

lapse rate at first was about one-fourth that of the combined fever and chemical group. A number of severe reactions, however, made it necessary to modify this treatment also. The interval since has been too short to allow any conclusion about the 280 treated by the modified method.

Chief advantage of the new methods of treatment is that, with few exceptions, the patients complete the course of treatment. Under the old scheme of syphilis treatment, requiring weekly visits to doctor or clinic for 18 months, many patients failed to finish the course. They not only were not cured themselves but continued to be dangerous to others.

Gonorrhea as well as syphilis is treated at the Center, sulfathiazole, with fever treatment when necessary, being used.

The Chicago Intensive Treatment Center is operated under grants from the Federal Works Agency, the U. S. Public Health Service, the State of Illinois and the Chicago City Council. This report of its first year of operation is made by Dr. Herman N. Bundesen, president of the Chicago Board of Health; Dr. Theodore J. Bauer, U. S. Public Health Service, venereal disease control officer for Chicago; Dr. H. Worley Kendell, U. S. Public Health Service, director of the Center and one of the originators of the one-day, combined fever and chemical treatment of syphilis; and Dr. R. M. Craig, Dr. G. X. Schwemlein, E. C. Sittler, Dr. M. F. Steves, Dr. E. A. Strakosch, Dr. A. A. Rodriguez, Dr. N. D. Shaw, Dr. Jack Rodriguez, and Dr. H. C. S. Aron.

*Science News Letter, December 4, 1943*

## PUBLIC HEALTH

## Directional Finder Shows Where Mosquitoes Breed

➤ A DIRECTIONAL finder for mosquito flights that can help locate where these possible disease carriers are breeding was reported by Lt. (jg) William M. Gordon, USNR, and 2nd Lt. Eugene J. Gerberg, U. S. Army, formerly assistant entomologist with the U. S. Public Health Service, to the National Malaria Society meeting in Cincinnati.

It consists of a mosquito barrier trap, made of four wire screens coated with Tree Tanglefoot, a non-drying varnish, and looks something like a weather vane. The screens are mounted at 90 degree angles to each other, giving two screen surfaces facing each wind direction and forming a barrier plane.

"If mosquitoes were taken only on the southeast side of the southwest screen and on the southwest side of the southeast screen," it was explained, "the mosquitoes must have come from a true south direction. If the prevailing winds happened to have been from the north, we could assume that mosquitoes were breeding south of the trap and were bucking the wind."

The trap does not necessarily serve as a weather vane but instead indicates flight direction, regardless of prevailing winds. Comparative tests showed these traps are as effective as electric mosquito traps.

*Science News Letter, December 4, 1943*

## NUTRITION

## New Link For Diet and Disease Resistance Found

➤ A NEW link between diet and resistance to infection appears in studies reported by Dr. C. A. Mills and Dr. Esther Cottingham, of the University of Cincinnati College of Medicine, at the meeting of the American Society of Tropical Medicine in Cincinnati.

When mice, rats and guinea pigs were starved of vitamins to the point where they failed to grow properly, the activity of their phagocyte cells was likewise reduced, these scientists found. Phagocyte cells play an important part in fighting off infection because of their ability to gobble up disease germs.

The reduction in phagocytic activity was found when the animals were on diets deficient in the following vitamins: thiamin, or B<sub>1</sub>; riboflavin, pyridoxine, pantothenic acid and choline, also members of the vitamin B family; and vita-

## CONSERVATION

# Shortages Cause Research

Lack of sufficient fuel in Great Britain has brought about an intensive conservation program. Gasoline manufacture from coal is increasing.

➤ FUEL SHORTAGES in Great Britain, in wood, coal, oil and gasoline, are directly responsible for an intensive fuel conservation program put into operation early in the war, and also for the establishment of scientific research projects covering both the conservation of fuel and the development of special fuels from English coal. These measures were discussed at the meeting of the American Society of Mechanical Engineers in New York City by W. C. Schroeder of the U. S. Bureau of Mines.

Conservation is being carried out through education and rationing, he stated. The gasoline rationing that the American public endures is mild compared with that in Great Britain. All pleasure driving is banned. Gasoline can be obtained only to go to work in essential industries and where no public transportation is available. Industrial users of coal are cut by nearly 8% of their normal amounts. Home owners are expected to maintain in their houses a temperature not over 60 degrees, and to avoid all waste of heat, water and electricity.

Research projects are those of immediate importance that can be solved quickly, he said. They include the development of producer-gas from coal to propel automobiles, trucks and buses; an efficient mixture of powdered coal

and oil for factory furnaces, and the conversion of coal to oil and gasoline.

Because of the lack of forests, wood or charcoal cannot be used extensively in England for producer-gas as they are in Germany and other countries. Anthracite and high-temperature coke are now yielding a satisfactory gas in Great Britain as a result of recent research. The coke-gas has greater activity when sprayed before using with a sodium carbonate solution.

Colloidal oil, made of a mixture of coal and oil, has been in use in England since World War I, but is more widely used now, perhaps because of better mixtures resulting from recent research. Experimentation in the conversion of coal to oil and gasoline did not start in England as early as in Germany, where research work started in 1913. About 1930, an English chemical company became interested, constructed a plant, and has been in commercial operation since 1935.

"Governmental and scientific circles in Great Britain are now fully awakened to the importance of these processes for making liquid fuels from coal," Mr. Schroeder declared. "It is to be hoped that this same realization of the potentialities inherent in these developments will arise in the United States."

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min C. Two other B vitamins, inositol and para-aminobenzoic acid, were without effect but lack of vitamins A and D combined seemed to reduce the phagocytic activity.

A relation between diet, particularly its vitamin content, and resistance to infection has long been suspected. The Cincinnati investigators point out that past evidence shows this is not a matter of vitamin deficiency affecting directly the resistance given by another class of

the body's germ-fighters, the antibodies. These substances are more specific in their germ-fighting activity than the phagocytes and are responsible for the kind of disease resistance obtained from vaccines.

The discovery of reduced phagocyte activity resulting from vitamin deficiency may, the doctors suggested, give a valuable means for detecting slight degrees of vitamin starvation.

*Science News Letter, December 4, 1943*

#### NUTRITION

## Soldiers Need Vitamin C

► SOLDIERS preparing for battle or actually in combat need plenty of vitamin C to help them withstand the shock of any injuries they may receive, if results of laboratory studies on guinea pigs can be transferred to man, Dr. A. Wilbur Duryee, of New York Post-Graduate Medical School, Columbia University, reported at the meeting of the American Therapeutic Society.

Guinea pigs on a diet lacking vitamin C, the citrus fruit-tomato vitamin that prevents scurvy, succumbed more readily to shock from injury than animals getting plenty of the vitamin, he and his associates, Miss Ellen McDevitt and Dr. Bertrand E. Lowenstein, found.

Giving the animals doses of vitamin C immediately after injury did not pre-

vent their dying from shock, but those already getting plenty of vitamin C in their diet were helped by the extra vitamin dosage after the injury to survive four times as long, even though they eventually succumbed, as the vitamin-starved animals similarly treated.

Guinea pigs on diets furnishing plenty of vitamin C, the Columbia scientists also found, become considerably more resistant to injury when repeated every other day. Vitamin C-starved guinea pigs, on the other hand, cannot be conditioned to injury in that way.

Vitamin C, the scientists suggest as a result of their studies, might well be added to blood plasma at the time this is given to treat shock.

*Science News Letter, December 4, 1943*

#### MEDICINE

## Aluminum for Silicosis

Treatment, pioneered by Canadian scientists, helped keep a miner from having to stop working. His improvement is due largely to psychological effect.

► THE STORY of how aluminum treatment for silicosis, pioneered by Canadian scientists, helped to keep a shift boss in an American mine from having to quit work and lose his chances of promotion was told in a report by Dr. L. U. Gardner and Dr. George Wright, of the Saranac, N.Y., Laboratory at the meeting of the Industrial Hygiene Foundation in Pittsburgh.

This 35-year-old miner suffered from a progressive type of silicosis due, the scientists believe, to excessive exposure in early life. He also seemed to be one of those persons unusually prone to develop silicosis because of poor upper respiratory protection.

For over a year he was concerned over his shortness of breath. He could not, because of the distance, go to the field laboratory where other miners were inhaling metallic aluminum powder for silicosis, prescribed by the Porcupine Clinic in Canada, so he was given a small quantity of powdered alpha monohydrate of aluminum which he inhaled from a simple apparatus consisting of two bottles, an atomizer bulb and a valved mouthpiece.

This seemed to help him as much as the metallic aluminum powder was helping the other miners. Tests after 50 daily treatments, and again after about 50 more, however, showed no essential dif-

ference in his performances at rest and during exercise.

The fact that he felt so much better is due, the scientists believe, to psychological effect. His actual disability has not been decreased materially, but the exaggeration of it by his worry has been overcome. The treatment will be continued not only because of this psychological help but, more important, because the treatment should keep his silicosis from getting worse.

This checking of the disease, in the opinion of Dr. Gardner and Dr. Wright, is the most important use for aluminum treatment.

"We feel certain that it will prevent the development of silicosis and even cause retrogression of incipient disease," they stated. "It has a real place in protecting persons like this man who face ultimate permanent disability whether they quit their jobs or continue to work where they are best qualified. His mine is under good industrial hygienic control but there is still some silica in the air. 'Susceptible' as he apparently is, added exposure may hasten his total incapacitation. Aluminum should neutralize any quartz that he inhales in the future and hold his disease at its present level."

*Science News Letter, December 4, 1943*

#### ENGINEERING

## Mirrors Make Industry Safer, Products More Perfect

► "IT'S DONE with mirrors," explains the latest electronic magic which promises to make many industrial jobs safer, products more efficiently inspected.

The new device, called a "wide-angle photo-electric scanner" by its inventor, E. B. McDowell of General Electric's electronic division, was demonstrated to science writers at a press conference on industrial electronics in Schenectady.

Advantages over present methods claimed for the scanner are: 1. simpler, 2. more compact, 3. more efficient. Here is how the laboratory model worked:

A four-sided area is lighted along two sides by ordinary light. On a third side whirls a four-faced pyramid of mirrors a few inches high. This picks up the light blanketing the area, and reflects it to an adjacent light-sensitive cell which is essentially an electronic emission tube.

Should an object as small as a man's finger enter the lighted area for even a two-hundredth of a second, the electronic eye will detect its fleeting shadow. Thus its application as an industrial safety