

figured a similar example. The penetration of decaying stems by the rootlets of *Stigmaria* is a fact well known to all who have studied slices of Carboniferous plants,¹ while *Stigmaria* are often found creeping inside the bark of erect and prostrate trunks. Besides this, as I have shown in 'Acadian Geology,' in the section of 5,000 feet of coal measures at the South Joggins (including eighty-one distinct coal groups, and a larger number of soils with *Stigmaria*, or erect trees), *Sigillaria* and *Stigmaria* occur together, and the latter nearly always either in argillaceous soils, or sands hardened into 'Gannister,' which are often filled with roots or rootlets, or on the surfaces of coal beds. On the other hand, the numerous bituminous limestones, and calcareous and other shales holding remains of fishes, crustaceans, and bivalve shells do not contain *Stigmaria in situ*—the only exceptions being two beds of bituminous limestone, the upper parts of which have been converted into underclays. This section, and that of North Sydney—two of the most complete and instructive in the world—have afforded conclusive proof of this mode of growth of *Sigillaria* and *Stigmaria*.

"The objection to calling the *Stigmaria* roots and their processes rootlets, appears to me a finical application of modern botanical usages to times for which they do not hold. We might equally object to the application of the term roots to those which spring from the earthed-up stems of *Calamites*, radiating as they do from nodes which, in the air, would produce branchlets. Grand' Eury's figures show abundant instances of this. We might also object to the exogenous stems described by Williamson, which belong to cryptogamous plants; and, unlike anything modern, are made up exclusively of scalariform tissue. If the articulation and regular arrangement of those gigantic root hairs, the rootlets, or 'leaves' of

¹ Williamson has noticed this in his excellent Memoirs in the *Phil. Trans.*