

which terminate the 'tabular hills' of the districts of Scarborough and Castle Howard. These hills range east and west, and are escarped to the north across the many branches of the Derwent from Scarborough to Bilsdale; but run south-east from Coxwold to Malton, with escarpments to the south-west. Similarly in the West Riding of Yorkshire, we trace many such lines of escarpment which terminate sloping terraces of sandstone; the sandstone resting on more easily disintegrated shales. Thus have the long cliffs of our Wolds and our Hambletons been formed: thus has a remarkable feature of the physical geography of England been produced—the almost uninterrupted range of our chalk hills from Flamborough to Dorsetshire and Kent, and the many parallel ranges of the oolites which traverse the middle of the island. The simple principle which so fully explains it—the unequal action of water upon a basis of unequally resisting materials—is applicable to almost every individual hill in Yorkshire, and is equally successful when we inquire into the effect of rivers in causing or modifying the cascades which enliven their course.

The features of individual hills and valleys depend mainly on the materials of which they consist, and on the manner in which they are arranged. As an example, we may take the outline of Ingleborough toward the west (Pl. III. fig. 2). The prominent parts of the outline are due to the *hard* millstone grit (*m*) which crowns the mountain; to the *hard* limestone (*l*), and the *hard* sandstone (*s*) which jut out on the side; the steep slope below is formed chiefly of perishing shales, and the broad base which supports the conical mass is a floor of solid limestone. Penyghent, Whernside, Bear's Head, Stag's Fell, Pen Hill, and many other of the most conspicuous hills in the north-west of Yorkshire, exhibit similar outlines due to similar alternations of strata.

In strong contrast with these are the forms in Hougill Fells, which, composed of slaty rocks placed at high angles of inclination, shoot up in pyramidal ridges and obtusely angular summits, like many hills composed of the same rocks in Westmoreland.