

exposed, each standing erect in the centre of a mound or dome of earth, which had evidently accumulated around the base and roots of the trees; presenting an appearance as if the trees had been broken, or torn off, at a short distance from the ground. Portions of trunks and branches were seen, some lying on the surface, and others imbedded in the dirt-bed; many of these were nearly two feet in diameter, and the united fragments of one tree measured upwards of thirty feet in length. The silicified plants allied to the *cycas* are found in the intervals between the trees; and I dug up from the dirt-bed several that were standing erect, evidently upon the very spot on which they grew, and where they had remained undisturbed amidst all the revolutions which had subsequently swept over the surface of the earth. 'The dirt-bed extends through the north of the Isle of Portland, and traces of it have been observed in the coves at the west end of Purbeck; and a stratum, with bituminous matter and silicified wood, occurs in the cliffs of the Boulonnois, on the opposite coast of France, occupying the same relative situation with respect to the Purbeck and Portland formations. A similar bed has also been discovered in Buckinghamshire, and in the Vale of Wardour, proving that the presence of this remarkable stratum is coextensive with the junction of the Portland and Purbeck strata, so far as they have hitherto been examined.'*

Above the *dirt-bed* are thin layers of limestone, the total thickness being about eight feet, into which the erect trunks extend, but no other traces of organic remains have been noticed in them. These limestone beds are covered by the modern vegetable soil, which scarcely exceeds in depth the ancient one above described; and instead of giving support, like the latter, to a tropical forest, can barely maintain a scanty vegetation, there being scarcely a tree or shrub on the whole island.†

Here, then, we have recorded in characters which cannot be mistaken the nature of the changes which took place in this part of the globe, after the sea of the oolite had deposited the marine strata of Portland. A portion of the bed of that sea was elevated above the surface of the waters, and became clothed with a vegetation, which, reasoning from the close resemblance of the fossil plants to the recent *Cycadææ*, must have enjoyed a climate of a much higher temperature than is known in these latitudes at the present day. How long this island, or continent, (for of its extent no correct estimate can be formed,) remained above the level of the ocean, cannot be conjectured; but that it was dry land for a considerable period, is manifest from

* Vide Geology of Hastings, p. 76. *et seq.*

† The appearance of the large quarry on the northern brow of the Island of Portland was, at the time of my visit (in July, 1832), peculiarly interesting; and although prepared by a perusal of the excellent Memoirs of Mr. Webster, and Dr. Buckland, (Geol. Trans. 2d series, vol. ii.) for the phenomena presented to my view, I was struck with astonishment at the extraordinary scene; the floor of the quarry was literally strewn with fossil wood, and before me were the remains of a petrified tropical forest, the trees and the plants, like the inhabitants of the city in Arabian story, being converted into stone, yet still maintaining the places which they occupied when alive.