

geologists must feel like the ancient Roman augurs who could not meet each other without laughing. Nevertheless, he resolved to gather together all the actual observations hitherto recorded in geological science, and to construct a more reasonable history of the earth upon this recognised basis.

His first geological work, *Théorie de la Terre*, which was published in 1749, marked little advance upon current literature, but it was an able argument against the principles of the earth's origin held by Whiston, Burnet, Woodward, and Leibnitz, and boldly denounced the popular idea of a universal Deluge. His great work, *Époques de la Nature*, appeared twenty-nine years later, in 1778.

Buffon there enumerates five "facts" of first importance, and five additional "monuments" or comments. The "facts" are physical in character; they postulate the oblate-spheroidal form of the earth; compare the small amount of heat received from the sun with the large supply possessed by the body of the earth; the effect of the earth's internal heat in altering the rocks of the crust; and the presence of fossils everywhere over the earth, even on the tops of the highest mountains. The "monuments" assert that all limestones consist of the remains of marine organisms, and that in Asia, America, and the North of Europe the remains of large terrestrial animals occur at a small depth below the surface, showing that they apparently dwelt in these regions at no very remote age; whereas the deeper-lying remains of marine creatures in the same region belong to extinct species, or are related only to forms now inhabiting far distant seas.

Starting from these axioms, Buffon portrays in very attractive terms the beginning, the past, and the future of our planet. He derives the material of our earth and the other bodies of the solar system from the impact of a great comet with the sun. The earth's material assumed the form of a spheroid flattened at the Poles, and for 2,936 years continued in a molten state. This was the first epoch in Buffon's scheme, and he determined its length of duration by a series of experiments with balls of melted iron of different sizes. In the same way he determined the duration of the molten state to be 644 years in the case of the moon, 2,127 for Mercury, 1,130 for Mars, 5,140 for Saturn, and 9,433 years for Jupiter. The period required for the earth to cool down to its present temperature was calculated by Buffon to be at least 74,800 years.