

most noticeable peculiarities. No other system, unless it be the Huronian, will compare with it in this respect, and it is noticeable that between the volcanic members of these two great groups, the lithological resemblances are often so close as to make their recognition difficult. For this reason, and in consequence of the not infrequent close association of the two systems in the same district, several considerable areas have been alternately referred to one or the other of these formations; but it is probable that a closer microscopic study of both—a work which is greatly needed—will do much to remove this difficulty.

Still another most interesting fact in connection with our knowledge of the Silurian rocks of New Brunswick has been the discovery, made by Mr. Matthew in 1886, of the remains of Pteraspidian fishes, related to the genus *Cyathaspis* of Lankester, in Division III of that system, or in rocks which are about of the age of the Lower Ludlow, and probably of about the same age as those which in Pennsylvania hold the *Paleaspis* of Prof. Claypole. This is believed to be our first knowledge of the occurrence of this type of animal life in strata of so great antiquity, so far at least as Canada is concerned.

The most important facts in our knowledge of the Devonian system in New Brunswick were obtained prior to the extension thereto of the work of the Canadian Survey, the rich flora of Perry, Maine, and Carleton, N. B., together with the interesting insect-remains of the latter, having been previously made known to the world through the labours of Prof. Hartt, Mr. Matthew and Sir W. Dawson. A very important limitation, both in the supposed distribution and bulk of this formation, was, however, made in the first year of the survey by the transference to a very much lower (Pre-Cambrian) horizon of a great mass of non-fossiliferous rocks, occupying chiefly the north side of the Bay of Fundy, and which, from their apparently conformable superposition upon undoubted Devonian strata at St. John, had been regarded as a portion of the latter system. In the same year (1870) the rocks of Perry, with their supposed equivalents at St. Andrew's and Point Lepreau, were described by the present author and his associate as much more nearly resembling, both in character and position, the rocks of the Lower Carboniferous formation than those which, at St. John, held similar plant remains. At that time, however, the rocks of St. John were looked upon as the equivalents of the Chemung and Portage Groups, whereas later investigations showed that their position was rather that of the Hamilton formation, if not even still older. At that time also but little had been done in the study of the Devonian basin of Bay des Chaleurs, where our knowledge of the relations of these two formations has since been so greatly enlarged by the observations of Mr. R. W. Ells and others. They bear to each other, in this latter region, the same resemblance lithologically as that which led to their association in Passamaquoddy Bay, but both their relative position and their contained fossils are, according to Mr. Ells, such as render their separation comparatively easy. In view of these facts, it would seem probable that the rocks of the "Perry Group," as all along maintained by Sir W. Dawson, must be accepted as true Devonian, though occupying in that system a position considerably more recent than that of the St. John and Carleton rocks, and being probably the equivalents of the Catskill beds, which in character they nearly resemble.

The discovery, in connection with the Devonian rocks of Bay des Chaleurs, of fossil fishes (*Pterichthys*, *Coccosteus*, *Pteraspis*, etc.) of the same type as those of the Old Red Sand-

¹ Can. Record of Science, vol. ii, no. 4, Oct., 1886.