

Books of the Week

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ANDREAS VESALIUS OF BRUSSELS, 1514-1564—C. D. O'Malley—Univ. of Calif. Press, 480 p., illus., \$10. A definitive biography of the pioneer of modern anatomy, marking the 400th anniversary of his death and presenting the major achievements of his treatise on the structure of the human body in his own words.

THE BAY OF PIGS: The Leaders' Story of Brigade 2506—Haynes Johnson with Manuel Artime and others—Norton, 368 p., photographs, maps, \$5.95. A reporter's account of the ill-fated Cuban invasion, giving the brigade officers' own version of the details.

THE BRILLIANT AND TRAGIC LIFE OF W. M. W. HAFKINE, BACTERIOLOGIST—Selman A. Waksman—Rutgers Univ. Press, 86 p., photographs, \$3.75. Biography of bacteriologist who introduced anti-choleera and anti-plague vaccinations to India.

COMPUTER PROGRAMMING AND AUTOCODES—D. G. Burnett-Hall, L. A. G. Dresel and P. A. Samet—Van Nostrand, 106 p., \$4.50. Discusses the planning of a calculation in general terms, describes three autocode in common use in Great Britain, and gives an account of international programming language ALGOL.

CONCEPTS OF MASS: In Classical and Modern Physics—Max Jammer—Harper, 230 p., paper, \$1.75. Reprint (1961).

YOUR HAIR

ITS HEALTH, BEAUTY AND GROWTH

BY HERMAN GOODMAN, M.D.

A medical specialist tells you what you can and cannot do to save and beautify your hair, stimulate healthier hair growth, and deal with many problems, as dandruff—gray hair—thinning hair—care of the scalp—baldness—abnormal types of hair—excessive oiliness—brittle dryness—hair falling out—infection—parasites—hair hygiene—glands—diet—coloring—and myriad other subjects concerning hair.

Discusses the many problems of hair retention, regrowth and removal.—SCIENCE NEWS LETTER.

287 PAGES—Profusely Illustrated! Price \$3.95, postfree. 10-day Money-back Guarantee. EMERSON BOOKS, INC., 251 W. 19th Street, Dept. 91-P, New York 11, N.Y.



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REVIEW OF POPULAR ASTRONOMY
 214 SN. S. Bemiston Ave., P.O. Box 231
 St. Louis, Mo. 63105

A CONSUMER'S GUIDE TO USDA SERVICES—USDA, 50 p., illus., single copies free upon request direct to U.S. Dept. of Agriculture, Washington, D. C., 20250. A sampling of some of the authoritative information published especially for consumers in more than 100 currently available bulletins.

DEATH OF THE THRESHER—Norman Polmar—Chilton Bks., 148 p., photographs, diagrams, \$3.95. The tragic story and account of the search for one of the U.S. Navy's most advanced class of nuclear submarines.

DISCRETUS CALCULUS: A Variable-Metric Approach to Physical Theory—Herbert S. Inham—Philosophical Lib., 197 p., diagrams, \$6. A detailed presentation of a new non-linear mathematical system in which the reasoning steps are supported by discussion and diagrams.

AN EASY GUIDE TO ARTIFICIAL LIGHT-GARDENING FOR PLEASURE AND PROFIT—Vernon Johnston and Winifred Carriere—Hearthsides Press, 192 p., illus. by Bob Dara, photographs by Stuart Fox, \$4.50. Explains light and darkness in plant growth, lamps, equipment and care, with discussion of specific house plants and their needs.

EDUCATION DIRECTORY, 1963-1964, Part 3: Higher Education—OE (GPO), 228 p., paper, \$1. Data on institutions of higher education, listed by states.

EXPLORING SPACE—David Dietz and others—Highlights for Children, rev. ed., 33 p., illus., paper, 75¢. Authentic information on space and the problems of space travel, for the intermediate grade school child.

FITNESS FOR THE WHOLE FAMILY—Paul Dudley White and Curtis Mitchell, Eds.—Doubleday, 302 p., illus. by Attilio Sinagra, \$4.95. Answers questions about acquiring and maintaining physical fitness throughout life.

FLUVIAL PROCESSES IN GEOMORPHOLOGY—Luna B. Leopold, M. Gordon Wolman and John P. Miller—Freeman, 522 p., illus., \$10. Concentrates on recent advances in the application of analytical and experimental techniques to the study of running water and its effects.

FOREIGN AID AND FOREIGN POLICY—Edward S. Mason—Harper, 118 p., \$3.50. Based on the Elihu Root Lectures delivered at the Council on Foreign Relations in 1963.

THE GENETICS OF BACTERIA AND THEIR VIRUSES: Studies in Basic Genetics and Molecular Biology—William Hayes—Wiley, 740 p., illus., \$13.75. An advanced textbook on the genetics of bacteria and bacteriophages, covering recent developments in the field and interpretations at the molecular level.

GREECE BEFORE HOMER: Ancient Chronology and Mythology—John Forsdyke—Norton, 176 p., 8 plates, paper, \$1.55. Designed to serve as an introduction to the literary and archaeological records of prehistoric Greece.

HEAT AND LIFE: The Development of the Theory of Animal Heat—Everett Mendelsohn—Harvard Univ. Press, 208 p., \$4.50. A scholarly and detailed investigation of the elements that went into the concept formation of animal heat, tracing its changes through time and the sources of these changes.

HYDRODYNAMICS AND VECTOR FIELD THEORY, Vol. 1: Examples in Elementary Methods; Vol. 2: Examples in Special Methods—D. M. Grieg and T. H. Wide—Van Nostrand, 213 p., 166 p., diagrams, \$3.95, \$4.20. Advanced applied mathematics texts.

THE IDEAS OF BIOLOGY—John Tyler Bonner—Harper, 180 p., illus. by Anne L. Cox, paper, \$1.45. Reprint (1962).

INDIA AND THE WEST—Barbara Ward—Norton, rev. ed., 295 p., \$4.95; paper, \$1.45. Revised edition contains three new chapters on the effects on India of the border war with Communist China.

AN INTRODUCTION TO ALGOL PROGRAMMING—R. Woolridge and J. F. Ractliffe, 131 p., diagrams, \$4.20. An explanation of the programming of computers using ALGOL.

IROQUOIS MUSIC AND DANCE: Ceremonial Arts of Two Seneca Longhouses—Gertrude P. Kurath—Smithsonian Inst. (GPO), 268 p., illus., paper, \$1.50. Bureau of American Ethnology Bulletin 187.

LEADING ISSUES IN DEVELOPMENT ECONOMICS: Selected Materials and Commentary—Gerald M. Meier—Oxford Univ. Press, 572 p., \$7. Analyzes leading issues such as stages of development, dualistic development, capital accumulation, inflation, industrialization and agriculture, the export sector, and techniques of development planning.

LECTURES IN ABSTRACT ALGEBRA, Vol. III: Theory of Fields and Galois Theory—Nathan Jacobson—Van Nostrand, 323 p., \$9.75. Presents the basic field theory essential for an understanding of modern algebraic number theory, ring theory and algebraic geometry.

LOVEJOY'S SCHOLARSHIP GUIDE: College and Preparatory School—Clarence E. Lovejoy—Simon &

Schuster, 2nd ed., 91 p., paper, \$1.95. Practical information on scholarship service, aid programs in 35 states, and alphabetical listing of scholarships.

MANPOWER DEVELOPMENT: The System Training Concept—Elias H. Porter—Harper, 138 p., illus., \$4.95. Describes the system tried out in operational radar stations and explains how the principles may be applied to a wide variety of organizations.

MARRIAGE COUNSELING IN MEDICAL PRACTICE: A Symposium—Ethel M. Nash, Lucie Jessner and D. Wilfred Abse, Eds.—Univ. of N. C. Press, 368 p., \$8. A reference work for doctors on the medical implications of marital conflict and maladjustment.

NEW AND NONOFFICIAL DRUGS 1964—Council on Drugs of the American Medical Association—Lippincott, 863 p., \$4.75. An annual compilation of available information on drugs, including their therapeutic and diagnostic status.

NORMAL NEUROSIS: The Adjusted American—Snel Putney and Gail J. Putney—Harper, 210 p., \$3.95. Concerned with behavior prevalent among normal Americans, the authors point out the neurotic pattern underlying some of the more common behavior difficulties.

THE NORTH CASCADES—Harvey Manning—The Mountaineers (Sierra Club), 95 p., photographs by Tom Miller, maps and sketches by Dee Molenaar, \$10. Rare views of mountain peaks, glaciers and lakes, a magnificent wilderness region Congress will be asked this year to protect against exploitation.

NUCLEAR SECRECY AND FOREIGN POLICY—Harold L. Nieburg, introd. by Hans J. Morgenthau—Public Affairs Press, 255 p., \$6. An attempt to present in coherent form the complex and controversial story of nuclear secrecy, considering its political, military and diplomatic significance.

PIONEER ASTRONOMERS—Navin Sullivan—Atheneum, 156 p., illus. by Eric Fraser, \$3.75. Short sketches about great astronomers at work, each a pioneer in expanding the work done by other astronomers.

THE PRIVACY INVADERS—Myron Brenton—Coward-McCann, 240 p., \$4.95. A compilation and discussion of evidence on a growing investigative industry, gleaned from interviews and published sources.

PRIVATE PILOT'S HANDBOOK OF WEATHER—Lt. Col. Gene Guerny and Capt. Joseph A. Skiera—Aero Pubs., 184 p., illus., \$5. About the weather and how to deal with it as a private pilot.

PROPERTIES OF CONCRETE—A. M. Neville—Wiley, 532 p., diagrams, \$9.50. An up-to-date treatment of the subject with extensive explanations of the reasons for the various properties, with comprehensive bibliography.

QUARTERLY GEOLOGIC HISTORY OF THE COASTAL PLAIN OF RIO GRANDE DO SUL, BRAZIL—Patrick J. V. Delaney—La. State Univ. Studies, 63 p., illus., maps, paper, \$2.50. Geologic and geographic reconnaissance of coastal area just north of Uruguay.

RACKETVILLE, SLUMTOWN, HAULBURG: An Exploratory Study of Delinquent Subcultures—Irving Spargel, foreword by Lloyd E. Ohlin—Univ. of Chicago Press, 211 p., \$5. Intensive study of three different neighborhoods in a large city, designed to increase understanding of characteristic patterns of delinquent behavior.

RECENT GEOMORPHIC HISTORY OF THE PONTCHARTRAIN BASIN—Roger T. Saucier—La. State Univ. Press, 114 p., maps, paper, \$3. Physiography and geomorphic history of large lowland area in the Mississippi River deltaic plain.

REDUCE AND STAY REDUCED ON THE PRUDENT DIET—Norman Jolliffe—Simon & Schuster, 3rd rev. ed., 251 p., diagrams, \$4.95. A guide to sound nutrition practices by the former director of the Bureau of Nutrition, New York City Department of Health.

THE SCIENTIFIC REVOLUTION AND WORLD POLITICS—Caryl P. Haskins—Harper, 115 p., \$3.50. Updated version of the 1961 Elihu Root Lectures, summarizes and analyzes the trend of science and technology in relation to national strength, and their significance in the West, East and in the new nations.

SELF-IGNITION, FLAME AND DETONATION IN GASES—A. S. Sokolik, transl. from Russian—Israel Program for Scientific Translations, (OTS), 458 p., illus., paper, \$4.75. Translation of Russian monograph on kinetic problems related to combustion phenomena.

SOCIAL REORGANIZATION IN A FACTORY IN THE ANDES—Charles H. Savage, Jr.—Soc. for Applied Anthropology, 22 p., diagrams, paper, \$2. Monograph documents one factory's group experience with rapid technical change.

THE STRANGE WORLD OF BIRDS—John Wakefield—Macrae Smith, 151 p., illus. by author, \$4.95. Emphasizes the rare and the strange among birds, from legendary creatures to birds with unusual habits and attributes.

SUNDIAL OF THE SEASONS: A Selection of Outdoor Editorials for The New York Times—Hal Borland—Lippincott, 350 p., \$5.95. Short essays on nature, one for each day of the year, beginning with the vernal equinox.

SYNTHETIC FIBERS IN PAPERMAKING—O. A. Battista, Ed.—Interscience, 340 p., illus., \$14. Presents the use of synthetic fibers, including metal, glass and ceramic fibers, in papermaking,

written by experts in their respective fields of technology.

UNEMPLOYMENT AND THE AMERICAN ECONOMY—Arthur M. Ross, Ed.—Wiley, 216 p., \$4.95. Contains papers on retraining and labor market policies, problems of expanding economic activity, and on what the U.S. can learn from the European experience.

WILD FLOWERS to Know and to Grow—Jean Hersey—Van Nostrand, illus. in color by Allinora Rosse, \$6.95. Describes 200 native plants, tells how and where to grow them, and how to protect them.

WILLIAM HERSCHEL and the Construction of the Heavens—Michael A. Hoskin, astrophysical notes by D. W. Dewhurst—Norton, 199 p., illus., \$6. Biography of 18th century astronomer, and analysis of his contribution to sidereal science.

THE WONDERS OF FUNGI—Lucy Kavalier—Day, 128 p., illus. by Richard Ott, photographs, \$3.64. Tells boys and girls about molds, yeast and mushrooms, and their effects on man.

TAXATION—J. Woodrow Sayre and Edith Stull—Watts, F., 74 p., diagrams, \$2.50. Explains the theory and structure of taxation for young readers.

THE THREE CHRISTS OF YPSILANTI: A Psychological Study—Milton Rokeach—Knopf, 340 p., \$5.95. A psychologist's study of three mental hospital patients each of whom believes that he is Jesus Christ.

THE TWO BIOLOGIES—J. W. S. Pringle—Oxford Univ. Press, 28 p., paper, 60¢. Inaugural lecture on the biology of organic evolution and on the more recent molecular biology which has "come of age" with the knowledge of the double-helix structure of DNA.

INVENTION

Patents of the Week

A spherical lens receives and focuses radar beams in a stationary position and can receive different frequencies from different directions at the same time.

► A NEW, LIGHTWEIGHT radar "eye" in the shape of a ball instead of a saucer receives and focuses microwave beams in the same way the human eye receives and focuses light.

The U.S. Patent Office issued patent 3,133,285 for this spherical lens, already being used as a radar "eye" in a few locations by the armed forces.

Radar, which stands for radio directing and ranging, "sees" for great distances by sending out radio signals. Those that strike an object such as a plane or boat are reflected back and picked up by the receiving antenna to pinpoint location of an object.

Instead of a huge, rotating saucer-shaped reflector that receives the reflected signals, the new spherical lens refracts or "bends" the rays as does a glass prism. The lens is constructed on the "Luneberg" principle which states that light beams entering the lens are focused on a central point, just as the eye focuses light.

The advantages of a Luneberg radar lens are that it can be stationary instead of rotating like conventional radar systems and can receive different frequencies from different directions at the same time.

Cooling System Problems

Two problems previously hindering the construction of Luneberg lenses are a cooling system inside the sphere and the material of which the lens is formed. In this invention, corrugated, pie-shaped wedges of simulated foamed plastic are interwoven in such a way that layers of air provide natural cooling.

In order to achieve the Luneberg effect

USA AND ITS ECONOMIC FUTURE: A Twentieth Century Fund Survey—Arnold B. Barach—Macmillan, 148 p., graphics by Rudolph Modley, paper, \$1.95. Relevant facts presented in simply written style, reinforced by graphic illustrations, with annotated statistical appendix.

THE VICTORIA AND THE TRITON—Bern Dibner—Blaisdell Pub. Co., 110 p., illus., \$3.50; paper, \$1.95. Historical monograph, compares Magellan's navigational achievement with that of the nuclear submarine.

A VIEW OF ALL THE RUSSIAS—Laurens van der Post—Morrow, 374 p., folded map, \$5.95. An account of personal impressions of the physical scene of the Soviet Union and contacts with the Russian people while traveling east as far as Lake Baikal and Khabarovsk on the Amur.

WHO'S WHO IN INDIAN SCIENCE—H. Kothari, Ed.—Kothari Publications, 176 p., \$3. A reference book on leading Indian scientists, physicians and engineers, includes technical register and information on Indian scientific organizations.

WONDERS OF ANIMAL ARCHITECTURE—Sigmund A. Lavine—Dodd, 63 p., illus. by Margaret Cosgrove, \$3. Tells children about many kinds of animal habitations, from fox holes to the wasps' masonry.

WORLDS LOST AND FOUND: Discoveries in Biblical Archeology—Azriel Eisenberg and Dov Perets-Elkins—Abelard-Schuman, 208 p., illus. by Charles Pickard, \$3.75. Thirteen stories, ranging from the chance discovery of the Rosetta Stone to an account of modern underwater archaeological techniques.

• Science News Letter, 85:348 May 30, 1964

of focusing energy waves, the lens material must have a higher "dielectric constant" in the center of the sphere than near the surface. The dielectric constant is a number denoting the ability of a material to resist the flow of electric current through it.

A material with a high dielectric constant is a good insulator, while a material with a low dielectric constant is a good conductor. The patent describes three ways in which the pyramid-shaped wedges may be "woven" to produce the Luneberg effect.

The lens was developed by Thomas J. Jordan, Ballston Lake, N. Y., and Henry T. Plant, Rotterdam, N. Y., both engineers in the plastics processing group of General Electric Company's manufacturing services division in Schenectady, N. Y. Patent rights were assigned to General Electric.

Flash Protection Garment

A retired U.S. Air Force major has designed a garment to protect a person from the blinding flash accompanying a nuclear explosion. When not in use, it folds up in a package the size of a cigarette pack and can be carried in a person's pocket, handbag or auto glove compartment.

Maj. Donald R. Langdon, Mobile, Ala., was awarded patent 3,132,344 for his invention, which resembles a kingsize dry cleaning bag. It is quickly pulled on over the head in an emergency. There is no opening at the top.

The garment is made of aluminum foil on the outside and plastic or paper on the inside. The foil's reflective properties would minimize the effects of thermal radiation and flash burns, Maj. Langdon believes.

After the first shock wave of the explosion, the transparent plastic window near the person's face can be "opened" by peeling away an inside cover. Tie cords attached inside the bag can be tied around the wearer's waist and ankles, enabling him to move about.

Maj. Langdon assigned 50% of the patent rights to Oilver E. Gibson, Philadelphia, an Air Force equipment specialist temporarily assigned to the U.S. Navy. They have not yet licensed the patent for manufacture.

Porpoise-Shaped Vehicle

Patent 3,131,664 was issued for a porpoise-shaped sea taxi that moves at high speeds underwater and frolics like a porpoise on the surface. The fiberglass vehicle, complete with flippers, could rapidly carry a lone scuba diver to an underwater demolition project or to chart a mine field.

Marine photographers, underwater construction engineers, salvage divers and military frogmen could all depend on this bubble-top sea sled to carry them silently and quickly to a specific location without exhausting their oxygen supply.

Invented by George W. McInvale, Irving, Texas, formerly with Ling-Temco-Vought, Inc., Dallas, the sled would dive and ascend by filling the ballast tanks with water or blowing it out by compressed air. If the diver wanted to get out instead of ride around, the bubble-top would slide back.

The diver lies on his stomach on a contoured couch, to operate the sea sled by a control stick in the front. The sled can bank, turn, dive or ascend, following the swimming pattern of a porpoise if deception is necessary.

Electrical power is supplied by a hydrogen-oxygen fuel cell, and a special rubber-like synthetic "skin" described in the patent reduces the frictional drag on the machine as it moves through the water.

Patent rights were assigned to Ling-Temco-Vought, which has no immediate plans for developing the invention.

Other Significant Patents

An unsinkable paddle-wheeled boat for children propelled by foot pedals—patent 3,132,623 to Lawrence Conklin, Pittsburgh, Pa.

A liquid rocket fuel consisting of an alkali metal borohydride in hydrazine, held secret for almost 16 years—patent 3,132,977 to William P. Knight, Covina, Calif.; assigned to Aerojet-General Corporation, Azusa, Calif.

A cosmetic compact divided into eight pie-shaped compartments to hold different powders, cakes or creams—patents 3,132,652 and 3,132,653 to Eva Gazdik, Zephyr Cove, Nev.

An anti-snoring device that locks on to a person's upper jaw and depresses his tongue without preventing swallowing—patent 3,132,647 to Giuseppe Corniello, Los Angeles.

An auxiliary fuel system for automobiles—patent 3,132,685 to Malcom N. McKinnon, Salt Lake City, Utah.

• Science News Letter, 85:348 May 30, 1964