

AERONAUTICS

Flying Fortress Produced Efficiently; Wins Joint E**See Front Cover**

► FLYING fortresses are leaving the production line for the firing line in ever increasing numbers. The Boeing Aircraft Company's efficient use of manufacturing facilities, including 100,000 special tools designed and built since the beginning of the national emergency has won it the first joint Army-Navy "Production E" award to be made in the aircraft industry.

More pounds of planes are produced per square foot of floor space, it is claimed by the company, than by any other manufacturer in the United States.

Boeing no longer assembles the planes into final form at the earliest possible time, which has been formerly the general practice in the industry. Instead, it completes major sections. Then at the final assembly station, there is little to do but join the sections and connect the wires and tubes. Thus the bulky completed plane occupies factory space for the shortest time possible.

Science News Letter, September 12, 1942

RESOURCES

Moonshiners Substitute Wild Honey for Sugar

► UNABLE to get sugar, moonshiners in the jungles of Florida have turned to wild bees' honey to mix with their corn mash. And they are utilizing a thoroughly modern method to find the hives. It is apparently inspired by the battleplane gunner's tracer bullets.

First the moonshiner catches a bee sampling a tempting dish of sugared water put out for her, or while her head (and stinger) is deep in a flower. He next sprinkles flour on her and sets her free. The bee makes for home, leaving a 200-foot streak of "white smoke" behind. This gives the hunter the direction of a hive.

In fairly open country he can follow the white trail some 300 yards, in thick brush. Then he again entices a returning bee with his sugar lure, and flours her into another tracer. Repeating this performance half-a-dozen times or so, the moonshiner will at last come upon the hive. If the hive is within reach he will smoke the bees away and rob them of their honey.

Sometimes it is necessary to chop

down a tree in order to get the hive. This is a more dangerous proceeding. Much smoke is needed to ward off the disturbed and annoyed workers.

Secured in this way, honey is a cheap substitute for sugar. Bought legitimately at wholesale, honey fetches on the average \$1.25 a 12-pound gallon.

Wild bees produce a large amount of honey per colony, the average being 100 pounds. In the mangrove region the average is around 150 pounds. As much as 400 pounds have been taken from an old colony.

Heavy June rains spoiled this year's early summer flow. Now the bees are working on black mangrove, partridge-pea and pepper-bush. Word from the back country is that corn is scarcer than honey.

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CHEMISTRY

China Gets Gasoline And Rubber from Tung Oil

► SYNTHETIC gasoline and rubber from tung oil are the objects of experiments now being carried out in China at the National Bureau of Industrial Research headed by Dr. Ku Yu-tsuang, as reported in "China at War."

Dr. Ku reports that he can get one-third of a quart of gasoline from one quart of tung oil, and that the experiments with synthetic rubber are "fairly encouraging." The Chinese are already distilling alcohol from molasses, wood, corncobs, and other foodstuffs, and expect to get 11,000,000 gallons from these sources to run their motor vehicles.

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PLANT PATHOLOGY

Fungus Kills Oak Trees; Parasite Unidentified

► CAUSE of a destructive disease that has been killing oaks in southern Wisconsin has been identified by Dr. A. J. Riker of the University of Wisconsin, as a parasitic fungus. Dr. Riker and his assistants inoculated 37 healthy oaks with the fungus. Nearly half of them showed the wilt symptom characteristic of the disease, and the fungus was found growing in three-quarters of the inoculated trees. The specific identity of the parasite has not yet been determined; nor have practical control means been developed. Plant pathologists are now at work on the problem.

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IN SCIENCE

INVENTION

Poison Gas Detector Developed for Defense

► FOR CIVILIAN DEFENSE against possible gas attacks, a portable detector has been devised by members of the Western Connecticut Section of the American Chemical Society. The detector, which one or two men can carry, is composed of a five-gallon closed container filled with water. When the water is allowed to run out at the bottom, air is drawn in at the top. This air passes down four tubes and through chemical solutions or over test papers for detecting poison gases. Four tests can thus be made at once. A supply of these solutions and papers is carried in a separate kit. Tests can be made for mustard gas, phosgene, Lewisite, chloropicrin, chlorine, carbon monoxide, and other gases.

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MEDICINE

Wool for Kenny Treatment Available from Foundation

► INSTITUTIONS treating infantile paralysis patients by the Kenny method can now get 100% wool material for the treatment from the National Foundation for Infantile Paralysis in New York.

Wool pieces, which can also be made from old woolen blankets, are used for the hot fomentations or packs that are placed over the muscles that are in "spasm." The number of old woolen blankets that can be cut into pieces in these days of restrictions on purchase of new woollens is, however, limited.

The woollens which the Foundation announces it can now supply are used as paper mill felts and their availability has been made possible "through the fine spirit of cooperation of the National Paperboard Association and its individual mill members."

The wool will be shipped by the National Foundation, without cost except express charges, in lots of 50 to 100 pounds, which it is stated should be enough for several patients.

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E FIELDS

DENTISTRY

Teeth As Well As Brain May "Black Out" in Dives

➤ NOT JUST his brain, but a pilot's teeth as well may "black out" when he pulls out of a power dive. The suggestion is made by Capt. Herbert J. Lipson, M.C., U.S.A., and Dr. S. G. Weiss, Muskogee, Oklahoma, dentist (*Journal, American Dental Association* Sept. 1).

The centrifugal force which pulls the blood away from the pilot's brain, causing the familiar "black out" symptoms, would also pull the blood out of the pulp of his teeth, they point out. They add that the absence of any recoil mechanism in the "hard, unyielding wall of dentin" surrounding the tooth pulp makes it unlikely that recovery from a "black out" in the tooth would be "so efficient or so nearly complete as in the brain." Permanent damage or death of the tooth might result.

Extreme cold at high altitudes and the "bends" to which aviators as well as divers are subject might also cause injury of the tooth pulp.

Capt. Lipson and Dr. Weiss urge dentists to investigate more fully the effects of flying on the teeth as physicians are now studying its effects on other parts of the body.

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ENTOMOLOGY

Ticks on Birds Suggests Winged Carriers of Fever

➤ AERIAL SPREAD of two dangerous diseases, rabbit fever (tularemia) and Rocky Mountain spotted fever, is now suspected as a result of a discovery by Charles R. Joyce, Iowa State College entomologist, and Gaines W. Eddy, now of the U. S. Bureau of Entomology and Plant Quarantine.

These scientists found the nymphs and larvae of the common rabbit tick on 29 kinds of birds examined at the Tama Indian Reservation in Iowa.

Although rabbit ticks rarely attach to man, and are therefore not directly responsible for transmitting the diseases,

it is believed they spread the diseases among rabbits. From this reservoir of infection the diseases may spread naturally to other species of ticks, such as those which carry spotted fever.

On one brown thrasher the entomologists found 495 young rabbit ticks, and a total of 2,111 were removed from 24 of these common song birds.

Hosts for the young rabbit ticks were found to include also the catbird, indigo bunting, wrens, towhee, robin, and other species of ground-feeding birds.

Among the 14 kinds of ticks collected in Iowa were several species not previously reported in Iowa. *Amblyomma ovale*, found on a dog, is native to South America and has not been reported previously in this country.

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ZOOLOGY

Zoo Accepts House Pets As Animal Imports Cease

➤ BEFORE the war, it was most unusual for the authorities at Edinburgh Zoological Gardens to accept pet animals or birds that had lived in private houses, but now that wild animals can no longer be imported from abroad, this rule has been relaxed, particularly in the case of monkeys, since these little creatures are seldom bred in captivity and are consequently becoming scarcer every year in Britain.

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CONSERVATION

Food Shortage Emphasizes Need for Proper Storage

➤ HOUSEWIVES more than ever these days need to learn how to store foods so they will keep, as a patriotic duty, as well as a duty to the family pocket book.

One shrivelled carrot, one slice of moldy bread seem like a trifling loss. But, as the U. S. Bureau of Home Economics points out, such trifling losses multiplied by the nation's 34,000,000 homes mounts to a staggering and important total. Thirty-four million slices of bread, 34,000,000 fresh carrots can help nourish many families and many fighting men.

Remember that mold breeds more mold, and that weevils breed weevils. Store food properly and check up frequently on food storage places to keep mold or weevils that have started from making too great headway.

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CHEMISTRY

New Plastic Used to Make Tableware for Air Travel

➤ LIGHTWEIGHT tableware for serving hot meals on airplanes is being made from a new plastic, melamine combined with cellulose pulp. While melamine resin is one of the newest plastic materials, introduced in 1939, it is also one of the oldest. It was discovered by Liebig in 1834, who also gave it its name. But nothing was done with it. The resin is composed entirely of carbon, nitrogen and hydrogen, and is being economically made now from calcium cyanamide. It melts at 670 degrees Fahrenheit.

The new plastic is hard, durable, resistant to alkalis, weak acids and the ordinary solvents, and is an excellent insulator. These properties combined with its high resistance to heat make it suitable for electrical uses, particularly lighting fixtures, handles for hot pans, etc. It is made by the American Cyanamid Company of New York, but the manufacturer states that little will be available for civilian use until after the war emergency is over.

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INVENTION

New Machine Developed To Remove Beet Tops

➤ A MACHINE for cutting the tops off sugar beets is the invention of Arnold W. Kolstad of Seattle, Wash., who has received U. S. patent 2,294,348.

The sugar beet usually extends somewhat above the ground and this part becomes hard and bitter and must be removed along with the stem and leaves. No machine has hitherto been devised that would cut the beets at a uniform distance below the base of the stem, the inventor states. The work was done by men with knives, was slow, expensive, and with the present shortage of labor may sometimes be impossible.

Mr. Kolstad's machine grasps the leaves and lifts the beet from the ground, after the latter has been loosened by the plow, and moves it between a pair of sloping prongs which guide the cutters to the precise place where the beet is to be cut. The lower part of the beet is also grasped and deposited in one place while the severed leaves and top are deposited in another.

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