

The Isle, or rather peninsula of Portland,* off the Dorsetshire coast, rises considerably above the sea-level, presenting on the side of the port a bold line of cliffs, connected with the mainland by the Chesil bank,† an extraordinary formation, consisting of a beach of shingle and pebbles loosely piled on the blue Kimeridge clay, and stretching ten miles westward along the coast. The quarries are chiefly situated in the northerly part of the island. The story told of this remarkable island is an epitome of the revolutions the surface of the earth has undergone. The slaty Purbeck beds which overlie the Portland stone are of a dark-yellowish colour; they are burnt in the neighbourhood for lime. The next bed is of a whiter and more lively colour. It is the stone of which the portico of St. Paul's and many of the houses of London, built in Queen Anne's time, were constructed. The building-stone contains fossils exclusively marine. Upon this stratum rests a bed of limestone formed in lacustrine waters. Finally, upon this bed rests another deposit of a substance which consists of very well-preserved vegetable earth or *humus*, quite analogous to our vegetable soil, of the thickness of from fifteen to eighteen inches, and of a blackish colour; it contains a strong proportion of carbonaceous earth; it abounds in the silicified remains of Conifers and other plants, analogous to the *Zamia* and *Cycas*—this soil is known as the "dirt-bed." The trunks of great numbers of silicified trees and tropical plants are found here erect, their roots fixed in the soil, and of species differing from any of our forest trees. "The ruins of a forest upon the ruins of a sea," says Esquiros, "the trunks of these trees were petrified while still growing. The region now occupied by the narrow channel and its environs had been at first a sea, in whose bed the Oolitic deposits which now form the Portland stone accumulated: the bed of the sea gradually rose and emerged from the waves. Upon the land thus rescued from the deep, plants began to grow; they now constitute with their ruins the soil of the dirt-bed. This soil, with its forest of trees, was afterwards plunged again into the waters—not the bitter waters of the ocean, but in the fresh waters of a lake formed at the mouth of some great river."

Time passed on, however; a calcareous sediment brought from the interior by the waters, formed a layer of mud over the dirt-bed; finally, the whole region was covered by a succession of calcareous deposits, until the day when the Isle of Portland was again revealed to light. "From the facts observed," says Lyell, "we may infer:—

* For details respecting these strata the reader may consult, with advantage, the useful handbook to the geology of Weymouth and Portland, by Robert Damon.

† See Bristow and Whitaker "On the Chesil Bank," *Geol. Mag.*, vol. vi., p. 433.