

(a) *Calamites* proper, which has the woody wedges of scalariform or barred tissue with thin medullary rays, and the thick primary medullary rays are cellular.

(b) *Calamopituis* has reticulated or multiporous tissue in the woody wedges with medullary rays, and the primary medullary wedges are composed of elongated cells.

(c) *Calamodendron* has the woody wedges of barred tissue as in *a*, with medullary rays, but has the intervening medullary wedges of an elongated tissue approaching to woody fibre, and also with medullary rays.

To these I would add a fourth type, which I have described, from the coal-formation of Nova Scotia.*

(d) *Eucalamodendron* differs from *Calamodendron* in having true bordered pores or pseudo-scalariform slit-pored tissue, and corresponds to the highest type of calamitean stem.

I would also add that under *a* and *b* there are some species in which the woody cylinder is very thin in comparison to the size of the stem. In *c* and *d* the woody cylinder is thick and massive, and the stems are often large and nodose.

As an example of an ordinary Calamite in which the external surface and foliage are preserved, I may quote the following from my report on the "Flora of the Lower Carboniferous and Millstone Grit," 1873:

CALAMITES UNDULATUS, Brongniart.—This species is stated by Brongniart to be distinguished from the *C. Suckovii*, the characteristic Calamite of the middle coal-formation, by its undulated ribs marked with peculiar cellular reticulation. He suggests that it may be merely a variety of *C. Suckovii*, an opinion in which Schimper coincides; but since I have received large additional collections from Mr. Elder, containing not only the stems and branches, but also the leaves and rhizomes, I am constrained to regard it as a distinct though closely allied species.

The rhizomata are slender, being from one to two inches in diameter, and perfectly flattened. They are beautifully covered with a cellular reticulation on the thin bark, and show occasional round areoles marking the points of exit of the rootlets. I have long been familiar with irregular flattened stems thus reticulate, but have only recently been able to connect them with this species of Calamite.

The main stems present a very thin carbonaceous bark reticulated like the rhizomes. They have flat, broad ribs separated by deep

* "Quarterly Journal of the Geological Society," 1871.