son, of Manchester, to illustrate the structure of Calamites, and he has shown that these plants, like other cryptogams of the Carboniferous, had mostly stems with regular fibrous wedges, like those of exogens. The structure of the stem is, indeed, so complex, and differs so much in different stages of growth, and different states of preservation, that we are in danger of falling into the greatest confusion in classifying these plants. Sometimes what we call a Calamite is a mere cast of its pith showing longitudinal striæ and constrictions at the nodes. Some-

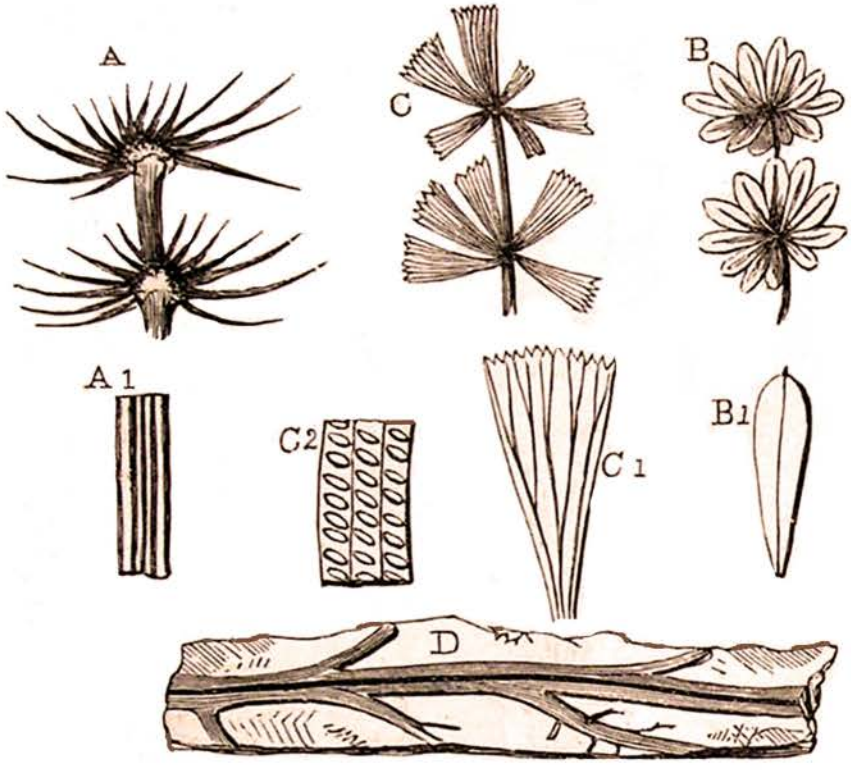

FIG. 45.—*Asterophyllites*, *Sphenophyllum*, and *Annularia*. A, *Asterophyllites trinerne*. A¹, Leaf enlarged. B, *Annularia sphenophylloides*. B¹, Leaf enlarged. C, *Sphenophyllum erosum*. C¹, Leaflet enlarged. C², Scalariform vessel of *Sphenophyllum*. D, *Pinnularia ramosissima*, probably a root.

times we have the form of the outer surface of the woody cylinder, showing longitudinal ribs, nodes, and marks of the emission of the branchlets. Sometimes we have the outer surface of the plant covered with a smooth bark showing flat ribs, or almost smooth, and having at the nodes regular articulations with the bases of the verticil-