most rapidly in low and flat tracks, in which there is a deep rich soil and excessive moisture, supporting tall forest-trees and large palms, below which bamboos, canes, and minor palms flourish luxuriantly. Such tracts, from their lowness, would be most easily submerged, and their dense vegetation might then give rise to a seam of coal.*

In a deep valley near Capel-Coelbren, branching from the higher part of the Swansea valley, four stems of upright *Sigillariæ* were seen, in 1838, piercing through the coal-measures of S. Wales; one of them was 2 feet in diameter, and one 13 feet and a half high, and they were all found to terminate downwards in a bed of coal. "They appear," says Sir H. De la Beche, "to have constituted a portion of a subterranean forest at the epoch when the lower carboniferous strata were formed."†

In a colliery near Newcastle, say the authors of the Fossil Flora, a great number of *Sigillariæ* were placed in the rock as if they had retained the position in which they grew. Not less than thirty, some of them 4 or 5 feet in diameter, were visible within an area of 50 yards square, the interior being sandstone, and the bark having been converted into coal. The roots of one individual were found imbedded in shale; and the trunk, after maintaining a perpendicular course and circular form for the height of about 10 feet, was then bent over so as to become horizontal. Here it was distended laterally, and flattened so as to be only one inch thick, the flutings being comparatively distinct.‡ Such vertical stems are familiar to our miners, under the name of coal-pipes. One of them, 72 feet in length, was discovered, in 1829, near Gosforth, about five miles from Newcastle, in coal-grit, the strata of which it penetrated. The exterior of the trunk was marked at intervals with knots, indicating the points at which branches had shot off. The wood of the interior had been converted into carbonate of lime; and its structure was beautifully shown by cutting transverse slices, so thin as to be transparent. (See p. 40.)

These "coal-pipes" are much dreaded by our miners, for almost every year in the Bristol, Newcastle, and other coal-fields, they are the cause of fatal accidents. Each cylindrical cast of a tree, formed of solid sandstone, and increasing gradually in size towards the base, and being without branches, has its whole weight thrown downwards, and receives no support from the coating of friable coal which has replaced the bark. As soon, therefore, as the cohesion of this external layer is overcome, the heavy column falls suddenly in a perpendicular or oblique direction from the roof of the gallery whence coal has been extracted, wounding or killing the workman who stands below. It is strange to reflect how many thousands of these trees fell originally in their native forests in obedience to the law of gravity; and how the few which continued to stand erect, obeying, after myriads of ages, the same force, are cast down to immolate their human victims.

* Hawkshaw, Geol Trans., Second Series, vol. vi. pp. 173, 177, pl. 17.

† Geol. Report on Cornwall, Devon, and Somerset, p. 143.

‡ Lindley and Hutton, Foss. Flo. part 6, p. 150.