

IV.—*On some Relations between the Geology of Eastern Maine and New Brunswick.*

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(Read May 23, 1888.)

It is now twenty-six years since the date of publication of Prof. C. H. Hitchcock's Second Report upon the Geology of Maine, a work containing descriptions and accompanied by a map illustrative of the geology of those portions of the State which are adjacent to the Province of New Brunswick. It was at about the same time that, in this latter Province, a renewed interest in its geological structure and history was being awakened by a more careful study of the formations exposed in and near the city of St. John, and the discovery of the remarkable flora and fauna which they contain. These discoveries were at that time made the basis of some interesting comparisons between the geology of St. John and that of south-eastern Maine, especially as regards the plant-bearing beds of the two districts, by Sir Wm. Dawson; but it was not until the year 1868 that, by the extension of the work of the Dominion Geological Survey to the Lower Provinces, anything like a systematic study of the actual border-region between the two countries was begun. With the progress of these investigations in New Brunswick much additional light was necessarily thrown upon the geology of eastern Maine, while actual examinations of the latter were from time to time made, when they seemed likely to be of service to a more correct appreciation of the geology of the former. In the year 1870 the author, in conjunction with Mr. G. F. Matthew, read before the meeting of the American Association in Salem, a paper entitled, "Remarks on the Age and Relations of the Metamorphic Rocks of New Brunswick and Maine," in which, after a brief review of the formations identified up to that time in the Province, the extension of certain of these formations into the State of Maine was pointed out, and their bearing upon the probable age of other groups was discussed.

The formations regarded as thus common to the two countries were these, viz. :—

(1.) A series of coarsely granitoid and obscurely gneissic rocks, crossing St. Croix River in and about the town of Calais, and which were supposed to be of Laurentian age.

(2.) Red Granites regarded as probably representing altered sediments of Upper Silurian or Lower Devonian age.

(3.) Several bands of slates and sandstones, in part micaceous, which rested upon the granites, and were regarded as including both Silurian and Devonian horizons.

(4.) To these, finally, were to be added the Red Sandstones and Conglomerates of St. Andrew's and Perry, containing a distinctively Devonian flora.

In these comparisons, however, only that portion of Maine bordering upon St. Croix River was included, the country north of the sources of the latter not having then been made, in New Brunswick, the subject of examination. Some years later, a