pressure. A considerable loss of substance takes place during the transformation; Bischof reckoned that a mass of plant material about eighty feet thick will only yield a coal-seam about three feet in thickness.

There still continues a difference of opinion whether black coal originated *in situ* or if the plant material had been drifted and deposited in the same way as other sedimentary rock. Lyell, Logan, Goeppert, Gümbel are among the geologists who supported the view that the transformation of the vegetable matter took place *in situ*, as in the case of the large proportion of peat-mosses, and this is the common opinion of geologists.

In France, however, the theory of sedimentation is strongly supported. Grand-Eury, the author of an excellent work published in 1882, upon the flora of the Carboniferous formation of Central France, came to the conclusion that the coal-seams had originated by deposition in lake-depressions surrounded by woods. Five years later, the *Études* of Henry Fayol on the Coal-deposits of Commentry brought forward a strong chain of evidence in favour of sedimentation from water. Fayol shows how the pebbles, sand, mud, and plant detritus borne in suspension by rivers subside according to their weight, and arrange themselves as independent layers of sediment. The coarser pebbles are deposited near the shore, usually with a distinct slope, while the light plant detritus is carried far out and deposited almost horizontally.

In accordance with the amount of rainfall, the volume and velocity of the inflowing water vary, likewise the erosive action of rain and river water and the quality of the sediments. So that the alternation of conglomerate, sandstone, shale, and coal-seams observed in most coal-basins finds, according to Fayol, a natural explanation upon the basis of increase and decrease of rainfall without assuming oscillations of ground-level as has been done by the supporters of the coal-swamp theory of origin.

De Lapparent has not only accepted the views of Fayol and applied them generally to coal-basins, but also supported them by further arguments. It is in no small measure due to the prestige of this gifted geologist that the sedimentation theory is held by the majority of French geologists at the present day. A slight modification of the theory was recently advanced by Ochsenius (1892), who suggests that river-bars controlled the admission of the inflowing water into the lake-basins.