caying, their stumps and the lower parts of their trunks being enveloped in layers of sand and mud, which are gradually filling up the lake D F When this lake or lagoon has at length been entirely silted up and converted into land, say, in the course of a century, the forest C D will extend once more continuously over the whole area C F, as in fig. 507, and another mass of vegetable matter ($g\,g'$), forming 3 feet more of coal, may accumulate from C to F. We then find in the region F, two seams of coal (a' and g') each 3 feet thick, and separated by 25 feet of sandstone and shale, with erect trees based upon the lower coal, while, between D and C, we find these two seams united into a 2-yard coal. It may be objected that the uninterrupted growth of plants during the interval of a century will have caused the vegetable matter in the region C D to be thicker than the two distinct seams a' and g' at F; and no doubt there would actually be a slight excess representing one generation of trees with the remains of other plants, forming half an inch or an inch of coal; but this would not prevent the miner from affirming that the seam $a\,g$, throughout the area C D, was equal to the two seams a' and g' at F.

The reader has seen, by reference to the section (fig. 505, p. 390), that the strata of the Appalachian coal-field assume a horizontal position west of the mountains. In that less elevated country, the coal-measures are intersected by three great navigable rivers, and are capable of supplying for ages, to the inhabitants of a densely peopled region, an inexhaustible supply of fuel. These rivers are the Monongahela, the Alleghany, and the Ohio, all of which lay open on their banks the level seams of coal. Looking down the first of these at Brownsville, we have a fine view of the main seam of bituminous coal 10 feet thick, commonly called the Pittsburg seam, breaking out in the steep cliff at the water's edge; and I made the accompanying sketch of its appearance from the bridge over the river (see fig. 508). Here the coal, 10 feet thick, is covered by carbonaceous shale (b), and this again by micaceous sandstone (c). Horizontal galleries may be driven everywhere at very slight expense, and so worked as to drain themselves, while the cars, laden with coal and attached to each other, glide down on a railway, so as to deliver their burden into barges moored to the river's bank. The same seam is seen at a distance, on the right bank (at a), and may be followed the whole way to Pittsburg, fifty miles distant. As it is nearly horizontal, while the river descends it crops out at a continually increasing, but never at an inconvenient, height above the Monongahela. Below the great bed of coal at Brownsville is a fire-clay 18 inches thick, and below this, several beds of limestone, below which again are other coal seams. I have also shown in my sketch another layer of workable coal (at $d\,d$), which breaks out on the slope of the hills at a greater height. Here almost every proprietor can open a coal-pit on his own land, and the stratification being very regular, he may calculate with precision the depth at which coal may be won.

The Appalachian coal-field, of which these strata form a part (from o