

If we again examine the Map, we find that a large tract of country, forming great part of the *Lowlands*, stretches across Scotland from north-east to south-west, including the Firths of Tay and Forth, and all the southern and eastern shores of the Firth of Clyde. This area is occupied by Old Red Sandstone and rocks of Carboniferous age (Nos. 2 and 3, fig. 55), mostly stratified, but partly igneous. To the south lie the heathy and pastoral uplands known as the Carrick, Moorfoot, Pentland, and Lammermuir Hills, marked 1', which, like the Highlands, are also chiefly formed of Silurian rocks, but much less altered, and rarely possessing a gneissic character. These plunge beneath the Old Red Sandstone, and rise in the Grampian mountains on the north changed into quartz-rock, mica-schist, and gneiss. The unaltered Carboniferous and Old Red Sandstone rocks thus lie, as a whole, in a hollow, between the Grampian and the Lammermuir ranges, the coal-bearing strata chiefly consisting of alternations of shale, sandstone, limestone, and coal, mingled with volcanic products of the period.

I have already explained, in Chapters VIII. and IX. how these Old Red and Carboniferous rocks were formed, showing that the latter consist of strata partly of fresh-water and partly of marine origin, for not only are the limestones formed of corals, encrinites, and shells, but many of the shales also yield similar fossils, while some strata are charged with fresh-water shells. Beds of coal are numerous, and under each bed of coal there is a peculiar stratum, which often, but not always, is of the nature of fire-clay, and is sometimes called 'underclay,' this in England being a miner's term, on account of its position beneath each bed of coal. As already explained, the 'underclays' were the soils on which land plants