

have been found; nor is this gap filled up by the conglomerates and coarse arenaceous beds which, as I have explained in "Acadian Geology," in some localities take the place of the limestones, as they do also in the Appalachian region farther south.

The palæobotanical and strategraphical equivalents of this series abroad would seem to be the following:

1. The Vespertine group of Rogers in Pennsylvania.
2. The Kinderhook group of Worthen in Illinois.
3. The Marshall group of Winchell in Michigan.
4. The Waverley sandstone (in part) of Ohio.
5. The Lower or False Coal-measures of Virginia.
6. The Calciferous sandstones of McLaren, or Tweedian group of Tate in Scotland.
7. The Lower Carboniferous slate and Coomhala grits of Jukes in Ireland.
8. The Culm and Culm Grauwacke of Germany.
9. The Graywacke or Lower Coal-measures of the Vosges, as described by Schimper.
10. The Older Coal-formation of the Ural, as described by Eichwald.
11. The so-called "Ursa Stage" of Heer includes this, but he has united it with Devonian beds, so that the name cannot be used except for the local development of these beds at Bear Island, Spitzbergen. The Carboniferous plants of arctic America, Melville Island, &c., as well as those of Spitzbergen, appear all to be Lower Carboniferous.\*

All of the above groups of rocks are characterised by the prevalence of *Lepidodendra* of the type of *L. corrugatum*, *L. Veltheimianum*, and *L. Glincanum*; pines of the sub-genus *Pitus* of Witham, *Palæoxylon* of Brongniart, and peculiar ferns of the genera *Cyclopteris*, *Cardiopteris*, *Triphyllopteris*, and *Sphenopteris*. In all the regions above referred to they form the natural base of the great Carboniferous system.

In Virginia, according to Fontaine and White, types, such as *Archæopteris*, which in the north are Upper Erian, occur in this group. Unless there have been some errors in fixing the lower limit of the Vespertine, this would indicate a longer continuance of old forms in the south.

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\* "Notes on Geological Map of the Northern Portion of the Dominion of Canada," by Dr. G. M. Dawson, 1887.