

than two thin layers of clay with *Stigmaria*. At Mauch Chunk, or the Bear Mountain, this remarkable bed of anthracite is quarried in the open air, and removed bodily together with the overlying sandstone, forty feet thick, the summit of the hill being "scalped," as one of the miners expressed it. The vegetable matter, which is represented by this enormous mass of anthracite, must, before it was condensed by pressure and the discharge of its hydrogen, oxygen, and other volatile ingredients, have been probably between 200 and 300 feet thick. The accumulation of such a thickness of the remains of plants, so unmixed with earthy ingredients, would be most difficult to explain on the hypothesis of their having been drifted into the place they now occupy; but it becomes intelligible if we suppose them to have grown on the spot. Whether we regard the *Stigmaria* as roots, according to the opinion of M. Adolphe Brongniart and Mr. Binney, or embrace the doctrine of their being aquatic plants, no one can doubt that they at least are fossilised on the very spot where they grew; and as all agree that they are not marine plants, they go far to establish the doctrine of the growth *in situ* of the materials of the overlying coal seams.

The prodigious thickness of the carboniferous rocks in this part of the Appalachian chain, is in harmony with the theory already alluded to, which requires the repeated sinking down of many successive terrestrial surfaces, allowing an indefinite quantity of sediment to be superimposed vertically in one continuous series of beds. The surveys of Pennsylvania and Virginia show that the south-east was the quarter whence the coarser materials of the carboniferous rocks were derived, and