

(2) a group of *Speculative Evolutionists*—Diderot, Bonnet, Robinet and Oken—who put forward a number of speculations regarding heredity and evolution that are often interesting on account of their crudeness.

*Buffon* (1707-1788) has been called the first of the great pioneers of modern evolution. His most noteworthy contribution was a theory of the direct action of the environment in the production of structural changes which are heritable.

*Erasmus Darwin* (1731-1802), grandfather of Charles Darwin, was another pioneer evolutionist who had fairly well defined ideas regarding the derivation of plants and animals. Unlike Buffon he believed that the environment only indirectly modified their organization. His *Zoonomia* was published in 1794.

The poet *Goethe* (1749-1832) was a firm believer in evolution, and contributed an important theory on the metamorphosis of foliar organs and another relating to an innate growth force. His views were published in 1794 and 1795.

*Treviranus* (1760-1837) was the forerunner of Charles Darwin in the emphasis he laid on the inter-relations between organisms and the environment. He was a Lamarckian with regard to the modifying influence of the environment.

*Geoffroy St-Hilaire* (1772-1844) was a pupil of Buffon, and shared his views concerning the direct action of the environment—published in 1828. He believed also that development might occur suddenly by leaps, and produce discontinuous variations.

*Robert Chambers* (1802-1871), the author of *Vestiges of the Natural History of Creation* (1844), prepared the minds of the reading public for Darwin's *Origin of Species*. His views of evolution, not always accurately expressed however, combined those of Buffon and St-Hilaire with that of Aristotle's idea of a perfecting principle (Read the Historical Sketch to Darwin's *Origin of Species* for a review of the progress of opinion on the origin of species).

The philosophic naturalists who did most to pave the way for the general acceptance of the doctrine of organic evolution were Lamarck and Darwin. They not only furnished strong evidences in support of the doctrine but also presented plausible theories regarding the mode of evolution.