SCIENTIFIC BOOKS

RECENT ZOOLOGICAL TEXT-BOOKS. II

DURING the first part of the year 1933 several new zoological text-books were published in the United States. These were apparently written to be sold to average teachers. On the whole, they are not as progressive and up to date as those now being produced in Europe. Most American writers appear to be concerned more with presenting a complete catalogue of facts than with giving their readers an interesting and inspiring picture of the present status of biology. No one in America to-day is producing such thoughtful and critical works as Agassiz, Cope, Parker and Haswell, Brooks, Lankester, Shipley, Harmer, Gadow, Calman, Imms and others have written. The present-day writers of text-books on the fundamentals of biology in Europe make little or no mention of the work of Americans, except in special fields such as genetics. Perhaps this is because the writers in the new world are not making an earnest effort to give thoughtful consideration to current biological progress.

Glossaries continue to present many careless, inadequate or improperly restricted statements and half truths which give students wrong ideas. For example, the word "artifact" is properly defined in one text as "a natural object modified by man, such as a stone implement," but another text limits the same word as "a formation seen in the cellular structure of stained sections due to the fixation process." In the same two works "ambulacral" is defined as "pertaining to the rows of openings through which the tube feet of echinoderms are extended; hence, ambulacral system of which the tube feet are a part," and as a "term applied to radial areas on echinoderms along which run the nerves and water tubes, and a series of tube feet."

In the last review[1] published the present writer made some careless and ambiguous statements which have been properly criticized.[2] An author's name is not a part of the scientific name of a species, but it "should be appended to the scientific name of an animal at least once in a publication using the name." The reviewer has received letters as a result of the published criticism cited[2] which express the view that the author's name *should* be a part of the name of a species, but it is not at present *required* by the "International Rules of Zoological Nomenclature,"[3] which should of course be strictly followed if zoological terminology is to progress. In regard to the capitalization of the names of genera, orders and classes, it is of course proper to capitalize them when they are used as scientific names, but when they are continually used as common names there is a growing tendency to begin them with small letters; *i.e.,* if *bacteria* is proper, why not *protozoa;* if *hydra,* why not *amoeba?* A change in the original spelling of a generic name is of course not permissible under any circumstances.

Perhaps this problem of terminology for the larger groups of animals will not ever be settled properly by having each author choose such terms as fulfil his ideals or suit his fancy, but should be subject to general action and agreement by zoologists.

Text-book of General Zoology. By W. C. CURTIS and MARY J. GUTHRIE. Wiley, New York, $3.75. 2 ed., xv + 588. 1933.

"The reduction of certain parts has made possible the addition of chapters upon phyla not included in the first edition and thus a more comprehensive survey of the Animal Kingdom, without undue restriction of the chapters dealing with general terminology." The writers believe that "college and university instruction must have a certain regard for the existing organization of subject-matter, for example, for Zoology as conceived by zoologists," and therefore have attempted "to give the student what he must know in order to understand something of the subject," rather than to give him "what he thinks he wants to know and can obtain in a way that takes little effort." The book begins with a consideration of definitions, history, systems of classification and scientific methods. The introduction is followed by chapters on the natural history of vertebrates, organ systems related to metabolism and irritability, structure and activities of cells, reproduction and development, heredity and variation, classification and organization of animal groups, Protozoa, Porifera, Coelenterata, Platyhelminthes, Nemathelminthes, Molluscoidea, Trochelminthes, Annulata, Mollusca, Echinodermata, Arthropoda and the history of organisms. The " 'project' in the first part of the work is to teach the student something of the principles of Zoology as illustrated in his own type of animal body; the 'project' in subsequent chapters is to teach him how other animal bodies may be compared with his own and to impart some of the many interesting facts about animals." The text is intended for use in a course in which the frog plays an important rôle in the laboratory.

Elements of Biology with Special Reference to Their Rôle in the Lives of Living Animals. By JAMES WILLIAM BUCHANAN. Harper, New York. $3.00. xxii + 478. 1933.

The object of this text is "to impart such principles and concepts as will enable the student to appreciate

[1] SCIENCE, 77: 169–172, 1933.
[2] SCIENCE, 77: 389, 1933.
[3] *Proc. Biol. Soc. Washington,* 39: 75–104, 1926.

the unity in Nature and the place of living organisms, including Man, in that unity; to instill an understanding of the major laws that govern living organisms and a recognition of the operation of these laws in determining broad social and economic controls in human society; to impart useful information and information of such a character that a habit of observing caution in the face of all forms of scientific and intellectual quackery will be developed. A fourth objective that is self-evident and one which General Biology holds in common with other academic disciplines is the development of student power of clear and logical reasoning based upon accurate observation of established facts. . . . An attempt is made here to develop just so much of the principles of Chemistry that at the very start the student is indoctrinated with the concept of Mechanism and establishes as a point of departure the First Principle, that life is dynamic." The twelve chapters discuss the nature of life and living materials; cells; unicellular and multicellular plants and animals; order among animal types; structure and function of multicellular animals; reproduction and development; growth, age, and death; heredity; the organism and its environment; the history of life and its interpretation; and the general aspects of the science of biology. The figures in this book are generally quite good; the writing impresses the reviewer as being verbose and careless.

A Text-book of General Biology. By E. GRACE WHITE. Mosby, St. Louis. $3.00. ii + 615. 1933.

This text-book for a course in general biology has been "written with the conviction that a text-book should do more than repeat the work of the classroom. It should contain material to clarify and amplify discussion; it should provide sufficient descriptive detail for reference and comparison; and it should give the beginning student glimpses of many possible fields for future specialization. . . . Throughout the book structure has been handled apart from function. In the course as presented by the writer the physiological material is discussed in the classroom, and the morphological material is handled in the laboratory, the book serving as a laboratory guide." The book is divided into three sections: (1) "The Unity of Life," in which a grasshopper, a green plant, life and cells are discussed; (2) "Progressive Organization in Animals and Plants"; and (3) "Problems of Biology"—metabolism, protoplasm, cells, sex, adaptations, heredity and evolution. Many strange statements are made in this book: abdominal [*sic*] segments are said to be present in Apus but absent in Branchipus (p. 333); the excretory organs of Malacostraca are affirmed to be green glands on the antennae (333); the coelom of Nemathelminthes is said to be an outgrowth from the archenteron (336); "antirhachitic, opposed to the formation of rickets in bones" (542); "anaerobe, a bacterial type using oxygen released by its own activity from inorganic compounds, and so capable of existing in the absence of air" (541); etc. Apparently the author has a limited view of many aspects of biology or is careless in thought and expression.

Invertebrate Zoology. By ROBERT WILHELM HEGNER. Macmillan, New York. $3.75. xiii + 570. 1933.

This is an expansion and modification of an "Introduction to Zoology" by the same author, who is a well-known writer of zoological text-books. It contains detailed accounts of various types of invertebrates in systematic order. The physiology and behavior, as well as the morphology, of invertebrates are discussed. Some new, and perhaps questionable, usages in terminology are introduced: *e.g.,* the use of "organs" and "systems" for parts of protozoa; the occurrence of "reflex types of reactions" in protozoa. The book gives a relatively complete and modern account of invertebrates.

An Introduction to the Vertebrates. By LEVERETT ALLEN ADAMS. Wiley, New York. $3.50. v + 414. 1933.

The book presents "first, an outline of the characteristics on which the modern system of classification of chordates is based; second, a general view of each of the five classes—fishes, amphibians, reptiles, birds, and mammals—with particular reference to representatives used in the laboratory; and third, a comparative analysis of anatomical systems and specialized structures." It appears to be original, interesting and scientific.

A Guide to Human Parasitology for Medical Practitioners. By D. B. BLACKLOCK and T. SOUTHWELL. Williams & Wilkins, Baltimore. $4.00. vii + 271. 1932.

This book attempts to present briefly the essentials of parasitology which will be useful to medical practitioners. It considers the parasites in various groups of animals in systematic order. It contains chapters on the examination of materials, treatment and apparatus generally used in the study of parasites. There is also a series of diagrams illustrating life histories. One chapter is devoted to tables which show geographic distribution; parasites which man may acquire from water and other foods, arthropods, snails, feces and soil; stages of parasites infective

for man and where found; and a summary of diagnostic features of parasites. In some cases a limited or partisan point of view is presented; *e.g.* (p. 169), the statement is made that *Ascaris lumbricoides* L. occurs in pigs and man, which ignores the work of Mrs. Caldwell, Schwartz and other parasitologists in the United States.

Plant and Animal Ecology. By J. W. STORK and L. P. W. RENOUF. Murray, London. 5 s. x + 197.

A little book which should be useful to those who have had limited training in biology but who are interested in outdoor life.

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DUKE UNIVERSITY

SOCIETIES AND MEETINGS

THE NEW HAMPSHIRE ACADEMY OF SCIENCE

THE fourteenth annual meeting of the New Hampshire Academy of Science was held from June 2 to 4, 1933, at Glen House, at the eastern base of Mount Washington.

Interest in the meeting centered about the Mount Washington Observatory, which has been maintained since last October on the summit at an elevation of 6,284 feet. The observatory cooperated with the International Polar year and with the Blue Hill Observatory of Harvard University. It was aided by a grant from the academy.

Mr. Joseph B. Dodge, director, spoke on "The Organization of the Observatory." Mr. R. S. Monahan, one of the observers, gave an illustrated talk on "Some Experiences on the Summit," and Professor Charles F. Brooks, of Harvard University, discussed "The Scientific Value of the Mount Washington Observatory." Several members made the trip to the summit and inspected the equipment of the observatory.

Other papers of major interest were "Cosmic Rays," with demonstrations by Professor G. F. Hull, "Bacterial Variations," by Professor K. N. Atkins, and the presidential address on "The Chemistry of the Atom," by Professor N. E. Gilbert, all of Dartmouth College.

The following officers were elected for 1933–34: *President,* Mr. Samuel P. Hunt, Manchester; *Vice-President,* Mr. Henry S. Shaw, Exeter; *Secretary-Treasurer,* Professor George W. White, department of geology, University of New Hampshire; *Member of the Executive Council,* Professor Norman E. Gilbert, department of physics, Dartmouth College.

THOMAS G. PHILLIPS,
Retiring Secretary

SUMMER MEETING OF THE MINNESOTA ACADEMY OF SCIENCE

WITH an attendance of 125, the reorganized Minnesota Academy of Science held its first annual summer meeting on the farm of Dr. R. B. Harvey, in the St. Croix River Valley near Stillwater, Minnesota.

Following a short business meeting for the election of new members the following papers were presented.

"Anthropology of the St. Croix," R. D. Brown, University of Minnesota.

"Things of Interest in the Geology of Central Minnesota," Professor Geo. A. Thiel, University of Minnesota.

"Animal Life in the St. Croix," Professor Samuel Eddy, University of Minnesota.

"Flora of the St. Croix," Professor A. H. Larson, University of Minnesota.

The afternoon was devoted to field trips of interest to all. Two Indian caves containing remnants of pottery were visited first. Plants and animals encountered were discussed. From the caves, the party visited two Indian burial mounds which had been excavated by members of the academy. Two skeletons, estimated to be from 400 to 500 years old, and a number of fragments of pottery were found. The third excursion was to view a number of well-preserved Indian pictographs on the sandstone bluffs of the St. Croix River.

Much enthusiasm was evidenced by the members and it is planned to make the summer meeting an annual affair, meeting in different sections of the state, where objects of scientific interest are available.

SCIENTIFIC APPARATUS AND LABORATORY METHODS

A MICRO VESSEL FOR GLASS ELECTRODE DETERMINATIONS OF HYDROGEN-ION ACTIVITY OF BIOLOGICAL FLUIDS

INVESTIGATIONS of the hydrogen-ion activity of body fluids of insects during metamorphosis by means of the glass electrode have led to the development of a micro vessel which may be filled by approximately 0.03 cc of fluid and which prevents errors due to the loss or addition of gases such as CO_2. The vessel is of simple construction and it permits the manipulations to be made easily and quickly. It is used in combination with a glass membrane mounted on a tube according to the method of MacInnes and Dole[1]

[1] D. A. MacInnes and M. Dole. *Jour. Am. Chem. Soc.,* 52: 29, 1930.