which mediævalism had amused itself. Men passed surely, though slowly and imperfectly, from hearsay and tradition to observation and experiment, from imagining to induction. During the earlier period of this renaissance, inquiry was so thoroughly pre-occupied with the observed facts of nature that little attention was paid to the problem of evolution; thus, before we reach any great evolutionist who was at the same time a concrete naturalist we find (*a*) a school of philosophic evolution, (*b*) an abundance of somewhat rank and random speculation, and (*c*) a number of fruitful concrete suggestions in anatomy, physiology, and embryology, which were not connected into a system.

Philosophic Evolutionists.

Prof. Osborn notes the striking fact "that the basis of our modern methods of studying the evolution problem was established not by the early naturalists, nor by the speculative writers, but by the philosophers. They alone were upon the main track of modern thought." It must be remembered in this connection that many of these philosophers reaped the reward which never fails those who turn with independent minds to Aristotle and Plato, and that many of them were expert students in some department of natural science.

Francis Bacon (1561–1626), for ever famous for his insistence on the true method of scientific inquiry—by observation, experiment, and induction—may be noted here as one of the first to apprehend the possibility of the transmutation of species by accumulated variations, and to propose, what is not even yet realized, an Institute of Experimental Evolution. René Descartes (1596–1650) was the Bacon of France, noteworthy for his appreciation of the idea of gradual development and for his daring attempt to explain the universe on physical principles. In regard to both, however, he was fatally inhibited by the orthodox dogma of special creation. Gottfried Wilhelm Leibnitz (1646–1716) is memorable for his doctrine of continuity—that all natural orders of beings present but a single chain, along which advance is made by degrees and never by leaps, as the existence of intermediate species clearly shows. The idea of evolu-