Cape Breton besides, are of Lower Carboniferous

age. On referring to Mr. Hartley's report, I found that the limestone of this quarry was included among the pre-carboniferous rocks. I visited the locality and examined the rocks. Through the kindness of Mr. Dunn, of the Drummond Colliery, I was taken by railway to the point where the line cuts Waters' Hill. Here I found Lower Carboniferous grits underlaid by olive coloured slates and banded quartzites. The last are also overlaid by conglomerate. The slates and quartzites exactly resemble the rocks of the west side of anticlinal No. 2, as seen in the brook that proceeds from Blanchard's to East Branch, East River, or the Clinton strata that contain the ^{new} bed of Blanchard, which are continued on the west side of Fraser's Mountain, whose counterpart are the strata which are continued at McLellan's Mountain, Sir W. Logan's Devonian rocks. This is certainly striking, and shows that Sir W. Logan was right in his comparison, although he was somewhat astray in his conclusion.

I am not aware of the consideration which induced Dr. Dawson to express the opinion that the rocks of Waters' Hill are probably of Devonian age, in preference to the opinion that they are probably of Silurian age. I would now, then, in consideration of the absence of the Devonian in the extensive and well developed region to the east of the Coal Field, and the obvious lithological resemblance existing between the rocks of the Middle Silurian series of anticlinal No. 2, infer the Middle Silurian age of the pre-carboniferous rocks of Waters' Hill. Lithological, stratigraphical and palæontological evidence, evidently favour this conclusion. Having examined this interesting section of middle silurian rocks, I went in search of the Limestone quarry. Instead of the top of the hill I found it near the bottom. I had not the least difficulty in ascertaining the geological relation and age of the Limestone. It is evidently a metamorphosed Lower Carboniferous Limestone, much contorted with a beautiful manganese florescence, or flowers, as they are styled by the quarrymen, resting directly and unconformably on the Middle Silurian slates.

The strata at East River, which have been indicated as resembling the rocks of the section, are also overlaid directly and unconformably by Lower Carboniferous Limestone with associated

green pyritous marble.—Vide Transactions, 1870–71, pp. 64. In all probability the Middle Silurian strata of Waters' Hill participated in the pre-carboniferous and post Lower Helderberg movement, which elevated the strata of McLellan's and Irish Mountains; and ~~that they~~ consequently formed part of the Silurian boundaries of the Lower Carboniferous Lagoon, which subsequently became the Pictou coal basin. They evidently formed a barrier on the North against which dashed the waves of the sea throwing up the beach and bar which is now known as the New Glasgow Conglomerate, preserving comparative quiet in the sheet of water within, and affording protection and comfort to the marine Radiata, Mollusca, and Pisces of the period, the Lithostrontia, Crinoidea, Brachiopoda, Lamellibranchiata, Gasteropoda, Heteropoda, Pteropoda, Cephalopoda, and Cochliodus, which have left so many enduring monuments in the beautiful ornamented limestones formed in the inside of the barrier itself,—in the limestones of McLellan's Mountain shore,—in the Gypsum of Irish Mountain,—in the Lithostrontian and other Limestones of Springville, and in the Gypsum, Limestones and marble of East Brook, East River.

ART. VII. ON THE METEOROLOGY OF CALEDONIA MINES,
LITTLE GLACE BAY, CAPE BRETON. BY H. POOLE, ESQ.,
M. E., *Superintendent of Mines.*

(Read March 11, 1872.)

IN commenting upon the Meteorological phenomena recorded in the accompanying table, which now embraces a period of five years, I would in the first place draw attention to the general results shown during that period.

The mean Barometrical readings corrected to 32° were 29.8428, and corrected for 60 ft. of altitude and force of vapour, 29.6439; and the mean temperature was 40.35. The mean at night being 34.466, and the mean at noon being 46.184 degrees of Fahrenheit.

The mean force of vapour was .2560 inch; and the relative humidity was 73.50, saturation being 100. The mean annual