

## Do You Know?

Less than half as much *wood* is used in America for fuel as 50 years ago.

Otters sometimes take over *burrows* dug by muskrats or beavers, some naturalists claim.

"Radiant heating" of homes means that *warmth* is supplied from steam or hot water pipes built into the floors or sidewalls.

The Keystone or Treaty *oak* at Jacksonville, Fla., is so large that 4,000 persons can stand in its shade at noon, it is estimated.

New fountain pen *ink* writes dry by vertical penetration into the paper and not by evaporation or drying of the solvent, the makers claim.

*Television* broadcasts are available today to some 25,000,000 people living in eight metropolitan areas; by 1948 they will be available to an additional 10,000,000.

The American Great Lakes, covering 95,000 square miles of deep water, never freeze over, but each winter heavy ice forms along shore lines, in places several miles in width.

In India, a million acres of *safflower* are grown each year; the thistle-like flower is used to make a yellow dye, the leaves are used in salads, and oil from the seeds as food and in paint.

Many new *insecticides*, germicides and fumigants have names composed of initials such as DDT; they are confusing but much simpler to the layman than their long and complicated chemical names.

Corn derivatives are used as principal *ingredients* in making candy, jellies, preserves, baked goods and other food products; they are used in brewing malt drinks, finishing textiles and in adhesives and soap.

The wartime Emergency Plant Disease Prevention Project was handled by 44 experts in the field who traveled almost constantly, investigating conditions to offset any attempts at sabotage by spreading *plant disease*.

wiped out. Airplanes will be used to locate the wild animals to be hunted, as well as domestic cattle that may have strayed into the wilderness and hills.

Meat is plentiful in Mexico now, but in coming months, as the aftosa war continues, it will become scarce. Just now cattle are being rushed to the market. Officials are hopeful that Europe can be supplied with some of the Mexican meat, since foot-and-mouth disease is already widespread there. Canning of meat in Mexico may be undertaken to save some of the excess that must be either used or wasted.

American stockmen and government officials want the United States to do more than cooperate in the actual aftosa war in Mexico. First of all, perhaps, they would like to see a good, tight, woven wire fence along the Mexican-

U. S. border that would keep hogs, cattle and people from coming over unannounced, carrying with them the dangerous foot-and-mouth and other infections.

They want to see research work on foot-and-mouth disease undertaken on a major scale in order to be better prepared if the disease can not be held in check in Mexico and does spread northward. To prevent any accidental spread, these investigations must be conducted outside the western hemisphere in countries that already have the disease.

Meanwhile, the best of our fighters against animal diseases, under the direction of the famous Bureau of Animal Industry of the U. S. Department of Agriculture are at the front in Mexico. And there are alert veterinary reserves patrolling the border.

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### MINERALOGY

## Metal Resources Limited

**Known deposits in U. S. are expected to be gone in from 10 to 75 years. Present petroleum supplies will last only 15 years. Bituminous coal will last for centuries.**

➤ AMERICA has plenty of coal to ship abroad, if miners continue to work. But the natural supply of other American mineral resources is decidedly limited, as for example, petroleum fuels.

What we can spare, what we must hold for the future and what we must import is becoming a prime national question.

There is plenty of uncertainty relative to this nation's mineral reserves.

A bipartisan committee of experts is being urged to study the situation. It will have a double-headed job: 1. To determine which and how much of the minerals produced in the United States can be spared for other countries, and 2. What foreign minerals, and in what quantities, should be obtained from abroad and stockpiled for future emergencies.

Undoubtedly there are vast deposits of minerals in America as yet undiscovered. At present, however, only known deposits can be considered in determining both exports and import needs. In the last report of the U. S. Bureau of Mines it is urged that an inventory job on a national scale be undertaken at once. It is a survey that would take years to complete. Every known scientific method of determining

mineral deposits would be employed, both in continental United States and in Alaska.

An idea of the present situation can be obtained from an unpublished report made earlier this year to Congress by the U. S. Bureau of Mines and the Geological Survey. It contains estimates of the 42 most essential minerals in known reserves. Discovery of new deposits, however, would change the picture.

Among metals, based on the average annual production and consumption during the ten years ended in 1944, magnesium, molybdenum and titanium exist in plentiful quantities. Titanium oxide is widely used as a pigment in paint; molybdenum is important in steel alloys.

Iron ore is sufficient for 76 years. Other estimates are for a greater period, but it depends upon improved methods of reducing ores of low-grade now unused. Domestic bauxite for aluminum will last 23 years. With new methods of obtaining alumina from other clays, the supply of aluminum is assured for a much greater period. There is a 50-year supply of arsenic and a 36-year supply of bismuth. (*Turn to page 30*)

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The zinc reserves will last 20 years; copper and gold, 19; silver, 13; cadmium, 11; lead, 10; and vanadium, eight. The domestic reserves of manganese, platinum metals, antimony, mercury, tungsten, tantalum and chromite are even lower. Nickel and tin are not produced commercially in the United States.

Among the non-metals, all especially important in times of war, there is an unlimited reserve of nitrates and salt, enough bituminous coal and lignite for over 40 centuries, and sufficient anthracite for 187 years. Phosphate rocks for fertilizer and chemicals are in a six-century supply. Potash is more limited, but it will last nearly a century, it is estimated.

Sulfur reserves face exhaustion in 36 years. It is an important material, the basis of most of the sulfuric acid widely used in many industries. Fluorspar, needed for the newly-harnessed fluoride chemicals, is sufficient for 33 years.

Known reserves of petroleum will be exhausted in 15 years, according to this estimate. The discovery of new oil fields, however, is expected, and the production of fuel oil and gasoline from coal, natural gas and oil shale is about to begin. The known natural gas will last 55 years.

Mica, long-fiber asbestos suitable for weaving, flake graphite, industrial diamonds, and quartz crystals for electrical apparatus are produced only in very small quantities in the United States. These are among the non-metallic minerals that should be stockpiled.

*Science News Letter, July 12, 1947*

# YOUR HAIR

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Botanical Orphan

➤ CORN is a botanical orphan. The wild plants ancestral to most other grains, as well as to such other cultivated plants as sugarcane, potatoes, melons, onions, tomatoes, apples, pears, grapes, strawberries, raspberries, cotton and tobacco are well known. They resemble their cultivated descendants mainly in being less productive, both in quantity and in individual size of product. Botanists and plant explorers have sought them out eagerly because sometimes they can be crossed with over-refined cultivated varieties to impart new disease resistance or climatic hardiness.

Wild corn, however, has never been found. Several times it has been suggested that corn is a descendant of a tall, robust grass called teosinte, found in Mexico and Central America, or of a hybrid between this and some other grass. The theory doesn't seem to stand up; it has even been suggested that the cart may have been put before the horse, and that teosinte is descended from corn, rather than corn from teosinte.

One thing the two plants have in common, that sets them apart from all other grasses: both have "tassels," that is, their male or pollen-forming flowers are borne in a branching, tree-like arrangement at the top of the stem. But it takes a long stretch of imagination to detect a resemblance between the corn ear and the female or seed-bearing inflorescence of teosinte.

That corn ear is the real stumper. No other grass has anything like it. It is obviously the product of long selection in cultivation, for like many other plant structures desirable from the cultivator's standpoint it is very bad from the plant's. With seeds firmly fixed in the cob, and

the ear sheathed in husks, it is about as ill-adapted for a natural dispersal of its seeds as can well be imagined. It can grow only where man plants it; corn is even more dependent on man than man is on corn.

Moreover, it has been that way for centuries. In very ancient tombs of the South American uplands, older than the Inca empire, pottery vessels shaped to look like corn ears have been found—and the ears are like those raised by the Indians of those regions today.

It is quite possible that the wild form of corn never will be found. If that is so, botanists will be hunting for it on the eve of Judgment Day. For they are a persistent lot.

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### BIOLOGY-PHYSICS

## Laboratory to Study Marine Biophysics

➤ MARINE biophysics and cancer are to be the two principal subjects of research in Donner Hall, a building of 64 rooms costing \$150,000, title to which has just been handed to the Institutum Divi Thomae by the Donner Foundation.

It is adjacent to Bradley Hall, present laboratory building of the Institutum in Palm Beach, Fla.

The Institutum Divi Thomae, with northern headquarters at Cincinnati, is a graduate research institution open to all scientists without respect to race, color or creed. It has been operating since 1935, and now has 14 affiliated units throughout the United States.

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### BIOCHEMISTRY

## Digestive Enzymes Aid in Lard Making

➤ PROTEIN-DIGESTING enzymes like pepsin and papain are used to loosen the grip of animal body tissues upon their fat, and thereby make lard production possible in less time and at lower rendering temperatures than those used in present practice, in the process on which patent 2,423,102 was granted to Dr. H. L. Keil, research biochemist for Armour and Company.

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Early adobe houses built by Indians in Arizona, New Mexico and southern California, were left in the natural color of the mud blocks to make them less visible to enemies; Spanish settlers introduced the white finish.