Book Reviews

Research Films in Biology, Anthropology, Psychology, and Medicine. Anthony R. R. Michaelis. Academic Press, New York, 1955. xvi + 490 pp. Illus. $10.

In the publication of this book, investigators as well as teachers in the biological sciences (including anthropology, psychology, and medicine) have a source of detailed, technical information that should enable beginners to begin to use and advanced workers more effectively to use cinematography. The book does not deal too exclusively with specific apparatus and, for this reason, it is not "dated." Rather, it is written to inform the reader in the general principles of the theory and art of cinematography. It is not a catalog of apparatus, yet it is a source of information about what general types of apparatus have been put together by scientists for the solution of their special problems and so may furnish suggestions for other installations.

The book is divided into three parts: 114 pages on the biological sciences (including such problems as bacterial growth and reproduction, tissue culture, embryology, locomotion, feeding mechanisms, circulation, nerves and sense organs, plant growth, tropisms, plant physiology, mycology, animal behavior); 91 pages on the "human sciences" (largely anthropology, psychology, and psychiatry); and 99 pages on the "medical sciences."

In each part Michaelis goes over the use of cinematography, reviewing some films already made. He discusses various special considerations in the area (for example, in animal behavior, the need for working in infrared for certain purposes). He then gives a comprehensive account of the application of cinematography in the main fields of research. For example, in the "medical sciences," applications of cinematography described are to external conditions, surgery, cavity exploration, x-ray analysis, locomotion, digestion, respiration, genitourinary system, circulation, sense organs, nervous system, pathology, and aviation medicine. In each case the scientific result revealed or elucidated by the use of cinematography is emphasized. There are thoroughly adequate and ample specific references throughout the text to a bibliography of 1490 titles.

I have had many years of experience with many kinds of cinematographic problems in biology, and I can say with full assurance that this book is the best in its field. Moreover, it should be a model for writers of "how-to" books—there is a fine balance between the treatment of the problem to be solved and the method of solving it. Unlike so many books on photography, the author of *Research Films* has a good grasp of, and a feeling for the biologist's point of view and language. The illustrations are excellent; the index is adequate.

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Principles and Applications of Physics. Otto Blüh and Joseph D. Elder. Interscience, New York, 1955. xiv + 866 pp. Illus. $7.

The turnover of physics textbooks in most western European countries has been much smaller than in the United States with its larger population of college-attending youth. Perhaps this is one reason why many textbooks of European origin are too encyclopedic to gain ready acceptance as required books in American universities. The book under review is based in part on Otto Blüh's earlier writing in Europe; it is considerably larger than most American textbooks. It is a mine of information addressed to the intelligent student who is expected already to have mastered some elementary physics. Without such a background, the pace at which the book proceeds would discourage the average student.

In the preface the authors express the hope that their book will have almost universal utility. "The text is adaptable to a one-year lecture course, when a selection of material according to the special requirements of the class will be necessary, but it contains ample material for a two-year course of which approximately one year would be devoted to classical, the other to modern physics. . . . Applications of physics have been adequately discussed as illustrations of the basic principles involved." In writing this book the authors "have attempted to fill the gap between elementary and advanced specialized textbooks." Following one of the senior author's special interests "consideration has been given . . . to the biologic, medical and radiological applications of physics . . . at the same time the text should provide for students of applied science and engineering a wider understanding of physics in conformity with the demands for the replacement of technical physics by basic . . . physics . . . . The integrating features of the book may perhaps also claim the interest of the graduate physics student, of the physics teacher . . . and of the scientists-at-large."

At a time when the proper teaching of physics is undergoing keen scrutiny, both by people within and without the physics profession, the authors have courageously written a book in which the traditional order and emphasis are not followed. Altogether it consists of 10 parts of somewhat unequal lengths dealing with the following: I, "Methods of physics, mathematics"; II–VI, "Basic concepts, mechanics, energy, fields, oscillations, thermodynamics"; VII - IX, "Corpuscles, atomic and nuclear physics"; X, "Scope and importance of the physical sciences."

In places the treatment is somewhat too condensed to be easily followed by a student who meets a topic for the first time. Teachers will certainly enjoy the volume, particularly part X. A junior or senior undergraduate major in physics might well put Blüh and Elder's volume on his list of Christmas or birthday wants and read it during his summer vacation.

The type face is large and clear; a few of the halftones (except for 10 or 12 plates) leave something to be desired; and the black cover is unattractive. But the book is an extremely good value at the price.

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Chemistry of the Soil. Firman E. Bear, Ed. Reinhold, New York, 1955. x + 373 pp. Illus. $8.75.

This monograph brings together a great part of the factual material needed for an understanding of the chemical nature of soils. Ten well-chosen areas (chapters) make it possible to present the significant facts of soil chemistry without serious overlapping. The authors of the chapters are well known through their contributions to the subject.