

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.

AIRPORT TRANSPORTATION: A Study of Transportation Means Between Airports and the Metropolitan Areas They Serve—Peter G. Nordlie, Dir.—*Human Sciences Research (OTS)*, 400 p., maps, paper, \$5. Study prepared for FAA, includes a survey of local origins and destinations of users of Washington National Airport.

ANALYTICAL ELEMENTS OF MECHANICS, Vol. 2: Dynamics—Thomas R. Kane—*Academic*, 337 p., diagrams, \$6.25. Undergraduate or beginning graduate course in classical mechanics, using vector analysis.

ARITHMETIC FOR TEACHERS—Wilbur H. Dutton and L. J. Adams—*Prentice-Hall*, 370 p., illus., \$5.95. Intended for instruction in lower division mathematics courses and in-service instruction.

ASTHMA, HAY FEVER AND OTHER ALLERGIES—*Allergy Foundation of America*, 14 p., illus., paper, free upon request direct to P. O. Box 1005, New York 17, N. Y. Discusses causes, symptoms and relief.

BALLISTIC MISSILE AND SPACE VEHICLE SYSTEMS—Howard S. Seifert and Kenneth Brown—*Wiley*, 526 p., illus., \$12. Course emphasizing the relationships among the various parts of a missile or space system, with stress on engineering design aspects of vehicle mechanical systems.

BASIC LAWS OF MATTER—H. W. S. Massey and Arthur R. Quinton—*Herald Bks*, 178 p., diagrams by Vee Guthrie, \$3.75. Fundamental concepts of matter in briefest outline, clearly illustrated, for student, teacher, and layman.

BOSS KET: A Life of Charles F. Kettering—Rosamond McPherson Young—*Longmans*, 210 p., \$3.50. Biography for young people of the famous inventor of the automobile self-starter.

CANADIAN CANCER CONFERENCE: Proceedings of the Fourth Conference, 1960—R. W. Begg and others, Eds.—*Academic*, 435 p., illus., \$12. Papers on perspectives in biochemistry in cancer research, on cell behavior, viral carcinogenesis and chemotherapy.

THE CASE FOR DOCTOR COOK—Andrew A. Freeman—*Coward-McCann*, 315 p., map, \$5.75. Re-examines Cook's and Pary's careers as documented by newspaper stories and books.

THE COMPLETE BOOK OF BIRTH CONTROL—Alan F. Guttmacher, M.D., with Winfield Best and Frederick S. Jaffe, foreword by Rev. William H. Genne—*Ballantine Bks*, 152 p., diagrams, paper, 50¢. Authoritative and reliable guide to methods of family planning, lists Planned Parenthood Centers in U.S., reputable birth control products and family planning agencies around the world.

THE CRY FOR HELP—Norman L. Farberow and Edwin S. Shneidman, foreword by Robert H. Felix, M.D.—*McGraw*, 398 p., illus., \$9.95. Report on results of clinical and research findings, case histories and techniques for evaluating and treating suicidal persons, bibliography covering the years 1897-1957.

ELECTRONIC COMPUTER SYSTEMS: Tentative Standards for Protection—John J. Ahern, Chm—*Nat. Fire Protection Assn.*, 27 p., paper, 50¢. Minimum requirements for the protection of electronic computers from damage by fire or associated effects.

THE FIRST BOOK OF WILD FLOWERS—Betty Cavanna—*Watts, F.*, 68 p., illus. by Page Cary, \$1.95. Attractive book, helps young reader identify the more common wild flowers in spring, summer and fall.

FLUID MECHANICS—Richard H. F. Pao—*Wiley*, 502 p., illus., \$7.50. Introductory course, supports theory with systematic presentation of experimental results.

FOOD, NUTRITION AND DIET THERAPY—Marie V. Krause—*Saunders*, 3rd ed., 716 p., illus., \$6.75. Revised textbook for nurses, focusing attention on world-wide nutrition problems.

FUN-TIME TERRARIUMS AND AQUARIUMS—Jerome Leavitt and John Huntsberger—*Childrens Press*, 47 p., illus. by Bill Armstrong, \$2.50. Informs children how to build and stock terrariums and aquariums.

GOLDEN WALL AND MIRADOR: Travels and Observations in Peru—Sacheverell Sitwell—*World Pub. Co.*, 286 p., 58 photographs, \$7.50. Travelogue leads through Peru, Ecuador, Colombia and Guatemala.

THE GUEST WEATHERCASTER—Raymond M. Sager, Anton Bruchl and M. S. Sciple—*Dial Press*, 28 p., illus., \$3. Tells how to use attached dial system for a complex, yet accurate way of figuring out the weather.

I CAN LEARN ABOUT CALCULATORS AND COMPUTERS—Raymond G. Kenyon—*Harper*, 112 p., illus. by author, \$2.95. Detailed information enabling the reader to construct his own calculating and computer device from materials that can be obtained easily.

INTRODUCTION TO VECTOR ANALYSIS—Harry F. Davis—*Allyn*, 359 p., illus., \$7.95. Elementary text with emphasis on physical ideas related to vector concepts.

MY POLAR FLIGHTS: An Account of the Voyages of the Airships Italia and Norge—Umberto Nobile, transl. from Italian by Frances Fleetwood—*Putnam*, 288 p., illus., \$4.50. Tells of the successful polar flight of the Norge, and the tragedy of the Italia, in narrative form.

THE ONTOGENY OF INSECTS: Acta symposii de evolutione insectorum, Prague, 1959—V. B. Wigglesworth and others—*Czechoslovak Acad. of Sciences (Academic Press)*, 406 p., illus., \$10. Proceedings of symposium dealing with morphology, anatomy and physiology of insect development, seasonal periodicity and influence of biotic and abiotic factors. Papers in English, also Russian, French, German, with English summaries.

THE ORGANIC CHEMISTRY OF BORON—W. Gerrard—*Academic Press*, 308 p., \$9. Monograph treats comprehensively the reactions and techniques used in the organic chemistry of boron.

PHYSICAL CHEMISTRY OF MACROMOLECULES—Charles Tanford—*Wiley*, 710 p., illus., \$18. Graduate text and reference book, emphasis is on theoretical principles, major areas treated are molecular structure, thermodynamics, light scattering, viscosity, electrostatics, and equilibria and kinetics of reactions.

PLANT MARVELS IN MINIATURE: A Photographic Study—C. Postma, transl. from Dutch, foreword by Edwin Way Teale—*Day*, 173 p., 77 full-page photomicrographs, \$12.50. Shows the world of the microscopist, with successively increasing magnification we see flower, stamen, staminal hairs and finally cell; scientific text explains the beautiful patterns the eye sees.

PRINCIPLES AND PRACTICES OF TEACHING READING—Arthur W. Heilman—*Merrill*, 465 p., illus., \$5.95. Up-to-date, scholarly guide suggesting techniques for teaching reading at all levels.

PROCEEDINGS OF THE NATIONAL SYMPOSIUM ON MACHINE TRANSLATION—H. P. Edmundson, Ed.—*Prentice-Hall*, 525 p., \$7.95. A comprehensive, up-to-date coverage of automatic language translation, representing the collaboration of leading linguists, mathematicians and computer experts.

PROGRESS IN CRYOGENICS, Vol. 3—K. Mendelsohn, Ed.—*Academic Press*, 173 p., illus., \$8. Up-to-date articles on helium liquefiers, low temperature heat exchangers, cryogenic rocket propellants and novel refrigeration cycles and devices.

PROTOZOAN PARASITES OF DOMESTIC ANIMALS AND OF MAN—Norman D. Levine—*Burgess*, 412 p., illus., \$6.50. Text and reference work for veterinarians, protozoologists, parasitologists, zoologists and physicians.

QUANTITATIVE ORGANIC MICROANALYSIS—Al Steyermark—*Academic Press*, 2nd ed., 665 p., illus., \$16.50. Reference work for the experienced analyst and student, presents reliable known methods and up-to-date, extensive tables of references at the end of each chapter.

RADIATION CONTROL FOR FIRE AND OTHER EMERGENCY FORCES—Andrew A. Keil—*Nat. Fire Protection Assn.*, 241 p., illus., \$4.75. Handbook of essential information for personnel concerned with radiological hazards, their prevention, measurement and decontamination.

RAIN, HAIL, SLEET AND SNOW—Nancy Larriek—*Garrard Press*, 62 p., illus. by Weda Yap, \$2.25. A first reader on meteorology, accurate, with simple vocabulary.

REFRACTOMETRY AND CHEMICAL STRUCTURE—S. S. Batsanov, transl. from Russian by Paul Porter Sutton—*Consultants Bur.*, 250 p., \$9.75. Russian textbook on the use of refractometry in solving structural problems.

REPORT OF THE NATIONAL CHEMICAL LABORATORY, 1960—C. E. H. Bawn, Chmn—*Dept. of Scientific & Industrial Research (Brit. Inform. Serv.)*, 70 p., illus., paper, 85¢. New research in chemical thermodynamics, new materials, and extraction and corrosion of metals.

SAMPLING DUST FROM THE STRATOSPHERE—Paul W. Hodge—*Smithsonian Inst. Astrophysical Observatory (GPO)*, 10 p., illus., paper, 20¢. Estimates of density and origin of airborne particles.

THE SCIENCES, Vol. I, No. 1—Eunice Thomas Miner, Ed.—*N. Y. Acad. of Sciences*, 12 p., illus., 24 issues each year, \$6. Informal and interpretative reports on significant developments in science.

SHELLS OF THE NEW YORK CITY AREA—Mortis K. Jacobson and William K. Emerson—*Argonaut Bks.*, 142 p., illus. by Anthony D'Attilio, \$4. Authoritative guide to more than 140 species found in a radius of 50 miles from Times Square, written in highly readable, informal style. Shell lists, glossary, taxonomy and bibliography included.

SKYDIVING: The Art and Science of Sport Parachuting—Bud Sellick—*Prentice-Hall*, 248 p., illus., \$5.95. Short history, modern uses and detailed description of the parachute, ground training and advanced techniques for jumping.

SOME ASPECTS OF LIFE IN FRESH WATER—Edward J. Popham—*Harvard Univ. Press*, 2nd rev. ed., 127 p., illus., \$2.25. Short introduction to fresh water ecology for the general reader and undergraduate student.

STRUCTURE OF THE MOON'S SURFACE—Gilbert Fielder—*Pergamon*, 266 p., illus., \$7.50. Brings together all pertinent observational data and conclusions on the moon's surface with emphasis on relatively new facts and ideas. Both for the professional scientist and the amateur lunar astronomer.

SUMMER OF LITTLE RAIN—Aileen Fisher—*Nelson*, 159 p., illus. by Gloria Stevens, \$2.95. About beavers and squirrels in a season of drought.

SYMBOLS, SIGNALS AND NOISE: The Nature and Process of Communication—J. R. Pierce—*Harper*, 305 p., illus., \$6.50. Communications expert writes about Shannon's information theory, mathematical models, encoding and cybernetics, with appendix explaining mathematical notation for the general reader.

TRANSIENT CIRCUIT ANALYSIS—Y. H. Ku—*Van Nostrand*, 441 p., \$13. Graduate course, covering the subject from the combined Fourier-transform and Laplace-transform approach.

TRANSLOCATION OF PLANTS—A. S. Crafts—*Holt*, 182 p., illus., \$5. On the beginning graduate level, summarizes research findings on movement of water, salts, viruses and tracers, uptake of water and salts by roots, solute movement of phloem and movement of assimilates.

THE TRUE BOOK OF MAGNETS AND ELECTRICITY—Illa Podendorf—*Children's Press*, 47 p., illus. by Robert Borja, \$2. Experiments for the youngest readers.

THE TRUE BOOK OF WEATHER EXPERIMENTS—Illa Podendorf—*Children's Press*, 47 p., illus. by Felix Palm, \$2; paper, \$1. Primary reading level.

VERTEBRATE SPECIATION: A University of Texas Symposium—W. Frank Blair, Ed.—*Univ. of Texas Press*, 642 p., illus., \$8.50. Papers discussing isolating mechanisms, evolution of behavior, polymorphism, population dynamics, and age and origin of species.

WHAT MAKES DAY AND NIGHT—Franklyn M. Branley—*Crowell*, unpagged, illus. by Helen Borten, \$2.35. Colorful picture book with simple explanations of how we know that the earth is turning.

WHERE THE BROOK BEGINS—Margaret Farrington Bartlett—*Crowell*, unpagged, illus. by Aldren A. Watson, \$2.35. For the youngest readers.

WRITING BETTER TITLES AND ABSTRACTS—John D. Stevens—*Washington State Univ., Technical Extension Service*, 11 p., paper, free upon request direct to publisher, Pullman, Wash. Focuses technical writer's attention on the importance of keeping titles and abstracts short and specific, since they are the only part most readers ever read.

YOUR FUTURE IN CHEMICAL ENGINEERING—Raymond L. Feder—*Rosen, R.*, 158 p., \$2.95. Study for those interested in selecting a career in this particular field.

YOUR FUTURE IN NUCLEAR ENERGY FIELDS—William E. Thompson, Jr.—*Rosen, R.*, 160 p., \$2.95. Reviews career possibilities in the profession of nuclear physics and engineering.

YOUTH PHYSICAL FITNESS: Suggested Elements of a School-Centered Program, Parts I and II—President's Council on Youth Fitness—*GPO*, 111 p., illus., paper, 40¢. See story, SNL August 12, 1961, p. 105.

• Science News Letter, 80:158 September 2, 1961

Questions

METEOROLOGY—What is the purpose of a meteorological workshop to be held Nov. 13-22? p. 146.

GEOPHYSICS—How far below sea level is a deep passage found in the Antarctic? p. 147.

Photographs: Cover, U. S. Department of Agriculture; p. 146, Bendix Corporation; p. 147, Boeing Company; p. 149, Massachusetts Institute of Technology; p. 151, Westinghouse Electric Corporation; p. 160, Mail Signal Co.

PHYSICS

Optical Masers Probe The Secrets of Matter

➤ A NEW "tuning fork" for exploring the inner structure of matter is reported by a British scientist.

Two optical masers giving off light rays that sometimes clash can produce infrared or "invisible light" rays that penetrate matter. The amount of rays absorbed by substances at varying frequencies tell scientists about their structure.

The frequency of the penetrating rays is varied by heating one of the masers, Dr. D. C. Laine of the University College of North Staffordshire reports in *Nature*, 191: 795, 1961. The frequency can then be "tuned" within the entire range of the infrared spectrum.

One optical maser would continuously give off rays of similar wavelength. Wavelengths varied by the heated maser would merge with the similar wavelengths, producing distinct "beat" signals, which are used to probe matter.

This possible research tool "presents a very attractive approach to the long-standing problem of suitable sources" for radiation studies in the infrared region, Dr. Laine states.

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PSYCHOLOGY

Scientists Emotionally Involved in Their Work

➤ THE WIDELY held public image of the scientist as cold, detached, completely objective and impersonal about his work "could hardly be further from the truth," according to a Harvard University psychologist, Dr. Anne Roe.

The creative scientist in any field "is very deeply involved emotionally and personally in his work," and is himself his own most essential tool, she states.

The emotional process of developing new ideas and hypotheses usually commits the scientist to his theories in a very real sense, she reports in the journal, *Science*, 134:456, 1961.

"It (the hypothesis) is his baby. It is as much his creation as a painting is the personal creation of the painter."

Studies relating to the personality patterns of productive scientists, Dr. Roe notes, have shown them to be independent and open-minded, with a "strong liking for turning disorder into order." They also have strong egos and strong control over their impulses. They prefer interpersonal relations of low intensity and dislike interpersonal controversy in any form.

Scientists also show "much stronger pre-occupation with things and ideas than with people." They like to take calculated risks, but risks involving nature, not people, and risks not dependent on luck.

The work a scientist chooses and the way he works "are intimately related to what he is and to his deepest needs," she says. "The more deeply engaged he is, the more profoundly is this true."

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