

tii). The more characteristic lepidodendroids are *Lepidodendron weikianum*, *veltheimianum*, *squamosum*; *Knorria imbricata*, *acicularis*. The flora includes also *Stigmaria ficoides*, *rugosa*; *Bornia transitionis*; *Asterophyllites elegans*, etc.

§ 2. Local Development

The European development of the Carboniferous system presents certain well-marked local types, which bring clearly before the mind some of the successive geographical features of the time. During the earlier half of the Carboniferous period, there still lay much land toward the north and north-west of the present European area, whence a continuous supply of sandy and muddy sediment was derived. A sea of moderate depth and clear water extended from the Atlantic across the site of central Ireland, the heart of England, and Belgium into Westphalia. The southern margin of this ancient Mediterranean was probably formed by the ridge of older Palæozoic and crystalline rocks, which, extending from the west of England into the Boulonnais, and from Brittany into central France, sweeps eastward by the uplands of the Ardennes, Hunsrück, Taunus, and Thuringer Wald into Saxony and Silesia. In the deeper and clearer water, massive beds of limestone accumulated; but toward the land, at least on the north side of the sea, there was an increasingly abundant deposit of sand and mud, with occasional seams of coal and sheets of limestone. The whole region underwent slow subsidence and infilling of sediment, until at last vast marshes and jungles occupied tracts that had been previously sea. By degrees, the lower parts of the surrounding land were likewise submerged beneath the accumulating coal-growths, which consequently spread over the sinking areas. Hence, while across the central portions of the Carboniferous region the normal succession of strata presents a lower marine division, consisting mainly of limestone, and an upper brackish-water division, composed of sandstones, shales, and coal-seams, the marginal tracts show hardly any limestone, some of them indeed, as in central France, containing only the highest part of the upper division.

The British Isles.¹⁹⁹—The general sequence just referred to

¹⁹⁹ For detailed information regarding British Carboniferous rocks and fossils the student may consult, among early works, Phillips' "Geology of Yorkshire," 1836, and papers by Prestwich (Geol. Trans. 2d ser. v.), Sedgwick (op. cit. iv. Q. J. Geol. Soc. viii. Proc. Geol. Soc. ii.). Of later date are memoirs by Binney