

PUBLIC HEALTH

# Fight Against Syphilis

Venereal disease campaign placards, like War Loan posters, hang from lamp posts on Birmingham streets. 300,000 will have blood tested.

By JANE STAFFORD

See Front Cover

► BUY BONDS in the Seventh War Loan is big news in Birmingham, Ala., today, but even bigger news is buying health and freedom from disease through penicillin.

Walk down the business streets and you will read on hundreds of four-by-eight-foot posters, like those on the front cover of this SCIENCE NEWS LETTER, words which a few years ago would have been whispered, if uttered at all. This is the pioneer model city for penicillin's mass attack on syphilis and gonorrhoea.

"Penicillin cures gonorrhoea (the greatcrippler and sterilizer) in four hours."

"Treatment of syphilis with penicillin completed in nine days," the posters declare in giant letters. The penicillin is free; see your doctor or call the health department clinic, is the rest of the message on posters, billboards and cards in every street car and bus and many store windows.

The campaign against venereal disease now being waged (May 15-June 30) in Birmingham and Jefferson County started with a bill introduced into the Alabama legislature by State Senator Bruce Henderson, a plantation owner of Wilcox County. The bill, now a law, provides that all persons in Alabama between the ages of 14 and 50 shall have their blood examined for syphilis by an approved test and that persons who have syphilis must get treatment either from a physician or free through the State Health Department.

Faced with the task of making hundreds of thousands of blood tests and realizing that syphilis was only part of the venereal disease problem, state and local health authorities turned to the U. S. Public Health Service for aid.

## Unusual Opportunity

Federal as well as state and county health authorities saw that this Alabama law provides an unusual opportunity to learn what can be done by a mass attack on venereal disease. Birmingham and surrounding Jefferson County were

chosen for a proving ground in an undertaking that is not only "unique in public health annals," according to the editor of the *Southern Medical Journal*, but which may point the way for other communities to wage more effective war against syphilis and gonorrhoea.

The U. S. Public Health Service sent to Birmingham 10 medical officers in addition to the four already stationed there. It sent its Robert P. Anderson to pave the way with a high-pressure educational, publicity and advertising campaign. It set up three centers, or hospitals, for rapid treatment of syphilis. It provides penicillin free for treatment of syphilis and gonorrhoea by either private physician or health department clinic.

To make the blood tests on every 14-to-50-year-old in Birmingham and Jefferson County (there are 300,000 of them), teams of skilled blood-testers were sent down from the U. S. Marine Hospital at Staten Island. This is the U. S. Public Health Service institution where Dr. John F. Mahoney less than two years ago gave the first reported penicillin treatments to syphilis patients.

The general staff for this mass attack on venereal disease is made up of Dr. R. R. Wolcott, of the U. S. Public Health Service; Jefferson County's own excellent health officer, Dr. George A. Denison, and Dr. W. H. Y. Smith, active and enthusiastic venereal disease control officer of the Alabama State Health Department. Working under them are hundreds of men and women, physicians, nurses, laboratory technicians, social workers, clerical workers.

Typical of the eager spirit of cooperation is the story Dr. Wolcott told of a physician who called up on a Sunday morning to say:

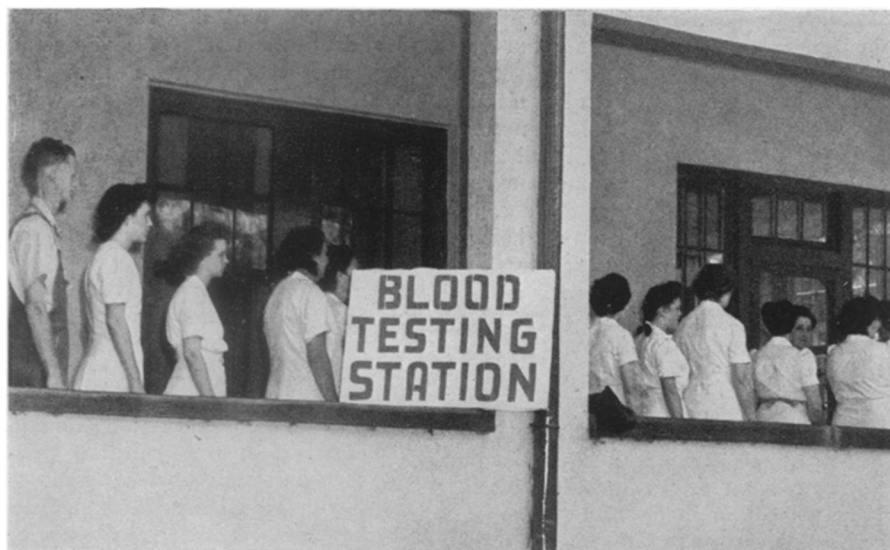
"I sent a load of patients to your treatment center yesterday so I know you will be busy today. This is Sunday and I am not working, so I wondered if I could come over and help you."

Remarkable, also, is the cooperative spirit shown by the residents of the community. Although the law requires the blood tests, no one yet has had to be forced to go for either blood test or treatment. In fact, those who have been told they need treatment are usually sitting on the porch with packed suitcase when the car arrives to take them to the treatment center.

The world's largest blood-testing laboratory has been set up for the campaign.



**SYPHILIS TEST**—Miss Lea Greenblatt, U. S. Public Health Service nurse, is taking blood to test syphilis.



**HEALTH LINE**—These citizens of Birmingham, Ala., are waiting their turn at one of the stations set up for blood tests in this venereal disease campaign.

"Willow Run" is the name they have given it because of the volume of work being done and the assembly line procedure.

Physically, the laboratory is not so large. But it is equipped and staffed to make 20,000 blood tests a day. At the start of the campaign, when only 5,000 tests were being done daily, the staff had finished work by 2 p.m. Working at a snail's pace, the skilled blood-testing teams can each do 3,200 tests a day. By the end of the second week of the campaign, 95,600 blood samples had been tested for syphilis.

The story of how the laboratory was created rivals the stories of the swift building of war production plants in the early days of the war. Jefferson County's health department has quarters in the old Hillman Hospital building, where formerly the county's charity patients were cared for. The only space available for the blood testing laboratory was a couple of dingy, dark and dirty basement rooms used to store pauper coffins.

No one believed it could be done, but within eight days these rooms had been transformed into a modern laboratory. Freshly painted white walls gleam under fluorescent lights. Rows of laboratory tables and sinks, centrifuges and drying ovens were installed. Shining glass partitions divide the rooms. A "flow sheet" tacked on the wall near the entrance adds to the "Willow Run" effect and efficiency.

If you want to know just what happens to that teaspoonful or so of blood taken from an arm vein, follow it along this unique assembly line as I did with

Joseph Portnoy, head of the blood-testing team loaned from the U. S. Marine Hospital at Staten Island, N. Y.

The blood samples arrive in small glass tubes, corked and labeled with a code number. They are uncorked and moved to centrifuges which can "spin down" 60 specimens at a time. The spinning down separates the red blood cells from the serum. Next stop on this assembly line is the "pour-off" table where a group of girls pour the clear serum into clean tubes. The code number labels are transferred at the same time.

Next the girls rack the tubes of serum in bright copper baskets and put these in a warm water bath for exactly 30 minutes. Alarm clocks in front of each water bath ring time on the procedure. Then the serums are ready for the test proper.

#### Sensitive and Quick

The one used here is the Mazzini microscopic flocculation test for syphilis. It was chosen from the many syphilis tests because it is both sensitive and quick. The teams of men who work on this job use glass slides about three-by-five inches in size. Each slide has 48 "cells," which are rings with paraffin walls. A special machine was devised to prepare the thousands of slides used here daily.

Into each ring the blood-tester puts a small, accurately measured amount of serum, placed in order according to the code number for each of the 48 bloods tested on each slide. He adds one single drop of a substance called antigen. The

glass slides are then rotated on a machine at 120 rotations per minute for four minutes. Great care is taken to make sure blood serum from one cell does not leak or jump into a neighboring cell.

After the rotation the slides are put under a microscope. Looking through the microscope you may see many tiny globules or particles. If these are bunched in clumps, the test is positive. If they are scattered, each lying by itself, the test is negative. When the result is doubtful, the test is repeated before the report is made. If the result is still doubtful, two more tests are made with fresh blood samples for each test. This is valuable for detecting syphilis in its early stages.

The very earliest stages of syphilis will not give a positive test, though the patient has the disease and can spread it to others. By the time the second or third sample of blood has been taken, however, the infection may have reached the stage where it will show in the blood test.

Then there is the problem of "dirty dishes" in the laboratory. After the tests have been made, tubes, slides and pipettes for measuring must be cleaned for the next day's work. This dish-washing also proceeds on an assembly line basis, since at least 20,000 tubes and 12,000 pipettes must be cleaned daily. Teams of men and girls work with brushes to get the blood clots out of the tubes and the clear serum poured out. Soak the



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## Do You Know?

*Blueberries* are imported into the United States from Newfoundland.

A new variety of malting *barley* has been developed in Quebec.

Under favorable conditions, *halibut* enjoy a life span of 50 years.

*Helicopters* are being considered for use in fighting forest fires in the near future.

*Cutworms* often attack transplanted plants the first night after they are set out.

*Popcorn* was grown, popped and eaten by American Indians before white men settled the country; it is an Indian gift to the white man's palate and diet.

*Plastics* have been known for about 75 years, from the time when Hiatt discovered that camphor and cellulose nitrate make a plastic closely resembling ivory.

White pine blister rust, a *fungus* that kills five-needled pines, lives alternately on sugar pine and currant and gooseberry plants; it is controlled by eradicating wild currant and gooseberry plants.

*Wilson's petrel*, a bird found on the Maine coast, can be distinguished in flight from the Leach's petrel because his yellow feet extend beyond his tail; the other has black feet which do not project in flight.

Rose-colored *blossoms* top many fence posts for barbed wire in Cuba; the posts are young trees, easily propagated, straight-growing, without side branches, but with shoots left at the top to help keep life in the saplings.

tubes in soap suds for five minutes is the rule. They are rinsed not once but 18 times in clean water.

Working at six sinks, cleaning teams can wash 6,000 tubes every 15 minutes. The glass slides are soaked in alkali and rubbed with a window-polishing powder to remove paraffin, oil and other soil. Girls dry these slides with towels, being careful to handle them by their edges to avoid finger smudges that would interfere with the test. The blood tubes and pipettes are oven-dried because this is faster and better.

It looks like voting day at the blood collecting stations.

These are set up in a church or some other convenient neighborhood building. From early morning till about seven in the evening, men and women, and girls and boys over 14 years, line up before a team of clerks who take their names, addresses, phone numbers and ages, and give each person a card and a glass tube numbered to correspond with the number on the white card.

Instead of going to a voting booth, each person goes to a table where a nurse takes blood from an arm vein. The blood goes to the laboratory for testing. Its owner keeps the card and signs it. It certifies that he or she has "submitted blood for a blood test as required by Act 529, General Acts of Alabama, 1943."

Pink slips are made out in duplicate by the clerks. These have the same name-address-age information as the card, and the same number as the card and the tube of blood. They go to the huge tabulating center at the fair grounds. Here they are checked first with OPA records on ration book number three, to make sure that no one is missed in the blood testing. In case a person is ill and cannot go to a blood collecting station, his physician is responsible for getting the blood sample to the health department.

### Records Checked

Next the records are checked with health department records of persons already known to be under treatment for syphilis. These can be discarded. Within 48 hours, usually, the code-numbered laboratory reports on the blood tests arrive at the tabulating center. When the test is negative, the record is dropped. Persons who do not hear from the health department within 72 hours may be sure that the report on their blood was negative. They do not have syphilis unless it is in such an early stage, shortly after infection, that it would not show on a blood test.

When the positive reports have been

correlated with pink slips showing name and address, the teams of investigators swing into action. These men and women, specially trained for the work, see each person who had a positive or doubtful blood test and explain that a second test and examination by a physician is necessary.

Such persons report to secondary collecting stations. To these stations also come any who suspect they have gonorrhea. The blood test for syphilis does not detect gonorrhea infection. The examination for that is made at the same time as the examination for syphilis and the taking of the second blood sample.

The four-hour, free-penicillin treatment for gonorrhea can be given at these stations which are in health department clinics, or the patients can go to their doctor's office. At the clinic, the treatment is given by couples, because if the husband has gonorrhea, the wife is also likely to have it. If there is a triangle situation, the other man or woman is sent for to have treatment on the same day—though at different hours. The penicillin is injected into the muscles, one dose every two hours for three doses.

There are three rapid treatment centers for syphilis, the largest in buildings taken over from the Army near the Air Base. Sleeping quarters, cafeteria and other arrangements are very much GI. The other center I saw seemed more like a summer camp with even a swimming pool, and I learned it had been a girl's reformatory.

Men and women are segregated at all centers. Recreational facilities are provided, church services are held and the food is good, if plain. Educational posters and pamphlets on venereal diseases are plentiful.

At these centers, patients get injections of penicillin every three hours, day and night, for nine days. In addition, they get an injection of an arsenical drug every other day and of bismuth on the

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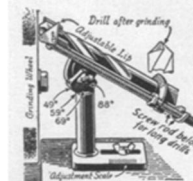
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first, fifth and ninth days. A careful physical examination, including a spinal fluid test, is made when the patients enter the hospital.

The aim of this venereal disease campaign is to stop the spread of syphilis and gonorrhea by finding every infectious case and treating it to eradicate the infection. Late cases of syphilis which are non-infectious are not treated. How much of the venereal disease reservoir can be dried up by this mass attack will not be known until after the final tests are run.

Hundreds of thousands of men, women, boys and girls are being brought face to face, every day, on the streets, cars and buses, with the fact that syphilis and gonorrhea are crippling diseases. They are hearing it every 30 minutes on their radios. They are learning first-hand about the blood test for syphilis. Thousands of them are learning for the first time what these diseases are, the symptoms and effects, how they are caught and how quickly they can be treated and even cured in many cases. The hope is that this knowledge will arm them to some extent against future attacks of venereal disease.

*Science News Letter, June 23, 1945*

#### ENGINEERING

### Light-Weight Concrete Is Termite-Proof, Cheap

► LIGHT-WEIGHT concrete material suitable for building construction, that is fire resistant, insulates against heat and cold, is non-rotting and termite-proof, and cheap to make, has been subjected to laboratory tests during the past year at the University of Michigan and found particularly satisfactory for farm structures where the raw materials are easily obtained. It is made from ordinary portland cement, organic and inorganic fibers, and a small quantity of certain inexpensive chemicals.

The cement in the mixture is the binder; the fibers, obtained from farm wastes, contribute the lightness and bulk, and the insulation properties; the chemicals lessen the amount of cement required, prevent harmful shrinking, and increase the strength. For fiber material, peanut hulls, cotton stalks, rice and wheat straw, cornstalks, flax shives and sawdust can be used. Among the best fibers are materials obtained from the northern jack pine, and winter-cut popple or aspen. Processing these woods is a simple grinding operation.

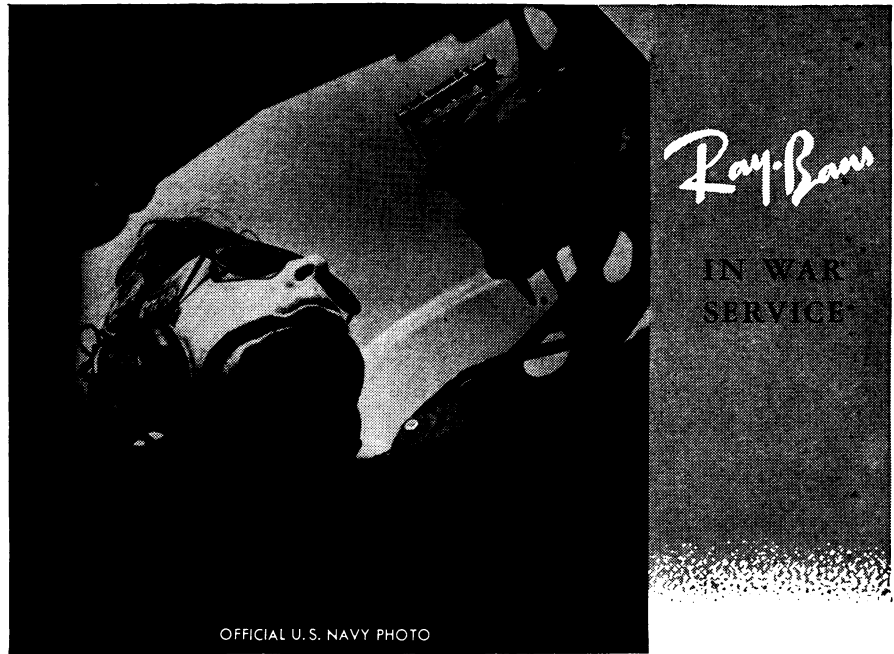
One of the disadvantages of this so-

called insulative concrete is that the fibers require special preparation to remove harmful juices. The juices in ordinary farm wastes, such as straw and cornstalks, usually contain substances that are harmful to the set of the cement. It is not difficult to remove them, but the special treatment requires a certain amount of time.

Proper mixing is also important. Ex-

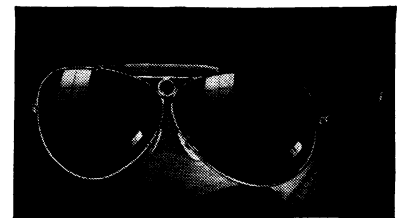
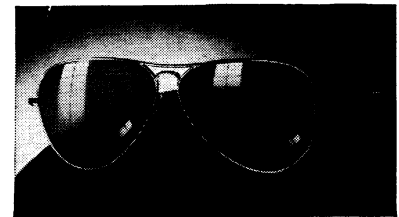
isting concrete mixers are made to mix heavy ingredients and are not entirely suitable for mixing this bulky light-weight material. They can be used, however, by using slightly more water than is ordinarily considered desirable in cement-mixing to obtain the best results.

The insulative concretes vary in weight from one-third to one-half that of ordinary gravel concrete, depending upon the



### Spotting the Enemy with RAY-BANS

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