

According to Mr. De La Beche, wood and terrestrial plants are found in most rocks, from the old red sandstone upwards, and, in fact, in the order of rocks immediately beneath, i. e. the transition; proving that dry land must have existed, more or less, previous to, or at the time of the formation of most of these rocks. We may suppose, therefore, that ponds, lakes and rivers, existed also.

Arborescent plants, and their branches and roots, are often found in the coal formations, and in their sandstones, &c. which proves that the gigantic vegetables were sometimes embraced in those depositions.

It would appear, from the relics of the periods immediately succeeding the transition rocks, that vegetation had increased prodigiously upon the earth, and that there were even trees and forests upon those parts of the surface that had become sufficiently dry.

Bituminous coal, belonging to the era of the earlier secondary, or, as now agreed, to the transition, seems to have been formed, as there is great reason to believe, from submerged and inhumed vegetables, chiefly of cryptogamous plants, whose vestiges are so numerous in the coal mines.

Coal, being peculiarly limited in its relations, and often contained in basins, it seems probable, that it generally arose from local circumstances, with all its alternating and attendant strata of shales, sandstones, limestones, clays, iron ores, pudding-stones, &c.; and, as these depositions are often repeated several times, in the same coal basin, and the mines are occasionally worked to a great depth, (even to twelve hundred feet, in some places in England,) it is plain that no sudden and transient event, like a deluge, could have produced such deposits, although it might bury wood and trees, which, in the course of time, might approximate to the condition of lignite or bituminized, or partially mineralized wood, which is often found under circumstances indicating a diluvial origin.*

Early existence of trees.

It has been supposed, that the plants which have contributed to the formation of coal were generally succulent, with little or no firm woody fibre. It appears, however, from two memoirs by H. Witham, Esq. of Edinburgh, that large trees, strongly resembling the Norway fir and the yew tree, existed, even anterior to the deposition of the great bituminous coal-field of the Lothians, around Edinburgh. Near that city, in 1826, a fossil tree was discovered, three feet in diameter at its

* See Am. Jour. Vol. XXV, p. 104.