

brakes of erect *Calamites*, then described with their roots and leaves complete for the first time. I may remark here that while much has been done more recently, by the late Dr. Williamson and others, in developing the internal structure and fructification of *Calamites*, Nova Scotia has taken the lead in the discovery of their habit of growth, external appearance and relations to the accumulation of coal. The species *Lepidophloios Acadianus* was not described by me till 1865, when the characters of other specimens from the Albion Coal Mines and the South Joggins were given in my paper, "On the Conditions of Accumulation of Coal," in the *Journal of the Geological Society*, vol. xxii. It was included in 1868, in the "Summary of the Coal Flora," in the second edition of "Acadian Geology."

The second species was discovered at a later date, and, for a reason to be explained in the sequel, was also first described as a *Leptodendron*, under the name *L. Cliftonense*.¹

In the following pages I shall discuss, with the aid of specimens in my collections representing more especially these two species, the following topics:—

- I. The characters of the genus *Lepidophloios*.
- II. The specific characters of *L. Acadianus* and *L. Cliftonensis*.
- III. The relations of these species to others representing them elsewhere, and to the forms known as *Bothrodendron*, *Halonis*, *Lepidophloios*, etc.
- IV. The relations of *Lepidophloios* to other genera of Carboniferous trees.
- V. Its connection with the accumulation of coal.

I. THE GENUS LEPIDOPHLOIOS.

This genus was established by Sternberg in his great "Flora der Vorwelt," (1820) and its structure was illustrated by Corda (though under a new name, *Lomatophloios*, in 1845. Since that time it has attracted the attention of many paleobotanists, but owing to the fragmentary nature of their material much confusion and controversy have arisen, which culminated in the summary of the characters of the family *Lepidodendrea*, attempted by Count Solms-Laubach in his "Introduction to Fossil Botany," (1891) and may be appreciated by a glance at the bibliography of the genus prepared by my friend, Mr. R. Kidston, to illustrate his paper on the Scottish species in the *Transactions of the Royal Society of Edinburgh* (1893). The last-mentioned paper is of great value in elucidating the difficulties attending the study of *Lepidophloios* in Europe, and especially in Great Britain, where good specimens seem to be very rare.

¹ Bulletin Geological Society of America, 1891.