

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.

THE BIOLOGY OF MAN—John S. Hensill, Joel F. Gustafson, and Herman Zaiman—*Blakiston*, 440 p., illus., \$5.50. A text for college students, presenting the major principles of animal biology as they apply to man.

INTERPRETING SOCIAL CHANGE IN AMERICA—Norman F. Washburne—*Doubleday*, Doubleday Short Studies in Sociology, 50 p., paper, 95 cents. Change in America has been much broader than adoption of the 5-day week and development of television and the atomic bomb.

PETROLEUM MICROBIOLOGY: An Introduction to Microbiological Petroleum Engineering—Ernest Beerstecher Jr.—*Elsevier*, 375 p., illus., \$8.00. Describing the science of petroleum microbiology in a systematic manner and in terms meaningful to both engineers and bacteriologists.

THE PHYSICIAN AND HIS PRACTICE—Joseph Garland, Ed.—*Little, Brown*, 270 p., illus., \$5.00. A source book of the non-technical aspects of a medical practice, written by physicians for the young doctor just beginning his career.

PRINCIPLES OF OCCUPATIONAL THERAPY—Helen S. Willard and Clare S. Spackman, Eds.—*Lippincott*, 2nd ed., 376 p., illus., \$5.50. This book has been extensively revised and rewritten to keep pace with the rapid development of the profession.

PROSPECTING WITH A COUNTER—Robert J. Wright—*Govt. Printing Office*, revised ed., 68 p., illus., paper, 30 cents. Written by a geologist of the Atomic Energy Commission, this booklet describes the operation, maintenance and use of radiation detection instruments suitable for uranium prospecting.

SAHARA—Rene Lecler—*Hanover House*, 280 p., illus., \$3.95. The exploration and conquest of this hot, dry, cruel land from biblical times to the present.

SEX IN MICROORGANISMS: A Symposium Presented on December 30, 1951 at the Philadelphia meeting of the American Association for the Advancement of Science—D. H. Wenrich, Chairman and Ed.—*American Association for the Advancement of Science*, 362 p., illus., \$5.75. Presenting the evidence for "sex" in the principal groups of microorganisms, from the viruses through bacteria, fungi and unicellular algae to the protozoa.

STUDIES IN SCIENTIFIC HYPNOSIS—Jerome M. Schneck—*Nervous and Mental Disease Mono-*

graphs, 333 p., \$6.50. A collection of formerly published papers by the author on scientific hypnosis. He foresees a sound future for hypnosis despite "shortsighted prejudice" and "disheartening abuse."

TEACHING RAPID AND SLOW LEARNERS IN HIGH SCHOOLS: The Status of Adaptations in Junior, Senior, and Regular High Schools Enrolling More Than 300 Pupils—Arno Jewett and J. Dan Hull, Coordinators—*Govt. Printing Office*, Office of Education, Bulletin 1954, No. 5, 97 p., paper, 35 cents. Describing the methods used in large high schools to adapt teaching methods in different subjects for pupils who are not average.

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BIOCHEMISTRY

A-Bomb Protection

► **DISCOVERY OF a protein in blood** which seems to play an important part in giving a person natural immunity to germ and virus diseases is reported by Dr. Louis Pillemer and associates of Western Reserve University, Cleveland, in *Science* (Aug. 20).

This protein might even become useful medicine to save lives of some A- and H-bomb survivors.

The newly discovered blood chemical has been given the name properdin, from the Latin word *perdere*, which means to destroy.

Properdin is not the same as antibodies, another class of blood substances that give immunity to specific diseases. It is found in Fraction III of blood serum when this fraction is separated by the Deutsch method.

It acts only in conjunction with another blood substance, called complement, and magnesium. It takes part in such varied activities as destruction of bacteria and neutralization of viruses, and destroys certain red blood cells.

Properdin, normally present in human blood serum, is destroyed by irradiation. Its destruction by radiation from A-bombs may be responsible for the infection which, in spite of antibiotics, would probably kill many survivors of A- and H-bomb attacks.

Since it can be obtained in good yield from both human and cattle blood serum, it might be possible to use it to save lives of any future A- or H-bomb victims.

Recent reports by other scientists show that mice can be partly protected from irradiation by injections of fractions of blood serum, particularly Fraction III which is now shown to contain properdin.

Properdin has been found in the blood serum of rats, mice, cows, hogs, humans, rabbits, sheep and guinea pigs. Other animals have not yet been tested.

Of the warm blooded animals treated, the rat has the most, the guinea pig the least, and humans are in between. This further

VETERINARY MEDICINE

Fight Animal Diseases by Official Reporting System

► **ALL CASES of contagious animal diseases** that threaten the nation's meat supply should be officially reported, Brig. Gen. J. A. McCallam, president of the American Veterinary Medical Association, told members attending its meeting in Seattle.

So-called catching diseases of humans, from anthrax to whooping cough, are regularly reported by state health officers to the Public Health Service in Washington. This helps fight epidemics by showing where and when they are starting.

The same kind of official reporting system should be instituted for the many communicable diseases of animals to help prevent their spread, Gen. McCallam believes.

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strengthens the idea that properdin is important in natural immunity.

This is the kind that enables people and other animals to resist disease without being vaccinated and even when they have not had previous contact with the disease that might have made their bodies develop antibodies to it.

Rats are known to have a lot of this natural immunity, being very resistant to disease, while guinea pigs are quite susceptible.

Associated with Dr. Pillemer in the work on properdin were Drs. Livia Blum, Irwin H. Lepow, Oscar A. Ross, Earl W. Todd, Alastair C. Wardlaw and A. R. Moritz.

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TECHNOLOGY

Radioactive Cesium Aids Rebuilding of Cyclotron

► **RADIOACTIVE ATOMS of cesium** are helping scientists rebuild the University of California's atom-smashing cyclotron.

Now being expanded in capacity, the cyclotron's new design requires tapered holes drilled in wedge-shaped sheets of Nitralloy steel, a special alloy steel suitable for surface hardening.

The tapered holes, 24 inches deep and a quarter inch in diameter at their bases, are being drilled by machinists at the Mare Island Naval Shipyard, Vallejo, Calif. Cooling water will flow through them.

Tolerance had to be held to one-fiftieth of an inch. Maintaining this tolerance while drilling the holes stumped the machinists until a Geiger counter was suggested.

By plunging a rod tipped with radioactive cesium into the hole and by measuring the radioactivity on both sides of the plate, the machinists could tell whether the hole was being drilled properly.

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