

more distant. They are attached by very narrow bases, and apparently tend to lie on a plane, though they may possibly have been spirally arranged. On the same slabs are rounded sporangia or macrospores like those of *Lepidodendron*, but there is no evidence that these belonged to *Trochophyllum*. On the stems of this plant, however, there are small, rounded bodies apparently taking the places of some of the pinnules. These may possibly be spore-cases; but they may be merely imperfectly developed pinnules. Still the fact that similar small granules appear on the stems of the Devonian species, favours the idea that they may be organs of fructification.

The most interesting discovery, however, which results from the study of Mr. Lacoë's specimens, is that the pinnules were cylindrical and hollow, and probably served to float the plant. This would account for many of the peculiarities in the appearance and mode of occurrence of the Devonian *Ptilophyton*, which are readily explained if it is supposed to be an aquatic plant, attaching itself to the stems of submerged vegetable remains and standing erect in the water by virtue of its hollow leaves. It may well, however, have been a plant of higher organisation than the Algæ, though no doubt cryptogamous.

The species of *Ptilophyton* will thus constitute a peculiar group of aquatic plants, belonging to the Devonian and Lower Carboniferous periods, and perhaps allied to Lycopods and Pillworts in their organisation and fruit, but specially distinguished by their linear leaves serving as floats and arranged pinnately on slender stems. The only species yet found within the limits of Canada is *Pt. plumula*, found by Dr. Honeyman in the Lower Carboniferous of Nova Scotia; but as *Pt. Vanuxemi* abounds in the Erian of New York, it will no doubt be found in Canada also.

### III.—TREE-FERNS OF THE ERIAN PERIOD.

As the fact of the occurrence of true tree-ferns in rocks so old as the Middle Erian or Devonian has been doubted in some quarters, the following summary is given from descriptions published in the "Journal of the Geological Society of London" (1871 and 1881), where figures of the species will be found:

Of the numerous ferns now known in the Middle and Upper Devonian of North America, a great number are small and delicate species, which were probably herbaceous; but there are other species which may have been tree-ferns. Little definite information, however, has, until recently, been obtained with regard to their habit of growth.