

1. Lowermost stratum. Clay (called under-clay). This is a tough argillaceous substance, which changes upon drying into a grey friable earth. Occasionally it is black, from the presence of carbonaceous matter. It contains innumerable stems of *stigmariæ*, which are generally of considerable length, and have their fibrous processes (see *Lign.* 27 and 29.) still attached, and extending in every direction through the clay: the stems commonly lie parallel with the planes of the stratum, and nearer to the *top than to the bottom*.

2. Coal. This is a carbonized mass, in which the external forms of the plants and trees composing it are obliterated, but the internal structure remains. Large trunks or stems, and leaves, are rarely distinguishable in it; but the vast prevalence of coniferous wood which enters into its composition, proves that this arises, not from the absence of such remains, but from their forms having been obliterated by the process of bituminization.

3. The Roof, or upper bed. This generally consists of slaty clay, which abounds in leaves, trunks, stems, branches, and fruits; and often contains layers of ironstone nodules, in which leaves, insects, crustacea, &c. are imbedded (see *Lign.* 3.). Occasionally beds of fresh-water mussels, or layers of marine shells, are associated with it. Interstratified with the shale, finely laminated clay, micaceous sand, grit, and pebbles of limestone, granite, sandstone, and other rocks, often occur. This bed,