

**Industrial Research Laboratories of the United States.** Publication No. 844. Compiled by John H. Gribbin and Sue Singer Krogfus. National Academy of Sciences—National Research Council, Washington, D.C., ed. 11, 1961. x + 698 pp. \$12.

A compilation listing 5420 nongovernmental laboratories devoted to fundamental and applied research. The information, gathered in late 1959 and early 1960, was verified between May and July 1960. Emphasis was placed on listing subsidiaries under parent firms. This edition includes a useful 20,000-entry name index of personnel. The entries, arranged alphabetically, supply the following information: mailing address; name of the president; research staff—name of the director (usually) and the number and type of staff employed; and research areas.

**Viscoelastic Properties of Polymers.** John D. Ferry. Wiley, New York, 1961. xx + 482 pp. Illus. \$15.

This volume is the latest of three or four important works, devoted in whole or in large part to the viscoelastic properties of polymers, to be published in the United States during the past 12 months. In writing this book, Ferry set for himself four goals: assembling in one place of the informational tools needed by workers in the field to make measurements and interpret data; the straightforward exposition of the concepts of viscoelasticity from the ground up, for the benefit of beginners in the field; the delineation of areas requiring further theoretical and experimental work; and finally, the illustration of applications of viscoelastic functions and the reduced-variable technique to technological situations. This program is not necessarily as diversified and, perhaps, overambitious as it might seem, for these goals are not unrelated. For example, one could not get very far toward the second objective without accomplishing the first.

It will not surprise his colleagues to find that John Ferry develops his subject with a logical rigor that approaches the proverbial Lagrangian elegance about as closely as could any treatment of viscoelasticity, for the subject is still in its adolescence. Although it is logically coherent, this work is not a compilation of all work that has been done

on the viscoelastic properties of polymers, nor is it a stringing together of chapters on nonsequential, specialized subjects. Perhaps because he wished to adhere closely to this tone of coherence, the author has been selective. This has resulted in what some might consider important omissions. For example, there is only an allusion to the Eyring-Tobolsky reaction-rate theory of viscoelastic deformation, and there is no reference whatever to the James-Guth theory of rubber-like elasticity.

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**Digital Computers and Nuclear Reactor Calculations.** Ward C. Sangren. Wiley, New York, 1960. xi + 208 pp. \$8.50.

The past two decades have seen the birth and rapid parallel development of both high-speed digital computers and nuclear reactors. During the past decade it has become standard procedure to use digital computers for the solution of problems arising in nearly every phase of nuclear reactor design and application. A significant proportion of the available time on our largest and fastest digital computers is devoted specifically to calculations in these areas. Ward Sangren has long been associated with the application of digital computers to nuclear reactor calculations and thus is eminently qualified to write in this field. He states that a primary objective of his book is "to present the nuclear engineer or scientist with an introduction to high speed nuclear reactor calculations." The topics covered range over a broad field. Chapter headings include "Digital computers," "Programming," "Numerical analysis," "A code for fission product poisoning," "Diffusion and age diffusion calculations," "Transport equation—Monte Carlo," and "Additional reactor calculations." Each chapter is self-contained and can be read independently of the others.

The introduction reviews briefly the history of nuclear reactor and digital computer developments. Then surveys are given of the problems involved in building nuclear reactors and in solving problems on digital computers. Two chapters are devoted to a general description of digital computers and the preparation of computer programs. There is a chapter on the language and

methods of numerical analysis. As a transition to the last chapters, concerned with nuclear reactor calculations, there is a chapter which describes the various steps involved in setting up and solving a particular problem on a digital computer.

Because the range of subjects covered is so broad and the fields involved are developing so rapidly, Sangren has been able to give only a brief introduction to any specific topic.

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## New Books

### Biological and Medical Sciences

**Advances in Food Research.** vol. 10. C. O. Chinchester, E. M. Mrak, and G. F. Stewart, Eds. Academic Press, New York, 1960. 501 pp. \$13.

**Advances in Veterinary Science.** vol. 6. C. A. Brandley and E. L. Jungherr, Eds. Academic Press, New York, 1960. 393 pp. Illus. \$12.

**Advances in Virus Research.** vol. 7. Kenneth M. Smith and Max A. Lauffer, Eds. Academic Press, New York, 1960. 406 pp. \$10.

**The Amazing World of Medicine.** Helen Wright and Samuel Rapport. Harper, New York, 1961. 311 pp. \$3.50.

**Animal Husbandry Heresies.** Allan Fraser. Crosby Lockwood, London, 1960. 200 pp.

**Animal Parasites in Man.** N. H. Swelengrebel and M. M. Serman. Van Nostrand, Princeton, N.J., 1961. 662 pp. Illus. \$12.

**Annual Review of Entomology.** vol. 6. Edward A. Steinhaus and Ray F. Smith, Eds. Annual Reviews, Palo Alto, Calif., 1961. 478 pp. \$7.

**Bacterial Plant Pathogens.** C. Stapp. Translated by A. Schoenfeld. Oxford Univ. Press, New York, 1961. (Translated from *Pflanzenpathogen Bakterien*, Parey, Berlin, 1958.) 320 pp. Illus. \$6.75.

**Bailliere's Atlas of Female Anatomy.** Revised by Katharine F. Armstrong. Bailliere, Tindall and Cox, London; Williams and Wilkins, Baltimore, Md., ed. 6, 1960. 30 pp. + plates. \$3.50.

**Biochemistry for Medical Students.** William Veale Thorpe. Churchill, London; Little, Brown, Boston, Mass., ed. 7, 1960. 560 pp. Illus. \$9.

**Biological Degradation of Cellulose.** J. A. Gascoigne and Margaret M. Gascoigne. Butterworths, Washington, D.C., 1960. 270 pp. Illus. \$8.

**Carcinogenesis.** I. Hieger. Academic Press, New York, 1961. 149 pp. \$5.

**Cell and Tissue Culture.** John Paul. Williams and Wilkins, Baltimore, Md., 1960. 323 pp. Illus. \$7.50.

**Clinical Pharmacology.** D. R. Laurence and R. Moulton. Little, Brown, Boston, Mass., 1960. 498 pp. \$10.

**The Choice of a Medical Career.** Essays on the fields of medicine. Joseph Garland and Joseph Stoke III, Eds. Lippincott, Philadelphia, Pa., 1961. 241 pp. \$5.

**Clinical Toxicology.** C. J. Polson and R. N. Tattersall. Lippincott, Philadelphia, Pa., 1959. 600 pp. \$10. Describes the clinical features of poisoning in the home, covering common poisons and others of practical importance. The bibliography is selective.

**The Crisis in American Medicine.** Marion K. Sanders, Ed. Harper, New York, 1961. 159 pp. \$3.75.

**Essentials of Human Anatomy.** Russell T. Woodburne. Oxford Univ. Press, New York, ed. 2, 1961. \$12.50.

**Fossil Collecting.** An illustrated guide. Richard Casanova. Vinson Brown, Ed. Faber and Faber, London, 1960. 18s.

**Free Radicals in Biological Systems.** M. S. Blois *et al.*, Eds. Academic Press, New York, 1961. 405 pp. Illus. \$14.50.

**The Glycolysis and Respiration of Tumors.** Alan C. Aisenberg. Academic Press, New York, 1961. 237 pp. \$8.

**Handbook of Physiology.** R. J. S. McDowall. Lippincott, Philadelphia, Pa., ed. 43, 1960. 769 pp. Illus. \$12.50.

**The Harvey Lectures.** Academic Press, New York, 1961. 273 pp. Illus. \$8. Series 55, 1959-60.

**Heathland Ecology.** C. P. Friedlander. Harvard Univ. Press, Cambridge, Mass., 1961. 104 pp. Illus. \$1.75.

**How To Know the Butterflies.** Paul R. Ehrlich and Anne H. Ehrlich. Brown, Dubuque, Iowa, 1961. 262 pp. Illus. Illustrated keys to species found in North America, north of Mexico.

**Human Factors in Jet and Space Travel.** A medical-psychological analysis. S. B. Sells and Charles A. Berry. Ronald, New York, 1961. 402 pp. \$12.

**The Human Organism.** Russell Myles De Coursey. McGraw-Hill, New York, ed. 2, 1961. 671 pp. Illus. \$7.50.

#### Economics and the Social Sciences

**Advances in Psychosomatic Medicine.** Arthur Jores and Hellmuth Freyberger, Eds. Brunner, New York, 1961 (order from Basic Books, New York). 366 pp. Illus. \$8.50. Symposium of the Fourth European Conference on Psychosomatic Research, 1959.

**Delinquent and Neurotic Children.** A comparative study. Ivy Bennett. Basic Books, New York, 1960; Tavistock, London, 1959. 545 pp. \$10.

**The Encyclopedia of Sexual Behavior.** vols. 1 and 2. Albert Ellis and Albert Abarbanel, Eds. Hawthorn Books, New York, 1961. 1059 pp. \$30.

**Geographisches Taschenbuch.** Und Jahrweiser zur Landeskunde 1960/61. E. Meynen, Ed. Franz Steiner, Wiesbaden, Germany, 1961. 589 pp. Illus. + plates. DM. 14.80.

**A Geography of Norden.** Denmark, Finland, Iceland, Norway, and Sweden. Alex Sømme, Ed. Cappelen, Oslo, Norway; Heinemann, London, 1960. 360 pp. Plates.

**Growth and Stability of the Postwar Economy.** Bert G. Hickman. Brookings Institution, Washington, D.C., 1961. 444 pp. Illus. \$6.

**An Introduction to Psychoanalytic Theory of Motivation.** Walter Toman. Pergamon, New York, 1960. 363 pp. \$9.

**Northwest Ethiopia.** Peoples and economy. Frederick J. Simoons. Univ. of Wisconsin Press, Madison, 1960. 267 pp. Illus. + plates. \$5.

**Psychology.** An introduction to the study of human behavior. Henry Clay Lindgren and Donn Byrne. Wiley, New York, 1961. 440 pp. Illus. \$6.50.

**Psychology: A Problem-Solving Approach.** Donald M. Johnson. Harper, New York, 1961. 596 pp. Illus. \$7.

**Psychophysiological Aspects of Space Flight.** Bernard E. Flaherty, Ed. Columbia Univ. Press, New York, 1961. 403 pp. Illus. \$10. Papers presented at a symposium sponsored by the School of Aviation Medicine, U.S. Air Force Aerospace Medical Center, held in May 1960.

**The Psychotherapy Relationship.** William U. Snyder and B. June Snyder. Macmillan, New York, 1961. 430 pp. \$7.50.

**Psychotherapy with Schizophrenics.** A reappraisal. Joseph G. Dawson, Herbert K. Stone, and Nicholas P. Dellis, Eds. Louisiana State Univ. Press, Baton Rouge, 1961. 168 pp. \$5. The views of a group of practicing psychotherapists regarding treatment of schizophrenics.

**River Basin Surveys Papers.** Inter-Agency Archeological Salvage Program, Nos. 15-20. Frank H. H. Roberts, Jr., Ed. Bureau of American Ethnology, Smithsonian Institution, Washington, D.C., 1960. 347 pp. Illus. + plates.

**Some Reflections on Genius.** And other essays. Russell Brain. Lippincott, Philadelphia, Pa., 1960. 192 pp. \$6.

**The Soviet Union.** The land and its people. Georges Joré. Translated and revised by E. D. Laborde. Longmans, Green, New York, ed. 2, 1961. 392 pp. Illus. \$7.50.

**Trade with Communist Countries.** Alec Nove and Desmond Donnelly. Published for the Institute of Economic Affairs by Macmillan, New York, 1961. 183 pp. Illus. \$6.

**The Training of Psychotherapists.** A multidisciplinary approach. Nicholas P. Dellis and Herbert K. Stone, Eds. Louisiana State Univ. Press, Baton Rouge, 1961. 207 pp. \$5. Papers resulting from a symposium held 11-13 November 1959.

#### Mathematics, Physical Sciences, and Engineering

**The Algebra of Probable Inference.** Richard T. Cox. Johns Hopkins Press, Baltimore, Md., 1961. 124 pp. \$5.

**The Application of Group Theory in Physics.** G. Ya. Lyubarskii. Translated from the Russian by Stevan Dedijer. Pergamon, New York, 1960. 390 pp. \$10.

**The Atom and Its Nucleus.** George Gamow. Prentice-Hall, Englewood Cliffs, N.J., 1961. 159 pp. Illus. Paper, \$1.95; cloth, \$3.75.

**Basic Principles of Fission Reactors.** W. R. Harper. Interscience, New York, 1961. 322 pp. Illus. \$7.50.

**Cahiers de Synthèse Organique.** Méthodes et tableaux d'application. Léon Velluz, Ed. Jean Mathieu, André Allais, and Jacques Valls. vol. 6, 418 pp., paper, NF. 110; cloth, NF. 120. vol. 7, 309

pp., paper, NF. 100; cloth, NF. 110. vol. 8, 233 pp., paper, NF. 75; cloth, NF. 85. Masson, Paris, 1961.

**Chemical Engineering Practice.** vol. 10, *Ancillary Services.* Herbert W. Cremer and Sidney B. Watkins, Eds. Academic Press, New York; Butterworths, London, 1960. 632 pp. \$19.50.

**The Chemical Warfare Service: From Laboratory to Field.** Leo P. Brophy, Wyndham D. Miles, and Rexmond C. Cochrane. Office of the Chief of Military History, Department of the Army, Washington, D.C., 1959 (order from Supt. of Documents, GPO, Washington 25). 516 pp. Illus. \$3.50.

**Chemistry, Man's Servant.** Leonard J. Fliedner and Louis Teichman. Allyn and Bacon, Boston, Mass., 1961. 635 pp. Illus.

**The Creation of the Universe.** George Gamow. Viking, New York, ed. 2, 1961. 159 pp. Illus. \$4.50.

**Digital Computer and Control Engineering.** Robert Steven Ledley. McGraw-Hill, New York, 1960. 859 pp. Illus. \$14.50.

**Electromagnetic Structure of Nucleons.** S. D. Drell and F. Zachariasen. Oxford Univ. Press, New York, 1961. 117 pp. Illus. \$2.

**Electronics.** Paul M. Chirlian and Armen H. Zemanian. McGraw-Hill, New York, 1961. 347 pp. Illus. \$8.75.

**Elements of Modern Physics.** A course in those aspects of modern physics that underlie important engineering developments. Paul L. Copeland and William E. Bennett. Oxford Univ. Press, New York, 1961. 517 pp. Illus. \$8.50.

**The Fundamental Atomic Constants.** J. H. Sanders. Oxford Univ. Press, New York, 1961. 96 pp. Paper, \$1.60.

**Gas Chromatography.** Henry J. Noebels, F. R. Wall, and Nathaniel Brenner, Eds. Academic Press, New York, 1961. 479 pp. Illus. \$16. Proceedings of the second international symposium, held at Michigan State University, in June 1959.

**Gmelins Handbuch der Anorganischen Chemie.** pt. B, section 2, System No. 9, *Sulphur*, 758 pp., illus., paper, \$111; cloth, \$112. System No. 20, *Lithium* (supplement volume), 525 pp., illus., paper, \$77.50; cloth, \$78.50. Section 1, System No. 34, *Mercury*, 466 pp., paper, \$67.50. Verlag Chemie, Weinheim, Germany, 1960.

**Heterocyclic Systems with Bridgehead Nitrogen Atoms.** pt. 1. William L. Mosby. Interscience, New York, 1961. 757 pp. Illus. \$48 (by subscription, \$43). vol. 15, *Chemistry of Heterocyclic Compounds.*

**High Temperature Metallography.** M. G. Lozinskii. Translated by L. Herdan. Pergamon, New York, 1961. 504 pp. Illus. \$17.50.

**Hydrometry.** Theory and practice of hydraulic measurements. Adam T. Troskołanski. Pergamon, New York; Panstwowe Wydawnictwa Techniczne, Warsaw, Poland, 1960. 704 pp. Illus. \$18. Revised and enlarged from the first Polish edition.

**International Summer Course in Plasma Physics, 1960.** Material presented at the course. Risø Rept. No. 18. Research Establishment Risø. Danish Atomic Energy Commission, Roskilde, Denmark, 1960. 649 pp. Illus. Kr. 60.