

Do You Know?

Red blood *corpuscles* contain little or no calcium.

A mechanical peanut *sheller* does the work of 300 men.

Kidney diseases rank high as cause of death from internal disorders in the United States.

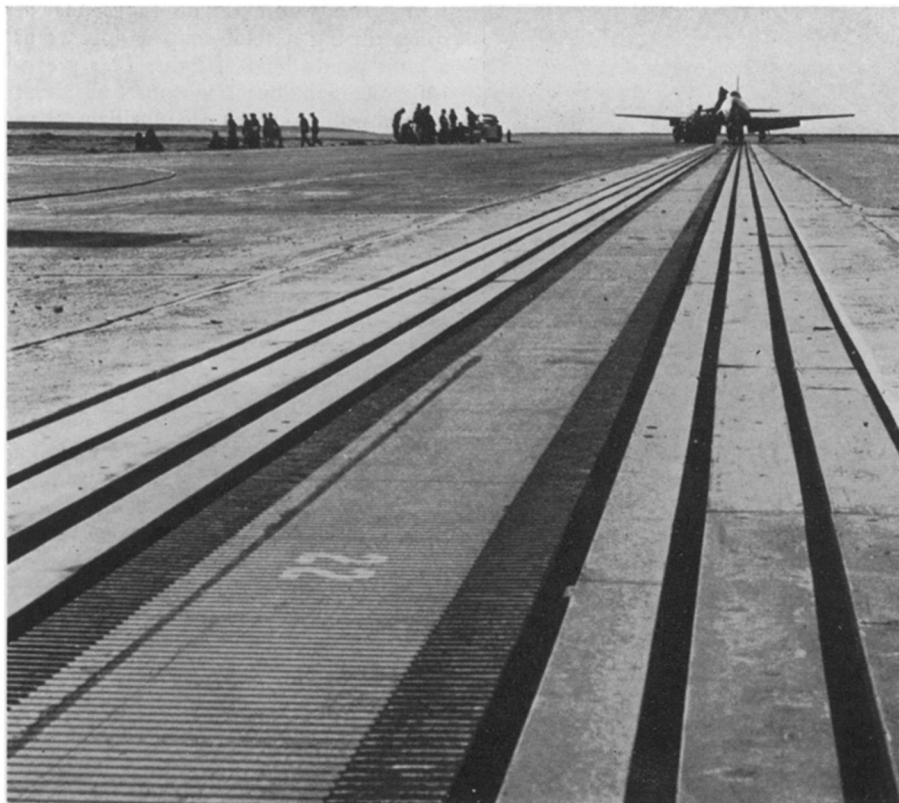
Potatoes cooked with skins on retain more of their vitamin C content than those peeled before boiling.

The *Hessian fly*, a serious wheat pest, received its name from the belief that it was brought to this country by the Hessian soldiers of the Revolution.

The *umbrella octopus* has a membrane connecting almost to the tips of its eight arms which when spread serves as an efficient trap to enfold fish or crustaceans.

The tendency of persons to grind their *teeth* when high in airplanes has more to do with the dislodging of dental fillings than the high altitude.

As *food insurance* for the coming winter and spring, the Department of Agriculture is urging housewives to top the war record of 4,000,000,000 jars of canned food in one year.



RUBBER BAND—Electric slingshot shoots planes into the air without the initial jarring shock of the conventional catapult. Shown in this Westinghouse photograph is the "roadbed" that provides the power for the shuttle car that is hitched to the plane.

AERONAUTICS

Electric Catapult Launcher

"Electropult," linear electric motor, launches jet planes with a run of 500 feet at 120 mph. It will make possible small, conveniently placed airports.

➤ **ELECTRIC** catapults that launch planes at high speed from a short runway have been revealed with predictions of small and revolutionary airports for future flying. Called the "electropult," the new catapult is a linear motor that has been installed at the Naval Air Test Center, Patuxent River, Md., and Mustin Field, Philadelphia.

M. F. Jones, project engineer for the Westinghouse Electric Corporation, who developed and built the electropult for the Navy, says that the new catapult will make possible floating airports, or seadromes, for refueling in midocean; barge-type airports at the water fronts of large cities; mid-city airports with an elevated "flight deck" several stories above the street; and the continued use

of older airports requiring longer runways for bigger and faster planes.

Laid out flat along the ground, the electropult has a quarter-mile-long track. Planes are attached to a small car that runs on the track at high speeds.

Running free without a load, the car has reached a speed of 226 miles per hour in less than 500 feet. Attached to a plane, the car has sent off a jet fighter plane at 116 miles per hour in a run of 340 feet, compared with the plane's normal run of about 2,000 feet.

Delivering its power in a straight line instead of the usual rotating pattern, the electropult has what would normally be the rotor of a motor in the track, while the coils and steel cores of the stator are carried in the car. (*Cont'd on page 175*)



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From Page 172

Declaring that the electric catapult gains in effectiveness as the size of the plane to be launched increases, Mr. Jones said that designs are completed for electropulps capable of launching the largest modern airliners. The largest airliner could be sent off at 120 miles per hour with a catapulted take-off run of 500 feet as opposed to the 4,000-foot runways needed without the launching device.

Passengers on planes launched by the electropulp would be pressed back into their seats with a force about equal to their own weight, the engineer explained, adding that the discomfort would be about the same as lying in bed for a few seconds with the feet propped up in the air.

Mr. Jones predicted that the new launching system may eventually replace the hydraulic catapults used on U. S. World War II aircraft carriers.

The electropulp was originally designed during the war to launch planes from small Pacific islands and was under construction when the war ended. The installation at Patuxent River has been set up on a 2,800-foot-long concrete runway 100 feet wide. More than 300,000 steel sheets were used in making the track core, while nearly 17,000 high resistance metal bars are fitted into slots in the steel core.

The turtle-like appearing car is 11.5 feet long and 3.5 feet wide. A steel cable, called a bridle, harnesses the plane to the car for the trip that launches the plane.

Riding the tracks on its own wheels, the plane is shot into the air when the car stops as flying speed is reached.

Science News Letter, September 14, 1946

INVENTION

Level Guides Accurately For Contour Farming

► A FARM machine of great potential importance is the subject of patent 2,405,634, granted to C. H. Batterman of Gering, Nebr. It is a device to guide the tractor driver who is trying to guide his furrows accurately along contour lines on sloping fields. It consists essentially of a wide U-tube filled with liquid, with glass sections permitting the operator to see changes in level. This is carried on a truss frame, the rear end of which is attached to the front of the tractor, while the front end rides a three-wheeled truck or dolly.

Science News Letter, September 14, 1946

Books of the Week

AMERICA'S FABRICS—Zelma Bendure and Gladys Pfeiffer—*Macmillan*, 688 p., illus., \$10.00. The book tells the whole story of every basic fiber used in modern fabrics, including the new synthetics: the origins, individual characteristics and values of each, the different types of fabrics for which each fiber can be used, and the various finishes and dyes that can be applied to these fabrics.

DIRECTORY OF GEOLOGICAL MATERIAL IN NORTH AMERICA—J. V. Howell and A. I. Levorsen—*Am. Assoc. of Petroleum Geologists*, 111 p., \$1.50. Vol. 30, No. 8, Part II.

FUN WITH PLASTICS—Joseph Lemming—*Lippincott*, 79 p., diags. and illus., \$2.00. A beginner's book, with directions and designs for the new art of making jewelry, boxes, vases, toys and dozens of useful and attractive gifts from all kinds of plastic materials.

GENTLEMEN: YOU ARE MAD—Pierrepont B. Noyes—*Baxter Freres*, 79 p., \$1.00. A book that draws an awesome parallel between the possible self-destruction of an earlier age, and the potential destruction that confronts mankind today through the uncontrolled release of atomic energy.

INJURY AND DEATH OF BACTERIA BY CHEMICAL AGENTS—Otto Rahn—*Bio-dynamica*, 183 p., tables, \$3.60. A book discussing the study of the action of that group of substances which stop, delay, or otherwise impede the activity of bacteria.

THE LIMITATIONS OF OPTICAL IMAGE FORMATION—Max Herzberger—*The New*

DENTISTRY

Teeth Need Three Minutes Of Brushing Every Day

► IN SPITE of all the admonitions about the importance of keeping the teeth clean and how to brush them which the average American gets from early childhood from parents, teachers, dentists and advertising, he does not do as good a job of toothbrushing as dentists advise.

This appears from a study of toothbrushing habits reported by Dr. Hamilton B. G. Robinson of the College of Dentistry, Ohio State University, in the *Journal of the American Dental Association* (Sept.).

The average American, he finds, takes about 267 strokes to brush his teeth but almost never brushes the sides next to the tongue. The crosswise method of brushing, universally condemned by dentists, is still used by one out of three persons. Time spent for brushing the teeth averages 67 seconds instead of the three minutes advised by dentists.

Science News Letter, September 14, 1946

York Academy of Science, 30 p., 75 cents. Vol. XLVIII, Art. I.

NOT BY BREAD ALONE—Vilhjalmur Stefansson—*Macmillan*, 339 p., \$3.50. This book tells of the experiences and adventures of Arctic explorers, fur trappers, Indians, and soldiers, who have thrived on an exclusive diet of meat or fish, or meat and fish. It is a study of the least understood of the three main diets by which men have lived.

THE POPULATION OF THE SOVIET UNION: History and Prospects—Frank Lorimer—*Columbia Univ. Press*, 289 p., tables, \$4.00. Series of League of Nations Publications: II. Economic and Financial, 1946. II. A. 3.

SEX, MARRIAGE AND FAMILY—Thurman B. Rice, M.D.—*Lippincott*, 272 p., \$2.50. This book discusses in detail every aspect of marriage—the basic sexual relationship, psychological and economic factors, children, in-laws, the physical, mental and emotional changes wrought by time and custom, and the special hazards that beset even the steadiest in these days of shifting values.

TOWARD MENTAL HEALTH—George Thurman—*Public Affairs Committee*, 32 p., illus., paper, 10 cents. The pamphlet tells in everyday terms, the story of nervous and mental diseases, including discussions on fear, nervous indigestion, moodiness, and other emotional sickness. Public Affairs Pamphlet No. 120.

THE WEATHER—George Kimble and Raymond Bush—*Penguin*, 185 p., illus. and tables, 25 cents. A handy book of information for the sportsman, the vacationer, the sailor, the gardener, or the farmer, and the man in the street. It gives an insight into how the professional weather forecaster works; it also tells how the ordinary person can read the weather signs and become a fairly useful forecaster himself.

THE WORLD OF NUMBERS—Robert McKay—*Macmillan*, 198 p., diag., \$2.50. A book written not for mathematicians, but for that large public that enjoys the odd facts and fancies that are connected with numbers, measurements and calculations.

Science News Letter, September 14, 1946

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