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SCIENCE NEWS LETTER



THE WEEKLY SUMMARY OF CURRENT SCIENCE • JUNE 12, 1943



Wood Made Edible

See Page 383

A SCIENCE SERVICE PUBLICATION

Do You Know?

In 1740, approximately 80% of the gainfully employed American population were engaged in *agriculture*; now the percentage is less than 20.

War industries furnishing their workers with one well-balanced nutritious *meal* per day find that they are insuring better employee health and efficiency.

Approximately 197,000,000 pounds of idle and excess *copper*, collected under the War Production Board copper recovery program, have been put to war uses.

Proper *seating* for industrial workers may increase output; the installation of sit-stand seats in a metal-polishing unit in one plant was followed by a 32% production increase.

A lethal insecticide, produced from the Chinese *yam bean* grown in Middle America, has been discovered at Cornell University; it promises insecticide material for 1944.

Apple syrup, a relatively new product, is produced by treating apple juice chemically and evaporating to proper consistency; a bushel of apples will produce half a gallon of syrup.

About 200,000,000 pounds of *binder twine* are used in the United States annually in harvesting machines; henequen and sisal fiber are normally used; cotton fiber is now replacing sisal needed in ropemaking.

Question Box

Page numbers of Questions discussed in this issue:

AERONAUTICS

What percentage of aircraft "plastic" is actually plastic? p. 375.

ASTRONOMY

In what field of astronomy are amateurs doing important work? p. 376.

What star may actually be heavenly quadruplets? p. 372.

Where was a large double star discovered? p. 376.

BOTANY

How can decaying trees be turned into tasty food? p. 383.

CHEMISTRY

How can the bomber pilot tell friendly tank from enemy? p. 373.

ENGINEERING

How can Army experts see what happens when a gun is fired? p. 376.

To what test is a refrigerator put by the Navy inspectors? p. 381.

MEDICINE

How can "deck ankles" be prevented? p. 377.

How can men be trained to pass color vision tests? p. 381.

How can you get ivy poisoning without direct contact with the plant? p. 376.

In rabbits, what useful function is performed by the appendix? p. 377.

To what religious belief is the spread of eye infections in Africa attributed? p. 377.

What are some of the most serious of the disease problems of this war? p. 380.

What causes undulant fever? p. 373.

What germ can be used to increase the action of the sulfa drugs? p. 371.

What happens to the blood of a person who is anxious or afraid? p. 371.

What new disease is puzzling Army physicians? p. 371.

What remedy for gonorrhoea can be made from common mold? p. 373.

NUTRITION

In what research program did volunteers drink beefsteak for science? p. 375.

What kinds of food will be found in the post-war grocery store? p. 382.

NUTRITION—AGRICULTURE

How serious is the food shortage in Europe? p. 378.

PHYSICS

In what respects is the radar better than the older sound detectors? p. 374.

POPULATION

In what part of the country are marriages becoming more numerous? p. 377.

PUBLIC HEALTH

How have the airline personnel fared from a health standpoint in Africa and India? p. 374.

RESOURCES

Where on this continent is Russian dandelion being grown for rubber? p. 376.

Where is seaweed used for food? p. 377.

WILDLIFE

How has the gasoline shortage affected the Yellowstone bears? p. 383.

Most articles which appear in SCIENCE NEWS LETTER are based on communications to Science Service, or on papers before meetings. Where published sources are used they are referred to in the article.

The feathers of the *bluebird* contain only brown or blackish pigment overlaid by a layer of prismatic cells which reflect only blue light rays; there is no blue pigment in bird plumage and very little green.

Flake *graphite*, a form of carbon, has many war uses as a lubricant, and in the making of crucibles, core washers, paints and electrical equipment; the principal sources are now in Alabama and Pennsylvania.

Coastal *Bermuda grass* and a Paraguayan strain of *Bahia grass* are being used on military fields in the southeastern states because they stand the wear of heavy boots, jeep tires and aircraft landing wheels.

Apparently due to the total failure of the *acorn* crop for the last two years, several species of birds that have been permanent residents of Yosemite Valley for the past twenty years left the valley during the past winter.

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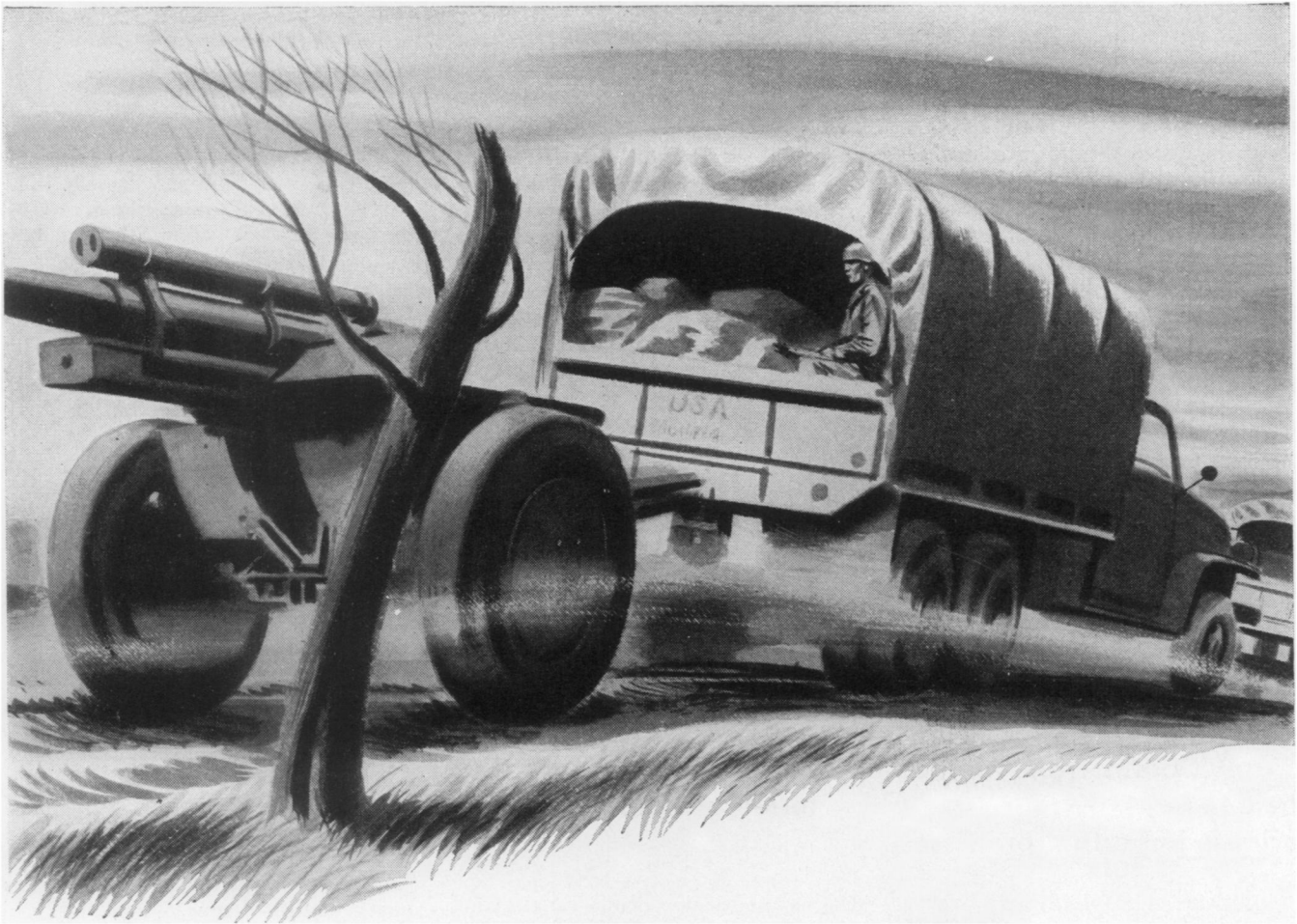
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Speaking of superior races . . .

EVERY WHEEL that rolls on the battlefield turns in a polished bearing race, ruggedly built to take the terrific shock of combat service.

To withstand such punishment, bearing races must be hardened by heat-treatment. Hard and soft spots occasionally occur. Such races may fail—at times when failure means disaster.

Recognizing the vital need, Westinghouse Research Engineers set to work to develop a quick, sure method of detecting these flaws.

Their ingenious electromagnetic flaw-detector is based upon the fundamental law that the *permeability* of a heat-treated steel part varies with the degree of hardness.

In actual practice, the bearing race is *completely* demagnetized. Then it is rapidly rotated and strongly magnetized. While the race is still turning at high

speed, its magnetic field is explored with a specially designed electromagnetic "pick-up."

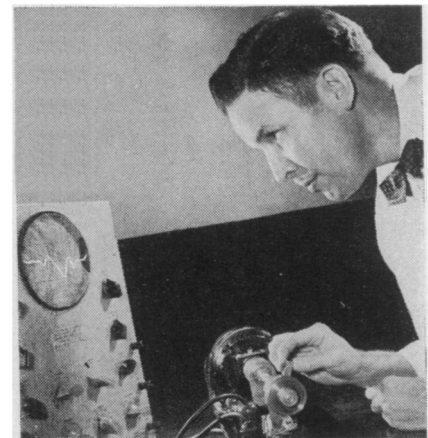
Variations in the magnetic field of the bearing race, due to hard or soft spots, induce feeble currents in the pick-up system. These currents are amplified and shown visibly on a cathode-ray oscilloscope.

A uniformly heat-treated bearing race traces a *luminous straight line* on the oscilloscope screen. Faulty heat-treating shows up as a pattern of *hills and valleys*.

The electromagnetic flaw-detector is now being used commercially—a typical example of Westinghouse *electronics at work*.

It assures quality in millions of bearing races for our armed forces, to keep 'em rolling on to victory!

Westinghouse Electric & Manufacturing Company, Pittsburgh, Pennsylvania.



Electronic fingerprints — A Westinghouse Research Engineer demonstrates the principle of the electromagnetic flaw-detector. Hard spots in the steel test piece show up as an irregular line on the oscilloscope screen.

Westinghouse

PLANTS IN 25 CITIES . . . OFFICES EVERYWHERE

Electronics at Work