

older Tertiary periods. In the south-west of Lanarkshire and the east of Ayrshire these dykes run along the crests of some of the higher ridges. One of them, which has been already referred to as crossing the Clyde below Crawford and traversing the boundary fault of the Southern Uplands, descends into the valley of the Douglas Water, and then sweeps up along the crest of the Haughshaw and Nutberry Hills at the height of 1712 feet above the sea.¹ The vertical distance from the summit to the bottoms of the neighbouring valleys of the Nethan and Douglas Waters is about 1000 feet. It is obvious, as has already been insisted upon, that the present configuration of the surface cannot possibly be that of older Tertiary time. The lava which rose in the fissures

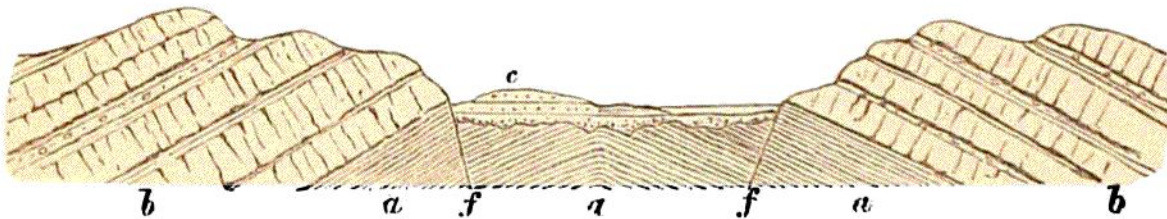


FIG. 78.—Section across the Firth of Tay to illustrate the structure of the ground represented in Fig. 77. *aa*, Lower Old Red Sandstone covered by and alternating with *bb*, various volcanic rocks belonging to the same geological period. *c*, Upper Old Red Sandstone lying on *a* unconformably. *ff*, Faults.

never could have reached the tops of the hills, had there been valleys at a lower level ready to tap the ascending column of molten rock and allow it a passage to the surface. Hence we learn that long, wide, and deep valleys have been eroded in the Midland Valley, as well as in the other districts of the country, since the age of the basalt plateaux of the Inner Hebrides, and that the thickness of rock removed cannot have been less, and was probably far more, than 1000 feet.

¹ The remarkable persistence of this dyke along the crest of the hills suggests that these heights actually owe their prominence to the presence of the dyke and its influence in retarding denudation.