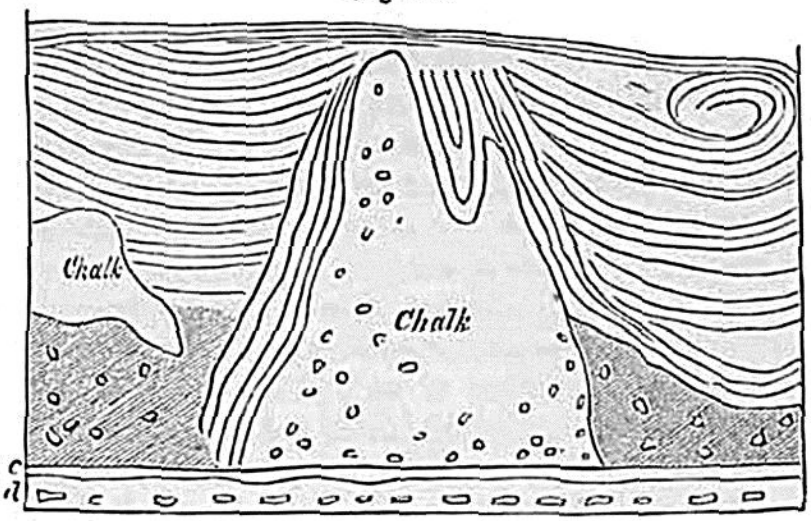
Fig. 122.



Included pinnacle of chalk at Old Hythe point, west of Sherringham.

d. Chalk with regular layers of chalk flints.
c. Layer called "the pan," of loose chalk, flints, and marine shells of recent species, cemented by oxide of iron.

we conceive the *till* and its boulders to have been drifted to their present place by ice, the lateral pressure may have been supplied by the stranding of ice-islands. We learn from the observations of Messrs. Dease and Simpson in the polar regions, that such islands, when they run aground, push before them large mounds of shingle and sand. It is therefore probable that they often cause great alterations in the arrangement of pliant and incoherent strata forming the upper part of shoals or submerged banks, the inferior portions of the same remaining unmoved. Or many of the complicated curvatures of these layers of loose sand and gravel may have been due to another cause, the melting on the spot of icebergs and coast-ice in which successive deposits of pebbles, sand, ice, snow, and mud, together with huge masses of rock fallen from cliffs, may have become interstratified. Ice-islands so constituted often capsize when afloat, and gravel once horizontal may have assumed, before the associated ice was melted, an inclined or vertical position. The packing of ice forced up on a coast may lead to similar derangement in a frozen conglomerate of sand or shingle, and, as Mr. Trimmer has suggested,* alternate layers of earthy matter may have sunk down slowly during the liquefaction of the intercalated ice, so as to assume the most fantastic and anomalous positions, while the strata below, and those afterwards thrown down above, may be perfectly horizontal.

There is, however, still another mode in which some of these bendings may have been produced. When a railway embankment is thrown across a marsh or across the bed of a drained lake, we frequently find that the foundation, consisting of peat and shell-marl, or of quicksand and mud, gives way, and sinks as fast as the embankment is raised at the top. At the same time, there is often seen at the distance of many yards, in some neighboring part of the morass, a squeezing up of pliant strata, the amount of upheaval depending on the volume and weight of mate-

* Quart. Journ. Geol. Soc. vol. vii. p. 22.