

ZOOLOGY-CHEMISTRY

Blockade Works Against Rats

Sealing every opening in walls and foundation will deprive rats of food and shelter. Red squill is the best poison for getting rid of the rats already present.

By DR. FRANK THONE

► MAN'S endless war of defense against rats is not an affair of seasons, like his wars against insects and weeds. Rats are with us the year round, stealing and spoiling food, gnawing holes in walls and causing fires, menacing us with half-a-score or more of dangerous and loathsome diseases.

Nevertheless, spring and early summer are good times to review our situation in this war, to re-assess the values of weapons and tactics we have been using, to press vigorously where we are succeeding and to improve our attack where we are not. Even the annual rite of cleaning up the house and yard brings a reward beyond the satisfied feeling of having things neatly in order again. Ridding the place of rubbish means that you have deprived rats, as well as other vermin, of lurking and breeding places. Imposing stricter sanitary discipline on that perennial problem, the garbage can, deprives not only rats but their companions in evil, flies, of a favorite source of food.

Blockade is frequently the most effective weapon when man wars against man. It certainly is the best weapon in man's war against the rat. Poisons, traps, terriers, cats and guns are all very well in their way, but none of these will avail much until we stop providing food and shelter to the very enemy we are fighting.

Close Every Opening

First move should be to close every opening in walls and foundations through which rats can get in from the outside. Plumbers and electricians sometimes make bigger holes than are necessary to admit their pipes and conduits. These should be found and securely stopped, with either masonry or metal. Wood won't do: rodent teeth make short work of such patches. Then similar precautions should be taken with internal partitions, to hamper the movements of any rats that do manage to break in, and to guide them to where you will presently put your traps and poison baits. Keep all foods in tooth-proof containers, of metal, pottery or glass.

Having made your house and its contents as rat-tight as possible, carry your blockade warfare outdoors as well. If you really must keep a stack of old lumber or similar potential rat housing, set it on stilts at least 18 inches high. Rats won't

nest under it, and are unlikely to want to stay in it either—too exposed. A similar stand for the garbage cans is a good idea, too—and then keep them tightly closed, and well hosed down on the outside.

If you feed dogs, cats or other pets outdoors, don't leave bones or scraps from their meals lying about after they have eaten. Rats aren't too proud to take a dog's leavings, any more than your own. Clean up after your pets and put their scraps into the garbage can, too. And remember this, next winter: when you feed the birds, don't scatter grain on the ground, for you'll be feeding nocturnal rats as well. Put up feeding trays, on rat-high stands or shelves.

Once you have your fixed defenses as tight as you can make them, you can begin thinking of means for getting rid of enemies already within your gates, or those that may manage to slip through in spite of your blockade. Poisons and traps are the usual weapons.

This season sees a return to favor of the prewar favorite, red squill, as the best rat poison for the average householder to use. ANTU, the wartime synthetic that had dramatic initial success, is less used now; indeed, its largest producer last year has now given it up entirely, though other firms are still manufacturing it.

Reason is simple enough: the rats "got wise." ANTU is just as poisonous to the

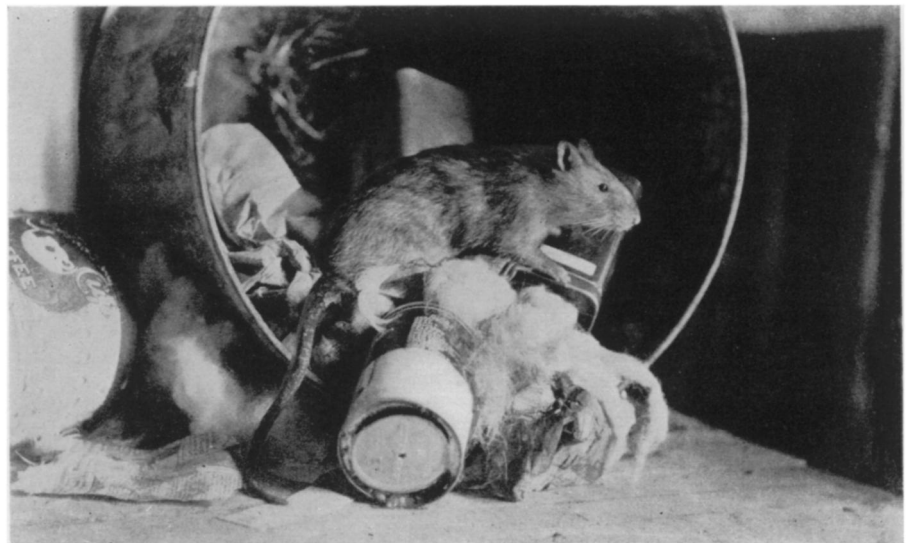
common brown rat as it ever was—but in places where it was used without completely wiping out the rat population, the survivors recognize it and refuse to touch even the most tempting baits containing it. Your enemy is cunning and last year's heavy losses have taught him caution.

Fortunately, the decline in ANTU's success has been offset by the return to market of better quality red squill than has been available since the war cut off its supply sources in the Mediterranean basin. And although this dried bulb has been used for many years in combating rats they have never learned to recognize or avoid it. So red squill is your number one poison weapon again.

1080 Deadly

The other rat-killing chemical evolved during wartime, known by the convenience-number 1080, is still being used, but only by professional pest control operators. It is so deadly to all higher animals, as well as to human beings, that there is an absolute ban on selling it in the open market. Even some of the professionals are afraid of it—as well they may be.

Pest control operators, or "exterminators" as they are often called, hesitate especially to use 1080 in dwellings or elsewhere if there is a chance for small children to get hold of it. Children of the inquisitive-exploratory age automatically put into their mouths everything they can get into them—rat-baits included. Consequences would not be merely serious, they would be fatal. It takes very little 1080 to kill, and there is no known antidote. Hence the extreme



A LIVING MENACE—You should never leave a full garbage can in a spillable position where rats can feed on the contents.



POISON WITH SAFETY—U. S. government rat-killers advocate putting poisons, especially the deadly 1080, inside feeding boxes like this one where rats can reach them but pets and children cannot.

caution observed in its use, effective against rats though it is.

One safeguard has been added this year. The same chemical firm that reluctantly accepted the unwelcome monopoly of making 1080 now provides operators with a black dye to discolor the water baits in which this poison, itself colorless and odorless, is set out for thirsty rats. Use of this dye is not legally required but it is strongly recommended, and most pest control operators have begun using it.

One procedure that is recommended to householder and professional alike is the use of bait-boxes. These are tightly lidded boxes, with entrances and exits through which rats can move freely, and within which the baits are placed. Thus rats can reach them, and pets and children cannot. If there are small children about, it might be a good idea to equip each box with a

hasp and inexpensive padlock, just to make sure.

Pre-baiting is also recommended practice. This means placing unpoisoned baits or little paper cups of water where the rats can find them, for several nights. Then, when the beasts have got used to expecting you to play Uncle Sucker for them, you switch roles and play Aunty Borgia instead. Usually, one or two nights of poisoned baits after one of these pre-baiting campaigns will clean up the premises.

Of the several types of rat traps that have been used at one time and another, probably the favorite nowadays is the snap-trap, that whacks down on the animal's neck or back, breaking the spine and killing almost instantly. Like all traps strong enough to be effective, it must be treated with considerable caution, for it is easily able to break the bones in a child's hand, or inflict painful injury on even an adult finger incautiously poked into it. So a trap of this kind should be set with care, and placed where a rat, and a rat only, is likely to spring it.

As commonly manufactured, this type of trap has a trigger much too small for best effect. It almost requires suicidal in-

tent on the part of the rat to get caught. The value of the trap can be greatly increased by simply tacking or gluing a piece of stiff cardboard to the top of the trigger. It should be a size that will just permit the trap to clear it when it snaps.

You can be surer of getting your rat if you will place the trap, not directly in front of a rat hole, but a little to one side, close to the wall, and lean a short piece of board so as to form a kind of tunnel with the rat hole at one end and the trap at the other. A rat likes a sheltered run of this kind, and will readily scurry into it after preliminary cautious look-around before coming out of its hole. It is a good idea to use the pre-baiting approach too, setting up the improvised runway a couple of nights before you place your trap.

In general, whether you attack with poison or traps or both, study your rats as you would study any enemy in combat. Look for signs of their presence and movements, try them with various baits placed in different spots. Every piece of information you can get will prove of value in the defense of your household against its stealthiest and most dangerous enemy.

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The Menace of Radiation

From page 374

are the most delayed-action biological time-bombs known.

There is no way to reduce substantially, below the natural level, the number of mutations, and of genetic deaths caused by them. But their number is considerably increased by artificial application of energetic radiation, such as alpha, beta, gamma or X rays. All forms of life are affected in this way, but the higher forms on the whole are affected more. There is no practicable means of reducing this mutational effect, if the radiation is allowed to reach the germ cells. Nor can a mutation, once arisen, be undone by our design. It is also well established, despite some objections by non-geneticists, that the frequency of the mutations induced in the genes is exactly proportional to the total dose of radiation, no matter in how concentrated or dilute a form the dose was received. Thus there is no dose without at least some slight risk, commensurate with its size.

The exact risk of mutation for a given dose is by no means known for a man, however, nor even for any backboned animal, important though this matter is. It cannot be discovered by observations on people at Hiroshima, nor on goats from Bikini. We may anticipate with high probability no detectable effects in their descendants, even though, as before explained, these effects, spread thinly over thousands of years, will probably be considerable in

their totality. Only most meticulous grand-scale experiments, conducted painstakingly over many years with laboratory animals like mice, bred in precisely controlled ways, can give a good indication of just what quantities of mutations of different types have been produced. Meanwhile, we must rest our case on the very definite results from lower forms, such as flies, moths, molds, and bacteria. To be sure, these results are already supplemented by some fragmentary data from mammals—mice—which do prove that higher types are no exception so far as the principle is concerned, and that the general magnitude of the effect in them is similar.

In flies, a dose of about 150 roentgen units results in a frequency of induced mutations about equal to the frequency of those that

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