

MEDICINE

Sulfone Drug Effective Weapon Against Tuberculosis

Exhaustive Studies in Test Tube and on Guinea Pigs Shows Di-Amino-Di-Phenyl-Sulfone "Retards" Germ

NEW hope that tuberculosis, like pneumonia, may be successfully treated with a chemical relative of sulfanilamide is raised by a report published by U. S. Public Health Service research scientists.

Following exhaustive study both in the test tube and in guinea pigs, a drug so far known only by its chemical name di-amino-di-phenyl-sulfone, "appears to have a definitely retarding influence" against the tuberculosis germ. Further, the dosage necessary to slow up the indomitable bacillus seemed within the margin of safety—it did not kill the animals.

With this drug as a starting point, Dr. M. I. Smith, Public Health Service pharmacologist, who first used it against the human type of tuberculosis, aims to develop derivatives more hostile to tuberculosis and safer to use in human patients. So far the drug has been tested

only with animals.

A derivative of di-amino-di-phenyl-sulfone, named promin, is being tried in human tuberculosis cases by scientists of the Mayo Clinic, but results have not yet been reported.

Dr. Smith and his associates, Dr. E. W. Emmart and Dr. B. B. Westfall, included promin in their test tube and guinea pig experiments, but found it inferior to the parent drug.

One of the derivatives for which the Public Health Service scientists are searching may, it is hoped, become the specific drug for tuberculosis. So far, the tough, waxy coated tuberculosis germ has defeated every attempt to kill it in the human host. There is no specific treatment for tuberculosis, despite recent medical progress which has reduced the number of cases and the death rate.

Dr. Smith and his associates tested di-amino-di-phenyl-sulfone together with

22 other drugs in laboratory cultures of the human strain of tuberculosis bacillus. The di-amino-di-phenyl-sulfone inhibited growth with the least amount of drug. In tuberculous guinea pigs only 56% died when assisted with the drug, as compared to 81% that received no drug. Further, the extent of the disease in the animals treated with this drug was only 0.9% as compared with 2.3% when no drug was given. In this series, 97 animals were tested over a period of 107 days.

In their final estimate following these experiments, the Public Health Service researchers conclude:

"All the experiments taken together strongly indicate di-amino-di-phenyl-sulfone the most effective agent, (both in the test tube and in the animals)."

Science News Letter, February 28, 1942

INVENTION

Bottlenecks Broken By Use of Inventive Brains

See Front Cover

FAMOUS Yankee ingenuity is speeding up the conversion of industrial plants for war work by improvising tools from available materials and by adapting old tools to new uses. How brains were thus used to break bottlenecks is told by a War Production Board report.

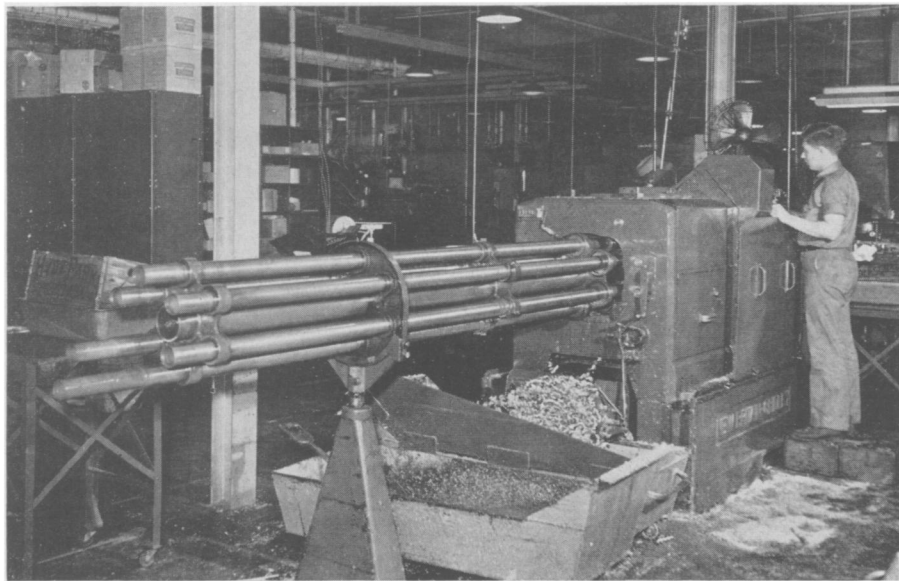
One Midwestern plant stopped making electric fans and motors and prepared to make gun turrets and shell boosters. Officials did not sit down and wait for months or years to secure tools from a machine tool market already glutted with orders from war industries.

They set their wits to work on what they already had and sent inquiries to a number of smaller manufacturers throughout the region asking them to outline their facilities.

Holes had to be burred inside the shell boosters. It would have taken two months to wait for delivery of a machine designed for this purpose. But in just 30 hours a homemade machine was rigged up to do the work. It makes use of a dentist's burr just like the one you have probably had painful acquaintance with in your own dentist's office. And it works.

In 60 hours, the plant's men had built a machine that would ream two holes simultaneously in the shell boosters.

With a fan base already on hand and a couple of pieces of machine tool, the plant superintendent devised another machine that would check closely the accuracy of the threads on the shell



NOW MAKES SHELL BOOSTERS

This lathe in a midwestern company plant, which formerly made spur gears, worm wheels and commentator rings, has been converted to war use by being tooled with an eccentric spindle and thread rolling attachment for the production of 20-millimeter shell boosters. This is an official photograph from the Office of Emergency Management.

boosters. He worked out the problem in a matter of hours and it replaces a slow hand method.

Engineers converted an old standard arbor press into an air-operated machine to stake screws in the shell boosters. It is shown on the front cover of this week's SCIENCE NEWS LETTER. It requires so much less strength to operate than does a manual press that a girl who has been making loose-leaf notebook binders now has also been "converted" to run the new machine.

Science News Letter, February 28, 1942

PUBLIC HEALTH

Hollywood-Produced Movie Aids in Fight on Syphilis

A HOLLYWOOD-produced motion picture that pulls no punches but shows men exactly how to "play safe" and what to use to escape syphilis is the latest shot fired by the U. S. Public Health Service in its all-out war on syphilis.

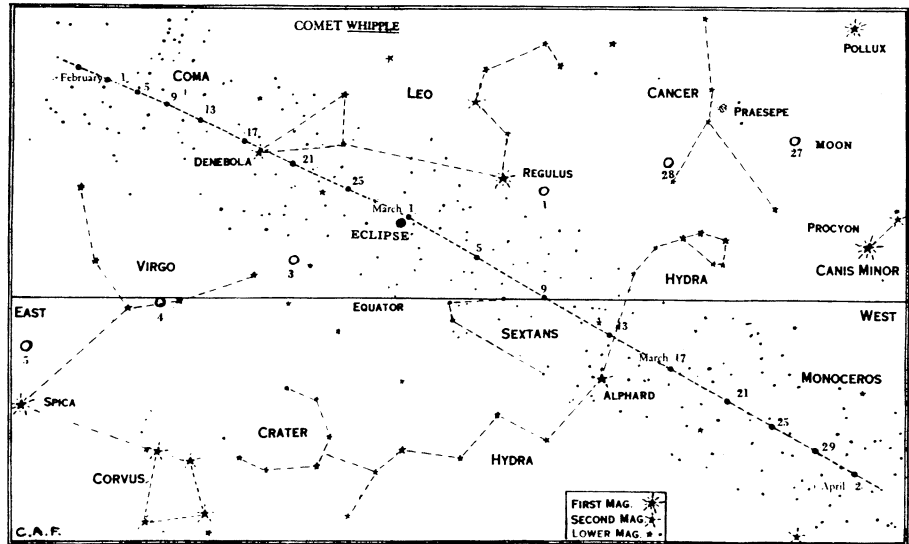
The film, *Know For Sure*, directed by Lewis Milestone under the supervision of Darryl Zanuck, was produced by the Research Council of the Academy of Motion Picture Arts and Sciences for the federal health service. It will be shown only to men's groups in clubs, factories, colleges and possibly Army training camps.

It tells about Tony whose first son was born dead, about Jerry and his college friends out to celebrate a football triumph, about the man who thought, mistakenly, he could get rid of syphilis by rubbing some salve on a sore, instead of going to a reputable physician for the sure, if slow, treatment that really cures syphilis when started in time.

Details of that treatment and of methods for diagnosing syphilis in all its many masquerades as heart trouble, nervous and mental disease, skin rashes, eye trouble and shortness of breath, make up a longer film, produced by the U. S. Public Health Service itself in color and sound, for doctors and medical students.

This film is designed especially for the general practitioner who has never "bothered with syphilis" before but who, because of our war-caused shortage of physicians, will be drawn into the fight against this disease. The 45-minute film, which can be divided into three parts, condenses the experiences of six months in a syphilis clinic.

Science News Letter, February 28, 1942



ASTRONOMY

Whipple's Comet Brightest At Middle of March

Unless It Becomes Unexpectedly Brighter, However, It Will Still Be Invisible Without Optical Aid

WHIPPLE'S comet will reach its maximum speed and maximum brightness March 10 to 18. Unless it becomes unexpectedly brighter, it will still be invisible without optical aid, for the predicted magnitude is 7.2, well below the minimum of 6 for unaided vision.

The comet will then be near Alphard, the orange star in the heart of Hydra. From then on, it will slacken its pace and grow dimmer, as it recedes from our neighborhood, probably forever.

The original announcement of comet 1942a, as it is called, was made by Dr. Fred L. Whipple of Harvard Observatory on Feb. 3, but the war delayed news of this discovery reaching Europe.

The comet was independently discovered, Feb. 11, by the Italian astronomer, A. Fresa of Pino Torinese, Italy. The Italian report was sent to Copenhagen, whence it was sent to Prof. Knut Lundmark of Lund, Sweden, who radioed it to Harvard College Observatory.

Whipple's comet and the moon will cross paths just about the same time the moon enters the earth's shadow for the total lunar eclipse of March 2. The monthly full moon occurs at this time,

so for a few days before and after that date the comet will be difficult to find because of moonlight scattered all over the sky. However, during the eclipse, the comet should be visible, with powerful binoculars or small telescopes, about 2½ degrees west of the moon.

The chart on this page, drawn by C. A. Federer, Jr., of Harvard College Observatory, shows the path of the comet as predicted by an ephemeris computed by R. N. Thomas, also of Harvard Observatory. Note that the comet appears to move faster during the first part of March, and then begins to slow up once more. Identification of the comet can be made by its motion in an hour or less—this is important because it passes through a part of the sky rich in exterior galaxies, which appear as faint nebulae—diffuse in outline, just as is the comet.

Only near the comet's path are faint stars shown, in order to avoid confusion. However, at its brightest, comet Whipple will still be fainter than any star shown on this chart, but its position can be ascertained by reference to them. The chart shows dashed lines joining the principal stars in the most important constellations; also, the names of the principal