

Mention has been made of *Sigillaria* and other trees of the coal formation period. These trees and others allied to them, of which there were many kinds, may be likened to gigantic club mosses, which they resembled in fruit and foliage, though vastly more complex in structure of stem and branch. Some of them, perhaps, were of much higher rank than any of the modern plants most nearly allied to them. One of their most remarkable features was that of their roots—those *Stigmaria*, to which so frequent reference has been made. They differed from modern roots, not only in some points of structure, but in their regular bifurcation, and in having huge root fibres articulated to the roots, and arranged in a regular spiral manner, like leaves. They radiate regularly from a single stem, and do not seem to have sent up buds or secondary stems. They thus differed from the botanical definition of a root, and also from that of a rhizoma, or root stock; being, in short, a primitive and generalized contrivance, suited to trees themselves primitive and generalized, and to special and peculiar circumstances of growth. Some botanists have imagined that they were aquatic plants, growing at the bottom of lakes, but their mode of occurrence negatives this. I have elsewhere stated this as follows:—<sup>1</sup>

“It is quite certain that *Stigmaria* are not ‘rhizomes which floated in water, or spread themselves out on the surface of mud.’ Whether rhizomes or not, they grew in the soil, or in the upper layers of peaty deposits since changed into coal. The late Richard Brown and the writer have shown that they grew in the underclays or fossil soils, and that their rootlets radiated in these soils in all directions.<sup>2</sup> In one of my papers I have figured a *Stigmarian* root penetrating through an erect *Sigillaria*, and Logan, in his Report of 1845, had already

<sup>1</sup> *Natural Science*, May, 1892.

<sup>2</sup> *Quart. Journ. Geol. Soc.*, vol. ii. p. 394 (1846); *Ibid.*, vol. iv. p. 47 (1847); *Ibid.*, vol. v. p. 355 (1849); *Ibid.*, vol. v. pp. 23, 30.