

MEDICINE

# Typhus Control Praised

Checking of the epidemic in Naples is called one of the most outstanding achievements of modern preventive medicine; DDT and vaccine chiefly responsible.

► THE CONTROL of the typhus fever epidemic in Naples early this year "is regarded as one of the most outstanding achievements of modern preventive medicine," Brig. Gen. Stanhope Bayne-Jones, deputy chief of the preventive medicine service in the Office of the Surgeon General, U. S. Army, and director of the United States of America Typhus Commission, declared at the meeting of the National Academy of Sciences.

"At devastated Naples in 1943," he related, "typhus began to spread in an environment that contained all the elements which from ancient times have favored typhus, namely, war, undernourishment, crowding, disorganized services, lack of the means for keeping

clean, and a non-immune population with a high degree of infestation with lice.

"In this setting the ancient pestilence associated with war and human misery was attacked successfully by new weapons which were largely the product of wartime research and by militarized preventive medicine."

The new weapons were the vaccine used by U. S. Forces, new insecticides, chiefly DDT, and new methods of applying DDT powder to destroy lice.

The vaccine is a suspension of killed typhus fever germs which had been cultivated in the yolk sac of embryonated chicken eggs.

"The U. S. Army experience with this vaccine and field studies carried out by the U. S. Public Health Service and the U. S. A. Typhus Commission clearly show," Gen. Bayne-Jones stated, "that proper administration of this vaccine probably protects against infection, greatly modifies and ameliorates the disease if and when it occurs in a vaccinated person and appears to prevent death from typhus.

"There have been fewer than 50 cases of louse-borne typhus in American soldiers vaccinated against typhus and no deaths. A similar, but not identical result has come from studies of the efficacy of the vaccine in civilians in certain countries abroad."

DDT in the form of 10% powder in porophylite kills lice in from two to six hours. While it does not kill louse eggs, it persists in clothing and kills the young insects as soon as they emerge from the hatched eggs. It persists as an insecticide for at least a month and can be dusted into clothing by hand- or power-driven dusters. Persons can be deloused with their clothes on, making unnecessary the cumbersome establishments for undressing and dressing, bathing and steam sterilization of clothing familiar to veterans of the last war. Thousands can be deloused by a few persons and in the same time and with far less effort than a few hundreds could have been before the discovery of the properties of DDT and how to use it.

About 40 cases of typhus a day were

developing in Naples among civilians near the peak of the epidemic, with a death rate varying from 4% to 54%, depending on the age of the patients. Up to the end of May, 1944, there had been approximately 2,000 cases in the civilian population, but at most two cases in military personnel.

The epidemic phase was definitely over within a month after thorough operation of modern control methods, Gen. Bayne-Jones reported. The control program consisted of seven main divisions. Of these the essential starting point and guide was finding of cases and isolating them in their homes or hospitals under a "protective sprinkling" of DDT louse powder to cut off infection at the source. Delousing of intimate and remote contacts of patients both in buildings and air raid shelters seems, according to the charts of the epidemic, to have turned the tide, although mass delousing was later done, as was immunization with typhus vaccine of a few thousand essential civilian personnel.

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## Shock Treatment Revision

► THE TREATMENT of shock in the burned and wounded will undergo "some radical revision" when scientists have learned more about the fundamental mechanisms involved, Dr. C. N. H. Long, of Yale University, predicted at the meeting.

At present it is far easier to prevent than to treat shock, Dr. Long pointed out. The plasma or whole blood transfusions which the layman thinks of as treatment for shock are really preventive measures, he explained. They are given to prevent shock and the damage associated with it from becoming irreversible and fatal.

One of the most important features of shock is that it is associated with a marked reduction in circulating blood, he said. This may occur either through bleeding from severed blood vessels or through "white hemorrhage" of plasma into the tissues after burns or injuries. When the circulating blood volume is reduced in these ways, the amount of oxygen reaching the tissues per unit of time is also reduced.

The time angle is important, Dr. Long stressed. Some tissues, such as muscles, can get along without oxygen for longer periods than others. But while the microscopic cells of the body are struggling along with a depleted oxygen supply, they are undergoing such damage that



**"LIQUID LIGHT"**—Is being applied to these 100-watt fluorescent lamps at the Fairmont Works of the Westinghouse Lamp Division by an automatic machine which coats, drains and heat-dries in one operation. Previously each step was done separately. From the tank in the foreground, the phosphor mix, from which the liquid is made, is forced through three tubes at a time. By varying the proportions of phosphors, eight different colors, ranging from daylight to pastel red, can be produced.