and cycads, or with two, three, or four rows of such pores sometimes inscribed in hexagonal areoles in the manner of *Dadoxylon*. This woody cylinder is traversed by medullary rays, which are short, and composed of few rows of cells superimposed. It is also traversed by oblique radiating bundles of pseudo-scalariform tissue proceeding to the leaves. In some *Sigillariæ* this outer cylinder was itself in part composed of pseudo-scalariform tissue, as in Brongniart's specimen of *S. elegans;* and in others its place may have been taken by multiporous tissue, as in a case above referred to; but I have no reason to believe that either of these variations occurred in the typical ribbed species now in question. The woody fibres of the outer cylinder may be distinguished most readily from those of conifers, as already mentioned, by the thinness of their walls, and the more irregular distribution of the pores. Additional characters are furnished by the medullary rays and the radiating bundles of scalariform tissue when these can be observed.

d. An inner cylinder of pseudo-scalariform tissue. I have adopted the term pseudo-scalariform for this tissue, from the conviction that it is not homologous with the scalariform ducts of ferns and other acrogens, but that it is merely a modification of the discigerous wood-cells, with pores elongated transversely, and sometimes separated by thickened bars, corresponding to the hexagonal areolation of the ordinary wood-cells. A similar tissue exists in cycads, and is a substitute for the spiral vessels existing in ordinary exogens.

e. A large medulla, or pith, consisting of a hollow cylinder of cellular tissue, from which proceed numerous thin diaphragms towards the centre of the stem.

These structures of the highest type of *Sigillaria* are on the one hand scarcely advanced beyond those of *Calamopitus*, as described by Williamson, and on the other approach to those of *Cordaites*, as seen in specimens presented to me by Renault.

Finally, as to the fruit of *Sigillariæ*, I have no new facts to offer. The strobiles or spikes associated with these trees have been variously described as gymnospermous (Renault) or cryptogamous (Goldenberg and Williamson). I have never seen them in place. Two considerations, however, have always weighed with me in reference to this subject. One is the constant abundance of Trigonocarpa

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hexagonal rim of thickened wall; but in all cases these structures are less pronounced than in *Dadoxylon*, and less regular in the walls of the same cell, as well as in different layers of the tissues of the axis.