

as an object does to its image in a plane mirror. Here thought Van t'Hoff is the explanation of the opposite ways in which the plane of polarization is deflected, and all substances in which the atoms show a similar arrangement should be found to exhibit two modifications similar to those exhibited by the sugars. A great deal of scepticism was manifested by chemists towards Van t'Hoff's daring hypothesis. What right, it was asked, had we to assume that the atoms within the molecule exercised any such influence on light? No one could explain how they could do it; but experience showed that wherever Van t'Hoff predicted them the two parallel modifications of a substance could be found, and hence the certainty has arisen in the minds of chemists that Van t'Hoff's account of the matter is right.

In the realm of biology we have what Haeckel has called the fundamental biogenetic law which runs as follows: "The embryo in its development into the adult form recapitulates the past history of the evolution of the race to which it belongs." No formulation of science has been the target for more adverse criticism than this, for all admit that this recapitulatory tendency is by no means the only one which has played a part in moulding the form and development of the embryo; and then, as the history of the race is a matter of speculation, how can one be sure that in any case the history of the embryo resembles it? Nevertheless the logic of facts is too strong for the objections of formal logic, and there is not a single biologist who is thoroughly acquainted with embryology, who is not convinced of the essential truth of the biogenetic law.

Let me give an instance of the kind of fact which at once confirms the validity of this law in the mind of a naturalist. The members of the class of bivalve mollusca—familiarily known to the non-biological person as "clams" or "mussels"—are in the overwhelming majority of cases provided with an organ known as the "foot." This is a wedge-shaped muscular projection of the under surface of the body, which can be expanded and driven forwards by means of an increasing