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Control of
**COMMON HOUSEHOLD
INSECTS**

by Neely Turner



**CONNECTICUT AGRICULTURAL
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NEW HAVEN, CONNECTICUT**

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CONTROL OF COMMON HOUSEHOLD INSECTS

Neely Turner¹

No phase of insect control has been altered so drastically by the introduction of new insecticides as the control of household insects. Since many of these materials have been introduced recently, full knowledge of their effects is not available yet. This is particularly true of formulations and of combinations of materials.

The contents of this circular are based upon our knowledge to date, obtained through research at this Station and through our observations and experience. It has been prepared to enable homeowners to identify the common insects occurring in houses and to control them.

Pest control companies (exterminators), which specialize in the control of household insects, operate in all Connecticut cities. They have developed materials and, most particularly, effective methods of application which make their services useful in all cases and almost necessary in many instances of severe infestations. Because of the hazards of misuse of insecticides, food-handling establishments usually prefer to employ exterminators rather than to do their own pest control.

INSECTICIDES FOR HOUSEHOLD USE

Packaged insecticides of all types are plainly labelled with a statement of the percentage of active ingredients or of the inert material. Directions for methods of application and the precautions necessary to protect the user are also included. *The labels should be read carefully and the precautions should be followed explicitly.*

Ant baits usually contain either thallium sulfate or arsenic as the active ingredient. Both materials are highly poisonous. However, ant baits contain so small an amount that it is not dangerous to use them as directed.

Two types of *household sprays* are available: (1) space sprays and (2) residual sprays. Space sprays are intended to kill insects flying in the air. They usually contain DDT, together with pyrethrum or some other chemical which "knocks down" flying insects quickly. Aerosol bombs are space sprays which contain a gas propellant. They disperse the spray quickly in a very fine mist and are usually very effective in killing flying insects. Good insect control can also be obtained with a hand sprayer provided the directions on the package of spray material are followed.

Residual sprays are intended to coat a surface with a material through which insects will walk and be killed. They usually contain a much higher proportion of active ingredient than space sprays. They should be applied as a coarse mist that falls to the surface quickly rather than drifting around the room.

¹Entomology Department

Both DDT and chlordan are mild poisons. There is little danger of poisoning food with either of them unless the food is soaked in the solution, in which case it would not be edible. Likewise, in ordinary household use, there is little danger of penetration of the skin by enough DDT or chlordan solution to cause any harm. Prolonged exposure should be avoided. Chlordan has irritated the skin of some people who have used it. Especial care should be used, therefore, to keep the solution from the skin.

KITCHEN AND PANTRY PESTS

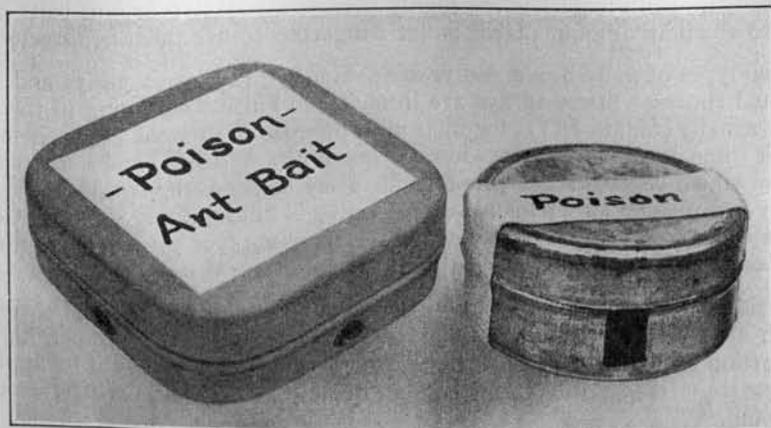
Ants

Ants invade dwellings more commonly than any other insect. In most sections of the State the small black pavement ant nests in and under houses. It seldom attacks food. The small red Pharaoh's ant is much less common but is still a serious pest since it attacks food. The very large black carpenter ant nests in wood and sometimes enters the pantry.

Control

Cleanliness around the kitchen and pantry may prevent ant infestations. It is necessary to keep crumbs off the floor and to dispose of bacon and ham grease, since these things are attractive to ants.

Poisoned baits are a very effective control because the workers carry the poisoned food to the nests and feed it to the entire colony. It is often thought that ant bait is "no good" because the ants do not die after feeding on it. To be effective, ant baits should not contain enough poison to kill the workers before they return to the nest.



Metal containers for ant baits make them safe to use when children or pets are in the house. The ants can get at the bait but the children and pets can't.

When baits are used in or around infested houses it is best to place them in metal containers so that children and pets cannot get at the poison. Such containers are made by punching a hole in the side, near the base, of any small tin box. A nail or the handle end of a file will make a hole large enough for the ants to enter.

Ordinarily many ants are seen around the bait for a day or two and then disappear. Frequently a single effective baiting will rid the premises of ants for many months. Occasionally grease-feeding ants may not be attracted to ant baits. In such cases it is necessary to put a few drops of grease on the bait to attract them. Commercially manufactured thallium sulfate baits have been found highly effective in controlling ants. These are poisonous and must be used with care.

DDT or chlordan will also kill ants. Thorough spraying or painting of the floor and baseboards leaves a residue which is toxic to ants walking over it. A 5 per cent solution of DDT or a 2 per cent solution of chlordan, purchased ready for use, may be applied. Both are mild poisons and should not be used on food. Care should also be taken to keep the solutions off the skin.

Cockroaches

Cockroaches are much more common in food-handling establishments than in dwellings. However, they may be brought into the house in bulky packages from an infested store or bakery. The American roach may also migrate into the house from a dump or outside infestation during the summer months.

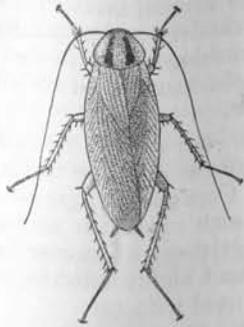
The most common cockroach is the German cockroach or Croton-bug. The adults are slightly more than one-half inch long and light brown with two dark brown stripes on the thorax. The young hatch from egg capsules deposited by the females, and are wingless. The Oriental cockroach is about an inch long. The females are nearly black and have very short wings. The males are dark brown. The American cockroach is about an inch and a half long and brown in color with large wings. It is seen infrequently in buildings here except in areas around large dumps.

Cockroaches eat any food soft enough for them but prefer starchy materials. They are usually inactive during the day, hiding in cracks and crevices and coming out to feed in the dark.

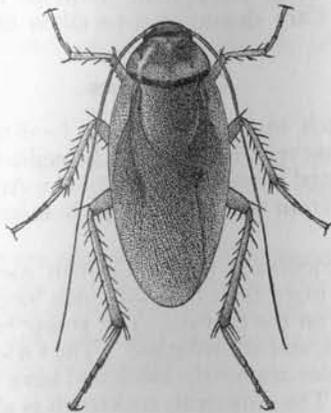
Control

Cleanliness is essential in avoiding large infestations of roaches. Places in which food is kept should be absolutely clean of any refuse. Since roaches hide away and breed in cracks, all such places should be filled with crack filler. Cabinets and storage platforms should be built so that there are no hidden recesses in which roaches may hide. In restaurants and bakeries a concrete sanitary cove should be used instead of an ordinary wooden baseboard.

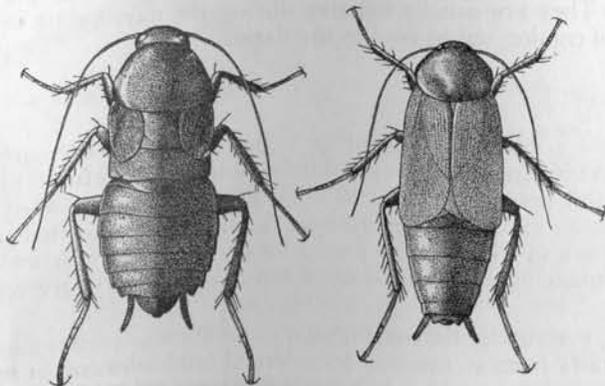
However, even under the most sanitary conditions, roaches may be carried in on foodstuffs from an infested commercial establishment, or may migrate from an infestation near-by. If control measures are undertaken promptly, a severe infestation from such a source can be prevented.



The German cockroach. About twice natural size.



The American cockroach. About twice natural size.



The Oriental cockroach; female at left, male at right. About twice natural size.

A 2 per cent chlordan solution sprayed thoroughly in the cracks where the roaches hide should control an infestation promptly. The residue should be effective for several weeks in preventing reinfestation. The spray should not be used on foodstuff or on shelves where food in paper cartons is stored. Care should be taken to keep the spray off the skin and to avoid breathing the mist.

Food-handling establishments usually prefer to turn over the problem of cockroach control to exterminators.

Pests of Stored Food

Several dozen insect pests are rather common in stored food. Full discussion of these is beyond the scope of this circular. The more common ones are the Indian meal moth, the Mediterranean flour moth, a whole series of small beetles and the drugstore beetle.

The Indian meal moth infests nut meats, dried fruit, whole grain cereals, candy, and dehydrated dog and cat food. The larvae are rather large and spin webs over the infested food. They migrate just before spinning a cocoon. The Mediterranean flour moth infests cereals and also spins webs. The grain beetles are usually found in cereal products. The drugstore beetle feeds on a variety of things, including red pepper, paprika and cereals.

Housewives usually destroy any small amounts of foodstuff found infested by any of these pests. It would be a good preventive measure to examine every open package of food about three or four times a year, especially in late winter and midsummer and destroy any that show signs of infestation.

If any of these pests leave the infested food and are crawling over the pantry shelves, they can be killed by thorough spraying with a 5 per cent DDT spray. The food and dishes should be removed before spraying and the shelves washed thoroughly 24 hours after spraying and before replacing food and dishes.

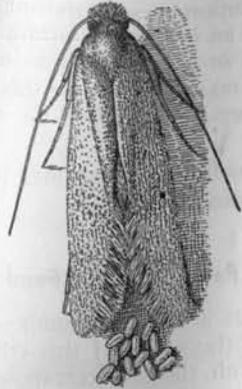
PESTS OF CLOTHING AND FABRICS

Clothes Moths

The larvae of clothes moths cause a great deal of damage by feeding on woolens, furs and feathers. In Connecticut the webbing clothes moth is much more abundant than the case-making clothes moth.

The adults of the webbing clothes moth are about one-fourth of an inch long, buff-colored and fragile. They prefer darkness but occasionally fly about in lighted rooms at night, avoiding brilliant lights. Living moths are frequently seen in infested clothing. They live only two or three weeks and do not feed on the material. Each female may deposit about 100 eggs on woolen clothing, the nap of furniture, or furs. The eggs are white, very fragile, and are not firmly attached.

The larvae hatch in from four days to four weeks, depending on the temperature. They immediately start feeding and spin a thin tube of silk in which they stay. Fully grown larvae are white with dark heads and are



The webbing clothes moth and moth eggs. About six times natural size.



Larva of the webbing clothes moth and silken tube from which it has emerged. About six times natural size.

about three-eighths of an inch long. They spin a cocoon and pupate, either on or near-by the infested material. The period of development varies greatly, depending on the temperature and food supply. In centrally heated buildings the moths may breed throughout the year, completing at least two generations.

Clothes moths damage wool, hair, fur, feathers or any article manufactured from these materials. Damage to clothing is readily noticed, but the injury to piano felts and to upholstered furniture is not so easily seen. Frequently piano felts are so badly damaged that re-felting is necessary. Rugs in use are seldom damaged except under massive pieces of furniture not moved during regular cleaning operations.

Clothes moths cannot live on cotton, linen, silk or jute fabrics, but will cut through such materials to reach wool.

Sources of Infestation

Clothes moths seldom breed in large numbers on clothing that is regularly worn. However, large infestations are built up in stored materials. When such infestations exist, it is difficult to prevent occasional damage to clothing in use. In actual experience these sources of infestation have been found in bundles, boxes and trunks of clothing; old rugs, stored in attics; discarded clothing and rag-bags hanging in basements; pianos; upholstered furniture, and accumulated lint in cracks. It is absolutely necessary to remove these sources of infestation in order to control clothes moths.

Control

The larvae prefer soiled or dusty clothing as food. Therefore, it is advisable to keep all susceptible materials dry-cleaned or washed in order to prevent damage, and especially to clean them before storing them for any length of time. It is possible to keep clean woolens in an ordinary closet with little danger if the clothing is sunned and brushed at frequent intervals. The brushing crushes or removes the eggs and many of the larvae, and heat and light either kill or drive off the larvae. It is necessary to brush thoroughly all folds or pockets in which the larvae might hide.

The chief value of a well-made cedar chest is that it provides a tight receptacle in which to store uninfested clothing. The volatile oil of cedar will kill newly hatched larvae but does not always kill moths nor prevent damage by any older larvae introduced with the clothing. Cedar chests should be kept closed to prevent loss of the volatile oil. Cedar-lined closets, as ordinarily constructed and used, will not prevent damage by clothes moths.

Paper garment bags or cardboard closets with tight-fitting double doors will protect uninfested clothing as long as they are sealed tight. A pound of paradichlorobenzene in a cloth bag hanging at the top of such containers should protect the clothing for several weeks.

Clothing stored in trunks and boxes may be fumigated by placing about one-half pound of paradichlorobenzene in the top of each container or scattering it over the clothing. The fumigation will be more effective if the temperature is above 70° F. A new supply of paradichlorobenzene should be added every six months.

After such treatment any clothing worn next to the body should be aired before use since paradichlorobenzene is irritating to tender portions of the skin.

DDT sprays or aerosol bombs may be used to kill moths in flight. Usually, however, not enough moths are seen at any one time to justify such a practice. Use of such sprays in a closet full of clothing is also of doubtful value because the spray cannot penetrate the clothing. Spraying the cracks in a closet might be of some value in killing clothes moths.

Residues of DDT on clothing will kill clothes moths but do not make the clothing "moth-proof". A light spraying using a 5 per cent DDT solution should protect the garments until they are cleaned again.

Moth-proofing Compounds

Moth-proofing compounds can be used on woolens most effectively during the course of manufacture. The better materials usually make the wool

permanently moth-proof. It is much more difficult to apply these materials effectively in the home. Residue sprays of DDT and other similar materials cannot be classed as moth-proofing compounds.

Pianos

Piano felts may be protected by putting four ounces of paradichlorobenzene in a muslin bag inside the piano case and closing all openings. This is especially necessary in warm weather and the case should be kept closed as much as possible. Sprays should not be applied unless it is certain that they will not injure the piano parts.

Rugs and Carpets

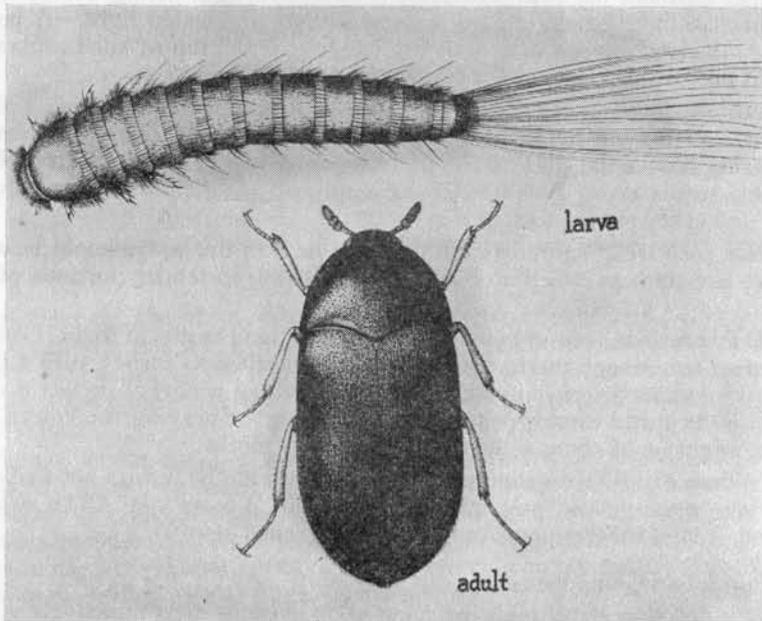
Clothes moths seldom damage rugs and carpets in constant use, especially if the carpeting is not fastened to the floor. If rugs are stored, or if a house is closed for several months, each room-sized rug should be sprinkled with one pound of paradichlorobenzene, rolled up, wrapped tightly with strong paper and sealed.

Furs

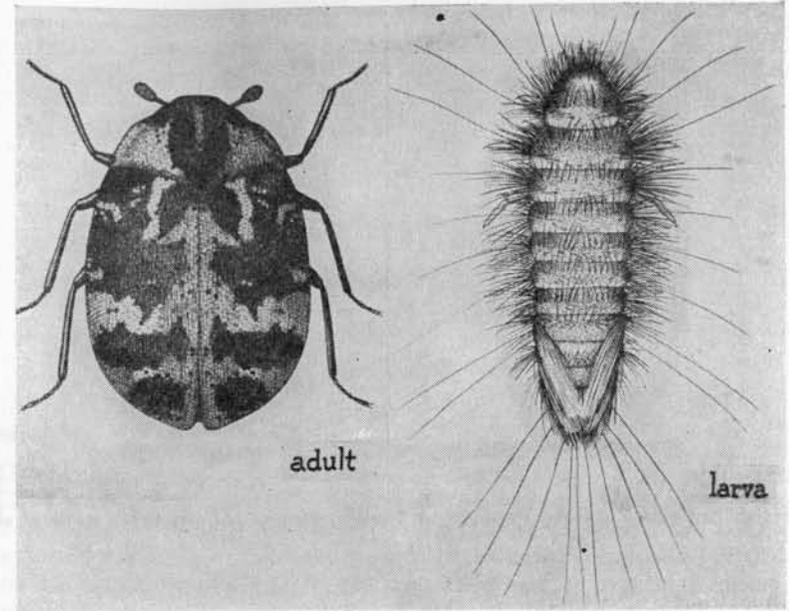
Furs may be cleaned and stored in the same manner as woolen clothing. There are commercial establishments which specialize in fur storage, either in cold storage or in moth-proof vaults.

Carpet Beetles

The black carpet beetle is very common in Connecticut. The larva is light brown, long and slender, with a conspicuous terminal brush of hairs. It is almost one-half inch long when fully grown. It feeds on accumulated lint in cracks, usually underneath the baseboards.



Larva and adult of black carpet beetle. About 12 times natural size.



Larva and adult of buffalo carpet beetle. About 12 times natural size.

Carpet beetle larvae migrate from cracks and may damage woolen clothing or carpets. They usually eat only the projecting fibres unless the clothing is soiled. Milk spots are a favorite food. The adult beetles are black and are less than a quarter of an inch long. They emerge in May and June and try to get out of doors.

The buffalo carpet beetle larva is smaller and more hairy than that of the black carpet beetle. The adult is about an eighth of an inch long, and black marked with reddish, white and yellow spots. It is much less abundant in Connecticut homes than the black carpet beetle.

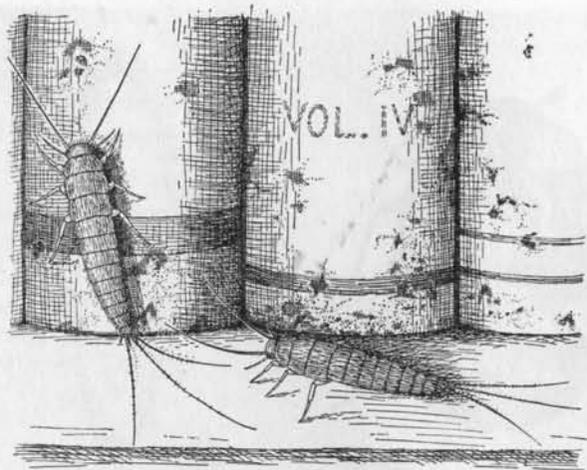
Control

Serious damage to clothing can be avoided by prompt washing or dry-cleaning of soiled woolen garments. Larvae may be killed by spraying the accumulated lint in cracks with 5 per cent DDT or 2 per cent chlordan solution. Elimination of cracks by the use of molding after spraying helps to reduce the infestation.

Silverfish

Silverfish are small wingless insects, silver-gray in color and about one-third of an inch long, with three long slender projections at the posterior end of the body. They are wary and hide quickly if they are exposed to the light. They prefer damp locations for breeding and are especially abundant in hot, damp, basement rooms and occasionally in attics.

Silverfish feed on starch and are particularly injurious to book bindings and wallpaper. They also infest stored window shades and highly-starched



Silverfish can cause serious damage to bookbindings. About twice natural size.

curtains. They may damage rayon garments although they cannot digest rayon.

Control

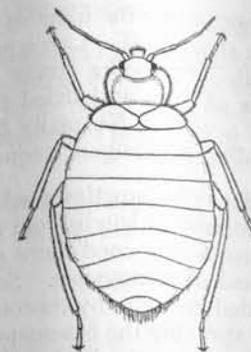
Dusts or sprays of DDT are effective in killing silverfish. They should be applied to the areas where the silverfish are breeding, principally in attics and basements. If silverfish are breeding in libraries, treatment of the shelving should be effective.

INSECTS ANNOYING MAN

Bedbugs

The bedbug is a wingless sucking insect which lives on human blood. Its body is wide and flat, enabling it to hide in cracks in furniture, under loose wallpaper and in cracks in floors and walls. Eggs are deposited in these places in infested rooms. The young bugs are not unlike mature ones and under favorable conditions may complete their development within six weeks. The odor of bedbugs is very characteristic and easily identified. They are nocturnal in habit and are seldom seen in the daytime.

Bedbugs are carried from place to place in the baggage or on the clothing of transients and occasionally in packages. They may be brought into uninfested houses with infested furniture. They may crawl from house to house in thickly settled neighborhoods. They are able to live without food for several months or possibly feed on the blood of mice and thus maintain an infestation in vacant houses.



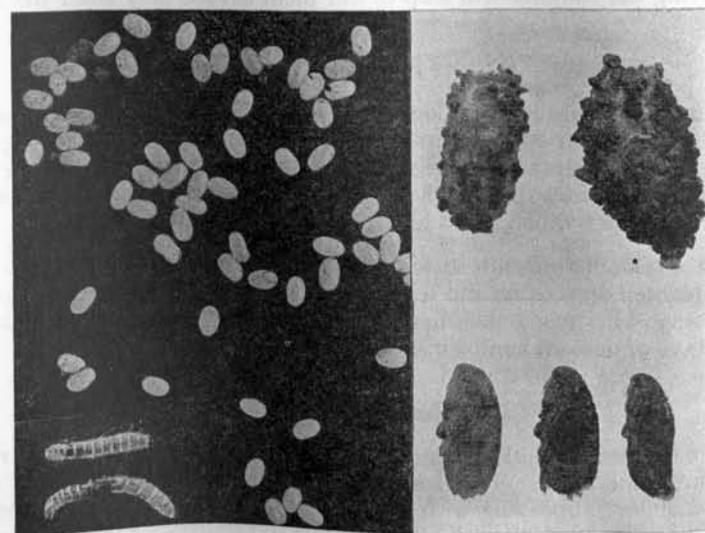
Bedbug. About eight times natural size.

Control

Thorough spraying of the bedstead and springs with 5 per cent solution of DDT usually controls a light infestation of bedbugs. It is also suggested that the mattress be sprayed lightly. In a heavily infested room additional spraying of cracks in plaster and woodwork, as well as chairs and other bedroom furniture, is required. Spraying need not be repeated unless the original job was not thorough or a new infestation is introduced.

Fleas

The common flea which is found in houses in Connecticut is the dog flea. This species breeds on both cats and dogs and does not occur in houses in large numbers unless a cat or dog is, or has been, present.



Dog flea. Upper left, eggs; lower left, larvae; upper right, cocoons; lower right, pupae. Enlarged eight times.

The adult fleas deposit eggs among the hairs of the host, but the eggs are not attached and usually are shaken off. Large numbers accumulate in the animal's bedding. The white, worm-like larvae feed on organic material in lint and dust and on bits of skin and dried blood. They pupate in a cocoon and emerge in about a week. Normally fleas do not occur in large numbers if the animal's bedding is changed frequently.

Very large infestations develop sometimes when a house is closed for several days. The larvae continue to hatch from the eggs, feed to maturity and emerge. When the house is reopened there may be hundreds of adult fleas which cause a great deal of annoyance. Such infestations might be lessened in severity, or avoided entirely, by thoroughly cleaning or destroying the animal's bedding and spraying the basement and those upstairs rooms frequented by the pet before closing the house.

Space sprays such as aerosol bombs or pyrethrum-DDT sprays may be used to kill adult fleas. A thorough treatment of each infested room should suffice. Fleas on cats may be killed by use of a pyrethrum flea powder; DDT flea powder may be used on dogs. DDT should not be used on cats since, in washing itself, the cat may pick up the poisonous DDT residue.

Mosquitoes

Several species of mosquitoes breeding both in fresh and brackish water may invade houses. One species is capable of carrying malarial fever.

In addition to prevention of breeding which requires community effort, adult mosquitoes in houses can be killed by the use of DDT space sprays or aerosol bombs. Painting screens with a 5 per cent solution of DDT about twice during the summer will help to kill them before they enter the house.

Houseflies

The common housefly is no longer abundant in cities, but is still present in large numbers on dairy farms. It breeds in manure and garbage and there are several generations a year. Several other species of flies are much more common in cities than the housefly. These include the stable flies and the blue bottle flies which breed in decaying organic matter.

Flies are seldom abundant in screened houses. Use of a 5 per cent DDT solution painted on screens and sprayed or painted on the woodwork around the doorways kills many flies before they enter houses. Inside buildings, space sprays or aerosol bombs may be used.

Beetles in Incinerators

A large dermestid beetle frequently breeds in the partially-burned refuse in built-in incinerators. This beetle is brownish-black in color and about one-half inch long. Spraying with a household insect spray may be necessary to kill the beetles if a heavy infestation has developed. The best remedy, however, is complete burning of all the garbage and frequent removal of all unburned debris.

Hibernating Insects

The elm leaf beetle and lady beetles frequently crawl in through cracks in houses in the fall. During warm days in late winter and early spring they become active and are seen flying about the house. Neither does any damage to the building or its contents. They can be killed by space sprays or aerosols if necessary.

Wasps also use dwellings for hibernation. Furthermore, they may nest in attics if openings to the outside are available. They, too, may be killed by aerosols or space sprays.

Beetles from Fireplace Wood

Several species of long-horned wood-boring beetles may be brought into houses in fireplace wood. The larvae continue to develop and the beetles emerge in late winter or early spring. These beetles cannot infest the framework of the house or damage anything stored in houses. They are simply a nuisance and unless they emerge in unusually large numbers no control measures are necessary. A household spray is effective in killing them.