

the general name of *Ripple-mark* has been given. They have been produced by an oscillation of the medium (water or air) in which the loose sand has lain. In water, an oscillatory movement, sometimes also with a more or less marked current, is generated by wind blowing on its surface. The sand-grains are carried backward and forward. By degrees, inequalities of surface are produced, which give rise to vortices in the water. In irregular ripple-mark, the direct current carries the sand up the weather-slope, while the vortex pushes it up the lee-slope, until the surface of the sand becomes mottled over with little prominences or dunes. In regular ripple-mark, the forms are produced by water oscillating relatively to the bottom and the consequent establishment of a series of vortices.⁷ The long gentle slope toward the wind, and the short steep slope away from it, are well marked (Fig. 204, compare also Fig. 91). Considerable

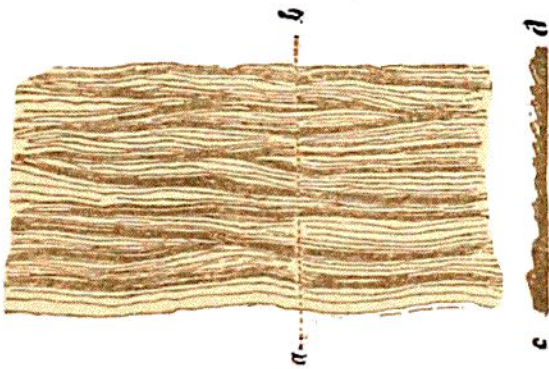


Fig. 204.—Plan and section of Rippled Surface.

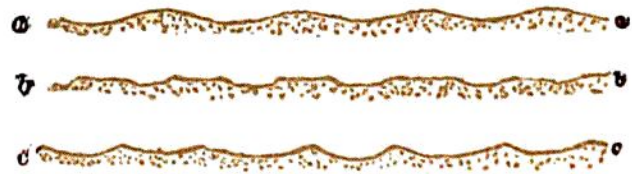


Fig. 205.—Sections of Ripple-marks.

diversity in the form of the ripple, however, may be observed (as at *a b c* in Fig. 205), depending on conditions of wind, water, and sediment which have not been thoroughly studied. No satisfactory inference can be drawn from the existence of ripple-marks as to the precise depth of water in

⁷ Prof. Darwin, Proc. Roy. Soc. xxxvi. 1883, p. 18. See also H. C. Sorby, Edin. New Phil. Journ. new ser. iii. iv. v. vii.; Geologist, ii. 1859, p. 137; A. R. Hunt, Proc. Roy. Soc. xxxiv. p. 1; C. de Candolle, Arch. Sci. Phys. Nat. Geneva, ix. 1883; M. Forel, in same volume.