

geological question, sometimes for the sake of physical and mental relaxation. The *Principles of Geology* was published originally in four volumes. The first volume deals largely with the climatic variations in the history of the earth, and the influence of these upon local physical conditions and the nature of geological deposits. The second volume treats chiefly of the agencies of denudation and erosion, and comprises special chapters on volcanism. The third volume contains a description of coral reefs, and discusses the various means by which organic remains may be preserved. The fourth volume is devoted to historical geology, and as Lyell in writing it adopted the results obtained in the previous volumes, he produced a geological text-book upon a basis which was at the time quite new. This volume was afterwards published independently under the title of *Elements of Geology*, and passed through six editions before the year 1871.

The author's aim in the *Principles* is described in the alternative title of the work as "an inquiry how far the former changes of the earth's surface are referable to causes now in operation." After an elucidation of some leading conceptions, and a short but excellently written history of geology as far as Cuvier and Brongniart, Lyell discusses the causes of the slow development of his science, and the many false directions into which it had so often been misled.

He shows how theological prejudices and the stubborn adherence to the Mosaic reckoning of time had stood in the way of a right appreciation of the earth's history. The defective knowledge of physical phenomena now in operation on the floor of the ocean and in the interior of the earth had also served to retard the progress of knowledge respecting the formation of the primitive earth-crust. But in Lyell's opinion the greatest stumbling-block had been presented by the quite unphilosophical hypothesis that forces different from any known in the present day had been active in earlier epochs, and that the physical forces still existing had in the past been stronger in their action, and had produced effects which could not now be equalled. Further, the supposition that the sedimentary deposits had originally extended uniformly over the whole earth, as well as the catastrophal theory of sudden changes in the distribution of land and sea, in the climatic relations, and in the organic creation, had, according to Lyell, been hurtful to a healthy development of geology.