organ—the leaf. In his vertebral theory of the skull he endeavored to prove that the skulls of the vertebrates —including man—were all alike made up of certain groups of bones, arranged in a definite structure, and that these bones are nothing else than transformed vertebræ. It was his penetrating study of comparative osteology that led Goethe to a firm conviction of the unity of the animal organization; he had recognized that the human skeleton is framed on the same fundamental type as that of all other vertebrates—" built on a primitive plan that only deviates more or less to one side or other in its very constant features, and still develops and refashions itself daily." This remodelling, or transformation, is brought about, according to Goethe, by the constant interaction of two powerful constructive forces—a centripetal force within the organism, the " tendency to specification," and a centrifugal force without, the tendency to variation, or the " idea of metamorphosis "; the former corresponds to what we now call heredity, the latter to the modern idea of adaptation. How deeply Goethe had penetrated into their character by these philosophic studies of the " construction and reconstruction of organic natures," and how far, therefore, he must be considered the most important precursor of Darwin and Lamarck,* may be gathered from the interesting passages from his works which I have collected in the fourth chapter of my *Natural History of Creation*. These evolutionary ideas of Goethe, however, like analogous ideas of Kant, Owen, Treviranus, and other philosophers of the commencement of the century (which we have quoted in the above work), did not amount to more than certain

* Cf. E. Haeckel, *The Systems of Darwin, Goethe, and Lamarck.* Lecture given at Eisenach in 1882.