

cluded listings of Canadian sources of relevant materials.

Hunting Fossils is interesting and informative reading. Intermediate and junior high school teachers would be well advised to add this volume to the science library.

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Physiology

THE MATHEMATICAL APPROACH TO PHYSIOLOGICAL PROBLEMS: A CRITICAL PRIMER, by Douglas Shepard Riggs. 1963. M.I.T. Press, Cambridge, Mass. 459 pp. Price not given.

This book on the quantitative aspects of physiologic phenomena is a "primer" but, as the author states in his preface, an elementary textbook is not necessarily an easy one. Intended for graduate students and physiologists with some experience in data collection and research-report writing, the material elucidating pitfalls, shortcomings, and inexactitudes pervading much of the literature of biology is difficult reading. However, some of the chapters are more comprehensible than others and should prove interesting and worthwhile to the "general" biologist: "Dimensions and Units," "Aids to Mathematical Work," "Constants, Variables, and Functional Relationships," and "Feedback Relationships (Homeostasis)." These chapters, in the first part of the book, give many practical suggestions for handling data and, as in the remainder of the book, cite examples from the literature. By interspersing hypothetical results with actual experimental results from published reports and by explaining discrepancies, inconsistencies, and superfluities in the statistics and reasoning, Riggs presents the serious reader with a fascinating insight into the mathematical intricacies of scientific recording. Problems one is likely to encounter with graphing one's results, deriving and checking equations, fitting points to a curve, and making correlations are discussed in the author's engaging style. In most chapters thought-provoking exercises or examples are presented for the reader to mull over; then the solutions are given, either within the chapter or in an appendix. Logarithms, approximations, and symbols are presented in other appendices.

This book is perhaps too abstruse and detailed for use in secondary schools; but in special instances, such as project work or teacher review, it may provide a valuable reference source for quantitative matters in biology, statistics, or physiology.

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Zoology

CONCEPTS OF ZOOLOGY LABORATORY MANUAL, by A. M. Winchester. 1970. Wm. C. Brown Co., Dubuque, Iowa. 268 pp. \$4.95.

The manual has 20 chapters, each divided into several exercises. It is designed for use with the author's textbook, *Concepts of Zoology*. There seems to be sufficient material (with perhaps some supplementation) for a one-year course in general zoology. The chapters are not interdependent; therefore an instructor who wishes to use it in a shorter course or with another textbook could do so by picking exercises appropriate to his needs.

The manual has several strong points. It is self-directing, and each exercise has a "materials needed" list and directions for preparations, data and observational notes sheets, and questions designed to aid the student in data or observational analysis. Although several chapters are devoted, in phylogenetic order, to a somewhat classical study of structural zoology, the manual is balanced by its attention to contemporary concerns, such as radiobiology, (elementary) statistics, and systems physiology.

Secondary-school teachers may wish to use this manual in an "advanced" biology course, but one would assume that its major use will be in colleges. This manual should be considered by instructors who desire to offer a general-zoology course that has elements of both the classical and the modern approach.

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THE BOBWHITE QUAIL: ITS LIFE AND MANAGEMENT, by Walter Rosene. 1969. Rutgers University Press, New Brunswick, N.J. 443 pp. \$20.00.

In the life of many a farm boy the bobwhite is even more important than a baseball. Do the schools take notice? If the ecology and behavior of quail—for which read the interests of a lad with a gun and a dog on a frosty morning—are not being considered in rural biology-classrooms, here's the book to remedy the lack (price permitting). Rosene, a government expert with a farmer's soul, knows and tells everything about *Colinus virginianus*. He also knows a lot about things you can't tag in Latin. "The number of birds brought to bag is only one thing remembered," he says of his years afield. "To most hunters, it is old boots with broken and tied laces, . . . scratched hands and legs from a wade through a big briarpatch, and cold, stiff fingers. . . Tomorrow it is always a talk with a friend about yesterday's broken points,

WHAT A
PIECE OF
WORK IS MAN!



in action
how like
an angel!
in apprehension
how like a god!

wild flushes, coveys, singles, the steady dog, and the young puppy and his first find." Rosene writes that well. And he is not bloodthirsty; he sees the bobwhite as the finest of native American upland game birds but is at pains to document its usefulness as a pest-eater and to acknowledge the good cheer of its whistling presence in the suburbs. The book is a worthy, warm-hearted successor to Herbert L. Stoddard's *Bobwhite Quail* (1931: a classic among scientific game-management studies). With its message of wise use based on deep knowledge, it particularly deserves shelf-space in country high schools—where boys with guns can find it.

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SQUIRRELS OF NORTH AMERICA, by Dorcas MacClintock. 1970. Von Nostrand Reinhold Co., New York. 190 pp. \$9.95.

This handsome small volume authoritatively describes the squirrel species of North America (south to Panama), categorizing them as ground-dwellers, tree squirrels, and gliders. The drawings, by Walter Ferguson, enhance the text. The book lacks an index, which would have made it far more usable, and the distribution maps should have been drawn on a larger scale, either to eliminate areas from which a species is absent or else to expand areas in which several species occur. Despite these defects the volume is a happy contribution to popular mammalogy and should be in every school library as well as in the personal possession of those interested in mammals.

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