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.

ALLERGY COOKING: A Guide with Menus and Recipes—Marion L. Conrad, with foreword by David Leonard Lieberman—*Crowell,* 380 p., $5.00. The two most common reasons for failure in treatment of food allergies, the foreword states, are the patient's ignorance of food components and the patient's individual carelessness in avoiding the offending food. Written by a trained home economist, this book offers practical help in meal planning for food allergy sufferers.

EIGHTEENTH SEMIANNUAL REPORT OF THE ATOMIC ENERGY COMMISSION—Lewis L. Strauss, Chairman—*Govt. Printing Office,* 160 p., paper, 50 cents. A large part of the record of atomic energy development of the past six months has been the swift advance of the Atoms-for-Peace program around the world.

ELEMENTARY TEACHERS GUIDE TO FREE CURRICULUM MATERIALS—Patricia A. Horkheimer and John Guy Fowlkes, Eds.—*Educators Progress Service,* 12 ed., 315 p., paper, $5.50. This edition lists 1,207 items, of which 528 are new.

FIFTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION: Combustion in Engines and Combustion Kinetics — Bernard Lewis, Chairman — *Reinhold,* 802 p., illus., $15.00. Papers presented at the symposium held at the University of Pittsburgh, Aug. 30 to Sept. 3, 1954, dealing with combustion problems involved in the efficient operation of all types of engines.

FIRE IN YOUR LIFE—Irving Adler—*Day,* 128 p., illus., $2.75. The history of fire, telling of its benefits and destructive powers, as well as giving its uses for today and tomorrow.

INSTRUMENTATION—Joseph Greenspan, Ed.—*New York Academy of Sciences,* Annals, Vol. 60, Art. 6, 157 p., illus., paper, $3.00. The result of a conference on instrumentation held by the Section of Biology of the New York Academy of Sciences, October, 1954.

LEARNING ACROSS CULTURES: A Study of Germans Visiting America—Jeanne Watson and Ronald Lippitt—*University of Michigan Press,* 205 p., $3.00. A report of an intensive study of a small group of foreign visitors pointing up the problems of cross-culture education and what Americans can do about them.

MOLECULAR EVENTS IN DIFFERENTIATION RELATED TO SPECIFICITY OF CELL TYPE—H. Clark Dalton, Ed.—*New York Academy of Sciences,* Annals, Vol. 60, Art. 7, 195 p., illus., paper, $3.50. The term "molecular events" is intended to include anything that happens in differentiating cells at a submicroscopic level of activity.

NUCLEAR ENERGY AND ITS USES IN PEACE—Gerald Wendt—*UNESCO (Columbia University Press),* 76 p., illus., paper, 50 cents. A guidebook to atomic energy and its applications to peaceful uses, written for the layman.

THE OPPENHEIMER CASE: The Trial of a Security System—Charles P. Curtis—*Simon and Schuster,* 281 p., $4.00. On the basis of the transcript of the proceedings of the Oppenheimer case before the security board, the only published transcript of a security hearing, the author, who is a lawyer, examines our security system.

PRINCIPLES OF METEOROLOGICAL ANALYSIS—Walter J. Saucier—*University of Chicago Press,* 438 p., illus., $10.00. Treating the atmosphere as a three-dimensional system, and placing new emphasis on the relatively simple air flow patterns of the upper atmosphere.

QUALITATIVE ORGANIC ANALYSIS: And Scientific Method—A. McGookin—*Reinhold,* 155 p., $4.50. A scheme, originated by the author, for teaching qualitative analysis to beginning students in organic chemistry.

RECENT ADVANCES IN THE STUDY OF THE STRUCTURE COMPOSITION, AND GROWTH OF MINERALIZED TISSUES—Roy O. Greep, Ed.—*New York Academy of Sciences,* Annals, Vol. 60, Art. 5, 265 p., illus., paper, $4.00. The hard tissues have lent themselves admirably to exploration by some of the newer tools of science, with the result that much scientific progress has been made in understanding these structures.

RECENT PROGRESS IN HORMONE RESEARCH: Volume XI, The Proceedings of the 1954 Laurentian Hormone Conference—Gregory Pincus, Ed.—*Academic,* 518 p., illus., $10.00. Report on a conference held in September, 1954. Included in this volume is a cumulative subject index to the first ten volumes.

SCIENCE EXHIBITS—Helen Miles Davis, Ed.—*Science Service,* Science Service Chemistry Series, 96 p., illus., $2.00. The effort of building an exhibit leads a student to clarify his thought, states the introduction of this book that presents useful information for those who wish to set up science exhibits.

THE STORY OF OUR ANCESTORS—May Edel—*Little, Brown,* 199 p., illus., $3.00. How man grew into the strange upright creature that he is, and telling about the scientists who have helped to unfold the story for us.

TUNGSTEN: Its History, Geology, Ore-Dressing, Metallurgy, Chemistry, Analysis, Applications, and Economics—K. C. Li and Chung Yu Wang—*Reinhold,* 3 ed., 506 p., illus., $14.00. This revision includes the addition of recent material, and the rewriting of the chapter on analysis and parts of the chapter on metallurgy.

VULCAN: The Story of a Bald Eagle—Robert M. McClung—*Morrow,* 64 p., illus., $2.00. Telling about this great bird which is the emblem of the United States.

Science News Letter, September 10, 1955

PHYSICS

Magnets Speed Up Explosion Waves

➤ SHOCK WAVES, similar to those that bowl over houses and shatter windows from an A-bomb explosion, are being speeded up in the laboratory with magnets.

The waves have also had their pictures taken by the light they generate, scientists attending a symposium on gas dynamics in Evanston, Ill., were told.

Shock waves traveling down a shock tube filled with the gas argon at ten times the speed of sound have been recorded by a spectrograph.

The gases behind the shock wave, created by an artificial explosion, reach temperatures higher than 15,000 degrees Centigrade. To engineers who design guided missiles, rockets or satellites, the properties of gases at such temperatures are important.

Drs. R. M. Patrick and Arthur Kantrowitz of Cornell University reported that a magnetic field, with its lines of force set perpendicular to the wave's motion, could speed up shock waves. The magnetic field deflects the ions, or charged particles, in the glowing gas. Such fields can also be used to slow down and deform the wave.

Shock waves are set up at one end of a special tube by bursting a membrane that holds back gases under high pressure. The shock wave then shoots through the low pressure portion of the tube, where observations are made.

Shock waves are not like sound waves in which the gas particles vibrate and pass their energy on to nearby particles. The pulse of air physically moves down the tube, trailed by gases of fantastically high temperature. Such fiery gases may some day be used to trigger a fusion reaction.

The meeting on gas dynamics at Northwestern University was sponsored by the Northwestern Technological Institute, the American Rocket Society and the Air Research and Development Command.

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