

restrial or fresh-water formation above ; but as these two deposits could not be made to include all the geological phenomena with which even the Dean was acquainted, he had nicely to parcel out the work of his volcanoes on the one hand, and that of his land-floods on the other, into separate fits or paroxysms, each of which served to entomb a distinct class of creatures, and originate a definite set of rocks. Thus, the first work of his volcanoes was to form the Transition series of strata. As a commencement of the whole, the internal fire blew up from the bed of the ocean, in tremendous explosions, vast quantities of pulverized rock mixed with clay, which, slowly subsiding, and covering up, as it sank, shells, stone-lilies, and trilobites, formed the Silurian rocks. A second explosion brought up the vents of the volcanoes to the level of the ocean ; and while the Old Red Sandstone, thus produced, and charged with fish killed by the heat, was settling on their flanks, they themselves, as if seized by black vomit, began to disgorge, in vast quantities, coal in the liquid state. Very opportunely, just ere it cooled, enormous quantities of vegetables, washed out to sea by the extraordinary land-floods, were precipitated immediately over it ; and, sticking in its viscid surface, or sinking into its substance through cracks formed in it during the cooling, they became attached to it in such considerable masses, as to lead long after to the very mistaken notion that coal itself was of vegetable origin. Then there ensued another deposit of red sand, with salt boiled into it ; and then a deposition of lime and clay. The land-floods still continuing, the great Sauroid reptiles which had haunted the rivers and lower plains began to yield to their force, and their carcases, floating out to sea, sank amid the slowly subsiding lime and clay, now known as the Lias. The volcanoes, too, were still very active ; and the lighter shells,—ammonites and the like,—which had been previously bobbing up and down on the boiling surface, now sank