

and who, in the absence of an established academic niche for the subject, have been crying in the wilderness of professional indifference. By way of contrast, the history of science and the history of medicine are recognized and active fields of study.

An enormous amount of material has been crammed into this book, and the thread of narrative is sometimes difficult to keep in sight. However, the very neglect of the field, which the author has been working to set aright, is an important part of the reason for this situation. The detailed monographic studies that are essential if anyone is to write a readable, well-knit, comprehensive history of engineering simply do not exist.

It is to be hoped that many scholars will discover through Finch's writing some of the possibilities of this fertile and exciting field of study, and that a mature and respected discipline of engineering history eventually will rise as a monument to his pioneering work.

EUGENE S. FERGUSON

*Smithsonian Institution,
Washington, D.C.*

Immediate and Low Level Effects of Ionizing Radiations. A. A. Buzzati-Traverso, Ed. Taylor and Francis, London, 1960. xii + 381 pp. Illus. \$8.

This volume, the proceedings of a symposium on the effects of low-level irradiation which was held in Venice in June 1959, is a valuable continuation of the symposium volume on low-level irradiation edited by A. M. Brues and published by the American Association for the Advancement of Science (1959). The Venice presentations give important new information in this steadily growing field; both the papers and the discussions that follow are worthwhile reading. Space does not allow a detailed evaluation of the many aspects covered in the papers, but study of the volume can be highly recommended to those who are interested in the field.

The symposium was held under the joint sponsorship of UNESCO, the Comitato Nazionale per le Ricerche Nucleari of Italy, and the International Atomic Energy Agency.

A. T. KREBS

*U.S. Army Medical Research
Laboratory and University of
Louisville*

Social Change. H. Ian Hogbin. Watts, London, 1958; Humanities Press, New York, 1960. viii + 257 pp. Illus. \$4.50.

In this expanded version of the Josiah Mason lectures delivered several years ago at the University of Birmingham, Ian Hogbin, an Australian anthropologist, examines a variety of conditions inducing social change. The emphasis is upon historically observed changes now taking place among primitive peoples, with examples drawn from the anthropological literature and from the author's own field work among Pacific Island natives. As a contribution to a general theory of social change, which it makes some claim to being, the book is handicapped by the anecdotal method that chooses random examples rather than systematic and controlled comparisons. In addition, it suffers from the drawbacks of the British functionalist theory, a theory that has been traditionally of a nonhistorical nature.

The real merit of the book lies in its perceptive analysis of many instances of acculturation, each illustrating some important aspect of change. Hogbin's discussion includes such matters as the effects of a money economy upon kinship, native resistance to latrines, the complex linkages of sorcery to social structure, and the pitfalls of administrative meddling in this sensitive area. He notes the unexpected ways in which natives interpret cherished European doctrines. As a striking instance of social chain reaction, he narrates how a single item of western culture, the steel axe, transformed the life of an Australian tribe. The examples document the basic interrelatedness of social institutions, customs, and values. The conclusion is obvious: If change in a society is to be administered with regard for consequences, the society must be understood in its entirety.

Change, the author recognizes, is inevitable and every social order must face the prospect of extinction. With knowledge, better social orders may be planned. From the native point of view, however, our best intentions may seem arbitrary. As one Melanesian told Hogbin, "In olden days we behaved as our fathers did before us. The white man has come and tells us we must behave like his father."

IRVING GOLDMAN

*Department of Anthropology,
Sarah Lawrence College*

Nutrition animale. vol. 2, *Données générales.* Part 1, *Métabolismes et transits.* H. Le Bars, H. Simmonet, and R. Jacquot. Baillière, Paris, 1960. ii + 490 pp. Illus. NF. 50.

Part 1 of the second volume of this encyclopedic treatise on animal nutrition covers the metabolism of water and nutrients in the animal body. The broad coverage actually constitutes a comparative presentation of our present knowledge of the nutrition of higher animals including man. Herein lies the greatest value of the work and the reward for the serious student who has the patience and persistence to penetrate, under the guidance of the eminent authors, the difficult subject matter.

FRANCIS JOSEPH WEISS

Arlington, Virginia

New Books

Mathematics, Physical Sciences, and Engineering

Air Research and Development Command, Geophysics Research Directorate. *Handbook of Geophysics.* Macmillan, New York, rev. ed., 1960. 697 pp. \$15. The *Handbook* was first published in 1957 for use by prime contractors of the Air Force; data obtained from satellite and rocket explorations, arctic expeditions, solar observations, and balloon flights were used in this revision.

Boley, Bruno A. and Jerome H. Weiner. *Theory of Thermal Stresses.* Wiley, New York, 1960. 602 pp. \$15.50. Chapters 1-4 cover the fundamentals of thermoelasticity; chapters 5-7 discuss the physical basis of the subject and methods of solving heat conduction boundary-value problems; chapters 8-13 cover practical aspects, mainly from the viewpoint of strength of materials; chapters 14-16 discuss the manner in which temperature effects can be included in inelasticity theory.

Bunshah, Bointan F., Ed. *Transactions of the Vacuum Metallurgy Conference, 1959.* New York Univ. Press, New York, 1960. 222 pp. \$7.50. Contains the papers presented during the conference sponsored by the Department of Metallurgical Engineering in cooperation with the Office of Special Service to Business and Industry of New York University, 1-3 June 1959.

Coy, Paul H. *Structural Analysis of "Unistrut" Space-Frame Roofs.* Part A, *Recommended Methods for Computation of Safe Roof Loads;* Part B, *Tables of Computed Factors to be Used in Safe Load Computations.* Univ. of Michigan Press, Ann Arbor, 1960. 267 pp.; 59 pp. 2 vols., \$18.

Davids, Norman, Ed. *High Speed Testing.* vol. 1. Interscience, New York, 1960. 119 pp. \$10. This symposium (held in December 1958), was the first in a series of symposia devoted entirely to high-speed

testing. The papers were concerned with plastics, solid fuels, cushioning materials, textiles, and metals.

Davids, Norman, Ed. *International Symposium on Stress Wave Propagation in Materials*. Interscience, New York, 1960. 350 pp. \$5. The symposium, sponsored by the Office of Ordnance Research and the Pennsylvania State University, was attended by over 200 engineers and scientists, representing industrial, university, and government laboratories from ten countries.

Ernst, George C. *Ultimate Moments and Shears in Continuous Reinforced Concrete Beams*. Univ. of Michigan Press, Ann Arbor, 1960. 46 pp. + plates. \$4.

Gatos, Harry C., Ed. *Properties of Elemental and Compound Semiconductors*. Interscience, New York, 1960. 351 pp. \$8.50. Volume 5 in the Metallurgical Society Conferences series.

Henderson, F. M. *Elliptic Functions with Complex Arguments*. Univ. of Michigan Press, Ann Arbor, 1960. 43 pp. + pts. 1-4. \$8.

Levine, Daniel, et al. *Radargrammetry*. McGraw-Hill, New York, 1960. 351 pp. \$12.

Lion, Kurt S. *Instrumentation in Scientific Research*. Electrical input transducers. McGraw-Hill, New York, 1959. 339 pp.

Maxwell, E. A. *Advanced Algebra*. pt. 1. Cambridge Univ. Press, New York, 1960. 323 pp. \$2.75.

Mendelssohn, K., Ed. *Progress in Cryogenics*. vol. 2. Academic Press, New York, 1960. 287 pp. \$11.50. Contents: "The storage and handling of cryogenic liquids" (G. H. Zenner); "The gas refrigerating machine and its position in cryogenic technique" (J. W. L. Kohler); "The separation of deuterium on an industrial scale by low-temperature distillation" (M. P. Malkov, A. G. Zel'dovich, A. B. Fradkov, and I. B. Danilov of the Institute for Physical Problems, Academy of Science of the U.S.S.R.); "Low-temperature bubble chambers" (N. C. Barford); "The 1958 scale of temperatures for the liquid helium-4 region" (H. van Dijk); "Resistance thermometers for low temperatures" (C. R. Barber); "The three level solid state maser" (E. O. Schulz-Du Bois); "Methods of nuclear orientation" (E. Amblor).

Menzel, Donald H., Ed. *The Radio Noise Spectrum*. Harvard Univ. Press, Cambridge, Mass., 1960. 191 pp. \$7.50.

Minkoff, G. J. *Frozen Free Radicals*. Interscience, New York, 1960. 157 pp. \$5.

Olkin, Ingram, et al., Eds. *Contributions to Probability and Statistics*. Essays in honor of Harold Hotelling. Stanford Univ. Press, Stanford, Calif., 1960. 526 pp. \$6.50. The 42 papers by associates of Hotelling include both applied and theoretical material in the fields of statistics, probability theory, economics, and biostatistics. An eight-page bibliography of Hotelling's publications (other than reviews) is included.

Runcorn, S. K., Ed. *Methods and Techniques in Geophysics*. vol. 1. Interscience, New York, 1960. 383 pp. \$10.

Rusk, Rogers D. *Introduction to College Physics*. Appleton-Century-Crofts, New York, ed. 2, 1960. 955 pp. \$8.

Sadler, D. H., Ed. *Transactions of the International Astronomical Union*, vol. 10. Cambridge Univ. Press, New York, 1960. 783 pp. \$17.50. Contains the draft reports of the individual commissions, reports of the meeting, and reports of the four joint discussions held during the 10th general assembly (held in Moscow). It does not contain the proceedings of the symposia held in conjunction with the meeting; they are being published separately.

Schneer, Cecil J. *The Search for Order*. The development of the major ideas in the physical sciences from the earliest times to the present. Harper, New York, 1960. 415 pp. \$6.

Seifert, William W., and Carl W. Steeg, Jr., Eds. *Control Systems Engineering*. McGraw-Hill, New York, 1960. 978 pp. \$15. Intended as a textbook for a graduate-level course in control and as a source of reference material for the control-system engineer.

Sharpe, J. *Nuclear Radiation Measurement*. Simmons-Boardman, New York, 1960. 78 pp. \$2.75.

Shklovsky, I. S. *Cosmic Radio Waves*. Translated by Richard B. Rodman and Carlos M. Varsavsky. Harvard Univ. Press, Cambridge, Mass., 1960. 460 pp. \$12.50.

Smale, A. A., and L. R. Wager, Eds. *Methods in Geochemistry*. Interscience, New York, 1960. 471 pp. \$13.60.

Stacey, M., J. C. Tatlow, and A. G. Sharpe, Eds. *Advances in Fluorine Chemistry*. vol. 1. Academic Press, New York; Butterworths, London, 1960. 210 pp. \$8.

Strobel, Howard S. *Chemical Instrumentation*. A systematic approach to instrumental analysis. Addison-Wesley, Reading, Mass., 1960. 671 pp. \$9.75. Text for advanced undergraduate or graduate work.

Timmerhaus, K. D., Ed. *Advances in Cryogenic Engineering*. vol. 5. Plenum Press, New York, 1960. 592 pp. \$13.50. Proceedings of the 1959 conference held at the University of California (Berkeley) on 2-4 September.

Tipton, C. R., Jr., Ed. *Reactor Handbook*. vol. 1, *Materials*. Interscience, New York, ed. 2, 1960. 1222 pp. \$36.50. This series (four volumes are planned) constitutes a revision of the *Reactor Handbook* published by the Atomic Energy Commission in 1955. The first part of this volume covers topics related to health and safety standards and procedures, radiation damage, D₂O-H₂O separation, and zirconium-hafnium separation; the other parts cover fuel materials, cladding and structural materials, control materials, moderator materials, and shielding materials. The 118 contributors and their professional affiliations are given.

Ubbelohde, A. R., and F. A. Lewis. *Graphite and Its Crystal Compounds*. Oxford Univ. Press, New York, 1960. 230 pp. \$5.60.

Vavra, M. H. *Aero-Thermodynamics and Flow in Turbomachines*. Wiley, New York, 1960. 625 pp. \$14.50.

Wiech, Raymond E., Jr., and Robert F. Strauss. *Fundamentals of Rocket Propulsion*. Reinhold, New York; Chapman and Hall, London, 1960. 151 pp. \$5.50.

Wilson, J. G., and S. A. Wouthuysen, Eds. *Progress in Elementary Particle and*

Cosmic Ray Physics. vol. 5. North-Holland, Amsterdam; Interscience, New York, 1960. \$10.75.

Yatsimirskii, K. B., and V. P. Vasil'ev. *Instability Constants of Complex Compounds*. Translated by D. A. Paterson; R. H. Prince, Translation Editor. Pergamon Press, New York, 1960. 226 pp. 42s.

Reprints

Altman, David, James M. Carter, S. S. Penner, and Martin Summerfield. *Liquid Propellant Rockets*. Princeton Univ. Press, Princeton, N.J., 1960. 196 pp. \$2.95. This volume is the first in the new series "Princeton Aeronautical Paperbacks." The series will make available in small paperback volumes those portions of the larger Princeton Series which it is felt will be most useful to both students and research engineers.

Bellairs, Angus d'A. *Reptiles*. Life history, evolution, and structure. Harper, New York, 1960 (reprint of ed. 1, 1957). 192 pp. \$1.35.

Bragg, Sir William. *The Universe of Light*. Dover, New York, 1960. 306 pp. \$1.85. Unabridged republication of ed. 1. A nontechnical explanation of the phenomenon of light.

Cain, A. J. *Animal Species and Their Evolution*. Harper, New York, 1960 (reprint of ed. 1, 1954). 190 pp. \$1.35.

Davenport, H. *The Higher Arithmetic*. An introduction to the theory of numbers. Harper, New York, 1960 (reprint of ed. 1, 1952). 172 pp. \$1.35.

Findlay, Alexander. *Chemistry in the Service of Man*. Harper, New York, 1960 (reprint of ed. 8, 1957). 336 pp. \$1.75.

Hayes, Wallace D. *Gasdynamic Discontinuities*. Princeton Univ. Press, Princeton, N.J., 1960. 76 pp. \$1.45. Number 3 in the Princeton Aeronautical Paperbacks series.

Huggest, Clayton, C. E. Bartley, and Mark M. Mills. *Solid Propellant Rockets*. Princeton Univ. Press, Princeton, N.J., 1960. 176 pp. \$2.45. Number 2 in the Princeton Aeronautical Paperbacks series.

Jones, Robert T., and Doris Cohen. *High Speed Wing Theory*. Princeton Univ. Press, Princeton, N.J., 1960. 248 pp. \$2.95. Number 6 in the Princeton Aeronautical Paperbacks series.

Lighthill, M. J. *Higher Approximations in Aerodynamic Theory*. Princeton Univ. Press, Princeton, N.J. 1960. 156 pp. \$1.95. Number 5 in the Princeton Aeronautical Paperbacks series.

Littlewood, D. E. *The Skeleton Key of Mathematics*. A simple account of complex algebraic theories. Harper, New York, 1960 (reprint of ed. 1, 1949). 138 pp. \$1.25.

Partington, J. R. *A Short History of Chemistry*. Harper, New York, 1960 (reprint of ed. 3, 1957). 429 pp. \$1.95.

Read, John. *A Direct Entry to Organic Chemistry*. Harper, New York, 1960 (reprint of 1959 edition). 282 pp. \$1.50.

Sears, W. R. *Small Perturbation Theory*. Princeton Univ. Press, Princeton, N.J., 1960. 72 pp. \$1.45. Number 4 in the Princeton Aeronautical Paperbacks series.