

articles, plus eight appendices, an author and a subject index, representing the contributions of 42 collaborators—of this monumental work. A brief survey of the contents, coupled with the exhortation that every nuclear physicist who has not already done so should set aside an afternoon in the library for a leisurely perusal of this book, will have to suffice.

Surveys of the interactions of electrons and photons with matter are followed by thorough discussions of the various techniques of beta- and gamma-ray spectroscopy. Then come chapters on the theory of beta decay and on the experimental results relating to the elucidation of the nature of the electron-neutrino field and its interaction with nucleons. Chapters on the theory of photon emission, internal conversion, and the shell model are followed by discussions of the results of β - and γ -ray spectra and isomers in elucidating the systematics of nuclear shell structure and the nature of the collective modes of nuclear motion. The rest of the volume contains contributions relating to various special techniques and applications—measurement of short lifetimes, angular correlations, etc., etc. The appendices contain indispensable tables of absorption coefficients, Fermi functions, forbidden shape factors, internal conversion coefficients, etc.

Inevitably, the contributions spill over into other aspects of nuclear spectroscopy, all however related in that an electron or γ -ray measurement is involved (α - γ correlations, charged particle reactions, neutron capture γ -rays). These indications of the interconnections between various aspects of nuclear physics serve to emphasize the great need for similar compilations covering the other phases of the field. It is to be hoped that such will follow soon, and that they will all maintain the lofty standard set by this work.

Theory of Ordinary Differential Equations. By Earl A. Coddington and Norman Levinson. 429 pp. McGraw-Hill Book Company, Inc., New York, 1955. \$8.50. Reviewed by T. Teichmann, Lockheed Aircraft Corporation.

This book provides the most complete and up-to-date treatment of the theory of ordinary differential equations presently available. Since the authors are both pure mathematicians the treatment is rigorous and does not make any concession to readers who are only interested in applying the results and who would be satisfied by heuristic arguments and vague hand waving in place of a proof. This is not to say, however, that the book will not prove useful to those interested in applications. The important results are all stated as theorems and corollaries, and while the treatment is quite formal, each chapter is prefaced with a section describing the central problem to be discussed, and the general methods of the text are complemented by a series of more specific problems at the end of each chapter, together with hints for their solution.

Among the topics treated are the existence and

uniqueness of solutions, linear differential equations with and without singularities, the asymptotic behavior of solutions both as a function of the independent variable, and of parameters of the equation, self-adjoint and non-self-adjoint boundary value problems, oscillation and comparison theorems, perturbation of periodic systems, and a topological discussion of two dimensional systems. There is also a list of the basic references for each chapter at the end of the book.

The sections on asymptotic expansions, non-self-adjoint boundary value problems, and on perturbation theory, in particular, will repay careful study, for this material is not readily available in other general works with the same degree of completeness. In fact, this volume, taken together with one of the standard books on special functions, will probably provide as much information as can reasonably be required as far as any applications are concerned, and will certainly give a thorough grounding for further mathematical research.

The Origin of the Earth (Second Edition). By W. M. Smart. 224 pp. Penguin Books, Inc., Baltimore, Md., 1955. Paperbound \$65. Reviewed by S. F. Singer, University of Maryland.

This little volume is done in a very readable and popular style but has a misleading title. It is really a popular exposition of astronomy and covers besides the earth also the solar system and the stars. Much of the book also deals with atomic structure and radioactivity. There are eight photographic plates of very good quality. This very fine book by the distinguished Glasgow astronomer should be well suited for additional reading in physics and astronomy courses.

Everyday Physics (Second Edition). By Ole A. Nelson and John G. Winans. 614 pp. Ginn and Company, Boston, Mass., 1955. \$4.36. Letter to the Editor from John G. Winans, University of Wisconsin.

In a review of the 1952 edition of this book published in the January 1954 issue of *Physics Today*, a number of errors were pointed out. Most of the errors have been corrected in the present 1955 edition. Correction sheets for remaining errors may be obtained by writing to the publisher.

Books Received

CLASSICAL ELECTRICITY AND MAGNETISM. By Wolfgang K. H. Panofsky and Melba Phillips. 400 pp. Addison-Wesley Publishing Co., Inc., Cambridge, Mass., 1955. \$8.50.

IMAGINATION'S OTHER PLACE. Poems of Science and Mathematics. Compiled by Helen Plotz. 200 pp. Thomas Y. Crowell Co., New York, 1955. \$3.50.

TRANSMISSION-LINE THEORY. By Ronold W. P. King. 509 pp. McGraw-Hill Book Co., Inc., New York, 1955. \$12.00.