

but, what is remarkable, this stem passed through three strata of sandstone, parted by regular strata seams. It had, therefore, evidently grown in the situation where it stood; for it is difficult to believe that any vegetable stem could pierce through three strata of sandstone, the lower of which at least must have been partly consolidated. When we consider that these were the stems of hollow tubular plants, equisetums, without any woody support, it is impossible to believe, that they could have remained erect in a warm temperature, even for a very limited time, without speedy destruction or decomposition. We are therefore certain, that they were speedily encased in the strata that now surround them, or, in other words, that three strata of sandstone nine feet in thickness were rapidly deposited.

The coal mines at St. Etienne, in France, present similar appearances; the vertical stems are numerous, and ten or twelve feet in length. From a drawing and description of them given me by M. Alexandre Brongniart, it appears, that they were large equisetums, and the hollow tube is filled with sandstone. The circumstances, and the inferences from them, agree with those before stated of Burntwood quarry.

In the section of the Ashby-de-la-Zouch coal, given below, it will be seen, that there are no less than sixteen strata of blue-bind, exactly of the same thickness, and alternating with sixteen strata of ironstone, of which the six upper are only one inch in thickness, and the lower two inches. If we should suppose each stratum of bind and ironstone to have been deposited in different parts of one year, we should have a speedy formation of these thin beds. We know nothing, however, certain, respecting the formation of ironstone; but it appears to have been deposited in fresh water, as it occurs in fresh water strata in the regular coal formation, and in the coal strata of the oolites in Yorkshire, and among the clay and sandstone strata, in the wealds of Kent. Few geologists have attempted to explain the formation of ironstone. It may have been a deposition from chalybeate waters, or was, perhaps, the produce of decomposed vegetation, as bog or peat iron is supposed to have been.

Some geologists are of opinion, that coal was formed from peat; but the fossil vegetables in coal strata, and in the coal itself, are not what compose the peat of the present day. However, if northern latitudes had the temperature of tropical climates during the geological epoch when the vegetables flourished that are found in the coal strata, the peat of that period would partake of a different character from recent peat beds, and might be produced by the rapid decomposition of the large terrestrial and marsh plants, before referred to. A bed of modern peat, seven feet in thickness, is said to have been formed in thirty years; but the primitive vegetation of the world, flourishing and decaying under a high degree of temperature, and a moist atmosphere, might form thick beds of peat in a much shorter period.