phosphorylases, with brief examples of the members in the various classes; the oxidative enzymes; and the splitting, transferring, and isomerizing enzymes.

The last two chapters, in which the author discusses the inactivation of enzymes and the mechanism of enzyme action, are by far the best in the book. In these chapters, the author introduces the student to many concepts that are not found in the average college textbook.

The main criticism that I offer concerns the lack of adequate references, especially in the first seven chapters. It is my opinion that this introductory textbook will serve the purposes for which it was intended.

HOWARD B. BENSUSAN

Department of Physiology,
University of Maryland School of Medicine

The Dynamics of Virus and Rickettsial Infections. International symposium sponsored by the Henry Ford Hospital, 21–23 Oct. 1953. Frank W. Hartman, Frank L. Horsfall, Jr., and John G. Kidd, Eds. Blakiston, New York, 1954. xii + 461 pp. Illus. $7.50.

A résumé of this symposium written by one of the editors of the book recently appeared [*Science* **119**, 427 (1954)]. Since it provides an excellent summary of the content of the symposium and, thereby, an outline of the present volume, this review is critical rather than abstractive. Taken individually, the majority of the articles are timely and thought provoking; several are detailed research reports and several are general reviews. Most, however, attempt to reveal or to stimulate inquisitiveness into the basic dynamics of viral and rickettsial action and host relationships; the greater proportion of these succeed in this attempt.

The editors have allowed drastic revision by the participants. This is lamentable. A few of the authors, in the obsequious interest of a stereotyped scientific report, have removed the spice that added savor to their original presentation. One paper in particular has little, if any, resemblance to the original. Many references to earlier papers made by later participants and discussants are therefore without precedent.

In the main, the illustrations are well chosen and presented. The book would have had a more polished appearance if several charts of the quill-pen variety had been redrawn.

This book, because of a timely topic presented by a select group of participants, should be both stimulating and informative to the virus worker. The provocative viewpoints of these authorities, no doubt, will establish the trend for basic viral research for some time. Had these papers and the discussions been organized more coherently, this book could have been recommended to readers other than those actively engaged in research in this field.

MERRILL J. SNYDER

Section of Infectious Diseases,
Department of Medicine,
University of Maryland School of Medicine

A First Course in Ordinary Differential Equations. Rudolph E. Langer. Wiley, New York; Chapman & Hall, London, 1954. 249 pp. Illus. $4.50.

This is a teachable and eminently sound textbook for a beginning course, written by a recognized authority on the subject. The author has included an astonishing range of topics in a very few pages and has achieved the happy combination of mathematical clarity with physical applications. Each item is treated with the utmost brevity compatible with precision. Abundant problems are supplied. Besides what may be called the usual material included in a beginning course, there are sections on the Riccati equation, Legendre, Bessel, gamma, and hypergeometric functions, and Laplace transform. These sections should be valuable and stimulating introductions to further study. Other features that may be mentioned are greater emphasis on exact equations, systematic use of first integrals, and reduction of the solution of the second-order linear equation with constant coefficients to the solution of a Riccati equation.

Here is a first-class addition to the postwar spate of differential-equations textbooks.

M. E. SHANKS

Departments of Mathematics
and *Aeronautical Engineering, Purdue University*

Introduction to Nuclear Engineering. Richard Stephenson. McGraw-Hill, New York–London, 1954. xii + 387 pp. Illus. $8.

Richard Stephenson has produced a volume that admirably fills a very important gap in the field of engineering textbooks. As stated in the preface,

> . . . although the original development of nuclear energy was carried out almost entirely by theoretical scientists, now that the fundamental principles have been established, the further use of nuclear energy is falling more and more into the province of the engineer. If the engineering profession is to accept the responsibilities created by this new scientific field, the younger engineers must be willing to undertake such problems as radiation shielding, radiation damage, chemical processing of radioisotopes, and the engineering design of nuclear chain reactors.

The author has succeeded in writing a textbook that provides a solid basis for any engineering student, in his senior or graduate years, to acquire the rudiments of the underlying technology in this field. He has written from an engineer's viewpoint, supplying many illustrative worked-out examples in the text and a large selection of problems at the end of each chapter.

For those readers unfamiliar with the properties of neutrons and their interactions with matter, the first four introductory chapters are provided. The last of these is a fairly complete account of reactor theory, which is probably the part of the book that would be expected to be the most difficult for the average engineering student. However, adequate references to the more extensive discussion in the recent book by Glass-

tone and Edlund [*The Elements of Nuclear Reactor Theory* (Van Nostrand, New York, 1952)] are provided.

The chapter on radiation shielding is the best discussion of this field, exclusive of classified material, that I have seen. Additional chapters on materials of construction, reactor instrumentation, isotope separation, chemical processing, and special techniques in nuclear engineering complete a very valuable book.

The style of writing is clear and concise, and excellent judgment has been displayed in the level of maturity at which the mathematical proofs are presented. A working knowledge of first-year calculus is all that is required. Boundary value problems are adequately discussed without worrying the student with respect to the vast extent of the subject.

This book will be welcomed by the increasing number of university staffs who recognize the need for including instruction in the nuclear field for all students of modern engineering.

DONALD H. LOUGHRIDGE
The Technological Institute, Northwestern University

New Books

The Kidney. A Ciba Foundation Symposium arranged jointly with the Renal Association. A. A. G. Lewis and G. E. W. Wolstenholme, Eds. Little, Brown, Boston, 1954. xvi + 333 pp. Illus. + plates. $6.

Substances Naturelles de Synthèse. vol. IX. Préparations et méthodes de laboratoire. Leon Velluz, Ed. Masson, Paris, 1954. 186 pp. Illus.

Discover the Stars. Gaylord Johnson; revised by Irving Adler. Sentinel Books, New York, rev. ed., 1954. 130 pp. Illus. Paper, $0.75.

Protein Metabolism. R. B. Fisher. Methuen, London; Wiley, New York, 1954. ix + 198 pp. Illus. $2.50.

Shock and Circulatory Homeostasis. Trans. of the Third Conference, 14–16 Sept. 1953. Harold D. Green, Ed. Josiah Macy, Jr. Foundation, New York, 1954. 230 pp. Illus. $3.50.

Sex in Microorganisms. A symposium presented on 30 Dec. 1951 at Philadelphia meeting of AAAS. D. H. Wenrich, Ivey F. Lewis, and John R. Raper, Eds. AAAS, Washington, D.C., 1954. v + 362 pp. Illus. $5.75 (Members, $5.).

A Laboratory Program for General Chemistry. J. R. Morton, D. R. Clippinger, and L. P. Eblin. Houghton Mifflin, Boston, 1954. vi + 272 pp. Illus. Paper, $2.50.

Gmelins Handbuch der Anorganischen Chemie: Selen. System No. 10, pt. A, sec. 3. 1953. xviii + 184 pp. Illus. Paper, $26.64. ***Gmelins Handbuch der Anorganischen Chemie: Bor.*** System No. 13, supp. vol. 1954. vii + 253 pp. Illus. Paper, $33.60; cloth, $34.80. ***Gmelins Handbuch der Anorganischen Chemie: Gold.*** System No. 62, pt. 2. 1954. v + 306 pp. Illus. Paper, $40.32. ***Gmelins Handbuch der Anorganischen Chemie: Gold.*** System No. 62, pt. 3. 1954. xxi + 558 pp. Illus. Paper, $74.88. Edited by Gmelin Institute. Verlag Chemie, Weinheim, West Germany, ed. 8, U.S. Distrib.: Walter J. Johnson, New York, and Stechert-Hafner, New York.

Electroacoustics. The analysis of transduction and its historical background. Harvard Monogs. in Applied Science, No. 5. Frederick V. Hunt. Harvard Univ. Press, Cambridge, Mass.; Wiley, New York, 1954. viii + 260 pp. Illus. $6.

On the Sensations of Tone as a Physiological Basis for the Theory of Music. Hermann L. F. Helmholtz. Trans. and revised by Alexander J. Ellis. Dover, New York, Eng. ed. 2, 1954. xix + 576 pp. Illus. $4.95.

Aspects of Culture and Personality. A symposium. Francis L. K. Hsu, Ed. Abelard-Schuman, New York, 1954. xiii + 305 pp. $4.

The Inside Story. Psychiatry and everyday life. Compiled under the direction of Fritz Redlich; text written by June Bingham; with the collaboration of Jacob Levine. Knopf, New York, 1953. xiv + 280 pp. Illus. $4.

Television. The electronics of image transmission in color and monochrome. V. K. Zworykin and G. A. Morton. Wiley, New York and Chapman & Hall, London, ed. 2, 1954. xv + 1037 pp. Illus. $17.50.

Psychotherapy and Personality Change. Co-ordinated research studies in the client-centered approach. Carl R. Rogers and Rosalind F. Dymond, Eds. Univ. of Chicago Press, Chicago, 1954. x + 447 pp. $6.

The Concept of Schizophrenia. W. F. McAuley. Philosophical Library, New York, 1954. 145 pp. $3.75.

The Encyclopedia of Child Care and Guidance. Sidonie Matsner Gruenberg, Ed. Doubleday, Garden City, N.Y., 1954. 1016 pp. Illus. $7.50.

Laboratory Experiments in Physiological Chemistry. Arthur K. Anderson and Gordon H. Pritham. Wiley, New York and Chapman & Hall, London, ed. 2, 1954. ix + 179 pp. Illus. Paper, $2.90.

Structure Reports for 1950. vol. 13. A. J. C. Wilson, Gen. Ed.; N. C. Baenziger (metals), J. M. Bijvoet (inorganic compounds), and J. Monteath Robertson (organic compounds), Section Eds. Oosthoek, Utrecht, Holland, 1954 (For the International Union of Crystallography). viii + 643 pp. Illus. $21.50.

Progress in Metal Physics. vol. 5. Bruce Chalmers and R. Kind, Eds. Interscience, New York; Pergamon Press, London, 1954. vii + 324 pp. Illus. + plates. $9.50.

Limit Distributions for Sums of Independent Random Variables. B. V. Gnedenko and A. N. Kolmogorov. Trans. by K. L. Chung. Addison-Wesley, Cambridge, Mass., 1954. ix + 264 pp. $7.50.

Plastics Engineering Handbook of the Society of the Plastics Industry. Reinhold, New York, ed. 2, 1954. xxxv + 813 pp. Illus. + charts. $15.

Diagnosis and Treatment of the Acute Phase of Poliomyelitis and Its Complications. Albert G. Bower, Ed. Williams & Wilkins, Baltimore, 1954. x + 257 pp. Illus. $6.50.

Hypertension: Humoral and Neurogenic Factors. Ciba Foundation Symposium. G. E. W. Wolstenholme and Margaret P. Cameron, Eds. Little, Brown, Boston, 1954. xiv + 294 pp. Illus. + plate. $6.75.

The Biology of Man. John S. Hensill; with chapters by Joel F. Gustafson and Herman Zaiman. Blakiston, New York, ed. 3, 1954. vii + 440 pp. Illus. $5.50.

The Geometry of René Descartes. Trans. by David Eugene Smith and Marcia L. Latham. Dover, New York, 1954. xiii + 243 pp. Illus. Paper, $1.50; cloth, $2.95.

Nuclear Reactors for Industry and Universities. Ernest H. Wakefield, Ed. Instruments Publ., Pittsburgh, 1954. ix + 93 pp. Illus. $2.

A Dynamic Psychopathology of Childhood. Lauretta Bender. Thomas, Springfield, Ill., 1954. xi + 275 pp. Illus. $7.50.

Seismicity of the Earth and Associated Phenomena. B. Gutenberg and C. F. Richter. Princeton Univ. Press, Princeton, ed. 2, 1954. ix + 310 pp. Illus. $10.