

from the *Lepidodendra*, and on *Lepidophloios*. In some species, especially of the latter genus, these scars are seen from their form to represent sessile cones, usually of large size; but in other cases they are merely round marks, as if indicating the insertion of branches or buds. The little fertile branchlets of *L. Cliftonense*, which would probably die after the maturity of the fruit, would leave such scars, and may probably account for some of the less intelligible of them.

"If now we compare our two species above described with others found in America and Europe, and most of which are characterized merely by the forms of the leaf-bases and scars, we may exclude from consideration all those in which the leaf-bases do not expand in growth, and confine ourselves to those having living and expanding leaf-bases. At first sight we might imagine that these would be the oldest, as being simpler than the others in structure; but though some of the Erian or Devonian species are probably of this type, in the lower Carboniferous, where the *Lepidodendra* first became important, the species with leaf-bases separated by wrinkled bark or by expansion of the cortical tissues between the leaf-bases are apparently predominant, though others also exist, and the type which we are now considering perhaps culminates in the Coal Formation.

"We may first refer to *L. costatum* of Lesquereux, with vertical rows of corrugated leaf-bases, but separated by distinct longitudinal spaces of wrinkled bark. This is a Lower Carboniferous species, and is compared by Lesquereux with his *L. Brittsi* and with *L. Volkmannianum*, Sternberg, of the European Carboniferous, both of which have strong points of resemblance in the characters of the leaf-bases, though differing in the scars and in the leaves, so far as known. The *L. Wortheni* of Lesquereux is based on fragments closely allied in general form to our species. So also is *L. diplostegioides*, a species found in the lower coals as far west as Arkansas. None of these species are, I think, sufficiently near to be identified with our Newfoundland and Nova Scotia species, though as most of them are known only by the bark of old stems, this may admit of doubt. In any case, *Lepidodendra* of this general type and aspect were widely distributed, both in Europe and America, in the Carboniferous, and especially in the lower portions of the Coal Formation, to which in all probability the Newfoundland specimens belong.

"I may add here that Zeiller¹ figures a species as *L. Veltheimianum*, which can scarcely be that species, and may be a branch of *L. Murrayanum*, with which it agrees very closely. The same plant is figured by Renault.² The leaf-bases of the Newfoundland species have also some resemblance to those of *L. aculeatum*, Sternberg, but differ in detail.

"Another interesting question rises here as to the limits of *Lepidodendron Sigillaria*, as determined by their surface markings. The markings of

¹ Végétaux fossiles du Terrain Houiller, 1880, pl. xxii.

² Cours de Botanique Fossile, 1881, pl. v, fig. 2.