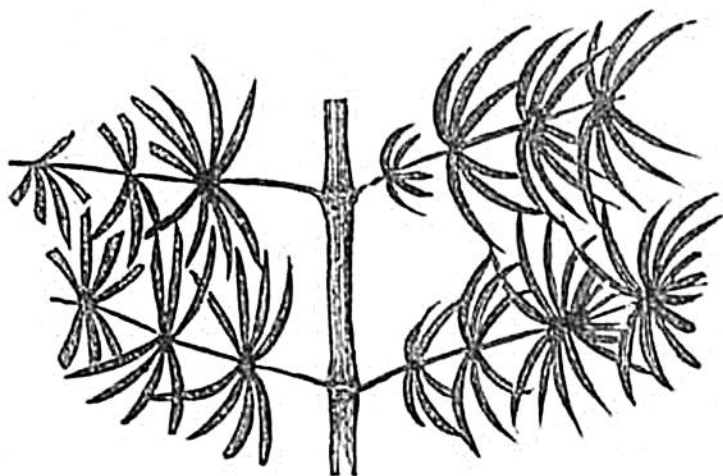


In conclusion, I may remark, that these discoveries make it more and more doubtful to what family the greater number of *Calamites* should be referred. Their internal organization, says Prof. Williamson, was very peculiar; for, while they exhibit remarkable affinities with gymnospermous dicotyledons, the arrangement of their tissues differs widely from that of all known forms of gymnosperms.

Asterophyllites.—The graceful plant represented in the annexed figure, is supposed by M. Brongniart to be a branch of the *Calamodendron*, and he infers from its pith and medullary rays that it was dicotyledonous. It appears to have been allied, by the nature of its tissue, to the gym-

Fig. 470.



Asterophyllites foliosa. (Foss. Flo. 25.) Coal-measures, Newcastle.

nogens, and to *Sigillaria*. But under the head of *Asterophyllites* many vegetable fragments have been grouped which probably belong to different genera. They have, in short, no character in common, except that of possessing narrow, verticillate, one-ribbed leaves. Dr. Newberry, of Ohio, has discovered in the coal of that country fossil stems which in their upper part bear wedge-shaped leaves corresponding to *Sphenophyllum*, while below the leaves are stalk-like and capillary, and would have been called *Asterophyllites* if found detached. From this he infers that *Sphenophyllum* was an aquatic plant, the superior and floating leaves of which were broad, and possessed a compound nervation, while the inferior or submersed leaves were linear and one-ribbed. "This supposition," he adds, "is further strengthened by the extreme length and tenuity of the branches of this apparently herbaceous plant, which would seem to have required the support of a denser medium than air."*

Sigillaria.—A large portion of the trees of the carboniferous period belonged to this genus, of which about thirty-five species are known. The structure, both internal and external, was very peculiar, and, with reference to existing types, very anomalous. They were formerly referred, by M. Ad. Brongniart, to ferns, which they resemble in the scalariform texture of their vessels, and, in some degree, in the form of the

* Annals of Science, Cleveland, Ohio, 1853, p. 97.