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## Books of the Week

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**AIRCRAFT HYDRAULICS: Vol. I, Hydraulic Systems**—H. G. Conway, Ed.—*Macmillan*, 146 p., illus., \$7. First of a series of textbooks for students and engineers in aeronautics, sponsored by the Royal Aeronautical Society.

**AIRCRAFT HYDRAULICS: Vol. II, Component Design**—H. G. Conway, Ed.—*Macmillan*, 198 p., illus., \$9. Textbook for the young technician, as well as the experienced aeronautical engineer.

**THE BACTERIOLOGY OF TUBERCULOSIS**—Egons Darzins—*Univ. of Minn. Press*, 488 p., illus., \$10. Summarizes the results of tuberculosis research thus far, and points out unsolved problems in the bacteriology of tuberculosis.

**THE BROMELIACEAE OF COLOMBIA**—Lyman B. Smith—*Smithsonian*, Contributions from U. S. National Herbarium, Vol. 33, 311 p., illus., paper, free upon request direct to publisher, Washington 25, D. C. There are 392 species of Bromeliaceae recorded here.

**CARNEGIE INSTITUTION OF WASHINGTON YEARBOOK 1956**—July 1, 1956—June 30, 1957—Caryl P. Haskins, president—*Carnegie Inst. of Washington*, 425 p., illus., paper \$1, cloth \$1.50. Reports the research of the various departments of the Institution.

**CLIMATOLOGY: Treated Mainly in Relation to Distribution in Time and Place**—W. G. Kendrew—*Oxford Univ. Press*, 2nd ed., 400 p., illus., \$6.75. Most of the major additions deal with the higher atmosphere, important for air navigation.

**THE COMPLETE GUIDE TO TROPICAL FISHES**—Earl Schneider and Leon F. Whitney—*Nelson*, 549 p., illus., \$10. Gives guidance in setting up an aquarium and provides the long-time hobbyist with encyclopedic information.

**CURATOR: A Quarterly Publication of the American Museum of Natural History, Vol. I, No. 1**—Edwin H. Colbert, Ed.—*Am. Museum of Natural Hist.*, 96 p., illus., paper, \$5 a year. Provides a forum for the exchange of ideas on contemporary museum problems.

**ELEMENTS OF GEOGRAPHY: Physical and Cultural**—Vernor C. Finch, Glenn T. Trewartha, Arthur H. Robinson and Edwin H. Hammond—*McGraw-Hill*, 4th ed., 693 p., illus., \$7.50. A text for a beginning course in college geography, with emphasis on geography's contribution to general education.

**FALL OUT: Radiation Hazards From Nuclear Explosions**—A. Pirie, Ed., foreword by Bertrand Russell—*Greenberg*, 160 p., illus., \$2.75. British scientists set forth their reasons for stopping nuclear bomb tests.

**A FLORA OF THE MARSHES OF CALIFORNIA**—Herbert L. Mason—*Univ. of Calif. Press*, 878 p., illus. with drawings by John B. Goetz, \$10. Explores botanically the less accessible areas of the state, in particular the scattered marshlands.

**HANDBOOK OF GEM IDENTIFICATION**—Richard T. Liddicoat, Jr., foreword by Edward H. Kraus—*Gemological Inst. of Am.*, Fifth ed., 361 p., illus., \$6. Discusses properties of gem stones and manufactured stones, describes tests and procedures to be followed in the identification of gems.

**INDUSTRIAL ELECTRONICS CIRCUITS**—R. Kretzmann, translated from German by D. J. Mitchell—*Philosophical Lib.*, 195 p., illus., \$10. Of use to physicists, engineers and technicians concerned with the design and development of electronic apparatus.

**INDUSTRIAL ELECTRONICS HANDBOOK**—R. Kretz-

mann, translated from German by Harley Carter, rev. by H. E. Kater and D. J. Mitchell, foreword by James Greig—*Philosophical Lib.*, 298 p., illus., \$12. Deals with electronic circuits employing highly evacuated or gas-filled discharge tubes.

**INSECT LIFE IN THE TROPICS**—T. W. Kirkpatrick—*Longmans*, 311 p., illus., \$7. Emphasis is on life histories and behavior, often observed by the author himself.

**LIVING WITH THE SUN: Vol. 1, Sixty Plans from the Entries in the 1957 International Architectural Competition to Design a Solar-Heated Residence**—James M. Hunter—*The Assn. for Applied Solar Energy*, 66 p., illus., \$6. To acquaint architects, engineers, contractors and home owners with the possibility of solar heating.

**MANUAL FOR OBSERVING VARIABLE STARS**—Margaret W. Mayall—*Am. Assn. of Variable Star Observers*, rev. ed., 36 p., illus., \$1. Through the medium of binoculars, small portable telescopes and large telescopes, the members of the AAVSO keep track of hundreds of variable stars of long period and irregular types.

**NATIONAL SCIENCE FOUNDATION SEVENTH ANNUAL REPORT FOR THE FISCAL YEAR ENDED JUNE 30, 1957**—Alan T. Waterman, Director—*Govt. Printing Office*, 279 p., illus., paper, \$1.

**OCCUPATIONAL OUTLOOK HANDBOOK: Employment Information on Major Occupations for Use in Guidance**—U. S. Dept. of Labor, *Govt. Printing Office*, 1957 ed., Bull. No. 1215, 697 p., illus., paper, \$4.

**PLASTICS STUDY GROUP OF THE BUILDING RESEARCH INSTITUTE: Report of its Fourth Meeting, Sept. 17-18, 1957**—R. P. Courtney and others—*Building Research Institute*, 125 p., illus., paper, \$3. Dealing with plastics for roof construction and new buildings.

**PROCEEDINGS OF NUTRITION EDUCATION CONFERENCE**—Faith Clark and others—*U. S. Dept. of Agriculture*, Misc., publication No. 745, 74 p., illus., paper, free upon request direct to publisher, Room 1664, ARS Information Division, Washington 25, D. C. Theme of conference was the increase of the effectiveness of nutrition education.

**RADIATION EFFECTS IN SOLIDS**—G. J. Dienes and G. H. Vineyard—*Interscience*, 226 p., illus., \$6.50. Mainly concerned with the physics of radiation effects, this book deals with fundamentals and basic experiments under controlled conditions.

**THE RADIO AMATEUR'S HANDBOOK**—A. Frederick Collins—rev. by William J. Kendall and Steven Hahn—*Crowell*, 10th ed., 352 p., drawings by Robert S. King, \$3.95. Not to be confused with Am. Radio Relay League handbook with the same title.

**ROCKET**—Sir Philip Joubert de la Ferte—*Philosophical Lib.*, 190 p., illus., \$6. Tells the historical story of V1 and V2 rockets.

**SCIENCE IN EVERYDAY THINGS**—William C. Vergara—*Harper*, 308 p., illus., \$3.95. The engineer author tells the whys and hows and whens of things around us. Of help to parents and teachers of children with inquiring minds.

**SCIENCE IN THE UNIVERSE**—Franklin B. Carroll, Sam Adams and Lee Moncrief Harrison—*Winston*, 472 p., illus., \$4.32. Beautifully illustrated text which helps the young student understand the forces of nature in the universe around him.

**YOUR FAMILY'S HEALTH**—Stella B. Apple-

baum—Public Affairs Committee, Public Affairs Pamphlet No. 261, 28 p., illus., paper, 25¢. Recommends preventive medicine, adequate medical care in illness and authoritative health information.

YOUTH AT THE WHEEL—Harold T. Glenn—Bennett, 415 p., illus., \$3.60. An excellent textbook on driver education, illustrated with photographs and sketches.

Science News Letter, February 8, 1958

OPTICS

**Tiny Radiation Doses Measured by Chemical**

► EXTREMELY small radiation dosages can be measured with a special luminescent powder that gives off light when it is heated, scientists at the U. S. Naval Research Laboratory, Washington, have found.

The chemical used is a phosphor that stores energy while it is being irradiated. The energy is later released by a process known as thermoluminescence, in which the energy is given off as light when the temperature of the substance increases.

The amount of light given off is determined by the amount of radiation that has been received.

The material has been used in rocket experiments to measure the tiny amounts of ultraviolet rays and X-rays encountered in the atmosphere, Dr. Herbert Friedman of the Laboratory told SCIENCE SERVICE.

The substance, calcium sulfate-manganese, is much more sensitive than the material now used in monitoring badges worn by workers exposed to radiation. The lower limits of sensitivity for most personnel dosimeters is in the region of one to 100 roentgens of radiation. The phosphor, however, measured a minimum dose of ten-thousandths of a roentgen and mathematical calculations indicate that it could measure even lower doses than this.

A practical difficulty with the material is that the amount of light given off decreases with time after the exposure. There is about a 40% loss after the first eight to ten hours, Dr. Friedman says.

The difficulty can be overcome, however, if the exposure time is known, since the amount of decay is proportional and a correction can be made for it.

The chemical has already been used by other scientists to study the ultraviolet emission of the sun and to determine the dosage of medical X-rays. Dr. Friedman reports the research with Dr. David A. Patterson, also of the Laboratory, in the *Journal of the Optical Society of America* (Dec.).

Science News Letter, February 8, 1958

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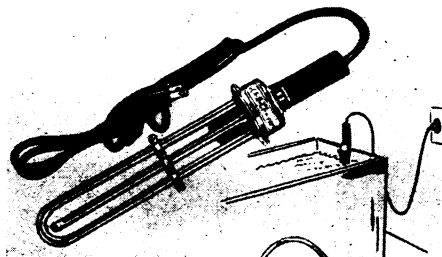
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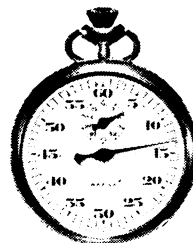
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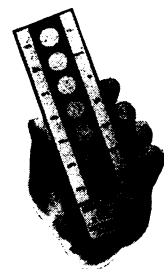
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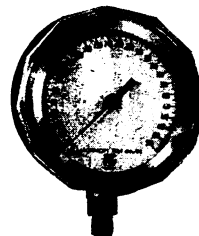
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