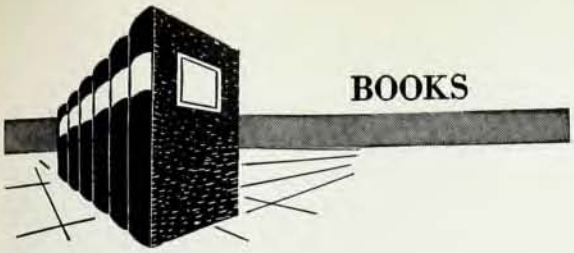

BOOKS

Survey

COSMIC RAY PHYSICS. By D. J. X. Montgomery. 370 pp. Princeton University Press, Princeton, N. J. 1949. $5.00.

When Victor Hess discovered cosmic radiation, in a borrowed balloon named "Böhmen," he incidentally set the world's altitude record for manned balloons at that time (1912). Other researchers had not flown so high, and some of them suggested that his instruments might have gone berserk at those altitudes. As everyone now knows, the instruments were correct, Hess was ultimately awarded a Nobel Prize, and cosmic rays were here to stay. It is somewhat disturbing, then, to find that the present volume records the objections of Hess's critics along with the history of his achievement. We mention this small point because it illustrates the emphasis on compilation which is apparent in many sections of this book. The author (the Princeton-Aberdeen Montgomery, not one of the Yale Montgomerys) gives a thorough presentation of the data and conclusions of many workers in the principal fields of cosmic ray research, but he sometimes sacrifices clarity for completeness. Since the book is primarily intended as a text for physicists who are not cosmic ray specialists, its readers may occasionally find themselves snowed under by a mass of numbers and references to the literature.

The major part of the book is a survey of experimental results. An excellent chapter on the intensities of the radiations is followed by accounts of the more detailed experiments on mesons, electrons and photons, and the heavy particles. Of the major experiments only the scattering of mesons seems to have been slighted. There is no detailed exposition of cosmic ray theory, but some useful approximate results and qualitative discussions of cosmic ray interactions are given.

The specialist in cosmic rays will find here the most complete survey which has been published of the high-altitude studies of Schein and collaborators, including several previously unpublished results. (The book had its origin in Professor Schein's lectures at Princeton in 1946.) An appendix summarizes Arley's results on the shower fluctuation problem, which have not been widely available in this country.

Robert W. Williams
Massachusetts Institute of Technology

Experimental Techniques

SCIENTIFIC FOUNDATIONS OF VACUUM TECHNIQUE. By Saul Dushman. 882 pp. John Wiley and Sons, Inc., New York City. 1949. $15.00.

Dr. Dushman's book is good for whatever ails high vacuum systems. Both fundamental physics and chemistry (kinetic theory of gases, sorption, vapor pressures, dissociation pressures) and practical devices (all sorts of pumps, manometers, traps, and getters, including specific makes and types) are treated in an encyclopedic manner. Important relations are clearly explained and are presented in units which make them available for practical use. For a deeper insight the literature is summarized historically and critically. From any section one could go on to an intensive study with guidance against repeating past work or being initially led astray.

It is hopeless from many points of view to make any detailed comments about Dr. Dushman's book. Looking back, the reviewer wishes he had had it on numerous occasions.

J. R. Pierce
Bell Telephone Laboratories

Books Received

TABLES OF SCATTERING FUNCTIONS FOR SPHERICAL PARTICLES. 119 pp. Department of Commerce, U. S. Government Printing Office, 1949.

PHOTOELECTRICITY AND ITS APPLICATION. An expanded version of PHOTOCELLS AND THEIR APPLICATION. By V. K. Zworykin and E. G. Ramberg. 494 pp. John Wiley & Sons, Inc., New York, 1949. $7.50.

THEORY OF OSCILLATIONS. English Language Edition. By A. A. Andronow and C. E. Chaikin. 358 pp. Princeton University Press, Princeton, N. J., 1949. $6.00.

THE CHEMISTRY OF HIGH POLYMERS. By C. E. H. Bawn. 249 pp. Interscience Publishers, Inc., New York, 1948. $4.50.

FORMULAS AND THEOREMS FOR THE SPECIAL FUNCTIONS OF MATHEMATICAL PHYSICS. By Wilhelm Magnus and Fritz Oberhettinger. (Translated from the German by John Wermer.) 172 pp. Chelsea Publishing Co., New York, 1949. $3.50.

ENGINEERING OPTICS. By K. J. Habell and Arthur Cox. 411 pp. Sir Isaac Pitman and Sons, Ltd., London, 1948. 35/.

PRINCIPLES OF ELECTRICITY. (Second Edition.) By Leigh Page and Norman Ilsley Adams, Jr. 619 pp. D. Van Nostrand Co., Inc., New York, 1949. $5.50.

ELECTRIC AND MAGNETIC FIELDS. (Third Edition.) By Stephen S. Attwood. 475 pp. John Wiley & Sons, Inc., New York, 1949. $5.50.

THE MATHEMATICS OF CIRCUIT ANALYSIS. By E. A. Guillemin. 590 pp. The Technology Press, Massachusetts Institute of Technology and John Wiley & Sons, Inc., New York, 1949. $7.50.

BASIC OPTICS FOR THE SPORTSMAN. By Earle B. Brown. 259 pp. Stoeger Arms Corporation, New York, 1949. $4.00.

PHYSICS IN THE MODERN WORLD. By Henry Semat. 434 pp. Rinehart and Company, Inc., New York, 1949. $5.00.

ELECTRON TUBES, VOLUMES I AND II. Edited by Alfred N. Goldsmith, Arthur F. Van Dyck, Robert S. Burnap, Edward T. Dickey, George M. K. Baker. Vol. I, 475 pp. Vol. II, 454 pp. RCA Laboratories Division, Princeton, N. J., 1949. $2.50.

ISOTOPES AND THEIR APPLICATION IN THE FIELD OF INDUSTRIAL MATERIALS. By Paul C. Aebersold. 28 pp. American Society for Testing Materials, Philadelphia, 1949. $1.00.