

## ENTOMOLOGY

# Nerve Gases Vs. Insects

The only defense against parathion is a gas mask. This insect killer belongs to a family of chemicals commonly known as the nerve gases.

► WITH parathion, an insect killer now being used on U. S. fields and orchards, men on the big spray rigs have only two choices: Wear a gas mask or die.

There is good reason for the bold-face, urgent warning carried on each drum of this compound and of other new chemicals widely available to American farmers.

For while military authorities have kept "Top Secret" stamped across a weapon developed by Germany in World War II, that same weapon has been in use in this country for at least two years against insect pests. The weapon is a family of chemicals with an ominous nickname—the nerve gases.

Some of the effects of parathion on warm-blooded animals, and that includes man, were described recently by witnesses at a Food and Drug Administration hearing.

Now in their seventh month, the hearings are part of an extensive study by the Food and Drug Administration of crop control chemicals used on today's truck farms and orchards.

Since January, more than 5,000 pages of testimony and over 1,000 exhibits have been presented. All of the early testimony was limited to proving one already well-established premise: Chemicals are vital to modern farming; without them, fruit and vegetable growers would fight a losing battle.

The most important question, however—how toxic are these chemicals to man—is now being covered with testimony on such potent insecticides, weed killers, and fungicides as parathion.

Inhale too much parathion or absorb too much through your skin. In quick succession your muscles begin to twitch, you find it hard to breathe, your nose and mouth begin to water. Then come gasping, diarrhea, convulsions, unconsciousness and death.

This has happened to more than a dozen farm workers and chemical packers in the last two years, Dr. John P. Frawley of the Food and Drug Administration told Science Service. Seven men died last year from parathion poisoning. Several have already died this farming season.

Even more toxic than parathion are two other insecticides still to be taken up in the protracted Federal hearings on allowable residues of chemicals used on U. S. fruits and vegetables. These are TEPP and HETP, or in full chemical designation, tetraethyl pyrophosphate and hexaethyl tetraphosphate.

Gas masks are essential in handling

these chemicals, members of a deadly family called the organic phosphates. Rubber gloves, boots, hat and raincoat are advised, for the poisons can be absorbed easily through the skin.

Why use these dangerous substances at all? Because they are among the most effective insecticides yet developed. Fruits and vegetables on which parathion can be used to cut down insect losses include apples, pears, plums, peaches, beans, beets, cabbage, carrots, corn, onions, peas, potatoes and tomatoes.

Parathion kills mites, moths, aphids, the Mexican bean beetle, armyworm, corn borer, corn earworm, thrips, Colorado potato beetle, red spider, grasshoppers and the Japanese beetle.

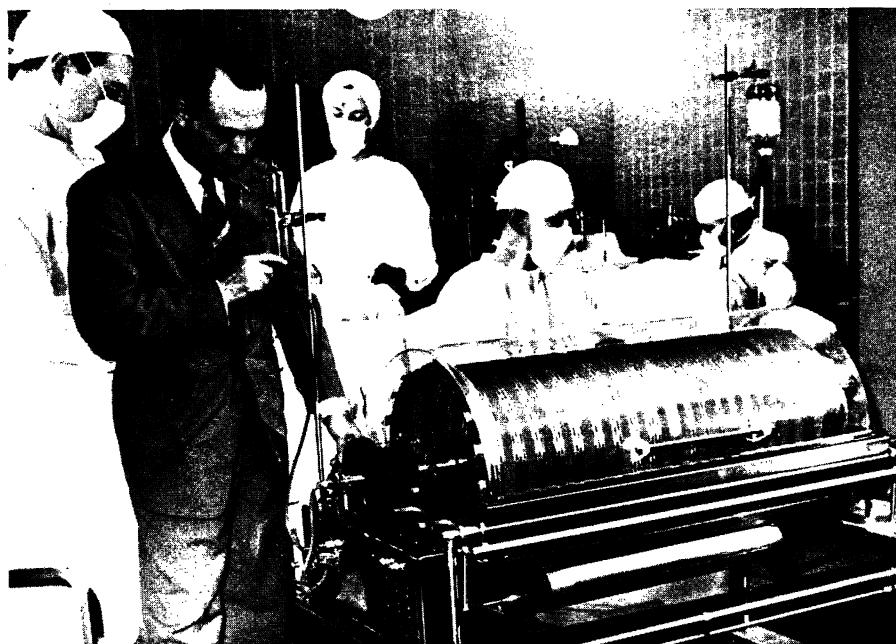
## MEDICINE

## Mechanical Kidney

► MODERN machines that save lives instead of destroying them are the mechanical, or artificial, kidneys now being made in several styles. The artificial kidney takes over when the patient's own kidneys stop functioning temporarily.

When the kidneys are not functioning, waste products—especially those containing nitrogen—get into the blood and cause poisoning. This condition is known as uremia.

Back in 1914, three American scientists



**STAND-IN FOR KIDNEY**—Blood from the patient's arm runs through the cellophane tubing wound around the drum. Used by patients suffering from uremia and pregnancy complications, it also helps those less acutely ill.