

nally exerted vertically, to bend and squeeze the rocks as if they had been subjected to lateral pressure.

“ Earthquakes have raised to heaven the humble vale,  
And gulphs the mountain's mighty mass entomb'd,  
And where th' Atlantic rolls, wide continents have bloom'd.”

In applying these lines to the physical revolutions of the territory at present under consideration, we must remember that the continent which bloomed to the eastward, or where the Atlantic now rolls its waves (see p. 70.), was anterior to the origin of the carboniferous strata which were derived from its ruins; whereas the elevation and subsidence supposed to have given rise to the Appalachian ridges was subsequent to the deposition of the coal-measures. But all these great movements of oscillation were again distinct from the last upheaval which brought up the whole region above the level of the sea, laying dry the horizontal New Red Sandstone (No. 4., fig. 5.), as well as a great part of, if not all, the Appalachian chain.

The largest amount of denudation is found, as might have been expected, on the south-eastern side of the chain, where the force of expansion and contraction, of elevation and subsidence, has been greatest. The first set of denuding operations may have taken place when the strata, including the carboniferous, were first raised above the sea; a second, when they sank again; a third, when the Red Sandstone (No. 4.), after it had been thrown down on the truncated edges of the older strata, participated in the waste. The great extent of solid materials thus removed, must add, in no small degree, to the difficulty of restoring in imagination the successive changes which have occurred, and of accounting in a satisfactory manner for the origin of this mountain chain.