Devonian and Lower Carboniferous Floras.

What do we know as to the composition of the floras that flourished in the later stages of the Devonian and in the latter part of the Carboniferous era?

In *Archaeocalamites* we have the oldest example of an undoubted Equisetaceous genus. The structure of its comparatively thick and woody stem is practically identical with that of our common British type of *Calamites* while the strobilus differed in no essential feature from that of a modern Horsetail. The genus *Cheirostrobus*, founded in 1897 by Dr. D. H. Scott on a single specimen of a petrified cone affords a striking illustration of a Palaeozoic plant exhibiting a structure far more complex than that of any known type among existing vascular Cryptogams. In this Scotch cone, about 3,5 cm. in diameter, we recognise Equisetaceous and Lycopodinous characters combined with morphological features typical of the extinct genus *Sphenophyllum*. Both Devonian and Culm rocks have furnished many examples of Lycopodinous plants. The genus *Bothrodendron*, closely allied in habit to *Lepidodendron*, has been recorded from Bear Island, Ireland, and Australia, and the cuticles of a Lower Carboniferous species form the greater portion of the so-called paper-coal of Tula in Russia. *Lepidodendron* itself had already attained to the size of a forest tree, with anatomical features precisely similar to those of the succeeding Coal period species.

Our knowledge of the ferns is not very extensive. The genus *Archaeopteris* from Ireland, Belgium, Bear Island, and North America has always been regarded as a fern, but we must admit the impossibility of accurately determining its systematic position until we possess a fuller knowledge of the reproductive organs and of its anatomical structure. Similarly the genera *Rhacopteris*, *Adiantites*, and *Rhodea* may be provisionally retained among the oldest known ferns. The genus *Cardiopteris* is known only in a sterile condition, and it is quite as likely that its reproductive organs may have been of the Gymnospermous as of the Filicinean type.

The petrified remains of stems and leaves of such plants as *Heterangium*, *Lyginodendron*, *Calamopitys*, and others demonstrate the existence of a class of synthetic genera combining Filicinean and Cycadean characters. These plants are of exceptional interest as showing beyond doubt that Ferns and Cycads trace their descent from a common ancestry. The announcement made a few months ago by Prof. Oliver and Dr. Scott that they had obtained good evidence as to the connection of the gymnospermous seed known as *Lagenostoma* with the genus *Lyginodendron* is one of the most important contributions to botany published in recent years. We still lack complete knowledge of the nature of the reproductive organs, but it seems clear that *Lyginodendron* bore seeds constructed on the Gymno-