

**TWENTIETH CENTURY
TEXT-BOOKS; ANIMAL
FORMS: A SECOND BOOK
OF ZOOLOGY**

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Twentieth Century Text-Books; Animal Forms: A Second Book of Zoology by David Starr
Jordan & Harold Heath

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DAVID STARR JORDAN & HAROLD HEATH

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FORMS: A SECOND BOOK
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TWENTIETH CENTURY TEXT-BOOKS

EDITED BY

A. F. NIGHTINGALE, Ph. D., J. L. D.

FORMERLY SUPERINTENDENT OF HIGH SCHOOLS, CHICAGO



Murres and nests (*Uria lomvia arctica*). Walrus Island, Fribolof group.
Photograph by HANSE CHICHESTER.

TWENTIETH CENTURY TEXT-BOOKS

ANIMAL FORMS

A TEXT-BOOK OF ZOOLOGY

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P R E F A C E

THE present volume is designed to meet the needs of the beginning student of zoology. Accordingly, technical and scientific names have been avoided as far as possible, and those used are fully explained in the text or elsewhere. The opening chapters deal with the characteristics of living things, and, in contrasting animals and plants, attempt to bring into relief the distinguishing marks of all animals. Then follows a discussion of the cell and protoplasm, preparing the way for the examination of a series of animals representative of each of the great groups, from the simplest to the most complex. These are considered from the view-point of structure; but considerable attention is also paid to the functions of their parts, to their habits and life-history, so that while the representatives examined are, for the sake of simplicity, relatively few in number, they are, it is believed, thoroughly typical. Hence, with a knowledge of the facts presented, the student should have a broad view of the animal kingdom, and a foundation on which to base future study and observation. It is perhaps unnecessary to add that from the study of books alone no one can really make such knowledge his own. A personal acquaintance with even a few animals in their native haunts, and an understanding of the structure and the function of their

parts gained from dissection and experiment, is essential to a full comprehension of what the student learns from textbook and teacher.

The greater number of illustrations are new, and have been drawn or photographed from living or preserved material. When not otherwise accredited, the drawings have been made by Miss Mary H. Wellman and J. Carter Beard, to whom the authors extend their sincere thanks. Our obligations are also due to Mr. Walter K. Fisher, who has made the drawings of the vertebrate dissections; to Messrs. A. L. Melander and C. T. Brues, of Chicago, Ill.; Mr. Wm. H. Fisher, of Baltimore, Md.; Rev. H. K. Job, of Kent, Conn.; Mr. Wm. Graham, of Pasadena, Cal.; and Dr. R. W. Shufeldt, of New York city, for numerous photographs.

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