

# Books of the Week

For the editorial information of our readers, books received for review are listed. For convenient purchase of any U. S. book in print, send a remittance to cover retail price (postage will be paid) to Book Department, Science Service, 1719 N Street, N.W., Washington 6, D. C.

ADVANCES IN PROTEIN CHEMISTRY, Vol. 15—C. B. Anfinsen, Jr., and others, Eds.—*Academic*, 447 p., illus., \$13. Reports on protamines, osmotic pressure, protein malnutrition in man and other research.

ANIMAL PHYSIOLOGY—Knut Schmidt-Nielsen—*Prentice-Hall*, 118 p., illus., paper, \$2.95; paper, \$1.50. Comparative physiology, in the Foundations of Modern Biology Series.

ARMS CONTROL, DISARMAMENT AND NATIONAL SECURITY—Donald G. Brennan, Ed.—*Braziller*, 475 p., illus., \$6. Collection of analyses of the technical, diplomatic, military, economic, legal and political issues involved in arms control, presenting diverse points of view as in the earlier versions in special issue of *Daedalus*.

BASIC CONCEPTS IN MODERN MATHEMATICS—John E. Hafstrom—*Addison-Wesley*, 195 p., \$5.75. Terminal undergraduate course, treating in depth those fundamental concepts which lend themselves to the construction of number systems.

BASIC CONCEPTS OF PHYSICS—Arthur Beiser—*Addison-Wesley*, 341 p., illus., \$5.75. One semester college course, assuming no prior knowledge of physics or chemistry.

CHEMICALS IN YOUR FOOD AND IN FARM PRODUCE: Their Harmful Effects—Franklin Bicknell, M.D.—*Emerson Bks*, 192 p., \$2.95. Brings together information on noxious substances present in foods through naturally occurring poisons, accidental contamination, food additives and residues of agricultural poisons; 20-page bibliography included.

THE CRAFT OF TECHNICAL WRITING—Daniel Marder—*Macmillan*, 400 p., \$5. Textbook on how to present technical subject matter effectively by applying rhetorical principles.

CURRENT RESEARCH AND DEVELOPMENT IN SCIENTIFIC DOCUMENTATION, No. 8—Madeline Berry Henderson and Nancy Ripple—*National Science Foundation (GPO)*, 153 p., paper, 65¢. Updated report describing U.S. and foreign research activities in the field.

EDUCATION FOR COLLEGE: Improving the High School Curriculum—Albert R. Kitzhaber, Robert M. Gorrell and Paul Roberts—*Ronald*, 195 p., \$3.50. Contains chapter on science based on original report "Science in the Portland High Schools."

ELECTRICAL CONTACTS, 1960: Proceedings of Engineering Seminar—Ralph E. Armington, Chmn.—*Pa. State Univ., College of Engineering*, 124 p., illus., paper, \$5. Papers on static, arcing and sliding contacts, microcontacts and contact contamination.

ELECTRICAL ESTIMATING—Ray Ashley—*McGraw*, 3rd ed., 437 p., illus., \$12.50. Up-to-date standard manual.

ELEMENTARY FLUID MECHANICS—John K. Vennard—*Wiley*, 4th ed., 570 p., illus., \$7.95. Introductory course with emphasis on physical concepts rather than on mathematical manipulations.

EXPERIMENTAL ECOLOGY OF THE FEEDING OF FISHES—V. S. Ivlev, transl. from Russian by Douglas Scott—*Yale Univ. Press*, 302 p., \$7.50. Summary of the results of investigations undertaken to establish experimentally the fundamental laws of the trophic ecology of fishes, of selective feeding, indirect food relations of fishes, and ecology of starvation.

FAST REACTORS—R. G. Palmer and A. Platt—*Temple (Simmons-Boardman)*, 93 p., illus., \$2.95. Overall account of fast reactor technology.

FUNDAMENTAL MATHEMATICS—Thomas L. Wade and Howard E. Taylor—*McGraw*, 2nd ed., 428 p., \$6.75. Course material designed to strengthen foundation for further study of mathematics and to provide basic mathematics for general education.

INFRARED PHYSICS: An International Research Journal, Vol. I, No. 1—W. K. Weihe and others, Eds.—*Pergamon*, 104 p., illus., paper, annual subscription: institutions, \$20; individuals, \$10. Publishes research papers, critical surveys and research notes.

INTERNATIONAL CONVERSION TABLES: Weights, Measures, Gauges, Currencies, Conversion Equivalents and Factors, Technical Units, Alphabets, Other Useful Information—Stephen Naft; rev. by Ralph De Sola—*Duell*, rev. ed., 372 p., \$7.50. For ready reference in international commerce, industry and engineering.

INTRODUCTION TO LABORATORY CHEMISTRY—L. Earle Arnow, rev. with Marie C. D'Andrea Logan—*Mosby*, 6th ed., 124 p., illus., paper, \$1.75. Variety of experiments to accompany

introductory text on physiological and pathological chemistry.

INTRODUCTION TO PHYSIOLOGICAL AND PATHOLOGICAL CHEMISTRY—L. Earle Arnow, rev. with Marie C. D'Andrea Logan—*Mosby*, 6th ed., 490 p., illus., \$5.50. Updated textbook on the science of chemistry as it applies to nursing, with greatly expanded section on organic chemistry.

JET AND ROCKET PLANES THAT MADE HISTORY—David C. Cooke—*Putnam*, 72 p., photographs, \$2.50. Describes and depicts history-making manned vehicles using jet and rocket principles.

MEASUREMENT AND EVALUATION IN PSYCHOLOGY AND EDUCATION—Robert L. Thorndike and Elizabeth Hagen—*Wiley*, 2nd rev. ed., 602 p., \$7.25. Includes most recent developments in the field of testing in guidance or education, and fully explains the principles of reliability, validity, norms and interpretation.

METHODS OF CELESTIAL MECHANICS—Dirk Brouwer and Gerald M. Clemence—*Academic*, 598 p., \$15.50. Designed to provide comprehensive background and reference to the motions of celestial bodies governed by gravitation. Presupposes working knowledge of differential and integral calculus.

MICROBIAL CELL WALLS—M. R. J. Salton—*Wiley*, 94 p., illus., \$3.50. The 1960 CIBA lectures on the general properties, chemistry and biosynthesis of microbial walls.

MODERN ELEMENTARY ALGEBRA—Eugene D. Nichols and Wagner G. Collins—*Holt*, 402 p., \$4.08. Ninth-grade textbook, stressing contemporary viewpoint on traditional topics.

NAME REACTIONS IN ORGANIC CHEMISTRY—Alexander R. Surrey—*Academic*, rev. 2nd ed., 278 p., \$8. Concise data on 100 principal reactions, together with biographical sketches and references to literature.

NO LATITUDE FOR ERROR—Sir Edmund Hillary—*Dutton*, 255 p., photographs, \$5.50. The leader of the first party to drive tractors to the South Pole tells in detail how the feat was accomplished.

ON RETRIEVAL SYSTEM THEORY—B. C. Vickery—*Butterworths*, 169 p., \$5.75. Unified presentation of the different approaches to the problems of storage and retrieval of information, treating the subject on general theoretical lines.

OPTIMUM USE OF ENGINEERING TALENT: Meeting the Need for Technical Personnel—Jerome W. Blood, Ed.—*Am. Management Assn.*, 416 p., \$9. Analysis of the management of engineers, proposing techniques for making optimum use of available engineering skills and talent.

ORTHOGONAL POLYNOMIALS: Estimates, Asymptotic Formulas, and Series of Polynomials Orthogonal on the Unit Circle and on an Interval—L. Ya. Geronimus, transl. from Russian—*Consultants*, 242 p., \$9.75.

PALEOECOLOGIC MOLLUSCAN GEOGRAPHY OF THE CALIFORNIAN PLEISTOCENE—James W. Valentine—*Univ. of Calif. Press*, 327 p., illus., paper, \$2.50. Study attempts to infer the climatic changes required to explain Californian Pleistocene molluscan distribution by determining their character over a broad area.

PETER FREUCHEN'S BOOK OF THE ESKIMOS—Dagmar Freuchen, Ed.—*World Pub. Co.*, 441 p., photographs, \$7.50. About Eskimo life and customs, by the Danish explorer who lived among them and understood them well.

THE PHILOSOPHICAL IMPACT OF CONTEMPORARY PHYSICS—Milic Capek—*Van Nostrand*, 414 p., \$7.50. Philosopher reviews the classical picture of the physical world, the disintegration of the classical framework and the significance of the new concepts in physics.

THE PHYSICAL THEORY OF TRANSISTORS—Leopoldo B. Valdes—*McGraw*, 370 p., illus., \$10.50. Planned for a graduate course on the

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theory of diodes and transistors, with emphasis on the internal structure of these devices.

PLANNING SCHOOLS FOR NEW MEDIA—Amo de Bernardos and others—*Office of Education (Portland State College)*, 72 p., illus., \$1. A guide to assist boards of education, school administrators and architects with the proper installation of electronic learning laboratories, reading accelerators, closed circuit TV and other modern media of instruction.

PROBLEMS AND WORKED SOLUTIONS IN VECTOR ANALYSIS (formerly titled: Introduction to Vector Analysis)—L. R. Shorter—*Dover*, 356 p., paper, \$2. Unabridged reprint of 1931 edition.

PROCEEDINGS OF THE URANIUM CARBIDE MEETING, held at Oak Ridge National Laboratory, Dec. 1-2, 1960—R. C. Lied and others—*AEC (OTS)*, 162 p., illus., paper, \$1.75. Summaries of papers.

PROGRAMMED INSTRUCTION, Vol. I, No. 1—Robert T. Filep, Ed.—*Center for Programed Instruction*, 8 p., illus., free upon request direct to publisher, 365 West End Ave., New York 24, N.Y. Reports on programing techniques, experience with programed instruction, recent research and workshops.

PROPOSED STUDIES ON THE IMPLICATIONS OF PEACEFUL SPACE ACTIVITIES FOR HUMAN AFFAIRS—Donald N. Michael, Ed.—*Brookings*, 272 p., paper, \$1. Report prepared for NASA and printed for the use of the Committee on Science and Astronautics, U.S. House of Representatives, 87th Congress, first session.

PROSE BY PROFESSIONALS: The Inside Story of the Magazine Writer's Craft—Terry Morris, Ed., with Peter Farb and Mort Weisinger—*Double-day*, 284 p., \$3.95. Includes chapter on working with specialists in science and medicine.

PROTEIN BIOSYNTHESIS—R. J. C. Harris, Ed.—*Academic*, 405 p., illus., \$14. Summaries and comments on papers of Symposium held in 1960 at Wassenaar, the Netherlands, under the auspices of UNESCO and the Council for International Organizations of Medical Sciences.

RADIOACTIVITY IN WATER SUPPLY AND WASTE WATER SYSTEMS: Peacetime Detection and Control—U.S. Navy (OTS), 98 p., \$2.25. Deals with the hazards of contamination of public water supplies, their detection and treatment.

RARE EARTH ALLOYS: A Critical Review of the Alloy Systems of the Rare Earth, Scandium and Yttrium Metals—Karl A. Gschneidner, Jr.—*Van Nostrand*, 449 p., \$12.75. Deals with physical properties of pure rare earth metals, and treats in detail alloy systems involving rare earth metals as one or more of the components.

RESEARCH FINDINGS ON THE CHARACTERISTICS OF SCIENTISTS—Calvin W. Taylor—*Utah Engineering Experiment Station, Univ. of Utah*, 17 p., paper, 75¢. Summarizes and analyzes findings on the interrelationships of creativity, productivity, and promotions of scientific personnel.

ROCKET AIRCRAFT, USA—Erik Bergaust—*Putnam*, 48 p., illus., \$2.50. Roundup for general reader of rocket planes, from the XS-1 to X-15 and the rocket glider Dyna-Soar.

SCIENCE AND MUSIC: From Tom-Tom to Hi-Fi—Melvin Berger and Frank Clark—*Whitlesley House*, 176 p., illus. by Gustav Schrotter, \$3.75. Explores the world of musical instruments in terms of physics and chemistry.

SEEDS: The Yearbook of Agriculture, 1961—Alfred Stefferud, Ed.—*USDA (GPO)*, 591 p., illus., \$2. Experts report in layman's language on the importance, life processes, production, processing, certification, testing and marketing of seeds.

A SHORT ACCOUNT OF THE HISTORY OF MATHEMATICS—W. W. Rouse Ball—*Dover*, 522 p., paper, \$2. Unabridged reprint of author's last revised edition in 1908.

THE SLOW LEARNER IN SECONDARY SCHOOLS: Yearbook 1961—Stanton B. Langworthy, Chmn.

—N.J. Secondary School Teachers Assn., 100 p., illus., paper, \$1. Teachers' study of the educational goals of 1,000 slow-learning students with I.Q.'s 75-89.

THE SOLAR SYSTEM—Patrick Moore—*Criterion Bks.*, rev. ed., 127 p., illus. by David A. Hardy, \$3. Compact outline for young people.

SPEAK TO THE EARTH—William A. Breyfogle—*Macmillan*, 174 p., illus. by William J. Schal-dach, \$3.75. Collection of essays conveying the interrelatedness of all facets of nature.

SPECIAL CERAMICS: Proceedings of a Symposium held at the British Ceramic Research Association—P. Popper, Ed.—*Academic*, 369 p., illus., \$10.50. Reports on progress in the study of new dielectric materials, mainly of the non-oxide type.

STRESS AND YOUR HEART—Fred Kerner, introd. by Hans Selye—*Hawthorn Bks.*, 237 p., \$4.95. Explains current medical research on the effect of stress on the heart, in layman's language.

TEACHING AND LEARNING IN MEDICAL SCHOOL—George E. Miller, Ed.—*Harvard Univ. Press*, 304 p., \$5.50. Study and evaluation of the objectives, techniques and programs of instruction

#### INVENTIONS

## Patents of the Week

A remote-controlled underwater craft for ocean exploration has been patented. A faceted mirror to concentrate the sun's rays and a teaching machine were invented.

➤ A REMOTELY controlled underwater craft for exploring the ocean depths has been patented.

The vehicle is completely outfitted with a television camera for scanning sea life, sunken ships and ocean bottoms, a mechanical arm for assisting in salvage operations, and a propulsion unit for propelling the craft through the silent ocean depths. The craft was invented by Jack D. Robinson Jr. of Norwalk, Conn., who assigned rights of patent No. 2,987,893 to American Machine & Foundry Company.

The "seeing-eye" craft has two cigar-shaped pontoons with pressure compartments that are automatically flooded to balance the increasing pressures as the craft slides deeper into the murky depths. The pontoon's front tips house the mechanical arm and TV camera.

A propulsion unit hemmed in between the pontoons can either propel the craft in any direction or cause it to hover nearly motionless over one spot. A powerful beam of light from a floodlight mounted beneath the pontoons lights the way for the remotely controlled vehicle.

A huge many-faceted "mirror" that concentrates the sun's rays to supply high temperatures for research purposes won patent No. 2,987,961 for Eugene S. Cotton, Natick, and John M. Davies, Wayland, Mass., who assigned rights to the U.S. Army. A special instrument automatically tracking the sun reflects the solar rays in parallel beams upon the patented concave mirror which, in turn, concentrates the rays.

Each individual mirror or facet can be mass produced, whereas previously each

in schools of medicine, sponsored by the Commonwealth Fund.

TELEVISION AND RADIO REPAIRING—John Markus—*McGraw*, 2nd ed., 568 p., illus., \$8.95. Text and reference on radio and TV servicing.

TEXT-BOOK ON SPHERICAL ASTRONOMY—W. M. Smart—*Cambridge*, 4th ed., 430 p., paper, \$3.95. Reprint of 1944 edition.

THE 20TH CENTURY AND YOUR HEART: Arteriosclerosis, Angina Pectoris, Coronary Thrombosis—Henry J. Speedy, M.D.—*Associated Booksellers*, 192 p., \$4.50. Written by practicing physician to help patients understand the causes and methods of treatment of heart disease.

VITAMIN C—J. J. Burns, Ed.—*N.Y. Acad. of Sciences, Annals*, Vol. 92, Art. 1, 332 p., illus., paper, \$4. Papers on recent progress in research on the origins, end products and functions of vitamin C.

YOUR GARDEN SOIL: How to Make the Most of It—R. Milton Carleton—*Van Nostrand*, 170 p., \$3.95. A practical discussion of the qualities, ingredients and treatment of good garden soil.

• Science News Letter, 80:12 July 1, 1961

mirror segment had to be hand tailored, the patent stated.

A teaching and testing machine for classrooms was patented by Harvard University psychologist, Dr. Burrhus F. Skinner, Cambridge, Mass., who assigned the rights of patent No. 2,987,828 to Rheem Manufacturing Company, New York City. The new machine requires little teacher supervision over the children and also avoids the use of the "multiple-choice" system commonly used in testing machines.

A question is presented to a student through a window while the answer contained in an adjacent window remains covered by a slat or mask until the student writes his answer on a paper tape sticking out of the machine. When the mask is pushed aside, the student's answer is covered by a window.

Farmlands can be fertilized with a device that squirts high-pressure jet streams of liquid fertilizer into the soil. The instrument was invented by Douglas Johnston, Huntsville, Ala., who assigned rights of patent No. 2,988,025 to John Blue Company, Inc., also of Huntsville. A "cutter" in front of the jet nozzle cuts the turf, and the high-pressured liquid fertilizer penetrates deep into the soil.

A boom-type sprinkler that uniformly irrigates large tracts of land despite wind gusts won patent No. 2,988,287 for Roger M. Sherman, Palo Alto, Calif., who assigned rights to W. R. Ames Company, Milpitas, Calif. Wind vanes riding the sprinkler system automatically keep the rotating boom arms at a constant angle with the ground, saturating the area in equal proportions.

• Science News Letter, 80:13 July 1, 1961