

simple. The organs in the abdominal cavity were very difficult to distinguish because of the blending of their red colors.

## Book Reviews

All unsigned reviews were made by the Editor.

### Biology

LABORATORY EXERCISES IN THE PRINCIPLES OF BIOLOGY, Thomas R. Mertens and Jeanette C. Malayer, 124 pp., Burgess Publishing Co., Minneapolis, Minnesota, 1966.

The explosive growth of knowledge in the biological sciences and the related efforts in the area of curriculum development, particularly at the secondary and elementary school levels, is beginning to affect the teaching of biology in the colleges. All but the most insensitive instructors in freshmen courses have become embarrassingly aware that the classical laboratory approach, built on demonstration and verification, is a distinct let-down for students accustomed to a more dynamic approach. This is the experience of students who have taken BSCS or BSCS-influenced courses in the better high schools. In many institutions, however, the task of providing college level laboratory experiences, as dynamic as these high school courses and characterized by the spirit of inquiry, poses numerous problems with which the inexperienced instructor (the one too frequently assigned to beginning courses) finds it difficult to cope. He is often hampered by increasing enrollments, restricted operational budgets, and modest facilities. Most of the available laboratory manuals available to him for beginning courses are either hopelessly traditional, or they present activities which demand costly equipment and elaborate preparations.

It is encouraging to note that this book offers a means of making the laboratory program of a two-quarter or one-semester course in beginning biology interesting and meaningful on a modest budget. Influenced by the BSCS and CUEBS efforts and attitudes, the authors have produced a manual in which the exercises are straightforward, easy to follow, and should encourage an inquisitive attitude on the part of the student.

Although I personally do not like the workbook format and wish that the exercises had been made open-ended, I appreciate the authors' attempt to build the activities around thought-producing problems. Of course, a few minor criticisms, of which one or two examples will suffice, can be leveled at a number of the exercises. In Exercise I, on the use of the microscope, I find unnecessarily awkward the

method described for estimating true size of an observed object. For a dollar, a simple eyepiece micrometer can now be purchased from at least one biological supply house. By the use of this micrometer, an object can be measured directly and rapidly in microns, eliminating the need for more complicated methods of estimating true size. If a simple micrometer is not available, the diameter of the low-power field of view of most microscopes can be measured directly with a plastic rule and thereafter used to estimate actual size of objects with surprising accuracy. In another exercise, I notice the term protoplasm is still employed as designating living substance. The authors might have simply talked about the chemical constituents of cells rather than employing this out-dated concept. Similar minor modifications could be suggested at places throughout the manual, but in general, it is one which should find wide acceptance.

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### Botany

PLANT DIVERSIFICATION, Theodore Delevoryas, 145 pp., \$2.25, Holt, Rinehart and Winston, Inc., New York, 1966.

A paperback in the publisher's *Modern Biology Series* and this one devoted to an evolutionary history of plants. This implies a heavy emphasis on paleobotany; yet the author carefully weaves this knowledge into current morphological information in such a way as to present quite a coherent and smooth reading account of the evolution of plants. Absent are the many pictures so traditional in this type of treatment and fresh ones have been substituted.

Chapters take up algae, fungi (achlorophyllous), vascular plants, flowering plants, and a paleobotanical summary. There has been no reduction of terminology.

This is an interesting book on aspects of plants which are often relegated to backs of general texts or in brief introductory statements. A fine reference.

ABOUT PLANTS, Topics in Plant Biology, F. C. Steward, 174 pp., \$2.95, Addison-Wesley Publishing Company, Reading, Massachusetts, 1966.

Paperback by a well-known plant physiologist and dealing with this subject. The author indicates he dictated the manuscript, but the wealth of detailed information rather belies this statement if it were a casual dictation. The illustrations are superb, especially the diagrams. Of course, there is an index and bibliography.

The author disclaims any intention of covering the entire subject, and thus what he chooses to emphasize is significant. Of particular interest to this reviewer is the very fine expositions on water movement and photosynthesis. Other topics are cells, physical basis of life, nutrition, metabolism, respiration, and growth and development.

All in all, biology teachers at both secondary and collegiate level would do well to read carefully this book. The style is interesting, replete with historical allusions and "amazing facts." And its use in our elementary or advanced botany course seems to be good possibility.

MICHIGAN TREES, Rev. Ed., Charles Herbert Otis, 362 pp., \$2.75, University of Michigan, Ann Arbor, 1965.

This very famous book, now in its sixteenth printing, is in the traditional form of its original edition. However, the fact that it is now in a paperback form, and through as many printings as that, indicates the great usefulness and popularity of the book. It is a book which is familiar to biology students throughout the country for the identification principles which it teaches for the trees usually found in the Midwest.

It is handsomely bound, and should prove successful for many further editions.

A POCKET GUIDE TO TREES, HOW TO IDENTIFY AND ENJOY THEM, Rutherford Platt, 256 pp., 75¢, Washington Square Press, New York, 1952.

A paperback, inexpensive, book almost completely devoted to the identification of various trees throughout the United States. There are no full color illustrations, but there are many photographs and each species has some type of line drawing in connection with it. The groupings of the trees are rather interesting, ranging from standard family groupings, e.g., the ashes, oaks, etc., as well as trees to be found in the city, California, the deep south, etc.

This is one of the very fine books in this series which are so inexpensive and yet so authoritative. Although published some time ago, recent reprintings have made this entire series one of the must items for the shelves of instructional areas of biology, but beyond that, the type of book which students can find inexpensive to purchase for their own use.

AN ANNOTATED BIBLIOGRAPHY OF MEXICAN FERNS, George N. Jones, 297 pp., \$5.00, University of Illinois Press, Urbana, 1966.

As the author states in the introduction, "—this publication is to provide a useful bibliography of the principal literature pertaining to Mexican

Ferns". Dr. Jones has achieved his purpose and prepared an excellent companion volume to Langman's, *A Selected Bibliography of the Flowering Plants of Mexico*.

The book is well organized and printed in clear, legible type; however, some difficulty is encountered in separating annotations from citations. Typographical errors seem to be kept to a minimum, although such errors are difficult to find in literature lists. In addition to the bibliographical citations, the author has included a list of abbreviations of periodicals, an index by subject, an index to plant names, and an index to personal names.

The list of abbreviations of periodicals, for the most part, follows the suggestions for literature citations in the *International Code of Botanical Nomenclature*, but Jones has added some innovations of his own. Unfortunately, several errors have been incorporated in the periodical list. At least seven journals are cited which are not included in the list of abbreviations; *Bibliotheca Botanica* is listed without an abbreviation, but is abbreviated *Bibl. Bot.* in the text; *Mem. Congr. Cient. Mex.* is abbreviated, but the full name is not spelled out; the abbreviation *Bot. Centralbl. Beih.* is given in the periodical list but the reference is reversed to *Beih. Bot. Centralbl.* in the text. *Science Progress* is noted as 1894-1898 in the literature list, but the reference is given as 1962. This last is not a typographical error, because there are two publications titled *Science Progress*.

In the introduction the author states that this bibliography is not complete, but I found very few citations which have been omitted. It is, however, questionable why certain entries were included, as for example, *Biological Abstracts*, and *Botanisches Centralblatt*. Further the author has annotated some references with the comment that no ferns are included (Bano, 1911; Shreve 1952); he also has neglected to add annotations to several references (Velasco, 1870; Verdoorn, 1937; Wagner 1952).

The practice of using *Op. Cit.* for references and the dash for authors names where several pages of references are involved becomes annoying. To determine where W. R. Maxon published his "Notes upon Bommeria and Related Genera," you must look back nine references and three pages to determine that *Op. Cit.* refers to *Cont. U. S. Nat. Herb.* For the same author 75 references are listed on 16 pages with the author's name presented only once. It would have been helpful to have the name of the author at the top of each page. Jones is not consistent in the use of the dash because on page 13 Bell is written for each reference, again on page 20 the name Boodle is repeated as is Gentry on