

Books of the Week

ARTIFICIAL RESPIRATION EXPLAINED—Frank C. Eve—*E. & S. Livingstone*, 76 p., illus., 3s. New and improved methods of artificial respiration simply explained and fully illustrated.

AUTOMATIC WEAPONS OF THE WORLD—M. M. Johnson, Jr. and Charles T. Haven—*Morrow*, illus. and diag., \$7.50. Describes military automatic arms that were used by both Axis and United Nations in World War II; early and experimental automatic weapons of all types from 1885 to 1945; and sporting automatic rifles, shotguns and pocket pistols in use up to the present time.

BETTER HEALTH FOR RURAL AMERICA; Plans of Action for Farm Communities—United States Dept. of Agriculture, Inter-bureau Committee of Post-War Programs, *Government Printing Office*, 34 p., illus., 20 cents. A survey of the facts about rural health and medical care, of what has been done in the past and what should be done now.

ELECTRONIC NAVIGATIONAL AIDS—U. S. Coast Guard—*Government Printing Office*, 48 p., illus. and diag., free. Non-technical, summary information about Loran, Radar, and Racon as applied for commercial use.

GLYCERIN: Its Industrial and Commercial Applications—Georgia Leffingwell and Milton A. Lesser—*Chemical Publishing Co.*, 259 p., diagrams, \$5. Will provide chemists, manufacturers, salesmen and industrial workers with useful hints as to the utilization of glycerin in their products and the formulation of new products.

GUIDANCE: Personal and Vocational—Lili Heimers and Margaret G. Cook, *New Jersey State Teachers College*, 40 p., 75 cents. A bibliography of charts and posters, films and filmstrips, pictures, publications, recordings and transcriptions for use in guidance in the schools.

HIGHER EDUCATION LOOKS AHEAD—Ernest V. Hollis and Ralph M. Flynt, *Government Printing Office*, 98 p., 20 cents. Compilation of reports from American Colleges and Universities on their postwar plans. U. S. Office of Education, Bull. 1945, No. 8.

NATIONAL SCIENCE FOUNDATION—Senate Committee on Military Affairs—29 p., free. Text of Senate Bill 1720, introduced by Senators Kilgore, Johnson, Pepper, Fulbright and Saltonstall, to promote the progress of science and secure national defense. Copies may be obtained by writing to Senator Kilgore.

NUTRITIVE PROPERTIES OF PORK PROTEIN AND ITS SUPPLEMENTAL VALUE FOR BREAD PROTEIN—U. S. Department of Agriculture—*Government Printing Office*, 12 p., tables, 5 cents. Report of experiments to determine the digestibility and growth-promoting values of the protein in different dehydrated roasted cuts of fresh pork.

THE PAN AMERICAN YEARBOOK 1945—*Pan American Associates*, 829 p., maps and illus., \$5. An economic handbook and ready reference directory of the western hemisphere, including a special industries section.

THE PSYCHOANALYTIC THEORY OF NEUROSES—Otto Fenichel, M. D., *Norton*, 703 p., \$7.50. Giving a comprehensive treatment of the psychoanalytic doctrines as well as the wealth of clinical data contained in the author's previous books.

SCIENCE LEGISLATION: Analytic Summary of Testimony—Senate Committee on Military Affairs, table, 138 p., free. An analysis of the testimony of 100 scientists and other experts given to the Subcommittee on War Mobilization of the Senate Committee on Military Affairs regarding the Kilgore and Magnuson bills providing for the promotion of science. Copies may be obtained by writing to Senator Kilgore.

TABLES OF FOOD COMPOSITION: In Terms of Eleven Nutrients—Bureau of Human Nutrition and Home Economics, U. S. Dept. of Agriculture—*Government Printing Office*, 30 p., tables, free. Gives average values for food energy, protein, fat, carbohydrate, three minerals, and the better known vitamins for foods most commonly used in the U. S. and some of the less common foods.

TELEVISION: The Eyes of Tomorrow—William C. Eddy—*Prentice-Hall*, 330 p., illus. and diag., \$3.75. Up-to-date, non-technical account of television in all its aspects—from basic principles of operation to how to stage a full-scale broadcast.

CHEMISTRY

Phosphor Investigation Determines How They Work

► THE RAPIDLY growing use of fluorescent lamps, in which invisible rays are made over into visible light by the use of substances called phosphors, has led to intensive laboratory studies of what are good and what are bad phosphors, with satisfactory results announced. Dr. Rudolph Nagy, Westinghouse Lamp Division research chemist, is in charge of the study.

An efficient phosphor, he points out, is made up of molecules and atoms circled by electrons that whirl around it like tiny satellites. Atoms within each molecule resonate like a violin string or a musical tuning-fork and are in constant vibration, he says.

"The frequency of resonance, which is the flow of energy back and forth throughout the crystal, determines the ability of the phosphor to absorb ultraviolet radiation inside the fluorescent lamp tube and to emit light in the desired part of the spectrum," he explained.

Conjugation, or pairing of the atoms within each molecule, is the only known method by which this resonance can occur over lengthy microscopic spaces within the crystal, he continued. Hence

only those substances qualified by proper natural resonating atomic structures are capable of being an efficient phosphor.

The best phosphors found to date, according to Dr. Nagy, are zinc beryllium silicate, magnesium tungstate, calcium tungstate and cadmium borate.

Science News Letter, January 19, 1946

ASTRONOMY


Meteorites Drawn to Electromagnetic Cane

► AMATEUR meteorite-hunters can be saved many a backache from stooping over unnecessarily by using an electromagnetic cane described by Dr. Lincoln La Paz, president of the Society for Research on Meteorites.

The cane consists of a small coil of enameled wire wound on a brass tube that can be slid up and down on a light, but strong iron rod. The electromagnet is connected to a battery carried in a knapsack. When connected with a six-volt battery, the cane readily picked up an Odessa iron meteorite weighing more than a pound, and caused "smaller fragments to jump an inch or more to the collecting tip," Dr. La Paz reports in *Popular Astronomy*.

Science News Letter, January 19, 1946

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