

5. *Leioderma*, Goldenberg. Type, *S. Sydneensis*, Dawson.—Ribs obsolete. Cortical and ligneous surfaces striate. Vascular scars double, elongate longitudinally, and alike on cortical and inner surfaces. Areoles in rows and distinct; stigmata-roots striate, with small and distinct areoles.

6. *Clathraria*, Brongniart. Type, *S. Menardi*, Brongniart.—Areoles hexagonal, not in distinct rows, but having a spiral appearance. Some of the plants usually referred to this group are probably branches of *Favularia*. Others are evidently fragments of plants of the genus *Lepidophloios*.

3. Internal Structures of *Sigillaria*-Stems.

I long ago pointed out, on the evidence of the external markings and mode of growth, that the stems of *Sigillariae* must have been exogenous, and this conclusion has now been fully confirmed by the microscopic researches of Williamson, not only in the case of *Sigillariae*, but of *Lepidodendra* and *Calamodendra* as well. Confining myself to my own observations, three types of *Sigillariae* are known to me by their internal structures, though I cannot certainly correlate all of these with the external markings referred to above.

1. *Diploxyton*, in which the stem consists of a small internal axis surrounded by a very thick inner bark and a dense outer cortex. A fine example from the South Joggins is thus described:*

“The axis of the stem is about six centimetres in its greatest diameter, and consists of a central pith-cylinder and two concentric coats of scalariform tissue. The pith-cylinder is replaced by sandstone, and is about one centimetre in diameter. The inner cylinder of scalariform tissue is perfectly continuous, not radiated, and about one millimetre in thickness. Its vessels are somewhat crushed, but have been of large diameter. Its outer surface, which readily separates from that of the outer cylinder, is striated longitudinally. The outer cylinder, which constitutes by much the largest part of the whole, is also composed of scalariform tissue; but this is radially arranged, with the individual cells quadrangular in cross-section. The cross-bars are similar on all the sides and usually simple and straight, but sometimes branching or slightly reticulated. The wall intervening between the bars has extremely delicate longitudinal waving lines of ligneous lining, in the manner first described by Williamson as occurring in the scalariform tissue of certain *Lepidodendra*. A few small radiating spaces, partially

* “Journal of the Geological Society of London,” November, 1877.