

siliceous, all loosely thrown together, and rising to the height of from twenty to thirty feet above the ordinary high-water mark, at that part which is nearest the Isle of Portland. The fundamental rocks whereon the shingle rests are found at the depth of a few yards only below the level of the sea. The formation of that part of the bar which attaches Portland to the mainland may have been due to an original shoal or reef, or to the set of the tides in the narrow channel, by which the course of the pebbles, which are always coming from the west, has been arrested. It is a singular fact, that throughout the Chesil Bank the pebbles diminish gradually in size as we proceed westward, or as we approach the quarter from which they are supplied. Had the case been reversed, we should naturally have attributed the circumstance to the constant wearing down of the pebbles by friction, as they are rolled along a beach seventeen miles in length. We must now suppose that the velocity of the waves, due to the combined influence of the winds and tides, increases gradually from north-west to south-east, which is the direction of the beach. In that case the size of the masses coming from the westward and thrown ashore would be largest where the motion of the water was most violent. Colonel Reid states that all calcareous stones rolled along from the west are soon ground into sand, and in this form they pass round Portland Island.*

The storm of 1824 burst over the Chesil Bank with great fury, and the village of Chesilton, built upon its southern extremity, was overwhelmed, with many of the inhabitants. This same storm carried away part of the Breakwater at Plymouth, and huge masses of rock, from two to five tons in weight, were lifted from the bottom of the weather side, and rolled fairly to the top of the pile. One block of limestone, weighing seven tons, was washed round the western extremity of the Breakwater, and carried 150 feet.† It was in the same month and also during a spring-tide, that a great flood is mentioned on the coasts of England, in the year 1099. Florence of Worcester says, "On the third day of the nones of Nov. 1099, the sea came out upon the shore, and buried towns and men very many, and oxen and sheep innumerable." We also read in the *Saxon Chronicle*, for the year 1099, "This year eke on St. Martin's mass day, the 11th of Novembre, sprung up so much of the sea flood, and so myckle harm did, as no man minded that it ever afore did, and there was the ylk day a new moon."

Dorsetshire — Devonshire.—At Lyme Regis, in Dorsetshire, the "Church Cliffs," as they are called, consisting of lias about one hundred feet in height, have gradually fallen away at the rate of one yard a year, since 1800.‡

* See Palmer on Motion of Shingle Beaches, *Phil. Trans.* 1834, p. 568.; and Col. Reid on the same, *Professional Papers of Royal Engineers*, 1838, vol. ii. p. 128.

† De la Beche, *Geol. Man.* p. 82.

‡ This ground was measured by Dr. Carpenter of Lyme, in 1800, and again in 1829, as I am informed by Miss Mary Anning of Lyme, well known by her discoveries in fossil remains.