ENTOMOLOGY

War Front Opened on Flies

The best anti-fly weapon is still clean-up. Despite many disturbing rumors about DDT, it still heads the list of chemical killers of the pests.

By DR. FRANK THONE

See Front Cover

➤ WAR on flies has opened again over a wide front. First encounters between man and the hordes of his winged enemies have already taken place in the warmer parts of the country, and as the weather warms up the conflict will become general throughout the land.

Weapons in man's hands as the battle opens are essentially the same now as they have been during the past two or three years: first and foremost, clean-up and elimination of fly breeding-places; second but still important, poisons, notably DDT. Other fly-killing compounds are coming to the fore, but DDT is still the number one weapon.

Rumors About DDT

Somewhat disturbing rumors have been going the rounds about DDT: that it has proven a failure through the development of resistant strains of flies; that it threatens national health by poisoning milk and other foods; that it is responsible for the advent of the mysterious "X" disease of cattle and "virus X" afflicting human beings. Two of these allegations contain some fact and some fallacy; the third one is fancy, pure and unalloyed. Both of these troublesome "X's"— which incidentally are unrelated —were known to science before DDT ever came on the market, so they could hardly have originated from it.

There is truth in the first statement: flies do continue to exist in communities where DDT has been used for a couple of years, and some of them are resistant to the action of the poison. That does not mean, however, that DDT has failed, or that wherever you see a fly in a DDT'd area it belongs to a resistant strain. Least of all does it mean that nothing can be done about such flies.

Presence of flies in places where DDT has been used may mean merely that people have been so naively confident of the kill-all powers of this relatively new weapon that they have neglected the use of older, less spectacular but still necessary methods of anti-fly fighting. It is still essential to cut the enemy off from his base of supplies by cleaning up all possible fly-breeding spots. This means seeing to it that your own garbage-can is tightly lidded and clean on the outside, that there are no piles of fermenting lawn clippings left about, that your city fathers either cover your city dumps over with cinders or clean earth or give them frequent mass DDT sprayings during the summer. It means also sticking your nose into your neighbor's business, to the extent of making sure there are no open manure piles within the cruising range of flies, and that alleys and areaways back of restaurants, markets and similar places are cleared of fermenting rubbish, and kept that way all summer long.

There are some communities, including some fairly good-sized and otherwise enlightened municipalities, where the idea of an anti-fly campaign is simply to hire one or more of the big DDT-fogging machines to go out and lay down a fly-killing mist once or twice during the whole summer. Fogs of that kind, if properly laid down, have deadly effectiveness against flies that happen to be on hand at the time, and will thus confer a fair degree of freedom from flies for a few days, but that is all. If the breeding-places are left undisturbed, in a week or ten days the air will be populated with pests again. It cannot be too strongly emphasized: there is no substitute for thorough and maintained clean-up.

DDT After Cleanup

After the clean-up you may go to work with DDT. Spray or paint all likely roosting-places, indoors and out, with the residual-type spray, first covering all exposed foods to prevent contamination. Window screens, screen doors and all points where flies are likely to attempt entry into the house should receive special attention.

Finally, have on hand one or more of the small hand-bombs containing both DDT for the kill and pyrethrum for a quick knock-down. New, low-pressure space-sprayers of this type are now available at relatively low prices, for use on flies that actually get into the house. Then you will have the happy result pictured on this week's cover of the SCIENCE NEWS LETTER—dead and dying flies.

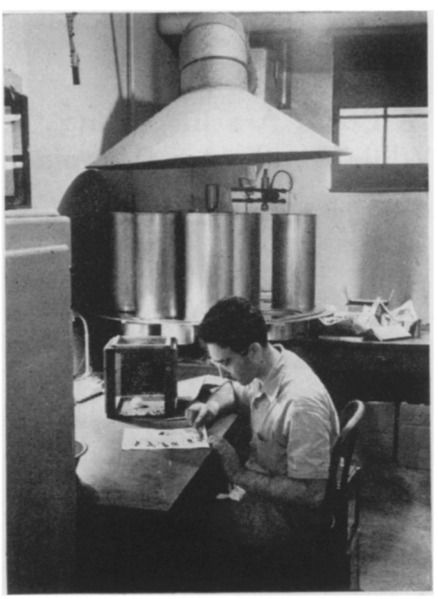
If you find you have flies that defy your attack with either or both of these DDT weapons, then is time enough to give thought to the chances that they may be one of the new resistant strains. Since such insects have been reported from areas as widely separated as New England, the Southwest, the Midwest and the Pacific coast, there is always a chance that you may be confronted with such enemies.

Fortunately, you are still not weaponless if DDT fails you. Several new insecticides have been coming up during the past couple of years. Entomologists of the U. S. Department of Agriculture look with special favor on three of them just now: chlordane, methoxychlor and gamma benzene hexachloride. All three are effective against flies and a number of other household insect pests, and they have the further advantage of being less toxic to human beings and domestic animals than DDT. Methoxychlor is especially recommended in the latter connection.

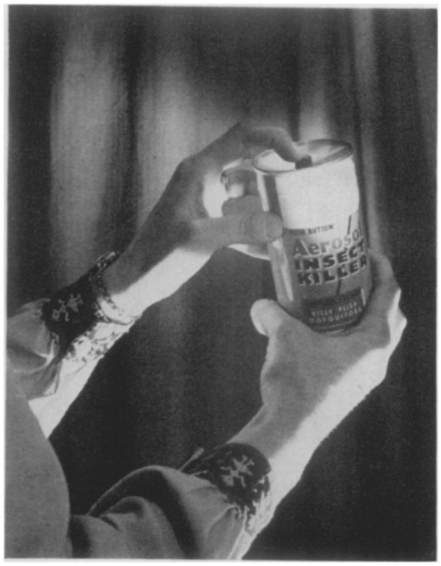
Manufacturers will probably offer these, or combinations of them, under a variety of trade names. They must, however, print the actual formula somewhere on the label—never buy an insect spray until you have read the fine print and know what you are getting, and how much of it.

There are also some special, non-spray preparations now to be had. For example, one manufacturer has just announced the production of a white wall-coating that contains two good fly-killers, chlordane and toxaphene. Applied like calcimine or white-wash, it will plant death in the feet of flies that alight on it for weeks afterwards.

If you are buying any preparation labeled



FLY CASUALTIES—Norman Mitlin, of the Bureau of Entomology and Plant Quarantine, counts casualties after an insecticide test. The unique machine in the background gives measured doses of killing spray to known numbers of flies in screen-topped cells at the bases of the metal cylinders, as they move along on the turntable.



AEROSOL BOMB—It is cheap and useful for ridding rooms of flies and mosquitoes. It has good immediate effect, but is not intended for residual-type spraying.

as containing benzene hexachloride, insist on having a sniff at it first. There are several species of this compound, designated with letters of the Greek alphabet. Originally, the benzene hexachloride offered on the market was a mixture of all of them; it had a disagreeable smell and was rather more toxic than it should have been for general use by non-professionals.

One of the "ben-hex" brethren, however, has the triple advantage of being nearly odorless, highly poisonous to flies, and not very poisonous to man and his animals. This is gamma benzene hexachloride. If the label on the can or bottle specifies this one particular compound, using all three names, and if it doesn't smell bad when you sniff at it, then it is OK to purchase.

Another new synthetic fly-killer is a synthetic pyrethrum, which was developed by government entomologists only within the past few months. It is not yet on the market, but several chemical firms have expressed their interest in it, and it may be in production in another year or two. It has the same quick knock-down properties as natural pyrethrum, combined with much better fly-killing power, so it should be another good weapon in man's anti-fly armory when it does become commercially available.

As for the reports that DDT is menacing us as well as the flies with poisoned death, there seems to be little foundation for them. These rumors, however, have been widespread and persistent enough to cause scientists representing several government agencies—the Department of Agriculture, the Public Health Service, the Food and Drug Administration and the medical authorities of the Army and Navy, together with the Pan American Sanitary Bureau, to go into a serious huddle recently. They came up with a joint statement to the effect that while DDT is a poison and has been recognized as such from the beginning, "There is no evidence that the use of DDT in accordance with the recommendations of the various federal agencies has ever caused human sickness due to the DDT itself," and that while precautionary modifications have been made in the recommendations regarding its use for fly control in dairy barns, "There is no justification for public alarm as to the safety from the standpoint of DDT contamination."

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NUCLEAR PHYSICS

New Atom Commissioner

➤ THE NEW scientist-member of the U. S. Atomic Energy Commission is a distinguished expert on the very complex theory of the atom who won undying fame as the author of a hard-to-read best seller.

Prof. Henry D. Smyth has been chairman of the department of physics at Princeton University since 1935. He took part in some of the early (1941) discussions which led to the successful development of the atomic bomb.

After playing an active role in the wartime Manhattan Project, he was assigned by the project's military boss, Maj. Gen. Leslie R. Groves, to write the first history of the atom bomb.

The book, issued shortly after the first brief announcements of Hiroshima and Nagasaki, had a big sale, despite the fact that it violated most of the rules for a best seller. Full title of the volume is A GENERAL ACCOUNT OF THE DEVELOPMENT OF METHODS OF USING ATOMIC ENERGY FOR MILITARY PURPOSES UNDER THE AUSPICES OF THE UNITED STATES GOVERNMENT, 1940-1945. It was quickly dubbed "The Smyth Report."

In his introduction, Dr. Smyth stated that the book was written for "scientists and engineers generally and . . . other college graduates with a good grounding in physics and chemistry."

Despite this, and the fact that the book begins with Einstein's theoretical contributions to atomic energy, it has rated as a best seller at the Government Printing Office. More than 26,000 copies have been sold by the GPO ((price is now 40 cents, up a nickel since 1945). Other thousands of copies have been sold in editions published by the Princeton University Press.

A science classic, the report has been criticized, chiefly by laymen, as telling too many "secrets" of the bomb.

Dr. Smyth's new superior, Chairman David E. Lilienthal of the Atomic Energy Commission, told a Senate committee two years ago that the report was a breach of security. Lately, however, Chairman Lilienthal has probably become more sympathetic. His own Commission's fifth semi-annual report has had similar criticism from congressmen.

The newly-named commissioner's own view was stated in the report which said that atomic energy raised political and social questions.

"The people of the country must be informed if they are to discharge their responsibilities wisely," the report concludes.

Before authoring the famed report, Dr. Smyth was a leader in developing the process for separation of the fissionable varieties of uranium from the more common, non-bomb kind. Fifteen years ago, he was one of a team of Princeton scientists who made the significant discovery of a rare isotope of the hydrogen atom.

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