

## MEDICINE

## Wooden Respirators Made for Emergencies

► A WOODEN iron lung, or respirator, can be made in a few hours from materials usually found in any community having a lumber yard, hardware store and garage or small machine shop, Dr. Gerald M. Cline and Dr. Homer O. Dolley and Ralph C. Osborn, mechanical engineer, of Bloomington, Ill., report. (JOURNAL, AMERICAN MEDICAL ASSOCIATION, Feb. 17).

The emergency wooden iron lung can be built by a carpenter or cabinet maker with some help from a sheet metal worker, blacksmith or garage man or a high school manual training class.

Such a respirator was used successfully in St. Joseph's Hospital, Bloomington, during the 1949 polio epidemic as an emergency piece of equipment until an iron lung could be brought from another part of the state some 12 hours later, the doctors report.

A pamphlet telling how to make the wooden iron lung is available from the Council on Physical Medicine and Rehabilitation of the American Medical Association, Chicago.

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## PUBLIC HEALTH

## Health Laboratories 59.5% to 99% Accurate

► LABORATORIES of 42 state health departments were rated 59.5% to 99% accurate in certain diagnostic tests in a survey by the Communicable Disease Center of the U. S. Public Health Service.

Thirty of the laboratories rated 90% or better, Dr. R. A. Vonderlehr, medical director in charge of CDC, reported in announcing the results.

The ratings were made on accuracy in tests for certain intestinal parasites such as the amebas that cause amebic dysentery, or amebiasis. From 5% to 10% of the population in the United States is estimated to be infected with this parasite but the disease is hard to diagnose without competent laboratory assistance.

In making the diagnosis, a stool specimen must be taken to the laboratory, where skill and training are required of the technicians if they are to find the parasite when it is present.

Over the past year 98 specimens were mailed from the Communicable Disease Center laboratories in Atlanta, Ga., to the participating state laboratories. At the same time specimens of the same material were mailed to three referees.

The referees determined that 18 of the specimens contained the parasite, while 80 did not. Four of the participating laboratories correctly found all of the 18 specimens which were positive.

On the basis of the results, as well as

other studies, two factors are believed to contribute to the proficiency of a laboratory. One is intensive training of the technician under the direct supervision of a competent parasitologist, together with ample experience in the examination of stool specimens. The other is wise selection of laboratory techniques.

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## VETERINARY MEDICINE

## Cortisone Gets Trial For Sheep Diseases

► CORTISONE, used in the treatment of humans with rheumatoid arthritis and severe burns, is being given trials on sheep at the University of California School of Veterinary Medicine.

"It is possible that certain diseases of cows and sheep can be helped by cortisone," said Dr. L. W. Holm, under whose direction the new research is being done. "Two of such diseases are bovine acetememia and 'pregnancy disease' in sheep."

Cortisone and other hormones from the adrenal cortex affect a great number of metabolic processes of the body, he explained. These include the levels in the blood of such substances as sodium, potassium, chloride, and sugar and sometimes the hemoglobin content as well. In addition, the numbers of white blood cells and the percentage of each kind are modified.

"Our present studies are being done with normal, healthy sheep to determine whether moderate to moderately high doses of cortisone cause any dangerous side effects," Dr. Holm stated.

"In our short studies, under the dosages we used, no dangerous metabolic effects have resulted. We do not yet know, however, what effects they would have if administered over a period of four to five weeks, as is the practice with human patients."

Science News Letter, February 24, 1951

## AERONAUTICS

## Cigarette Balances With Auto Pilot

► A CIGARETTE, balanced on end in a Navy plane, remained upright while an automatic pilot put the plane through a series of turns and maneuvers.

This exacting test of sensitivity was part of an extra-curricular test of a new automatic pilot developed by engineers of the Minneapolis-Honeywell Regulator Company, working in cooperation with the Navy.

Maneuvers included level flight, turns and a runway approach on an instrument landing system.

"A cigarette standing on end furnishes a fairly sensitive accelerometer," explained Hugo Schuck, chief of Honeywell's aeronautical research. "If it doesn't fall over during maneuvers, it indicates that the accelerations are being kept very low."

Science News Letter, February 24, 1951

# IN SCIENCE

## VETERINARY MEDICINE

## Time to Give Bossie Her Spring Calcium

► FARMERS should watch the mineral intake, especially calcium and phosphorus, of their livestock as they come into the new spring production season, the American Veterinary Medical Association warned.

Minerals are so important in the diet of animals that livestock will live longer without any feed than they will on feed that contains no minerals.

"Although animals require more than a dozen different minerals, two of them, calcium and phosphorus, make up 70% of the mineral matter in the body," the veterinary medical association said. "Dairy cows and laying hens especially require them. Half the minerals in milk are calcium and phosphorus."

The AVMA cited the delicate relationship between calcium and phosphorus in the body as an instance of the need for a careful check on farm animals' requirements. Too much of one without the other can lead to a deficiency disease, the association said.

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## ENGINEERING

## Electronic Brain May Translate Russian

► HIGH-SPEED electronic "brains" may soon be translating Russian technical information into English.

The possibility that SWAC, the National Bureau of Standards automatic computer located at the University of California at Los Angeles, could be used for translating has been explored during the last six months by Dr. Harry D. Huskey, Dr. Victor A. Oswald, Jr., and Stuart L. Fletcher.

They used German for their experiments to see if translation techniques could be developed. Russian or a number of other languages could be broken down in the same way, however.

SWAC — which stands for Standards' Western Automatic Computer—can add 10-digit numbers at the rate of more than 15,000 additions per second. Memory drums capable of storing 8,000 words are planned for the near future.

If a suitable translation would be made merely by substitution of the English equivalent of each foreign word, the problem would be simple. Unfortunately, translation involves more than a mere substitution of the words of one language for those of another.

Science News Letter, February 24, 1951

# E FIELDS

## SEISMOLOGY

### Five Quakes Occurred In Little Over Day

► FIVE earthquakes in just a little over a day have rocked the earth's crust, the first flare-up of such magnitude and intensity since before last Christmas.

A strong tremor was centered off the southern coast of the Alaskan peninsula, near Kodiak Island (55 N, 156 W) on Feb. 13 at 5:13 p.m. Its magnitude was reported as 6.5, severe enough to have caused extreme damage if it had occurred in a settled region.

Eastern Siberia (66 N, 135 W) has been spotted as the center of the first of the quakes, occurring at 12:22 p.m. EST on Feb. 12. A strong quake, it was picked up by more than 20 stations throughout the world. Seismologists at the Coast and Geodetic Survey, who pinpointed the quake with the aid of information gathered by Science Service, state that the earth tremor could not have been caused by an atomic explosion.

The region of Samoa (16 S, 176 W) shook with a magnitude 7 quake at 6:55 a.m. EST, Feb. 13. Areas off the tip of southern California and off the coast of Guatemala were spotted as the origins of the two other earthquakes on Feb. 13.

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## PUBLIC HEALTH

### Two Methods Make Raw Milk Safe

► IN CASE of fire, flood or bombing attacks, community milk-processing plants may be put out of commission. Residents then may only be able to get raw milk, with its danger of carrying dangerous disease germs. Raw milk can, however, be made safe for drinking by several simple methods. For emergency use, the U. S. Public Health Service recommends either of the two following:

Method 1. Pour water into the outer unit of a double boiler and bring to a vigorous boil. Pour milk into the inner unit and place within the outer unit. Cover and maintain same heat for ten minutes.

Method 2. Bring milk quickly to a boil in an open saucepan while stirring constantly. Immediately place saucepan in cold water and continue stirring contents until cool. Change cooling water whenever it becomes warm.

Milk treated by either of these methods may sometimes have a cooked flavor, but at least it will not contain harmful germs.

Two other methods which do not affect

the flavor of the milk but take a little longer or require special equipment, are suggested for normal home use where pasteurized milk is not available.

These two are: Method 1. Heat the milk quickly in an open saucepan, stirring constantly, until the contents reach a temperature of 165 degrees Fahrenheit. A dependable cooking thermometer should be used. Then immediately place the saucepan in cold water and continue stirring the contents until they are cool. Change the cooling water when it becomes warm.

Method 2. Use one of the approved home pasteurizers now on the market.

Although pasteurization destroys harmful bacteria, it is not effective against radioactive contamination.

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## BACTERIOLOGY

### "Germs" Helpful in Producing More Food

► BACTERIA, usually thought of as causing ill-health and destruction, can be used by the farmer to increase production from his farm and to get more protein to his animals.

By mixing the proper bacteria with his legume seed, the farmer starts a "chain reaction" that gets better grazing and better hay. Legumes are plants, such as the pea, alfalfa and clover, that change the nitrogen of the atmosphere into a form usable by other plants.

The bacteria produce little lumps on the roots of the legumes, living off the plant. However, they pay "rent" by furnishing the plant with nitrogen taken from the air. This means more nitrogen for the grass plants growing with the legumes, more protein yield per acre.

A properly bacteria-inoculated clover crop may add as much as 240 pounds of nitrogen to the acre, Dr. E. A. Hollowell of the U. S. Department of Agriculture states.

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## INVENTION

### Garment for Workers Supplies Cool Air to Body

► FOUNDRY WORKERS, pilots in speedy planes and others who may work in heat higher than the human body can easily withstand are promised relief with an air-conditioned garment which supplies cool air to the body. The same garment can be used to deliver warm air to the body for workers in extreme cold.

Inventor is Lewis A. Rodert, Cleveland, Ohio. His rights in patent 2,540,547, received for the invention, are assigned to Stewart-Warner Corporation, Chicago. With it must be used an air-conditioning unit, but a relatively small inexpensive one is satisfactory. A head-enclosing helmet is part of the garment.

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## AERONAUTICS

### Interceptor Jet Plane Resembles Delta-Wing

► THE radical-appearing new jet interceptor Douglas XF4D airplane, which has already passed its maiden flight test, resembles somewhat the so-called Delta-wing plane revealed nearly two years ago in this country, with an English version appearing later.

The Delta-wing plane might be said to resemble a giant bomb lying centered on and projecting forward from a large equilateral triangular flat wing surface. Projecting upward from the rear of the fuselage is a triangular surface to give stability in flight. The new plane is described as a triangular shaped platform wing with a slim nose projecting forward to provide a cockpit for the pilot. Like the Delta-wing plane, it has deeply swept-back forward edges of the wing which promote high speed.

The XF4D was designed and built by the Douglas Aircraft Company for the U. S. Navy. It is a carrier-based jet fighter designed specifically for high altitude interception of enemy planes. Its take-off from a carrier deck will be assisted by a catapult, which might be described as a giant slingshot. A particular feature of this plane is its ability to climb rapidly to the upper atmosphere. This ability enables it to intercept an enemy on short notice. Details of the new plane are not released.

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## CHEMISTRY

### Industrial Alcohol Made Cheaply from Grain

► INDUSTRIAL alcohol can be made from grain at a cost less than the conventional malt process, the Department of Agriculture announced in an annual report.

Production of the alcohol, needed for defense, has proved commercially successful. A fungal amylase mold converts sound corn, damaged corn, wheat and grain sorghums into alcohol, Bureau of Agriculture and Industrial Chemistry scientists report.

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## DEFENSE

### New Home for CDA Has No A-bomb Shelter

► THE FEDERAL Civil Defense Agency has just moved into Washington's most modern office building—the Cafritz building. It has everything—air conditioning, modern lighting, speedy elevators—everything, that is except an A-bomb shelter.

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