

## Books of the Week

**DAVID RITTENHOUSE: Astronomer-Patriot**—Edward Ford—*Univ. of Pennsylvania Press*, 226 p., \$2.50. A biography of one of America's outstanding citizens who died 150 years ago, who, though a self-educated country boy, became internationally known as an inventive genius and astronomer and whose telescopes and many clocks are still highly praised for their skillful workmanship.

**THE FEVER BARK TREE: The Pageant of Quinine**—M. L. Dural-Reynals—*Double-day*, 275 p., \$2.75. The story of man's fight against malaria from the time when it killed Alexander of Macedon to World War II, and of quinine, which, until recently, has been the only effective agent for controlling the disease.

**HANDBOOK OF LIZARDS: Lizards of the United States and Canada**—Hobart M. Smith—*Comstock*, 557 p., illus., \$5.75. An examination of 136 species of lizards under the following topics: range, size, color, scalation, recognition characters, habitat, habits, and problems for future study.

**LINCOLN'S INCENTIVE SYSTEM**—James F. Lincoln—*McGraw*, 192 p., illus. and diags., \$2. A theory of incentive management which presents a philosophy of industry and life, and depends for its success on the development in the individual of his latent abilities.

**MODERN METALCRAFT**—John L. Feirer—*Manual Arts Press*, 288 p., tables and illus., \$3.50. A treatment of processes in art metal work, giving illustrations of finished articles and the steps in their making, various methods in filing, shaping, soldering, heat-treating and other finishing processes.

**THE PSYCHIATRY OF ENDURING PEACE AND SOCIAL PROGRESS**—G. B. Chisholm, M.D.—*William Alanson White Psychiatric Foundation*, 44 p., paper, 40 cents. The William Alanson White Memorial Lectures by G. B. Chisholm, M.D., with foreword by Abe Fortas and discussion by Henry A. Wallace, Watson B. Miller, Samuel W. Hamilton, Ross McC. Chapman, and Harry Stack Sullivan.

**QUALITATIVE ORGANIC MICROANALYSIS**—Frank Schneider—*Wiley*, 218 p., tables and diags., \$3.50. Instructions for the preparation, isolation, purification and identification of very small quantities of organic compounds.

**THE STAR ATLAS AND NAVIGATION ENCYCLOPEDIA**—S. S. Rabl—*Cornell Maritime*, 161 p., illus., \$5. How to determine speed, distance, time, and position; how to take bearings with a radio direction finder; how to use the sextant; how to use the NAUTICAL ALMANAC, H. O. 208, H. O. 211, and H. O. 214; how to use the stars in navigating.

*Science News Letter, June 29, 1946*

### ENGINEERING

## Tractor Hydraulic Device Works Trailer Mechanism

► A SIMPLE, relatively inexpensive attachment to an ordinary light tractor of the wheeled type enables the tractor to be used with scrapers and other earth-moving machines having hydraulically operated mechanism. Patent 2,402,449 has just been awarded for this invention to Harvey W. Rockwell, Cedar Rapids, Iowa, who has assigned it to the Laplant-Choate Manufacturing Company, Inc., of the same city.

The invention provides a pump, oil tank and control valve all in a single unit in a single housing which may be easily attached or removed from the front of the tractor. A control is within reach of the driver. The pump is operated by the tractor engine.

The oil tank is mounted just above the pump, and over it is the control valve from which supply lines extend along opposite sides of the tractor to the rear. These, by simple connectors, are attached to the hydraulic mechanism in the equipment pulled by the tractor.

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### CHEMISTRY

## Radioactive Carbon 14

► THE METHOD of manufacturing by means of atomic energy the radioactive kind of carbon isotope 14 that may result in discovering the causes of diseases and many biological and chemical processes was made known in a paper before the American Physical Society by L. D. Norris, A. H. Snell, E. P. Meiners, Jr., and L. Slotin of the Clinton Laboratories, Oak Ridge, Tenn.

The fission of uranium 235 or plutonium in what is called a "chain reacting pile" supplies the atomic bombardment that creates the special kind of "tagged" carbon. The process actually used at Clinton Laboratories is continuous extraction from a liquid such as ammonium nitrate. The solution is circulated through the pile with a glass centrifugal pump. Nitrogen in the ammonium nitrate is transmuted by neutrons and protons into the carbon isotope 14, which is not only radioactive but is two atomic weight units heavier than the most ordinary kind of carbon in nature. The carbon is carried out, mostly as carbon dioxide, with other

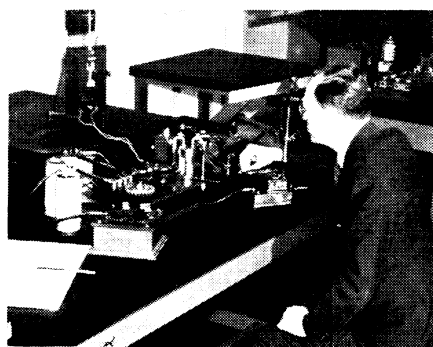
gases resulting from radiation decomposition of the liquid. The carbon is precipitated from the gas stream as barium carbonate. About 5% concentration of the carbon 14 is obtained.

Batches of solid nitrogenous material can also be irradiated to obtain the useful carbon radioisotope or continuous extraction from some kind of an emanating nitrogenous substance can be used.

About 20 different pairs of atomic nuclei can be produced when an atom of uranium or plutonium divides or fissions with a release of the atomic energy, a paper by Dr. E. P. Wigner of Princeton and Dr. Katharine Way of the Metallurgical Laboratory, Chicago, reported. Each resulting nucleus is in general unstable and goes through several radioactive beta-ray transitions before it reaches stability. Each transition has its own peculiar radiations and lifetime.

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Englishmen were long afraid to eat *tomatoes* because the plant is a close relative of the European deadly nightshade.



### STUDENTS' POTENTIOMETER MEETS MANY LAB NEEDS

Many schools are turning, both for instruction and for routine measurements, to the L&N Students' Potentiometer, shown above in use at one of the large technological institutions. Uses include calibration of meters, temperature measurements with thermocouples, and pH determinations. Because the instrument is similar to the more advanced potentiometers, it provides excellent training for later work.

For further details, request Catalog E-50B(1).

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