

America, where these formations are mutually unconformable, there is, of course, less room for doubt than in Ireland and in Western America, where they are stratigraphically continuous. Still, in passing from the one to the other, the species are for the most part different, and new generic forms are met with, and, as I have elsewhere shown, the physical conditions of the two periods were essentially different.*

It is, however, to be observed that since, as Stur and others have shown, *Calamites radiatus* and other forms distinctively Devonian in America, occur in Europe in the Lower Carboniferous, it is not unlikely that the Devonian Flora, like that of the Tertiary, appeared earlier in America. It is also probable, as I have shown in the Reports already referred to, that it appeared earlier in the Arctic than in the Temperate zone. Hence an Arctic or American Flora, really Devonian, may readily be mistaken for Lower Carboniferous by a botanist basing his calculations on the fossils of temperate Europe. Even in America itself, it would appear from recent discoveries in Virginia and Ohio, that certain Devonian forms lingered longer in those regions than further to the North-east;† and it would not be surprising if similar plants occurred in later beds in Devonshire or in the South of Europe than in Scotland. Still, these facts, properly understood, do not invalidate the evidence of fossil plants as to geological age, though errors arising from the neglect of them are still current.

I trust that Scottish workers in this interesting though difficult branch of investigation, will be encouraged by the success they have already attained to still more diligent search. In collecting, the smallest and most obscure fragments should not be neglected. Such specimens, when placed in due relation to others previously obtained, may reveal the most important truths; or if by themselves unintelligible, may be rendered valuable by subsequent discoveries. The greatest care should be taken to rescue every portion of the specimens found, and to keep together those that belong to the same plant; and every fragment likely to show microscopic structure should be carefully preserved. Painstaking work of this kind will be sure to be rewarded by important discoveries; and I know by long experience that none other is likely to be successful.

* Reports on Devonian Plants and Lower Carboniferous Plants of Canada.

† Andrews, Palæontology of Ohio, Vol. II. Meek, Fossil Plants from Western Virginia, Philos. Society, Washington, 1875,