

When no other cause for the symptoms can be discovered, both patient and doctor are likely to blame them on the low blood pressure.

Many a person with low blood pressure, however, is "in good physical trim" and "robust health." The well-trained athlete is a typical example of a person with low blood pressure who has no symptoms or complaints, Dr. Durant points out in a report to the Medical Society of the State of Pennsylvania.

The nervous, tired low blood pressure patient is also generally underweight and leads a sedentary life, taking very little exercise.

In most cases these patients can be relieved of their headaches, nervousness, cold hands and feet and tired feeling by "faithfully indulged-in graduated exercises and dietary measures to correct the weight deficiency," Dr. Durant declares.

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#### INVENTION

### Cultivate Germs to Combat Harmful Japanese Beetles

► THE JAPANESE beetle and similar insect enemies are likely to have a bad time of it in the future. Two deadly micro-organisms which attack the larvae of these insects, producing milky disease, can be cultivated, rapidly multiplied and preserved by a method described in U. S. patent 2,293,890, issued to Samson R. Dutky of Moorestown, N. J.

The inventor has assigned the right to manufacture and use his invention to the United States government without payment of royalties.

The two micro-organisms that cause milky fever were described by the inventor in 1940 and named by him *Bacillus popilliae* and *Bacillus lentimorbus*. They are found in the blood of larvae having the disease. The blood is extracted and dried, in which condition the spores of the bacteria will remain alive and virulent, the inventor says, for at least four years.

To multiple the supply, the spores are separated from the dried blood by delicate processes and injected into the blood of healthy larvae which are then put into an incubator. In 10 to 12 days, the inventor states, the spores injected are multiplied 1,000-fold.

In this way a plentiful supply can be obtained and preserved against future invasions of the Japanese beetle and his like.

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#### MEDICINE

## Combating Syphilis

**Ten-hour syphilis treatment tried experimentally. But six-week treatment available in 50 clinics is considered promising to replace standard 18-month schedule.**

► A TEN HOUR treatment for syphilis, major disease of war and peace, is being tried experimentally on a few patients in the early stages of the disease. Both arsenicals and artificial fever are used in this one-day treatment.

Now in practical use in over 50 clinics, including government hospitals, are six to ten-week treatments given thousands of patients.

These are promising improvements over the old standard treatments. Eighteen long months was the time needed to cure this venereal disease until medicine's new offensive achieved these new results.

Authorized details of the one-day syphilis treatment practiced by Dr. Walter M. Simpson, Dr. H. Worley Kendall and Dr. Donald L. Rose of Dayton, Ohio, may now be given with the cooperation of the U. S. Public Health Service which is publishing the scientific paper in its technical publication, Venereal Disease Information.

Ehrlich's "magic bullet," arsenic, in the form of Mapharsen, is combined with 106-degree man-induced fever in the Dayton treatment. That is the trick of the speedy action allowing, if the first few successes are continued, one day of treatment to do as much as 540 days have done in the past.

Premature and over-enthusiastic disclosure of the experimental work caused the scientists and the U. S. Public Health Service to release details at this time. The patient is given a preliminary dose of bismuth, long a part of standard treatments for syphilis. After injection into his muscles of four grains of bismuth subsalicylate, he is put into the fever cabinet early in the morning. As soon as the heat of the cabinet has raised his temperature to 106 degrees Fahrenheit, he is given his first hypodermic injection of Mapharsen. Three more injections of this drug are given at the end of the third, sixth and ninth hours of fever. Total amount of the arsenical given the first patients varied from 120 to 240 milligrams. After the tenth hour of fever, the treatment is finished, though the patient is kept in the hospital for a few days for observation and tests.

The Dayton research team do not claim a one-day cure for syphilis. In fact, they do not even announce the development of a new method for treating syphilis in one day. Instead of any such claim, they specifically state:

"It should be emphasized that it is not the purpose of this communication to present a new method of therapy. The number of patients is small and insufficient time has elapsed following the administration of the therapy to permit adequate clinical evaluation of the method employed."

Their aim, they state, is to present experimental data on the value of quantitative rather than merely qualitative tests for syphilis under various methods of treatment. Qualitative tests, they point out, are "yes" or "no" tests. They show either that a patient has syphilis or that he has not got it.

Quantitative tests, devised by Dr. Reuben L. Kahn, of the University of Michigan, show not only whether the patient has syphilis but also whether he is getting better as a result of treatment. These tests, the Dayton scientists state, showed that after the intensive one-day treatment their patients were getting better, whereas the standard qualitative tests would for some time have continued to show a blunt "syphilis positive" and would have led to the assumption that the treatment was without value.

The U. S. Public Health Service, although it is publishing the scientific account of the one-day treatment, does not recommend it for general use. It is watching this and all other speedy methods of treating syphilis with interest, but takes the position that it is too soon to state whether one or the other is the final answer.

The Public Health Service, however, has recommended as standard procedure in all U. S. Marine Hospitals the six-weeks treatment procedure devised by Dr. Harry Eagle and Dr. Ralph B. Hogan, of the U. S. Public Health Service and the Johns Hopkins Medical School. And since the Army and Navy are alert to put into practice all advances in medicine, it would be logical to assume that the shorter treatment proce-

dures will also go into use in Army and Navy hospitals.

Adoption of a short-time syphilis treatment program by the Marine Hospital at New Orleans, according to a story current in New York City, has already led to a great demand among sailors of the merchant marine for a berth on ships bound for New Orleans where, if they had syphilis, they could get treated for it in the shortest possible safe time.

On the six weeks treatment schedule at this and other Marine Hospitals, the patients are given hypodermic injections of 60 milligrams of Mapharsen three times a week for six weeks. Some of them may also be getting weekly injections of bismuth.

The schedule of treatment may be varied to suit the convenience of the patient and the doctor, from twice daily injections of smaller doses of Mapharsen (20 milligrams) for four to eight weeks through various combinations up to three weekly injections for five to ten weeks. Compressing the treatment to less than six weeks in general practice, Dr. Hogan warns, may be dangerous.

First of the speedy syphilis treatment schedules was the five-day drip method inaugurated by Dr. George Baehr, Dr. William Leifer, Dr. Louis Chargin, Dr. H. T. Hyman and associates of New York. With this method the arsenical drug is dropped into the patient's vein, drop by drop, all day long for five days. The treatment is discontinued at night and started again in the morning. Hundreds of patients have now been treated by this method and many of them cured, but the treatment is "many times more dangerous than standard clinic practice," requires the attention of expert doctors and nurses and may only be given to carefully selected patients.

The six-weeks treatment, representing a happy medium between the dangerous five-day drip and the safe, sure but tedious and costly 18 months standard treatment was worked out by Dr. Eagle and Dr. Hogan after experiments with rabbits. The total dose of arsenical drug needed to cure which can safely be given, they found, increases directly with the time over which it is given. The total amount needed to cure syphilis, however, varies slightly with the frequency of doses and length of time over which they are given. The 18 months schedule, it turned out, was safe and sure but wholly arbitrary.

Six weeks of treatment seems, from the early reports, to be as safe as the traditional 18 months. It is too early

to say whether it is as effective. A few relapses have been reported, but no more than on the 18 months treatment. The six-weeks treatment has the further advantage over the five-day treatment of being suitable for any patient, and is now being given to those with latent syphilis as well as those in the early stages of the disease.

Further experiments with the one-day treatment, with the hope of showing among other things why 10 hours of fever can overcome the disease in even a few patients treated with relatively small amounts of the arsenical, are being carried on at Dayton by Dr. Kendall, Dr. Simpson and Dr. Rose are now serving with the armed forces.

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#### ZOOLOGY

### Mountain Goats Shift Their Home to Black Hills

➤ LIGHT-FOOTED Rocky Mountain goats, found only in the United States and formerly confined to Washington, Idaho and Montana, are now living wild in the Black Hills of South Dakota, it is reported by the Forest Service.

Their new home is entirely accidental. When several of the shaggy game animals were brought to South Dakota for exhibition, two escaped into the hills. Although in a different environment, the fugitive goats have now multiplied to about 25 head.

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#### ENGINEERING

## Steam Does Double Duty

➤ BY MAKING steam do two jobs instead of one in the new synthetic rubber plants, electric power will be created, enough not only to run the entire plant and neighboring works, but with some to spare which will be added to the regular public utility lines to help supply other war industries.

This is reported by F. H. Stohr of the Westinghouse Electric & Manufacturing Company, which is making the turbine generators for this purpose.

Steam is plentiful about plants making butadiene and styrene for Buna S rubber, for it is needed in the chemical processes. By passing it first through a turbine and then through the chemical vats, all the necessary chemical work is done and a large amount of power is created as a "by-product," Mr. Stohr



*SINGLE-CYLINDER TEST stands are being used at Wright Aeronautical Corporation to speed production of new engines by testing designs in valves, pistons, spark plugs and other parts of the cylinder. Solid plates cover the other cylinder openings in the crankcase. Design features worked out on one cylinder can be applied effectively to a complete engine. This saves time and releases full-sized test cells for use on completed engines ready for installation in planes.*

said. This power is in excess of the plant's needs, so that instead of taking precious power from the public utility lines, the plants will actually deliver power to them.

Three generators are now being built, one of 35,000 kilowatts, and two of 40,000 kilowatts. They take steam at 750 to 850 pounds per square inch and deliver it to the chemical line at 175 pounds.

These generators, and others to be built, will be installed in the first four large synthetic rubber plants in this country, scheduled for completion in 1943, Mr. Stohr continued. Output of all the Buna S plants at the end of 1943 is expected to be at the rate of 360,000 tons a year, and to approach the 1,000,000 ton-a-year rate in 1944.

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