

Also available from 3M is a one-step, dry copy color transparency film which enables teachers to add color to their overhead projections in about four seconds. It is packaged 50 sheets to the box with a suggested list price of \$21.50.

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A new rear screen complete with baffles and a carrying case is available from Friedman Associates, 24800 Chagrin Boulevard, Cleveland, Ohio 44122. The screen is 18" x 24" and designed for use with the 8mm Technicolor projector, with a wide angle lens, but it can be used with any projector. Two other sizes also are available, 12" x 16" and 8" x 10½".

A-V Catalog

A descriptive listing of films for sale or rent in the biological and physical sciences is available from the NET Film Service, Indiana University, Audio-Visual Center, Bloomington, Indiana 47401.

Book Reviews

All unsigned reviews were made by Editor.

Biophysics and Biochemistry

COMPUTERS AND THE LIFE SCIENCES, Theodor D. Sterling and Seymour Pollack, 342 pp., \$12.50, Columbia University Press, New York, 1965.

A handbook of elementary computer operational information and their operational ideas as applied to biology, primarily the medical sciences. The researcher in these sciences who must find quantitative data will appreciate this book, especially if a comparative neophyte in the field. But the interested student, even the alert secondary school student, by reading this book may come up with some additional variations.

For example, the applications here are in such fields as determining and plotting the fields for radiation therapy, charting electrical data, tracer techniques, diagnostic tools, and a splendid final chapter on new ideas for computer use.

The orientation is largely medicine, but the general biologist will be able to conjure up other applications of this knowledge.

BIONICS, THE SCIENCE OF LIVING MACHINES, Daniel S. Halacy, Jr., 190 pp., \$4.50, Holiday House, New York, 1966.

Written for a popular audience, but nonetheless a sophisticated one, this is an account of the development and the description of bionics as a merging of technology, engineering, and biology. Unusual examples, yet well-known ones, are cited to show how the engineer has learned from living systems and how separately conceived technological apparatus have many biological analogies. The author claims 1960 for the origin of this science, but obviously its roots go far beyond that, for 1960 was only the date of the coining of the term, bionics.

Examples which are cited are muscle action, biological design, flight, sensory organs, intelligence, electrical energy, etc. These are fascinating examples, and fully illustrated, of how technology is aided in unanticipated ways by biology. Indeed, this is one book which gets the message across clearly to engineering-minded students reluctant to "touch" biology.

A very good book for the high school library and an instructive book for biology teachers.

ESSENTIALS OF BIOLOGICAL CHEMISTRY, 2nd. Ed., Fairley and Kilgour, 314 pp., \$9.00, Reinhold Book Division, New York, 1966.

In the preface, the authors state that this book was "written specifically to serve as a text for the introductory course in biochemistry at the undergraduate level." Students using this text are not apt to be motivated to pursue the subject further. The presentation is unimaginative and uninspiring. It does not convey to the reader the exciting possibilities of recent advances in biochemistry, but rather presents the basic material in a straightforward manner with little attempt to emphasize the more important aspects of the field or their significance.

It would be most helpful to the beginning student if names of compounds always accompanied their structural depictions. The legibility of the illustrations would be improved markedly with the use of a larger, bolder typeface and with heavier lines.

The second edition is reasonably up to date and is free of any major errors. The material dealing with protein synthesis and genetic information has been enlarged. Hormones are discussed in some detail but sections on acid-base balance and nutrition are not included. Also missing or little emphasized are typical chemical reactions which the various categories of compounds undergo or which are used for their identification. This book, more than some others, does place "special attention on the relationship of chemical structure to biological function." It

is suitable only for a beginning course in undergraduate biochemistry.

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Earth Science

HANDBOOK OF PALEONTOLOGICAL TECHNIQUES, Bernhard Kummel and David Raup, Eds., 852 pp., \$18.00, W. H. Freeman and Company, San Francisco, 1965.

A thorough compilation of techniques, equipment, methods, etc., which can be used in paleontological studies. The only critique which can be made for its use by a novice, presumably a biology teacher for example, is the scantiness of illustrative material. More illustrations would definitely have been of great help.

The book is the result of a project of the Paleontological Society and as such had many contributors of an outstanding character. Each essay is brief with full bibliography.

The main parts are: general procedures as applied to major fossil groups; descriptions of specific techniques including collecting and preparation, casting, illustrations, and radiation; palynology; and detailed bibliographies. The index is comprehensive.

For the biologist, paleontology has been largely ignored, especially by the teacher anxious to find project ideas and laboratory exercises. For example, the extensive treatment of palynology is a gem for biologists.

This is a highly recommended book for reference purposes, for the biologist and teacher.

History and Philosophy of Science

THE SCIENTIST, Henry Margenau and David Bergamini, 200 pp., Time-Life Science Library, New York, 1966.

In this volume of a remarkable series, the authors attempt to depict the scientist and the realm of science. This includes some attention to the world's roster of Nobel winners, the scientific method, and the impact of science on the world. An interesting series of charts depicts the growth and proliferation of the various sciences throughout history. Some of the essays do not come off too well, e.g., those about the impact of science on man or the depiction of the "scientific establishment."

In most cases, notably that of the scientific method, the background of the authors is obvious, for examples are chosen from physics, and biology, while mentioned, is not given "equal rights" by any means. However, the illustrations are in the usual high quality for this series.

THE SCIENTIFIC COMMUNITY, Warren O. Hagsstrom, 304 pp., \$5.50, Basic Books, Inc., New York, 1966.

A sociologist here examines the scientific community in ways in which scientists frequently talk with each other. As a result, the author has come up with a highly documented and unusually well annotated publication. However, biology is conspicuous by its slight treatment; mathematicians and chemists dominate the topic as the author sees it. Perhaps, these particular groups have a great deal more conflicts than have yet confronted the biologists.

The author is very perceptive in talking about the peck orders, the segmentation of disciplines, the business of publication, promotions, prestige, motivation for research, etc.

Although this will not be appealing to the practicing teacher, it is an interesting commentary on those who are actively engaged in research. The author's *modus operandi* was to have elaborately unstructured interviews in which essential positions were elucidated. Further, he has gone over the literature very carefully which has been written on the problems which he tackles. The result is a fine compilation of where we stand in the scientific community. There is a great deal of tension in the community, and a number of personalities and opinions which make scientific research an unusually personal occupation. One of the author's theses is that there is much social control of science and he is able to prove this quite effectively, but no more dramatically than in the control which scientists exercise upon each other.

A most interesting book for those in research, the administrators of same, and science department heads who should know what the sociological view of scientists is.

THE SCIENTIFIC AGE, L. V. Berkner, 137 pp., \$7.50, Yale University Press, New Haven, Connecticut, 1964.

A series of lectures which are at once prophetic and insightful. It's truly amazing what the author points out as desiderata for a more meaningful science policy for many groups in this country.

The first essay tells of the evidence for science and technology as being of primary importance in economic growth, and the evidence is impressive. The second essay is of prime importance for the science educator since it provides overwhelming evidence of the importance and need for better and more science education. If one takes the average I.Q. of current doctorates, it turns out that some 90% of similar I.Q. high school graduates do not finish college and a higher percent do not receive an advanced