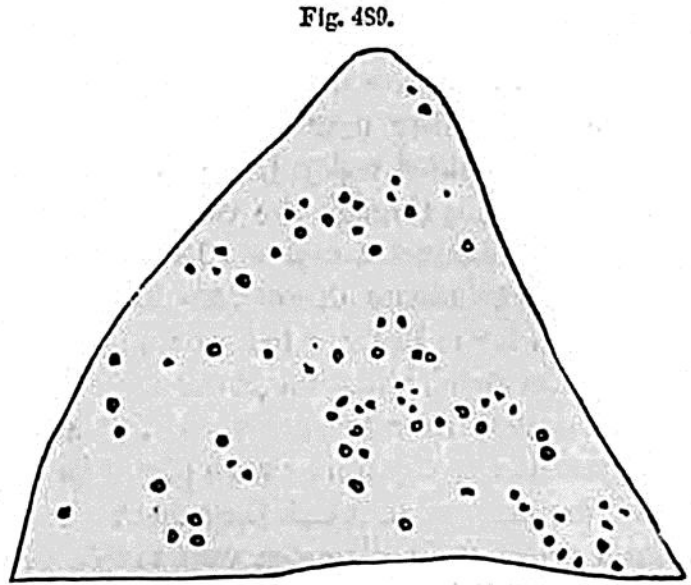


It has been remarked, that if, instead of working in the dark, the miner was accustomed to remove the upper covering of rock from each seam of coal, and to expose to the day the soils on which ancient forests grew, the evidence of their former growth would be obvious. Thus in South Staffordshire a seam of coal was laid bare in the year 1844, in what is called an open work at Parkfield Colliery, near Wolverhampton. In the space of about a quarter of an acre the stumps of no less than 73 trees with their roots attached appeared,



Ground-plan of a fossil forest, Parkfield Colliery, near Wolverhampton, showing the position of 73 trees in a quarter of an acre.\*

as shown in the annexed plan (fig. 489), some of them more than 8 feet in circumference. The trunks broken off close to the root, were lying prostrate in every direction, often crossing each other. One of them measured 15, another 30 feet in length, and others less. They were invariably flattened to the thickness of one or two inches, and converted into coal. Their roots formed part of a stratum of coal 10 inches thick, which rested on a layer of clay 2 inches thick, below which was a second forest, resting on a 2-foot seam of coal. Five feet below this again was a third forest with large stumps of *Lepidodendra*, *Calamites*, and other trees.

In the account given, in 1821, by M. Alex. Brongniart† of the coal-mine of Treuil, at St. Etienne, near Lyons, he states, that distinct horizontal strata of micaceous sandstone are traversed by vertical trunks of monocotyledonous vegetables, resembling bamboos or large *Equiseta* (fig. 490). Since the consolidation of the stone, there has been here and there a sliding movement, which has broken the continuity of the stems, throwing the upper parts of them on one side, so that they are often not continuous with the lower.

From these appearances it was inferred that we have here the monuments of a submerged forest. I formerly objected to this conclusion, suggesting that, in that case, all the roots ought to have been found at one and the same level, and not scattered irregularly through the mass. I also imagined that the soil to which the roots were attached should have been different from the sandstone in which the trunks are inclosed. Having, however, seen *calamites* near Pictou, in Nova Scotia, buried at various heights in sandstone and in similar erect attitudes, I have now little doubt that M. Brongniart's view was correct. These plants seem to have grown on a sandy soil, liable to be flooded from time to time,

\* Messrs. Beckett and Ick. *Proceed. Geol. Soc.* vol. iv. p. 287.

† *Annales des Mines*, 1821.