

medical term, much less find the term. The entry "chest," for example, defines it as "thorax," and the entry further indicates that "thorax" is of Greek origin and is used in several forms in medical terms. The forms listed are thorac-, thoracico-, and thoraco-. Several examples of the use of these combining forms in medical terms are given: thoracalgia, thoracicohumeral, thoracocentesis, thoracocolysis; and each of the examples is followed by a definition. But the dictionary would be more useful to the layman attempting to dissect medical vocabulary if an entry had been made for "thorax." Then, if a meaning was wanted for "thoracalgia" or "thoracicohumeral," further investigation of entries for "-algia" or "-humeral" could be used. (There is an entry for "humerus" but none for "-algia.")

Throughout the 167 pages of entries many combining forms, which are the building blocks of medical and biological terms, are presented. It is just difficult to find them. However, it must be stated that the book would be of value to those individuals—researchers or authors—who must coin new terms. The format seems more conducive to this use than to the analysis of medical terms.

The dictionary would have limited use in the high school classroom but could prove of value on the library reference shelf.

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**ELEMENTARY PRINCIPLES OF LABORATORY INSTRUMENTS**, by Leslie W. Lee. 2nd ed., 1970. C. V. Mosby Co., St. Louis. 225 pp. \$10.00.

This reviewer has long looked for a good book dealing with the principal instruments used in the biology laboratory. Books currently on the market seem to fall into two categories: either they are so overburdened with theory as to be almost useless at the practical level or they are so elementary as to yield little information except to the extreme novice. The present work shows the latter fault—but it does have some redeeming features.

An introductory chapter presents some basic principles of electricity and electronics. The treatment is simple: all mathematics above the level of ninth-grade algebra is carefully avoided. This simplification occasionally leads to difficulties; for example, in showing how a current meter can be used to measure electromotive force by means of an external resistance, no allowance is made, in the calculation of the magnitude of that resistance, for the internal resistance of the meter.

Each of the chapters that follow is devoted to one type of instrument or general technique. The topics are

chosen wisely; they include photometry and absorptiometry, recorders, the measurement of pH, detection of radioactive isotopes, chromatography and electrophoresis, and centrifuges. (One misses a chapter on microscopy). Each chapter opens with a very brief discussion of the underlying principles. This is followed by descriptions of representative instruments, some practical hints about their operation, and a set of questions. Unfortunately, the quality of the chapters is uneven: some, such as the one on photometry and absorptiometry, give enough information to be of real value; others, such as the one on centrifuges, do not. The reader can hardly discern, in the latter case, that there exists a wide variety of centrifuges—clinical, high speed, refrigerated, analytical, and preparative ultra- and zonal centrifuges. Similarly, the discussion of chromatography is essentially confined to gas chromatography; and as for electrophoresis, only paper and cellulose acetate media are mentioned.

The book concludes with a chapter of hints on shopwork and a series of handy appendices.

To whom would such a book be useful? Certainly not to the practicing biologist who seeks more knowledge about a particular kind of instrumentation. Nor would a student, setting out to learn about those gleaming gadgets on his own, find much to sink his teeth into. Perhaps the book does have a role as a textbook in a "once-over-lightly" course designed to introduce students to instrumentation; however, the instructor would have to supplement it quite heavily with lectures and demonstrations.

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**SCIENCE DICTIONARY OF THE ANIMAL WORLD**, by Michael Chinery. 1969. Franklin Watts, Inc. New York. 288 pp. \$4.95.

**SCIENCE DICTIONARY OF THE PLANT WORLD** [same author and publisher]. 264 pp. \$4.95.

These are full-color illustrated dictionaries for junior and senior high school students, originally published in 1966 in England. This kind of publication can be a valuable resource for the student: the illustrations help tremendously in getting across definitions and descriptions. The two volumes comprise a general, illustrated glossary for biology students.

In the plant volume, the illustrations are usually for anatomic purposes rather than taxonomic usefulness. A critical case can be made for omissions as well as inclusions, but the volumes should be useful in the classroom.

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**MODERN BIOLOGY IN REVIEW**, by Maurice Bleifeld. 2nd ed., 1969. Barron's Educational Series, Inc., Woodbury, N.Y. 190 pp. \$2.25.

**HOW TO PREPARE FOR THE COLLEGE BOARD ACHIEVEMENT TESTS: BIOLOGY**, by Maurice Bleifeld. Revised ed., 1969. Barron's Educational Series, Inc., Woodbury, N.Y. 288 pp. \$2.75.

The first 183 pages of each of these volumes are identical and are divided into 11 units and 38 short chapters of biologic fundamentals. The biology-review volume has been revised to present a system of classification based on three kingdoms—plants, animals, and protists—and information in keeping with modern concepts of the cell, biochemistry, genetics, evolution, and ecology. Each chapter concludes with about 15 multiple-choice questions, with answers designed to review the material. The test-preparation volume contains, for practice, 10 simulated College Board achievement tests, each consisting of 109 items designed to test seven basic abilities. Most of the items are devoted to measuring ability to recall facts and demonstrate understanding of basic principles. The answer section for each test contains brief explanations of why the keyed answers are correct responses.

The student preparing for College Board achievement tests should find the second volume useful. This is true even though some of the test items are repetitious of a single theme; for example, most of the items designed to test ability to handle quantitative relationships are quite similar and all deal with heredity.

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## GENETICS

**HETEROSPECIFIC GENOME INTERACTION**, ed. by Vittorio Defendi. 1969. Wistar Institute Symposium Monograph No. 9. Wistar Institute Press, Philadelphia, Pa. 180 pp. \$7.50.

Methods developed during the past decade for hybridizing somatic mammalian cells provide a new means for analyzing hereditary material. This monograph is a record of a symposium of workers doing this research. Two of the papers deal with research using filamentous fungi and bacteria, 11 papers are on mammalian-cell hybrids, and the final paper is a philosophical attempt to make a mathematical interpretation of morphogenesis.

Genetic analysis is possible in somatic hybrids because, although diploid sets of chromosomes from both parent-cell lines are originally present in hybrids produced by fusing somatic cells of unrelated mammals, successive generations of the hybrid clones tend to lose