

folds and lines of dislocation might never make any show at the surface. And even if the rocks were displaced somewhat faster than they could be worn away, the waste was perhaps always rapid enough to make the actual gain of land considerably less in proportion than the total amount of upheaval. So much, at least, is certain, that if ever the folds of the strata rose into the air as wide dome-shaped hills and mountains, they have all been planed down. Millions upon millions of cubic yards of solid stone have thus been worn away, and the surface of the Lowlands has been again reduced to a general uniformity of level.

It is desirable clearly to realise that a vast amount of rock has been worn away from the surface of this region, before we begin to trace out the probable history of the present topographical features. This may best be done by examining a few typical districts and comparing the structure of the rocks with the actual form of the ground.

The Pentland Hills, which now separate the strata of the Midlothian coal-field from those of the western part of the county, were certainly at one time buried under Carboniferous deposits to a depth of probably not less than 5000 or 6000 feet. If the thickness of this covering be estimated at 5280 feet, or one mile, and the hills as fourteen miles long, by three miles broad, the mass of material worn away must have been equal to forty-two cubic miles. This lost portion would surpass by more than five times the bulk of the present Pentland Hills; and, if it could be set down upon the Lowland Valley, it would form a group of mountains nearly a thousand feet higher than the loftiest of the Grampians (Fig. 76).

Again, the valley of the Firth of Tay, as was pointed out in the foregoing chapter, lies on what is in geological structure not a trough, but an arch. Yet not only has the