

on a thoroughly firm basis, was altogether repugnant to Goethe. In rejecting it he allowed himself not only to be very unjust towards the most eminent physicists, but to be led into errors which have greatly injured the fame of his other valuable works. It is quite different in the organic sciences, in which we are but rarely able to proceed, from the beginning, upon a firm mathematical basis; we are rather compelled, by the infinitely difficult and intricate nature of the problem, at the first to form inductions—that is, we are obliged to endeavour to establish general laws by numerous individual observations, which are not quite complete. A comparison of kindred series of phenomena, or the method of combination, is here the most important instrument for inquiry, and this method was applied by Goethe with as much success as with conscious knowledge of its value, in his works relating to the philosophy of nature.

The most celebrated among Goethe's writings relating to organic nature is his "Metamorphosis of Plants," which appeared in 1790, a work which distinctly shows a grasp of the fundamental idea of the theory of development, inasmuch as Goethe, in it, was labouring to point out a single organ, by the infinitely varied development and metamorphosis of which the whole of the endless variety of forms in the world of plants might be conceived to have arisen; this fundamental organ he found in the *leaf*. If the microscope had then been generally employed, if Goethe had examined the structure of organisms by the means of the microscope, he would have gone still further, and would have seen that the leaf is itself a compound of individual parts of a lower order, that is, of *cells*. He would then not have declared