

gular cracks—in the shale oblique cuts—in the limestone nearly vertical joints.

We shall now suppose these strata to be upheaved, by a force acting at \uparrow so as to come within the power of the waves and currents of the sea, and finally to appear above it. By this elevating force the parts over the \uparrow will be *first* brought under the corroding agency of the waves; the cracks being partially opened by the pressure upon the strata, the continuity of these masses of matter is broken, and their power of uniform resistance to the water is destroyed; the weakest parts yield most, and thus *before the strata reach the level* of the water, their *surface is channelled*, and the land as it emerges above the sea exhibits, not a parallel band as A, but a broken ridge as *b, w, i*, between the points of which the strongest currents flow as represented by arrows.

The rise of the sea bed and the action of the water continuing, the channels for the currents are deepened, the three points of land here indicated are *undermined* by the wasting of the shale below them, the crown of gritstone falls on all sides, and the appearance, after further continuance of the process, is represented in Pl. II. fig. 4, in which (*i*) is Ingleborough, (*w*) Whernside, (*b*) Barfell; and the upper ends of Yoredale, Wharfedale, Ribblesdale, Dentdale, Garsdale, and Edendale, begin to appear out of the sea.

It is needless to follow further the stages by which, under the same conditions of gradual rise of the land and continual battery of the sea on the parts as they successively come near to and reach the surface, the original islands, *i, w, b*, become united to slopes and ridges, until they constitute merely the culminating points of the country, the conspicuous ornaments of a great and varied physical region. On a surface thus constituted, the atmosphere produces further waste—carbonic acid eats away the limestone, moisture softens and crumbles the shale, rains wash