more than equals the height of Ben Nevis over the level of the sea. That coal-basin which extends along the flat richly cultivated plain which stretches from the south-eastern flanks of Arthur Seat to the Garleton Hills in Haddingtonshire, considerably exceeds three thousand feet in depth; and, could it be cleared out to the bottom of the Calciferous sandstones, and divested of the hundred and seventy beds of which it consists, as we have seen the deep hollow of the Compensation Pond divested of its water, it would form by far the profoundest valley in Scotland. Of the beds by which it is occupied, it is estimated that about thirty are coal, varying from several feet to but a few inches in thickness; and we now know, that though some of these coal-seams were formed of drifted plants and trees deposited in the sandy bottom of some great lake or inland sea, by much the greater number are underlaced by bands of an altered vegetable soil, thickly traversed by roots; and that, as in the case of many of our larger mosses, the plants which entered into their composition must have grown and decayed on the spot. And of course, when the plants were growing, the stratum in which they occur, though subsequently buried beneath plummet sound, or at least thousands of feet, must have formed a portion of the surface of the country either altogether sub-aërial, or, if existing as a swamp, overlaid by but a few inches of water. We have evidence of nearly the same kind in the ripple-markings which are so abundant throughout all the shales and sandstones of the Coal Measures from top to bottom, and which are never formed save where the water is shallow. Stratum after stratum in the whole ten thousand feet included in the system, where it is most largely developed, must have formed in succession the surface either of the dry land or of shallow lakes or seas; one bed must have sunk ere the bed immediately over it could have been deposited; and thus, throughout an extended series of ages, a process must have been taking place on the face of the