

Of the accumulated remains of these plants coal seams are really composed, and one cause of the differences amongst them is the different structural composition of the original plants. How far the above fossil flora is to be taken as exhibiting the true proportions of the tribes of plants living on the globe, at the time of the production of the rocks of the carboniferous system, is uncertain: since, when plants are swept down from the land into the sea, it depends on many unknown conditions *what sorts* of them shall escape the floods, or perish by maceration in the waters.

As a general rule, it may be said that the plants are confined to arenaceous and argillaceous deposits: they abound in the upper parts of the carboniferous system, where coal abounds: they also occur in the midst of the millstone grits, and in sandstones and shales among limestones, especially where coal beds also are found; but they are almost unknown in the midst of the undivided limestone, and are rare in the old red sandstone. It appears the most probable view that the plants forming coal were, with the arenaceous and argillaceous substances, swept into the sea by inundations from the land, and subsided into strata on the bed of the sea: forests or peat mosses submerged might be compressed into coal, and covered by inundated sediments; but this notion of De Luc requires in a coal district 50 or more elevations and subsidences of the same tract of land, a phenomenon too remarkable not to have left evidence of an independent character.

The plants appear, however, not to have been carried far into the deep sea, but rather (at least in the upper or true coal formation) to have been lodged in estuaries where shells of fluviatile genera might exist. Nothing offers a more striking similitude in modern nature to the processes whereby, as we suppose, an old coal formation was produced, than the accumulations of timber, and various sediments, at the mouth of the Mississippi. See (Lyell's Principles of Geology.)

The zoophyta of the carboniferous system are almost