

# PHILOSOPHICAL LIBRARY BOOKS

**ATOMIC ENERGY IN AGRICULTURE** by William E. Dick. The author, former research biologist and editor of *Chemical Journal*, describes the tremendous potentials of atomic research as applied to crop yield, plant disease, pest control and food preservation. Illustrated. \$6.00

**ECONOMICS OF ATOMIC ENERGY** by Mary S. Goldring. A critical survey, by a leading economist, of the industrial applications of atomic energy. Data includes the new concepts required in the development of atomic factories, investment factors, comparative fuel costs, automation, export markets and pilot plant studies. \$6.00

**ATOMIC ENERGY IN MEDICINE** by K. E. Hallinan, M.D. Radiation therapy, its uses, controls and hazards are comprehensively detailed. Among the specific applications covered are cancers, thyroid conditions and blood diseases. Newly developed diagnostic and research techniques are thoroughly surveyed. Illustrated. \$6.00

**RADIO ISOTOPES, A NEW TOOL FOR INDUSTRY** by S. Jefferson. The industrial applications of radioactive materials in such areas as testing for leaks in tanks and pipes, batch mixing controls, transmission, detection and health precautions. \$4.75

**SPACE TRAVEL** by K. W. Gatland and A. M. Kunesch. Two of England's outstanding technical experts have pooled their knowledge in this comprehensive survey of the progress to date on man's newest frontier. The records of experiments, rocket societies, satellites, interplanetary vehicles and fuels are described in detail. Almost 100 illustrations by an eminent specialist in the field. \$6.00

**FOUNDATIONS OF RADIO** by M. G. Scroggie. Completely rewritten and updated with over 200 new diagrams. Essential for both the amateur and expert as the definitive source for practical data on all forms of wave transmission from basic fundamentals to television and radar. Author is a leading electronics engineer. \$10.00

**INDUSTRIAL ELECTRONICS CIRCUITS** by R. Kretzmann, Sc.D. Almost 200 industrial electronic circuits are described and illustrated in detail by the author of *Industrial Electronics Handbook*. Instructive examples included are: Motor controls, switching, counting, conveying, stabilizing, rectifying and amplification devices. \$10.00

**INDUSTRIAL ELECTRONICS HANDBOOK** by R. Kretzmann. New enlarged edition. The basic reference text. Contents include tube data, electronic relays, counters, timers, rectifiers, speed, temperature and motor controls; high frequency inductive heating of metals. Illustrated. \$12.00

**THE ENCYCLOPAEDIA OF RADIO AND TELEVISION** edited by J. H. Reyner. Revised new edition covering transmitting and receiving theory and practice including V.H.F., color, radar, measuring instruments, equipment, circuits and power supplies. Over 3000 entries and 750 illustrations. Immediately applicable data for engineers, service mechanics and students. \$12.00

**DEVELOPMENT OF THE GUIDED MISSILE** by Kenneth W. Gatland. This is the new and revised edition of an important book which presents factually all the main information available on the contemporary development of guided weapons and rockets for military and peaceful purposes. By England's foremost missile expert. Illustrated. \$4.75

**ROCKET** by Sir Philip Joubert. This book by Air Marshal Sir Philip Joubert, who was A.O.C.-in-C. Coastal Command from 1941 to 1943, is a brilliant and detailed study of rocketry from its early beginnings in Germany. \$6.00

**ELECTRICAL APPLIED PHYSICS** by N. F. Astbury. One of the most important books in the field, of interest to both engineers and physicists alike, written by a distinguished Doctor of Science, sometime of Cambridge University. It offers a deep-searching analysis of the structure of the atom and the basic principles of electronics, with a special view to their applications in electro-mechanical measurements, electro-acoustical systems and electro-magnetic waves and radiation. \$10.00

**INTERNATIONAL DICTIONARY OF MECHANICS AND GEOLOGY** by S. A. Cooper. The up-to-date French, German, Spanish nomenclature for machines and their components: metals, mining, geology, scientific terms pertinent to the coal, iron, steel and other industries. An essential dictionary for engineers, geologists, mechanics and manufacturers. \$6.00

**THE MACHINIST DICTIONARY** by Fred H. Colvin. The standardization of nomenclature and definitions of machines and their components, terms of quality and measurement, becomes an accomplished fact in this excellent volume of reference. Tables, charts and illustrations graphically simplify explanations of the more complex terms. \$7.50

**CRAFTSMAN'S ENCYCLOPAEDIA OF HOME DECORATION AND REPAIRS** compiled by F. J. Christopher and R. B. Christopher. Two volume set. Carpentry, plumbing, electrical work, upholstering, woodworking, metalwork and motor repair aspects are just a few of the hundreds of practical aids invaluable to the man who takes pride in his work. Simplified procedures in construction, maintenance and repairs for both exterior and interior of homes. Fully illustrated. \$17.50

## MAIL THIS COUPON TODAY

Mail to your favorite bookseller or directly to  
**PHILOSOPHICAL LIBRARY**, Publishers  
15 East 40 Street, Dept. A-146,  
New York 16, N. Y.

Send books checked. To expedite shipment I enclose remittance \$.....

NAME.....

ADDRESS.....

# Books of the Week

For the editorial information of our readers, books received for review since last week's issue 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. Request free publications direct from publisher, not from Science Service.

**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**—Eggers 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—Carol 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. I, 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.

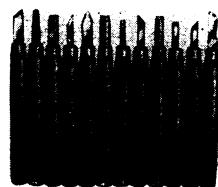
The substance, calcium sulfate-manganese, is much more sensitive than the material now used in monitoring badges worn by workers exposed to radiation. The lower limits of sensitivity for most personnel dosimeters is in the region of one to 100 roentgens of radiation. The phosphor, however, measured a 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



**12 ASSORTED SURGICAL KNIVES**  
Makes an ideal wood-carving tool set. Knives are round parting—right and left. For the hobbyist, craftsman, model maker. A deluxe set of knives with sturdy 4½" handle, fits comfortably in the palm of hand. Overall length of chisels is 5¾". For plastic surgery, sculpturing, linoleum, block printing, silk screening, etc. Gift boxed with gold stampings. Set is valued at \$7.50. Our price **2.00** SET

CRAFTSMEN, HOBBYISTS, and PROFESSIONS, write for our Catalog L-3 on medical surplus items, describing uses in other fields.

TERMS: Check or M.O. Extra fee for C.O.D. Open account to physicians, hospitals and firms.  
**ARISTA SURGICAL COMPANY** Dept. 8F-SN, 67 LEXINGTON AVE., NEW YORK 10, N. Y.

### A MATH COURSE THAT FIGURES!

More and more in our dynamic economy, a knowledge of basic mathematics pays off!

Whether in Engineering, Electronics, Mechanics, Construction, Pure Science, etc.—or in Estimating, or Trade and Finance, or Buying and Selling, etc.—the man who gets there first with the mostest, MATH-WISE, is likely to be rewarded handsomest!

Fortunately, there now exists, in a single volume of 240 fact-packed pages (including 195 clarifying illustrations), a basic source in mathematics, from arithmetic to the calculus, arranged logically and in order of difficulty. Explanations of principles are followed by worked examples.

This one-volume math "library" economizes not only your money but, more important, your time. Amazingly, the author, with rare talent for simplifying the complicated, covers the whole gamut: treatment of fractions, decimals, square root and cube root, logarithms, progression averages, interest, algebra, equations, graphs, plane and solid geometry, trigonometry, differential and integral calculus; useful mathematical tables; summary of mathematical formulas, etc., etc.

This remarkable work which already has aided thousands, will be of enormous help not only to those who have forgotten their mathematics but also to those now acquiring it. You may try it out at our risk. ORDER NOW!

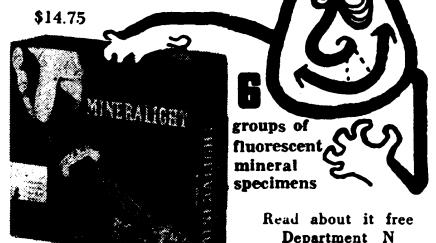
#### A REFRESHER COURSE IN MATHEMATICS

by F. J. Camm  
240 Pages • 195 Illustrations  
2.95 Postfree • 10-Day Money-Back Guarantee  
EMERSON BOOKS, Inc., Dept. 283  
251 W. 18th Street, New York 11

### a bright idea

FOR A GIFT

EVERYONE CAN ENJOY  
model NH MINERALIGHT

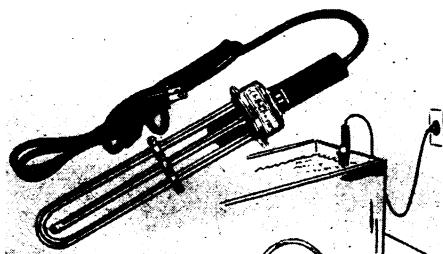


Ultra-Violet Products Inc. San Gabriel, California.

### "QUOTES"

"It has been a pleasant surprise to find how many research directors read SCIENCE NEWS LETTER, as indicated by responses to our ads!"—New York

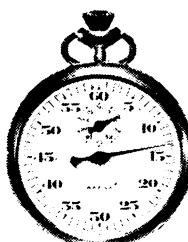
### EXCEPTIONAL OFFERINGS



#### THERMOSTATIC IMMERSION HEATERS

Knob regulates temperature calibrated on dial. Controls temperature to plus or minus 1°F. Built of acid resistant stainless steel alloy. SAFE. Easy to use. No fire hazard. Insulated against electric shock. Safety cut-out prevents over-heating in or out of solution. Will raise temperature of one gallon liquid 10°F per minute. Plastic handle is always cool. For 110 Volts, A.C. Complete with 6 ft. rubber cord and unbreakable plug.

Temp. Max.	Over- All Length	Immer- sion Length	Each
160°F	10	5	\$12.00
140	12	8	\$15.00
120	15	10	\$15.00
80	20	15	\$17.50
60	25	20	\$24.00



#### SEVEN-JEWEL PRECISE STOPWATCHES

Cannot be equalled for less than \$20.00. Precision movements, double backed cases, chrome-on-nickel finish. Compartment in back of case contains critical repair parts. Thousands now in use by foremost laboratories, government, industry.

Style A, Regular action. Stop, start, return to zero by pressing crown **\$13.75**

Style B, Time-out action. Side slide to stop and start. Return to zero by pressing crown **\$14.75**

Other timers available.

#### DURACHRON SPRING-WOUND STOPCLOCK

Four inch dial, 60 second full revolution, 30 minute recorder. Practical, sturdy mechanism, accurate stop, start, return to zero. A fine instrument **\$17.50**

#### HUMIDITY INDICATOR CARDS

Indicates relative humidity from 10 to 70%, within 3 or 4% accuracy. Responds to atmospheric changes in a few minutes. Usable many months.

Package of 12 **\$2.75**

Package of 25 **\$4.75**



#### SURPLUS PRESSURE GAUGES

Brand new in original cartons, leading makes, non-ferrous movements, zero setting adjustment, male pipe connections at bottom, suitable for panel mounting. Air, oil, water, or steam service.

4 ½", 0-60 lbs., ea.	<b>\$5.85</b>
4 ½", 0-1000 lbs., ea.	<b>4.45</b>
4 ½", compounded 30 lbs. vacuum to 100 lbs. pressure	<b>6.85</b>
8", 0-200 lbs. ....	<b>5.85</b>
4 ½", 0-600 lbs....	<b>4.45</b>

Send for Bulletin 650 listing gauges and other surplus instruments, all exceptional values.

**Andrew Technical Supply Co.**

7070 N. Clark St., Chicago 26, Ill.