

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 APPLIED MICROBIOLOGY, Vol. 3—Wayne W. Umbreit, Ed.—*Academic Press*, 421 p., illus., \$13. Among other subjects, covers large-scale use of animal cell cultures, protection against infection in the micro-biological laboratory, and methods for the determination of organic acids.

ADVANCES IN ELECTRONICS AND ELECTRON PHYSICS, Vol. 15—L. Marton and Claire Marton, Eds.—*Academic Press*, 412 p., illus., \$13. Contains contributions on atomic beam frequency standards, masers, millimeter wave techniques, and distribution of electrons in the ionosphere.

ADVANCES IN QUANTUM ELECTRONICS—Jay R. Singer, Ed.—*Columbia Univ. Press*, 641 p., illus., \$15. Emphasis is on optical and infrared regions of the spectrum: optical masers, optical pumping, interaction of molecules with photons, phonon and paramagnetic resonance phenomena, information theory and noise, and microwave transitions.

ADVANCES IN SPACE SCIENCE AND TECHNOLOGY, Vol. 3—Frederick I. Ordway, III, Ed.—*Academic Press*, 482 p., illus., \$14. Discusses the role of geology in lunar exploration, Venus and Mars as objectives for exploration, interplanetary matter, advanced nuclear and solar propulsion systems, and aspects of weightlessness.

THE AMERICAN COLLEGE: A Psychological and Social Interpretation of the Higher Learning—Nevitt Sanford, Ed.—*Wiley*, 1084 p., \$10. A pioneering inquiry into the characteristics and motivations of college students, the influences of the college environment and the effects of higher education, prepared for the Society for the Psychological Study of Social Issues.

CAMONICA VALLEY—Emmanuel Anati, transl. from French by Linda Asher—*Knopf*, 272 p., illus., \$5.95. Amply illustrated with photo-

graphs, drawings and maps, this document, based on carvings chiseled into an Alpine mountainside, sheds new light on the earliest beginnings of settled life in Europe.

CHROMATOGRAPHY: Adsorption, Partition, Ion Exchange, Electrochromatography, Column, Slab, Paper, Gas—Erich Heftmann, Ed.—*Reinhold*, 753 p., illus., \$17.50. Reference text on the theory, techniques and applications of chromatography and electrochromatography.

COMMUNICATIONS IN AFRICA: A Search for Boundaries—Leonard W. Doob—*Yale Univ. Press*, 406 p., \$7.50. Concerned with both traditional and more advanced societies, psychologist investigates and analyzes twelve critical variables that affect communication in different African societies south of the Sahara.

COMPARISONS IN RESOURCE MANAGEMENT: Six Notable Programs in Other Countries and Their Possible U. S. Application—Henry Jarrett, Ed.—*Johns Hopkins Press*, 271 p., photographs, maps, \$5.50. Essays examine and evaluate specific programs of land and water development in Great Britain, Sweden, West Germany, Canada and France.

CONCISE GUIDE TO STRUCTURAL ADHESIVES—Werner H. Guttman—*Reinhold*, 389 p., illus., \$15. Reference work covering the outstanding capabilities, methods of handling, selection for specific uses and applications of 225 commercially available adhesives.

CONTROL MECHANISMS IN CELLULAR PROCESSES—David M. Bonner, Ed.—*Ronald*, 248 p., illus., \$8.50. Papers on the diverse mechanisms now known to act as regulatory systems, such as genetic control of enzyme structure, control by repression, RNA and control of cellular processes, and control by light.

CRYSTALLIZATION: Theory and Practice—Andrew Van Hook—*Reinhold*, 325 p., illus., \$12.50. Reference work, presents historical review, basic principles, modern theories, nucleation and growth, crystallization in the laboratory and in the plant, and the practice of crystallization.

ELEMENTARY PARTICLES: A Short History of Some Discoveries in Atomic Physics—Chen Ning Yang—*Princeton Univ. Press*, 68 p., illus., \$2.75. Nobelists describes the ideas involved,

and the interplay between theoretical and experimental research in the discovery of the elementary particles. Fold-out chart lists particles and their properties for ready reference.

THE EPIC OF MAN—Editors of Life, Courtlandt Canby, introd. by Loren Eiseley—*Time Inc. (Prentice-Hall)*, 307 p., illus., \$13.50. Expanded pictorial chronicle of man's early civilizations, based on series of articles that appeared in Life from 1955 to 1957.

FRONTIERS OF MEDICINE: New Theories and Research Results by World Renowned Scientists—Rudolph Friedrich, Ed., transl. from German by Martin V. H. Prince—*Liveright*, 320 p., illus., \$6.95. Reviews for the layman theories of neural pathology, of stress and adaptation, methods of neural therapy, cellular therapy, and tissue transplants.

HANDBOOK OF VECTOR AND POLYADIC ANALYSIS—Thomas B. Drew—*Reinhold*, 103 p., \$5.50. Advanced text, treats vector and tensor concepts necessary in fluid dynamics, diffusion theory, electromagnetic theory and heat transmission.

MECHANICS—J. P. Den Hartog—*Dover*, 462 p., illus., paper, \$2. Unabridged and corrected republication of first edition published in 1948.

MINERALS YEARBOOK 1960, Vol. 1: Metals and Minerals (Except Fuels)—Marling J. Ankeny, Dir.—*Bureau of Mines (GPO)*, 1294 p., \$4.50. Record of performance of U. S. metal and non-metal mineral industries.

PMI PHOTO METHODS FOR INDUSTRY: Directory 1961-62—N. M. Grossman, Ed.—*PMI Photo Methods for Industry*, 212 p., illus., paper, \$2.50. Directory issue lists names & addresses of sources, product chart, product guide and services available to the industrial and professional user.

POLYELECTROLYTE SOLUTIONS: A Theoretical Introduction—Stuart A. Rice and Mitsuru Nagasawa with contribution by Herbert Morawetz—*Academic Press*, 568 p., \$16.50. Intended as an introduction to research, this monograph places emphasis on the interrelation of theory and experiment.

QUANTUM THEORY, Vol. II: Aggregates of Particles. Vol. III: Radiation and High Energy Physics—D. R. Bates, Ed.—*Academic Press*, 475 p., 402 p., \$11, \$10. Advanced text and reference on the fundamentals and applications of quantum theory, written by specialists actively engaged in research.

RADIOMETRY—Vladimir I. Baranov, transl. from Russian—*Acad. of Sciences USSR (OTS)*, 381 p., illus., paper, \$4.50. On methods of measuring radioactivity, such as laboratory radiometric analysis of rock specimens, field radiometric methods, and application of radioactive methods in geology.

THE ROCKEFELLER FOUNDATION: Program in the Agricultural Sciences, Annual Report 1960-1961—*Rockefeller Foundation*, 326 p., illus., paper, single copies free upon request direct to publisher, 111 W. 50th St., New York 20, N. Y. Reports in detail on agricultural programs supported by the Foundation in Mexico, Colombia, Chile and India.

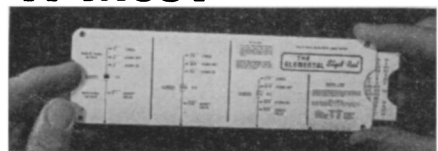
SALT-WATER AQUARIA—R. S. Bailey and Fred C. Biggs—*Va. Inst. of Marine Science*, rev. ed., 20 p., illus., paper, single copies free upon request direct from publisher, Gloucester Point, Va. Information for teachers and elementary school biology students.

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MUSEUM—James D. Anderson—*The Museum News Series (Newark Mus. Assn)*, 16 p., illus., paper, 75¢. Brief discussion of some of the thousand or more species in the Museum's conchology collection.

SOURCE BOOK OF HEALTH INSURANCE DATA, 1961—*Health Insurance Institute*, 80 p., illus., paper, free upon request direct to publisher, 488 Madison Ave., New York 22, N. Y. Compilation of statistical data on the financing of health care.

INVENTION

Patents of the Week

► AN AIRWAY for use in artificial respiration has been patented. The device for blowing air into a patient's lungs was developed by Peter Safar and Martin C. McMahon of Baltimore, Md., who assigned rights to Johnson & Johnson.

Mouth-to-mouth resuscitation is a much more efficient method of getting air into the lungs than methods relying on physical pressure, such as chest or back pressure, since about ten times as much air is moved.

Despite this substantial improvement, however, many persons hesitate to give artificial respiration by the mouth-to-mouth method because of an instinctive aversion to placing their mouths on another person's mouth, especially in the presence of mucus, foam or blood. Since artificial respiration should be started immediately and a physician is usually not present, it must be done by a layman.

The instrument devised by Mr. Safar and Mr. McMahon is designed to make mouth-to-mouth resuscitation more acceptable and easier to perform. It consists of a single curved tube with a flange, so constructed that one end can be used for adults and the other for children.

One end is placed in the patient's mouth and holds the tongue forward while the other end extends from the patient's mouth into a position such that the user can readily blow through the tube while facing the chest and holding the nostrils closed, the neck extended and the lower jaw upward. The flange limits the extent to which the tube is inserted. The airway received patent No. 3,013,554.

An ion rocket engine for use in long space trips won patent No. 3,014,154 for Kenneth W. Ehlers of Lafayette, Calif., and Ferdinand Voelker III, of Concord, Calif., who assigned rights to the U.S. Atomic Energy Commission. Space propulsion by ions requires a very high ion current compared to that produced by most conventional sources.

The scientists therefore provided a "unique ion generating structure characterized by a large surface area nearly all of which emits ions." Accelerating electrodes are placed next to this surface to give a high velocity to the ions to produce thrust. Cesium is suggested as the ion source since it has the lowest ionization potential of all the elements, 3.9 volts.

The heated cesium gas is forced by moderate pressure to pass through porous metal such as tungsten or platinum. This system

STRENGTH OF MATERIALS—J. P. Den Hartog—*Dover*, 323 p., illus., paper, \$1.95. Unabridged reprint of first edition published in 1949.

TEACHING ELEMENTARY SCIENCE: A Sourcebook for Elementary Science—Elizabeth B. Hone, Alexander Joseph and Edward Victor—*Harcourt*, 552 p., illus., \$7.50. Comprehensive collection of tested activities and experiments for the elementary science classroom and field trips.

• Science News Letter, 81:12 January 6, 1962

will provide a comparatively low thrust during a very long time, such as might be needed for prolonged space travel, the scientists said.

Alfred C. Thomas of Kansas City, Mo., has devised a food warmer that can be used with an automobile radiator, for which he received patent No. 3,013,548. The heat removed from the car engine by the water or other fluid in the radiator is circulated in the food warmer, which can be kept in the passenger section, in the trunk or under the hood.

The warmer consists of two sections, each containing a water-tight vessel through which the radiator fluid is circulated. The device can also be used to provide hot water for bathing or shaving. The warmer would be particularly useful during long trips or when it is impossible to stop at a restaurant, Mr. Thomas said.

Variations in a process for producing molecular sieves won patents for three scientists affiliated with the Union Carbide Corporation, which was assigned patent rights. The patents, Nos. 3,013,982 to 3,013,987, were variously distributed among Donald W. Breck of Tonawanda, N.Y., Robert M. Milton of White Plains, N.Y. and Charles R. Castor of Indianapolis, Ind.

The metal-loaded zeolitic molecular sieves are suitable for use as catalysts, scavengers and getters. They consist basically of three-dimensional frameworks of tetrahedra of silicon tetraoxide and aluminum tetraoxide, which are cross-linked by the sharing of atoms.

For bridge players who have trouble remembering the correct bidding procedure after the first round of bids, Ralph D. Cooper of Oklahoma City, Okla., has devised a handy aid. It consists of a slide rule the front side of which contains condensed advice for the first round of bidding. On the reverse are listed short suggestions for continuation of the bidding, depending on what the opening bids were.

The slide rule device for bridge bidding is based on the point count system. It received patent No. 3,013,349.

• Science News Letter, 81:13 January 6, 1962

One-sixth of new active cases of *tuberculosis* found are in people under 25 years of age.

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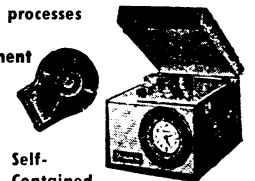
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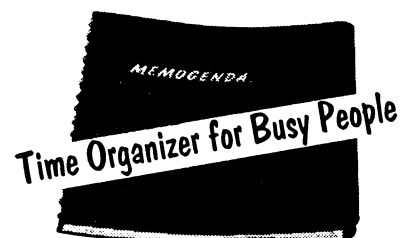
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