

EXPERIMENTAL ZOOLOGY



Ä

R 109
111

EXPERIMENTAL ZOÖLOGY

BY

THOMAS HUNT MORGAN

PROFESSOR OF EXPERIMENTAL ZOÖLOGY
COLUMBIA UNIVERSITY



New York

THE MACMILLAN COMPANY

LONDON: MACMILLAN & CO., LTD.

1907

All rights reserved

Ä

COPYRIGHT, 1907,
BY THE MACMILLAN COMPANY.

Set up and electrotyped. Published January, 1907.

Norwood Press
J. S. Cushing & Co. — Berwick & Smith Co.
Norwood, Mass., U.S.A.

PREFACE

THE great interest that has been shown during the last fifteen years in the study of Experimental Zoölogy has led to the rapid development of this branch of biology. An attempt is made in the following pages to bring together the results of this work. A series of about thirty-five lectures formed the basis for my treatment of the subject, and this will account, in part, for the way in which the matter has been handled; many details have been omitted that an exhaustive treatment would demand; and the plan has been to select the most typical and most instructive cases for presentation, when such a choice was possible. Nevertheless, I believe that the reader will find a fairly full account of the subjects considered.

Physiology has from the beginning made use of the method of experiment, and with notable success. Morphology has, up to the present time, followed mainly the historical and descriptive methods, although striking exceptions could be cited. While the historical study of zoölogy must always remain a legitimate field for activity, as human history has been a time-honored study, yet there can be little doubt that the more promising and searching method of zoölogical study in the future will be found in experiment.

The central problem of morphology—the causes of the changes in form, or at least the determination of the conditions under which changes in form occur—will furnish the main theme of the present treatise. Two fields of study that properly fall under this head are, however, not considered, viz. experimental embryology and the experimental study of regeneration. Both of these subjects have in recent years received comprehensive treatment in book form, so that it did not seem desirable to go over the ground again. More-