

V.—NOTES ON DR. AMI'S PAPER ON DICTYONEMA SLATES OF  
ANGUS BROOK, NEW CANAAN, AND KENTVILLE, N. S.—  
BY HENRY S. POOLE, F. G. S., F. R. S. C., ETC.

(Read 10th February, 1902.)

When handed Dr. Ami's paper to read at this meeting, I was requested to make some remarks on it. I comply, but only do so with the understanding that I can speak with no authority, nor am I able to properly discuss it.

It may be of interest to some present to know that the fossil in question, *Dictyonema*, is classed with the curious fossil forms, Graptolites, and the modern Sertularia among the order of Hydrozoa. These beautiful zoophites are like branching plants and are found on temperate coasts. They have two rows of cells on the horny branches.

The *Dictyonema* also reminds one of the coral *Fenestella* which occurs in the limestones at Windsor and Brookfield in lower carboniferous rocks; but the branches of *Fenestella* which frequently biforate are connected by narrow bands, with characteristic round cellules on a calcareous frond. The skeleton of *Dictyonema* is striated, serrated and horny. The animals of this class are jelly-like, radially symmetrical, living in colonies, and building up for the common good these horny structures which have been preserved as fossils while all trace of the animal has disappeared. The allies of the *Dictyonema*, the Graptolites, reached their maximum in Silurian times, and disappeared with that age after evolving many varieties of form and habit.

Sir A. Geikie speaks of *Dictyonema* as a characteristic fossil of the primordial zone in Scandinavia, where it is associated with allied but doubtful forms. In Canada it also occurs at Point Levis and other places, with graptolites.

It certainly is new to place these *Dictyonema* beds as Cambrian, and it is not easy to understand how Dr. Ami came to change the views he expressed before the Royal Society in 1900, without visiting the locality, unless he has been influenced by the examination lately made by Mr. H. Fletcher. I should like to know what Mr. Fletcher has to say of the stratigraphy and the age of these fossils. I know he has suspected some rocks in this locality to be Cambrian, and that he got Mr. Faribault to go over the ground with him. Mr. Faribault, as we all know, has for years made a study of the Cambrian in Nova Scotia, and has written a bulletin of the greatest practical value to miners, on the structure of these rocks and the manner of occurrence in them of auriferous leads and paystreaks. So much has this pamphlet been appreciated that our Mining Society has issued nearly 1000 copies to miners, engineers and students. I may also say I hesitate to accept Dr. Ami's interpretation of the paragraph he quotes from "Acadian Geology," in which Sir W. Dawson says: "These slates . . . are continued in the hills of New Canaan, where they contain crinoidal joints, fossil shells, corals, and in some beds of fawn-colored slate, beautiful fanlike expansions of the pretty *Dictyonema*." Therefore before accepting a supposition that he meant otherwise than he wrote, I would like to know the views of Mr. Fletcher. Prof. Haycock, of Wolfville, has been with Mr. Fletcher in this field, and has besides made explorations on his own account. What are his views? If the crinoid, shell and coral beds mentioned are associated with the *Dictyonema* beds, the series of fossils they probably yield should determine beyond doubt the age of *Dictyonema Websteri*. These associate fossils are not enumerated.

Sir W. Dawson, it is true, spoke of them as *Upper Silurian*, but then he classed the overlying beds of Bear River as *Devonian*. Dr. Honeyman put them down as *Lower Silurian*, and the overlying beds as *Upper Silurian*, and thus maintained the same relative positions.

Dr. Ami quotes from his "Synopsis of the Geology of Canada," in which many references are made to *Nova Scotian*

geology. Some of these have brought out papers in reply in our own "Transactions," in the Ottawa "Naturalist," the proceedings of the Mining Society, etc. The comments make it clear that the groups of beds he then proposed as *typical* formations, and the names he suggested, have not been generally acceptable.

As issued, this Synopsis has some paragraphs not easy of interpretation, *e. g.*, he says: "The most fossiliferous limestones, as at Windsor and Brookfield have been referred to the *Windsor formation*. . . The Windsor is followed or accompanied by an extensive series . . . to which the term Millstone Grit has been applied. The *Westville formation* is equivalent to the so-called Millstone Grit, below the productive coal measures.—Unconformably above the Westville is the *New Glasgow formation*, which is overlaid by *Smelt Brook formation*. Then follows the *Pictou formation*, overlaid by the *Cape John formation*." Then we are told—"The Cape John rocks, sometimes called Permian, are well developed in Prince Edward Island . . . and probably represent the equivalent of the Windsor and Westville formations of Nova Scotia." If not a mistake of the printer, a veritable round robin—a complete cycle of formations here exists.

Further on he says, "It is very possible, however, that the Cape John formation and associated formation may be equivalent to 'Permian' strata in other portions of North America or Europe;" thus he leaves the situation still obscure.

To a student of our Cambrian rocks the presence of fossils in any members or any reputed members of the series is of interest. Discoveries of a few have been reported, some of which have been adjudged to be only concretions. But Mr. Prest has found in the quartzites of Bedford and Lockport Island radiating obscure structures called *Astropolithcn*. Dr. Selwyn, late Director of the Geological Survey in 1871 discovered in the dark slates at the Ovens in Lunenburg County, markings which Mr. Billings determined to be *Eophyton*, similar to that found at St. John, N. B. Worm tracks, I believe, have been before seen, but the specimen I show is

from the syncline at Green Bank, Point Pleasant Park, Halifax. I obtained it last autumn, but could not detect other structures in the same beds.\*

*D. Websteri* was named by Hall forty years ago; if it be the same as *D. flabelliforme* or *D. sociale*, I for one am not disposed to take later names "made in Germany," but contend we should maintain our oldest Nova Scotian name of *D. Websteri*.

A consideration of dates shows that the Eel River fossils were reported on a year before Dr. Ami wrote his Synopsis, and it is hard to understand how their discovery influenced Dr. Ami AFTER he wrote *his* Synopsis.

Nor can we cannot accept Dr. Ami's conclusion, that the specimens of *D. Websteri* at McGill are the type specimens. Hall named it, and Dr. Webster's collection of some two dozen slabs are in the Provincial Museum at Halifax. They show cellules, etc., and, I fancy, a second species.

Any examination in criticism of the finding of Hall should be made of the large collection in the Halifax Museum, and at Wolfville, and not be restricted to the two specimens at McGill.

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\* The specimen is now in the Provincial Museum at Halifax.