

GENERAL BIOLOGY

THE ANIMAL KINGDOM [vol. 1 of a series], by Jean Vallin. 1966. Sterling Publishing Co., New York. 96 pp. \$4.89.

THE PLANT WORLD [vol. 2 of a series], by Jean Vallin. 1967. Sterling Publishing Co., New York. 108 pp. \$4.89.

HUMAN BIOLOGY [vol. 3 of a series], by Charles D. Heath. 1968. Sterling Publishing Co., New York. 192 pp. \$7.95.

Designed for supplemental use in the secondary school, this series, translated from the French, effectively utilizes numerous color photographs and colorful figures to provide a distinctive format. By design, the plates in the first two volumes generally lack captions, the explanations being incorporated into the text of the page. This, perhaps advantageous for self-study, is a distinct inconvenience for reference work.

The content of vol. 1 is that of a typical animal survey, and there are few innovations (a shrimp replaces the crab). Vol. 2 presents a survey of plants, including common members of 11 flowering plant families describing their habit, flower, seed, and life cycle. Non-vascular plants are also considered. As in the first volume, there are many excellent color photos. Both vol. 1 and 2 are excellent sources of information about common members of important groups of organisms. Vol. 3 is also well illustrated, but with appropriate captions; and it contains a general discussion of human anatomy and physiology. Considerable emphasis is placed on food and digestion: many activities are suggested, although few are open-ended. All three books will be a useful addition to the science library.

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GENERAL BIOLOGY LABORATORY GUIDE, by J. E. Wodsedalek, H. L. Dean, and T. E. Rogers. 2nd ed., 1969. William C. Brown Co., Dubuque, Iowa. 304 pp. \$4.25.

This is a laboratory guide intended for use in courses in general biology given at the college level. The many diagrams and the 17 chapters on plant and animal phyla strongly emphasize anatomy, although the prepared drawings do reduce the enormous amount of time and labor ordinarily required of the student in such a course. Physiology of plants and animals and environmental relationships are deemphasized.

The authors sensibly use organisms readily available to most laboratories and in most regions of the country. There is, however, great unevenness in the quality of the exercises; for example, chapter 22, on gametogenesis, is

excellent, rigorous, and detailed, but chapter 23, on Mendelism, is sketchy, of poor quality, and unclear.

This manual is laden with terminology. The laboratory procedure of dissecting, observing, and labeling makes up most of the work. Investigative laboratory exercises are few. Many good questions with no space for answers leaves one wondering whether students ever answer these or gloss over them lightly, as the format tends to encourage. There is a real question in the reviewer's mind as to whether the approach in this particular laboratory manual is relevant to the exciting biology of today.

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UNDERSTANDING DENTISTRY, by Minna Lantner and Gerald Bender, D.D.S. 1969. Beacon Press, Boston. 207 pp. \$6.00.

This unique book is designed to give the general public a clear understanding of the basic principles of dentistry. Reliable and simply written, the book should help its readers overcome their superstitions and fears about the practice of dentistry.

The text is supplemented by nearly 50 accurately labeled black-and-white illustrations. Each chapter satisfactorily explains the causes, prevention, and treatment of the various kinds of oral disorders. The chapter on gum disease is especially interesting and useful: it clearly explains the causes and prevention of pyorrhea in middle age and the importance of regular x-ray examinations and deep scalings.

Altogether, this book contains information that should give the lay reader an adequate understanding of the importance of oral hygiene, sound advice on how to go about practicing it, and the medical rationale behind treating the most common kinds of dental disorders encountered in the average American family.

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GENETICS

THE MATHEMATICS OF HEREDITY, by Gustave Malécot. 1969. W. H. Freeman & Co., San Francisco. 103 pp. \$4.00.

Malécot's *Les mathématiques de l'hérédité*, first published in 1948, holds a peculiar and important place in the development of population genetics. Malécot presented a summary of many aspects of population-genetics theory, especially in the areas of inbreeding, covariance, kinships, and isolation. Furthermore, he advanced these areas of knowledge considerably with his own contributions, based largely on probability analysis.

The present volume, translated by Demetrios M. Yermanos of the University of California, Riverside, contains some additional material, in the form of explanatory footnotes, formulae concerning the decrease of co-ancestry with distance, and an appendix on discontinuous migrations. Nevertheless, the book can hardly be said to be up-to-date: the critical subject of genetic load, developed largely since 1950, is omitted.

An understanding of the book requires considerable mathematical knowledge—minimally a firm grasp of differential and integral calculus, as well as a thorough understanding of basic population genetics. It may be of interest to the graduate student and professional specialist in that field and may, in time, also be important to the historian of genetics. Perhaps a translation of Malécot's more recent *Probabilités et hérédité* would have been more useful.

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GENETIC LOAD: ITS BIOLOGICAL AND CONCEPTUAL ASPECTS, by Bruce Wallace. 1970. Prentice-Hall, Inc., Englewood Cliffs, N. J. 127 pp. \$5.95.

The subject, indeed the term, "genetic load" was first brought to the attention of biologists by Herman Muller in 1950. In its original, qualitative sense it meant the total of those cryptic genes in a population that reduce the fitness of the population below what it would be in the absence of these genes. Since then, the concept has received a quantitative definition; mathematical formulations of it and of its relation to other aspects of population genetics have been worked out; experimental and observational evidence of its magnitude and nature in natural and laboratory populations has been obtained; and some of its biologic and sociologic implications have appeared over the horizon. It is also raising certain questions, especially in the area of balanced polymorphism, which appear answerable only through major revisions of the presently conventional population models. In short, the concept has passed through infancy and youth and is now nubile, awaiting its marriage into the family of basic biologic concepts.

Bruce Wallace's small book may well act as the officiant at that marriage. Written in the low-key, off-beat, conversational style of which Wallace proved himself a master in his *Topics in Population Genetics*, it manages to convey very well indeed what is known about the subject as well as the speculations and implications, for man and general biology, that Wallace's acute mind so often brings forth with an artful artlessness.

The book is divided into three sections. The first deals with the nature,