

save the science from self-conceit by their emphasis on the partial nature of all physiological analysis.

Bionomics has risen in dignity by a realization of its evolutionary importance. From being an emotional student of habits, or an inquisitive collector of the "curiosities of animal life", the open-air observer and explorer has become an important contributor to the theory of adaptation and struggle, or to animal psychology.

In regard to heredity, the most important steps have been: (a) The formulation of the doctrine of the continuity of the germ-plasm (Weismann); (b) The growth of scepticism as to the transmissibility of acquired characters (Weismann); (c) The accumulation of evidence pointing to the conclusion that the chromatin of the nuclei is the chief bearer of hereditary qualities (Hertwig), and the proof that the chromatin of the fertilized egg-cell consists in equal parts of paternal and maternal chromatin, which are equally distributed in the subsequent cell-divisions; and (d) The law of ancestral inheritance, due to Galton.

In regard to the primary or originative factors in evolution, those namely which give rise to variations, some progress has been made, though the problems are still far from solution. (1) Some clearness has been gained by defining the distinction between congenital *variations* due to changes in the germinal substance and *modifications* which are wrought upon the body as the results of change in function and environment. (2) Some excellent experimental work has been done in the artificial production of modifications. (3) A great service has been rendered by Mr. Bateson in his *Materials for the Study of Variation*, which contains an exhaustive account of observed instances of a certain kind of variation, and affords some evidence of the occurrence of what is called "discontinuity" in evolution. (4) The statistical study of variations, developed by Mr. Galton and Profs. Weldon and Pearson, marks the introduction of a new method, which aims at representing in a curve the extent of variation in a given character, and the proportion of individuals exhibiting it.