

Red Sandstone, these rocks bear testimony to deposition in shallow water ; indeed, they abound in what were successive terrestrial surfaces. Consequently they prove that, during their accumulation, there was a gradual subsidence of the centre of Scotland to the extent of at least 6000 feet. Deposition of sediment, however, kept pace with the downward movement, so that the water, instead of becoming profoundly deep, always remained shallow.

That the Carboniferous formations extended over the whole Midland Valley cannot be doubted. Not only so, but, as I have already remarked, they not improbably stretched over much of the Southern Uplands, and possibly even of the Highlands. These table-lands, had they not for ages been protected by some thick cover of younger rocks, would have been vastly more eroded than they are.

Above the Coal-measures of Ayrshire, there lies a little patch of the next group of rocks in the geological series—the Permian. They consist of bright brick-red sandstones, with an underlying zone of dark lavas and red volcanic tuffs. Similar rocks occur in scattered outliers in Nithsdale. To the same geological period with the Permian volcanoes of the south-western district, ought, probably, to be referred some detached volcanic vents in the eastern part of the Midland Valley, such as Largo Law and Arthur's Seat.

The Permian sandstones are the youngest stratified deposit in the central zone of Scotland, until we arrive at the boulder-clays of the Ice Age. In the vast interval between the epochs represented by these two formations, there must have been many geological changes, of which no record in this region remains. The only existing rocks that appear to have been formed there during that period are the Tertiary dykes of basalt and andesite, which have already been referred to as so prominent in the geological structure of the High-