

Books of the Week

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AGRICULTURAL GENETICS—James L. Brewbaker—Prentice-Hall, 156 p., illus., \$4.95; paper, \$2.95. Explores aspects of genetics particularly important to agriculture, such as polygenic inheritance, genotype-environment interactions, polyploidy, heterosis, and the regulation of breeding systems.

BLEEDING IN THE SURGICAL PATIENT—Seymour Gollub and Alex W. Ulin, Co-Chmn.—N. Y. Acad. of Sciences, Vol. 115, Art. 1, 542 p., illus., paper, \$7. Conference papers and discussion of current problems of surgical hemostasis examined both in broad clinical and in specific technical terms.

CHEMICAL PRINCIPLES—Loren G. Hepler—Blaisdell, 505 p., diagrams, \$8.50. First year college course in chemistry for science or engineering students, includes atomic and molecular structure, chemical applications of thermodynamics, and study of chemical kinetics in terms of rate equations and reaction chemistry.

THE CYTOLOGY AND GENETICS OF BARLEY, 1951-1962—Robert A. Nilan—Wash. State Univ. Press, 278 p., paper, \$4. Monograph reviews genetic research of the barley plant gathered from more than 1,200 articles published from 1951 to 1962.

DECIMALS AND PERCENTAGE: A Tutor-Text—Betty K. Friel—Doubleday, 504 p., \$5.95. Programmed instruction for learning how to use decimals and percentages quickly in figuring interest, commissions, dividend rates, and solving tax problems.

DEMOGRAPHY 1964, Vol. 1, No. 1—Donald J. Bogue, Ed.—Population Assn. of Am., 374 p., paper, annual subscription \$7; members, \$4.50. Articles on world-wide population research and demographic studies, with abstracts in Spanish language.

ELECTRONICS IN MEDICINE—Lynn and Gray Poole—McGraw, 160 p., photographs, \$3.75. Discusses the use of electro-medical devices and computers in the fields of medical diagnosis and therapy. For the general reader.

ENGINEERING AND APPLIED SCIENCE AT COLUMBIA: A Report on Research—Gerd S. Bodeen and Helen Cressman, Eds.—Office of Research Services, School of Engineering & Applied Science, Columbia Univ., 155 p., illus., paper, single copies upon request direct to publisher, Room 122, S.W. Mudd Bldg., New York, N.Y. 10027. Abstracts of research, and degrees conferred during the year 1962-1963.

PLANNED PARENTHOOD/WORLD POPULATION: Annual Report 1963—Alan F. Guttmacher, Pres.—Planned Parenthood Fed. of Am., 40 p., illus., paper, single copies free upon request direct to publisher, 515 Madison Ave., New York, N.Y. 10022. Report discusses emerging patterns, services and research.

RECENT GEOMORPHIC HISTORY OF PLUM ISLAND, MASSACHUSETTS, AND ADJACENT COASTS—William G. McIntire and James P. Morgan—La. State Univ. Press, 44 p., maps, paper, \$2. A study of the factors affecting beach development, relative sea level changes and sediment supply.

RESEARCH FOR HEALTH—National Institutes of Health, foreword by James A. Shannon, Dir.—PHS (GPO), 80 p., illus., paper, \$2.45. Highlights of research conducted at the nine institutes which were created to improve the health of the people of the United States.

THE SPACE ENCYCLOPAEDIA: A Guide to Astronomy and Space Research—M. T. Bizony, Ed.—Dutton, 288 p., illus., paper, \$2.45. Entries of article-length and shorter explanations cover terms ranging from extragalactic nebulae to rocket motors.

WHEN THE EARTH TREMBLES—Haroun Tazieff, transl. from French by Patrick O'Brian—Harcourt, 245 p., photographs, maps, \$4.95. Authoritative and informative book on earthquakes as seen by a specialist in vulcanology, the emphasis is on the geological structure of the globe in relation to the more than one million earthquakes that occur each year.

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around a meat filler except for a small opening. The precooked sandwich is then heated in water for two minutes at about 118 degrees Fahrenheit for proofing of dough. The preparation is completed by heating at about 375 degrees in cooking oil until the dough and meat are thoroughly cooked. Grease and meat fat drain out through the small opening.

Inventor Paul C. Wilson, Carthage, Ill., reports in his patent that this frying method uses little or no shortening.

Other Interesting Patents

A savings bank, containing two separate compartments to encourage competitive savings by two people through matching coin deposits—patent 3,143,285 granted to James F. Fulton, Mamaroneck, N. Y.

A method of audiovisual instruction containing an endless recorder mechanism that enables the student to record and play his practice sounds without reversing the film—patent 3,142,909 earned by Carlos A. Irazoqui, New York City, and assigned to Linguatronics Inc., Washington, D. C.

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Nature Note

Tarantula!

➤ **TARANTULA!** Mere mention of these hairy spiders is enough to give many persons the shakes.

The name tarantula is loosely used to designate a number of large spiders found in Europe, South and Central America, and the southwestern United States.

The largest of these species, the Brazilian *Lasiadora*, has a body up to 3.5 inches long and a leg-span of up to 10 inches. It lives in trees in the jungle, and has been known to eat small birds—hence the name "bird spider," by which it is sometimes called.

Aphonopelma, the species most common to the American Southwest, is only about half the size of *Lasiadora*, but is still the largest spider found in the United States.

Despite its large size and fearsome reputation, it is a shy and retiring creature, and will not attack humans unless greatly provoked, if for no other reason than it is blind. It can even be tamed and kept as a pet.

Ordinarily, *Aphonopelma* lives in a burrow in the ground, and never strays far from its home except during the mating season, when the males will venture abroad in search of females. Immediately after mating, they depart hurriedly, for tarantulas are cannibalistic.

The female lays several hundred eggs per mating, and keeps them in a cocoon in her burrow. The young leave home a few days after hatching, and set up their own homes nearby.

Only one or two of these hundreds will survive long enough in the cruel world to reach maturity seven to ten years later. When left unmolested, however, tarantulas have been known to live a quarter-century. The bite of the tarantula is seldom if ever fatal to humans.

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INVENTION

Patents of the Week

A five-step method for more economical and higher-yield processing of gasoline from coal, called "partial conversion," has been granted a patent—By William McCann

➤ **AN ECONOMICAL PROCESS** for making gasoline from coal received a patent.

The new method is a "partial conversion process." It can produce higher yields of coal extract at lower operating costs, explained Dr. Everett Gorin, Pittsburgh, Pa., inventor of the process which earned patent 3,143,489.

Work on the invention is being continued by the office of coal research, Department of Interior, Dr. Gorin said. A large pilot plant is being constructed for further study to determine whether the new process will be feasible commercially.

It will be five years before anything definite can be determined, he said. More research and completion of a pilot plant are necessary.

This process, Dr. Gorin explained, does not attempt to convert all of the coal extract as earlier German processes did. Instead, it limits the conversion to get the most valuable yield from only the coal extract that is easily processed.

The "partial conversion process" consists essentially of five steps: 1) coal extraction; 2) separation of extract from undissolved coal residue; 3) addition of a primary hydrogen catalyst; 4) catalytic hydrofining;

and 5) addition of a secondary hydrogen catalyst.

Dr. Gorin assigned patent rights to Consolidation Coal Company, also of Pittsburgh.

Water-Cooled Cable

A water-cooled electric cable that can be used in welding fenders and other components in automobile assembly lines was awarded patent 3,143,593.

Inventor William A. Toto, Cleveland, Ohio, reported that his method offers improved cooling, longer life and easy repairs. This is believed to be the first welding cable to use electromagnetic forces for pumping the coolant water.

The usual assembly-line length of the cable, which is of the kind used to connect a transformer and welding gun, is eight or ten feet.

Prefabricated Sandwich

A prefabricated hot sandwich, in which the bread bakes while the meat cooks, earned patent 3,143,424.

The fried sandwich is made from a yeast-rising dough that is placed completely