

common in all crowded restaurants—that walls are not necessary for intensive conversation. How the sciences fare under this idea is an interesting story.

All science teachers planning facilities should inspect these books.

General Biology

TRIUMPHS OF BIOLOGY, Phillip Goldstein, 304 pp., \$4.95, Doubleday and Company, New York, 1965.

This is an unusual treatment of the history of biology by a practicing high school biology teacher well-known for previous publications and his role in NABT. The author takes passages written by famous researchers, incorporating them into a chapter describing the development of a specific field of knowledge in biology. It is an unusual combination of a source book of readings with ample treatment from the author putting each of the readings in an appropriate context.

The areas covered include the hydra, sickle-cell anemia, color blindness, genetics, parthenogenesis, and some interesting biochemical discoveries in genetics. The treatment of genetics is not strictly an historical one for the author starts out with modern discoveries working backwards toward the days of Mendel and beyond. The only illustrations are line drawings.

This is a very interesting book to read and should appeal to the general public and the high school student, even though he is not involved directly in biology. It is the type of book which one gives a student to expand his knowledge without getting into a great deal of technical terminology, but it does imply some previous knowledge of biology. A most interesting book and one that could be classified under the general heading of the popularized biology book.

Botany

THE STORY OF THE PLANT KINGDOM, 3rd Ed., Coulter and Dittmer, 467 pp., University of Chicago Press, Chicago, 1964.

This book surveys the plant kingdom in a classical manner. It is remarkably well illustrated with excellent photographs and drawings. The text is simply and clearly written. It covers the material in a manner that should be interesting, understandable, and valuable to either the beginning botany student or as a review and reference for the more advanced student.

This book should be a good textbook or a

welcome addition to the library of the botany student.

Jeanette C. Malayer
*Ball State University,
Muncie, Indiana*

Zoology

ANIMAL BEHAVIOR, Niko Tinbergen, 200 pp., Time-Life Nature Library, New York, 1966.

The juxtaposition of the title of the book with the author is evidence enough of the very fine and amazing treatment which is described in it. This is another one of the remarkable Nature Library Series produced by Time-Life, Inc. Therefore, biology teachers would be well advised to look through each of these, and in particular this one.

The author, with his amazing background in this field, has produced a summary of our knowledge of animal behavior which is almost the classic example of how a difficult and widely ramifying subject can be brought into focus for interesting as well as quite informative reading. He divides his treatment into: sense organs, machinery of behavior, location, instinct vs. learning, living together, and the evolution of the behavior. Of course, the illustrations are striking and there is a full bibliography and excellent index. There is a great deal of textual material by Tinbergen, and he writes in a fascinating way which will keep the reader at the text as well as the illustrations. He is not above giving full credit to some of the many workers in this field, and his description of their research is unusually good.

In particular, his treatment of vision is excellent and one which this reviewer has not found in other books. Again, the treatment is one which will appeal to the researcher as well as the layman, and for the biology student and teacher, there are innumerable project ideas.

A real must for the biology teacher and his students.

MODES OF REPRODUCTION IN FISHES. Charles M. Breder, Jr. and Donn Eric Rosen, 941 pp., The Natural History Press, New York, \$17.50.

This book offers a complete review and summary of all published literature on breeding season, breeding site, migration, secondary sex characters, sex discrimination, competition for mates, courtship, mating and parental care in all living members of lancelets (Branchiostomidae), hagfishes (Myxiniidae), lampreys (Petromyzontidae), sharks, skates and rays (Elasmobranchii) and more than 200 families of the bony fishes. The last 231 pages with about 4600 literature references represents the most exhaus-

tive bibliography ever published on this subject. The entire content of the book is lucidly and concisely summarized on 55 pages by means of diagrams of characteristic members of all fish families which have been arranged according to the newest phyletic classification by Greenwood et al. (1966).

The style and approach is encyclopedic. Much information is given as direct citations from the original authors. One drawback of this approach is the uncritical incorporation of unreliable information originating from popular aquarium journals. The proper balancing of the great wealth of consulted literature has been successfully achieved with a few exceptions e.g., the popular account by Moody on the reproductive behavior of *Betta splendens* is given much more space and emphasis than the scholarly works by Lissmann and Braddock. Although this work is remarkably complete a few omissions have been found, e.g., the reproductive behavior of the Luciocephalidae is listed as unknown. In 1952 M.W.F. Tweedie found *Luciocephalus* to be a typical oral incubator. A few of the generic and specific names need some updating. *Symbranchus*, *Fluta alba*, *Ctenops vittatus*, *Ctenops pumilus*, and *Trichopodus pectoralis* should be replaced by respectively, *Synbranchus*, *Monopterus albus*, *Trichopsis vittatus*, *Trichopsis pumilus* and *Trichogaster pectoralis*. These few weaknesses, however, are over-shadowed by the great wealth of information and scholarship of the total content of this book, which may become the principal guideline for future research in this field. The content of this book leaves no doubt concerning the versatility and broad scope of the authors. This, unfortunately much overpriced, book is a valuable addition to the ichthyological and ethological literature, and one in which both authors may justifiably feel pride.

Karel F. Liem
Field Museum of Natural History
Chicago, Illinois

REPRODUCTIVE PHYSIOLOGY, A. V. Nalbandov, 316 pp., \$7.50, Freeman Press, New York, 1964.

This book contains 12 chapters dealing with almost every aspect of reproductive physiology. Beginning with the biology of sex, the author discusses such topics as the structure of the male and female reproductive systems, the endocrinology of reproduction, pregnancy, parturition, lactation, fertility, and sterility.

The book does not limit itself only to mammalian reproductive processes but also discusses the reproductive system of birds. It is not a

comparative textbook, however, because there is no attempt made to discuss reproduction in lower invertebrates and vertebrates.

The scope of the book allows it to be used as an introductory text not only for the beginning student whose knowledge of biology is limited, but also can be used by the more advanced student.

There is one serious disadvantage in using this book. The author has taken great care to mention that he has intentionally minimized the use of references so that the book would read easier. He has, however, carried this procedure to an extreme and thus makes it difficult for the more advanced student to obtain additional information about a specific subject area. To compound this difficulty, in some places he mentions investigators without referencing where their work appears.

John H. Dustman
Northwest Campus,
Indiana University
Gary, Indiana

GENERAL AND COMPARATIVE PHYSIOLOGY, William S. Hoar, 815 pp., \$15.50, Prentice Hall, Inc., Englewood Cliffs, New Jersey, 1966.

This is one of the most exceptional books in its field. The author has successfully integrated the molecular basis of physiological phenomena with both its evolutionary development and its gross function.

The book is divided into 4 general sections: Sources of Energy and its Distribution; Environmental Relations; Nervous Integration and Animal Activity; and, Reproduction and Growth. Each section is further divided into chapters dealing with specific functions in animals.

The scope of the book is not limited to vertebrates but rather concerns itself with all animals, from the lowliest protozoan to man himself. The copious use of historical references gives the reader a basis to understand the development of each concept.

The author has not, like many other books in this area, overburdened the reader with page upon page of tabulated data but instead has presented the most pertinent information in a clear and concise manner with adequate documentation for additional readings in selected areas. The book, therefore, reads as a textbook rather than as a dictionary of facts.

John H. Dustman
Northwest Campus,
Indiana University
Gary, Indiana