General Biology

EXPERIMENTS IN FUNDAMENTAL CONCEPTS OF BIOLOGY, by Gideon E. Nelson and Albert A. Latina. 3rd ed., 1974. John Wiley & Sons, Inc., New York. 212 p. $3.95 softback.

In the preface the authors describe the objectives of this laboratory manual as the following: "1. To facilitate an understanding of selected biological principles by the use of observation and experimentation. 2. To reinforce biological concepts presented in the textbook. 3. To stimulate further interest in Biology through the use of living organisms, biological 'tools,' and investigative procedures."

The manual contains 23 exercises of a broad range of topics. The needed materials for doing each exercise are clearly defined "for each group of four students." General objectives (in nonbehavioral terms) are given for each exercise.

Although the exercises seem to emphasize observation, there are many excellent experiments, or activities that could be viewed as experiments. For example, in the exercise on photosynthesis the students are required to plot on a graph the sets of data describing the numbers of bubbles of oxygen gas generated under various conditions. The authors do not use the term "hypothesis." Nevertheless some of the conclusions in the summaries at the end of the exercises could be used as the guiding hypotheses. For example, the conclusion is given: "The rate of photosynthesis is proportional to light intensity and amount of CO_2 available." The exercise requires the students to observe the following: If either the light intensity or the amount of CO_2 is increased, the rate of photosynthesis increases. Similar interesting experiments are presented in both animal physiology and plant physiology.

This laboratory manual has perforated pages, blank spaces for giving responses to specific questions, and the axes of graphs to be completed. It is an excellent guide for a typical modern laboratory course in introductory biology. The content is suitable for both majors and nonmajors in biology.

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BIOLOGY: THE SCIENCE OF LIFE, by Joan E. Rahn. 1974. Macmillian Publishing Co., New York. 470 p. Price not given.

This textbook is aimed at the nonmajor in biology, probably attending a community college. The author states that in order to solve the myriad social problems in the future intelligently, voters "must have some basic knowledge about the biological nature of man and the animals and plants with which he shares this planet...." Emphasis has been placed on principles rather than on technical terms, with a deliberate attempt to avoid phylogenetic materials. Insight into the diversity of life, not showing evolutionary relationships, is indicated in an appendix outline of the living world.

The first page of each chapter lists preview statements indicating the principles expanded on in that chapter. The chapters are usually short—from 3 to 7 or so pages of double columns of printed materials. There are 438 pages of textual matter in 48 chapters, reflecting the effort of the author to cut much technical information from the presentation. An argument is made for proceeding from a few generalities to details rather than from details to generalities.

Chapters are arranged so that many of them can be considered independently. This is intended to allow the instructor flexibility in making assignments. An overview of the book and its arrangement is reflected by the larger sections, on the living world; the environment; some chemistry and physics; more about the environment; the cell; flowering plants; the human body; genetics; the biological clock; evolution; and the experimental method. Each chapter ends with a number of questions and suggested readings.

A paperback study guide may be purchased to accompany the text to permit the student an opportunity to check his recall of the essential facts of each

chapter. Also included are optional projects suggested to students.

There is clearly an absence of a call for any experimentation, laboratory work, or scientific inquiry on the part of the students. Yet the effort, thought, time, and devotion of the author would impel community-college biology instructors to examine this textbook for possible use in their special situations.

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Zoology

PRIMATES vol. 7, CYNOPITHECINAE, by W. C. Osman Hill. 1974. John Wiley & Sons, Inc., New York. 955 p. $75.00.

Scholarship is a rare commodity and scholars who write definitive works are rarer still. W.C. Osman Hill is a member of this rare breed. His projected 12-volume monograph on the primates is now two-thirds finished. It is heartening to see a scholar working at the basic levels of taxonomy and comparative anatomy. While not now fashionable, they are nonetheless fundamental and ultimately all encompassing. Thus, one is not startled to see reproductive physiology and development as well as ecology and behavior in this volume which covers the three genera of the family Cercopithecidae and completes the family coverage undertaken in two earlier volumes of this series. Fossil genera are included, practically all the living genera are pictured, 13 maps show racial distribution, charts illustrate geologic sequence, and 52 pages of references attest to Hill's attention to the literature. The series constitutes the basic scholarly work on primates, just as Libbie Hyman's volumes are essential for the study of invertebrates. Unfortunately, the price limits purchasers to either the more affluent scholars or large libraries. And the impressive scholarship and meticulous attention to accurate detail offer the casual reader more information about primates than he may wish to know. However,the persistent reader is rewarded with a wide variety of information concerning the members of the sub-family Cynopithecinae, which include the macaques, mangabeys, baboons, and geladas. The genus *Macaca* occupies 577 pages of the volume, leaving less than 200 pages for the other two genera. But, as the relative importance of the genera is already reflected by the existing literature, the division seems equitable.

No serious scholar working with primates can avoid seeking constant access to this series. Those needing knowledge of primates will find these volumes an indispensable reference. The casual reader may find the series tough going, but many sections offer rewarding reading of a quality not often found in monographic works. The last comprehensive work on primates was published in 1894. It will be at least another century before a work of this magnitude concerning primates will again appear. In an area of forced, trivial, hasty, and frequently shoddy scholarship, this work stands as a model of what a contribution to knowledge can be.

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BIRD MIGRATION, by Donald R. Griffin. 2nd. ed., 1974. Dover Publications, Inc., New York. 186 p. $1.25 softback.

This is a republication of the book originally published by Doubleday in 1964 as part of the Anchor Books "Science Study Series." The only changes include a preface in which the author outlines new research findings since 1964, and a revised "Further Reading" to reflect those advances.

The author has written an interesting and thought-provoking account of bird behavior which includes such topics as the extent, timing, and energetics of bird migrations; bird navigation; and homing experiments. One chapter is devoted to the techniques of bird watching by radar and another describes birdwatching from airplanes.

Significantly, this book is not simply a compilation of what is known about bird migration but an historical perspective of the development of the facts and theories. Frequently, the author interjects comments on the scientific logic that goes into the design of experiments and the formulation of theories.

I recommend this book to anyone who has wondered at the migratory flights of birds or who has an interest in animal behavior. Specifically, it would be suitable as supplementary reading material for advanced high-school and college biology classes. For those who already have the original version, I would not recommend this republication because details of the advances since 1964 have not been included.

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THE WORLD OF MOTHS, by Michael Dickens and Eric Storey. 1973. Macmillian Publishing Co., Inc., New York. 128 p. $6.95 hardback.

Those who enjoy looking at pictures of moths will thoroughly enjoy this book. There are 103 colored plates, and the colors are lifelike. Unfortunately for the American reader, most of the moths pictured are exotics from Africa, Argentina, Brazil, Burma, China, Europe, India, and so on, but many are closely related to species found in the United States.

The format of the book is uniform ex-