

PHOTOPERIODISM IN ANIMALS, Donald S. Farner, 36 pp., Subscription \$4.00 yearly, D. C. Heath and Company, Boston 16, Massachusetts, 1964.

Another one of the BSCS pamphlet series. The aspect of photoperiodism as it is exemplified in plants is rather well discussed in a great deal of literature. However, the implications of this phenomenon for animals is not as widely known. This pamphlet fills a real void in this area, and the author has skillfully woven a great many illustrations to prove his point. Obviously, birds are a most important case in point, and the author makes the fullest use of this excellent example of the effect of photoperiodism. However, there are many citations to other examples from other parts of the animal kingdom. All in all, this is one of the better booklets of the BSCS series.

Human Biology

APPLIED HUMAN BIOLOGY FOR NURSES, William C. Fream, xi 408 p. \$5.75, Williams and Wilkins, Baltimore, 1964.

This book was written for student nurses in the United Kingdom, and its market in the United States will be somewhat limited. Physiological processes are discussed in a clear cut, elementary manner, and some diseased conditions are described along with their relation to normal physiology. The author has attempted to give a biological slant to the book by adding discussions of the comparative physiology of organisms other than man. These parts of the book tend to be very elementary and suffer from oversimplification.

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HANDBOOK OF PHYSIOLOGY. SECTION 4: ADAPTATION TO THE ENVIRONMENT, D. B. Dill, Section Ed., ix 1056 p. \$32.00. American Physiological Society, Washington, D. C. (Distributed by Williams and Wilkins, Baltimore, Md.) 1964.

The *Handbook of Physiology* will, when completed, be a comprehensive survey of present-day physiology. The first three sections were devoted to neurophysiology, circulation, and respiration. Other organ systems will be considered in subsequent volumes. The volume reviewed here has an approach that is different from those that appeared earlier in that it deals with functional entities such as the adaptation to temperature, pressure, and other environmental factors.

There are sixty-three chapters, each written by one or more specialists. The first three chapters give a general background. Of these,

the chapter by C. Ladd Prosser on theoretical aspects of adaptation is particularly good. The fourth chapter is on the cellular level of adaptation followed by eleven chapters on organ-systems in adaptation. An example of one of these is the one on adaptation in the cardiovascular system by S. M. Horvath and C. D. Howell. It covers responses to heat, diving (the hypodynamic states), exercise, high altitudes, and cold.

The rest of the volume is devoted to the principal environmental factors and the adaptive processes in representative organisms. For example, there are eight chapters on terrestrial animals in cold. The representative animal groups in cold environments that are discussed are the arthropods, reptiles, birds and mammals, hibernators, primitive man (two chapters), and modern man in polar regions. Similarly, there are groups of chapters treating terrestrial animals in dry heat and in humid heat, animals in aquatic environments, animals in toxic environments, animals at high altitudes, and others. Each chapter has an extensive bibliography, and there is a comprehensive index to the entire volume.

This section should broaden the audience for the *Handbook of Physiology* to include animal ecologists and other zoologists who had not expected this kind of an approach to physiology in this treatise. As a reference on adaptation and as a source of information on a wide range of topics, this book should be on the shelves of college and university libraries.

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RETENTION OF FUNCTIONAL DIFFERENTIATION IN CULTURED CELLS, Wistar Institute, Symposium Monograph No. 1, Vittorio Defendi, Ed., 116 p. \$5.00, Wistar Institute Press, Philadelphia, 1964.

THE THYMUS, Wistar Institute Symposium Monograph No. 2 Vittorio Defendi and Donald Metcalf, Eds. 145 p. \$5.00, Wistar Institute Press, Philadelphia, 1964.

The first of these monographs is a series of papers on differentiation presented in honor of Margaret and Warren Lewis whose work on tissue cultures has extended throughout much of this century. Following a tribute to the work of the Lewises, there are ten papers on differentiation of cells in tissue cultures. Hormone synthesis, gene action, antibody response, and other cell functions are among the subjects treated.

The second monograph deals with modern research on thymus function. The relation of the thymus to other lymphoid organs and its im-

munological function are discussed. The question of whether the thymus affects other lymphoid tissue through a humoral control, or whether its primary function is to serve as a source for lymphoid cells for other tissues are treated in detail.

In both of these monographs the papers are well illustrated and well documented. Following each paper there is a transcript of the discussion by the participants in the symposium.

In addition to the obvious value of these monographs to workers in the subjects covered, this series should have an important role as a teaching tool for advanced undergraduates. The monographs will provide the students with related original sources describing current research. For use in conjunction with courses, it is a real advantage to have these papers in a single volume rather than for students to have to use papers scattered in a number of periodicals.

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SEXUAL DEVIATION, Anthony Storr, 139 pp., \$0.85, Penguin Books, New York, 1964.

A small paperback which attempts to inform the reader of various forms of sexual deviation in the classical meaning of the phrase. The author attempts to show that deviations can be looked at through the eyes of a biologist as well as that of the psychiatrist in arriving at calm and dispassionate views on the subject. The book is remarkably free from a great deal of technical language, but a high level is sustained throughout.

PHYSIOLOGICAL PSYCHOLOGY, Daniel P. Kimble, 184 pp., Addison-Wesley Publishing Company, Inc., Massachusetts, 1964.

A programmed book in a subject representing the new emphasis in psychology, and an emphasis of considerable interest to biologists. This book represents the real changes going on in psychology as the biology of nerve transmission, learning, and behavior, with all the new biochemical information, is gradually developed. It would pay the biology teacher to "take" this course to discover how much is new in this field.

The book is illustrated and the programming technique makes it valuable for the self-learner. Major emphases on neuron biochemistry, nerve transmission, EEG, patterns, reinforcement, biophysics of nerve transmission, etc. A stimulating and rewarding book.

Microbiology

MICROBES: THEIR GROWTH, NUTRITION, AND INTERACTION, Alfred S. Sussman, 124 pp., D. C. Heath and Company, Boston, 1964, and

Teachers Supplement, 92 pp.

One of the five BSCS Laboratory Blocks by a scientist skilled in his field of microbiology, experienced in teaching, and a capable author. This block provides an orientation into the taxonomy of the organisms, habitats, growth characteristics, nutritional requirements, ecology, and experimental procedures. The author carefully uses a variety of organisms rather than dwelling solely on bacteria. The illustrations are some of the best this reviewer has seen for the beginning student in the laboratory. Pages are provided for the recording of data. Appendices include an excellent bibliography, glossary, and formulae. The *Teacher's Supplement* provides detailed questions and quite important instructional material. All in all, this lives up to, and in some aspects surpasses, the quality of the previous blocks. A true "must" for all biology teachers.

HANDBOOK OF BASIC MICROTECHNIQUE, Peter Gray, 302 pp., \$7.95, McGraw-Hill Book Company, New York, 1964.

The title of this book is self-explanatory, for it is indeed a handbook, but it also may serve as a text in this field. The author has a previous publication which is more inclusive, so that this one represents his judgment as to the most important ideas and information to be grasped by the worker in biology. Microscopy, photomicrography, slide preparation with specific examples and exercises, techniques for certain tissues, and valuable appendices. It is a most valuable book for the biologist and student of biology.

MICROBIOLOGY AND PATHOLOGY, 8th Ed., Alice Lorraine Smith, 699 pp., \$8.50, C. V. Mosby Company, St. Louis, 1964.

This book has stood up well through its seven previous editions. The format, illustrations, and writing are just the ticket for the readership intended. It is unusual in that it combines microbiology and pathology which means that a little less than half the book is devoted to descriptions of pathological conditions which have little relationship to microbiology. However, both approaches are well integrated so that it is not really just two books bound together. It is aimed at medical technician and nursing classes and should prove very useful for these audiences.

TOPLEY AND WILSON'S PRINCIPLES OF BACTERIOLOGY AND IMMUNITY, 5th Ed., Graham S. Wilson and A. A. Miles, 2 vols. 2563 pp., \$35.00, Williams and Wilkins, Baltimore, Md., 1964.

This treatise is a storehouse of well written and well documented information about bacteriology with an emphasis on the relationships between microorganisms and man. Since it deals