

wholly dissolved out and its place occupied with pyrite. It is to be observed, however, that in fossil sponges the silicious matter has not infrequently been dissolved out, and its space left vacant or filled with other matters. I have specimens of *Astylospongia* from the Niagara formation which have thus been replaced by matter of a ferruginous color; and in a bundle of fibers, probably of a sponge allied to *Hyalonema* from the Upper Llandeilo of Scotland (since named *Hyalostelia* by Hinle¹), I find the substance of the spicules entirely gone and the spaces formerly occupied by them empty. It should be added that joints of Crinoid stems and fronds of *Fenestella* occurring in the same specimen with the *Uphantaenia* are apparently in their natural calcareous state."

The type of structure of *Cyathophycus* is essentially that of the Hexactinellid sponges of the sub-order *Dictyonina* of Zittel, and under this, as has already been suggested by Barrois, it belongs to the family of *Dictyospongiæ*, established by Hall for *Dictyophyton* and the allied sponges of the Erian rocks. This type, already known as far back as the Utica slate, is now carried a stage farther by our discoveries at Métis.

While the above paper was in the press, Dr. Selwyn was so kind as to send to me for inspection, through Mr. Ami, of the Geological Survey, some slabs of gray and dark coloured shale from the Quebec group rocks of the Chaudière River, in which spicules of sponges had been detected some years ago, by Mr. T. C. Weston and Mr. Willmot of the Survey, but which have not been published. The specimens show two forms of cruciform spicules, one with very slender rays and as much as a centimetre in measurement from point to point, the other stouter and measuring about five millimetres in extent, and therefore more nearly resembling those of *Protospongia tetranema*. There are also long

¹ I have similarly explained *Pyritonema* of McCoy and *Eophyton explanatum* of Hicks, as has Hinde also, in Geol. Mag., 1886.