

171 pp., \$2.95). "Probability and chi-square," by Sandra F. Cooper and Thomas R. Mertens (1969; 88 pp., \$2.95). "Mitosis and meiosis," by Gary Parker, W. Ann Reynolds, and Rex Reynolds (1968; 145 pp., \$2.95). "Genes and populations," by Paul Geisert (1968; 145 pp., \$2.95). "Energy, organization, and life," by R. Rodrigo Parnares (1967; 129 pp., \$2.95). "Understanding the microscope," by Paul Geisert. (1967; 30 pp., \$1.00).

As the series title indicates, these softbacks are designed for self-learning. Several programmed instructional techniques are utilized, but the usual device is a card the user moves down the page as questions are answered. The publishers quite frankly indicate that these efforts to have students make up work missed, as supplements to regular classroom work, and as homework. The authors are practicing teachers.

Each booklet is prefaced with a list of the objectives the authors hope the student will accomplish after working through the book. There is also a "Teacher's Manual" (1969; 64 pp., 75¢).

As pedagogic tools, the booklets come off well. The obvious criticism is that they probably promote rote memory, but there is abundant evidence that the authors try to avoid this charge by using a variety of questioning techniques. Furthermore, a book embodying chemistry ("Energy, Organization, and Life") must inevitably use memorization: this process of learning is preliminarily essential to an inquiry approach.

Paul Klinge  
Indiana University  
Bloomington

**BASIC BIOLOGY**, by Alfred M. Elliott and Bruce R. Voeller. 1970. Appleton-Century-Crofts, New York. 663 pp. \$8.95.

**LABORATORY GUIDE FOR BIOLOGY**, by Alfred M. Elliott. 1970. [Same publisher.] 330 pp. \$4.95.

**INSTRUCTOR'S MANUAL TO ACCOMPANY "BASIC BIOLOGY,"** by Alfred M. Elliott and Bruce R. Voeller. 1970. [Same publisher.] 275 pp. 95¢.

Those who are familiar with *Biology* (Elliott and Ray) or *Zoology* (Elliott) will find *Basic Biology* quite similar in style, content, and approach but drastically different in the presentation of illustrative materials. Instead of continuing to use the bold, diagrammatic black-and-white illustrations that characterized Elliott's other textbooks, the authors have chosen to use halftones. Some of the figures that were clearly portrayed in the earlier books are, as halftones, difficult to discern. However, electronmicrographs and some excellent drawings, especially of insects, add to the attractiveness of the book.

Although the authors contend that organic evolution is the central theme,

it appears that this point of orientation serves only for the first four chapters: the 13 chapters that follow are arranged phylogenetically but include little on evolution. The next six chapters deal with the human systems and are followed by units on genetics and evolution. The book closes with a chapter on ecology, which seems to have been "added." Except for a brief discussion of the ecosphere, the chapter does not deal with contemporary ecologic problems. The lists of supplementary readings that follow each chapter represent a good selection of materials that should be available in most college libraries. The extensive glossary and the classification outline should be helpful to the student.

The college teacher looking for a traditional textbook that integrates the recent findings in molecular biology will want to take a second look at *Basic Biology*. By omitting the typical Elliott illustrations, however, the book has no distinctiveness to separate it from most other general-biology books on the market. The high school teacher would probably want to have a copy in the library for reference use by his students.

The *Instructor's Manual* (Elliott and Voeller) falls short in helping the instructor to obtain full use of the text. The first part of the manual contains a good listing of films and film-loops for each chapter. The chapter questions, mainly of the essay and multiple-choice kinds, require only a low level of understanding.

The *Laboratory Guide for Biology* (Elliott) has a large selection of exercises from which the teacher can choose those that complement his particular course. A number of partial and complete drawings have been included to save the student some time. Most of the exercises, however, do require some drawing or labeling. There are few inquiry investigations but a good assortment concerning descriptive studies. Except for a lack of exercises on ecology and evolution, the lab guide nicely complements the text in arrangement, approach, and supportive exercises.

Richard J. Medve  
Slippery Rock (Pa.) State College

**INTRODUCTION TO NATURAL SCIENCE, PART 2: THE LIFE SCIENCES**, by Lawrence Parsegian, Paul R. Shilling, Floyd V. Monaghan, and Abraham S. Luchins. 1970. Academic Press, New York. 727 pp. \$10.95.

This is a college textbook for students who have completed a year of physical sciences. Part 1, subtitled *The Physical Sciences*, would be the preferred prerequisite but is not a necessary one: the present book seems to contain the physical-science information needed for understanding the courses.

I made the mistake of reading the

# WHAT A PIECE OF WORK IS MAN!



how noble  
in reason!  
how infinite  
in faculties!

teacher's guide before reading the student's text. Some of the suggestions to the teacher are upsetting; for example, "When the lecturer mentions such terms as covalent bond, he pauses to ask students to give the definition of each. This keeps them on their toes and helps students who require this repetition for the concept to sink in." Another example is a comment about testing: "We have given a few yes-no quizzes successfully along with the very few trick questions against which students are warned in advance." Objectives stated for the chapters would curl the hair of an advocate of Mager-type objectives; for instance, an objective for chapter 9 is to "introduce the ADP-ATP energy exchange reaction." Except for suggested time schedules and supplementary aids, the teacher's guide is a waste of effort.

The text is designed primarily for students in a lecture situation. It is heavily biochemical in approach—so heavily, in fact, that a student may ask where the biology is. The first one-third of the book is devoted to the physical basis of life. In reading the chapters, I felt that I was back at the encyclopedic stage of textbook evolution.

There is a good deal of useful information in the book. The material is up-to-date and the transition from one chapter to another is smoothly made. Sections explaining buffer systems, oxidation-reduction reactions, mole concepts, and so forth will be easily read by a teacher who has little background in chemistry.

Traditional-appearing chapters are here—biological systems, surveys of kingdoms—but some surprises occur; for example, computers are compared and contrasted with the human brain. Social problems are given space but unfortunately seem added to a content course instead of being integrated into the total program.