

Books of the Week

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ANALYSIS, Vol. II—Einar Hille—Blaisdell Pub. Co., 672 p., \$10.50. This second volume (Vol. I, 1964) completes the course in basic mathematical analysis intended for the good student early in his college career.

ANALYSIS INSTRUMENTATION 1965: Proceedings of the Eleventh Annual Analysis Instrumentation Symposium—L. Fowler, R. G. Harmon and D. K. Roe, Eds.—Plenum Press, 240 p., illus., \$12.50. On the most recent developments in laboratory chromatography, sample handling, process chromatography, radiation methods, electrochemical and optical methods in chemical analysis.

ATOMIC AND NUCLEAR PHYSICS—Derek L. Livesey—Blaisdell Pub. Co., 525 p., diagrams, \$10.50. A balanced account of the physics of atoms and nuclei, with necessary references to statistical mechanics and special relativity theory, relating theoretical discussions to experimental results.

THE BAMBOOS: A Fresh Perspective—F. A. McClure—Harvard Univ. Press, 347 p., illus., \$10. A scholarly treatise on the bamboo plant, the vegetative and reproductive phases of the maturing plant, the seedling, elite bamboos, propagation and bamboo taxonomy.

CHEMICAL PRINCIPLES IN THE LABORATORY: With Report Forms—Harper W. Frantz and Lloyd E. Malm—Freeman, 354 p., illus., paper, \$4.25. Laboratory manual contains 38 experiments and 8 study assignments, enriched by greater stress of quantitative techniques. Also available without report forms, \$3.75.

CHEMISTRY: A Unified Approach—J. W. Buttle, D. J. Daniels and P. J. Beckett—Butterworths, 538 p., diagrams, \$9.50. British, broadly designed text, develops the physical aspects of the subject, reviews chemical elements from the point of view of the periodic table, and in the treatment of organic chemistry emphasis is on functional group and characteristic property.

CURRENT RESEARCH AND DEVELOPMENT IN SCIENTIFIC DOCUMENTATION, No. 12: Bibliography of References Cited in Issues No. 1-11—National Science Foundation—GPO, 401 p., paper, \$1.50. Bibliography of studies on information needs and uses, storage and retrieval, mechanical translation, equipment and related research.

E.S.P. TODAY: Special Issue of CORRECTIVE PSYCHIATRY and Journal of Social Therapy, March 1966—Ralph S. Banay, Ed.; Berthold E. Schwarz, Gardner Murphy and others—Medical Correctional Assn., 162 p., illus., paper, \$1.50. Presents topics and authors of outstanding merit in the field of extrasensory perception to give impetus to further research.

ECONOMIC POLICIES IN OCCUPIED LATVIA: A Manpower Management Study—Gundar Julian King—Pacific Lutheran Univ. Press, 304 p., \$5. Annotated study based primarily on published data in the Latvian language not ordinarily collected by universities, covering the period between 1920 and 1962.

EINSTEIN'S UNIFIED FIELD THEORY—M. A. Tonnelat, transl. from French by Richard Akerib; preface by Andre Lichnerowicz—Gordon & Breach, 194 p., \$10. Mathematical treatise, seeks to synthesize and evaluate the various points of view of the Unified Field Theory of Einstein.

FANTASTIC VOYAGE—Isaac Asimov—Houghton, 239 p., \$3.95. A novel, based on screenplay by Harry Kleiner, this science fiction takes the reader on a journey through the human blood stream.

FINGER PRINTS—Francis Galton, new introd. by Harold Cummins—Da Capo Press, 216 p., illus., \$6.95. Unabridged republication of influential classic first published in 1892.

FOUNDATIONS OF NUTRITION—Clara Mae Taylor and Orrea Florence Pye—Macmillan, 6th ed., 564 p., illus., \$7.95. Fully updated classic text adapted to students of varying scientific training, emphasizing topics of most active research.

FREEDOM IN THE MODERN WORLD—Herbert J. Muller—Harper, 559 p., \$10. Deals with the major developments in a period of revolutionary change, the 19th and 20th centuries, when issues of political freedom became paramount, supported by the profound changes in human life wrought by modern science and technology.

FUNDAMENTAL PHENOMENA IN THE MATERIAL SCIENCES, Vol. 2: Surface Phenomena—L. J. Bonis and H. H. Hausner, Eds.—Plenum Press, 208 p., illus., \$12.50. Papers and discussion of 1964 Symposium dealing with the principles of surface physics and chemistry.

GEOCHEMISTRY OF BERYLLIUM and Genetic Types of Beryllium Deposits—A. A. Beus, transl. from Russian by F. Lachman, Lincoln R. Page, Ed.—Freeman, W. H., 401 p., illus., \$15. Comprehensive compilation of mineralogic and geochemical data concerning beryllium in rocks and mineral deposits of the USSR, emphasizing the author's theoretical views about the origin of abnormal concentrations.

GEOLOGY—Robert J. Foster—Merrill Bks., 138 p., illus., \$3.95; paper, \$1.75. Designed to provide the student and general reader with a modern view of the scientific principles underlying the composition of the earth's crust, the processes of erosion, the structure of the earth's crust and historical geology.

THE GREAT AMERICAN DESERT: Then and Now—W. Eugene Hollon—Oxford Univ. Press, 284 p., plates, maps, \$6. Traces the history of man's adaptation to the arid area between the Sierra Nevada and the plains from early myths to present-day innovations in farming, cattle raising, transportation and air conditioning.

GUIDE TO CASE STUDIES OF SCIENTIFIC ACTIVITY—Ben-Ami Lipetz with Curtis P. McLaughlin—Intermedia (Carlisle, Mass.), 350 p., \$12. Gives bibliographic references and abstracts of about 400 sources of case studies of scientific and technological achievement, from journal articles to multi-volume collections, with general and chronological index.

HANDBOOK OF THERMIONIC PROPERTIES: Electronic Work Functions and Richardson Constants of Elements and Compounds—V. S. Fomenko; G. V. Samsonov, Ed., transl. from Russian—Plenum Press Data Div., 151 p., \$12.50. Updated edition includes latest data on borides, carbides and aluminides.

HONOUR AND SHAME: The Values of Mediterranean Society—J. G. Peristiany, Ed.—Univ. of Chicago Press, 266 p., \$5. Scholarly essays revealing the continuity and persistence of modes of thought in the contemporary societies of Greek Cypriots, Spaniards, Bedouins and the Kabyles of Algeria.

HUMAN SEXUAL RESPONSE—William H. Masters and Virginia E. Johnson—Little, Brown, 335 p., \$10. For story see p. 323.

JAPAN: Crossroads of East and West—Ruth Kirk—Nelson, 223 p., photographs by Bob and Ira Spring, map, \$3.25. Portrait of a crowded land whose people faced their problems by absorbing what was useful from other cultures.

KANGAROO RED—Berniece Freschet—Scribner, unpag., illus. by John Schoenherr, \$3.25. A kangaroo story for children.

THE LAST 100 DAYS—John Toland—Random House, 622 p., photographs, map, \$8.95. Based on primary sources and interviews the book reconstructs the dramatic story of the 100 days between Yalta and the fall of Berlin.

LECTURES OF MATTER AND EQUILIBRIUM—Terrell L. Hill—Benjamin, W. A., 306 p., diagrams, \$9; paper, \$3.95. Intended as a supplementary text for freshmen course in chemistry, and for biologists and physicists who have not had formal course in physical chemistry.

LET'S FIND OUT ABOUT COLOR—Ann Campbell—Watts, F., 31 p., illus. by author, \$2.50. For the youngest readers.

MAN AND MAGIC—Benjamin Appel—Pantheon Bks. 178 p., illus. by Jacob Landau, \$4.50. A popular account of man's attempts throughout history to influence events by the use of magic practices.

MANPOWER PLANNING IN A FREE SOCIETY—Richard A. Lester—Princeton Univ. Press, 227 p., \$5. An analysis of the need for manpower planning and the nature of such planning in democracies, with specific proposals for improving the utilization of manpower in the United States.

NATIVE SHRUBS OF SOUTHERN CALIFORNIA—Peter H. Raven—Univ. of Calif. Press, 132 p., color plates, illus., paper, \$1.95.

Natural history guide to a region exceptionally rich in native shrubs.

NATIVE TREES OF SOUTHERN CALIFORNIA—P. Victor Peterson—Univ. of Calif. Press, 136 p., 16 color plates, illus. by Rita Whitmore, maps, paper \$1.95. Excellent guide for field trips and general introduction to the trees of a specific region.

THE NEW INTERNATIONAL YEAR BOOK: A Compendium of the World's Affairs for the Year 1965—Frank Jay, Ed.—Funk & Wagnalls, 594 p., illus., \$10. Special reports on Vietnam, the world's water, and changing communism. Chronology of events and alphabetically listed description of events, including advances in science and technology; Science Service covered atomic power and physics.

NONPROLIFERATION OF NUCLEAR WEAPONS: Hearings 1966—Joint Committee on Atomic Energy—GPO, 178 p., paper, 50¢. Official statements and discussion of the problems of nuclear arms spread and its prevention.

PATHOLOGY OF THE AGED—Florence McKeown—Butterworths, 361 p., illus., \$15.50. Study based on extensive autopsy findings on patients over 70 years, with special emphasis on the major geriatric disorders such as cardiovascular disease, malignancies and disturbances of the nervous system.

PEPTIDES and AMINO ACIDS—Kenneth D. Kopple—Benjamin, W. A., 137 p., illus., \$8; paper, \$3.95. On the advanced undergraduate level this monograph provides a survey of the biological and physical as well as the organic chemical aspects of the study of peptides.

PHYSICAL CHEMISTRY—Frank T. Gucker and Ralph L. Seifert—Norton, 824 p., diagrams, \$10. A text aimed at being flexible enough to meet changing needs of instructors and offer a logical development for students of varying proficiency.

THE PIROTECHNIA—Vannoccio Biringuccio, transl. from Italian with Notes by Cyril Stanley Smith and Martha Teach Gnudi—M.I.T. Press, 477 p., illus., paper, \$3.45. Reprint (1942) of metallurgical classic of the early 16th century.

PROFILES OF Ph. D.'s IN THE SCIENCES: Summary Report on Follow-up of Doctorate Cohorts 1935-1960—Lindsey R. Harmon—NAS-NRC, 123 p., paper, \$2.50. Study examines the career patterns and utilization of Ph.D.-trained manpower with emphasis on health-related sciences.

RADIOACTIVE WASTE DISPOSAL INTO THE GROUND—International Atomic Energy Agency—Nat. Agency for Int. Pubns., 111 p., illus., paper, \$2.50. Panel of experts examines the practice and various methods of ground disposal, suggests standards and control techniques, and evaluates advantages and dangers of solid ground disposal.

RECOGNIZING NATIVE SHRUBS—William Carey Grimm—Stackpole Bks., 319 p., illus. by author, \$7.95. A layman's manual covering bushes, woody plants and vines of the United States east of the Mississippi with keys to genera and particular plants.

THE RESEARCH HANDBOOK: A Guide to Reference Sources—Adrian A. Paradis—Funk & Wagnalls, 217 p., \$4.95. Practical information on how to use a library, government information, charts and maps, and how to write term papers.

THE REVOLUTION OF COLOR—Thomas Patrick Melady—Hawthorn Bks. 208 p., \$5.95. Defines and analyzes the many facets of the social, economic, educational, medical and technological revolution in Africa and Asia.

THE ROAD TO PANAMA—Selden Rodman—Hawthorn Bks., 224 p., drawings by Bill Negron, \$6.95. Describes a journey along the Pan-American Highway through Mexico and Central America, meeting people and art treasures the regular tourist might miss.

SCIENCE AND MAN—Lord Brain—Am. Elsevier Pub. Co., 109 p., \$3.75. Four lectures concerned with the scientific approach to human nature.

SEA HORSES—Lilo Hess—Scribner, 47 p., photographs by author, \$3.25. Remarkably well illustrated observations of the sea horse's life cycle in the aquarium, with advice on how to keep them healthy as pets.

THE STORY OF ELSA—Joy Adamson—Harcourt, 319 p., 64 p. photographs, maps, \$6.75. Condensed story of the lioness and her cubs, remarkable for its unique relationship between humans and wild animals.

SYMPOSIUM: Abortion and the Law (Western Reserve Law Review Vol. 17, No. 2)—Oliver C. Schroeder, Jr., and others—Western Reserve University, 267 p., paper, \$3. Legal symposium probing current abortion laws and practices, medical and religious aspects and attitudes in the United States and in Europe.

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WATER—Luna B. Leopold, Kenneth S. Davis and the Editors of LIFE—Time-Life Bks., 200 p., photographs, diagrams, \$3.95 direct to publisher, Time Life Bldg., Chicago, Ill. 60611. Picture essays discussing the physical and chemical properties of water, its cycle and its effect on the earth, its life-maintaining role, and man's management and uses of water.

WHALES, DOLPHINS AND PORPOISES—Kenneth S. Norris, Ed.—Univ. of Calif. Press, 789 p., illus., \$15. Offers a representative cross section of the science of cetology based on research by physical scientists and biologists from a wide variety of scientific disciplines including systematics, zoogeography, hydrodynamics, acoustics and behavior.

THE WORLD BOOK ENCYCLOPEDIA: Fiftieth Anniversary Edition, Vols. 1-20—Robert O. Zeleny, Exec. Ed., 2,700 contributors and

subject specialists—Field Enterprises Educ. Corp., rev. ed., 12,000 p., 25,000 illus. (7,300 in color), 1,900 maps, \$169.50 (red), \$159 (blue cloth). This latest major revision contains 5,965 articles dealing with science and technology, written and signed by experts. Special features are fully illustrated state and province articles, 550 new maps, 3,000 updated cross-references, 5,000 biographical sketches. Keyed to school curricula the material offers concise and accurate information for the whole family, from upper elementary grades to nonspecialist adult use.

A ZOO MAN'S NOTEBOOK—Lee S. Crandall with William Bridges—Univ. of Chicago Press, 216 p., photographs, \$4.95. An abridgement of **THE MANAGEMENT OF WILD MAMMALS IN CAPTIVITY** (1964), with comments and anecdotes added.

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PHYSIOLOGY

Human Sexuality Explored

An important, detailed study, scientifically exploring physiological sexual response in humans, will aid medical science in understanding sexuality—By Patricia McBroom

► HUMAN SEXUAL response has never been more fully detailed than in the 11-year St. Louis study released in April.

Publication of the book "Human Sexual Response" by Dr. William H. Masters and Virginia E. Johnson recalls both the significance of Dr. Alfred C. Kinsey's first published report in 1948 and the social furor it raised.

Dr. Kinsey and his group studied human sexuality by talking to people. Now, Dr. Masters and Mrs. Johnson have studied human sexuality by direct observation.

They have taken physiological measurements of respiration, perspiration, heart rate, flush, blood pressure and muscular tension during and after sexual stimulation.

They have timed the length of orgasms in men and women. They have measured, filmed and compared sexual intensity as it occurs during automanipulation and coitus.

The knowledge they have gained about the physiological working of the human body experiencing sex has exploded a few of the fallacies and some of the superstitions held by the public and has overturned a misconception propagated by psychiatrists.

Dr. Masters, a gynecologist, and Mrs. Johnson, a psychologist, observed during the 11-year period, 276 married couples, 106 single women and 36 single men in St. Louis, under the auspices of the Reproductive Biology Research Foundation. Their work was done in association with Washington University Medical School, St. Louis.

The researchers make no claims that their work has established norms for sexual response that other people may use to measure themselves. The study group was comprised of paid volunteers who came primarily from the well-educated university community. Care was taken to exclude obvious neurotics and exhibitionists from the program.

In attitude the people were modest, and some were even shy at the outset. However, once they became convinced of the scientific integrity of the program and after a period of orientation, all were able to participate without inhibition or embarrassment despite the artificial laboratory conditions. Many of the couples who stayed with the project for years were originally motivated either by a need to solve their own sexual problems or by an idealistic desire to contribute to science's understanding of sex.

It was not unusual to hear from individuals that their experiences in the laboratory had helped their marriages, said Dr. Masters and Mrs. Johnson.

How normal or abnormal were the responses of the study group cannot be judged because no standards for comparison exist. Information drawn from these 694 people can only be placed against an individual's own experience or his concept of normal human response. The report cautions that "from these prejudiced levels of comparison, there is no appeal at this time."

During 11 years the scientists studied at least 10,000 sexual cycles. From this careful study has emerged an impressive body of new scientific knowledge.

For instance, they found that women definitely are able to experience orgasm, contrary to society's present vague and vacillating beliefs about the female climax. It has now been measured in blood vessel congestion, muscle tension and rapidity of recovery.

There is no physiological difference between clitoral and vaginal orgasms. Research here is particularly important because it overrules a psychiatric belief in clitoral orgasm.

Some women have a natural contraceptive in their vagina—a "lethal factor" that causes sterility by killing spermatozoa within 16 seconds. This knowledge may help physicians treat patients for sterility.

Certain "phallic fallacies" have also been destroyed. Sexual adequacy is not related to the size of the male genital organ. Age does not necessarily render a man impotent.

Through interviews with 261 men, Dr. Masters and Mrs. Johnson learned that college graduates under 40 are nearly always concerned about the woman's response and are disturbed by fears that they might not be able to satisfy her. Only 7 of 51 men without a college education expressed responsibility for the woman's satisfaction.

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ENTOMOLOGY

Wasp Digs Blind Hole To Confuse Enemies

► THE SOLITARY WASP often spends an hour or more of her brief life digging a separate dead-end hole beside her nesting burrow in order to mislead parasite wasps looking for her young.

When a female wasp of the *Bembix* species digs her nest in the ground, she goes to great pains to conceal the entrance to the burrow, reported Dr. Howard E. Evans, curator of insects, Museum of Comparative Zoology, Harvard University.

Each time the wasp emerges from her burrow, she carefully covers the entrance with soil and smooths it over. Near by is one or more "accessory" burrows which she has built and which is always left open when the wasp leaves the nest.

These accessory holes are thoroughly and vainly inspected by the wasp's enemies—the bee flies, miltogrammine flies and the parasitic wasps called cuckoo wasps and "velvet ants."

The hard-working digger wasp may be digging extra holes for two purposes, Dr. Evans stated in *Science*, 000:000, 1966. She may be using the extra hole to trick her preying enemies, or as a source of extra fill for her own burrow.

There is no such thing as "trivial" behavior in animals, said Dr. Evans in summing up the intricate detail noted in the complex working of the wasp. Every aspect of seemingly inexplicable behavior is an important part of our accumulating knowledge of biological science.

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