

The exception above referred to is, that in one tree, which from its markings I supposed to be a *Sigillaria*, the woody tissue was composed of large cells, with many rows of pores ("multiporous tissue" of my former papers) of the type of that to which Prof. Williamson has given the name of *Dictyoxyton**. Since, however, as Prof. Williamson has well shown, such tissue may be regarded as a modification of the discigerous variety, and since Corda long ago found it in the axis of a species of *Stigmaria*†, there is nothing improbable in the supposition that we have here merely an indication of a specific or subgeneric difference coming within the limits of the genus *Sigillaria*, as at present understood.

It is to be observed that most of the erect trunks in the coal-formation have not preserved their external markings with sufficient distinctness to allow the species to be determined by the leaf-scars; but they show in most cases the characteristic ribs and rows of punctures or areoles, modified in the manner which is usual in the case of old trunks of these plants near their bases‡.

In Plate VIII. figs. 12, 14, 15, 16, I have represented some of the more usual forms of tissue in the erect *Sigillariae*.

In Plate X. I have represented the best-preserved axis in my possession. Fig. 23 shows the structures in the entire stem, except the portions of cellular bark lost by decay. In the centre is a *Sternbergia*-pith (a). This is surrounded by a woody cylinder (b), the inner part of which (fig. 24, b 1) consists of scalariform tissue passing towards the outer surface into pseudo-scalariform (b 2), reticulated with pores (b 3), and discigerous (b 4). This woody axis has medullary rays (figs. 25, 26, 27), and is traversed by bundles of scalariform tissue proceeding from the inner part of the cylinder. The outer portion of the inner bark, not seen in this specimen, but in similar prostrate stems, is composed of elongated thin-walled bast-cells, with somewhat obtuse ends, and of larger diameter than the woody fibres of the axis (fig. 29). The tissues of the woody axis are all arranged in radial series (fig. 28).

Prostrate Trunks.—In the coarse shaly coals, and in the roof-shales of the ordinary seams, there are often flattened stems of *Sigillaria*, having the tissues partially infiltrated with carbonate of lime or carbonate and sulphate of iron. The tissues usually preserved in these flattened trunks are those of the bark, and more especially its large bundles of elongated or prosenchymatous cells ("bast-tissue"). Of this I have been enabled to obtain very perfect specimens from these flattened trunks. In a few instances only the woody structure of the axis remains, showing the same descriptions of wood-cells already referred to as characteristic of the erect trees. Plate VIII. fig. 11 is an example of the structures in one of these prostrate stems.

* Trans. Royal Micro. Soc., Aug. 1869.

† Beiträge zur Flora &c. 1845, pl. xiii. Corda regards this as the structure of *S. ficoides*, and the more ordinary variety as that of *S. andhra*.

‡ The species which I have described as *S. Brownii*, Acad. Geol. 2nd edition, may be regarded as a representative of these trees.