

**AN ELEMENTARY  
COURSE IN  
PRACTICAL ZOOLOGY**

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An Elementary Course in Practical Zoölogy by Buel P. Colton

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AN

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IN

PRACTICAL ZOÖLOGY.

BY

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## PREFACE.

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IN the entire absence of any handbook of zoölogy adapted to the grade of work in which he was engaged, the author began to draw up, for use in his own classes, simple guides to the study of a few common animals. After repeated tests in the class-room, and under the advice of a number of eminent teachers of the subject, it was decided to put the work into print.

The author takes this opportunity to thank those who have so heartily aided him in this undertaking.

Prof. Alpheus Hyatt, of the Boston Society of Natural History, has generously aided in preparing the book for publication.

Pres. D. S. Jordan, of Indiana University, has read most of the manuscript and proof-sheets, and has given many valuable suggestions.

Especial thanks are due also to H. Garman, Assistant-Professor of Zoölogy, University of Illinois, for corrections and suggestions on the entire manuscript and on the proofs.

Mr. B. H. Van Vleck, Assistant, Boston Society of Natural History, revised the manuscript on Echinoderms, Coelenterates, and Sponges.

As the proof-sheets appeared, from time to time, they were critically read by Prof. N. S. Shaler, Harvard

University; Mr. J. Y. Bergen, Jr., Peabody, Mass.; Prof. R. E. Call, Missouri Agricultural College and University, Columbia, Mo.; Mr. E. P. Jackson, Boston Latin School; Prof. L. M. Underwood, Syracuse University, Syracuse, N.Y., and other well-known teachers. In the preparation of the book, free use has been made of the works cited in the text.

To aid in the study of the marine animals, arrangement has been made by which schools may be supplied with sets of material put up at the Seaside Laboratory, Annisquam, Mass. A list of these specimens will be found at the end of this book. They may be obtained of Mr. B. H. Van Vleck, Assistant, Boston Society of Natural History.

It is believed that with the assistance above acknowledged, the book will be found fairly free from errors; but, for any mistakes it may contain, the author alone should be held responsible.

The author believes that he has encouraged only the most merciful methods of handling live animals, and he would strongly urge all teachers not to do anything that might lead to cruelty to animals.

The only way to know animals, is to see and to handle them; and it is sincerely hoped that the day is near when knowing an animal's name will not pass for knowing the animal itself. If this little book should do somewhat toward the improvement of methods of teaching zoölogy, the author will feel that he has not labored in vain.



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## INTRODUCTION.

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THIS work is designed to aid the student in getting a clear idea of the animal kingdom, as a whole, by the careful study of a few typical animals.

Most of the animals selected are abundant in the interior States, and are easily collected.

These guides to the study of animals have been used several years, and put into the hands of each pupil, together with the specimens themselves.

The general plan of study is as follows:—

1. Directions are given for collecting and preserving the specimens.
2. The live animal is studied.
3. The external features are noted.
4. The animal is dissected.
5. The development of a few forms is traced.
6. After studying each animal, its relations to other animals are considered (classification).

The aim is, not to describe for the student, thus robbing him of the opportunity to develop his own powers of description, but to name the parts, telling merely enough to enable him to recognize and apply the names to them. This makes a real connection between words and things.

It is thought best for the student to make many of the definitions for himself. A definition, thought out by the