

## ENGINEERING

**Lignite May Get Wider Use; Nation Has Huge Deposits**

➤ HUGE lignite deposits in the United States are a potential source of war power, Prof. C. J. Eckhardt, Jr. and C. W. Yates, University of Texas engineers, reported to the American Society of Mechanical Engineers meeting in Davenport, Iowa.

Only an insignificant fraction of the nation's 939 billion ton reserve is being utilized. But soaring fuel consumption to meet war needs brings increased attention to this low-rank fuel.

Lignite, often called "brown coal," is more widely used in Europe than America. It appears to be a halfway station between wood and coal, occurring at a more youthful age than its true coal relatives.

Lignite contains more water and ash than ordinary coal. But misconceptions are commonly held about the properties of lignite that stand in the way of its more extended use, the engineers reported, in presenting test data which dispel these notions.

"The failure to use appropriate grate surfaces has caused this fuel to be maligned with regard to sifting losses from size reduction of the fuel particles as heat is applied and moisture is driven off.

"Yet the water losses are no greater than those of some of the more admirable fuels and the size reduction while this fuel burns can be rendered inconsequential. The most serious misconceptions relate to its tendency to undergo size-reduction processes while in storage and while being handled."

More than a sixth of the nation's mineral-fuel reserve is lignite. Principal deposits are where no mountain-making movement of the earth's crust has occurred, mainly in Texas, Montana and the Dakotas.

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## MEDICINE

**Ice Anesthesia Important In Military Surgery**

➤ IMPORTANCE of refrigeration anesthesia in the care of war wounds of arms and legs as well as in civilian surgical conditions is stressed in an editorial of the *Journal of the American Medical Association* (May 1).

Slowness on the part of doctors in adopting this new method is gently criticized in the editorial.

With this method a soldier's badly wounded arm or leg is packed in chipped ice and a tourniquet applied. Within about two hours the surgeon can proceed to operate without any further anesthetic being given. This avoids the necessity of giving a general anesthetic such as ether for treatment of a minor wound and avoids subjecting the severely wounded man to the added burden of a general anesthetic.

The new method has the added advantage of helping to prevent or treat shock which is likely to develop after wounds.

Because the refrigeration reduces the consumption of oxygen by the tissues, the tourniquet can be left on for many hours without danger of decay and death of the arm or leg. This avoids the suffering and blood loss from periodic loosening of an emergency tourniquet.

*Science News Letter, May 8, 1943*

## INVENTION

**Patent Applications From Enemy Published**

➤ PATENT applications from enemy countries, as well as from lands at present in the hands of the enemy, are now being published by the Office of Alien Property Custodian for the benefit of American firms engaged in war work. Format of publication is essentially the same as that of regularly published patents, and copies may be obtained from the U. S. Patent Office at a cost of ten cents each.

Patents have not yet been granted on these applications. However, rights in the applications as they stand are now vested in the Alien Property Custodian, and it is his desire that they be made available to American producers for the furthering of the war effort.

Publication of annotated lists, by classes, has been begun in the Patent Office Gazette. Several hundred applications for chemical patents were listed in the Gazette for April 20, and a miscellaneous group, all the way from toys to firearms, in the issue for April 27. Since the total number of applications is approximately 3,000, it is anticipated that publication will be continued for about ten numbers of the *Patent Office Gazette*.

A few applications, of particular military significance, are being withheld from publication.

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**IN SCIEN**

## ORNITHOLOGY

**Band-Tail Pigeon Stages Comeback in West**

➤ ADD the band-tailed pigeon to the list of American wild species that have made a successful comeback through wise conservation measures.

The band-tail is about the size of the domestic pigeon. The characteristic slate-colored band across the tail gives it its name.

White men found them in the mountains in flocks that darkened the skies. The same sort of slaughter that drove the carrier into extinction threatened extinction for the band-tail.

Then, in most western states, the protection of a complete year-round closed season was thrown over the band-tail. In some five states, short open seasons have been established in recent years, because of the comeback that the birds have made.

In Colorado, they have come back too far for the peace of mind of ranchers and orchardists. Many complaints are made of raids by the revived completely protected band-tails.

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## AERONAUTICS

**Conveyors Speed Output In Largest Propeller Plant****See Front Cover**

➤ FOUR-BLADED plane propellers are conveyed to the final balance room at the nation's largest propeller plant just completed in Indiana, as shown on this week's SCIENCE NEWS LETTER cover. This Curtiss-Wright plant is considered to be the most completely conveyORIZED in the country. Production moves in as nearly a straight line as possible over miles of conveyors to achieve top efficiency of each man-hour expended in manufacture.

The plant itself is a huge windowless structure employing wooden trusses for support. From it will come many types of propellers for the United Nations flying forces.

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# CE FIELDS

## ENGINEERING

### Steering Wheels Made From Redwood Waste

➤ AUTO steering wheels are among new plastic products made from redwood pulp described by Harry F. Lewis, dean of the Institute of Paper Chemistry, before the meeting of the American Society of Mechanical Engineers in Davenport, Iowa.

He told of extensive research at the Institute to reveal fundamental knowledge of the chemical composition of various parts of the redwood tree.

A tannin was found to be responsible for the longevity of the stately tree giants. This same tannin and related compounds in the wood can now be converted by a special cooking process to thermoplastic pulp.

Resins combined with the treated pulp yield a thermosetting composition that can be molded into bottle closures and similar plastic products.

A plant has been set up in California to make the pulp from redwood conveyor waste.

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## NAVIGATION

### Sailors Adrift Make Shadow Marker for Guide

➤ HOW men adrift at sea can determine their latitude by using a hunk of cardboard, a pin and piece of string, was announced by Dr. Bart J. Bok of the Harvard Astronomical Laboratory during an *Adventures in Science* broadcast.

After an extensive study of gadgets that might be used, Harvard Observatory navigation instructors have come to favor a simple shadow marker designed by Sanford Cluett of Troy, N. Y.

A pin is stuck in the center of a nine-inch graduated circle mounted on cardboard or plywood. This device is suspended and weighted down so that the 90 degree division on the circle marks the direction of a plumb line.

From the division on the circle marked by the pin shadow, the sun's altitude can then be derived.

"If we know the sun's altitude the latitude of the ship's position can be readily found with the aid of a table of declinations of the sun," Dr. Bok explained.

By this simple device the sailor can tell within only about 10 miles how far he is north or south of the equator.

Then by following an old trick of Columbus and the New England whaling captains, sailors can get onto the right parallel of latitude and sail toward their destination.

And if they have a watch set on Greenwich time they can figure longitude.

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## MEDICINE

### Old Antiseptic Finds New Favor in Wound Treatment

➤ A GROUP of World War I wound antiseptics are finding new favor with surgeons of World War II (*British Medical Journal*, March 20).

These antiseptics are yellow dyes called flavines. Acriflavine was the most popular of them but is now known to be the least satisfactory. This may explain in part why most doctors abandoned the antiseptics for 20 years between wars.

Proflavine is the best, according to the editor of the *British Medical Journal*. It is not only efficient in preventing wound infection but may prove superior to the sulfa drugs in preventing gas gangrene. Laboratory experiments point that way.

Important for success with the flavines is the method of using them. With wet dressings most of the dye sticks in the fabric of the dressing, while with emulsions the usual chemical constitution is such that almost none of the dye can escape from it into the wound.

In Libya during the present war Dr. G. A. G. Mitchell and Dr. G. A. H. Buttle found a simple solution to this problem. They put flavines into wounds in the form of a powder.

"The results obtained by this treatment," comments the medical editor, "even in cases of intractable suppuration were often dramatic."

The flavines have a relatively low toxicity, making them safe to use, and will destroy germs in a freshly infected wound before they have had a chance to grow out, Dr. C. H. Browning, of Glasgow, one of the earliest champions of the flavines, reports.

They have, he says, a "pickling" or "cold-storage" effect which makes it possible to transport wounded men without redressing their wounds.

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## NUTRITION

### New Process Makes Canned Peas "Greenies"

➤ A NEW canning process keeps peas in the cans so green they have been nicknamed "greenies" (*Nutrition Reviews*, May).

The process which keeps peas from taking on the familiar "olive drab" color of the usual canned peas was developed by J. S. Blair and T. B. Ayres who are connected with the American Can Company.

The reason canned peas lose the intense green color of peas picked from the vine is because during the ordinary shelling, canning and storing, they lose their chlorophyll. This green coloring matter loses magnesium and is gradually changed into pheophytin.

The new process, reported in detail in *Industrial and Engineering Chemistry*, involves, among other things, the addition of about one-tenth of a percent of magnesium hydroxide in the packing medium.

There is apparently no sacrifice of nourishing quality. When the alkalinity is properly controlled through each stage of the canning process there is no loss of either vitamin C or vitamin B<sub>1</sub> (thiamin). Flavor and texture of the peas is also said to be improved, or kept more nearly like that of fresh peas.

The Food and Drug Administration, according to the editor of *Nutrition Reviews*, requires that the labeling for this new product, which is at present more or less of a specialty item, must bear the statement "Traces of sodium carbonate, calcium hydroxide and magnesium hydroxide added," or they can carry the alternate statement "Traces of alkalis added."

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## PSYCHIATRY

### Peace Indoctrination Needed After Present War

➤ PEACE indoctrination to prevent catastrophic "social wobbling" is called for in the post-war planning ideas of Dr. C. Charles Burlingame, psychiatrist-in-chief at the Institute of Living, formerly called the Hartford Retreat.

"Recreating the urge to do civilian work at the end of the war will be a far greater task than creating jobs," he declared at the Institute's 119th annual meeting.

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