Book reviews

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BOOK REVIEWS

BIOLOGY

That biology as a unified subject, in contrast to botany and zoology as separate sciences, is continuing to make progress and its advocates are endeavoring to meet the pedagogical needs of teachers of various teaching views, is evidenced by the recent appearance of three new texts within the field. These texts are, Wheat and Fitzpatrick's "Advanced Biology"; Plunkett's "Outlines of Modern Biology," and Scott's "Science of Biology."

The first of these texts is designed for an advanced course in secondary schools. The primary emphasis in the book is placed upon biological principles particularly as they are related to human welfare. Sixteen of the fifty chapters are devoted to human physiology and hygiene, twelve are devoted to bacteria and disease, and thirteen to reproduction, heredity and evolution. The authors have succeeded in presenting their material in such a clear and interesting manner and yet have handled such difficult (for secondary schools) materials as chromosome mechanism of heredity, Mendelian behavior, mutations, etc., that one could well wish that every boy and girl might use it as a guide toward a real appreciation of biology and a proper understanding of the laws of reproduction. The book ends with several valuable appendices. It is to be regretted that the table on foods does not contain information on vitamins in addition to the other information presented.

The second of these texts is a college book which has as its central concept the living organism as a physicochemical mechanism. Treatment of subject matter represents a complete departure from the usual phylogenetic or taxonomic order of consideration.

The nature of the physiological principles themselves determines the order of consideration, rather than degree of complexity of structure of organisms presenting them. One chapter each is devoted to reproduction of the entire range of multicellular plants and multicellular animals, so that the student will hardly develop an "organism-as-a-whole" concept.


The chapters dealing with heredity, development and evolution are very well done and go far toward developing the conception of plant and animal physiology as a unity and thus justifying biology as a science. The problems involved in reaching definite conclusions regarding the origin of life are presented in a very admirable manner in the closing chapter.

The third of these texts presents the material primarily in three sections. The first section deals with the biology of plants and the second with that of animals. In each of these sections morphology and reproduction are considered first and types are chosen representing the entire phylogenetic range in each kingdom. Following the morphological treatment, the physiology of plants and animals is considered in their respective sections.

Section three deals with general biology and, after a treatment of the morphology and physiology of the cell, chapters on embryology, histology, comparative anatomy, reproduction, physiology of organisms as a whole, genetics and evolution follow, with a final chapter on the biology of man. This text will make its appeal to teachers who prefer a phylogenetic consideration as the framework upon which all other principles may be built.

EDUCATIONAL BIOLOGY

That educationists have recognized the value of biology as fundamental in laying the foundation and creating the proper perspective in the preparation of teachers, is indicated by the appearance of two excellent texts in this field, viz., Eikenberry and Waldron's "Educational Biology" and Atwood and Heiss' "Educational Biology." These books are written primarily for students in their first year of college or normal school training for the teaching profession, but both contain such a wealth of biological information, so interestingly said, that they are well worth consideration by all who wish to know something of the spirit and contribution of modern biology to present-day civilization in general and the handling of educational, sociological and hygienic problems in particular.

1EIKENBERRY, W. L., and R. A. WALDRON. Educational biology. pp. vii + 149. figs. 236. Bos­
ton: Ginn & Co. 1930.
The latter text will probably make its appeal more to the teacher who is first a biologist and second an educationist, while the former will probably do the reverse. By this is meant: the latter follows the type method of presenting material which in the very nature of the case lends itself to a greater degree of biologically logical continuity from chapter to chapter, while in the former principles and life processes form the ground plan of organization and the material is therefore more physiological than anatomical, and hence, in the very nature of the case, the concept of organisms as a whole, and consequently phylogenetic continuity, are lacking.

But when one notes the purposes for which the books were written, viz., to create biological atmosphere and viewpoint in educational work and not to prepare students for advanced biology, we must say that the authors have done their work well, even though very different methods are employed.

**COLLEGE TEXTBOOK OF BOTANY**

Mottier’s College Textbook of Botany for First Year Students is unique in several ways. It has probably the best account of diatoms, red algae, brown algae and the liverwort Anthoceros that can be found in any general botany text written in the English language. However, there is practically no information on such topics as heredity, evolution, the nature and method of plant classification, the relation of botany to other sciences, and ecology. Students and teachers can find in it useful information and illustrations which are not to be found in other general texts. For example, the following points are considered in more than usual detail: Cell division in Oedogonium, probable function of pycniospores in *Puccinia graminis*, methods of cell formation in plants, colloidal character of protoplasm, function and position of scales in the gametophyte of Marchantia. The chapters on the cell, the leaf, the root and the stem do not bring out any relationship between structure and function, while the chapters on the plant groups are lacking in diagrams of life cycles. Mottier’s book is an excellent reference text, and for many colleges it may represent the most suitable one for regular classroom work.

GREEN MAGIC

Julia Closson Kenley' in “Green Magic” brings to the plane of the child in a most interesting style the fundamentals of plant habits, structures and behavior. Seeds, leaves, stems, roots and flowers, with their parts and functions, are well discussed, together with many variations occurring in these organs. The subject of protoplasm is well presented, such as to impress any child with the fact that it is the basic substance of all life. The book will meet a very distinct need in its attempt to awaken and develop the powers of observation and stimulate in children an interest in nature.

NATURISTS

“American Naturists,” by Henry Chester Tracy', is a collection of semi-biographical sketches of twenty-one well-known nature writers. The appeal is made to us to recognize the unique character of our own American nature literature.

The author distinguishes as “naturists” those who feel and enjoy nature and write of it from the standpoint of literature and philosophy of life, in contrast to “naturalists,” who write of it in terms of pure science. This distinction seems unnecessary, but is doubtless due to the author’s thinly veiled feeling against pure science.

The book will be interesting to the scientist because of the history it reveals in the development of natural science and the debt science owes to these early students and lovers of the great out-of-doors.

PLANT PHYSIOLOGY

All students of plant physiology, both teachers and research workers, will welcome Barton-Wright’s “Recent Advances in Plant Physiology.” This volume will be of immense value to the instructor attempting to keep his lecture notes up to date, because the material is very well organized and logically arranged in nearly the same order which the average instructor would use for the classroom presentation of his lectures. It will be of equal value to the advanced student and research workers.


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ROCK GARDENS

All who love flowers, and particularly the rock garden, will welcome Henry Correvon's latest contribution, "Rock Gardens and Alpine Plants." This is not a translation of a previous volume, but an entirely new work written in English and specifically for American plant lovers. Garden lovers need no introduction to M. Correvon, and his volume will be of special interest not only to the amateur and professional, but also to the botanist, horticulturist and field worker as well.

He lists alphabetically the names and discusses the uses of ferns, orchids, hardy cacti and other plants for the rockery, wall or alpine.

THE PROTEASES OF PLANTS

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garden. The volume constitutes a very real contribution to floriculture and fills a long felt need in America.

ROSES

Those who are interested in roses will welcome McFarland’s “Modern Roses.” This volume will be of immense service to every grower, dealer and breeder of roses, as well as to those who love them on their table as cut flowers. It contains 2,511 variety descriptions, with forty-eight color and thirty-one sepia plates. This is a monumental work in rose pedigrees, and a very great debt is owed its author for his enormous labors in compiling it. Every variety is described in uniform terms, including its type, originator, parentage, date of origin and a description sufficient to identify it from others, as well as notes on hardiness, culture, susceptibility to disease, vigor of growth and season of flowering. In the appendix is given a long alphabetical list of rose originators and introducers.

TAXONOMY

The student and teacher of taxonomy will welcome Pool’s new contribution to the field of systematic botany. This comes in the form of a textbook for courses in plant classification. The material is logically arranged and very well organized. The first eight chapters deal with the necessary foundation material by way of the structure and behavior of flowers, fruits and seeds, and types of inflorescence. In this consideration floral diagrams are explained and their value emphasized, and there is added a very ingenious, interesting and convenient system of formulae or, as it were, shorthand descriptions of families. Later in the volume this is used as a “short cut” key to families. This scheme of family formulae and their use for diagnostic purposes represents a new and interesting departure in plant identification.

Four chapters are devoted to history and principles of classification and twelve chapters to a consideration of selected orders and families. A valuable feature of the book is the very extensive list of references to taxonomic literature given in the final chapter. The book is not only well written from the author’s standpoint, but the printing and figures are also very well done.
