short, the longest yet found attached to the stem, was four feet and a half in length. The extent of these branches, when outstretched and perfect, was probably from twenty to thirty feet.* The surface of each branch is covered with spirally disposed tubercles, resembling the papillæ at the base of the spines of Echini. From each tubercle there proceeded a cylindrical and probably succulent leaf; these extended to the length of several feet from all sides of the branches. (Pl. 56, Figs. 10. 11.) The leaves, usually in a compressed state, are found penetrating in all directions into the sand-stone or shale which forms the surrounding matrix; they have been traced to the length of three feet, and have been said to be much longer.†

* It appears from sections of a branch of Stigmaria, engraved by Lindley and Hutton, (Foss. Flora, Pl. 166), that its interior was a hollow cylinder composed exclusively of spiral vessels, and containing a thick pith, and that the transverse section exhibits a structure something like that of Coniferæ, but without concentric circles, and with open spaces instead of the muriform tissue of medullary rays. No such structure is known among living plants.

These cylindrical branches are usually depressed on one side, probably the inferior side (Pl. 56, Figs. 8. *a b.* and 10. *b.*); adjacent to this depression there is found a loose internal eccentric axis, or woody core, (Pl. 56. Fig. 10. *a.*) surrounded with vascular fasciculi that communicated with the external tubercles, and resembled the internal axis within the stems of certain species of Cactus.

† All these are conditions, which a Plant habitually floating with the leaves distended in every direction, would not cease to maintain, when drifted to the bottom of an Estuary, and there gradually surrounded by sediments of mud and silt.