

of the senses. But Darwin's theory does not assume such unknown conditions; it is based upon general properties of organisms that have long been recognized, and—as has been remarked—it is the exceedingly ingenious and comprehensive combination of a number of phenomena which had hitherto stood isolated, which gives the theory its extraordinarily great and intrinsic value. By it we are for the first time in a position to demonstrate an active cause for all the known morphological phenomena in the animal and vegetable kingdoms; and, in fact, this cause is always one and the same, viz. the alternate action of Adaptation and Inheritance, therefore a physiological, that is, a physico-chemical or mechanical, relationship. For these reasons the acceptance of the Doctrine of Filiation, as mechanically established by Darwin, is a binding and unavoidable necessity for the whole domain of zoology and botany.

As, therefore, in my opinion the immense importance of our new theory of development lies in the fact that it has *mechanically explained those organic phenomena of forms* which had hitherto been unexplained, it is perhaps necessary that I should here say a few words about the different ideas connected with the word "explanation." It is very frequently said, in opposition to the Transmutation theory, that it does indeed fully explain those phenomena by Inheritance and Adaptation, but that it does not at the same time explain these properties of organic matter, and that therefore we do not arrive at first causes. This objection is quite correct, but it applies equally to *all* explanations of phenomena. We *nowhere* arrive at a knowledge of first causes. The origin of every simple salt crystal, which we