

connected with experiment and consequently involve comparatively abstruse mathematical formulations. A newcomer to this field finds great difficulties in understanding past developments and results, for each author uses his own particular notation and language. Even among the most learned practitioners there is disagreement on the meaning of the language and consequently of the results.

A book such as the present one, which summarizes the past in a consistent notation and language, is clearly of great value. In the first part, the author deals with the mathematics of this subject; in particular, he discusses the properties of tensors and spinors. The results of field theory are then summarized, and it becomes possible to delve into relativistic wave equations. Here particular attention is paid to the equations mentioned above. Equations of higher spin and their difficulties are then discussed, and there is a section on particles of 0 rest mass and the connected property gauge invariance. In these sections, which form the major part of the book, the author is essentially giving an expression of the work of Bhabha, Chandra, Kemmer, Pauli, and Fierz.

This is not a book for beginners. There is very little appeal to intuitional arguments, either physical or geometric. There is a heavy reliance, particularly in the last chapter, "Relativistic Wave Equations—Matrix—Algebraic Aspect," on the concepts and results of group theory. However, given this initial background, the book is clearly written, and except for the recent work of Wigner and Bargmann, which is only briefly summarized, fairly complete. It should be particularly useful as a reference book and source of bibliography.

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Rheology

Flow Properties of Disperse Systems, edited by J. J. Hermans of the University of Leiden (445 pp., North-Holland Publishing Co., Amsterdam, and Interscience Publishers, Inc., New York, 1953, \$9.90), is one of a series of monographs on the rheological behavior of natural and synthetic products being issued by the North-Holland Publishing Co. under the editorial supervision of J. M. Burgers, J. J. Hermans, and G. W. Scott Blair. The individual chapters of this volume cover a wide variety of topics prepared by various English and continental rheologists. Professor Hermans discusses gels and dilute solutions of flexible chain molecules. Ch. Sadron reviews dilute solutions of impenetrable rigid particles with special emphasis on the theory of Brownian movement and the rheology of dilute suspensions of small particles. There is a chapter on suspensions by I. R. Roscoe and chapters on emulsions and liquid sprays by E. G. Richardson. H. L. Green has a short chapter on atomization of liquids and another on smoke. The structure and mechanical properties of foams are reviewed by Raphael Matalon and B. S. Neumann has written the chapter on powder.

Books Received

INTRODUCTION TO COLLEGE PHYSICS. By Rogers D. Rusk. 816 pp. Appleton-Century-Crofts, Inc., New York, 1954. \$6.50.

THE PRINCIPLES OF PHYSICAL OPTICS. AN HISTORICAL AND PHILOSOPHICAL TREATMENT. By Ernst Mach. Translated by John S. Anderson and A. F. A. Young. 324 pp. Dover Publications, Inc., New York, 1954. Paperbound \$1.75; clothbound \$3.50.

BASIC MECHANISMS IN RADIOBIOLOGY. Part II, PHYSICAL AND CHEMICAL ASPECTS. Edited by John L. Magee, Martin D. Kamen, and Robert L. Platzman. 145 pp. Publication 305 of the Subcommittee on Radiobiology, Committee on Nuclear Science, National Research Council, Washington 25, D. C., 1953. \$1.00.

NUCLEAR RADIATION PHYSICS (Second Edition). By Ralph E. Lapp and Howard L. Andrews. 532 pp. Prentice-Hall, Inc., New York, 1954. \$7.35.

FLUORESCENCE ANALYSIS IN ULTRA-VIOLET LIGHT (Fourth Revised Edition). By J. A. Radley and Julius Grant. 560 pp. D. Van Nostrand Co., Inc., New York, 1954. \$12.00.

GRAPHICS IN ENGINEERING AND SCIENCE. By A. S. Levens. 696 pp. John Wiley & Sons, Inc., New York, 1954. \$7.00.

ELECTRONICS. By George F. Corcoran and Henry W. Price. 459 pp. John Wiley & Sons, Inc., New York, 1954. \$7.00.

TROPICAL METEOROLOGY. By Herbert Riehl. 392 pp. McGraw-Hill Book Company, Inc., New York, 1954. \$8.50.

PHYSICAL METEOROLOGY. By John C. Johnson. 393 pp. The Technology Press of the Massachusetts Institute of Technology and John Wiley & Sons, Inc., New York, 1954. \$7.50.

GEOMETRICAL MECHANICS AND DE BROGLIE WAVES. By J. L. Synge. 167 pp. Cambridge University Press, New York, 1954. \$4.75.

ATOMIC ENERGY. A SURVEY. Edited by J. Rotblat. 72 pp. Taylor & Francis Ltd., London, England, 1954. Clothbound 6/6; paperbound 4/6.

TRANSACTIONS OF THE SYMPOSIUM ON FLUID DYNAMICS AND COMPUTING (New York University, 1953). Edited by Garrett Birkhoff, K. O. Friedrichs, and T. E. Sterne. 243 pp. Interscience Publishers, Inc., New York, 1954. \$5.00.

INTRODUCTION TO ELLIPTIC FUNCTIONS WITH APPLICATIONS. By F. Bowman. 115 pp. John Wiley & Sons, Inc., New York, 1954. \$2.50.

CHEMISTRY OF THE DEFECT SOLID STATE. By A. L. G. Rees. 136 pp. Methuen & Co. Ltd., London, England; John Wiley & Sons, Inc., New York, 1954. \$2.00.

TABLE OF SECANTS AND COSECANTS TO NINE SIGNIFICANT FIGURES AT HUNDREDTHS OF A DEGREE. NBS Applied Mathematics Series 40. 46 pp. U. S. Government Printing Office, Washington 25, D. C., 1954. \$0.35.

A TEXTBOOK OF RADAR (Second Edition). Edited by E. G. Bowen. 617 pp. Cambridge University Press, New York, 1954. \$8.50.

APPLIED ATOMIC ENERGY. By K. Fearnside, E. W. Jones, and E. N. Shaw. 156 pp. Philosophical Library, New York, 1954. \$4.75.

LES APPLICATIONS DE LA MÉCANIQUE ONDULATOIRE A L'ÉTUDE DE LA STRUCTURE DES MOLÉCULES. Conference, April-June 1951 under presidency of Louis de Broglie. 219 pp. Éditions de la Revue D'Optique Théorique et Instrumentale, Paris, France, 1953. Paperbound 1600 francs.