

example, the section on Charles Darwin manages to create a sense of an interesting, complex Darwin interacting believably with people and events. Unfortunately most of the vignettes are rather shallow, consisting of little more than dates and a reworking of information commonly found in biology texts.

A need exists for a comprehensive, well-focused, readable history of biology. This book fails to fill that need.

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#### PARADOXES OF PROGRESS

by Gunther S. Stent. 1978. W. H. Freeman and Company (660 Market Street, San Francisco 94104). 176 p. \$12 hardback; \$6.50 softback.

In this collection of eleven essays, Berkeley's Gunther Stent assesses the philosophical and social impact of science. The essays, all of which have been published previously, vary greatly in subject, clarity of expression, and value to the reader. The first three essays elucidate Stent's theory that scientific progress will soon reach its natural conclusion. However, the discussion is so weighed down by philosophical terminology that only a reader familiar with these terms will avoid sinking. The persevering will find

some interesting reflections on the influence of Eastern thought and on the significance of the "beat" generation. But these reflections, like those later in the book that deal with the criticism which surrounded the reports on DNA by Watson and Crick and the reflections on the books by Crick and Jacques Monod, seem dated. The concerns of the sixties appear curiously historic in these changing times.

Stent is more successful when he addresses less philosophical topics. The chapter, "Genes and the Embryo," is well written and worth reading for its discussion of the explicit and implicit ways in which genes influence the embryonic development of the nervous system and, ultimately, the behavior of the organism.

This book may be valuable to those who are looking for new perspectives with which to view the impact that molecular biology has had on personal philosophies. Stent rejects the positivistic, atheistic views of scientists such as Crick and Monod and asks us to consider the impact that scientists such as these are having on the attitudes of the public when they venture out of their laboratories into philosophy. His ideas may provide useful discussion material for college teachers whose students are struggling with these same questions.

The average biology teacher, however, would be better advised to watch for Stent's current articles in the journals of science and to read them, rather than this book.

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#### Physiology and Anatomy

#### PHYSIOLOGY: LABORATORY MANUAL

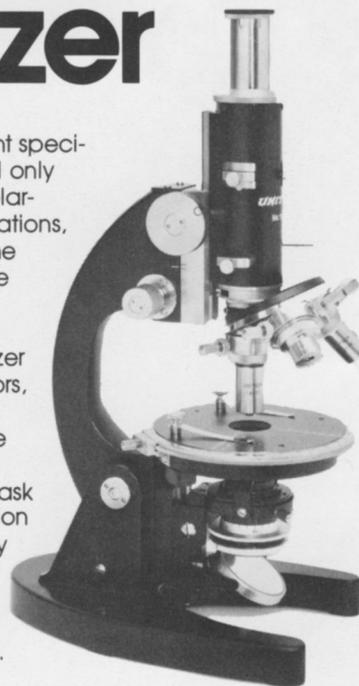
by Byron A. Schottelius, John D. Thomson, and Dorothy D. Schottelius. 4th ed., 1978. The C.V. Mosby Company (11830 Westline Industrial Drive, St. Louis, Missouri 63141). 309 p. \$9.95.

The authors provide an adaptable, student-conducted set of laboratory experiments broad in scope, relevant to today's sciences, and simply and clearly illustrated. The first several exercises provide a student with basic physiochemical principles. The manual is then organized to provide some experimental insights into the major organ systems—conveniently referring the student to the appendix for information and supply houses that carry the specific materials. Appendix B particularly dwells on

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needed techniques that are clearly described thus relieving the instructor of this burden.

The authors provide a broad spectrum of experiments using a variety of organisms such as frogs, turtles, cats, dogs, rabbits, and human beings. The level of sophistication of instrumentation is manageable but will take considerable time and energy of both student and instructor to set up many of the experiments. These exercises, however, should result in competency over a wide range of excellent experimental skills in addition to frank knowledge attained. The experiments on humans are particularly interesting, relevant, and instructive to pre-medical and allied health students. The authors establish a basis for understanding defects of the eye and ear. Provision is also made for base-line data on blood, urine, the heart and circulation that can be extrapolated to clinical diagnosis of pathologic levels.

The recommended techniques of typing blood can be sharpened by changing the procedure slightly. When anti-serum A and anti-serum B are applied to a slide first, there remains the possibility of mixing sera when blood on the tip of the finger is touched to each anti-serum. Anti-sera should be added *after* drops of blood are on the slide and mixing should

take place with separate toothpicks—a precaution that will considerably improve the accuracy of the procedure. Also, the Rh agglutination reaction takes more time to develop, and students should be cautioned to be patient.

I found in answering the questions following an experiment that the standard answer-space size of 2.5 cm was insufficient for some answers and too much for others. The authors should write in their own "expected" answers and provide space accordingly.

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### Related Fields

#### INTERMEDIATE PHYSICS FOR MEDICINE AND BIOLOGY

by Russell K. Hobbie. 1978. John Wiley and Sons (One Wiley Drive, Somerset, New Jersey 08873). 557 p. \$21.95.

A satisfactory melding of biology and physics is difficult to achieve. When writing a textbook primarily intended to present physics to biologists, most

authors attempt to make the physics more palatable by severe simplification or limitation of the physics content. The author of this textbook has done neither. He has treated the content with a depth and breadth not usually found in a textbook of this kind, but in doing so has inevitably limited his audience. This limitation does not, however, detract from the usefulness of the textbook.

The various topics are presented in a clear and well-organized manner. Most chapters begin with an extensive description of the appropriate physical principles that are followed by biological applications. Integration of the material is enhanced at several points where the biological examples are interspersed with increasingly detailed physical treatments. Some important topics are discussed in detail that are given little, if any, separate treatment in other physics-biology textbooks. For example, a complete chapter is devoted to exponential growth and decay including an excellent discussion on graphing logarithmic functions. This chapter alone would justify the time spent obtaining a copy of the book. Although there are few omissions, it is puzzling that there is no discussion of sound and hearing.

Adequate references are included to permit further reading on any topic. Sev-

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