

has been the process through which coast-lines that were originally paved slopes have become walls of precipices. The waves cut first through the outer strata; and every stratum thus divided comes to present two faces—a perpendicular face in the newly-formed line of precipice, and another horizontal face lying parallel to it, along the shore. One half the severed stratum seems as if rising out of the sea, the other half as if descending from the hill: the geologist who walks along the beach finds the various beds presented in duplicate—a hill-bed on the one side, and a sea-bed on the other. There occurs a very interesting instance of this arrangement in the bold line of coast on the northern shore of the Moray Frith, so often alluded to in a previous chapter, as extending between the Southern Sutor and the Hill of Eathie; and which forms the wall of a portion of the roof-like ridge last described. The sea first broke in a long line through strata of red and gray shale, next through a thick bed of pale-yellow stone, then through a continuous bed of stratified clays and nodular limestone, and, last of all, through a bed, thicker than any of the others, of indurated red sandstone. The line of cliffs formed in this way rises abruptly for about a hundred yards on the one hand; the shore stretches out for more than double the same space on the other; on both sides the beds exactly correspond; and to ascend in the line of the strata from the foot of the cliffs, we have either to climb the hill, or to pass downwards at low ebb to the edge of the sea. The section is of interest, not only from the numerous organisms, animal and vegetable, which its ichthyolite beds contain, but from the illustration which it also furnishes of denudation to a vast extent from causes still in active operation. A line of precipices a hundred yards in height, and more than two miles in length, has