

## BIOCHEMISTRY

# Nerve War Gas Tried

Chemical killer equal to A-bomb as a military weapon tested on human guinea pigs, doctors reveals. If poisoning is caught quickly enough, atropine injections aid recovery.

► HUMAN VOLUNTEERS have now gotten, in small doses, a chemical killer that may equal the atom bomb as a military weapon.

Who the volunteers are, whether soldiers, doctors, medical students or other persons, is being kept secret by security regulations.

The chemical itself does not even have a name that can be told. It was called just "nerve gas" by Dr. A. McGehee Harvey when he reported to the American College of Physicians meeting in Atlantic City, N. J., results of the tests on volunteers which he and his associate, Dr. David Grob, of Johns Hopkins School of Medicine, Baltimore, made under contract with the Army Chemical Corps Medical Laboratories.

The nerve gases are, chemically, "organic esters of phosphoric acid derivatives." Some chemicals of this general group have been widely used as insecticides. These are known as parathion, TEPP and HETP.

The nerve gases are "among the most potent of the known chemical warfare agents," and are also "the most adaptable to long range attack, as upon civilian populations," Dr. Harvey pointed out to the meeting.

Most of them were made by the Germans before and during World War II, and some of the German installations for production and study of nerve gases are in the eastern zone of Germany.

One of the more poisonous of the group is the "nerve gas" Drs. Harvey and Grob studied. Like the others, it is colorless, tasteless and without distinctive odor.

The volunteers all recovered completely from the moderate "nerve gas" poisoning they suffered as a result of small doses. When recovery from severe poisoning by the related, less poisonous chemical, parathion, took place, it also was complete.

The volunteers suffered symptoms ranging from slight eye pain, dimness of vision and headache to muscle cramps and general weakness of muscles, including the breathing muscles, giddiness, insomnia, nightmares, difficulty in concentrating and confusion.

Symptoms may start within a few minutes after exposure. Mild symptoms may last a few hours. Moderately severe ones may not reach their height for four to eight hours and usually grow less over a period of one to six days.

How long a man can live after exposure to "nerve gas" is not known. In accidental deaths from the less poisonous parathion, the average survival time after exposure was 10 and one-half hours. In some cases it was only one hour.

During the short time between exposure and death, doctors can do something. They can inject atropine, into the muscles for mild or moderate symptoms, into the veins and in larger doses for severe symptoms. For prolonged convulsions, the epilepsy drug trimethadione or a barbiturate or ether may help. For breathing difficulty or arrest, artificial respiration must be given at once and may be needed continuously for hours. Smoking should be avoided until the symptoms have subsided.

Atropine should not be given as a preventive before possible exposure because it may increase absorption of "nerve gas" through the lungs.

Persons once exposed to "nerve gas" are more susceptible to further exposure for several weeks.

A simple chemical test of the blood plasma and the red blood cells can be used to detect "nerve gas" poisoning in persons who may have been exposed and who have not developed enough symptoms for positive diagnosis. This test was developed by Dr. H. O. Michel of the Army Chemical Center, Edgewood, Md., and is now being used in factories making the related parathion and other insecticides.

The recommendations for diagnosis, treatment, and prevention through gas masks and protective clothing are based largely on experience in treating the moderate "nerve gas" symptoms in the volunteers and severe poisoning in accidental exposure to parathion.

The work reported by Dr. Harvey was released by security officers for presentation.

Science News Letter, April 25, 1953

## MEDICINE

## Heart Arteries Blocked Oftener, Earlier in Men

► A SEX difference in hearts and arteries was reported by Dr. Arthur M. Master of New York at the meeting of the American Heart Association in Atlantic City, N. J.

The heart arteries get blocked much oftener in men than women, and at an earlier age. But high blood pressure is "not very important" in the development of this condition in men, although it is a very significant factor in development of the heart artery blockage in women.

"This observation," Dr. Master said, "differs from that of any reported studies on the relationship of increased blood pressure to the onset of coronary occlusion (heart artery blockage)."

Science News Letter, April 25, 1953

## Questions

ENTOMOLOGY—What does the Japanese beetle's appetite cost this nation yearly? p. 269.

• • •

GENERAL SCIENCE—What are some of the earmarks of research scientists? p. 261.

Why is scientific Washington in a turmoil? p. 263.

• • •

MEDICINE—How have blood types and cancer been found related? p. 265.

• • •

NUTRITION—What is advantage of three glasses of milk per day for children? p. 260.

• • •

PSYCHIATRY—How can a recording machine help speed psychiatric interviewing? p. 260.

• • •

PUBLIC HEALTH—What may sniffles in spring signify? p. 265.

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## TECHNOLOGY

## Huge Sphere Will House Atomic Sub Power Plant

See Front Cover

► THE LARGE opening, resembling an eye, shown on the cover of this week's SCIENCE NEWS LETTER, is for an air-tight entrance lock into the gigantic steel sphere that will house an atomic power plant for submarines.

It is being built by the Knolls Atomic Power Laboratory, operated by the General Electric Company for the Atomic Energy Commission. The opening for another lock can be seen in the opposite wall of the structure. Rising in the middle of the sphere is the base of a 400-foot tower, used for erecting the huge, inch-thick steel plates that comprise the sphere.

Science News Letter, April 25, 1953

## YOUR HAIR

Its Health, Beauty and Growth

By Herman Goodman, M.D.

A medical specialist tells you what to do to save and beautify your hair, stimulate healthier hair growth, and deal with many problems, as: **Dandruff—gray hair—thinning hair—care of the scalp—baldness—abnormal types of hair—excessive oiliness—brittle dryness—hair falling out—infection—parasites—hair hygiene—glands—diet—coloring—and myriad other subjects concerning hair.**

"Discusses the many problems of hair retention, regrowth and removal."—Science News Letter.

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