Do You Know?

Many of the 150,000 *cancer deaths* each year in this country are unnecessary.

The strength of a *scar* following the healing of a wound is dependent upon the amount of vitamin C in the diet.

Vinegar added during the canning process helps retain the bright red color of fresh beets.

Colchicine, the drug used to develop new varieties of plants, is being successfully used in the treatment of gout.

The output of *iron ore* in Italy last year was only 5% of what it was before the war.

Surplus and undergrade *potatoes* fed to livestock every year in the United States amount to about 5% of the total crop.

Like snakes and turtles, *lizards* are reptiles and are hatched as miniature adults rather than developing from a larval stage.

Heating *flour* in the oven at about 170 degrees Fahrenheit for half an hour will kill any flour weevils present, no matter what stage of development.

Cows grazing on weed-infested pastures are almost certain to give off-flavored, low-quality milk; dairy specialists recommend taking the cows off grass two or three hours before milking.

One of the many *enemies* encountered in mahogany logging is the marine borer teredo; once it starts to work it can completely riddle the rafted logs within a few weeks.

Long-keeping *rye bread* was baked in Germany during the war in an oven placed inside a steam boiler from which some of the steam entered the oven; the bread had no crust.

Insect repellent, developed by the Naval Medical Research Institute and known as Repellent 448, will keep flies, mosquitoes and other pests away for 36 hours in temperate climates; it can be used on clothing and animals.

The XS-1 has already been tested in the air about a dozen times but without its own power. It was taken aloft by bombers and released to glide and dive downward. Controls are reported to function satisfactorily in these tests. When its rocket engines are installed and the plane is ready to fly under its own power, it will be tested in the air by the Army at gradually increasing speeds until its airworthiness is established. Then the attempt will be made, at very high altitude where the air is rare and resistance is less, to beat the speed of sound, approximately 760 miles an hour at sea level.

In all, three models of the XS-1 will be built. One will be flown by the Army, one retained by Bell Aircraft for experiments, and one retained by the NACA. Rockets have travelled much faster than sound, but the XS-1 is the first American pilot-carrying plane designed for sonic and supersonic speeds. Other nations are trying, but none has yet succeeded.

Science News Letter, August 17, 1946

CHEMISTRY

Famine as a Weapon

Chemicals developed during the war which might be used to promote famine in the event of another war are being put to excellent peacetime use.

➤ FAMINE WILL join with atomic bombs and man-made pestilence to make World War III an apocalyptic horror, if mankind becomes so mad as to start fighting again. And while it may be possible to protect factories, and even dwellings, against atom bombs by hiding them underground, famine cannot be escaped in that way because crops have to be up on the surface in the sunlight.

Visions of famine as a weapon are proved to be realizable at will even now, by publication of details of biological warfare experiments carried on in the deepest of wartime secrecy at Camp Detrick, Md. Dr. A. J. Norman of Iowa State College, who was in general charge of the work, joins with a group of colleagues in presenting results of the researches in the Chicago University's *Botanical Gazette* (June).

The chemicals that can be used to spread famine by ruining an enemy's crops are complex organic compounds. One of them has already come into general use as a weed-killer under the convenience-designation of 2,4-D. The Camp Detrick experimenters tested the effects of about 1,100 of these, and found that some of them are even more toxic to plants than their prototype.

It would not be necessary to kill all the plants in a field to make the crop a failure, the experiments showed. One drop of a very dilute solution of some of the chemicals falling on a leaf would cause the stem to twist and often also to develop lumpy, tumor-like galls. The plant might survive, but it would live on only as a twisted, stunted cripple, unable to produce its full quota of food. Spraying tops can seriously affect underground parts, too; in some of the experiments potato tubers were badly damaged by chemicals used on the vines above them.

Contact with the chemical does not need to be prolonged to work a great deal of mischief. In some cases the plant begins to become sick and crippled in as little time as an hour after the fatal drop has fallen on a leaf. And if the chemical is dissolved in oil instead of water it will stick to the leaf and do its poisonous work, even if a heavy rain comes up immediately after the oil-drop has fallen and stuck.

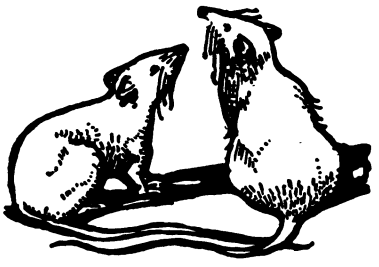
A considerable number of food plants was used in the experiments—enough to indicate pretty thoroughly that no crop can be considered safe. Among them were corn, wheat, barley, oats, potatoes, tomatoes, soybeans, kidney beans, cabbages and turnips. Had either Germany or Japan launched a biological warfare drive against us (and it was known that both had ideas of doing so) a counter-attack against their crops would have followed very quickly.

Now that these compounds are not needed for the grim business of war they can be used for purposes of peace. One of them, 2,4-D, is already on the job as a weed killer, where others may presently join it. Others may be employed in lighter doses to stimulate plants rather than kill them. Among possible uses along this line are (*Turn to page 110*)

ZOOLOGY

NATURE RAMBLINGS

by Frank Thone



Familiars of Satan

➤ RATS APPEAR in many late medieval and early modern paintings as familiars of warlocks and witches, and even of the Devil himself—and quite appropriately so. There is hardly any living creature that follows man more ubiquitously, damages his possessions in more fiendishly ingenious and persistent ways, or is capable of bringing death to him in more terrifying form.

Ancient Babylonians had a god of flies—Beelzebub, the Baal of Buzzing Things. The concept of such a disgusting deity probably arose out of a primitive instinct to propitiate that which you find you cannot combat. That they had no god of rats may seem strange, until it is realized that they had no rats. Rats, though probably Asiatic in origin, did not achieve their present world-wide distribution until the rise of world-wide commerce. Rats are natural beachcombers; and they'll jump ship wherever the pickings ashore look good.

Rats' destructiveness to property is reckoned in simply fantastic multiples of millions. Any good-sized city could easily maintain a municipal university on what rats devour, spoil and set fire to.

Rats live in filth and are menaces to health generally. Their greatest danger comes from the fact that the fleas which they harbor are the natural carriers of that most terrible of Asian scourges, bubonic plague.

Man has long been almost helpless in the face of rats, for they can be kept down only at the cost of constant and highly expensive eradication campaigns. Within the past few years, however, two rodenticides have been developed that at least seem to provide man with proper weapons in the hitherto hopeless fight. They are the terrifically toxic 1080, unsafe for any but professional use, and ANTU, which the householder may handle with impunity to himself and devastating effect on the rats.

Science News Letter, August 17, 1946

BIOPHYSICS

Ultraviolet Lamp Kills Germs in Refrigerator

➤ DEATH COMES quickly to mold and bacteria in household refrigerators equipped with a new tiny ultraviolet lamp.

The walnut-size lamp, that costs a nickel a month to operate, is double-acting: it gives off bacteria-killing rays and also produces ozone which circulates within the cabinet. It is a Westinghouse product.

Research proves, Westinghouse engineers state, that the bactericidal radiation and ozone wave lengths emitted by the lamp assure odorless refrigerators, improve sanitation, enable longer preservation of food, and check the growth of mold and bacteria on the food.

The lamp, about the size and shape of an automobile headlight bulb, is a midget brother of the large Westinghouse Sterilamp in tubular form up to 45 inches in length that is used to halt bacteria in the food industry, and to minimize infection by airborne bacteria in schools and hospitals.

A step-down transformer is used with it to reduce the voltage of the household current to the 12 volts needed by the three-and-a-half watt lamp. A specially-designed tungsten filament within the lamp has long life because it glows for only three seconds each time the refrigerator compressor starts. This is just long enough to start the arc that produces the ultraviolet rays as it passes through a mercury vapor atmosphere.

Science News Letter, August 17, 1946

From Page 108

increasing the yield of apples, preventing the premature dropping of fruit, and killing potato vines before harvesting the tubers.

The research program carried out at Camp Detrick was first suggested by Prof. E. J. Kraus of the University of Chicago, and some of the first work was done in his laboratory there, just across the street from the site of the first nuclear-energy pile. Some of the later experiments were also carried out at the U. S. Department of Agriculture's experiment station at Beltsville, Md. A considerable number of compounds used, which had never previously been made, were synthesized by Prof. Melvin S. Newman at Ohio State University.

Science News Letter, August 17, 1946

BACTERIA BLASTER—This miniature lamp was designed especially to provide bactericidal ultraviolet protection and air-purifying ozone in home refrigerators. Its designer is shown checking the ultraviolet produced by the lamp in a refrigerator cabinet.