

continued vitality of the bark is shown by the occasional production of lateral strobiles on large branches, in the manner of the modern red pine of America. In other species the areoles neither increase in size nor become regularly separated by growth of the intervening bark; but in old stems the bark splits into deep furrows, between which may be seen portions of bark still retaining the areoles in their original dimensions and arrangement. This is the case with *L. Pictoense*. This cracking of the bark no doubt occurs in very old trunks of the first two types, but not at all to the same extent.

As a type of *Lepidodendron*, I may describe one of the oldest Carboniferous species characteristic of the Lower Carboniferous in America, and corresponding to *L. Veltheimianum* of Europe.

LEPIDODENDRON CORRUGATUM, Dawson.—(See Fig. 43, *supra*.) "Quarterly Journal of Geological Society," vol. xv.; "Acadian Geology," page 451.

Habit of Growth.—Somewhat slender, with long branches and long, slender leaves having a tendency to become horizontal or drooping.

Markings of Stem.—Leaf-bases disposed in quincunx or spirally, elongate, ovate, acute at both ends, but more acute and slightly oblique at the lower end; most prominent in the upper third, and with a slight vertical ridge. Leaf-scars small, rounded, and showing only a single punctiform vascular scar. The leaf-scar on the outer surface is in the upper third of the base; but the obliquity of the vascular bundle causes it to be nearly central on the inside of the epidermis. In young succulent shoots the leaf-scars are contiguous and round as in *Cyclostigma*, without distinct leaf-bases. In this state it closely resembles *L. Olivieri*, Eichwald.*

In the ordinary young branches the leaf-scars are contiguous, and closely resemble those of *L. elegans*, Brongt. (Fig. 43 C). As the branches increase in diameter the leaf-scars slightly enlarge and sometimes assume a verticillate appearance (Fig. 43 D). As they still further enlarge they become separated by gradually increasing spaces of bark, marked with many waving striæ or wrinkles (Fig. 43 I, N). At the base of old stems the bark assumes a generally wrinkled appearance without distinct scars.

Knorria or Decorticated States.—Of these there is a great variety, depending on the state of preservation, and the particular longitudinal ridges. Fig. 43 D shows a form in which the vascular bundles appear as cylindrical truncate projections. Other forms show

* *Lethæa Rossica*, Plate Y, Figs. 12, 13.