

which the river descends about 230 feet, or 65 feet in a mile. From the Stonebyres Linn to the sea at Dumbarton the course of the Clyde is fully 50 miles, yet its fall is only 170 feet, or about 3·4 feet in a mile.<sup>1</sup>

As the Clyde, in its farther course, winds among broad meadows and fair woodlands, and murmurs through the ravines of Bothwell, no one ignorant of the geology of the district would be likely to imagine that this wide, level valley really overlies a set of strata which have been tilted up and broken by innumerable dislocations. Yet such is the fact. The flat haughs of the Clyde were not laid out until after the curved and fractured coal-measures had been planed down, and no external trace of these underground disturbances remained.

Many other admirable illustrations of valley erosion might be cited from the central Scottish lowlands. I have already alluded to the remarkable series of deep gorges which the streams descending from the Highlands have cut in the Old Red Sandstone of Perthshire and Forfarshire. They are true cañons, which, for picturesqueness of river scenery, are almost unrivalled in any other part of this country. They display with singular clearness the influence of variation in rock structure upon the process of erosion. The gorge of the Ericht, for example, though excavated mostly in a coarse conglomerate, reveals some of the volcanic rocks of the Lower Old Red Sandstone, and allows their contrasted forms to stand out conspicuously against the walls of conglomerate. In the ravine of the Isla, an intrusive boss of porphyry makes itself prominent at the picturesque Reekie Linn. The bed of the North Esk, above Gannochy Bridge, is a mere chasm through which the stream foams in its headlong course from the Highland glen above. The Old Red

<sup>1</sup> See Petermann, *Edin. New Phil. Journ.*, xlvii. p. 309.