

conditions of our planet. The real distinction between these celebrated speculations consists not in the *nature of the physical agencies* which are assumed to have accomplished geological revolutions—for there is little difference, in this respect, between Playfair and Leibnitz, Lyell and De Beaumont—but in the *measure of intensity* assigned to them in different geological periods. In both, the same laws of material action are invoked, the same causes are recognised in their effects; in both, the combinations among these causes are admitted to vary locally and periodically; both contemplate periods of immense duration as necessary for the production of observed phenomena. But in one, the Leibnitzian “theory,” the globe is supposed to have undergone a *general* and progressive loss of interior heat; in the other, to have experienced only *local* or periodical variations of surface temperature; in one, great and general revolutions in the condition of the globe are deduced from a gradual refrigeration of its substance; in the other, general revolutions, properly speaking, have no place, but local changes, and new combinations, arise in endless succession: in one, the mechanical, chemical, and vital phenomena must necessarily proceed with an entirely different rate of progress, in different geological periods, because the powerful influence of heat was continually changing; in the other, these phenomena exhibit an undeviating general uniformity, such that “equal effects are produced in equal times.” Taken on a great scale, time, in arithmetical series, is the element of a cycle of variations in one hypothesis; the product of time and force (one increasing as the other decreases in geometrical series) is the principle of continual progression in the other.

To enter fully into the consideration of these rival hypotheses would be at present fruitless; but we may try their power and truth on some of the more important and fundamental points in the structure of the earth, such as the actual physical geography, and the ancient climates of the globe.