

AVIAN  
PHYSIOLOGY

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BY PAUL D. STURKIE

# AVIAN PHYSIOLOGY

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# Avian Physiology

## Preface

PHYSIOLOGY may be divided into three main categories: cellular, comparative, and special—i.e., the physiology of special groups of organisms. The physiology of special groups has received the most attention. In the animal field, interest has centered largely on mammalian physiology, with particular emphasis on human physiology and its relationship to medicine. By comparison, the physiology of birds has been neglected. Knowledge in certain areas of avian physiology is limited, fragmentary, and often confused, and little or no new research is being conducted. Much of the physiological research on the bird has been conducted from the comparative viewpoint, which is concerned more with broad functional relationships between groups of animals than with details of a special group. In some areas, however, these fundamental functions have not been definitely established. Even in certain fields, such as endocrinology, where there is considerably more research activity on the bird, there are wide gaps in our knowledge.

This book is the first one in any language devoted to the specialized physiology of birds. It deals mainly with the chicken, the duck, and the pigeon, because most of the research has been conducted on these species and they represent species of economic importance to man.

Inasmuch as physiology provides a rational basis for much of animal husbandry and veterinary medicine, this book should be of especial interest to teachers, students, and research workers in poultry science and husbandry and in veterinary medicine. More knowledge and research in avian physiology, particularly on the

domestic species, should have important applications to the poultry industry, which is rapidly expanding in this country. Although few poultry departments at present offer course work on the physiology of birds, it is hoped that this book may be instrumental in increasing the number of institutions offering such work and in stimulating more research. It may serve, also, as a source of reference for the experimental physiologist and should provide pertinent physiological material for courses in comparative physiology, ecology, and ornithology.

The bibliography is extensive but not exhaustive. An attempt was made to select the most important and more recent references, with minor consideration given to priority. The references are cited at the end of each chapter and include the complete title.

The writer is indebted to investigators, journals, and books for many of the illustrations used. Separate acknowledgment is made in the legends to the authors and books or journals from which illustrations came. The original drawings and modifications of illustrations of others were prepared by my wife, to whom I am grateful.

Special thanks are extended to colleagues who read one or more chapters and made helpful suggestions. These are Drs. H. H. Dukes, J. A. Dye, F. B. Hutt, R. M. Fraps, C. S. Shaffner, A. V. Nalbandov, T. C. Byerly, J. H. Leathem, J. B. Allison, W. C. Russell, and H. J. Metzger.

PAUL D. STURKIE

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# Avian Physiology

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