Physiology Broadly Defined

Physiology of the Amphibia. John A. Moore, Ed. Academic Press, New York, 1964. xii + 654 pp. Illus. $18.

In 1931, G. K. Noble presented a masterly synthesis of the information then available on amphibians in his now renowned book, *The Biology of the Amphibia*. The present brave effort at a modern synthesis, *Physiology of the Amphibia*, is not the closely knit product of a single hand, but rather a compilation of authoritative articles prepared by different individuals. What the volume lacks in skillful transition from topic to topic is more than amply made up by the uniformly high quality of the individual contributions. The ten reports have been prepared by investigators who are actively working in the areas that they discuss, thus affording the reader a searching appraisal of what we know and of what we need to know.

A wealth of information has been gleaned from published works and the extensive experiences of the authors. The topics have not been restricted to areas usually included in the conventional domain of physiology. Students of developmental biology will find lucid and stimulating discussions of embryonic development (L. J. Barth), metamorphosis (W. Etkin), and regeneration (S. M. Rose). Endocrinologists will be pleased with the penetrating analysis of amphibian hormones prepared by A. Gorbman. The volume also contains a copious, carefully executed treatment of metabolism (G. W. Brown, Jr.), a critical consideration of water balance (I. J. Deyrup), and instructive expositions on digestion (W. G. Reeder), blood and respiration (G. E. H. Foxon), cardiology (A. J. Brady), and muscle physiology (B. C. Abbott and A. J. Brady).

I must register a protest against the majestic pronouncement made by Academic Press on the book jacket—"the book covers the physiology of the entire life cycle of the amphibians." This is certainly an extravagant statement, and, indeed, for a treatise on physiology there are some curious omissions. Physiologists who have forsaken the exquisite axon of the squid to delve into the nerves of the frog or salamander will be understandably miffed at the failure to treat the nervous system. Another conspicious major gap is the complete absence of any consideration of reproductive physiology. The word "reproduction" doesn't even find its place in the subject index. These are most unfortunate exclusions which mar an otherwise highly satisfactory performance.

Despite these rather unique faults of omission, the volume is unquestionably a valuable reference book. The contributors have thoughtfully digested for us the sizeable and, to many of us, unmanageable body of data that has rapidly accumulated. Advances in recent years have been well integrated with early information. Each section is thoroughly documented; the volume contains more than 2000 references. The book is indispensable for advanced students of the Amphibia and eminently worthwhile for any inquisitive biologist who wishes to keep abreast of developments in selected areas of amphibian physiology.

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Palynology

Textbook on Pollen Analysis. Knut Faegri and Johs. Iverson. With a chapter by H. T. Waterbolk. Hafner, New York, ed. 2, 1964. 237 pp. Illus. $6.25.

The favorable reception accorded the first edition of this well-known and widely used book together with the rapid expansion of interest in palynology necessitated its revision so that the more important recent advances could be included. This book provides the basic information that will enable one to collect samples, process them, tabulate and graph the data, and finally interpret the results. The major theme in several chapters is the variety of errors that can be and have been made in the analysis of sediments, the construction of pollen diagrams, and the interpretation of the latter. Pollen production of different species, long-distance transportation, over- and under-representation, and differential preservation, are some of the items discussed in these warnings, many of which have gone unheeded by some recent investigators. The book also contains an analytical key for identifying the pollen of North Central Europe, with primary division into 24 master classes, each of which is usually subdivided to the generic level. This system of classification is capable of expansion, and it has been the basis of several schemes for the identification and classification of fossil pollen into form genera.

A new chapter "Pre-Quaternary analysis," contributed by H. T. Waterbolk, mentions the use of pollen for stratigraphic correlations for the coal and oil industries. Additional details on the processing of shales and other hard sediments and a short discussion of the nomenclature of fossil grains are included. Comparison of the two editions shows an increase from 168 to 237 numbered pages. However, a greater increase resulted from the change in the type face, which is not only more readable but also has more characters per line. The bibliography has been materially expanded and carefully selected to include representative or important contributions in all phases of palynology, but not every paper by a given author. Citations pertaining to central European literature are most abundant. In many chapters only trivial changes have been made—for example v. Post to von Post. Other chapters have been updated by citing recent literature that support concepts advanced in the first edition. The chapter on field techniques lacks an illustration of a piston type sampler, which in many respects is better than the highly touted Hiller sampler. The chapter on laboratory techniques has been rewritten to mention many of the newer processes. The illustrations of sculpturing and structural types and the diagrams of the master pollen classes have been placed in the back of the book after the index, a less convenient location than in their respective chapters.

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Mathematics

Concepts of Real Analysis. Charles A. Haynes, Jr. Wiley, New York, 1964. xii + 190 pp. Illus. $6.50.

The book, *Concepts of Real Analysis*, is an outgrowth of a course given by the author in a National Science Foundation summer institute for college teachers of mathematics. It, like certain other recent books [see, for example, *Sets, Sequences, and Mappings: The Basic Concepts of Analysis*, by Kenneth W. Anderson and Dick Wick Hall (Wiley, New York, 1963)] is designed to help bridge the gap be-