

## MEDICINE

## Tibione May Fight TB

**Treatment of TB with a new German synthetic drug has given "most impressive" results. It would be used together with streptomycin in TB treatment.**

➤ A NEW weapon may soon be available for the fight against tuberculosis. It is a German synthetic drug called Tibione.

More than 7,000 patients have been treated with the drug in Germany during the past two years, with "most impressive" results in some forms of tuberculosis.

Tibione is untried and almost unknown in this country. But at the Eighth Streptomycin Conference in Atlanta, Ga., Drs. H. Corwin Hinshaw of the Mayo Clinic, Rochester, Minn., and Dr. Walsh McDermott of the New York Hospital—Cornell Medical Center, New York, reported results of a survey they made in Western Germany in September of the trials German physicians have made of Tibione.

"Tibione," Dr. Hinshaw said, "appears to have antituberculous activity of the same general order as para-amino-salicylic acid and a potential toxicity about like the arsenicals used in the treatment of syphilis."

If no "superior" anti-TB chemicals are developed, he said, a drug with these apparent degrees of anti-TB activity and toxicity would be "an important addition" to currently available germ-fighting chemicals.

"It is virtually certain," he declared, "that Tibione will not replace streptomycin but would be used together with streptomycin in the treatment of tuberculosis."

The American physicians were most impressed with the results obtained in Tibione treatment of certain serious complications of extensive tuberculosis of the lungs, especially tuberculosis of the larynx (voice box) and of the intestinal tract.

The drug is not sufficiently powerful to have much effect on most cases of tuberculous meningitis and miliary (not military) tuberculosis. German physicians now give streptomycin to these patients.

Tibione is neither as dependable nor as rapid in its action in tuberculosis of the lungs as streptomycin.

If, as seems likely, TB germs do not develop resistance to Tibione and the drug does not produce serious toxic effects, it could be depended on to continue fighting the germs for many months of treatment. This would give it "very great usefulness" in many chronic types of tuberculosis for which streptomycin usually cannot be prescribed.

Tibione was developed by Drs. Robert Behnisch and Fritz Mietzsch and Prof. Hans Schmidt of the Bayer Company. Its effectiveness against the TB germ in the test tube and in animals was discovered by Prof. Gerhard Domagk, who was awarded the Nobel Prize in 1939 for his discovery of the anti-germ activity of the sulfa drugs.

Drs. Hinshaw and McDermott made their survey as consultants for Schenley Laboratories. Schenley will make the drug available to certain government agencies, tuberculosis research organizations and other qualified clinical investigators for trials and study in this country. If the German results are confirmed Schenley will produce it for use by physicians in the United States.

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from two widely separated special broadcasting stations. Loran can be used when the sextant is useless because of fog or darkness. It is a particularly desirable device for use in the North Atlantic, an area blanketed by fog from April to July each year.

Two converted Air Force B-17s were used in the aerial iceberg count. Cameras were installed in plexiglass bubbles on each side, and thousands of pictures were taken. The only sure sign of an iceberg is to see it, the Coast Guard declares, but the camera "sees" it better than the human eye.

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## MEDICINE

## New Chemical Effectively Treats Many Allergies

➤ GOOD results with a new, longer acting chemical for hay fever and other allergies were reported by Drs. Louis Cullick and Henry D. Ogden of Louisiana State University Medical School and Charity Hospital, New Orleans, at the meeting in Cincinnati, Ohio, of the Southern Medical Association.

The chemical is Perazil chlorcyclizine. It is an anti-histamine chemical but differs from others developed in the fight against hay fever, asthma and so on in its longer action. This means that patients need take only one or two tablets daily.

The 30 patients, 27 with hay fever,



**LAST ICEBERG**—A member of the veteran ice patrol aboard the Coast Guard cutter, *Evergreen*, keeps his eye on the last iceberg of the season. Disposing of this one did not spell *finis* though, for when the ice patrol ends, it is only the beginning of the iceberg census which counts the bergs constituting a potential menace to North Atlantic shipping.

## GEOLOGY

## Iceberg Count Made

➤ ANOTHER government census is now completed and a summary issued. It is the "iceberg census" of the Baffin Bay region. The count, taken by aerial photography, totals 40,232 icebergs during the 1949 operation. These bergs later may become a menace to shipping in the Atlantic.

This iceberg count job is a function of the U. S. Coast Guard. Counting is done to anticipate and forecast ice menace to North Atlantic shipping. Many hundreds of those spotted will disintegrate on the 2,000-mile trip before reaching the shipping lane. Others will not. Danger from them to ocean vessels on the usual routes from the United States to Europe is kept at a minimum by the iceberg patrol kept by

the Coast Guard during the iceberg season.

Greenland glaciers are responsible for the North Atlantic iceberg menace. Twenty of them on the west coast along Baffin Bay are responsible for most of the icebergs that drift toward the Grand Banks off Newfoundland in the shipping lane. Coast Guard units in surface ships and airplanes keep careful watch for these great masses of ice during some five months of the year. Their exact geographical location is determined by sextant or loran and widely broadcast by radio for the benefit of vessels.

The use of loran for this purpose is a postwar application. Loran itself is a wartime development. It enables a vessel to get its location by intercepting radio beams

to whom the New Orleans physicians gave these tablets got only one week's supply at a time. The second week they were given a supply of tablets that looked just like the Perazil but did not contain any of it or any antihistaminic chemical. The following week they again got Perazil tablets, and so on for 14 weeks. The patients did not know they were getting different tablets every other week. They were also given a chart on which to record the time of onset of each attack of hay fever, hives or rhinitis, the duration, and whether it was mild, moderate or severe.

Although there was no significant difference in the mild and moderate symptom

groups while on Perazil and the dummy tablets, the attacks lasted longer when patients were taking the dummy tablets.

There was, however, a marked difference in severe symptoms, 26 hours per week, roughly, when taking Perazil, compared to about 171 hours on the dummy tablet. Also, the number of hours of all kinds of symptoms, mild, moderate and severe, averaged 209 per week for each patient taking Perazil and 521 for the patients while taking the dummy tablets.

The scarcity of side reactions "is worth noting," the doctors pointed out. Of 30 patients, only four reported drowsiness and one headache.

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#### ENGINEERING

## Football Players' Device

► FOOTBALL coaches and fans, attention: have you heard of the ammonia gas-filled earpiece inside a helmet by which a quarterback on the field could receive instructions from the bench?

Such a device has actually been patented by Dr. W. D. Hershberger of the engineering department of the University of California at Los Angeles.

The U. C. L. A. engineer, who helped to devise the fabulously accurate atomic clock, says that the principle on which the clock works can be utilized in a practical bench-to-huddle "intercom" system.

This principle is the absorption of microwaves by the ammonia molecule. Put a narrow-beam voice-modulated microwave generator on the bench and the ammonia gas-filled earpiece in the quarterback's headgear and the coach could communicate with the huddle at will.

"It might save penalties against the team

when substitutes are illegally sent in with instructions from the coach," he suggests.

The scholarly research engineer, who spends most of his time on more serious applications of this principle, has conceived of other gridiron applications of the same idea.

Fill the pigskin itself with ammonia gas, says Dr. Hershberger, and the quarterback wouldn't even need an earpiece in his helmet. When the ball was cocked behind his ear he could get such instructions from the bench as "the end going wide to the left is now open for a pass" or "beware of the opposing tackle coming in on your right."

One other variation is this: when the ammonia-filled ball was in the air, the coach could speak directly in code to the end going down field. Thus he would have more time to fake the defensive halfback instead of twisting his head around to look for the ball.

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#### CHEMISTRY

## Better Shoe Soles Made

► BETTER soles for shoes result from impregnating leather with natural rubber in a process developed by the National Bureau of Standards just revealed.

Tests already made show that the rubber-treated leather soles have improved wearing qualities over untreated leather and are better able to resist abrasion and water.

Sub-standard leather, such as "belly-cuts" from steer hides, make satisfactory soles after the rubber treatment and can now be used for the purpose.

The new treatment process was developed by Rene Oehler, Timothy J. Kilduff and Sverre Dahl of the Bureau staff. The impregnation is accomplished by simple immersion of the naturally porous leather in a solution of natural rubber. Solutions have been made with guttapercha gum, Hevea, and Castilloa rubber. Hevea smoked

sheet rubber proved to be the best of the group for the purpose.

After impregnation the deposited rubber may be vulcanized at 80 degrees Centigrade with the aid of an accelerator of the dithiocarbamate type without harming the leather.

In the development work it was found that if the grain layer of the leather is split away and the body of the leather is allowed to remain in solution overnight, the penetration and distribution of the rubber are greatly improved.

Tests show that water transmission and absorption of the rubber-treated leather are only 50% as much as untreated specimens, and that abrasion resistance of vegetable-tanned crust leather is improved from 50% to 100%, depending on the type of rubber treatment used.

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## Words in Science— CATHODE RAY TUBE

► THE cathode ray tube is a bulb of glass that contains a high vacuum. Electrons are shot out by a heated filament at the base of the tube toward an anode. A narrow beam of electrons passes through a small hole in the anode and continues on to the end of the tube which is a screen coated on the inside with a substance which fluoresces (glows) when the electrons strike it.

The cathode ray tube is the heart of your television receiver. In use, the bright spot caused by the stream of electrons sweeps rapidly over the screen while its brightness is controlled to match variations in brightness of the object televised.

Persistence of screen fluorescence plus persistence of vision make you have the illusion of an image on the television screen.

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#### MEDICINE

## More People May Soon Be Vaccinated Against TB

► MORE people may soon be getting vaccinated against tuberculosis as a result of action by the National Tuberculosis Association.

That organization's medical section, called the American Trudeau Society, recommends that commercial firms be licensed to produce BCG, the anti-TB vaccine, as soon as suitable standards for its production can be set up.

BCG, short for Bacillus Calmette-Guerin, is made from cow tuberculosis germs that have lost their virulence, or ability to produce disease. The vaccine is the most practical known material for giving immunity to tuberculosis and has been widely used in Europe.

In the United States the vaccine has been restricted to use in controlled, scientific studies because of many unanswered questions about its value. It is given only to persons who do not react to a tuberculosis skin sensitivity test.

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## On This Week's Cover

► THE gentle pitter-patter of raindrops is an illusion of the eye and ear, for each raindrop smashes into the soil like a bomb, scattering bits of shattered earth. This explosive action is demonstrated in the picture, shown on the cover, made with a stroboscopic camera by W. D. Ellison, soil conservationist with Navy's Bureau of Docks and Yards, in cooperation with a Naval Research Laboratory photographer. The effect of exploding raindrops on the soil known as splash erosion is a prime force in soil displacement.

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