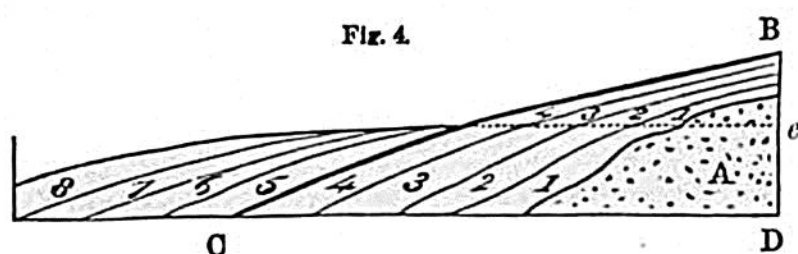
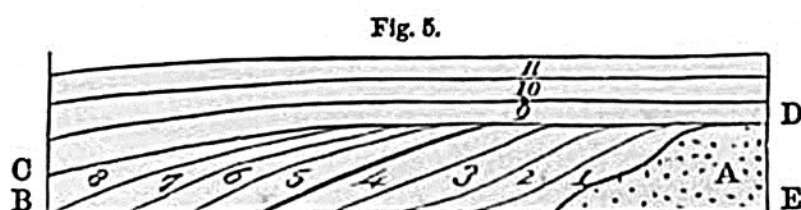


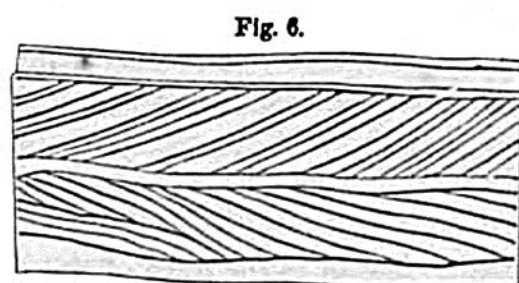
brown, and the lines *a*, *b*, *c*, mark some of the principal planes of stratification, which are nearly horizontal. But the greater part of the subordinate laminae do not conform to these planes, but have often a steep slope, the inclination being sometimes towards opposite points of the compass. When the sand is loose and incoherent, as in the case here represented, the deviation from parallelism of the slanting laminae cannot possibly be accounted for by any rearrangement of the particles acquired during the consolidation of the rock. In what manner then can such irregularities be due to original deposition? We must suppose that at the bottom of the sea, as well as in the beds of rivers, the motions of waves, currents, and eddies often cause mud, sand, and gravel to be thrown down in heaps on particular spots, instead of being spread out uniformly over a wide area. Sometimes, when banks are thus formed, currents may cut passages through them, just as a river forms its bed. Suppose the bank *A* (fig. 4) to be thus formed with a steep



sloping side, and the water being in a tranquil state, the layer of sediment No. 1 is thrown down upon it, conforming nearly to its surface. Afterwards the other layers, 2, 3, 4, may be deposited in succession, so that the bank *B C D* is formed. If the current then increases in velocity, it may cut away the upper portion of this mass down to the dotted line *e* (fig. 4), and deposit the materials thus removed farther on, so as to form the layers 5, 6, 7, 8. We have now the bank *B C D E* (fig. 5), of which the surface is almost level, and on which the nearly



horizontal layers, 9, 10, 11, may then accumulate. It was shown in fig. 3 that the diagonal layers of successive strata may sometimes have an opposite slope. This is well seen in some cliffs of loose sand on the



Cliff between Misner and Dunwich.

Suffolk coast. A portion of one of these is represented in fig. 6, where the layers, of which there are about six in the thickness of an inch, are composed of quartzose grains. This arrangement may have been due to the altered direction of the tides and currents in the same place.