

In this connection it is also to be kept in mind that in the higher organisms, and, indeed, in multicellular organisms generally, an individual is derived, not from one parent only, but from two parents. Weismann emphasizes this combination as the cause of the production of variations and the transmission of hereditary individual characters. If the proportion of the particles derived from each parent and the forces which they exercise were precisely the same in any individual case, then one could conceive that the product would be a mean of the components provided by the two parents. But if one parent were to contribute a larger proportion than the other to the formation of a particular organism, then the balance would be disturbed, the offspring in its character would incline more to one parent than to the other, according to the proportion contributed by each, and a greater scope for the production of variations would be provided. These differences would be increased in number in the course of generations, owing to new combinations of individual characters arising in each generation.

As long as the variations which are produced in an organism are collectively within a certain limitation, they are merely individual variations, and express the range within which such an organism, though exhibiting differences from its neighbors, may yet be classed along with them in the same species. It is in this sense that I have discussed the term Variability up to the present stage of this address. Thus, all those varieties of mankind which, on account of differences in the color of the skin, we speak of as the white, black, yellow races and red-skins are men, and they all belong to that species which the zoologists term *Homo sapiens*.

But the subject of Variation cannot, in the present state of science, be confined in its discussion to the production of individual variations within the limitations of a common species. Since Charles Darwin enunciated the proposition that favorable variations would tend to be preserved and unfavorable ones to be destroyed, and that the result of this double action, by the accumulation of minute existing differences, would be the formation of new species by a process of natural selection, this subject has attained a much wider scope, has acquired increased importance, and has formed the basis of many ingenious speculations and hypotheses. As variations, when once they have arisen, may be hereditarily transmitted, the Darwinian theory might be defined as Heredity modified and influenced by Variation.

This is not the place to enter upon a general discussion of the Darwinian theory, and even if it were the time at our disposal would not admit of it. But there are some aspects of the theory which need to be referred to in connection with the subject now before us. It may be admitted that many variations that may arise in the development of an individual, and which are of service to that individual, would tend to be preserved and perpetuated in its offspring by hereditary transmission. But it is also without question that variations which are of no service, and, indeed, are detrimental to the individual in which they occur, are also capable of being hereditarily transmitted. This statement is amply borne out in the study of those important defects in bodily structure which pathologists group together under the name of Congenital Malforma-