

Books of the Week

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AIRCRAFT U. S. A.—Harriet E. Huntington—*Doubleday*, 52 p., illus., \$2.50. Photographs and spotter silhouettes illustrate the descriptions of 49 military planes.

THE ALPHABET: A Key to the History of Mankind—David Diringer—*Philosophical Library*, rev. ed., 607 p., illus., \$12.00. This is the story of the origins and development of systems of writing, which, by giving permanence to knowledge, make civilization possible.

BACTERIAL PHYSIOLOGY—C. H. Werkman and P. W. Wilson, Eds.—*Academic Press*, 707 p., illus., \$8.50. This advanced text for students and research workers includes a section on the significance of bacterial physiology in general biology and a selective bibliography.

A DICTIONARY OF ANTIBIOSIS—Leonard Karel and Elizabeth Spencer Roach—*Columbia University Press*, 373 p., \$8.50. Listing alphabetically the antibiotic substances, plants from which they are derived, and test organisms, together with technical data on each; a bibliography is included.

FIRST ANNUAL REPORT: 1950-1951—*The National Association for Mental Health*—23 p., paper, free upon request to publisher, 1790 Broadway, New York 19, N. Y. There has been impressive progress in psychiatric services, research, education, and community organization since the Association was formed last year through the cooperation of three formerly separate organizations.

HANDBOOK: Emergency Defense Activities, Oct. 1951-Mar. 1952—General Services Administration—*Govt. Printing Office*, 119 p., paper, 30 cents. This is the latest revision of the citizen's guide to Federal organizations for defense.

INTERSPECIFIC AND INTERGENERIC GRAFTS, WITH SPECIAL REFERENCE TO FORMATION OF RUBBER IN GUAYULE—Carl A. Taylor, H. M. Benedict, M. N. Walker, and Ernst Artswager—*Govt. Printing Office*, USDA Technical Bulletin No. 1040, 38 p., illus., paper, 15 cents. Reporting research on the

very early grafting of rubber-bearing and non-rubber-bearing plants, in order to increase yield and throw light on the problem of how photosynthetic products are translated into rubber.

LIFE HISTORIES OF NORTH AMERICAN WILD FOWL (ORDER ANSERES): Ducks, Geese and Swans—Arthur Cleveland Bent—*Dover*, two volumes, 666 p., illus., \$8.00. Based on the author's own observations and research and that of his correspondents all over North America, illustrated with many photographs, this book will be valuable both to naturalists and to nature-lovers.

MODERN WAYS IN ONE- AND TWO-TEACHER SCHOOLS—Effie G. Bathurst and Jane Franseth—*Govt. Printing Office*, Office of Education Bulletin 1951, No. 18, 48 p., illus., paper, 20 cents. Teachers, administrators, and perhaps parents too, will find helpful this discussion of how the 93,000 such schools in our country can turn special problems into assets.

MONTE CARLO METHOD—National Bureau of Standards—*Govt. Printing Office*, NBS Applied Mathematics Series 12, 42 p., illus., paper, 30 cents. The method involves interesting combination of sampling theory and numerical analysis. This symposium exchanged information concerning applications of the method.

MUDDY WATERS: The Army Engineers and the Nation's Rivers—Arthur Maass—*Harvard University Press*, 306 p., illus., \$4.75. Mr. Maass, who is "intensely interested" in bringing about a change in the Army's natural resources programs, here gives his criteria for administrative responsibility and examines in their light the development of rivers by the Corps of Engineers.

OIL AND GAS DEVELOPMENT IN KANSAS DURING 1950—W. A. Ver Wiebe and others—*State Geological Survey*, Bulletin 92, 187 p., illus., paper, 25 cents. In 1950 Kansas produced more natural gas and more natural gas liquids than ever before.

PHILOSOPHICAL PROBLEMS OF MATHEMATICS—Bruno Baron v. Freytag gen. Loringhoff, translated from the German by Amethe Countess von Zeppelin—*Philosophical Library*, 88 p., \$2.75. Some aspects of the relation between mathematics and intellect.

PSYCHOPATHOLOGY OF EVERYDAY LIFE—Sigmund Freud—*New Am. Lib.*, Authorized English Edition, 168 p., 35 cents. In this, his most popular work, Freud applies his analytic theory of personality to incidents in "normal" life and shows how indistinct is the borderline between serious emotional disturbance and normality. Originally published by Macmillan.

SOCIAL POLICY AND SOCIAL RESEARCH IN HOUSING—Robert K. Merton, Patricia Salter West, Marie Jahoda and Hanan C. Selvin, Eds.—*Association Press*, 187 p., paper, \$1.75. Social scientists and architects combine forces to

design housing best suited to good living in this special issue of the *Journal of Social Issues*.

SPINOZA DICTIONARY—Dagobert D. Runes, Ed.—*Philosophical Library*, 309 p., \$5.00. Albert Einstein's foreword says: "In alphabetical order one will find definitions, propositions and explanations in Spinoza's own words which interpret essential issues in a manner comparatively easy to comprehend, avoiding forbidding formalism."

A STUDY OF THE DISPOSAL OF CHEMICAL WASTE AT SEA: Report of the Committee for Investigation of Waste Disposal—Alfred C. Redfield and Lionel A. Walford—*National Research Council*, publication 201, 49 p., illus., paper, \$1.00. The results of an investigation begun for the National Lead Company, who met serious opposition when they began dumping commercial waste off the New Jersey coast.

TRAFFIC SURVEYS BY POST CARDS—*Highway Research Board*, Bulletin No. 41, 30 p., illus., paper, 45 cents. By sending post card questionnaires to registered vehicle owners, information about traffic movements within, through, into and out of an area may be obtained at a saving in time and cost over older methods, several states have found.

Science News Letter, December 1, 1951

TECHNOLOGY

New Cooling System Adds Efficiency to Generators

➤ SMALLER ELECTRIC generators will do the work of larger ones with a newly-developed system for cooling the giant machines now used to produce electric power for homes and factories. Important is the claim that turbine generators with this cooling system will reduce by 50% the copper required for such units, thus resulting in a great saving of this critical metal.

The cooling system is a development of Westinghouse Electric Corporation. It is called a "hollow coil" technique, and it is applicable to turbine generators having a rating of 90,000 kilowatts or more. It is a result of studies made in the fundamental problem of heat resulting from power generation. This heat arising in the generator's copper coils, if completely unchecked, would expand the metal, ultimately wrecking the unit, it was explained by C. M. Laffoon of the Westinghouse staff.

In the cooling system, he stated, instead of passing the cooling agent, hydrogen, over the solid insulated coils, the coils are made hollow and the hydrogen passes through the coils themselves. This places the hydrogen in direct contact with the naked copper. The hydrogen picks up the heat, carries it off for disposal, then recirculates through the coils.

The first hollow-coil, internally-cooled generator is now under construction and will go on test during 1952. Other units will be ready later.

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