

diameter. One, two, or three contained in each sporocarp, which is cellular. The macrospores have very thick walls with radiating tortuous tubes. Unless this structure is a result of mineral crystallisation, these macrospores must have had very thick walls and must have resembled in structure the thickened cells of stone fruits and of the core of the pear, or the tests of the Silurian and Erian seeds known as *Pachytheca*, though on a smaller scale.

It is to be observed that bodies similar to these occur in the Boghead earthy bitumen, and have been described by Credner.

I have found similar bodies in the so-called "Stellar coal" of the coal district of Pictou, Nova Scotia, some layers of which are filled with them. They occur in groups or patches, which seem to be enclosed in a smooth and thin membrane or sporocarp. It is quite likely that these bodies are generically distinct from *Protosalvinia*.

5. *Protosalvinia punctata*, Newton, "Geological Magazine," New Series, December 2d, vol. ii.—Mr. Newton has named the discs found in the white coal and Tasmanite, *Tasmanites*, the species being *Tasmanites punctatus*, but as my name *Sporangites* had priority, I do not think it necessary to adopt this term, though there can be little doubt that these organisms are of similar character. The same remark may be made with reference to the bodies described by Huxley and Newton as occurring in the Better-bed coal.

In Witham's "Internal Structure of Fossil Vegetables," 1833, Plate XI, are figures of Lancashire cannel which shows *Sporangites* of the type of those in the Erian shales. Quekett, in his "Report on the Torbane Hill Mineral," 1854, has very well figured similar structures from the Methel coal and the Lesmahagow cannel coal. These are the earliest publications on the subject known to me; and Quekett, though not understanding the nature of the bodies he observed, holds that they are a usual ingredient in cannel coals.

## II.—THE NATURE AND AFFINITIES OF PTILOPHYTON.

(*Lycopodites Vanuxemii* of "Report on Devonian and Upper Silurian Plants," Part I., page 35. *L. plumula* of "Report on Lower Carboniferous Plants," page 24, Plate I., Figs. 7, 8, 9.) In the reports above referred to, these remarkable pinnate, frond-like objects were referred to the genus *Lycopodites*, as had been done by Goepfert in his description of the European species *Lycopodites pennæformis*, which is very near to the American Erian form. Since 1871, however, there have been many new specimens obtained, and very various opinions expressed as to their affinities. While Hall has named some of them *Plumalina*, and has regarded them as animal