

which the sediment was accumulated. As a rule, it is in water of only a few feet or yards in depth that this characteristic surface is formed. But it may be produced at any depth to which the agitation caused by wind on the upper waters may extend (p. 736). Examples of it may be observed among arenaceous deposits of all ages from pre-Cambrian upward. In like manner, we may frequently detect, among these formations, small isolated or connected linear ridges (rill-marks) directed from some common quarter, like the current-marks frequently to be found behind projecting fragments of shell, stones, or bits of seaweed on a beach from which the tide has just retired.

On an ordinary beach, each tide usually effaces the ripple-marks made by its predecessor, and leaves a new series to be obliterated by the next tide. In the process of obliteration, the tops of the ridges are levelled off (see *b* in Fig. 205), while sometimes the hollows, where they serve as receptacles for surface drainage, are deepened. Where the markings are formed in water which is always receiving fresh accumulations of sediment, a rippled surface may be gently overspread by the descent of a layer of sediment upon it, and may thus be preserved. By a renewal of the oscillation of the water another series of ripples may then be made in the overlying layers, which in turn may be buried and preserved under a renewed deposit of sand. In this way, a considerable thickness of such ripple-marked strata may be accumulated, as has frequently taken place among geological formations of all ages.

Sun-cracks, Rain-prints, Vestiges of former Shores.—One of the most fascinating parts of the work of a field-geologist consists in tracing the shores of former seas and lakes, and in endeavoring thereby to reconstruct