

that the leaf, but that the *cell* is the real fundamental organ by the multiplication, transformation, and combination (synthesis) of which, in the first place, the leaf is formed; and that, in the next place, by transformation variation, and combination of leaves there arise all the varied beauties in form and colour which we admire in the green parts, as well as in the organs of propagation, or the flowers of plants. But nevertheless his fundamental idea was perfectly correct. Goethe there showed that in order to comprehend the whole of the phenomena, we must in the first place compare them, and, secondly, search for a simple type, a simple fundamental form, of which all other forms are only infinite variations.

Something similar to what he had here done for the metamorphosis of plants he then did for the Vertebrate animals, in his celebrated *vertebral theory of the skull*. Goethe was the first to show, independently of Oken, who almost simultaneously arrived at the same thought, that the skull of man and of all Vertebrate animals, particularly of mammals, is merely a transformed portion of the topmost piece of the vertebral column. The vertebræ of the skull are like those of the spine, bony rings lying behind each other, but in the skull are peculiarly changed and specialized (differentiated). Although this idea has, of late years, been greatly modified by Gegenbauer's astute investigations, yet in Goethe's day it was one of the greatest advances in comparative anatomy, and was not only one of the first advances towards the understanding of the structure of Vertebrate animals, but at the same time explained many individual phenomena. When two parts of a body, such as the skull and spine, which appear at first sight so different,