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THE THEORY OF THE GENE

BY

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Enlarged and Revised Edition



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THE SILLIMAN FOUNDATION

IN the year 1883 a legacy of eighty thousand dollars was left to the President and Fellows of Yale College in the city of New Haven, to be held in trust, as a gift from her children, in memory of their beloved and honored mother, Mrs. Hepsa Ely Silliman.

On this foundation Yale College was requested and directed to establish an annual course of lectures designed to illustrate the presence and providence, the wisdom and goodness of God, as manifested in the natural and moral world. These were to be designated as the Mrs. Hepsa Ely Silliman Memorial Lectures. It was the belief of the testator that any orderly presentation of the facts of nature or history contributed to the end of this foundation more effectively than any attempt to emphasize the elements of doctrine or of creed; and he therefore provided that lectures on dogmatic or polemical theology should be excluded from the scope of this foundation, and that the subjects should be selected rather from the domains of natural science and history, giving special prominence to astronomy, chemistry, geology and anatomy.

It was further directed that each annual course should be made the basis of a volume to form part of a series constituting a memorial to Mrs. Silliman. The memorial fund came into the possession of the Corporation of Yale University in the year 1901; and the present work constitutes the nineteenth volume published on this foundation.

PREFACE

THE call for a revised edition of *The Theory of the Gene* has given me an opportunity to make several corrections of the original text as well as to bring into closer relation the references in the text to those in the bibliography. The bibliography has undergone a careful revision, a number of omissions have been made good, and a number of new references added.

In the same year in which the first edition of the *Theory of the Gene* appeared, I published a short article in the *Quarterly Review of Biology* in which certain questions relating to sex and fertilization were discussed. This topic was not taken up in the first edition, although intimately related to the subjects there considered. The sexual union of the plus and minus strains of certain fungi and algae, in relation to the fertilization of the eggs of the higher plants, raises a number of questions of fundamental interest to biologists. With the permission of the publishers, Williams, Wilkins, and Co., I have reprinted here those parts of the original article that bear on the question, as an extension of the chapter on "Other Methods of Sex-Determination involving Sex Chromosomes."

During the last two years many papers have appeared dealing with the number, and changes in number, of the chromosomes. It has not been possible to incorporate these new contributions, nor is it necessary, since, for the most

part, they have only expanded, rather than altered in any essential respect, the subjects discussed in the *Theory of the Gene*. In a few instances, however, I have added a brief account of the discoveries made since the earlier date, especially in those cases where the new results confirmed, expanded, or made less probable statements in the original text.

T. H. M.

Woods Hole, Mass.

August, 1928.

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