Pal Floras

#189

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COMPARATIVE VIEW OF THE SUCCESSIVE PALÆOZOIC FLORAS OF CANADA. By J. W. DAWSON, of Montreal, Canada.

[ABSTRACT.]

IN Canada, we possess a very complete series of fossil plants extending from the Upper Silurian age to the Permian, and the object of the paper is to sketch out the characteristics of the several floras and sub-floras which have been studied.

I. *Carboniferous Flora.*

This presents three sub-floras in descending order: (1) That of the *Permo-Carboniferous* or Lower Permian, more especially seen in eastern Nova Scotia. It contains several common Carboniferous species, as *Dadoxylon materiarium*, *Pecopteris arborescens* and *Calamites suckovii*, associated with species peculiar to itself, as *Walchia robusta*, *W. gracilis*, *Calamites gigas* and *Cordaites simplex.* (2) That of the *Coal Formation*, which is the great headquarters of the Carboniferous flora, and is especially rich in *Sigillaria* and its allies, and in ferns. One hundred and thirty-five species of plants have been catalogued from this formation. There are nineteen species of *Sigillaria*, about the same number of *Lepidodendron* and allied genera, fifty ferns and thirteen *calamites* and allied forms. (3) The *Millstone Grit* sub-flora. Here we have a limited number of species, precursors of those of the coal measures, and described in a special report of the author published by the Geological Survey of Canada. *Dadoxylon Acadianum* is a very characteristic conifer of this period. (4) The *Lower Carboniferous* sub-flora. The number of species here is small and many of them peculiar, this formation being separated by the marine limestones from the Millstone Grit, and on the other hand being unconformable to the Erian or Devonian below. *Dadoxylon antiquius* is a characteristic pine of the period, and *Lepidodendron corrugatum* and *Aneimites Acadica* are very common.

II. *Erian Flora.*

Here we have three sub-floras, all markedly distinct from those of the Carboniferous. (1) The *Upper Erian* sub-flora is characterized more especially by ferns of the genera *Archæopteris* and *Cyclopteris*. *A. Jacksoni*, *A. gaspiensis* and *C. obtusa* are very abundant forms. The flora is similar to that of the Catskill of New York and the Kiltorcan beds in Ireland. (2) The Middle Erian sub-flora, corresponding to that of the Hamilton and Chemung groups in New York, is very rich in species. It contains several coniferous trees of the genus *Dadoxylon* and a great number of beautiful and delicate fern fronds, including sphenopterids and *Hymenophyllites*, as well as such ferns as *Megalopteris*, *Cyclopteris* and *Archæopteris*. *Lepidodendron Gaspianum* is very characteristic, and there are species of *Psilophyton*. *Sigillaria* scarcely appears, but there is an abundance of *Cordaites* (*C. Robbii*). The remarkable aquatic plants of the genus *Ptilophyton* occur here, and there are beds filled with Macrospores or "*Sporangites.*" (3) The Lower Erian sub-flora, which is specially characterized by the genera *Prototaxites*, *Arthrostigma* and *Psilophyton*. These plants are often very abundant, but belong to few species.

III. *The Upper Silurian Flora.*

This is limited in Canada to *Prototaxites*, *Psilophyton* and the rounded fruits of the genus *Ætheotesta*, equivalent to *Pachytheca* of Hooker. These occur in rocks attributed to the Lower Helderberg group, and no undoubted land plant has been found in any older formation.

The above mentioned sub-floras can be readily recognized by a competent palæobotanist; and, as the author has shown in reports published by the Geological Survey of Canada,[1] can be correlated with those of the United States and Europe; but any more minute subdivisions are of merely local value.

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[1] Report on Erian or Devonian and Upper Silurian Plants of Canada, 1871. Report on Plants of the Lower Carboniferous and Millstone Grit, 1873. Report on Erian or Devonian Plants of Canada, Part II, 1882.

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