

and spiritual as well as to his physical needs by leading his inquiring mind to a knowledge of his Creator.

The notion of a succession of worlds, Hutton said, did not imply the eternity of the world. Millions of years did not add up to eternity. However long the system of the globe might have been in operation, it must have been created, since it bore the marks of intelligent design.

Hutton died in 1797 but his theory was championed by John Playfair, professor of mathematics and natural philosophy at the University of Edinburgh. In 1802 he published his *Illustrations of the Huttonian Theory of the Earth*, in which he presented and defended the new geology against scientific and religious objections. He granted the recent origin of man (c. 6,000 years) in order to gain acceptance for the indefinite antiquity of the earth.

Charles Lyell's *Principles of Geology* (1830-33) upheld and expanded the Huttonian geology to include the organic world as well as the inorganic. Lyell concluded that "the destruction of species must now be part of the regular and constant order of nature." Faced with the implication of the assumption that nature was a divinely ordained, self-balancing system of laws, elements, and forces, that natural causes should produce new species as rapidly as the old were eliminated, Lyell contented himself with suggesting that new species were "called into being" from time to time as needed, leaving it to future research to determine the time, place, and manner of their appearance.

Thus the uniformitarian catchword, "the present is the key to the past," is simply the view that the events of the past can be explained in the light of processes at work in the present. The uniform and dependable operation of natural processes is the foundation of modern experimental science, without which modern science would be quite impossible.

Georges Cuvier, a noted biologist and paleontologist, professor of natural history and anatomy in Paris, called "the father of vertebrate paleontology," proposed the theory of catastrophism. In his *Discourse on the Revolutions of the Surface of the Globe* (1812), he declared that it could no longer be doubted that the earth had undergone a series of revolutions, not only in its topography, but also in its flora and fauna. The strata of the earth's crust displayed unmistakable proofs of a series of geological epochs, each with its characteristic flora and fauna. Thus there had been several creations, separated by tremendous revolutions involving the wholesale extinction of species. The last revolution had taken place recently, not more than five or six thousand years ago (at the time of the great Flood). Cuvier believed that species are immutable, and that all organisms are the products of special creation. The view of catastrophism was thus a compromise between the requirements of scientific integrity and the demands of the traditional view of Scripture, holding that the strata were to be explained by a series of catastrophes or cataclysms, each of which was followed by a special creation of new organisms. Cuvier's theory dominated paleontologic thought until mid-nineteenth century.