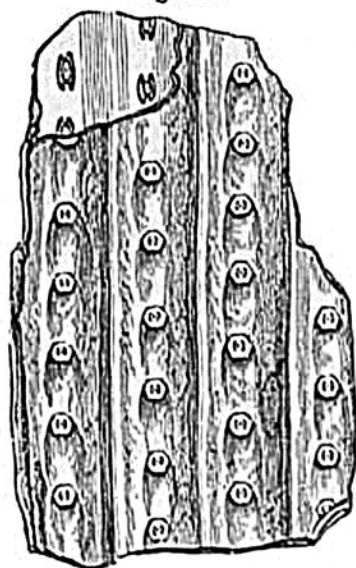


cicatrices left by the base of the leaf-stalks which have fallen off (see fig. 480). But with these points of analogy to cryptogamia, they combine an internal organization much resembling that of Sycads, and some of them are ascertained to have had long linear leaves, quite unlike those of ferns. They grow to a great height, from 30 to 60, or even 70 feet, with regular cylindrical stems, and without branches, although some species were dichotomous towards the top. Their fluted trunks, from 1 to 5 feet in diameter, appear to have decayed more rapidly in the interior than externally, so that they became hollow when standing; and when thrown prostrate on the mud, they were squeezed down and flattened. Hence we find the bark of the two opposite sides (now converted into bright shining coal) to constitute two horizontal layers, one upon the other,

Fig. 480.



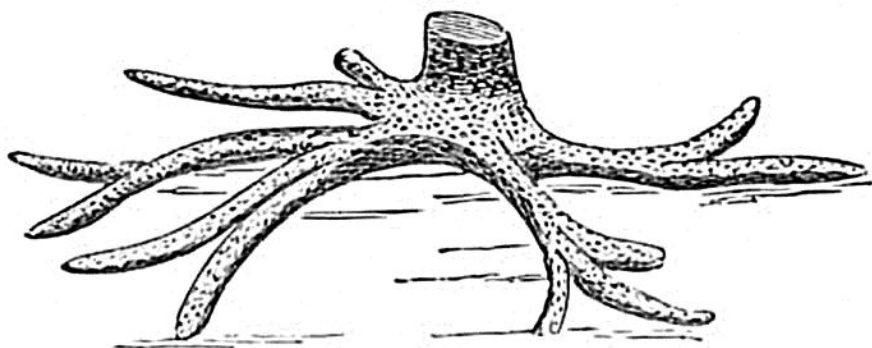
Sigillaria laevigata, Brong.

half an inch, or an inch, in thickness. These same trunks, when they are placed obliquely or vertically to the planes of stratification, retain their original rounded form, and are uncompressed, the cylinder of bark having been filled with sand, which now affords a cast of the interior.

Dr. Hooker still inclines to the belief that the *Sigillariæ* may have been cryptogamous, though more highly developed than any flowerless plants now living. The scalariform structure of their vessels agrees precisely with that of ferns.

Stigmara.—This fossil, the importance of which has already been pointed out, was formerly conjectured to be an aquatic plant. It is now ascertained to be the root of *Sigillaria*. The connection of the roots with the stem, previously suspected, on botanical grounds, by Brongniart, was first proved, by actual contact, in the Lancashire coal-field, by Mr. Binney. The fact has lately been shown, even more distinctly, by Mr. Richard Brown, in his description of the *Stigmariæ* occurring in the

Fig. 491.



Stigmara attached to a trunk of *Sigillaria*.*

* The trunk in this case is referred by Mr. Brown to *Lepidodendron*, but his illustrations seem to show the usual markings assumed by *Sigillaria* near its base.