

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. books in print, send a remittance to cover retail price (postage will be paid in U. S.) to Book Department, Science Service, 1719 N Street, N.W., Washington 6, D. C. Request free publications direct from publisher, not from Science Service.

AMERICAN EDUCATION AND RELIGION: The Problem of Religion in the Schools—F. Ernest Johnson, Ed.—*Institute for Religious and Social Studies (Harper)*, 211 p., \$2.00. A series of lectures given at the Institute for Religious and Social Studies of the Jewish Theological Seminary of America.

ANNUAL REPORT 1951 NATIONAL BUREAU OF STANDARDS—A. V. Astin, Director—*Govt. Printing Office*, U. S. Dept. of Commerce Misc. Publication 204, 105 p., illus., paper, 50 cents. Research of the past year has been devoted largely to problems of national defense, including work on the electronic computer, electronic miniaturization and printed circuits, and development of an all-glass filter paper.

THE BUILDER: A Biography of Ezra Cornell—Philip Dorf—*Macmillan*, 459 p., illus., \$5.00. This life of the founder of Cornell University also tells the story of developing America.

THE CHEMISTRY OF SYNTHETIC DYES, Volume II—K. Venkataraman—*Academic Press*, 737 p., \$15.00. A technical work by the director of the department of chemical technology of the University of Bombay.

THE CHICK EMBRYO IN BIOLOGICAL RESEARCH—M. E. Rawles and D. A. Karnofsky, Chairmen—*New York Academy of Sciences*, 307 p., illus.,

paper, \$4.00. Selections were chosen to provide researchers with information essential for the proper use of an organism as a research tool.

A COLLECTION OF BIRDS FROM MOUNT CAMEROON—Rudyerd Boulton and A. L. Rand—*Chicago Natural History Museum*, 29 p., paper, 40 cents. Mount Cameroon rises from the sea to a peak of 13,353 feet just about 4 degrees north of the equator. Some of the birds collected are never found at lower altitudes than near its peak.

COLLOID SCIENCE: Volume I, Irreversible Systems—H. R. Kruyt, Ed.—*Elsevier Publishing Company*, 389 p., illus., \$11.00. To serve as a guide to colloid science, stressing the harmony that exists between classical colloid science and the field of macromolecular systems. This volume completes the work, the second volume of which appeared in 1949.

THE COMPOSITION OF THE SANITARY ENGINEERING PROFESSION—Walter A. Lyon and Arthur P. Miller—*Govt. Printing Office*, Scientific Manpower Series No. 2, 36 p., paper, 15 cents. Many sanitary engineers currently practicing have had little formal sanitary engineering education. There are about 5,000 in this profession in the United States.

DESIGN OF NAILED STRUCTURES—E. George Stern and Paul W. Stoneburner—*Virginia Polytechnic Institute*, Engineering Experiment Station Series No. 81, 67 p., illus., paper, 75 cents. How to plan joints so as to insure maximum strength as the wood seasons and ages.

DEVELOPMENT OF THE GUIDED MISSILE—Kenneth W. Gatland—*Philosophical Library*, 133 p., illus., \$3.75. On the guided missile as a weapon as well as on rockets for high-altitude research, space satellite vehicles and interplanetary flight. Most of the material appeared originally as a series of articles in the British journal *Flight*.

EFFECTS OF COMMUNITY-WIDE INSTALLATION OF HOUSEHOLD GARBAGE-GRINDERS ON ENVIRONMENTAL SANITATION—George K. Erganian, Walter G. Belter and Ralph C. Graber—*Govt. Printing Office*, Public Health Service Publication No. 224, 41 p., paper, 20 cents. Driven by necessity caused by an epidemic of hog disease, Jasper, Ind., householders decided to eliminate the garbage can. Results, reported here, show incidental benefits to be reduction in flies and rats.

ERIC SLOANE'S WEATHER BOOK—Eric Sloane—*Duell Sloan and Pearce and Little, Brown*, 90 p., illus., \$3.75. A readable book about the science and folklore of the atmosphere and weather.

THE FACE OF THE ARCTIC: A Cameraman's Story in Words and Pictures of Five Journeys Into the Far North—Richard Harrington—*Schuman*, 369 p., illus., \$6.00. Beautiful photographs and graphic narrative combine to show what the cold world near the north pole is like.

FINANCIAL STATUS AND NEEDS OF DENTAL SCHOOLS—Walter J. Pelton and others—*Govt. Printing Office*, Public Health Service Publica-

tion No. 200, 83 p., illus., paper, 25 cents. The United States has 40 dental schools located in 23 states; only 15 operate under public control.

GENERAL SCIENCE WORKBOOK: Demonstrations and Exercises—A. J. Burdick and J. J. Dudleston—*Oxford Book Company*, rev. ed., 224 p., illus., paper, \$1.15. Can be used conveniently with any text and follows closely the New York State syllabus. The "Experiences of Jim Keen," following each topic provide applications of what is learned.

THE JOURNAL OF CLINICAL NUTRITION: An International Journal Devoted to the Practical Application of Our Newer Knowledge of Nutrition, Volume I, Number 1—S. O. Waife, Ed.—*Nutritional Press*, 90 p., illus., paper, bimonthly, single copies \$1.25, \$6.00 a year. Intended especially for the practicing physician, this journal would also be of interest to anyone concerned with nutrition.

MAN THE CHEMICAL MACHINE—Ernest Borek—*Columbia University Press*, 219 p., \$3.00. Tracing, for the layman, the development of knowledge about the chemistry of the body since urea was synthesized in 1828.

MODERN SCIENCE AND MODERN MAN—James B. Conant—*Columbia University Press*, 111 p., \$2.25. Lectures dealing with the impact of modern science on the ambitions, the hopes, the fears and the outlook of the enlightened citizen of today.

MORE MODERN WONDERS AND HOW THEY WORK—Burr W. Leyson—*Dutton*, 192 p., illus., \$3.50. This group of wonders ranges from the Yale lock to the atomic submarine.

MUTUAL DEFENSE ASSISTANCE CONTROL ACT OF 1951: First Report to Congress, a Program for the Denial of Strategic Goods to the Soviet Bloc—W. A. Harriman—*Govt. Printing Office*, 107 p., paper, 30 cents. Control of East-West trade is a more delicate problem than you might suppose, for the Soviet bloc has goods that the Western nations need.

OIL AND GAS DEVELOPMENTS IN KANSAS DURING 1951—W. A. Ver Wiebe, J. M. Jewett, E. D. Goebel and A. L. Hornbaker—*University of Kansas Publications*, 188 p., illus., paper, 25 cents. Oil production increased 6.1% over 1950 and natural gas production hit an all-time high.

ORCHIDS OF GUATEMALA—Oakes Ames and Donovan Stewart Correll—*Chicago Natural History Museum*, 395 p., illus., paper, \$4.00, Buckram \$5.00. Bringing together for the first time information concerning all the known orchids of Guatemala, 527 species and 25 varieties.

BIOLOGY TEACHERS

You can get better microscopic slides for less! Since comparative histology tells so much about the nature of man, this study should begin early and be enlarged on in the liberal arts and teachers colleges, and in the university. Like English, it should be a required study for all students in every school of intermediate and higher education. The result would be a better citizenry; better parents, better teachers, better preachers, better physicians, a better man, and a better society, which is the purpose of education. Premedical students should make comparative histology their biggest course, because the medical schools devote very little time to the study of this most important discipline. The medical students should realize that knowledge of cellular biology gives meaning to pathology, anatomy and physiology and is the natural and least costly approach to all medical problems. *Begin study histology in high school.*
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PRIMITIVE FOSSIL GASTROPODS AND THEIR BEARING ON GASTROPOD CLASSIFICATION—J. Brookes Knight—*Smithsonian*, 56 p., illus., paper, 60 cents. A classification that attempts to give full weight to paleontological data as well as to knowledge of the living animal.

THE SANITARY LANDFILL METHOD OF REFUSE DISPOSAL IN NORTHERN STATES—Leo Weaver and Donald M. Keagy—*Govt. Printing Office*, Public Health Service Publication No. 226, 31 p., illus., paper, 20 cents. Where suitable land is available, the sanitary landfill is the most economical method of refuse disposal even in northern states where the ground is frozen in winter.

SHOCK SYNDROME—John Scudder, Chairman—*New York Academy of Sciences*, 197 p., illus., paper, \$3.75. Discussing various aspects of the problem of shock, plasma substitutes and expanders.

TABLES OF GENERAL PERTURBATIONS FOR A GROUP OF MINOR PLANETS WHICH INCLUDES THE GROUP ONE-HALF WITH APPLICATIONS TO THIRTY-FOUR CASES—Sophia Levy McDonald and Armin Otto Leuschner—*University of California Press*, 210 p., paper, \$7.50. Modification and simplification of tables published in 1922.

THE TAMING OF THE NATIONS: A Study of the Cultural Bases of International Policy—F. S. C. Northrop—*Macmillan*, 362 p., \$5.00. National self-interest, the author points out, will no longer work in foreign affairs, and international relations must become more than an art; it must also be a science.

TELEVISION IN EDUCATION: A Summary Report, preprinted from the Complete Proceedings of the Educational Television Programs Institute Held at Pennsylvania State College, April 20-24, 1952, Carroll V. Newsom, Director—*American Council on Education*, 35 p., paper, free upon request direct to publisher, 1785 Massachusetts Ave., N. W., Room 110, Washington 6, D. C.

THEORY AND PRACTICE IN STREAM POLLUTION CONTROL—Richard D. Hoak—*Mellon Institute*, 9 p., illus., paper, free upon request direct to publisher, 4400 Fifth Ave., Pittsburgh 13, Pa. Two kinds of measures are recommended: reducing pollution at its source and appropriate treatment of residual wastes.

THE TROPICAL RAIN FOREST: An Ecological Study—P. W. Richards—*Cambridge University Press*, 450 p., illus., \$12.50. Telling with minimum of technical terms of the abundant life in the tropical rain forest.

Science News Letter, November 15, 1952

BOYS—IT'S FREE!

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ASTRONOMY

25-Foot Radio Telescope

Instrument at Harvard Observatory will explore our galaxy, concentrating on the extremely rarefied hydrogen clouds that radiate at 21 centimeters.

➤ A 25-FOOT radio telescope, to be used particularly in exploring the structure of our Milky Way galaxy, is being constructed for the Agassiz Station of Harvard Observatory.

Weighing about 800 pounds, the dish-shaped antenna will be built in one piece—an aluminum frame covered with aluminum mesh. Because it cannot be covered, the radio telescope will be built to withstand high wind velocities.

Radio astronomy is particularly useful in the study of the great clouds of neutral hydrogen that float in our galaxy and emit no light at all. Extremely rarefied by earth standards, these invisible clouds have only about one atom per cubic centimeter. Yet the city of stars to which the earth belongs is so many million billion miles across and the hydrogen clouds are so numerous that they probably contain as much matter as all the stars in the galaxy combined.

These hydrogen clouds, which radiate at a wavelength of 21 centimeters, were first detected last year by Prof. Edward M. Purcell of the Harvard physics department (see p. 307) and Dr. Harold I. Ewen, now of the Observatory. The new radio astronomy program will be directed by Prof. Bart J.

Bok of Harvard Observatory, who has made the structure of our galaxy one of his specialties, and Dr. Ewen.

The radiation from these hydrogen clouds arises when the single electron of the hydrogen atom, moving around the proton nucleus, reverses its spin. At that instant it emits a quantum, or burst, of energy. This occurs only about once every 400 years in an individual hydrogen atom, but because of the great number of atoms in the vast interstellar clouds, the radiation is effectively continuous.

Astronomers hope that by tracing these hydrogen clouds they may be able to determine the structure of our galaxy. The clouds are generally thought to be much denser in the spiral arms of the galaxy than in the regions that are near the galactic center.

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Questions

AERONAUTICS—What are the advantages of flying Arctic routes between North America and Europe or Asia? p. 308.

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ANTHROPOLOGY—Where did man's fore-runners live? p. 314.

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ASTRONOMY—What is the life expectancy of our sun? p. 312.

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ELECTRONICS—Why is TV not practical for automobiles? p. 310.

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ENTOMOLOGY—How can narcissus bulbs be kept maggot-free? p. 309.

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GENERAL SCIENCE—What science problems face President-elect Eisenhower? p. 316.

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NUTRITION—Why is vitamin C a daily diet must? p. 312.

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