(3) *The Millstone Grit Sub-Flora:*

In this formation the abundance of plants and the number of species are greatly diminished.* Trunks of coniferous trees of the species *Dadoxylon Acadianum*, having wide wood-cells with three or more series of discs and complex medullary rays, become characteristic. *Calamites undulatum* is abundant and seems to replace *C. Suckovii*, though *C. cannæformis* and *C. cistii* continue. *Sigillariæ* become very rare, and the species of *Lepidodendron* are few, and mostly those with large leaf-bases. *Lepidophloios* still continues, and *Cordaites* abounds in some beds. The ferns are greatly reduced, though a few characteristic coal-formation species occur, and the genus *Cardiopteris* appears. Beds of coal are rare in this formation; but where they occur there is in connection with them a remarkable anticipation of the rich coal-formation flora, which would thus seem to have existed locally in the Millstone Grit period, but to have found itself limited by generally unfavorable conditions. In America, as in Europe, it is in the north that this earlier development of the coal-flora occurs, while in the south there is a lingering of old forms in the newer beds. In Newfoundland and Cape Breton, for instance, as well as in Scotland, productive coal-beds and a greater variety of species of plants occur in this formation.

The following would appear to be the equivalents of this formation, in flora and geological position:

1. The Seral Conglomerate of Rogers in Pennsylvania, &c.
2. The Lower Coal-formation Conglomerate and Chester groups of Illinois (Worthen).
3. The Lower Carboniferous Sandstone of Kentucky, Alabama, and Virginia.
4. The Millstone Grit and Yoredale rocks of northern England, and the Culmiferous of Devonshire.
5. The Moor rock and Lower Coal-measures of Scotland.
6. Flagstones and Lower Shales of the south of Ireland, and Millstone Grit of the north of Ireland.
7. The Jüngste Grauwacke of the Hartz, Saxony, and Silesia.

(4) *The Carboniferous Limestone Series:*

This affords few fossil plants in eastern America, and in so far as known they are similar to those of the next group. In Scotland it is richer in plants, but, according to Mr. Kidston, these are largely

* "Report on Fossil Plants of the Lower Carboniferous and Millstone Grit of Canada," 1873.