

*Taxineæ*. There are numerous species, as well as allied seeds referred to the provisional genera *Rhabdocarpus* and *Carpolithes*. In *Trigonocarpum Hookeri* I have described the internal structure of one of those seeds, and many fine examples from the coal-field of St. Etienne, in France, have been described by Brongniart, so that their internal structure is very well known.

*Genus* ANTHOLITHES.

This is also a provisional genus, to include spikes of floral organs, some of which are known to have belonged to *Cordaites*, others probably to *Sigillaria*.

OF UNCERTAIN AFFINITIES.

*Family* SIGILLARIACEÆ.

Under this name palæobotanists have included a great number of trees of the Carboniferous system, all of which are characterised by broad leaf-sears, with three vascular scars, and usually arranged in vertical rows, and by elongated three-nerved leaves, and roots of the stigmara type—that is, with rounded pits, marking the attachment of rootlets spirally arranged. These trees, however, collected in the genus *Sigillaria* by arbitrary characters, which pass into those of the Lepidodendroid trees, have been involved in almost inextricable confusion, to disentangle which it will be necessary to consider: 1. The external characters of *Sigillaria*, and trees confounded with them. 2. Subdivision of *Sigillaria* by external markings. 3. The microscopic character of their stems. 4. What is known of their foliage and fruit.

1. *Characters of Sigillaroid and Lepidodendroid Trunks.*

It may be premised that the modes of determination in fossil botany are necessarily different from those employed in recent botany. The palæobotanist must have recourse to characters derived from the leaves, the scars left by their fall, and the internal structures of the stem. These parts, held in little esteem by botanists in describing modern plants, and much neglected by them, must hold the first place in the regard of the fossil botanist, whereas the fructification, seldom preserved, and generally obscure, is of comparatively little service. It is to be remarked also that in such generalised plants as those of the Palæozoic, remarkable rather for the development of the vegetative than of the reproductive organs, the former rise in importance as compared with their value in the study of modern plants.