

and excellent bibliographies. It is an important text for the radiobiologist in at least two respects. First, it is an essential reference on external radiation effects, and, secondly, it eliminates the search for obscure CH and MDDC reports which certainly were not readily available in the usual library channels even after they were declassified. The many aspects of the reactions of living systems to radiation which are discussed here make this a desirable introductory text for students. There is much provocative material which can be the starting point for further investigations. Tables and graphs are used generously throughout the text. (Edited by Raymond E. Zirkle; National Nuclear Energy Series, Div. IV, vol. 22B; McGraw-Hill Book Company, Inc., New York, 1954; 530 pp.; \$7.25.)

Biophysics

The Size and Growth of Tissue Cells, by Joseph G. Hoffman, is a biophysical description of the problem of cell sizes in tissues along with original data. The first chapter reviews the history of the subject beginning with H. Lebert in Paris in 1830, touching on the related topic of the nucleocytoplasmic ratio, and ending with most recent techniques for measuring cell parts. Emphasis is placed on the frequency distribution of sizes, either of cells or of their nuclei, because this distribution is closely related to the time parameters in the life of cells. The chapter on time parameters reviews the existing data on mitotic indices, intermitotic times, and duration times of mitosis in cells. A practical discussion of turnover times of cells in body tissues is given along with other time parameters. The concept of the stochastic process is described and applied to events in the life of a tissue cell. Correlations between the nuclear and cytoplasmic volumes of mouse tumor cells show that the over-all exponential growth of the tumor mass reflects exponential growth of the individual cell cytoplasm. The book is well-written in nontechnical language for medical students, biologists, and physicists alike. (128 pp.; Charles C Thomas, Inc., Springfield, Ill., 1953; \$4.00.)

Cryogenics

A series of four lectures, constituting a course given at the Royal Institution, has been published as a small, yet very useful and readable, monograph on *Low Temperature Physics*, by F. E. Simon, N. Kurti, J. F. Allen, and K. Mendelssohn (132 pp. Academic Press, Inc., N. Y., 1952; \$3.50). In addition to a general survey of low temperature problems, there are discussions of the temperature range below 1°K, liquid helium, and superconductivity.

Astronomy

A History of Astronomy by J. L. E. Dreyer is a republication of the original *History of the Planetary Systems from Thales to Kepler* with a new introduction and additional notes by W. H. Stahl of New York University. (430 pp.; Dover Publications, Inc., New York, 1953; clothbound \$3.95, paperbound \$1.95.)

Books Received

DONNÉES SPECTROSCOPIQUES CONCERNANT LES MOLÉCULES DIATOMIQUES and ATLAS DES LONGUEURS D'ONDE CARACTÉRISTIQUES DES BANDES D'ÉMISSION ET D'ABSORPTION DES MOLÉCULES DIATOMIQUES. Parts 4 and 5, International Commission for Tables of Constants and Numerical Data (International Union of Pure and Applied Chemistry). Editor-in-Chief B. Rosen. 361 pp. and 389 pp. Hermann & C^{ie}, Paris, France, 1951 and 1952.

ELECTRO-ACOUSTICS (Proceedings of the First ICA Congress). Edited by C. W. Kosten and M. L. Kasteleyn. 306 pp. W. D. Meinema, Ltd., Delft, The Netherlands, 1953.

ESSAYS IN SCIENCE. By Albert Einstein. 114 pp. Philosophical Library, New York, 1954. \$2.75.

PROCEEDINGS OF THE SECOND INTERNATIONAL CONGRESS ON RHEOLOGY (Oxford, 1953). Edited by V. G. W. Harrison. 451 pp. Academic Press Inc., New York, 1954. \$10.00.

UITWENDIGE BALLISTIEK. By W. Bevelander. 165 pp. Uitgeverij Excelsior, 's-Gravenhage, The Netherlands, 1954. Paperbound.

THE PRESENT STATE OF PHYSICS (Symposium of the American Association for the Advancement of Science, 1949). Arranged by Frederick S. Brackett. 265 pp. AAAS, Washington, D. C., 1954. \$6.75 (AAAS members, \$5.75).

HIGH ENERGY RADIATION. Volume I of Radiation Biology. Parts I and II. Edited by Alexander Hollaender, with the cooperation of Austin M. Brues, Hermann J. Muller, Berwind P. Kaufmann, and Lauriston S. Taylor. 1265 pp. McGraw-Hill Book Company, Inc., New York, 1954. \$17.50 (not sold separately).

PROGRESS IN BIOPHYSICS AND BIOPHYSICAL CHEMISTRY. Volume 4. Edited by J. A. V. Butler and J. T. Randall. 339 pp. Academic Press Inc., New York, 1954. \$9.50.

HEAT CONDUCTION WITH ENGINEERING, GEOLOGICAL, AND OTHER APPLICATIONS (Revised Edition). By Leonard R. Ingersoll, Otto J. Zobel, and Alfred C. Ingersoll. 325 pp. The University of Wisconsin Press, Madison, Wisconsin, 1954. \$5.00.

MOLECULAR THEORY OF GASES AND LIQUIDS. By Joseph O. Hirschfelder, Charles F. Curtiss, and R. Byron Bird. 1219 pp. John Wiley & Sons, Inc., New York, 1954. \$20.00.

JENAER JAHRBUCH, 1953. 269 pp. Published by VEB Carl Zeiss. Kommissionsverlag VEB Gustav Fischer, Jena, Germany, 1953. DM 18.—.

THE OPTICAL PROPERTIES OF ORGANIC COMPOUNDS (Second Revised Edition). By Alexander N. Winchell. 487 pp. Academic Press Inc., New York, 1954. \$12.00.

THE PHYSICS OF EXPERIMENTAL METHOD. By H. J. J. Braddick. 404 pp. John Wiley & Sons, Inc., New York, 1954. \$7.00.

THE PERMANENT REVOLUTION IN SCIENCE. By Richard L. Schanck. 112 pp. Philosophical Library, New York, 1954. \$3.00.

OPTICAL IMAGE EVALUATION (Proceedings of NBS Semi-centennial Symposium, 1951). NBS Circular 526. 289 pp. U. S. Government Printing Office, Washington 25, D. C., 1954. \$2.25.

COLLEGE TEXTBOOK OF PHYSICS (Sixth Edition). By Arthur L. Kimball. Revised by Alan T. Waterman. 942 pp. Henry Holt and Co., New York, 1954. \$7.95.

PRINCIPLES OF GEOMORPHOLOGY. By William D. Thornbury. 618 pp. John Wiley & Sons, Inc., New York, 1954. \$8.00.