La Chimie Nucléaire et Ses Applications. M. Haïssinsky. Masson, Paris, 1957. 651 pp. Illus. Cloth, F. 5600; paper, F. 5000.

In the case of a rapidly expanding field, up-to-date books are very important, and this one answers that need in nuclear chemistry. Prior knowledge on the part of the reader of the fundamental laws of radioactivity is assumed by the author.

The author points out that his work encompasses a greater field than the title would indicate. He has avoided in the title the use of such expressions as radiochemistry and tracer chemistry. He feels that this semantical approach is the least confusing.

At the risk of contributing to this confusion in nomenclature, I suggest that the book can be somewhat arbitrarily divided into four broad parts. The first eight chapters and one later chapter could be classed as nuclear chemistry and nuclear physics. The chapters which constitute this section are, "A brief history of radioactivity," "Nuclear chemistry and nuclear physics," "Fundamental particles," "The nuclei," "Spontaneous radioactive transformations," "Nuclear reactions," "Nuclear fission and reactors," "The natural radioelements," "The transuranium elements," "Chemical effects associated with nuclear transformations," and "Dissipation in matter of the energy of radiations."

The physical chemistry section includes: "Isotopic effects and separations," "Isotopic exchange," and "Distribution of a micro component between two phases."

The applications of natural and artificial tracers in the following fields are described: astrophysics, geology, and geochemistry; electrochemistry; analytical chemistry; chemical reaction mechanisms; biochemistry, physiology, and medicine; and technical and industrial applications.

The fourth part is devoted to radiation chemistry and radiation physics: chemical actions of ionizing radiations; radiolysis of water and aqueous solutions; radiolysis of organic compounds and biological effects of radiations; actions of radiations on solids; and fluorescence and coloration produced by radiations.

There is no part of the book devoted expressly to chemical separation procedures and techniques. However, this topic is given considerable attention in the sections on nuclear chemistry and physical chemistry.

There are a sufficient number of references to original publications to supplement sections of individual special interest.

In order to discuss all of the topics listed above, a book must necessarily be written in a concise manner. However, this work is clear and readable. It should be of value both to individuals who are primarily interested in nuclear properties and to those who use radioactivity in tracer applications.

WARREN G. SMITH
Indiana University

Linear Algebra for Undergraduates. D. C. Murdoch. Wiley, New York; Chapman & Hall, London, 1957. xi + 239 pp. Illus. $5.50.

Of the many books on matric theory which have appeared in the last decade, few are aimed directly at the undergraduate. This book seems to be so directed. The author states that the only prerequisite to its study are college algebra, including determinants and some knowledge of three-dimensional analytic geometry. However, a little more mathematical maturity would stand the student in good stead, since contact is made with vector analysis, systems of differential equations, and dynamics. These can be by-passed, however, and an appendix of 32 pages gives a good summary of solid analytic geometry.

The approach is by means of vector spaces. The usual elementary properties of matrices are developed, including quadratic form theory with applications to analytic geometry. Elementary divisor theory is entirely omitted, and the space devoted to the similarity of matrices is small.

The book contains relatively few of the concepts of abstract algebra, which I regret, for here is a place in the curriculum where a number of abstract concepts could be introduced, well clothed, in the flesh. Many important concepts are introduced casually in the problems; among these are symmetric, skew symmetric, and nilpotent matrices and the congruence of matrices. But, all in all, this should be a satisfactory text at the level for which it is designed.

C. C. MACDUFFEE
University of Wisconsin

Geologic Field Methods. Julian W. Low. Harper, New York, 1957. xv + 489 pp. Illus. Professional edition, $6; text edition, $4.50.

Prepared for the student or inexperienced field man, this book contains many useful details concerning techniques and methods. Suggestions for the use of the plane table, hints for the preparation of geologic maps, description of work with key beds, instructions for measuring dip and strike and for computing the thicknesses of formations, and directions for making field sketches are among the subjects comprising the ten chapters. The author's selection of topics must have been governed largely by the questions asked repeatedly by the immature field geologist. This book therefore meets a felt need, and I am sure that many teachers will recommend it to their students.

Several of my colleagues who have examined this volume hold the view that the addition of carefully selected bibliographic references would overcome the most serious shortcoming of the book. To this I would add a plea for better English. The monotony, for example, of reading sentence after sentence beginning with "it is" does not add force to the exposition.

This book is a welcome addition to the library of the geologist.

HUBERT G. SCHENCK
Stanford University

Laboratory Glass-Working for Scientists. A. J. B. Robertson, D. J. Fabian, A. J. Crocker, and J. Dewing. Academic Press, New York, 1957. xiv + 184 pp. Illus. $4.

This little volume contains a great deal of valuable information regarding the physical and chemical properties of various glasses used in scientific laboratories and describes in an easily understandable fashion the manipulations of glass that are of most importance to the experimental scientist. Far from trying to teach the skills possessed by professional glass blowers, the authors have emphasized methods which are relatively easy and simple and which, while not necessarily producing the most beautiful result, will enable the reader after some practice to assemble a usable piece of apparatus. Facilities for performing many of the operations and some "tricks" described in this book are not readily available everywhere. A fairly extensive chapter deals with the equipment needed for a glassworking shop, stressing the point that while a great many operations can be carried out with a few primitive tools, it is false economy to waste valuable research time for lack of proper shop facilities. The chapter on basic glassworking operations contains the usual information on bending, joining, and simple blowing procedures; methods for cementing and metalizing of glass are also described. Other chapters deal with the use of glassworking machines, with glass-to-metal seals of various kinds, and with the design of simple and of somewhat more complex pieces of apparatus, like McLeod gauges, diffusion

pumps, Soxhlet extractors, and so forth. Each chapter contains a large list of refrences, which may be very useful when more detailed information is needed.

Written primarily for British readers, the book not only contains information on many kinds of glass rarely seen in the United States but also stresses many precautions which have to be observed in order to handle these glasses successfully. The American reader, who uses Pyrex glass almost exclusively, will be able to achieve many of the same results with somewhat simpler methods. Since, however, a little excess of care is by no means harmful, the research worker who has to get along without the assistance of a professional glass blower will be well advised to begin his attempts at glassworking by following the methods which the authors of this very readable volume have described with great clarity and care.

I. ESTERMANN
Office of Naval Research

Mathematical Analysis. A modern approach to advanced calculus. Tom M. Apostol. Addison-Wesley, Reading, Mass., 1957. xii + 553 pp. $8.50.

The viewpoint of this textbook is excellently summarized by its subtitle, "A modern approach to advanced calculus." The material is serious substantial mathematics; topics traditionally from advanced calculus are supplemented with extra background for function theory. The author states his aim to be a development which is "honest, rigorous, up-to-date, and . . . not too pedantic." As examples of the level of difficulty, functions of several variables are treated as functions of a vector, and integration theory is Riemann-Stieltjes. Each of the 16 chapters is concluded with a liberal supply of provocative, meaty exercises. Many of these significantly extend the theoretical development or provide meaningful examples and counterexamples; a few include hints for solution.

The style is unusually readable. Definitions, theorems, proofs, notes are clearly marked. Proofs are selected for brevity and forcefulness. The author displays a knack for breaking the development into proper sized bits for easy handling by the student. Many theorems are accompanied by a note explaining how the facet described in the theorem fits into the structure. The printing is superior, the proofreading almost flawless; the only error in content noted is in definition 8–16. This book is difficult for a weak class but should be thoroughly appreciated as a text for the strong students.

R. A. GOOD
University of Maryland

New Books

Urine and Urinary Sediment. A practical manual and atlas. Richard W. Lippman. Thomas, Springfield, Ill., ed. 2, 1957. 149 pp. $8.50.

Pre-Employment Disability Evaluation. Detailed policies regarding applicants applying for employment with special reference to various disabilities. William A. Kellogg. Thomas, Springfield, Ill., 1957. 170 pp. $10.50.

Applied Optics and Optical Design. A. E. Conrady. Dover, New York, 1957 (unabridged and corrected edition of ed. 1). 527 pp. $2.95.

Biochemistry of Some Peptide and Steroid Antibiotics. E. P. Abraham. Wiley, New York; Chapman & Hall, London, 1957. 107 pp. $3.

Clinical and Immunologic Aspects of Fungous Diseases. J. Walter Wilson. Thomas, Springfield, Ill., 1957. 299 pp. $6.75.

Practical Clinical Chemistry. A guide for technicians. Alma Hiller. Thomas, Springfield, Ill., 1957. 282 pp. $6.50.

Verbal Behavior. B. F. Skinner. Appleton-Century-Crofts, New York, 1957. 488 pp. $5.50.

The Tao of Science. An essay on Western knowledge and Eastern wisdom. R. G. H. Siu. Technology Press, Massachusetts Institute of Technology; Wiley, New York; Chapman & Hall, London, 1957. 196 pp. $4.25.

Year of Crisis. Communist propaganda activities in 1956. Evron M. Kirkpatrick, Ed. Macmillan, New York, 1957. 434 pp. $5.50.

General Zoology. Mary J. Guthrie and John M. Anderson, Wiley, New York; Chapman & Hall, London, 1957. 723 pp. $7.50.

Pleistocene Man at San Diego. George F. Carter. Johns Hopkins Press, Baltimore, 1957. 416 pp. $8.

Techniques of Magnetic Recording. Joel Tall. With chapter 7, "Recording Sound in Nature," by Peter Paul Kellogg. Macmillan, New York, 1958. 495 pp. $7.95.

Heat Transfer. vol. II. Max Jokob. Technical and editorial assistance by Stothe Peter Kezios. Wiley, New York; Chapman & Hall, London, 1957. 684 pp. $15.

Annual Review of Nuclear Science. vol. 7. James G. Beckerley, Ed. Annual Reviews, Palo Alto, Calif., 1957. 504 pp. $7.

Animal Behavior. John Paul Scott. University of Chicago Press, Chicago, 1958. 292 pp. $5.

Cortisone Therapy. Mainly applied to the rheumatic diseases. J. H. Glyn. Philosophical Library, New York, 1957. 172 pp. $10.

Geography in the Twentieth Century. A study of growth, fields, techniques, aims, and trends. Griffith Taylor, Ed. Philosophical Library, New York; Methuen, London, ed. 3, 1957. 685 pp. $10.

Long, Long Ago. Mary Lou Clark. Pageant Press, New York, 1957. 37 pp. $2.

Around the World in 90 Minutes. The fabulous true story of the man-made moons. David O. Woodbury. Harcourt, Brace, New York, 1958. 269 pp. $5.75.

Hypnography. A study in the therapeutic use of hypnotic painting. Ainslie Meares. Thomas, Springfield, Ill., 1957. 279 pp. $7.75.

Human Relations in Industrial Research Management. Including papers from the sixth and seventh annual conferences on industrial research, Columbia University, 1955 and 1956. Robert Teviot Livingston and Stanley H. Milberg, Eds. Columbia University Press, New York, 1957. 429 pp. $8.50.

Toward the Liberally Educated Executive. Robert A. Goldwin, Ed. Fund for Adult Education, White Plains, N.Y., 1957. 122 pp.

High-Talent Manpower for Science and Industry. An appraisal of policy at home and abroad. J. Douglas Brown and Frederick Harbison. Princeton University, Princeton, N.J., 1957, 95 pp. $3.

Nationalism in Colonial Africa. Thomas Hodgkin. New York University Press, New York, 1957. 216 pp. $3.75.

Solid State Physics. Advances in research and applications. vol. 5. Frederick Seitz and David Turnbull, Eds. Academic Press, New York, 1957. 470 pp. $11.

Miscellaneous Publications

(Inquiries concerning these publications should be addressed, not to Science, *but to the publisher or agency sponsoring the publication.)*

Men, Steel, and Technical Change. Industrial Research Section, Department of Social Science, University of Liverpool. Department of Scientific and Industrial Research, London, 1957 (order from Her Majesty's Stationery Office). 36 pp. $0.36.

The Phylogeny and Classification of the North American Genera of the Suborder Tubulifera (Thysanoptera). Illinois Biological Monographs No. 25. Lewis J. Stannard, Jr. University of Illinois Press, Urbana, 1957. 200 pp. Paper, $2.50; cloth, $3.50.

Queensland Institute of Medical Research, Twelfth Annual Report of the Council of the Institute for the Year ended 30 June 1957. The Institute, Brisbane, Australia, 18 pp.

The Blood Lipids and the Clearing Factor. Third International Conference on Biochemical Problems of Lipids, 26–28 July 1956. Koninklijke Vlaamse Academie voor Wetenschappen, Letteren en Schone Kunsten van België, Brussels, Belgium, 1957. 418 pp.

Photography Through the Microscope. Kodak Publ. No. P-2. ed. 2. 72 pp. $0.75. *Abridged Scientific Publications from the Kodak Research Laboratories.* vol. XXXIII, 1951. 620 pp. Eastman Kodak Co., Rochester, N.Y., 1957.

Institute of Medical and Veterinary Science (South Australia), Eighteenth Annual Report of the Council, July 1955–June 1956. The Institute, Adelaide, Australia, 1957. 109 pp.

Agriculture and the Yearbook of Agriculture, 1849–1957. Office of Information, U.S. Department of Agriculture, Washington 25, 1957. 64 pp.

Looking Ahead in Fuels for Automotive Transportation. Society of Automotive Engineers, New York 17, 1957. 32 pp.