similar to those of the underlying beds, though with some species which extend upward into the Millstone Grit. In Scotland the alga named *Spirophyton* and *Archæocalamites radiatus*—which in America are Erian—appear in this formation.

(5) *The Lower Carboniferous Sub-Flora:*

This group of plants is best seen in the shales of the Horton series, under the Lower Carboniferous marine limestones. It is small and peculiar. The most characteristic species are the following:

Dadoxylon (*Palæoxylon*) *antiquius*, Dn.—A species with large medullary rays of three or more series of cells.

Lepidodendron corrugatum, Dn.—A species closely allied to *L. Veltheimianum* of Europe, and which is its American representative. This is perhaps the most characteristic plant of the formation. It is very abundant, and presents very protean appearances, in its old stems, branches, twigs, and *Knorria* forms. It had well-characterised stigmaria roots, and constitutes the oldest erect forest known in Nova Scotia.

Lepidodendron tetragonum, Sternberg.

L. obovatum, Sternb.

L. aculeatum, Sternb.

L. dichotomum, Sternb.

The four species last mentioned are comparatively rare, and the specimens are usually too imperfect to render their identification certain, but Lepidodendra are especially characteristic trees of this horizon.

Cyclopteris (*Aneimites*) *Acadica*, Dn.—A very characteristic fern, allied in the form of its fronds to *C. tenuifolia* of Goeppert, to *C. nana* of Eichwald, and to *Adiantites antiquus* of Stur. Its fructification, however, is nearer to that of *Aneimia* than to that of *Adiantum*.

Ferns of the genera *Cardiopteris* and *Hymenophyllites* also occur, though rarely.

Ptilophyton plumula, Dn.—This is the latest appearance of this Erian genus, which also occurs in the Lower Carboniferous of Europe and of the United States.

Cordaites borassifolia, Brongt.

On the whole, this small flora is markedly distinct from that of the Millstone Grit and true coal-formation, from which it is separated by the great length of time required for the deposition of the marine limestones and their associated beds, in which no land-plants