

Mathematics

Studies in Modern Algebra. A. A. Albert, Ed. Published for the Mathematical Association of America by Prentice-Hall, Englewood Cliffs, N.J., 1963. vi + 190 pp. Illus.

This book, a consequence of the renaissance in mathematical pedagogy at the collegiate level, contains an introduction (by A. A. Albert) and papers by R. H. Bruck, C. W. Curtis, Erwin Kleinfeld, Saunders Mac Lane (2), and L. J. Paige. It is designed to make available to apt collegians, and their instructors, information about portions of algebra which are in some sense developmental, which are historically well-founded, and which have exerted (and may be expected to continue to exert) significant pressure upon other portions of mathematics.

The papers by Mac Lane are enormously valuable in that they are extraordinarily well-written surveys of a great deal of algebra: first, the algebra of some 25 years ago and, second, that of today. They are general, but they do not glitter. One is not expected to learn mathematics from them, but to learn to like mathematics from them.

The remaining papers are, as one usually says, more technical, and certainly more detailed. Bruck's paper on loops is based on geometry, and it brings into action a reasonable amount of that subject. The remaining three papers are on linear algebra, and it is not always assumed that $a(bc) = (ab)c$. The one by Curtis (its bibliography seems incomplete) revolves around the problem of expressing a product of sums of squares as a sum of squares. Kleinfeld's amounts to a determination of a specific example in the same context, and Paige's deals with the global structure of such algebras.

There is an index, and in general, the bibliographies are good.

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New Books

Mathematics, Physical Sciences, and Engineering

Advanced Servomechanism Design. Ira Ritow. Doubleday, Garden City, N.Y., 1963. 240 pp. Illus. Paper, \$1.95.

Advances in Cryogenic Engineering. vol. 8. Proceedings of a conference (Los

Angeles, Calif.), August 1962. K. D. Timmerhaus, Ed. Plenum Press, New York, 1963. 713 pp. Illus. \$17.50.

Algebraic Theory of Measure and Integration. Constantin Carathéodory. P. Finsler, A. Rosenthal, and R. Steuerwald, Eds. Translated from the German (*Mass und Integral und Ihre Algebraisierung*, 1956) by F. E. J. Linton. Chelsea, New York, 1963. 378 pp. Illus. \$7.50.

Chemical Engineering Progress Symposium Series. vol. 59. No. 42, *Statistics and Numerical Methods in Chemical Engineering*, R. L. Heiny, Ed., 128 pp.; No. 44, *Thermodynamics*, Wayne C. Edmister, Ed., 145 pp. American Inst. of Chemical Engineers, New York, 1963. Illus. Paper.

Chemistry. James V. Quagliano. Prentice-Hall, Englewood Cliffs, N.J., ed. 2, 1963. 942 pp. Illus. \$8.95.

The Crescent Dictionary of Mathematics. William Karush. Macmillan, New York, 1962. 325 pp. Illus. \$6.50.

Developments in Applied Spectroscopy. vol. 2. Proceedings of the 13th annual symposium (Chicago, Ill.), April 1962. Plenum Press, New York, 1963. 448 pp. Illus. \$16.

The Earth Sciences. Arthur N. Strahler. Harper and Row, New York, 1963. 695 pp. Illus. \$9.95.

Electronics in Industry. John Stewart Murphy. Oxford Univ. Press, New York, 1963. 224 pp. Illus. \$4.

Energy. Bruce Chalmers. Academic Press, New York, 1963. 303 pp. Illus. 46s.

Fractions: A Basic Course in Arithmetic. Betty K. Friel. Doubleday, Garden City, N.Y., 1963. 404 pp. Illus. \$5.95.

Fundamental Electromagnetic Theory. Ronald W. P. King. Dover, New York, ed. 2, 1963. 596 pp. Illus. Paper, \$2.75.

Hydraulic Transients. George R. Rich. Dover, New York, ed. 2, 1963. 423 pp. Illus. Paper, \$2.50.

Induction: Some Current Issues. Henry E. Kyburg, Jr., and Ernest Nagel, Eds. Wesleyan Univ. Press, Middletown, Conn., 1963. 242 pp. Illus. \$10.

International Conference on Crystal Lattice Defects, Proceedings. Suppls. 1, 2, and 3, *Journal of the Physical Society of Japan*. Physical Soc. of Japan, Tokyo, Japan, 1963. Suppl. 1, 201 pp.; suppl. 2, 360 pp.; suppl. 3, 379 pp. Illus. Paper.

An Introduction to Transport Theory. G. Milton Wing. Wiley, New York, 1962. 189 pp. Illus. \$7.95.

Introduction to the Utilization of Solar Energy. A. M. Zarem and Duane D. Erway, Eds. McGraw-Hill, New York, 1963. 410 pp. Illus. \$13.50.

Light. Principles and experiments. George S. Monk. Dover, New York, ed. 2, 1963. 501 pp. Illus. Paper, \$2.45.

The Logic of Computer Arithmetic. Ivan Flores. Prentice-Hall, Englewood Cliffs, N.J., 1963. 507 pp. Illus. \$15.

Materials Research Abstracts. A review of the Air Force materials research and development. Charles D. Thibault. Published for Directorate of Materials and Processes, Wright-Patterson Air Force Base, Ohio, 1962. 544 pp.

Modern Mathematics for the Engineer. Edwin F. Beckenbach, Ed. McGraw-Hill, New York (© 1956), 1963. 536 pp. Illus. Paper, \$3.45.

Modern Theories of the Universe. James A. Coleman. New American Library, New York, 1963 (reprint). 211 pp. Illus. Paper, 60¢.

Molekularakustik. Eine Einführung in die Zusammenhänge zwischen Ultraschall und Molekülstruktur in Flüssigkeiten und Gasen. Werner Schaaffs. Springer, Berlin, 1963. 513 pp. Illus. DM. 78.

Nuclear Power Technology. F. J. Pearson, Ed. Oxford Univ. Press, New York, 1963. 375 pp. Illus. \$6.75.

Nuclear Radiation Physics. Ralph E. Lapp and Howard L. Andrews. Prentice-Hall, Englewood Cliffs, N.J., ed. 3, 1963. 429 pp. Illus. \$12.

Operational Methods in Applied Mathematics. H. S. Carslaw and J. C. Jaeger. Dover, New York (reprint, ed. 2), 1963. 375 pp. Illus. Paper, \$2.25.

Optics of Flames. Including methods for the study of refractive index fields in combustion and aerodynamics. F. J. Weinberg. Butterworth, Washington, D.C., 1963. 261 pp. Illus. \$10.95.

Problems in Quantum Mechanics. V. I. Kogan and V. M. Galitskiy. Translated from the Russian. Harold Gersch, Ed. Prentice-Hall, Englewood Cliffs, N.J., 1963. 379 pp. Illus. \$11.35.

Radiation Effects in Physics, Chemistry, and Biology. Proceedings of the Second International Congress of Radiation Research, August 1962. Michael Ebert and Alma Howard, Eds. North-Holland, Amsterdam, 1963. 524 pp. Illus.

The Radiochemical Manual. pt. 2, *Radioactive Chemicals*. Radiochemical Centre, Amersham, England, 1963. 84 pp. Illus. Paper, 25s.

Rock-Forming Minerals. vol. 2, *Chain Silicates*. W. A. Deer, R. A. Howie, and J. Zussman. Wiley, New York, 1963. 389 pp. Illus. \$16.50.

A Servomechanism Primer. Ira Ritow. Doubleday, Garden City, N.Y., 1963. 200 pp. Illus. Paper, \$1.95.

Soviet Science of Interstellar Space. S. Pikelner. Translated from the Russian by Mary Zirin. Philosophical Library, New York, 1963. 230 pp. Illus. \$7.50.

Statistical Mechanics. Kerson Huang. Wiley, New York, 1963. 484 pp. Illus.

Steroid Reactions. An outline for organic chemists. Prepared by 16 graduate students under the editorship of Carl Djerassi. Holden-Day, San Francisco, 1963. 657 pp. Illus.

Switching Theory in Space Technology. Howard Aiken and William F. Main, Eds. Stanford Univ. Press, Stanford, Calif., 1963. 367 pp. Illus. \$11.50.

Synthesis of Feedback Systems. Isaac M. Horowitz. Academic Press, New York, 1963. 740 pp. Illus. \$16.50.

The Theory of Relativity. R. K. Pathria. Hindustan Publishing Corp., Delhi, India, 1963. 304 pp. Illus. Rs. 25.

Theses of the First Soviet Gravitation Conference. Moscow, 1961. Maurice A. Garbell. Garbell Research Foundation, San Francisco, 1963. 130 pp. Illus. Paper, \$7.50.

Ultrasonic Flaw Detection in Metals. Theory and practice. B. Banks, G. E. Oldfield, and H. Rawding. Iliffe, London; Prentice-Hall, Englewood Cliffs, N.J., 1962. 264 pp. Illus. \$16.