

changes of the earth, on the relations of fossils to the present creation, and on the whole sequence of life in the course of geological epochs.

The Discourse begins with a demonstration that the surface of the earth has been devastated from time to time by violent revolutions and catastrophes. Cuvier argues that these took place suddenly, from the evidence of the flesh carcasses of mammalia in the gravels of Siberia, as well as from the accumulations of pebbles and *débris* which are present at certain horizons of the stratigraphical succession, and may be assumed to indicate epochs of violent movement in the former seas. Thus the development of organic life was frequently interrupted by fearful catastrophes, which in the earlier epochs extended over the whole surface of the globe, but latterly became limited to smaller areas. Countless living creatures fell victims to these catastrophes; they vanished for ever, and left only "a few remains scarcely recognisable by the scientific investigator."

A discussion of the natural forces which at the present day affect earth-surfaces leads Cuvier to the conclusion that these are *not* sufficient to explain the great revolutions of past epochs in the earth's history. The present agencies of ice and snow, running water and the ocean, volcanoes and earthquakes, together with disturbing astronomical conditions, are passed in review, for the purpose of demonstrating the insufficiency. Then Cuvier recalls the often ridiculous theories that philosophers and geologists invented in their endeavour to arrive at some adequate explanation of the great transformations of life and climate on the globe. He recognises the value of the mineralogical work of Saussure and Werner, but complains of the small share of attention bestowed by these geologists and their contemporaries upon fossils and the distribution of fossils in the rock-strata. Yet, in his opinion, it is the study of the fossilised remains of former faunas and floras which alone can give enlightenment about the earth's past, the number and order of its revolutions, and the history of creation.

He regards the remains of four-footed animals as especially valuable, since in their case the question whether they belong to extinct or living genera and species can be more definitely determined than in the case of the lower animals. Even in the days of antiquity men knew fairly well all the kinds